
enova
RESULTS AND ACTIVITIES
2015

Content

Vibrant change

Never before has the interest in energy and climate issues been greater in Norway. More and more people are opening their eyes to what Norway as a nation needs to do in order to adapt to a low emission society. This is also reflected in the markets Enova works in. Increasingly, companies are seeing the commercial opportunities that lie in good and viable energy and climate measures. The trend from 2014 continues, and 2015 was yet another excellent year with regard to the number of applications for support of energy and climate projects. This is gratifying. We will need more people on our side to face the upcoming challenges.

Popular transport measures

A constructive, hands-on dialogue with the markets is a necessity when it comes to sound management of the Energy Fund. Enova's role involves triggering projects that provide businesses and public enterprises with a faster track to sustainable solutions. We work every day with our clients to find projects that, over time, will create lasting market change toward the green transition.

We entered into a new and exciting market in 2015. Starting in January, we were tasked with increasing energy efficiency and reducing greenhouse gas emissions from the transport sector. This means that Enova is operating in markets that represent well over 90 per cent of overall Norwegian greenhouse gas emissions. We have laid a solid foundation within our new market area for a long-term work effort in close cooperation with the market players, and we launched several well-received measures in early autumn. We would particularly like to point out the maritime sector, which represents a multitude of exciting possibilities through its long and proud tradition and complete value chain. We also followed up the charging infrastructure strategy that we submitted to the Government before the summer, by awarding funding commitments to 77 new quick-charging stations for electric cars. This is the first step towards a seamless charging infrastructure along Norwegian highways.

Records in industry and buildings

Industry is still the main locomotive in Norway's conversion to renewable energy. The number of projects in this area has exceeded all previous years. We are also seeing more projects from industries that we traditionally have not worked with before. In 2015, we contributed financing to projects within both aquaculture and oil and gas.

We are seeing the same trend in our other major area, non-residential buildings. We have received a record number of applications for upgrades in existing buildings. The potential here is still vast and we are looking forward to a continued high activity level in this area. Within new buildings, we supported a number of innovative and energy-efficient buildings in 2015 that help develop this market.

The most positive development over the past year is the large influx of new energy and climate technology projects. It is clear that more and more market players are starting to see a commercial potential in investments in green technology. We are seeing more projects in more sectors than in previous years. Development of technology is essential for triggering renewable and efficient solutions that enable a low emission society. Norwegian business and industry can also contribute to reducing global emissions by developing and exporting such technology.

More energy for the low emission society

Enova supported 988 projects in business and industry and the public sector, and also awarded support to 3 858 energy measures in residential buildings in 2015. The largest projects can be found within new energy and climate technology. We awarded a NOK 380 million funding commitment to the Glencore Nikkelverk in Kristiansand for more energy-efficient copper production, and NOK 280 million to Alcoa for a demonstration plant for advanced smelting technology.

Overall, we awarded NOK 2.6 billion. This will yield a total energy result of 1.8 TWh.

2016 will be yet another important year for Enova. We are fully committed to achieving our objectives in the current agreement term, while we also need to prepare for potential upcoming tasks. The Paris Climate Agreement sets the course for the journey we will be taking over the next few years. Continued value creation within the framework of a low emission society will require us to exploit our renewable energy resources efficiently, and to make much larger investments in innovation and technology development.

As more and more people start to use known solutions and to develop new ones, a steady increase in the number of organizations can reconcile value creation with low emissions. Good ecologically sustainable solutions are becoming financially viable. This helps us pave the way for a low emission society in partnership with the markets. We call this ***vibrant change.***

Nils Kristian Nakstad
Chief Executive Officer

Part II
Introduction to the organization and key figures

Key figures 2015

In 2015, Enova supported projects with a total energy result of **1.8 TWh** through the Energy Fund, distributed among energy efficiency measures, conversion and increased utilization of renewable energy.

23%

NEW ENERGY AND CLIMATE TECHNOLOGY

In 2015, **54 projects** were granted funding commitments from Enova

3%

RESIDENTIAL BUILDINGS

In 2015, 198 p**rojects** and more than 3800 energy measures in residential buildings were granted support from Enova

20%

NON-RESIDENTIAL BUILDINGS

In 2015, **454 projects** were granted support from Enova

35%

INDUSTRY AND NON-INDUSTRIAL PLANTS AND FACILITIES

In 2015, **225 projects** were granted support from Enova

10%

RENEWABLE HEATING

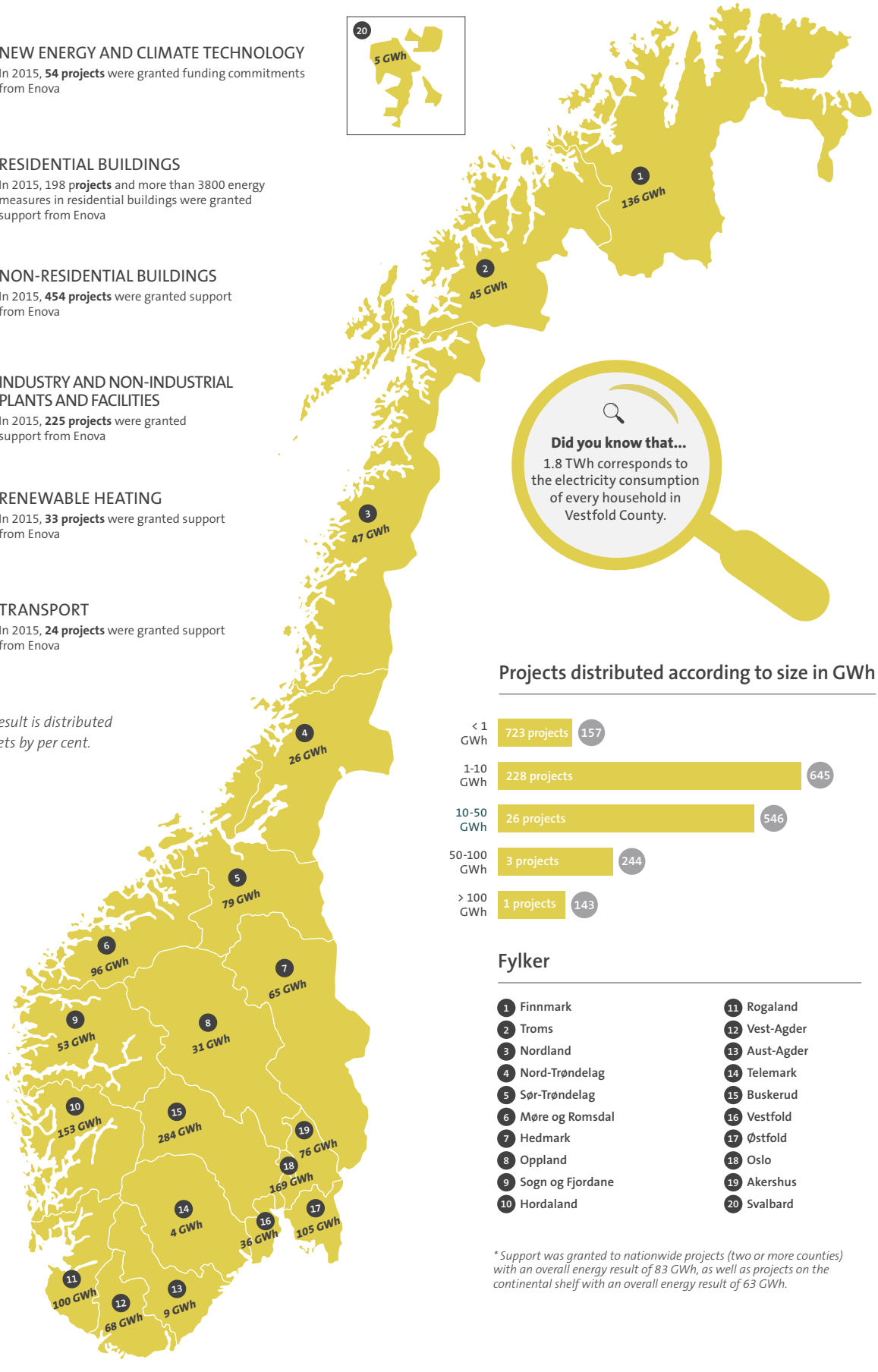
In 2015, **33 projects** were granted support from Enova

9%

TRANSPORT

In 2015, **24 projects** were granted support from Enova

The energy result is distributed among the markets by per cent.



Did you know that...

1.8 TWh corresponds to the electricity consumption of every household in Vestfold County.

Projects distributed according to size in GWh

Fylker

1. Finnmark
2. Troms
3. Nordland
4. Nord-Trøndelag
5. Sør-Trøndelag
6. Møre og Romsdal
7. Hedmark
8. Oppland
9. Sogn og Fjordane
10. Hordaland
11. Rogaland
12. Vest-Agder
13. Aust-Agder
14. Telemark
15. Buskerud
16. Vestfold
17. Østfold
18. Oslo
19. Akershus
20. Svalbard

** Support was granted to nationwide projects (two or more counties) with an overall energy result of 83 GWh, as well as projects on the continental shelf with an overall energy result of 63 GWh.*

Management

Nils Kristian Nakstad

Chief Executive Officer

Nils Kristian Nakstad has been the CEO of Enova since 2008. He is a chartered engineer from the Norwegian University of Science and Technology (NTNU) and has extensive experience from research and industry, including from Sintef, Hydro, ReVolt Technology and participation in the seed capital and venture environment. Nakstad was a member of the Energy Committee that delivered the "Energy Report – value creation, security of supply and the environment" in 2012. He holds multiple board positions, e.g. as a board member in NTNU and deputy chair of the Norwegian Ski Federation's cross-country committee.

Audhild Kvam

Marketing Director

Kvam has been the Marketing Director since 2013. She has an MBA in business administration from Pacific Lutheran University in the US. Kvam was hired by Enova as the Director of the Energy Efficiency Department in August 2010. She has experience as the VP Strategy and Marketing in Powel ASA, and worked as an information director in Trondheim Energi and managing director of Trondheim Energiverk Kraftsalg AS. She is a board member of Energi 21.

Gunn Jorun Widding

Director of Enterprise Management

Widding has been the Director of Enterprise Management since 2013. She is a chartered economist from the Bodø Graduate School of Business (HHB). She also has a number of courses from the university colleges in Sør-Trøndelag, Bodø and Lillehammer. Widding has previous experience from management positions in the travel industry, project management and several executive positions in EVRY.

Øyvind Leistad

Programme Director

Leistad has been the Programme Director since 2013. He has an educational background in resource economics, financing and investment from the Agricultural University of Norway. Leistad was hired by Enova as a senior adviser in 2005. From 2007-2012, he was the Director of the Energy Production Department in Enova. Leistad has experience from the Ministry of Petroleum and Energy, where he worked with administration of various policy instruments related to stationary energy supply and renewable energy, and energy efficiency in particular. He is a member of the programme board for ENERGIX in the Research Council of Norway.

Organization

Enova's foremost asset is the expertise of each employee, and the way in which we make use of this through good teamwork.

As an organization, we want to support the individual's strengths and their desire to do their best. Our values (clear, inspiring, responsible and market-oriented) set guidelines for how we want to conduct ourselves, both within the organization and externally. We exercise value-based management, which means that we seek to integrate these values into all parts of the workday, related to decisions, how we act, prioritization and involvement. We shall stand out as being credible, competent and professional in the market. Important preconditions for achieving this include clear role distribution, delegation of responsibility and close cooperation between the different units in the organization.

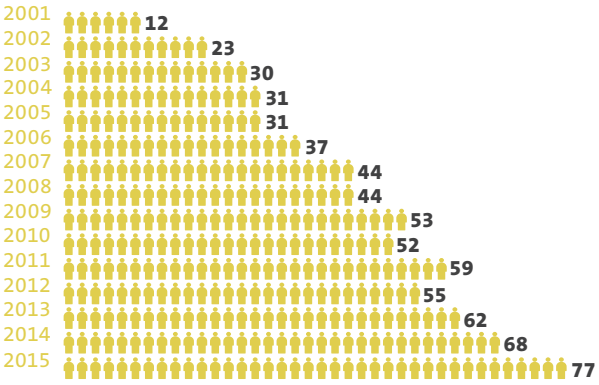
Our annual employee survey confirms our good working environment. The employees largely identify with Enova's values and goals, and we have passionate employees who want to contribute to continuous learning and development. We develop each employee's expertise through exciting tasks, the chance to work across the organization and through external opportunities. Every employee has an individual development plan. We believe that a good working environment and good relationships with colleagues are important for each person's development, which is why we facilitate various social measures. We want competent managers who are good role models in exercising our values. We continuously work on management development based on exercising values, and developing the strengths of each manager and employee.

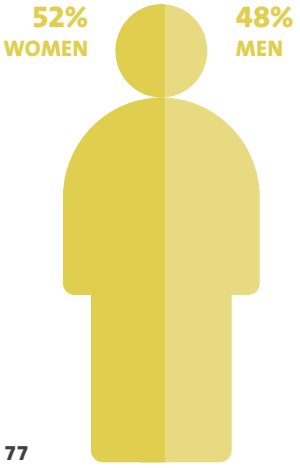
Enova aims to have a flexible organization to ensure that we are well-equipped to further develop and expand our mandate. In 2015, we launched the Enova Subsidy, a rights-based programme for households, and we took over Transnova's tasks of making transport climate-friendly. A majority of Transnova's employees chose to continue their work in Enova, which we found very positive. Their expertise combined with Enova's experience from other sectors has contributed to reinvigorated efforts in more climate-friendly transport.

In the transition to 2016, we have started preparing the organization for a new agreement term starting in 2017, through several development projects.

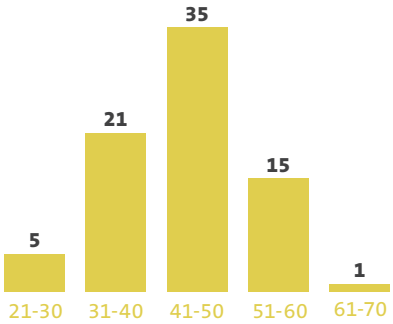
At 31 December 2015, Enova had 77 permanent employees - 40 women and 37 men. We have a turnover of 2.6 per cent. The average age is 43. Our employees' education and work backgrounds span many different disciplines. Enova believes that equality and diversity in the workplace are essential. Thirty-one per cent of managers in the organization were female and 69 per cent were male, and we are working to increase the percentage of female managers on all levels.

DEVELOPMENT IN NUMBER OF EMPLOYEES





AGE COMPOSITION



Corporate social responsibility

Enova creates vibrant change. We will create lasting changes in the availability of and demand for efficient and renewable energy and climate solutions, strengthen the security of supply and contribute to reducing greenhouse gas emissions. With our support, more private and public enterprises can fulfil their social responsibility by making sustainable environmental and climate decisions.

Enova promotes increased knowledge in society about the possibilities of using energy-efficient, environmentally and climate-friendly solutions. We work to change attitudes among both businesses and individuals. We implement measures with the goal of influencing the next generation's decisions regarding energy and climate. The two most important measures are Nasjonal innovasjonscamp (national innovation camp) in cooperation with Ungt Entreprenørskap for students in upper secondary school and Enova's Energy Challenge, a learning tool for the intermediate grades in primary and lower secondary school.

Enova works purposefully towards applying our ethical guidelines and values as a guide for ethically responsible behaviour. This is a key element in our organizational and management development. Enova's procurement processes stipulate requirements for ethical trade and to prevent social dumping. Enova also facilitates trainee positions for people with special follow-up needs.

Enova works to minimize the company's impact on the external environment. Enova has offices with low energy consumption and renewable energy sources. In 2015, we worked towards BREEAM certification of our offices, and are cooperating with the property owner regarding measures within energy use, water consumption and waste recycling. We encourage employees to choose environmentally friendly transport to and from work. This reduces our negative impact on the environment.

There were no reported whistleblower cases or other incidents involving breach of sound business practices in 2015. Enova takes an active approach to ensure our work is transparent and open. Ethical business conduct is a fundamental practice for Enova.

Enova will continue its work on corporate social responsibility, ethics and exercise of values in 2016, integrated in objectives, strategies, management of the enterprise and in the management and organizational development. We will work to clarify and exercise this in our work leading up to the new agreement term.

Our values

- ☞ **Clear**
- ☞ **Responsible**
- ☞ **Inspiring**
- ☞ **Market-oriented**

Values and ethical guidelines
Our ethical guidelines and fundamental values are our rules of conduct for behaving ethically and in a socially responsible manner in all our activities:

- we have goals, values and ethical guidelines that describe the fundamental attitudes and the philosophy that shall characterize our organization
- we exercise corporate governance principles where we emphasize openness, transparency, responsibility, equality and long-term perspectives
- we set high integrity requirements, which e.g. entail a zero tolerance policy for any form of corruption, and the promotion of free market competition
- we are open, honest and attentive in our communication and contact with the outside world
- we do not discriminate based on gender, religion, nationality, ethnicity, social groups or political viewpoints
- we are attentive to changes in what society in general considers good business practices and we evaluate and change our own practices when necessary

Part III
Activities and results from the year

Part III A:

Reporting – the Energy Fund 2012–2015

Enova's main objective

The objective is described as follows in the agreement between the Ministry of Petroleum and Energy (MPE) and Enova for the period 2012-2016:

The objective of Enova and the Energy Fund is to promote environmentally friendly restructuring of energy end-use and energy production, as well as development of energy and climate technology.

The mandate was expanded from 2015 to include the transport sector.

The objective is elaborated in seven main objectives:

- Development and introduction of new energy and climate technologies in the market.
- More efficient and flexible use of energy.
- Increased use of other energy carriers than electricity, natural gas and fuel oil for heating.
- Increased use of new energy resources, including through energy recovery and bioenergy.
- More well-functioning markets for energy efficient, environmentally and climate-friendly solutions.
- Increased awareness in society regarding the possibilities of utilizing energy efficient, environmentally and climate-friendly solutions.
- Reduced greenhouse gas emissions in the transport sector.

The four first main objectives cover the areas where quantifiable energy results are natural. The main objectives overlap to some extent and cannot be added up to a total sum. The energy result from management of the Energy Fund for the period 2012 to the end of 2016 must constitute at least 7 TWh. The primary goal of investments in new energy and climate technology is that it will contribute to reducing greenhouse gas emissions and support the development of restructuring energy end-use and energy production in the long term by developing and utilizing technologies and new solutions that can contribute to this. The main objective relating to reduced greenhouse gas emissions in the transport sector is new from 2015. Results from transport (climate results) are credited during the agreement term as contributions towards achieving the result goal of 7 TWh.

Main objective 1: Development and introduction of new energy and climate technologies in the market.

This main objective is a direct result of the Climate Agreement in the Storting in 2012. Development of new energy and climate technology is very important in order to solve the global climate challenges. However, these new technologies must reach the market in order to have the desired impact.

With its capital base and proximity to the market, Enova can bring technology initiatives from the pilot phase and over to market introduction. This is a critical phase for the projects, where they will demonstrate to the market that the technology functions under normal conditions. This is also a capital-intensive phase.

Making it through the critical introduction phase is no guarantee for success in the market. Some technologies succeed and gain a foothold which can be built upon. However, for many technologies, the first encounter with the market will reveal a need to test new approaches and concepts, which may entail having to take one or more steps backwards in the innovation chain. Other technologies are weighed and found wanting in the competition with other technological solutions. When Enova awards support to technology projects, this is with the expectation that many of them will be successful, but not all. Enova cannot pick out the winners in advance. Our role is allowing the technologies to be tested in the market, and then the market can determine the winners.

Enova supported technology development within the industry, non-residential buildings, residential buildings, non-industrial plants and facilities, renewable power, renewable heating and transport markets in 2015. A total of 54 technology projects were granted support. Overall, this amounted to NOK 1.4 billion.

Main objective 2: More efficient and flexible use of energy.

More efficient and flexible use of energy is key in order to strengthen the security of supply in the short and long term, both through reducing peak loads and by increasing the ability to swap energy source based on price and availability.

Improved energy efficiency projects, within buildings and industry in particular, help us achieve this main objective. The choices made with regard to building structure and production processes will determine energy end-use for many years to come. If we do not take advantage of the possibilities available in choosing energy-efficient solutions, we will be bound to unnecessarily high energy consumption for many years in the future. In the same way, many of the choices we make today influence how flexible and robust the energy system will be in the next decades.

Projects within Enova's support programmes for energy efficiency are fulfilling this main objective. In 2015, Enova supported energy efficiency projects with an energy result of 1 170 GWh. This corresponds to the electricity consumption of every household in Kristiansand and Fredrikstad put together.

Facilitation for use of other energy carriers than electricity, for example through installation of water-borne heating and increased use of district heating, also contributes to increased flexibility in energy systems. This is discussed further below.

Main objective 3: Increased use of other energy carriers than electricity, natural gas and fuel oil for heating.

Renewable water-borne heating contributes to increased utilization of energy carriers other than electricity and fossil fuels for heating. This provides increased energy flexibility and more options for efficient utilization of our renewable energy resources. Less use of fossil energy carriers results in a direct climate gain in the form of reduced greenhouse gas emissions. Use of more energy carriers also provides increased energy flexibility and more options for efficient utilization of renewable energy resources. Furthermore, increased use of energy carriers for heating such as bioenergy and district heating will reduce pressure on the power balance during dry and cold years.

Enova's programmes for district heating and heating plants are particularly aimed at this main objective. In 2015, Enova supported projects with renewable heating corresponding to 367 GWh, of which about 40 per cent was related to conversion. This corresponds to the energy consumption of about 22 000 households.

Main objective 4: Increased use of new energy resources, including through energy recovery and bioenergy.

Norway holds a unique position globally with regard to the high percentage of hydropower, and the electricity certificate system will further increase the access to renewable power in Norway. We also have considerable potential for increased energy production from energy resources that are not covered under this system. Conversion to renewable energy resources yields direct climate results. Bioenergy and heat recovery from industry are examples of such resources.

Enova has programmes within industry, heating, non-residential buildings and residential buildings that support this main objective. In 2015, Enova supported projects that, overall, provide 588 GWh in increased utilization of renewable energy sources and carriers. This energy volume corresponds to the energy consumption of the entire city of Drammen.

Main objective 5: More well-functioning markets for energy-efficient, environmentally and climate-friendly solutions.

Enova will make the efficient and environmentally energy options the preferred solutions in the market. By supporting innovators and early users, we create a market development where the good solutions become more competitive as a result of increased demand and reduced unit costs.

Enova has several instruments that will create better markets for future-oriented energy, environmentally and climate-friendly solutions. Through the subsidy programmes, we increase demand for future-oriented energy solutions in the professional market. Furthermore, we help develop the supply side by testing and making products available to the market. Through energy measures in residences, we are stimulating demand in private households. We are also familiarizing consumers with the good solutions already in the market.

Main objective 6: Increased awareness in society of the possibilities of utilizing energy-efficient, environmentally and climate-friendly solutions.

Information and knowledge impact our attitudes and our behaviour. Enova therefore pursues systematic and targeted communication measures to increase use of efficient and environmentally friendly energy solutions, through both marketing and visibility in the media. We give advice to households and the professional market to increase awareness regarding environmentally friendly energy solutions, highlight possibilities and trigger measures. Much of this learning takes place through implementation of projects. Enova offers professional advisory services through application processing and client gatherings. In 2015, more than 4 500 private individuals received subsidies after implementing energy measures. Enova targets children and young people through energy and climate learning tools that are used in school. Enova also has a website and a nationwide information and advisory service that reaches a diverse audience through telephone, email and Facebook.

Main objective 7: Reduced greenhouse gas emissions in the transport sector.

Enova's work within environmentally friendly transport will contribute to reduced greenhouse gas emissions through more environmentally friendly use of energy, more energy-efficient forms of transport and a reduced transport scope. Enova has grouped the transport sector into three parts: land-based passenger transport, land-based freight transport and maritime transport.

Enova established subsidy programmes within all transport groups in 2015. Among other things, Enova supports development of charging infrastructure and onshore power, biofuel production and development of new transport-related energy and climate technology. Currently, Enova does not have a system which enables recording results in greenhouse gas emissions from all transport projects. Energy and climate results have been calculated for transport projects that received funding commitments in 2015, with the exception of projects in the Support for charging infrastructure programme. Overall, these projects contribute 32 ktonnes of CO_2 equivalents in annual reduced greenhouse gas emissions. This volume of greenhouse gases corresponds to about 500 passenger cars that drive to and from Oslo-Trondheim every day.

Objectives and results of the Energy Fund

In 2015, Enova signed project contracts with a total energy result of 1.8 TWh, distributed between 1 348 GWh for ordinary energy projects and 409 GWh for projects within new energy and climate technology. In total, Enova allocated NOK 2.8 billion, of which NOK 1.2 billion went to ordinary energy projects and NOK 1.4 billion went to projects within new energy and climate technology. Compared with 2014, the energy result is seven per cent higher, while financial support declined by 16 per cent. An important reason for this is that the technology projects supported in 2015 yielded higher energy results per krone than in 2014.

The activity level in 2015 was high. Approximately 1 000 projects received funding commitments. Starting in 2015, Enova took over responsibility for transport, in addition to stationary energy consumption. A total of 32 transport-related projects received funding commitments in 2015. The Enova Subsidy is another important programme, which gives homeowners the right to partial reimbursement of their expenses when investing in energy-smart solutions in their residence. About 3 800 homeowners received subsidies in 2015.

Industry delivered good results in 2015. Like the previous year, industry projects contributed the largest energy results in 2015. Industry projects pledged 765 GWh. The ten largest industry projects have double the energy result of the other 211 industry projects. About 40 per cent of Enova's overall energy results in 2015 came from industry.

The energy result for non-residential buildings showed slight progress compared to the previous year, with 360 GWh pledged. The number of projects increased somewhat in relation to 2014, and market players are showing steady interest. About 20 per cent of Enova's overall energy results in 2015 came from non-residential buildings.

Transport was a new focus area for Enova in 2015. The first six months were spent preparing new transport strategies and new programmes were launched in the market in the second half of the year. Following a slow start to the year in relation to the number of applications, development was positive throughout the autumn and 260 GWh was pledged in 2015.

Within renewable heating, Enova signed contracts with projects with a total energy result of 176 GWh. The number of projects has dropped, and the energy result is lower than in 2014. The low power prices result in lower profitability in the district heating market and affect the willingness to invest. At the same time, district heating plants in the largest cities have been fully developed, and the applications we receive now are related to expansion and densification.

Enova is seeing increased interest from the market for renewable power, where five projects totalling 34 GWh received support for introduction of new technology in 2015.

The projects within non-industrial plants and facilities contributed 65 GWh in 2015, twice as much as in 2014. The largest supported project is 40 GWh, and constitutes more than 60 per cent of the contractual energy result for non-industrial plants and facilities.

Residential buildings delivered an energy result of 97 GWh in 2015. This market is characterized by many small projects. We also carried out a competition for projects that can map the effect from various communication solutions from digital electricity meters (AMS) on power consumption in Norwegian households. All electricity customers will receive new meters by 2019. These projects represent 54 GWh.

FIGURE 3.1 OBJECTIVES AND RESULTS OF THE ENERGY FUND

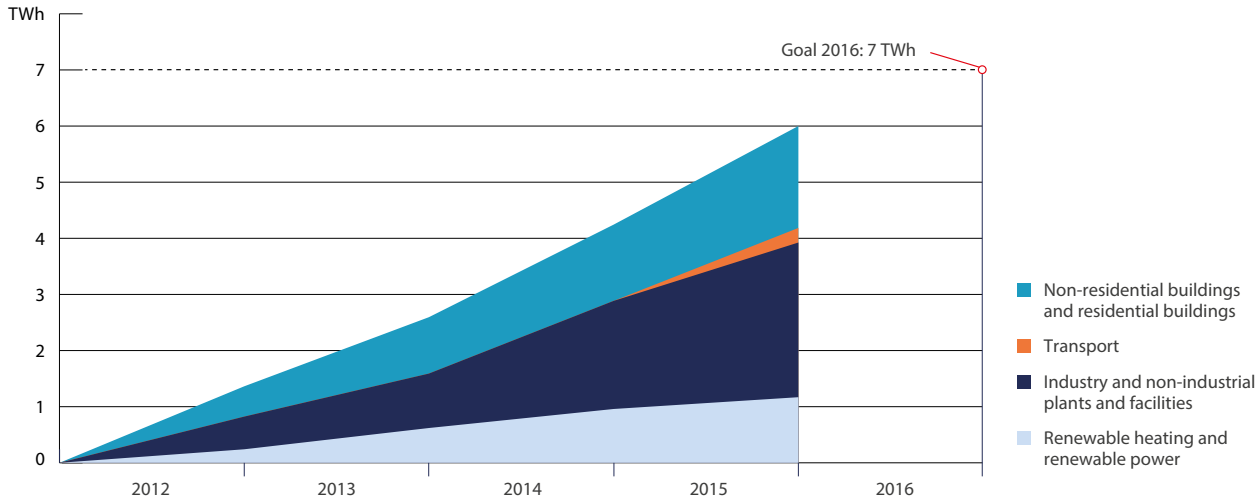


Figure 3.1: The figure shows accumulated energy results distributed by market in the agreement term 2012-2016. The figures are corrected for cancelled and final reported projects.

2015 was characterized by an economic downturn in Norway, with a significant decline in petroleum investments being the biggest driving force. The price of oil has dropped dramatically over the past two years. A weaker NOK has helped improve the situation for the export industry, but businesses and industry have relatively low expectations for 2016. The global economy has experienced weak growth, but growth is expected to slowly improve in the OECD area going forward. Norway's trade partners are approaching an economic upturn, but the growth rates are lower than before the financial crisis[1].

Enova's subsidy programmes may have a good impact in an economic downturn, due to an increased focus on costs by the companies and increased interest in completing energy efficiency projects. Even so, the level of Enova's result goals for the 2012-2016 agreement term is based on a number of assumptions that are valid to a varying extent. Declining energy prices result in poorer incentives for energy efficiency measures, but could also provide better opportunities for developing new energy and climate technology. Enova considers the number of projects, distribution of projects between the markets and contractual result in 2015 to be at a satisfactory level.

The overall result goal for the period 2012-2016 is 7 TWh. At the end of 2015, Enova has signed contracts for 6 TWh during the period, corrected for cancellations and final reported projects. We need to take into account a certain level of cancellations in 2016 as well, which could lower the energy result for the entire agreement term. We conduct current risk assessments of goal achievement based on our knowledge of the market, close dialogue with market players regarding potential projects, and regarding the development in already signed contracts. In addition to the factors in which Enova influences and prioritizes measures, the results are affected by a number of external circumstances outside of Enova's control.

TABLE 3.1 THE ENERGY FUND'S ENERGY RESULTS AND ALLOCATIONS 2012-2015

	2012		2013		2014		2015		Total	
	GWh	MNOK	GWh	MNOK	GWh	MNOK	GWh	MNOK	GWh	MNOK
Renewable heating	239	227	374	444	339	377	176	234	1 127	1 282
Renewable power	3	5	6	13	0,5	1	34	50	43	69
Industry	560	488	375	271	925	2 168	765	1 278	2 625	4 206
Transport	-	-	-	-	-	-	260	281	260	281
Non-industrial plants and facilities	22	13	13	35	31	31	65	83	131	161
Non-residential buildings	512	558	437	666	318	420	360	496	1 627	2 140
Residential buildings	28	83	28	121	35	78	97	165	188	446
International projects	-	4	-	7	-	2	-	5	-	17
Advisory services and communications	-	58	-	69	-	58	-	56	-	242
External analyses and development measures	-	36	-	28	-	35	-	26	-	126
Administration	-	98	-	110	-	129	-	148	-	484
Total	**1 363**	**1 568**	**1 233**	**1 764**	**1 649**	**3 300**	**1 757**	**2 821**	**6 001**	**9 453**
Of which:										
Ordinary energy projects	1 356	1 304	1 178	1 389	1 507	1 342	1 348	1 214	5 389	5 249
New energy and climate technology projects	7	44	54	150	141	1 727	409	1 368	612	3 289

Table 3.1: The table shows aggregated energy results and resources allocated from the Energy Fund in the period 2012- 2015, corrected for cancelled and final reported projects as of 2015. Projects within the programmes for new energy and climate technology are distributed in the respective markets. The Support for biogas and biofuel programme was reported under the Renewable heating market during 2012-2014. In 2015, the programme was reported under the Transport market.

[1] *Sources: Statistics Norway Economic analyses 4/2015, Statistics Norway's economic barometer for industry and mines, 4th quarter 2015, Thompson Reuter Datastream, NHO Economic overview 3/2015.*

Management of the Energy Fund's resources

Each year, the Energy Fund is supplemented with new funds that will be used to fulfil the mission in the agreement between the MPE and Enova, and the annual Assignment Letter from the MPE. The income in the Energy Fund comes from the return on deposits in the Fund for climate, renewable energy and energy restructuring, and from the parafiscal charge on the grid tariff (small additional charge on electricity bills). Overall, this income constituted just under NOK 2.1 billion in 2015. Funding totalling NOK 0.2 billion was also added in connection with the work within transport and transfer to cover the obligations in projects initiated by Transnova and for which Enova has assumed responsibility.

Enova can allocate transferred funds from previous years, returned funds from cancelled projects, as well as the interest income from the funds that are sitting in the Energy Fund. These additions constituted just over NOK 1.8 billion in 2015. Enova thus had an overall framework of NOK 4.1 billion in 2015.

A decision was made by the Storting in connection with the Climate Compromise in 2012 to strengthen the Fund for climate, renewable energy and energy restructuring with NOK 25 billion up to and including 2016, creating a total volume of NOK 50 billion. In line with this, NOK 5 million was added to the Fund at the beginning of 2015. In the 2015 national budget, the Government also decided to further strengthen the efforts through a capital increase of another NOK 4.25 billion to the Fund for climate, renewable energy and energy restructuring. Most of the return on these deposits will be added to the Energy Fund in 2016.

When Enova decides to award support for projects, the amounts are earmarked in the Energy Fund as commitments. The relevant amount is then disbursed in arrears based on actual project costs. The earmarked amount in the Energy Fund is released for other projects if projects are cancelled.

Enova's ability to transfer unused funds from one year to the next is one of the Energy Fund's strengths. This provides a flexibility that is particularly important for major, capital-intensive individual projects. These are projects that Enova normally has a close dialogue with for a long time prior to an application, but where it is often difficult to predict with any certainty when the projects are ready for a support decision. Major energy and climate projects often have a long project development time. The possibility of transferring funds gives projects assurance that the time of application and decision will not impact the outcome of the case processing. As an additional flexibility, Enova was able to award funding commitments in 2015 for up to NOK 400 million on top of the available funds in the Energy Fund, in accordance with a funding commitment authorization from the MPE.

The overall financing of Enova provides predictability for both market players and Enova, and thus the possibility to support large, individual projects, including full-scale production lines in industry.Enova has awarded funding commitments totalling NOK 2.6 billion in support for projects in 2015. These projects will trigger more than NOK 6 billion from the market. This will create total investments of more than NOK 9 billion in projects approved in 2015.

FIGURE 3.2 MANAGEMENT OF THE ENERGY FUND'S RESOURCES

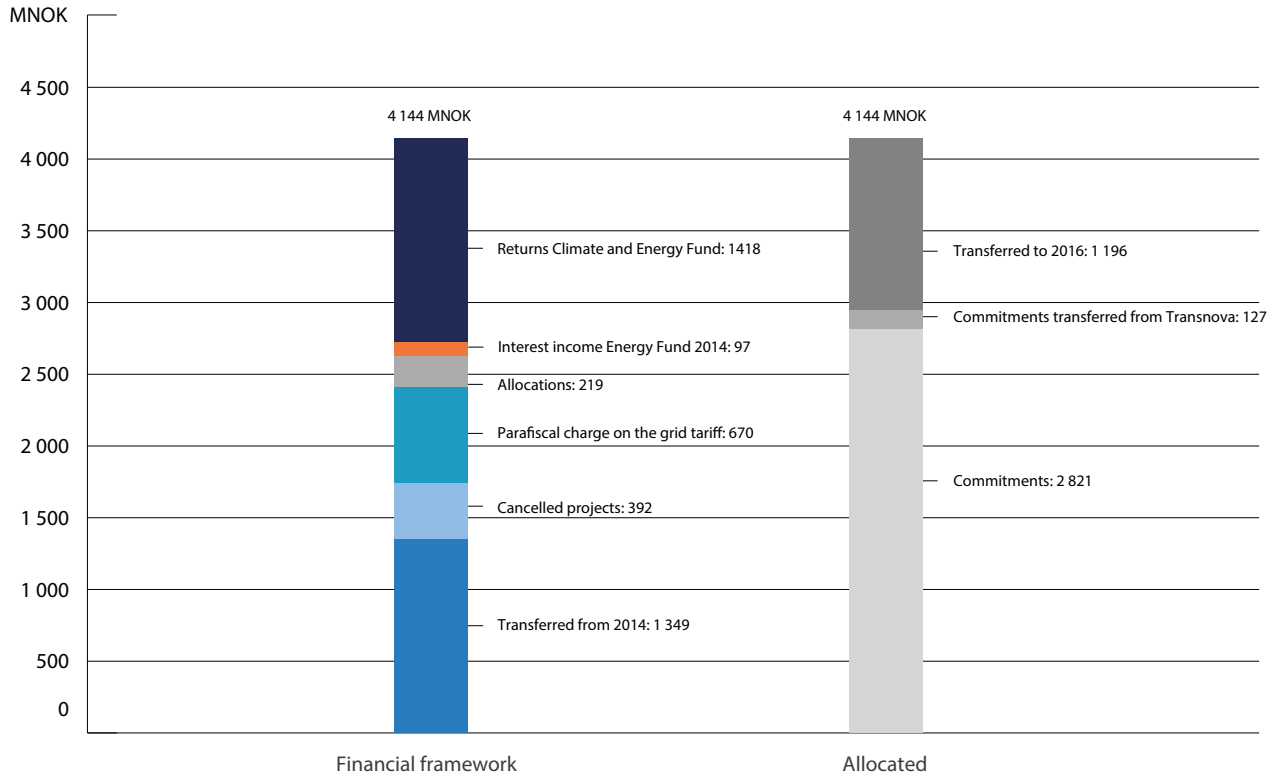


Figure 3.2: The figure shows a comparison of the Energy Fund's various sources of income and allocations thereof. Projects that are approved and cancelled in 2015 are not included in cancelled projects or commitments.

Climate reporting

So far, Enova has mainly supported energy projects, but these projects also have climate results. Either because the project entails reduction in fossil fuel consumption, or because the resources released and the technologies developed can replace fossil emissions in other areas. Enova supports technology projects that could, over time, be key in achieving the climate goals in Norway and globally, through spread of the technology. This section presents greenhouse gas accounts for projects supported by Enova in the period 2012-2015.

The climate accounts take a basis in the pledged energy result (kWh) figures for each project and emission factors for the various energy carriers. The results are reported in CO_2 equivalents, which indicate the combined effect of CO_2, as well as other types of greenhouse gases[2]. Enova supports measures within the categories: improving energy efficiency, restructuring from electricity and fossil energy sources to renewable energy sources and production/distribution of energy from renewable energy sources. Information about which energy source(s) are replaced in the greenhouse gas accounts is used for restructuring projects. For projects involving development of new production and distribution capacity, we make an assumption regarding which energy source(s) would be used if the project was not carried out. The assumption regarding alternative energy source(s) in the projects is based on price assumptions for electricity and fuel oil[3]. As an assumption regarding replaced energy is used, there is uncertainty associated with calculation of the climate result in these projects. For 2015, these projects correspond to 63 per cent of the total energy result.

Some of our projects, particularly within the new technology programmes, can contribute to greenhouse gas reductions as a result of processes that are independent of the pledged kWh. One example is reduction of process emissions, which is reported in Appendix A. Projects within new energy and climate technology 2012-2015.

Method and assumptions

The method, scope and assumptions used as a basis for the climate accounts are essential for the calculations and the result achieved. There is a difference if the calculation takes into account a lifecycle perspective where emissions in all project phases are included (construction, operations, realization), or if the calculation only includes emissions related to the operations phase in the projects. Our calculations only take into account changes in greenhouse gas emissions related to the operations phase in the projects. This provides us with an easy way to assess projects, and is quite similar to the national climate accounts.

National or regional/global perspectives

Another example of the choice of system limit and how this will impact the climate accounts is whether the climate calculations are made based on a national or a regional/global perspective, see Figure 3.3. For example, reduced electricity consumption is expected to have no or minor climate reward if Norway is used as the system limit. This is because Norwegian power production is mainly renewable. In 2014, the renewable power accounted for 98 per cent (96 per cent hydropower, 1.5 per cent wind and 0.2 per cent thermal power from biofuel)[4]. In a scenario looking at an expanded region, such as the Nordics or Europe, export of power produced in Norway could have a climate reward if it replaces fossil-based sources in other countries.

FIGURE 3.3 SYSTEM LIMITS FOR THE GREENHOUSE GAS ACCOUNTS

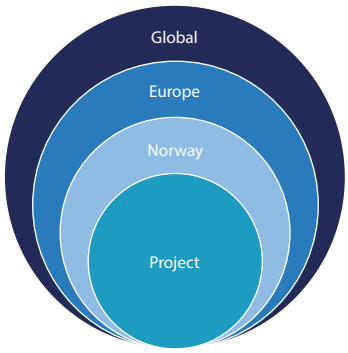


Figure 3.3: The Figure shows how the climate effect of the projects depends on the system limit chosen in the greenhouse gas accounts.

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[2] *Enova uses Global Warming Potential with a 100-year perspective: GWP100 years.*
[3] *Enova's price assumption for electricity is based on sale of 3-year forward contracts at NordPool (sliding average last six months). As an addition to the actual electricity price, we calculate a price for the electricity certificates for the electricity certificate period 2015-2035. Enova's price assumption for light fuel oil is based on sale of two-year future contracts for Heating Oil at New York Mercantile Exchange (NYMEX, sliding average last six months), plus government taxes and fees.*
[4] *https://www.nve.no/elmarkedstilsynet-marked-og monopol/varedeklarasjon/varedeklarasjon-2014/*
[5] *http://www.ecoinvent.org/*

Energy versus climate results

The projects supported by Enova contribute to achieving the objective of increased security of supply and/or reduced greenhouse gas emissions. For some projects, contributions toward one objective may have a negative impact on the other objective. One example is the projects that involve conversion from electricity to a heating plant with fossil fuels in the energy mix to cover peak loads. Enova only supports the renewable share of the project, but overall, the project will contribute to increased domestic greenhouse gas emissions.

Climate result from more efficient fossil fuel consumption

Table 3.2 shows the estimated volume reduction of greenhouse gas emissions as a result of measures that contribute to direct reductions in consumption of fossil fuels such as coal, oil and natural gas, distributed by market. The calculations were based on the two measures improving efficiency of fossil sources and conversion from fossil to renewable energy. The emission coefficients for the various energy carriers in calculations for the 2012-2015 period came from the Ecoinvent database[5].

TABLE 3.2 CLIMATE RESULT FROM REDUCTION OF FOSSIL FUELS FOR PROJECTS APPROVED IN 2012-2015

Market	2015	2012-2015
	ktonnes CO_2 -eqv.	ktonnes CO_2 -eqv.
Renewable heating	13	113
Renewable power	-	-
Industry	57	154
Transport	32	32
Non-industrial plants and facilities	1	8
Non-residential buildings	16	54
Residential buildings	2	8
Total	**120**	**370**

Table 3.2: The table shows climate results, measured in CO_2 equivalents, achieved in each market for measures that relate to improved energy efficiency in fossil energy sources or conversion from fossil to renewable energy.

Enova estimates that the project portfolio from 2015 will contribute to reducing greenhouse gas emissions by about 120 kilotonnes of CO_2 equivalents, while the result so far in the agreement term is 370 kilotonnes of CO_2 equivalents. The results in Table 3.2 only include reductions in greenhouse gas emissions for measures that reduce fossil fuel consumption. Other effects, for example changes in process emissions triggered through the projects, have not been included, but are reported in Appendix A. Projects within new energy and climate technology 2012-2015.

The industry and transport markets achieve the best climate results in connection with reduced fossil fuel consumption in 2015. Non-residential buildings and renewable heating are next. The results within residential buildings have declined compared to 2014 as a result of fewer contractual results in connection with phase-out of oil boilers over the past year.

Projects from enterprises subject to quotas in the EU's quota system

According to the Norwegian Environment Agency, 140 Norwegian enterprises in offshore oil and gas, industry and aviation in the EU/EEA area are subject to the EU's quota system[6]. About half of Norwegian greenhouse gas emissions come from companies that are part of the quota system. Table 3.3 shows that Enova has supported 39 projects from enterprises subject to quotas in 2015. These projects contributed to reducing greenhouse gas emissions by about 40 kilotonnes of CO_2 equivalents.

[5] *http://www.ecoinvent.org/*

TABLE 3.3 NUMBER OF PROJECTS IN 2015 WHERE ENOVA SUPPORTED MEASURES IN ENTERPRISES SUBJECT TO QUOTAS[1]

Subject to quotas (EU-ETS)	Market	Number of projects	Pledged energy result	Climate result from reduced consumption of fossil fuels
		Stk	GWh	ktonnes CO_2 -eqv.
Subject to quotas		**39**	**431**	**40**
	Renewable heating	11	52	5
	Industry[2]	27	333	30
	Transport	1	46	5
Not subject to quotas		**949**	**1 327**	**69**
Total		**988**	**1 758**	**109**

Table 3.3: The table shows the number of projects in 2015 where Enova supported measures in enterprises subject to quotas [1] in accordance with the EU Emissions Trading System (EU-ETS), as well as energy and climate result achieved through reduced fossil fuel consumption.

1 *http://www.miljodirektoratet.no/no/Nyheter/Nyheter/2015/Mai-2015/Kvotepliktig-klimagassutslipp-ned-i-industri-opp-i-olje-og-gass/*

2 *One of the 27 projects within industry is a pilot project with no direct energy result.*

Climate results from more efficient electricity consumption or conversion from electricity to renewable sources

Enova supports projects that contribute to more efficient electricity consumption or conversion from electricity to renewable energy sources. As Norwegian power production is mostly renewable, these projects result in minor or no reduced greenhouse gas emissions in the actual project, and make minor contributions towards reduced greenhouse gas emissions in Norway. Whether the projects contribute to the climate result in other areas will depend on what system limit is used as a basis. However, conservation of electricity in Norway could have a climate reward, if it replaces power based on fossil sources.

We have calculated the climate result of more efficient electricity consumption for the four different electricity mix scenarios and corresponding emission intensities; Norwegian power consumption mix, Nordic power production mix, European power production mix and coal power (EU average). The emission intensities for the power mixes were obtained from the European Environment Agency (EEA)[7], and the emission intensity for coal power came from the IEA[8]. As expected, the results are highly contingent on the assumptions related to the alternative power supply.

The climate result from reduced electricity consumption or conversion from electricity to renewable sources ranges from 43 to 1 155 kilotonnes of CO_2 equivalents for the period 2012-2015 if we use a Norwegian power consumption mix or European power production mix as a basis.

TABLE 3.4 CLIMATE RESULTS FROM MEASURES THAT REDUCE ELECTRICITY CONSUMPTION

Market	Norwegian power consumption mix [1]		Nordic power production mix [2]		European power production mix [3]		Coal power (EU average)[4]	
	2015	2012-2015	2015	2012-2015	2015	2012-2015	2015	2012-2015
	ktonnes CO_2 -eqv.	ktonnes CO_2 -eqv.	ktonnes CO_2 -eqv.	ktonnes CO_2 -eqv.	ktonnes CO_2 -eqv.	ktonnes CO_2 -eqv.	ktonnes CO_2 -eqv.	ktonnes CO_2 -eqv.
Renewable heating	2	9	9	56	45	269	99	597
Renewable power	-	0,1	-	1	-	3	-	8
Industry	5	20	29	107	138	505	306	1 121
Transport	-	-	3	3	12	12	28	28
Non-industrial plants and facilities	1	1	5	8	24	36	52	80
Non-residential buildings	1	10	4	57	21	273	46	608
Residential buildings	1	2	5	10	25	56	56	124
Total	**9**	**43**	**55**	**240**	**264**	**1 155**	**588**	**2 566**

Table 3.4: The table shows climate results from reduced electricity consumption or conversion from electricity to renewable energy sources for projects approved in 2012-2015 based on different electricity mix scenarios. The results are shown by market.

1 14 gCO_2 eqv./KWh (source: European Environment Agency)

2 83 gCO_2 eqv./KWh (source: European Environment Agency)

3 396 gCO_2 eqv./KWh (source: European Environment Agency)

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[6] *http://www.miljodirektoratet.no/no/Nyheter/Nyheter/2015/Mai-2015/Kvotepliktig-klimagassutslipp-ned-i-industri-opp-i-olje-og-gass/*

[7] *http://www.eea.europa.eu/data-and-maps/figures/CO_2-electricity-g-per-kwh/CO_2-per-electricity-kwh-fig-1_2010_qa.xls*

[8] *http://www.iea.org/media/workshops/2011/cea/topper.pdf*

New energy and climate technology

New technology in general, and energy and climate technology in the industry in particular, were the subjects of increased focus through the agreement between the MPE and Enova. The goal of the technology projects is to harvest experience that will contribute to expertise development, innovation and spread of the technology both nationally and internationally. Together with the market, Enova contributes to reducing greenhouse gas emissions and supporting broad-based energy restructuring development.

The agreement with the MPE stipulates that at least 10 per cent of the annual available funds in the Energy Fund be earmarked for technology projects within the agreement term. Enova has a programme for technology projects in every market in order to follow up this aspect of the agreement. NOK 1.4 billion in support was granted to 54 projects in 2015. This support constitutes more than half of the allocated funds in 2015.

A higher number of technology projects received support in 2015 compared to 2014, and the distribution of projects shows a good spread between markets. The largest projects within new technology came from industry, and this market received the most support and contributed the highest energy result. Non-residential buildings contributed the highest number of projects.

TABLE 3.5 SUPPORT FOR NEW ENERGY AND CLIMATE TECHNOLOGY 2012-2015

Market	Programme	2015			2012-2015		
		Number of projects supported	Contractual energy result	Contractual support	Number of projects supported	Contractual energy result	Contractual support
		Stk	GWh	MNOK	Stk	GWh	MNOK
Renewable heating		**1**	**0,2**	**3**	**4**	**3**	**17**
	Support for introduction of new technology	1	0,2	3	4	3	17
Renewable power		**5**	**34**	**50**	**11**	**43**	**69**
	Support for introduction of new technology	5	34	50	11	43	69
Industry		**10**	**209**	**958**	**26**	**374**	**2 659**
	Support for introduction of new technology	1	0,1	0,3	6	2	16
	Support for new energy and climate technology	4	209	921	15	371	2 607
	Pre-project support new energy and climate technology	5	-	36	5	-	36
Transport		**8**	**94**	**167**	**8**	**94**	**167**
	Support for introduction of new technology	4	8	18	4	8	18
	Support for new energy and climate technology	4	86	149	4	86	149
Non-industrial plants and facilities		**1**	**1**	**15**	**3**	**8**	**45**
	Support for introduction of new technology	1	0,5	15	3	8	45
Non-residential buildings		**21**	**17**	**116**	**41**	**35**	**271**
	Support for introduction of new technology	-	-	-	4	2	26
	Support for introduction of new technology in the buildings of the future	7	1	8	14	4	60
	Support for energy-efficient new buildings	14	16	108	23	29	185
Residential buildings		**8**	**54**	**60**	**9**	**54**	**60**
	Support for energy-efficient new buildings (private)	1	0,01	0,1	2	0,03	0,2
	Communication solutions from AMS	7	54	60	7	54	60
Total		**54**	**409**	**1 368**	**102**	**612**	**3 289**

Table 3.5: The table shows energy results and allocations within new energy aand climate technology in 2015 and 2012-2015 distrubuted by market.

Looking at the agreement term overall, it shows the same picture; technology projects within industry have received the most support and contribute the largest energy result. The highest number of projects comes from new technology in non-residential buildings. The distribution of projects shows a relatively good spread between the markets.

Technology projects often have relatively modest energy results compared with the support they receive. Untested and immature technology will usually be significantly more expensive than standard solutions. The support need will therefore also be higher than for projects based on well-tested technology. The total, direct energy result of 409 GWh is thus modest compared with the support of NOK 1.4 billion, but is higher than in previous years. However, these projects are expected to result in long-term ripple effects and positive effects for the climate and value creation.

Project owners say it is challenging to obtain risk capital, but we find that the response to the programmes offered has been good and the market is willing to be innovative and develop technology.

TABLE 3.6 TEN LARGEST PROJECTS WITHIN NEW ENERGY AND CLIMATE TECHNOLOGY 2015, MEASURED BY AWARDED SUPPORT

Project	Company	Market	Programme	Contractual energy result	Contractual support
				GWh	Million NOK
Copper demonstration plant	Glencore Nikkelverk AS	Industry	Support for new energy and climate technology in the industry	35	**380**
Alcoa Advanced Smelting Technology	Alcoa Norway ANS	Industry	Support for new energy and climate technology in the industry	10	**280**
Arba Follum – Establishment of demonstration plant for bio-based coal substitute	Arba Follum AS	Industry	Support for new energy and climate technology in the industry	143	**138**
Environmentally- friendly ferries in Hordaland County	Hordaland county authority	Transport	Support for new energy and climate technology in transport	62	**134**
Application for support for new energy and climate technology TiZir Titanium & Iron AS	Tizir Titanium & Iron AS	Industry	Support for new energy and climate technology in the industry	22	**123**
Powerhouse Brattørkaia	Entra Eiendom AS	Non-residential buildings	Support for energy-efficient new buildings	4	**37**
Test turbine - Smøla	Statkraft AS	Renewable power	Support for introduction of new technology	31	**31**
12273 Brønnøysund Register Centre	Directorate of Public Construction and Property	Non-residential buildings	Support for energy-efficient new buildings	2	**15**
Demonstration programme for SmartGrid technology	Lyse Elnett AS	Non-industrial plants and facilities	Support for introduction of new technology	1	**15**
New Building Logistics Centre in Trondheim	Posten Norge AS	Non-residential buildings	Support for energy-efficient new buildings	3	**14**

Table 3.6: The table shows the ten largest projects within new energy and climate technology 2015, measured by contractual support.

Table 3.7 presents key information from a selection of the largest projects that Enova supported within new energy and climate technology in 2015, distributed by the various markets. Appendix A provides supplementary information about Enova's total project portfolio within new energy and climate technology for the period 2012-2015, including information about the projects' expertise development, spread potential and international impact.

TABLE 3.7 A SELECTION OF THE LARGEST PROJECTS WITHIN NEW ENERGY AND CLIMATE TECHNOLOGY 2015

PROJECT OWNER	PROJECT DESCRIPTION	SUPPORT AWARDED (NOK)	PROJECT'S ENERGY RESULT (kWH/year)
Renewable heating			
Asker municipality	Drilling of two approx. 800-metre deep geothermal energy wells in Asker municipality	2 564 500	232 000 Production of heating
Renewable power			
Waves4Power AS	Full-scale demonstration of a 100kW wave power buoy near the Runde Miljøsenter in Herøy municipality	12 005 100	250 000 Production of electricity
Agder Energi Vannkraft AS	Integrated small-scale power turbine ("turbinator") for production of electricity from minimum water release from the Gåseflå dam	3 412 553	1 750 000 Production of electricity
Kildal Kraft AS	340 kW micro power plant in Meløy municipality with a new turbine concept and standardised and prefabricated mini power station installed in a container solution	2 774 671	1 200 000 Production of electricity
Non-industrial plants and facilities			
Lyse Elnett AS	Demonstration of smart grid technology in an area in downtown 'Stavanger with 25 power grid stations and about 1 300 customers	14 687 000	500 000 Reduction of grid loss (electricity)
Transport			
Hordaland county authority	Hordaland county authority will build land-based facilities that support zero and low emission ferries for up to eight ferry routes in Hordaland.	133 600 000	62 133 000 Reduced use of marine diesel and conversion to electricity
Nel Fuel Norway AS	Energy-efficient hydrogen filling station with a new hydrogen production concept based on water electrolysis. The station will be located in Akershus county authority, adapted for taxis and private cars.	7 760 000	2 600 000 Energy-efficient production and filling of hydrogen
Eidesvik Offshore ASA	Installation of energy storage system (battery) in the Viking Energy supply vessel.	7 440 000	4 541 547 Reduced use of fuel (LNG and MGO) and increased energy efficiency
Industry			
Glencore Nikkelverk AS	Energy-efficient one-stage electrowinning process for production of copper at the Glencore Nikkelverk in Kristiansand.	380 000 000	35 000 000 Increased energy efficiency
Alcoa Norway ANS	Demonstration of advanced technology for production of primary aluminium at Alcoa's plant at Lista in Farsund municipality	280 448 695	9 700 000 Increased energy efficiency
Arba Follum AS	Demonstration plant for production of a bio-based substitute for fossil coal at Treklyngen's industrial area at Follum in Drammen	138 000 000	142 500 000 Heat recovery, and production and use of biogas
Tizir Titanium og Iron AS	Verification of new furnace technology in titanium dioxide production at TTI's smelting plant in Tyssedal.	122 734 320	22 000 000 Increased energy efficiency, and reduced use of coal/coke
Non-residential buildings			
Entra Eiendom AS	Powerhouse Brattørkaia	36 500 000	3 652 351 Increased energy efficiency, and production of electricity and heating
Asker municipality	Holmen Svømmehall (swimming pool), among Norway's most energy-efficient swimming pools with innovative structural and technical solutions, including underground solar collectors, solar cells and user-friendly energy optimized operations, passive house standard	9 944 000	1 227 398 Increased energy efficiency, heat recovery and production of electricity and heating
Posten Norge AS	Low-energy logistics building with an energy-efficient solution for gates (72), and renewable energy production based on wind and solar, energy storage and sale of excess heat to the area's local heating grid	14 200 000	2 956 847 Increased energy efficiency, recovery of waste heat, and production of electricity and heating
Residential buildings			
Henriksen, Andreas	House near the passive house requirements with a comprehensive smart house solution. Extensive control of lighting, heating and ventilation through an advanced KNX smart house solution.	80 898	13 048 Increased energy efficiency, and production of heating

Table 3.7: The table shows a selection of the largest projects within new energy and climate technology supported in 2015. The approved support amount and pledged energy result have been corrected according to the final reported result.

PROJECT'S CLIMATE RESULT IN NORWAY (KG CO_2 EQV./YEAR)	INNOVATION
54 056 Reduced use of propane	• Demonstration of deep drilling under Norwegian conditions and in a typical Norwegian bedrock type • Bit developed to handle crystalline bedrock • Continuous casting in critical zones to reduce risk of landslides and leaks • New type of coaxial collectors that enable higher energy tapping
0	• 25-year rust and fouling protection, developed by Jotun and SP • New generation of dynamic cables for marine energy • Connection hub for connecting marine energy to the grid • Relief system for dynamic cables
0	• Simplified method for verification for the general public for regulatory minimum water release • Semi-regulated axial Kaplan turbine with integrated generator • Standardization of total solution for turbining small water volumes • Cost optimized valve solution for controlling the minimum water release
0	• Turbine with permanent generator maintains high efficiency during varying rotational speeds, and thus optimally exploits variations in water flow • Standardized container solution for micro power plant
0	• Smart grid technology for electrical power systems that use bi-directional communication, distributed metering and management systems, new sensor technologies and control of equipment (load, prod.) with grid customers • Test new solutions, concepts and technologies • Verify utility values of reducing grid losses • Lay foundation for future development and efficiency
16 547 261 Reduced use of marine diesel	• Norwegian maritime cluster is at the global forefront and the probability of technological innovations in tenders is significant • Contribute to testing and gaining experience with more new technology elements (charging solutions and battery technology)
0	• Compact and more energy-efficient hydrogen production adapted to hydrogen stations • Higher capacity than previously demonstrated • Modular station for flexibility when scaling up
969 441 Reduced use of fuel (LNG and MGO)	• Installation of batteries in existing ships with dual fuel propulsion (LNG and MGO) • The batteries function as storage, and an additional energy source • Stable load in generators where batteries take the highest peaks (peak shaving) • Alternating use of generator and battery ("charge/discharge") reduces use of generators with low output (where both consumption and output are disproportionately high)
0	• Permanent cathodes in Duplex steel with microstructure surface • Low-energy dimensionally stable anodes (DSA) with defined Nano structure • New metering principles and monitoring system that yields improved process control and automation options • Set new industry standard with regard to working environment, emissions and safety
5 260 000 Reduced process emissions	• Advanced smelting technology for primary aluminium production with lower energy consumption and lower direct CO_2 emissions • Several technology innovations have been patented
0	• Single-stage energy-efficient production of quality raw material from round timber • Thermal integration and heat exchange in pellet production • Heat recovery from process condensate with high organic content • Integrated process for production and use of biogas • Scaling up production capacity/plant size
7 106 000 Reduced use of coal/coke	• New water cooled copper-ceramic roof • System for controlled heat balance in melting furnace • New cleaning and degasification management system
0	• Comprehensive energy concept • Plus energy building, produces more energy than is consumed for lighting, heating, ventilation and cooling • Needs based management, hybrid low SFP ventilation, reduced heat loss from distribution of heat, incl. tap water, free cooling, waste heat • Production of energy from heat pumps and solar cells
0	• Better than passive house with innovative individual measures and comprehensive solutions • Needs based operations • Recovery of heat from greywater and ventilation system • Local production of electricity and heating from geothermal wells, underground solar collectors, solar cells on the roof, façade • Innovative monitoring and management system
0	• Comprehensive concept consisting of a solar cell system, wind turbine, buffer battery and autonomous street lights • Local energy production covers 100% of energy for electric vehicle fleet and for consumption in the building • Excess heat is delivered to the area's local heating grid
0	• Comprehensive solution with known technology for non-residential buildings, infrequently used in a residential context (management and ventilation) • Needs based management, low-temperature heating 19 different zones, thermal mass/storage

In-depth reporting

Energy results

The contractual energy result is an estimate of what the annual energy results are expected to be when the supported project is completed. Completing a major project can take several years, and the results from the project are recorded in the year the support is granted. This provides quicker reporting and enables closer follow-up by Enova than waiting until the projects are complete. The energy results are then updated as the projects are completed.

Some of the projects approved in 2015 were cancelled over the course of the year. According to Table 3.8, 1 779 GWh were pledged in 2015, while projects totalling 21 GWh were not carried out as planned. The total contractual energy result at the end of 2015 thus ended at 1 758 GWh. When a project is completed, a final report is prepared, containing an updated prognosis of the project's expected annual energy and climate result. Of the projects with which contracts were signed in 2015, few were completed by the end of the year. The completed projects that were supported in 2015 constitute about 10 GWh, and there is little difference between the contractual and final reported energy and climate result for these projects.

There is somewhat greater fluctuation in the project portfolio for 2012-2015. As a result of cancellations, the contractual energy result was reduced by eight per cent from 6 518 GWh to 6 002 GWh. Furthermore, there have been some corrections in final reporting of projects, so the contractual energy result corrected for final reported results is 6 001 GWh for the project portfolio.

TABLE 3.8 ENERGY RESULTS 2012-2015 DISTRIBUTED BY MARKET

	2015			2012-2015		
	Gross contractual result	Contractual result	Contractual corrected for final reported result	Gross contractual result	Contractual result	Contractual corrected for final reported result
Market	GWh	GWh	GWh	GWh	GWh	GWh
Renewable heating	181	176	176	1 289	1 129	1 127
Renewable power	34	34	34	49	44	43
Industry	768	766	765	2 666	2 620	2 625
Transport	261	260	260	261	260	260
Non-industrial plants and facilities	65	65	65	133	131	131
Non-residential buildings	373	360	360	1 821	1 629	1 627
Residential buildings	98	97	97	299	189	188
Total	**1 779**	**1 758**	**1 757**	**6 518**	**6 002**	**6 001**

Table 3.8: The table shows the contractual energy result (in GWh) distributed by market, both before and after correction for cancelled and final reported projects. The "Contractual results" column shows the energy result at the end of 2015 corrected for cancellations.

Figure 3.4 shows the percentage of final reported projects for the years in the current agreement term. The percentage of final reported projects increases as the projects mature. The figure also differentiates between active projects where disbursement has started and not started. The risk of a project being cancelled has turned out to be significantly lower once disbursement has started.

FIGURE 3.4 PERCENTAGE OF FINAL REPORTED PROJECTS APPROVED DURING THE PERIOD 2012-2015

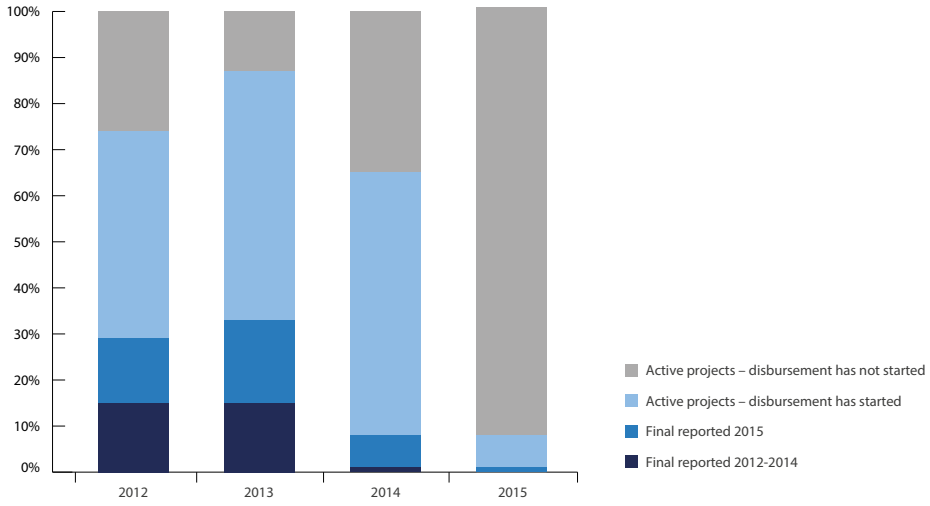

Figure 3.4: The figure shows the percentage of final reported and active projects at the end of 2015, distributed by approval year. The figure also shows the percentage of active projects where disbursement has started.

Funding level

An important precondition for use of investment support is that the instrument is cost-effective. Enova should derive maximum value in the form of kWh for the support it provides. The funding level is measured as support per energy result (NOK/kWh). For energy projects in particular, the funding level is an important assessment criterion for Enova. For new energy and climate technology projects, the goal of the support is that the projects will contribute to reducing greenhouse gas emissions and support the development of restructuring of energy end-use and energy production in the long term, through developing and utilizing new technologies and new solutions that can contribute to this. For technology projects, expertise development, potential dissemination and innovation are highly relevant assessment criteria.

Funding for a project is calculated based on what is necessary to ensure the project is completed. If the project is considered profitable, it does not need support to be implemented. If the project is very unprofitable, it will need a high funding level. Enova prioritizes projects that require the least possible support per energy result, and ensures cost efficiency by rejecting the most unprofitable projects.

Overall, the funding level for energy projects in 2015 is in line with the previous year, with NOK 0.89/kWh. Structural changes in the project portfolio in 2015 help maintain a stable funding level. For comparable projects, the cost level has been stable and increasing in recent years.

The funding level for transport projects is at a low level compared to the other markets. The funding level of NOK 0.62/kWh helps keep the total funding level low. On average, industry projects have received NOK 0.57/kWh in funding in 2015. This is among the most cost-effective levels we have seen since 2012, and caused the average funding level for industry projects starting in 2012 to drop to NOK 0.69/kWh.

The funding level for renewable heating projects increased in 2015. The energy result generally consists of district heating projects, where the largest and most cost-effective projects have already been developed. A rising support percentage is therefore natural in this area. Since the energy result percentage is declining, the increase has a relatively minor impact on the overall funding level.

The funding level per project within non-industrial plants and facilities generally increased in 2015. For residential buildings, the Enova Subsidy in particular results in a higher funding level in 2015 compared with previous years. Both markets have relatively modest energy results, and the increases therefore have a minor impact on the overall funding level.

Projects within non-residential buildings have a relatively high funding level and relatively high energy results. This combination means that the non-residential buildings market has the greatest impact on the overall funding level. The funding level in 2015 was NOK 1.11/kWh. This is a modest increase from 2014, but still pulls down the average funding level for the period 2012-2015.

For the entire portfolio overall, there is a minor decline in the funding level from NOK 1.01/kWh from the 2012-2014 portfolio to NOK 0.97/kWh in the 2012-2015 portfolio.

TABLE 3.9 FUNDING LEVEL WITHIN THE ENERGY FUND 2012-2015 (EXCL. NEW ENERGY AND CLIMATE TECHNOLOGY)

		2012		2013		2014		2015		2012-2015	
		Distributed by contractual energy result	Lifetime-adjusted	Distributed by contractual energy result	Lifetime-adjusted	Distributed by contractual energy result	Lifetime-adjusted	Distributed by contractual energy result	Lifetime-adjusted	Distributed by contractual energy result	Lifetime-adjusted
	Average lifetime	NOK 0.01/kWh		NOK 0.01/kWh		NOK 0.01/kWh		NOK 0.01/kWh		NOK 0.01/kWh	
Renewable heating	20 år	92	4,6	117	5,9	112	5,6	132	6,6	112	5,6
Industry	15 år	91	6,0	57	3,8	68	4,5	57	3,8	69	4,6
Transport	15 år	-	-	-	-	-	-	62	4,2	62	4,2
Non-industrial plants and facilities	15 år	56	3,7	80	5,3	99	6,6	106	7,1	94	6,3
Non-residential buildings	15 år	103	6,9	145	9,7	106	7,1	111	7,4	117	7,8
Residential buildings	15 år	209	14,0	385	25,7	198	13,2	235	15,7	252	16,8
Total		**97**	**6,1**	**116**	**6,7**	**89**	**5,4**	**89**	**5,4**	**97**	**6,1**

Table 3.9: The table shows the funding level distributed by contractual annual result, as well as funding level measured over the average lifetime. The results are corrected for cancelled projects. Projects within new energy and climate technology are not included in the table.

Enova looks at cost efficiency distributed over the project's lifetime. This makes it easier to compare projects with widely varying lifetimes. The longer a project's lifetime, the more years over which support can be distributed. Table 3.9 uses average lifetimes for the various markets as a basis. In the same way as there could be significant variation in funding level between projects in the same market, lifetime could also vary widely. The lifetime was included to illustrate annual levels.

When taking into account the lifetime of projects, we can see that the energy projects supported in 2015 have the same funding level as in 2014. Transport and industry projects are the most cost-effective, while residential building projects receive the highest funding level. Figure 3.5 shows the development in funding level measured over lifetime.

FIGURE 3.5 DEVELOPMENT IN FUNDING LEVEL 2012-2015, MEASURED OVER PROJECT LIFETIME

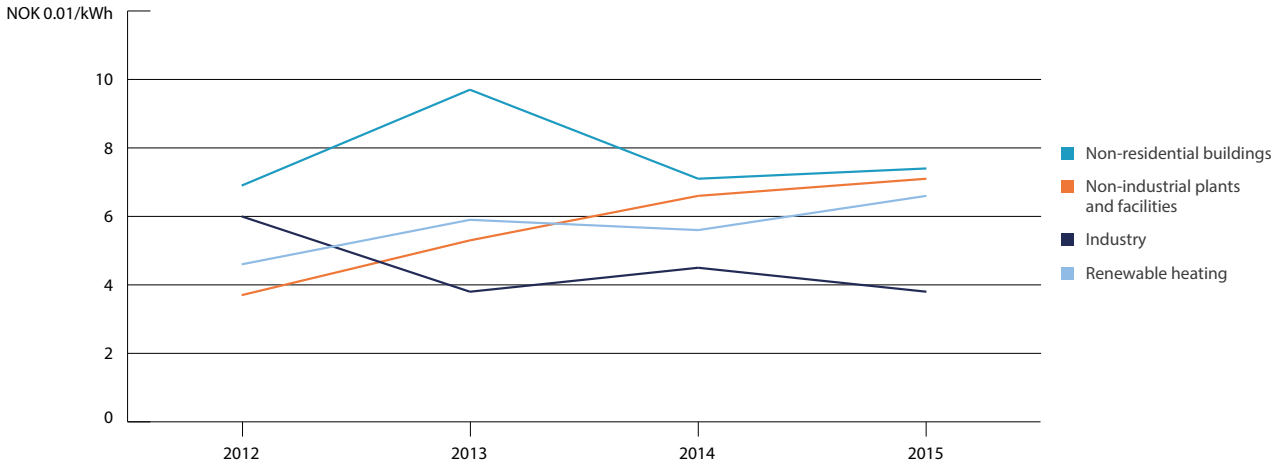

Figure 3.5: The figure shows the average funding level for projects approved in 2012-2015, measured over the average lifetime. The results have been corrected for cancelled projects. Projects within new energy and climate technology and residential buildings were not included in the figure. Transport is a new area of responsibility in Enova starting in 2015, and has not been included in the figure (see Table 3.9 for funding level 2015).

Energy results by project category

The projects supported by Enova can be split into four categories: production, energy efficiency, distribution and conversion. The majority of the energy result in 2015 comes from energy efficiency projects. These are projects with the goal of increasing the efficiency of end users' energy consumption, either in the form of reduced energy use or as reduced specific energy use per produced unit. This type of project constitutes two-thirds (1170 GWh) of the overall energy result in 2015.

Production projects include all projects where electricity or renewable heating are produced, either for sale or internal use. Establishment and expansion of district heating plants entails development of new infrastructure, and these projects are characterized as distribution projects. The conversion projects are projects where the energy carrier is changed from electricity or fossil energy carriers to renewable energy carriers based on, for example, bioenergy.

TABLE 3.10 ENERGY RESULT 2015 DISTRIBUTED BY PROJECT CATEGORY

Market	Energy efficiency	Production	Distribution	Conversion
	GWh	GWh	GWh	GWh
Renewable heating	7	8	157	4
Renewable power	-	34	-	-
Industry	727	3	-	36
Transport	74	124	-	62
Non-industrial plants and facilities	22	40	-	3
Non-residential buildings	265	6	-	89
Residential buildings	75	1	-	22
Total	**1 170**	**216**	**157**	**215**

Table 3.10: The table shows contractual energy results in 2015 distributed by project category and market. The figures are corrected for cancelled projects.

FIGURE 3.6 RESULTS 2015 DISTRIBUTED BY PROJECT CATEGORY

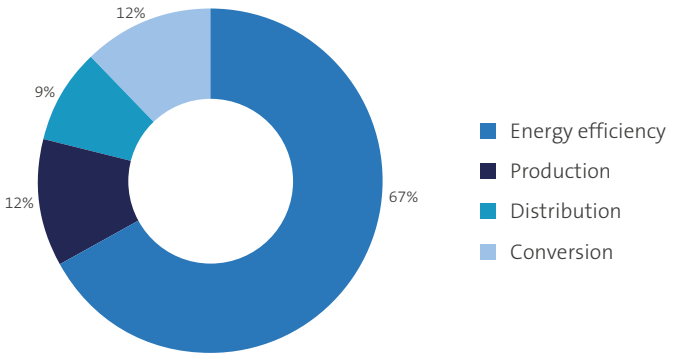

Figure 3.6: The figure shows contractual energy results in 2015 distributed by project category. The figures are corrected for cancelled projects.

FIGURE 3.7 RESULTS 2012-2015 DISTRIBUTED BY PROJECT CATEGORY

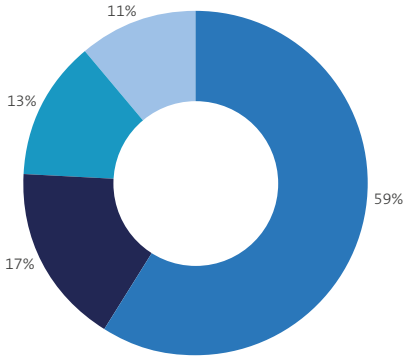

Figure 3.7: The figure shows contractual energy results in 2012-2015 distributed by project category. The figures are corrected for cancelled projects.

Energy efficiency has accounted for more than half of the energy result every year since 2012 and has also been on the rise. The scope of production projects was high (34 per cent) in 2012, but the shares for production, distribution and conversion evened out in the following years. The scope of distribution projects fell to nine per cent in 2015, which is related to the lower scope of district heating projects.

Figure 3.6 and Figure 3.7 show that the share from energy efficiency was high in 2015. Otherwise, the distributions are relatively similar. As the project portfolio increases year by year, these shares tend to stabilize. The distribution of the aggregated portfolio does not change much from year to year. The trend has been a rising share from energy efficiency, and a declining share for production and distribution.

Results distributed by renewable energy sources/carriers

Table 3.11 shows the energy result within production, distribution and conversion, distributed by energy carrier. Overall, the energy result is 588 GWh. This is a decline of 137 GWh in relation to 2014, and is related to the fact that a high share of the energy result in 2015 consists of energy efficiency measures that are not distributed among energy carriers. Increased use of bioenergy represents the largest share in 2015, with 209 GWh. After this comes use of heat pumps with 96 GWh and waste heat with 79 GWh.

Compared with 2014, the use of bioenergy, waste incineration and waste heat dropped, while the other categories increased. Bioenergy and waste incineration in particular, but also waste heat, are used in production and distribution of district heating, and the decline correlates with Enova supporting fewer district heating projects in 2015 than in 2014.

The energy result from conversion to heat pumps increased to 96 GWh in 2015, a 12 per cent increase from 2014. The use of solar energy and geothermal energy appears modest compared with the other energy carriers, but both grew significantly in 2014. Geothermal energy increased from 0.5 to 7 GWh from 2014 to 2015.

TABLE 3.11 **ENERGY RESULTS WITHIN PRODUCTION, DISTRIBUTION AND CONVERSION DISTRIBUTED BY ENERGY CARRIER**

Energy carrier	Contractual energy result
	GWh
Bioenergy,	209
Biomass	*93*
Chips	*70*
Pellets	*17*
Other bio	*29*
Heat pump	96
Waste heat	79
Electricity	72
Energy from waste incineration	60
Wind power	31
District heating	22
Geothermal	7
Solar	3
Other renewable	8
Total	**588**

Table 3.11: The figure shows energy results within production, distribution and conversion distributed by energy carrier.

Portfolio composition

In 2015, the project portfolio is more balanced than in previous years, both as regards the number of projects, contractual energy result and contractual support. The distribution of these three amounts for the portfolio of projects that were granted funding commitments in 2015 is shown in Figure 3.8.

Enova supported a higher number of medium-sized projects (between 1 and 50 GWh) in 2015, compared with 2014. More than two-thirds of Enova's energy result comes from this group of projects. The total number of projects supported in 2015 is lower than in 2014, but the decline mainly relates to projects with a contractual energy result of less than 1 GWh. These projects constitute about three-fourths of the total number of projects, but less than 10 per cent of the energy result. The majority of these projects were within residential buildings. There were also 3 800 subsidies granted for energy measures in residences. By themselves, the energy results are relatively small, but they are important for allowing individuals to get involved and channel a joint effort to conserve energy and contribute toward solving the climate challenge we are facing.

The single project of more than 100 GWh is very significant for the total energy result. This project has an energy result that approximately corresponds to all projects with a contractual energy result of less than 1 GWh.

Generally, contractual support is closely aligned with the distribution of contractual energy results, but the funding profile is affected by the technology projects. Expertise development, dissemination potential and innovation are all weighty assessment criteria for these projects, in addition to the direct energy results. Some of these projects are therefore awarded considerable support even though the contractual energy results are not necessarily comparable. The opposite effect is seen in certain energy management projects with relatively substantial energy results in relation to the funding level.

FIGURE 3.8 PROJECTS 2015 DISTRIBUTED BY SIZE

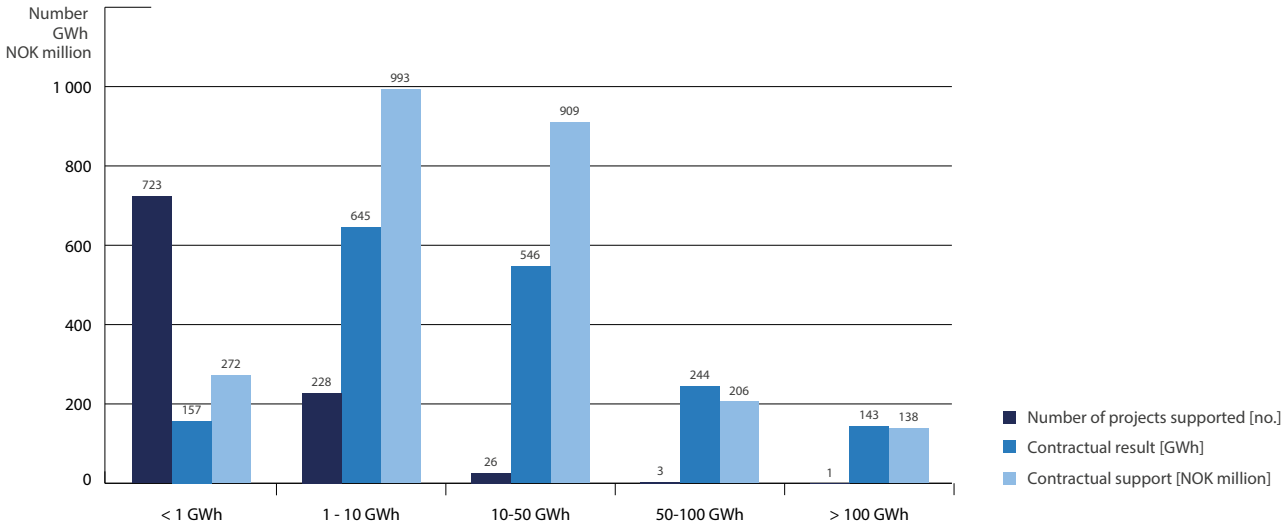

Figure 3.8: The figure shows distribution of projects entered into in 2015 grouped by project size in GWh. The Enova Subsidy is not included in this overview.

FIGURE 3.9 PROJECTS DISTRIBUTED BY SIZE 2012-2015

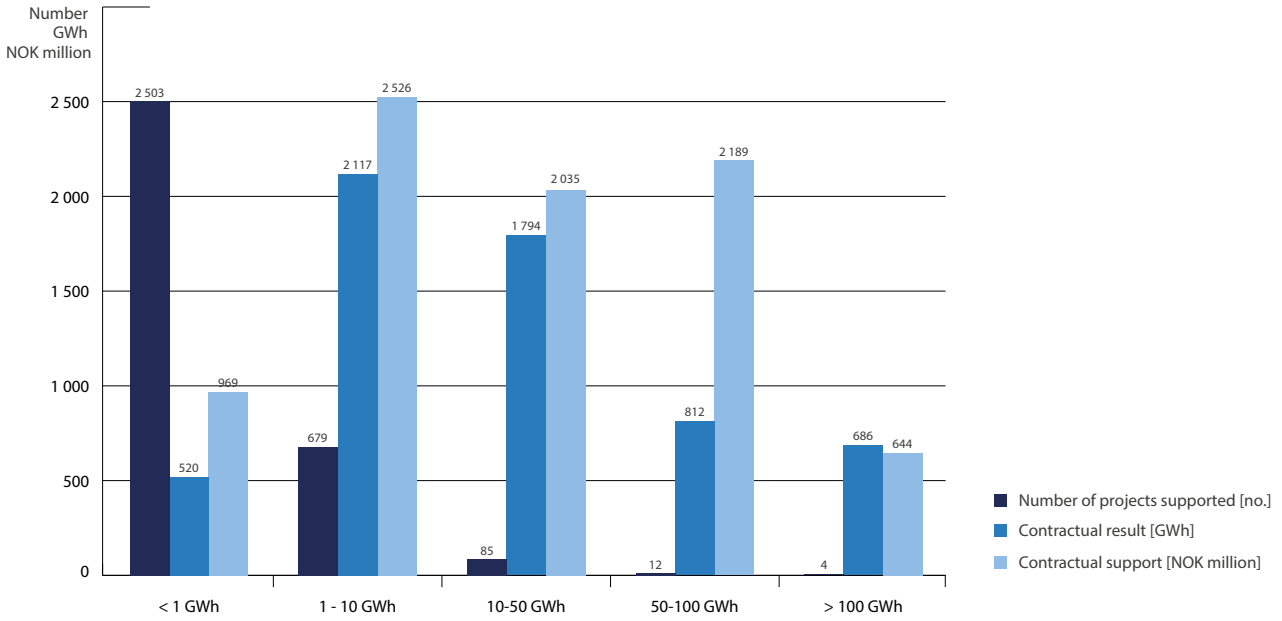

Figure 3.9: The figure shows distribution of projects entered into in 2012-2015 grouped by project size in GWh. The Enova Subsidy and Energy measures in residences (2012-2014) are not included in this overview. Support for energy advisory service was included in the Enova Subsidy starting in 2015. The projects that applied for this programme during 2013-2014 were removed from the overview.

Figure 3.9 illustrates the same portfolio distributions when looking at every project during the period 2012-2015. The distribution profiles for the number of projects and contractual energy result are relatively similar from year to year, and this is reflected in the total project portfolio. The distribution for contractual support varies more from year to year, depending on the scope of technology projects with a higher funding intensity. The very largest projects were the most cost-efficient during the period 2012-2015.

There is a correlation between the size of the projects and implementation time. Small projects have a significantly shorter implementation time than major projects. Small projects are typically related to energy management and minor measures in residences, non-residential buildings and industry, while larger projects involve extensive engineering and investments in major physical measures. These naturally take longer to complete.

The small projects have an expected end date averaging one year after the approval date. Overall, 87 per cent of the projects approved in 2015 are expected to be finalized by the end of 2017. These constitute about 70 per cent of this year's contractual energy result and more than 50 per cent of this year's allocated support.

If we consider the entire project portfolio for 2012-2015, 95 per cent of the projects are expected to be finalized by the end of 2017. These projects constitute 82 per cent of the energy result and 77 per cent of allocated support.

Enova wants the supported projects to be carried out as quickly and efficiently as possible. Rapid implementation reduces the risk of external factors changing with a resulting negative impact on the projects, thereby reducing the risk of the project not being implemented.

Starting in 2015, Enova assumed responsibility for disbursement, monitoring and reporting of Transnova's project portfolio. The number of active projects at the takeover date was 164, with a total commitment of NOK 167.8 million. Final reports were submitted for 113 projects in 2015.

FIGURE 3.10 PROJECTS 2015 DISTRIBUTED BY CONTRACTUAL FINAL DATE

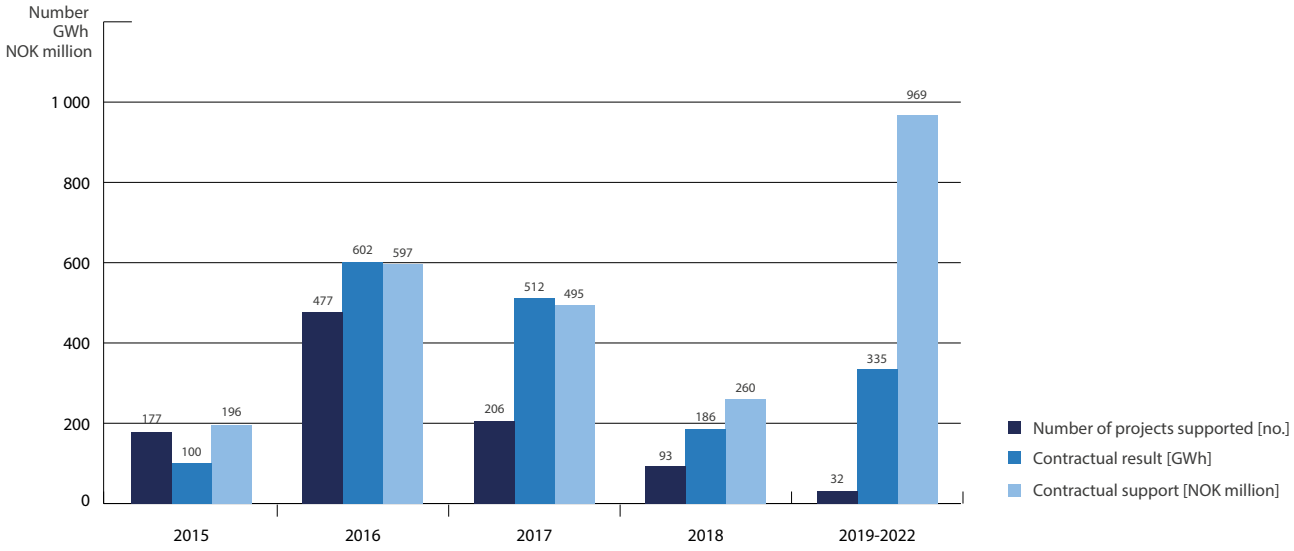

Figure 3.10: The figure shows distribution of projects entered into in 2015 distributed by the project's contractual final date. The Enova Subsidy is not included in this overview.

FIGURE 3.11 PROJECTS 2012-2015 DISTRIBUTED BY CONTRACTUAL FINAL DATE

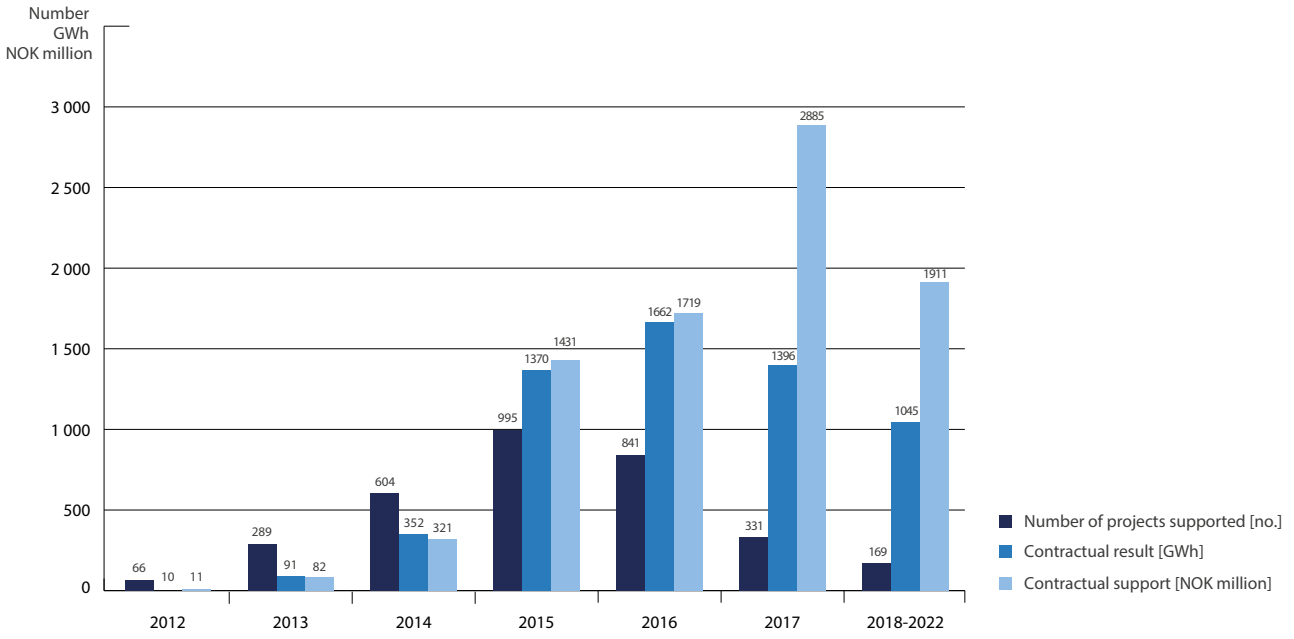

Figure 3.11: The figure shows distribution of projects entered into in 2012- 2015 distributed by the projects' contractual final date. The Enova Subsidy and Energy measures in residences (2012-2014) are not included in this overview. Support for energy advisory service was included in the Enova Subsidy starting in 2015. The projects that applied for this programme during 2013-2014 were removed from the overview.

Figure 3.12 shows the development in the number of received applications for the years 2012 to 2015, excluding the Enova Subsidy and Energy measures in residences. In 2013, Enova received 30 per cent more applications than in 2015. From 2014 to 2015, the number of applications grew by 17 per cent. The increase is distributed among the largest markets, with the addition of the transport market from 2015. Enova received somewhat fewer applications in 2015 within renewable heating and non-industrial plants and facilities.

FIGURE 3.12 APPLICATIONS RECEIVED IN THE PERIOD 2012-2015

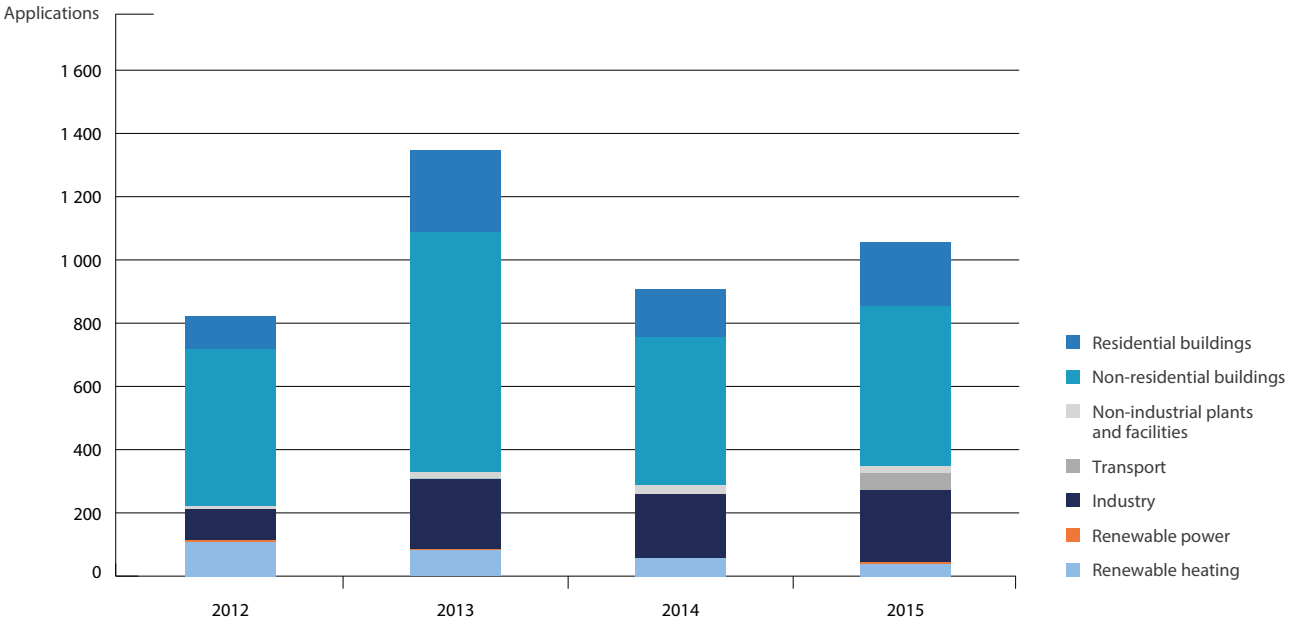

Figure 3.12: The figure shows the development in number of applications in the period 2012-2015 and the distribution between the various markets. Energy measures in residences (2012-2014) and the Enova Subsidy were not included in this overview. For this programme, Enova received 6731 applications in 2012, 7410 applications in 2013, 4662 applications in 2014 and 5121 applications in 2015. Support for energy advisory service was included in the Enova Subsidy in 2015 and has also been removed from the overview. The number of applications to the programme was 315 in 2013 and 598 in 2014.

Table 3.12 shows an overview of the applications submitted to Enova in 2015. A total of 6182 applications were received, which is on par with 2014. The majority of the applications were within residential buildings, where most applications and approvals are related to the Enova Subsidy. With more than 5100 applications, the number of applications increased by 10 per cent compared with the previous subsidy scheme for energy measures in residences. One reason for this is that support for energy advisory service was included under the Enova Subsidy in 2015. More than 3800 subsidies were awarded in 2015. Liquid-to-water heat pumps represented about 30 per cent of subsidies in 2015, followed by air-to-water heat pumps (25 per cent) and central heating systems (13 per cent).

There is a difference in the number of received and processed applications in a year, as applications received at the end of a year are often fully processed in the following year.

When applications are not granted support, it is usually due to one or more of the following causes:
-Projects are too profitable to support.
-Projects are too expensive to support.
-Projects fall outside the criteria for support.
-Projects are insufficiently documented.

TABLE 3.12 ACTIVITY OVERVIEW ENERGY FUND 2015

Market	Number of applications received	Number of applications processed	Number of projects supported	Contractual energy result	Contractual support
	No.	No.	No.	GWh	NOK million
Renewable heating		**36**	**34**	**176**	**234**
District heating	37	35	33	175	231
Support for introduction of new technology	1	1	1	0.2	3
Renewable power	**6**	**5**	**5**	**34**	**50**
Support for introduction of new technology	6	5	5	34	50
Industry	**227**	**231**	**221**	**766**	**1 278**
Support for energy measures in industry	92	89	87	346	263
Support for introduction of energy management in industry and non-industrial plants and facilities	103	110	108	209	46
Support for new energy and climate technology in the industry	4	6	4	209	921
Support for introduction of new technology	3	3	1	0,1	0,3
Heating plants expanded	2	2	2	1	1
Pre-project support for energy measures in the industry	16	15	14	-	10
Pre-project support for new energy and climate technology	7	6	5	-	36
Transport	**56**	**45**	**32**	**260**	**281**
Support for biogas and biofuel	2	2	2	139	83
Support for energy measures in inland transport	1	-	-	-	-
Support for energy measures in ships	4	-	-	-	-
Support for energy measures in non-industrial plants and facilities	13	12	9	19	18
Support for introduction of new technology	10	9	4	8	18
Support for new energy and climate technology in transport	7	4	4	86	149
Support for charging infrastructure	12	11	6	-	11
Support for introduction of energy management in transport	7	7	7	8	3
Non-industrial plants and facilities	**22**	**20**	**15**	**65**	**83**
Support for energy measures in non-industrial plants and facilities	20	18	14	64	68
Support for introduction of new technology	2	2	1	1	15
Non-residential buildings	**503**	**513**	**475**	**360**	**496**
Support for existing buildings	294	301	282	315	353
Support for new technology for the future's buildings	8	7	7	1	8
Support for energy-efficient new buildings	19	19	14	16	108
Heating plant expanded	18	23	16	11	11
Heating plant simplified	109	112	105	17	9
Mapping support	55	51	51	0	7
Residential buildings	**5 330**	**4 758**	**4 064**	**97**	**161**
Support for existing buildings	30	30	26	15	19
Support for energy-efficient new buildings private	1	3	1	0,1	0,1
Mapping support	49	49	49	-	6
Support for upgrading residences	118	124	119	4	11
Communication solutions from AMS	11	11	7	54	60
Enova Subsidy	5 121	4 496	3 819	24	65
Support for energy advising[3]	-	6	4	-	0,2
Support for energy measures in residences[4]	-	39	39	-	1
Total	**6 182**	**5 608**	**4 846**	**1 758**	**2 582**

Table 3.12: The table shows an overview of the number of applications received, processed (i.e.: a final decision on approval or rejection has been made), the number of projects supported[1], as well as funds granted[2] within applicable programmes and associated energy results2 in 2015. The table only shows support for programmes that accept applications and not allocations for other activities in the Energy Fund. Applications for the programme "Support for introduction of new technology" are distributed by market area based on the type of project.

1 *The number of projects supported has been corrected for cancellations. This applies to 32 projects for the 2015 portfolio.*
2 *2Awarded support and contractual energy results have been corrected for cancellations.*
3 *From 1 Jan. 2015, the programme was included in the Enova Subsidy. Decisions in 2015 relate to applications received in 2014.*
4 *From 1 Jan. 2015, the scheme was replaced by the Enova Subsidy. Decisions in 2015 relate to applications received in 2014.*

Activities

The Enova Subsidy was launched in 2015. Based on experience, it takes some time before new programmes are fully utilized by the market. Though the number of applications was lower than desired, Enova granted subsidies for more residential projects in 2015 than ever before. Many of the households implemented multiple measures simultaneously. Additional new measures eligible for support were launched throughout the year. A simple, fully electronic application process makes it easy for homeowners to apply for support, and evaluation shows that 89 per cent of the subsidy recipients in 2015 are satisfied with the application process.

There was also an increase in the number of residences to complete comprehensive renovations, from 91 projects in 2014 to 100 projects in 2015.

FIGURE 3.13 NUMBER OF SUBSIDIES IN THE ENOVA SUBSIDY, DISTRIBUTED BY MEASURE

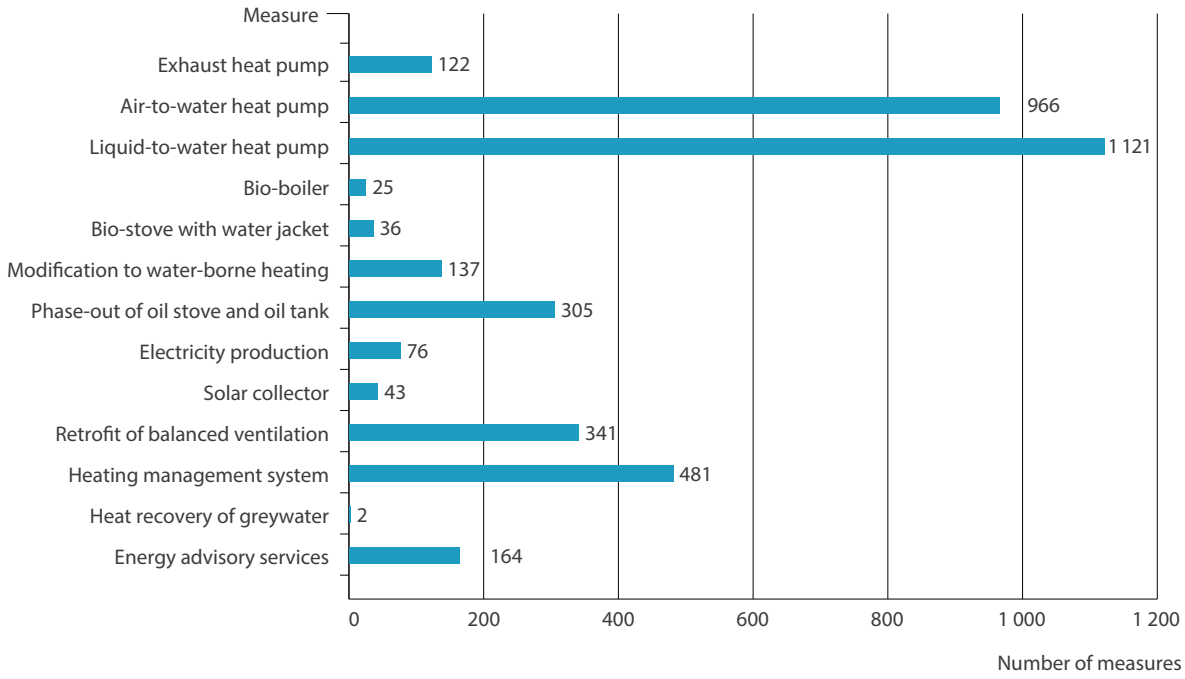

Figure 3.13: The figure shows the number of measures in the Enova Subsidy in 2015, distributed by measure. 908 households that received a subsidy for conversion to a heat pump, bio-boiler or bio-stove also received a subsidy to remove oil boilers and tanks.

TABLE 3.13 PROGRAMMES FOR PRIVATE INDIVIDUALS

Programmes	Purpose	Measurement parameter	Goal 2015	2012	2013	2014	2015
					No.	No.	No.
The Enova Subsidy/ Support for energy measures in residences[1]	More efficient and flexible use of energy; increased use of other energy carriers than natural gas and oil for heating, increased use of new energy resources, energy recovery and bioenergy	Number of applications	17 000	6 731	7 410	4 662	5 121
		Number of disbursements[2]	n/a	3 099	2 704	2 583	4 575
Support for energy advising[3]	More well-functioning markets for efficient energy, environmentally and climate-friendly solutions	Number of applications	-	-	326	603	-
Support for ambitious upgrade[4]	More efficient and flexible use of energy	Number of applications	135 applications	-	32	107	118

Table 3.13: The table shows Enova's programmes for private individuals, the purpose and goal figures for each programme, as well as their result in the period 2012-2015.

1 The Support for energy measures in residences was replaced by the rights-based Enova Subsidy programme starting in 2015.

2 A total of 831 of the disbursements in 2015 were made in connection with the Support for energy measures in residences programme.

3 The Support for energy advising programme was incorporated as a separate measure in the Enova Subsidy in 2015. The programme was launched in May of 2013.

4 The programme was launched in May of 2013.

TABLE 3.14 ACTIVITIES AIMED AT CHILDREN AND YOUNG PEOPLE

Activity	Purpose	Goal	Measurement parameter	School year 14/15	School year 15/16
Learning platform for use in school	Increased knowledge in society about the possibilities of using energy-efficient, environmentally and climate-friendly solutions	300 schools registered as users	Number of schools using Enova's Energy Challenge	192 schools	451 schools
Enova's cooperation with Ungt Entreprenørskap "Energi for Fremtiden" innovasjonscamp (innovation camp)	Increased knowledge in society about the possibilities of using energy-efficient, environmentally and climate-friendly solutions	2200 students in upper secondary schools	Number of students participating in county and national innovation camps	3754	4142

Table 3.14: The table shows activities aimed at children and young people.

Advisory services for private individuals

Enova provides advisory services for private individuals, focusing on the need to acquire information at an early stage in the decision phase before a project and assistance with the application process. The advisory services are provided through a dedicated website and through the Ask Enova service.

TABLE 3.15 ADVISORY SERVICES FOR PRIVATE INDIVIDUALS

Activity	Purpose	Goal 2015	Result			
			2012	2013	2014	2015
Ask Enova	Nationwide information and advice via telephone, email and e-chat to support the goals of the Energy Fund.	40 000	28 215	41 792	38 748	43 749
Page views per day on the website	Information about Enova's programmes for homeowners, and advice related to energy measures in residences	n/a	1 806	2 667	2 926	3 402

Table 3.15: The table shows advisory activities aimed at private individuals. The number of page views on the website includes the sections on enova.no aimed at private individuals and the search portal for the Enova Subsidy (tilskudd.enova.no).

Activities within communications and public relations

Enova's communications work is anchored in Enova's business strategy, and shall help the company achieve its objectives and strengthen its reputation. The majority of communications activities in 2015 have been directed at supporting new programmes vis-à-vis the professional market. The media interest has increased with Enova's new transport responsibility, and it has been important to use this opportunity to reinforce Enova's position as the driving force behind the green transition.

The Enova conference was organized for the fourth time in 2015, and has developed into one of Norway's most important arenas for energy and climate technology. The evaluation showed that the 700 participants from the private and public sector used the conference for updates on recent developments and inspiration. Through the conference, Enova has succeeded in creating a meeting place for players who are concerned with developing and establishing climate-friendly solutions. In 2015, Enova was tasked with making the Norwegian transportation sector more environmentally friendly. The presentation of our plans for development of quick charging stations in Norway received the most attention in the media last year. The rights-based programme for energy conservation measures in households, the Enova Subsidy, also received good attention in the media.

The annual knowledge and reputation survey showed that Enova has been successful in strengthening its reputation among professional market players. Overall knowledge of Enova is good, in both the private and professional markets.

TABLE 3.16 ACTIVITIES WITHIN COMMUNICATIONS AND PUBLIC RELATIONS

	2012	2013	2014	2015	Comments
Articles about Enova	3 344	2 636	3 140	4 450	The total number of mentions in 2015 increased by about 40 per cent compared with 2014. Enova's work towards a more climate-friendly transportation sector, and particularly the development of quick charging stations, appears to have generated the most interest.
Inquiries Ask Enova	40 152	49 062	46 124	53 905	Ask Enova received about 54 000 inquiries in 2015. This is a 17 per cent increase from 2014. The increase is mainly due to the Enova Subsidy and response to Enova's campaigns, as well as a basic interest in energy efficiency measures and energy restructuring in the general public

Table 3.16: The table shows activities within communications and public relations. The number of articles about Enova includes mention of Enova in Norwegian broadcasting, digital media, as well as paper-based media. The number of inquiries to Ask Enova includes both the private and professional markets

International activities

International activities are a learning arena for expertise sharing and exchange of experience. We use this knowledge in the further development of national policy instruments. Participation in international forums allows Enova and Norway to influence the agenda, content and results from international developments in technical energy disciplines. In the agreement terms leading up to 2012, Enova was tasked with representing Norway in various international forums.

Enova has representation in a number of international forums:

- Participation in five of the International Energy Agency's (IEA's) management groups, so-called Implementing Agreements (IA) and projects organized by these groups.
- Participation in the European Energy Network (EnR), a European network for Enova's sister organizations.
- Participation and board membership in the European Council for an Energy Efficient Economy (ECEEE).

Enova provides support for the preparation of new projects for participation in the IEA's Implementing Agreements, which is in line with Enova's goals. The objective is to facilitate the establishment of more IEA projects with Norwegian participation and leadership.

In 2015, Enova held the presidency of the European Energy Network (EnR), a European network of organizations with national responsibilities within energy efficiency and renewable energy production. EnR's primary objective is to create an arena to exchange knowledge and experience, and to be a natural consulting partner for the EU Commission as regards implementation of new directives and development of energy policy.

TABLE 3.17 INTERNATIONAL ACTIVITIES

IEA Implementing Agreements (IA) – representation by Enova	
IA	**IA Title**
IEA EEWP	IEA Energy Efficiency Working Party (EEWP)
END-USER TECHNOLOGIES (EUWP)	
EUWP 04	Heat Pump Programme (HPP)
EUWP 05	Demand Side Management (DSM)
EUWP 09	Industrial Energy-Related Technologies and Systems (IETS)
RENEWABLE ENERGY (REWP)	
REWP 16	Renewable Energy Technology Deplyment (RETD)
Bioenergy	
CS 22	IEA Bioenergy
IEA Tasks/Annexes – representation by Enova	
Task/Annex	**Title**
IEA HPP Annex 40	Heat pump concepts for near zero-energy buildings
IEA DSM Task 24	Closing the loop - Behaviour change in DSM, from theory to policies and practice
IEA DSM Task 25	Business Models for a more effective market uptake of EE Energy Services
IEA IETS Annex 15	Industrial Excess Heat Recovery
IEA RETD	RES-T-NEXT Driving renewable energy for transport – next generation policies
IEA Bioenergy Task 40	Sustainable International Bioenergy Trade - Securing supply and demand
Other IEA	**Project title**
IEA's AIVC information centre	Norwegian participation in the IEA's information centre AIVC - Air Infiltration & Ventilations Centre
Other International activities (apart from IEA and IEE)	
Forum	**Title**
ECEEE	European Council for an Energy Efficient Economy
EnR	European Energy Network
ISO (international standardization organization)	Strategic Advisory Group on Energy Efficiency

Table 3.17: The table shows an overview of IEA activities and other forums where Enova represents and/or contributes financing.

Geographical distribution and the largest projects

Over the course of 2015, Enova supported about 1000 projects[9] distributed across all of Norway. The number of projects within each county varies, from two projects on Svalbard to 140 projects in Oslo.

The county distribution for support from Enova in 2015 is dominated by two technology projects in Vest-Agder, which received support for developing new energy and climate technology in smelting plants. These two allocations constitute 95 per cent of all support awarded in Vest-Agder.

The distribution of energy result and number of projects largely reflects population density and financial activity in the various counties. Looking at the number of projects, Oslo and Hedmark received funding commitments for a relatively high number of projects in 2015, while Sør-Trøndelag received less compared with previous years. Beyond this, the distribution of number of projects in 2015 is generally in line with the distribution for the 2012-2015 period.

There is a larger spread between energy results than for the number of projects. The projects from Buskerud and Finnmark contributed relatively high energy results in 2015, while projects from Telemark and Nordland contributed lower energy results compared with previous years.

In addition to the projects distributed by county, we use the categories of Svalbard, the Continental Shelf and Nationwide projects. The latter are projects involving measures in two or more counties. There were 50 such projects in 2015, with an energy result of 83 GWh.

FIGURE 3.14 ENERGY RESULT AND SUPPORT WITHIN THE ENERGY FUND 2015 – DISTRIBUTED BY COUNTY

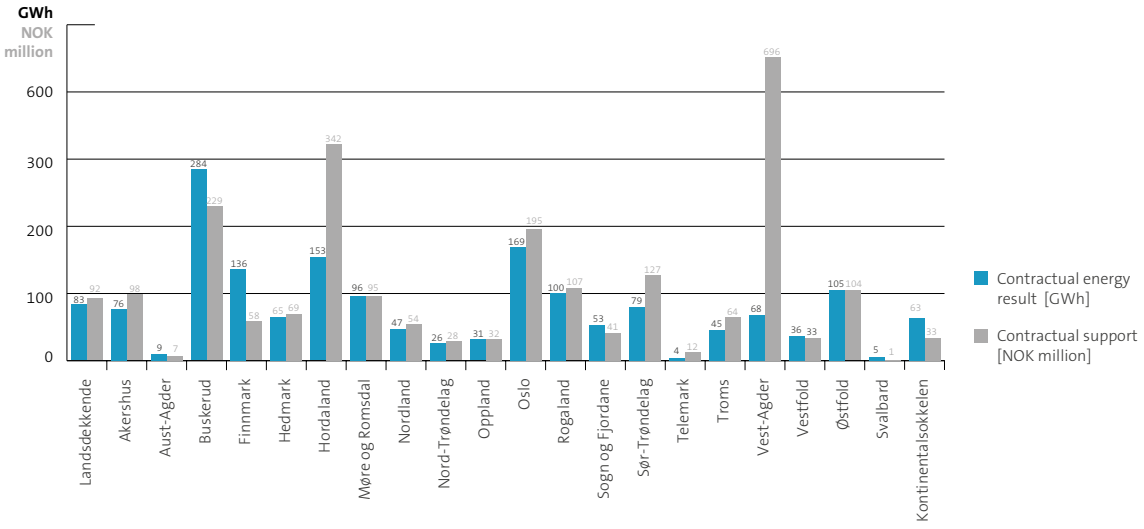

Figure 3.14: The figure shows contractual results and contractual support in 2015 distributed by county. Projects that are characterized as "nationwide" apply to projects that involve measures in two or more counties. The Enova Subsidy is not included in this overview.

FIGURE 3.15 ENERGY RESULT AND SUPPORT WITHIN THE ENERGY FUND 2012-2015 – DISTRIBUTED BY COUNTY

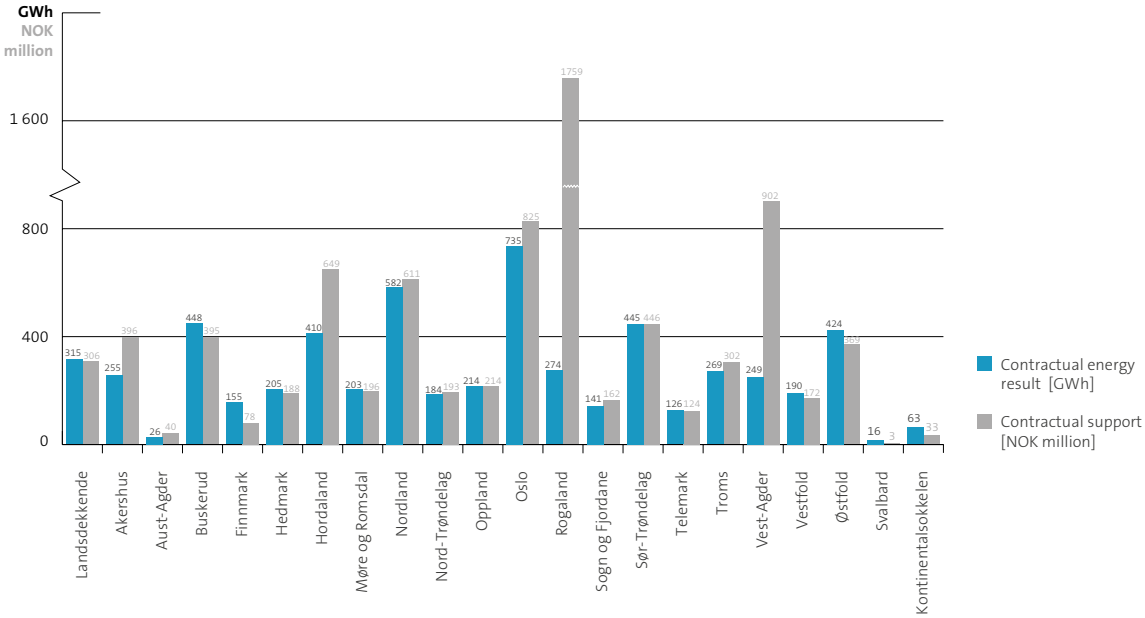

Figure 3.15: The figure shows contractual results and contractual support in 2012-2015 distributed by county. Projects that are characterized as "nationwide" apply to projects that involve measures in two or more counties. The Enova Subsidy and Energy measures in residences (2012-2014) are not included in this overview. Support for energy advisory services was included in the Enova Subsidy starting in 2015. The projects that applied to this programme during 2013-2014 were removed from the overview.

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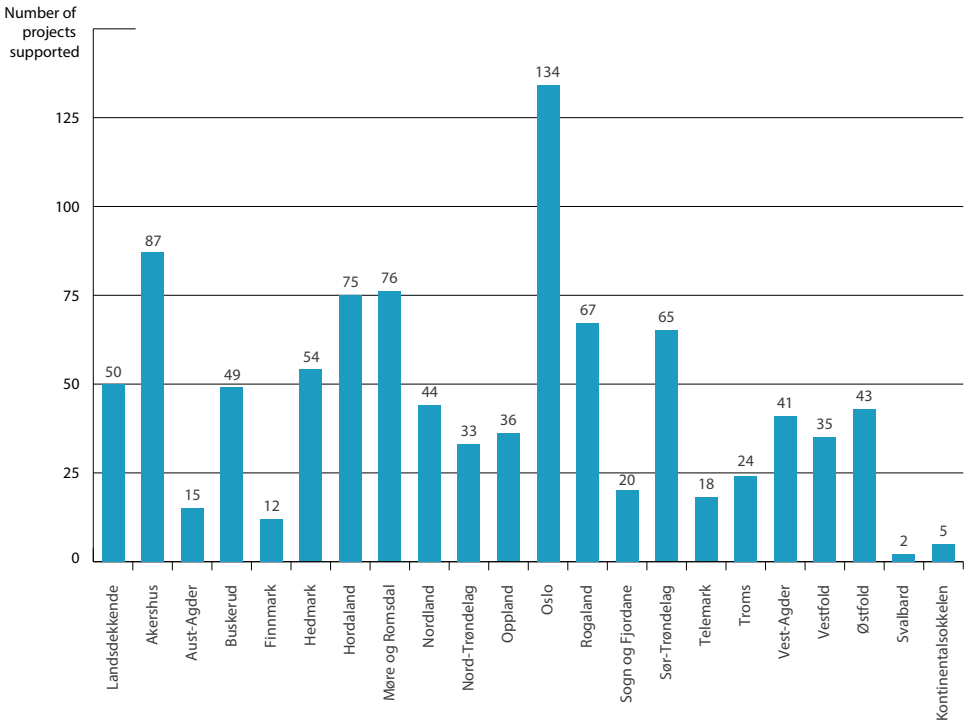
[9] *Enova has also granted support for about 3,800 energy measures in residences in 2015.*

FIGURE 3.16 NUMBER OF PROJECTS SUPPORTED WITHIN THE ENERGY FUND IN 2015 – DISTRIBUTED BY COUNTY



The figure shows number of projects supported in each county in 2015. Projects that are characterized as "nationwide" apply to projects that involve measures in two or more counties. The Enova Subsidy and Energy measures in residences (2012-2014) are not included in this overview. Support for energy advisory services was included in the Enova Subsidy starting in 2015. The projects that applied to this programme during 2013-2014 were removed from the overview.

FIGURE 3.17 NUMBER OF PROJECTS SUPPORTED WITHIN THE ENERGY FUND IN 2012-2015 – DISTRIBUTED BY COUNTY

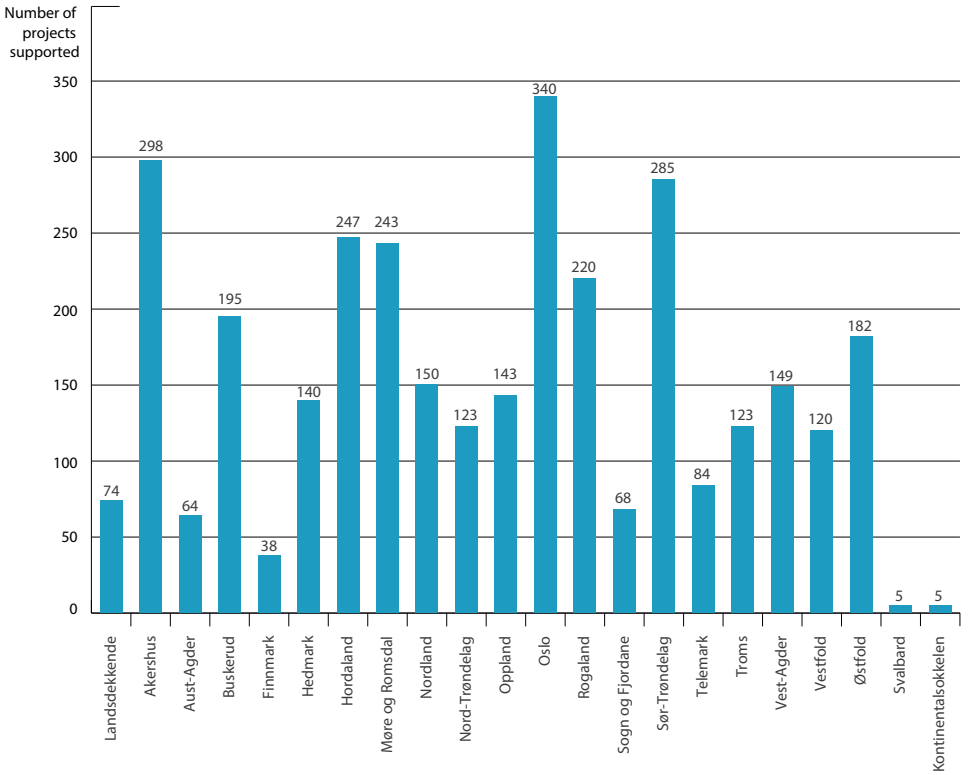


Figure 3.17: The figure shows the number of projects supported in each county in 2012-2015. Projects that are characterized as "nationwide" apply to projects that involve measures in two or more counties. The Enova Subsidy and Energy measures in residences (2012-2014) are not included in this overview. Support for energy advisory services was included in the Enova Subsidy starting in 2015. The projects that applied to this programme during 2013-2014 were removed from the overview.

TABLE 3.18 TOP 10 IN 2015 – PROJECTS WITH THE HIGHEST AWARDED FUNDING LEVEL

Market	Project description	Applicant	Contractual energy result	Contractual support
			GWh	NOK million
Industry	Copper demonstration plant	Glencore Nikkelverk AS	35	**380**
Industry	Alcoa Advanced Smelting Technology	Alcoa Norway ANS	10	**280**
Industry	Establishment of a demonstration plant for a bio-based coal substitute	Arba Follum AS	143	**138**
Transport	Environmentally friendly ferries in Hordaland	Hordaland County Authority	62	**134**
Industry	Application for support for new energy and climate technology	Tizir Titanium og Iron AS	22	**123**
Renewable heating	District heating Finnsnes	Finnsnes Fjernvarme AS	34	**52**
Transport	Biogas project at Norske Skog Saugbrugs	Norske Skog Saugbrugs AS	46	**52**
Non-industrial plants and facilities	Increased district heating deliveries Oslo – Forbrenningslinje 3 – Heat pump project 2015-2016	Klemetsrudanlegget AS	40	**42**
Industry	Installation of electrochlorinator	Statoil Petroleum AS Melkøya	89	**41**
Non-residential buildings	Powerhouse Brattørkaia	Entra Eiendom AS	4	**37**

Table 3.18: The table shows the ten largest projects in 2015 measured by contractual funding level

TABLE 3.19 TOP 10 IN 2015 – PROJECTS WITH THE HIGHEST ENERGY RESULT

Market	Project description	Applicant	Contractual energy result	Contractual support
			GWh	NOK million
Industry	Establishment of a demonstration plant for a bio-based coal substitute	Arba Follum AS	**143**	138
Transport	Upgrade plant for biogas at Veas	Vestfjorden Avløpsselskap (VEAS)	**93**	31
Industry	Installation of electrochlorinator	Statoil Petroleum AS Melkøya	**89**	41
Transport	Environmentally friendly ferries in Hordaland	Hordaland county authority	**62**	134
Transport	Biogas project at Norske Skog Saugbrugs	Norske Skog Saugbrugs AS	**46**	52
Industry	Introduction of Energy Management at Gullfaks	Statoil Petroleum AS Gullfaks	**43**	1
Non-industrial plants and facilities	Increased district heating deliveries Oslo – Forbrenningslinje 3 – Heat pump project 2015-2016	Klemetsrudanlegget AS	**40**	42
Industry	Copper demonstration plant	Glencore Nikkelverk AS	**35**	380
Renewable heating	District heating Finnsnes	Finnsnes Fjernvarme AS	**34**	52
Renewable power	Test turbine – Smøla	Statkraft AS	**31**	31

Table 3.19: The table shows the ten largest projects in 2015 measured by contractual energy result

Del III B:

Reporting – the Energy Fund 2001–2011

Energy results and allocations 2001–2011

Table 3.20 shows the allocation of funds from the Energy Fund and total energy results during the 2001-2011 period, updated at the end of 2015, distributed by market and year. This table takes a basis in the year the funds were allocated, not the year the framework was awarded. Cancelled projects must be corrected for energy results for the year the contract was originally signed and recorded. The contractual support amount will be released and returned to the Energy Fund so it can be put into new projects. The fact that cancellations are corrected with retroactive effect, results in released funds and transfer of resources between years.

Enova awarded about NOK 8 billion in support for energy projects during the 2001-2011 period. The total investments which the support will trigger amount to more than NOK 40 billion. Enova's support percentage varies from market to market. In building, heating and industry projects, the support averaged less than 20 per cent of the projects' total investments during the agreement period. Within new technology projects, the support constituted between 25 and 50 per cent of investments.

TABLE 3.20 ENERGY RESULTS AND ALLOCATIONS 2001-2011

	2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		Total	
	GWh	MNOK	GWh	MNOK	GWh	MNOK	GWh	MNOK	GWh	MNOK	GWh	MNOK	GWh	MNOK	GWh	MNOK	GWh	MNOK	GWh	MNOK	GWh	MNOK	GWh	MNOK
Renewable heating	328	-	173	49	233	31	135	69	167	64	572	278	367	161	684	345	663	511	562	282	368	297	4 251	2 087
Biofuel production	-	-	-	-	154	3	255	14	162	6	100	4	167	5	67	3	-	2	-	-	-	-	906	38
Renewable power	120	-	80	35	127	27	441	186	334	137	-	-	-	-	55	80	453	1 041	498	916	-	-	2 107	2 422
Industry	300	-	157	19	136	16	360	56	248	34	556	92	573	106	206	42	807	317	183	69	84	39	3 610	789
New technology	28	-	1	19	-	-	-	9	-	2	2	7	8	71	1	13	2	45	15	51	7	20	64	236
Non-residential buildings[1]	44	-	147	56	300	65	265	65	556	112	363	101	188	67	351	132	252	489	184	156	504	484	3 154	1 729
Residential buildings[2]	-	-	-	-	-	12	-	12	-	14	-	36	10	45	-	56	-	62	-	72	42	106	52	416
Analyses, development and strategy	-	-	-	7	-	7	-	6	-	5	-	8	-	11	-	9	-	9	-	17	-	28	-	107
International work	-	-	-	6	-	7	-	7	-	12	-	11	-	6	-	4	-	9	-	8	-	7	-	75
Communications and public relations	-	-	-	112	-	40	-	26	-	47	-	19	-	21	-	44	-	25	-	24	-	56	-	413
Administration	-	-	-	42	-	36	-	41	-	45	-	47	-	61	-	75	-	100	-	93	-	95	-	635
NVE contracts (2001)*	-	385	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	385
Total	**820**	**385**	**557**	**346**	**949**	**244**	**1 456**	**491**	**1 468**	**478**	**1 593**	**602**	**1 313**	**553**	**1 364**	**803**	**2 177**	**2 609**	**1 442**	**1 688**	**1 004**	**1 132**	**14 145**	**9 331**

Table 3.20: The table shows aggregated energy results and funds allocated from the Energy Fund in the period 2001-2011, corrected for cancelled and final reported projects as of 2015. Funds for the NVE projects from 2001 (NOK 385 million) have not been distributed in the various markets. The associated energy result has been distributed by market and totals 820 GWh.

1 For the 2001-2011 portfolio, non-residential buildings also includes non-industrial plants and facilities.

2 The household subsidy programme for electricity conservation was incorporated in the Energy Fund from 1 July 2011, and the results are recorded from this time.

TABLE 3.21 ENERGY RESULTS 2001-2011, CORRECTED FOR CANCELLATIONS, FINAL REPORTING AND REALIZED RESULTS

Market	Gross contractual result	Total contractual result[1]	Contractual corrected for final reported result	Contractual corrected for final reported and realized result
	2001-2011	2001-2011	2001-2011	2001-2011
	GWh	GWh	GWh	GWh
Renewable heating	6 676	4 706	4 251	4 464
Biofuel production	1 035	891	906	773
Renewable power	3 750	2 108	2 107	1 927
Industry	5 670	3 793	3 610	3 280
New technology	213	116	64	73
Non-Residential buildings[2]	3 648	3 134	3 154	3 252
Residential buildings[3]	90	52	52	52
Total	**21 083**	**14 801**	**14 145**	**13 822**

Table 3.21: The table shows the contractual energy result (in GWh) distributed by market and year, both before and after correction for cancelled, final reported and realized projects.

1 Contractual results show the energy result at the end of 2015 corrected for cancellations during the period 2001-2015.

2 In the period 2001-2011, non-residential buildings also includes non-industrial plants and facilities.

3 With the exception of certain measures in 2007, energy results within the Residences market area were not contractual until 2011. The household subsidy programme was incorporated in the Energy Fund from 1 July 2011, and the results are recorded from this time.

Table 3.21 shows the contractual energy result for the 2001-2011 period, distributed by market and year, before and after correction for cancelled, final reported and realized results. The contractual energy result is about 30 per cent lower than the gross contractual energy result. The contractual result has been corrected for cancelled projects. We see that the total contractual energy result changes marginally with correction for final reported and realized results. There are some individual differences on the market level. While projects in renewable heating and non-residential buildings consistently have better energy results measured after a few years of operation, renewable power and biofuel processing show the opposite development.

FIGURE 3.18 PERCENTAGE OF FINAL REPORTED PROJECTS APPROVED IN THE PERIOD 2001-2011

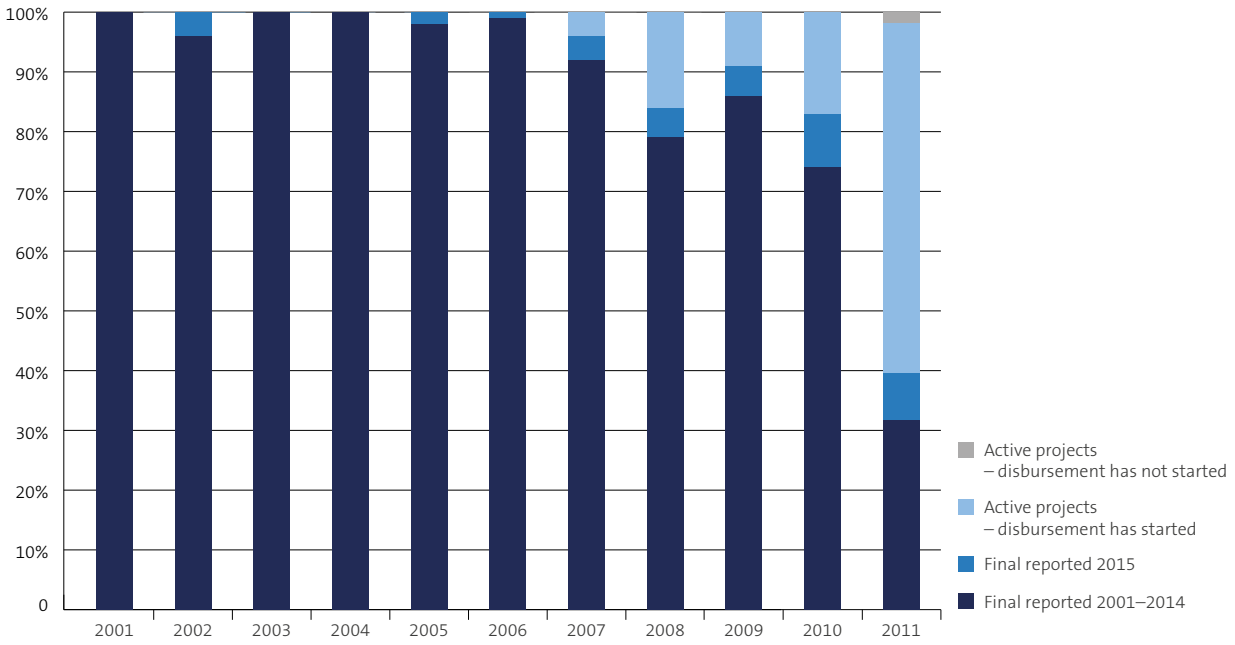


Figure 3.18: The figure shows the percentage of final reported and active projects at the end of 2015, distributed by the year the project was approved. The figure also shows the percentage of the active projects where disbursement has started.

Figure 3.18 shows the percentage of final reported projects for the years going back in time. We can see that the percentage of final reported projects increases with the age of the projects. The figure illustrates the timeline for Enova's investment support. Final reports have been submitted by 2015 for all projects from 2002-2006. The percentage of final reported projects is also high for other years, with the exception of 2011, with an average of about 90 per cent.

The figure also differentiates between active projects where disbursement has started and active projects where disbursement has not yet started. The risk of a project being cancelled has turned out to be significantly lower when disbursement of support has started.

Enova carries out active follow-up of the projects' progress and rate of completion. Systematic and sound follow-up will contribute to the projects being implemented in line with the agreements. In those instances where projects for various reasons will not be implemented, close follow-up ensures that we prevent funds from being unnecessarily tied up in projects without any progress.

Final reports have been submitted for about 0.5 TWh in 2015 from projects whose contracts were entered into in 2001-2011.

FIGURE 3.19 ENERGY RESULTS AND CANCELLATIONS PER CONTRACT YEAR 2001-2011

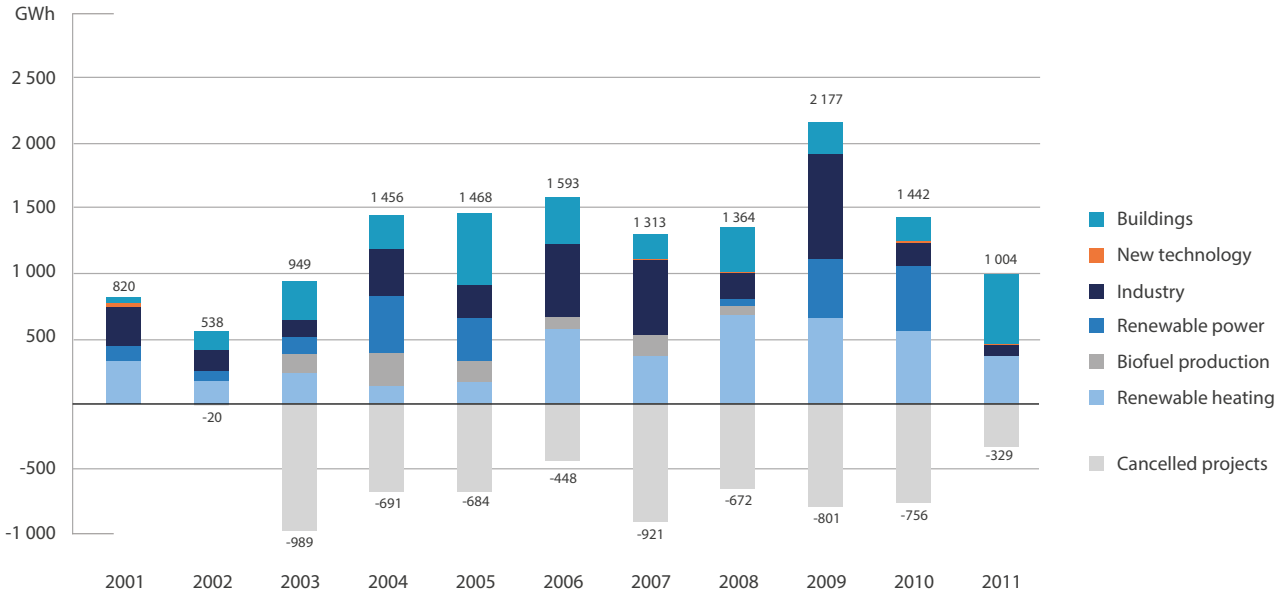


Figure 3.19: The figure shows the contractual energy results for 2001-2011, distributed by contract year. The figure shows how cancelled contracts impact annual net energy results. Overall, the columns show the contractual energy result for each year. Cancellations contribute to an annual accumulated deduction (the negative part of the columns) from Enova's net energy result (the positive part of the columns). The figures are corrected for changes in the energy results in final reported projects.

Figure 3.19 shows the contractual energy result from contracts signed in the period 2001-2011, distributed by contract year.

The figure shows how cancellation of contracts retroactively affects annual net energy results. The figure shows that the scope of cancellations varies between years. The scope of cancellations within 2011 is 25 per cent, while the average is 31 per cent.

Realized results

When Enova supports a project, the support recipient commits to achieving a certain energy result in the future. It takes time from project application until energy results can be harvested after project implementation. For the largest projects supported by Enova, implementation takes several years. The results, in the form of energy saved or renewable production, then vary from year to year.

Enova was established in 2001, and the oldest projects in our portfolio have accumulated sufficient operational experience to report what results they have actually realized. We have examined the results from the 3800 projects that were implemented in the period from 2001 to 2011. Of these projects, the percentage completed within the period are the relevant source of empirical data – realized results.

Main results

In a normal year, these projects expect to achieve about the same energy result that corresponds with their final reported result. Most of the projects, roughly two out of three, have realized the results they expected to, or more. Some projects achieve lower results than is recorded in the final reports, for example the wind power projects. Enova has phased out its wind power programmes.

Overall, the projects expect result fluctuations between -20 per cent and +15 per cent from year to year.

FIGURE 3.20 REALIZED RESULTS COMPARED WITH CONTRACTUAL AND FINAL REPORTED RESULTS

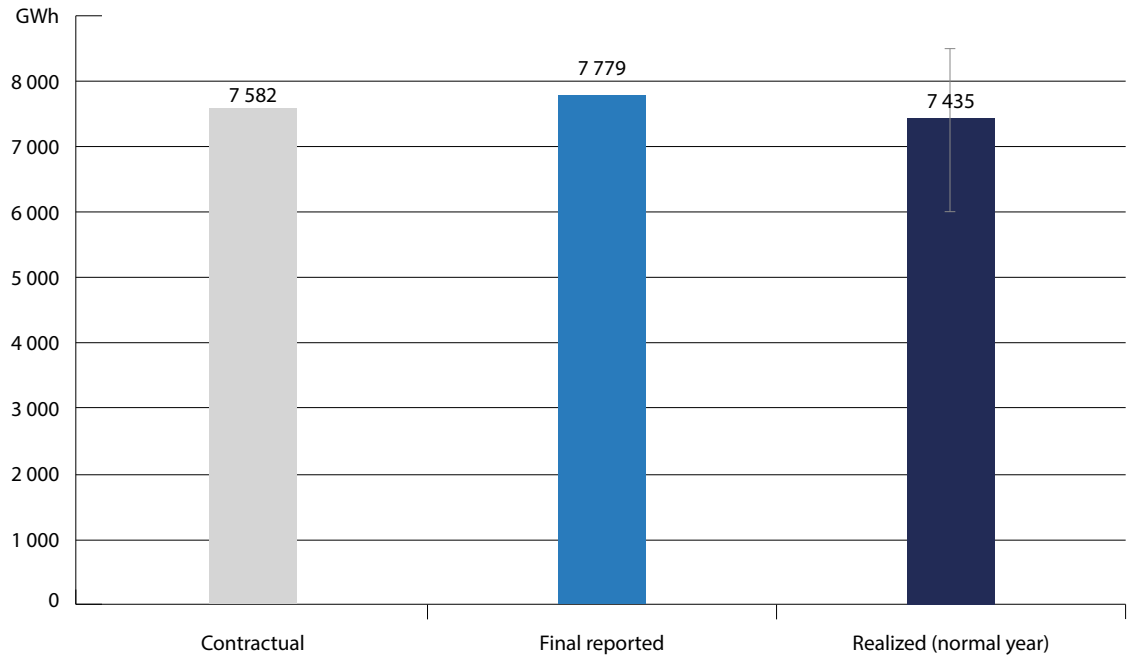


Figure 3.20: The figure shows aggregated results as of 2015 for projects subject to final reporting before 31 December 2012. The total contractual, final reported and realized in a normal year. Natural discrepancies from a normal year are also shown for realized results.

Realized results within market areas

Figure 3.21 shows the contractual and final reported energy results for each market area, and the realized energy result during a normal year. The expected interval for variation in energy results from year to year is indicated by lines on the column for the realized result. Each project has reported the annual energy result they expect in the best and worst case scenarios, and the intervals are derived from this.

Projects within renewable heating realize about 10 per cent higher energy results than expected when the projects are completed. The projects expect considerable variations from year to year, but the energy results predicted upon completion will usually be higher – as much as 25 per cent higher than expected in some cases.

FIGURE 3.21 REALIZED RESULTS PER MARKET COMPARED WITH CONTRACTUAL AND FINAL REPORTED RESULTS

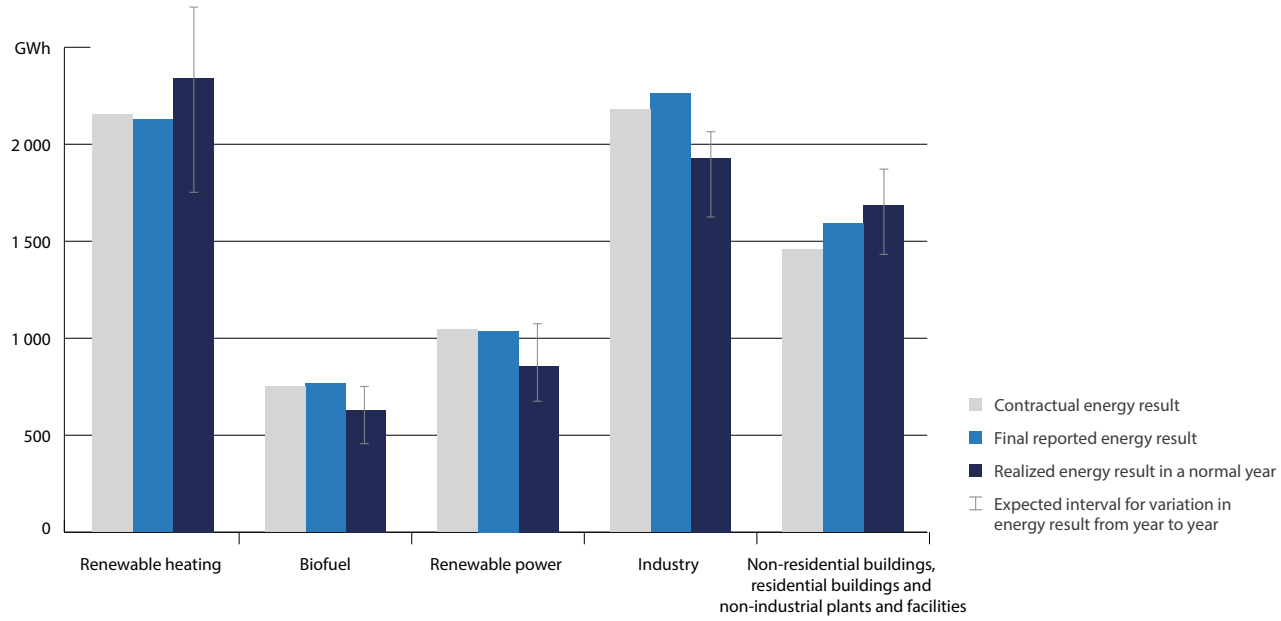


Figure 3.21: The figure shows realized results in a normal year per market as of 2015, compared with contractual and final reported result for projects subject to final reporting before 31 December 2012. The expected interval for variation in energy result from year to year is indicated with vertical lines on the columns for realized results

The wind power projects (renewable energy) do not deliver the expected energy results. The normal annual production is about 15-20 per cent lower than production estimates used as a basis upon completion of the projects. However, in a good year, it is possible to generate the expected volume of energy.

For industry projects, the lower realized energy result is mostly related to a single large project where the observed energy effect of the measures was lower than final reported.

Biofuel projects do not deliver the expected results, and the projects report a high risk of not delivering enough results. At worst, the result is 40 per cent lower than expected when the projects were completed.

Composition of Enova's overall energy results

Figure 3.22 shows how Enova's overall energy results are distributed across projects with varying maturity. One year could both include contractual results from projects still in the start-up phase, as well as realized results from completed projects that have been operational for several years. The earlier the year, the larger the percentage of final reported and realized energy results.

FIGURE 3.22 KONTRAKTSFESTEDE, SLUTTRAPPORTERTE OG REALISERTE ENERGIRESULTATER 2001-2011

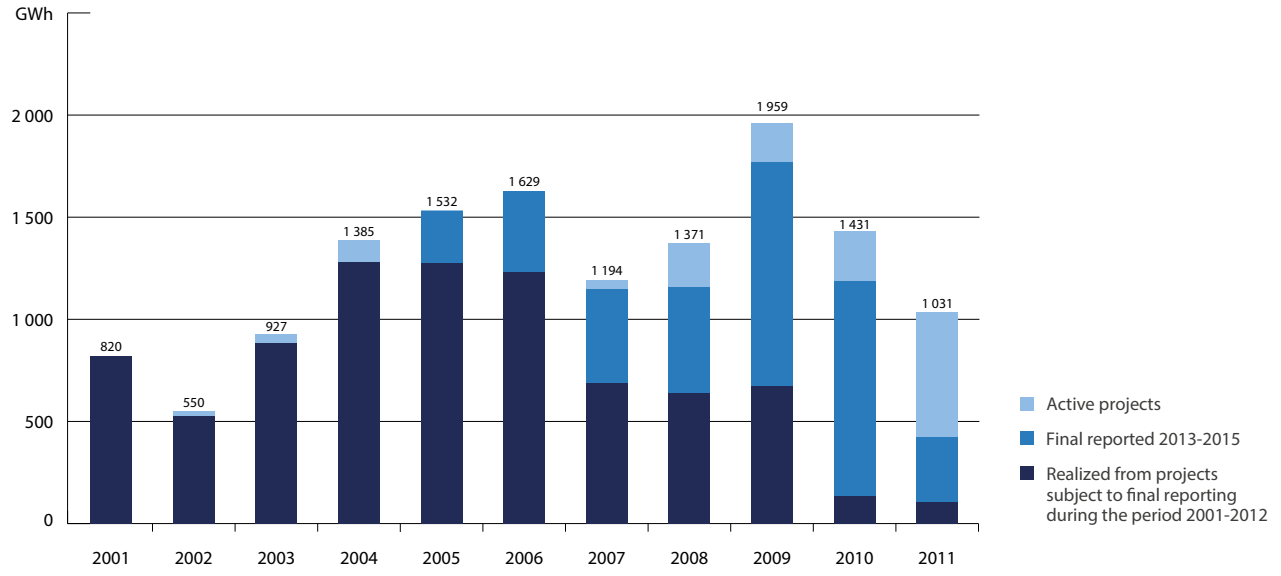


Figure 3.22: The figure shows the net contractual, final reported and realized energy results distributed by the year the contract was entered into. The figures are corrected for changes in energy result in final reported and realized projects.

Climate reporting

This chapter summarizes the estimated volume of annual greenhouse gas emission reductions from Enova's project portfolio for the 2001-2011 period.

In 2012, Enova further developed its database to show the energy and climate result for each project. The climate accounts for the agreement period 2012-2016 take a basis in the figures for contractual energy result (kWh) in Enova's database and corresponding emission factors (for example CO_2 equivalents/kWh) for the various energy carriers in the project. The climate accounts for the period 2001-2011, however, are based on a template assessment of the volume of oil reduction achieved for each market. It is assumed that half of the energy result from projects within renewable heating will replace oil and half will replace electricity. Each kWh in energy result from industry leads to an estimated reduction in oil consumption of about 34 per cent on average for the period 2001-2011. The energy results from renewable power and new technology are presumed to have a 100 per cent impact via electricity as an energy carrier. That is why the reduction in oil consumption is estimated as zero in these areas. Projects within buildings are expected to result in a proportionately smaller reduction in oil consumption, about 12 per cent.

As a result of the above, there is significant uncertainty associated with estimated climate results for the project portfolio from 2001-2011. For example, Enova has supported projects that include conversion from or improved energy efficiency of other fossil fuels than oil, such as natural gas, etc. The climate impact of such measures has not been taken into consideration here, only the impact of estimated greenhouse gas reductions from improving the efficiency of oil consumption.

With a basis in energy results for 2001-2011, we estimate that projects supported by Enova during this period have a climate result of about 1 133 kilotonnes of CO_2 equivalents.

TABLE 3.22 CLIMATE RESULT FROM ESTIMATED REDUCTIONS IN OIL CONSUMPTION FOR PROJECTS SUPPORTED BY ENOVA DURING THE PERIOD 2001-2011

Market area	Energy result	Climate result from reduced oil consumption
	GWh	ktonnes CO_2 -eqv.
Renewable heating	4 251	644
Renewable power	2 107	-
Industry	3 610	372
New technology	64	-
Non-residential buildings[1]	3 154	115
Residential buildings[2]	52	2
Total	**13 238**	**1 133**

Table 3.22: The table shows the total energy result and the estimated reduction in greenhouse gas emissions as a result of reduced oil consumption from projects approved during the period 2001-2011. Biofuel production is not included in this table.

1 *In the period 2001-2011, non-residential buildings also includes non-industrial plants and facilities.*

2 *With the exception of one measure in 2007, energy results within the Residential buildings market area were not made contractual until 2011. The subsidy programme for electricity conservation in households was incorporated in the Energy Fund from 1 July 2011, and the results are recorded from this time.*

Climate result from estimated improved oil consumption efficiency

Table 3.22 shows the energy result distributed by market, and the corresponding estimated reduction in greenhouse gas emissions as a result of measures that have helped reduce oil consumption. The emission coefficients for oil were taken from the Ecoinvent database[10].

Renewable heating and industry achieve the biggest reductions in greenhouse gas emissions, and correspondingly have the largest percentage of energy result from reduced oil consumption.

Overall climate result from the period 2001–2011

Enova supports projects that help improve the efficiency of electricity consumption, or conversion from electricity to renewable energy sources. The climate result from these types of measures will be highly dependent on the system limit used as a basis. To calculate changes in greenhouse gas emissions as a result of measures that result in reduced electricity consumption, we take a basis in four different electricity scenarios and corresponding emission intensities. These scenarios are: Norwegian power consumption mix, Nordic power production mix[11], European power production mix and coal power (EU average). The emission intensities for the power mixes came from the European Environment Agency (EEA)[12] and from the IEA[13] for coal power. The emission coefficient for oil was taken from the Ecoinvent database[14]. The results are contingent upon the assumptions used as a basis for the alternative power supply.

Table 3.23 shows the overall climate impact of the projects, including both the impact from reduced oil consumption and from more efficient electricity consumption. Using the European power production mix as a basis, the projects from 2001-2011 achieve a climate result of about 4 894 kilotonnes of CO_2 equivalents.

TABLE 3.23 **OVERALL CLIMATE RESULT (FROM REDUCED OIL CONSUMPTION + MORE EFFICIENT USE OF ELECTRICITY OR CONVERSION FROM ELECTRICITY TO RENEWABLE SOURCES) FROM PROJECTS APPROVED IN THE PERIOD 2001-2011**

Market	Norwegian power consumption mix[1]	Nordic power production mix[2]	European power production mix[3]	Coal power (EU average)[4]
	ktonnes CO_2 -eqv.	ktonnes CO_2 -eqv.	ktonnes CO_2 -eqv.	ktonnes CO_2 -eqv.
Renewable heating	674	820	1 486	2 517
Renewable power	30	175	834	1 857
Industry	405	570	1 315	2 471
New technology	1	5	25	57
Non-residential buildings[5]	154	345	1 214	2 560
Residential buildings[6]	2	10	20	324
Total	**1 266**	**1 925**	**4 894**	**9 786**

Table 3.23: The table shows the estimated reduction in greenhouse gas emissions from measures that contribute to reduced oil consumption and reduced electricity consumption from projects approved in the period 2001-2011. Biofuel production is not included in this table.

1 *14 gCO_2 eqv./kWh (source: European Environment Agency)*

2 *83 gCO_2 eqv./kWh (source: European Environment Agency)*

3 *396 gCO_2 eqv./kWh (source: European Environment Agency)*

4 *881 gCO_2 eqv./kWh (source: IEA)*

5 *In the period 2001-2011, non-residential buildings also includes non-industrial plants and facilities.*

6 *The subsidy programme for electricity conservation in households was incorporated in the Energy Fund from 1 July 2011, and the results are recorded from this time.*

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[10] *http://www.ecoinvent.org/*

[11] *The emission intensity for the Nordic power production mix is based on electricity production in Norway, Denmark, Sweden and Finland.*

[12] *http://www.eea.europa.eu/data-and-maps/figures/CO_2-electricity-g-per-kwh/CO_2-per-electricity-kwh-fig-1_2010_qa.xls*

[13] *http://www.iea.org/media/workshops/2011/cea/topper.pdf*

[14] *http://www.ecoinvent.org/*

Del III C:

Reporting by topic; new energy and climate technology: renewable power

Norwegian power supply – by the numbers

Value creation is contingent on energy. In a low emission society, this energy must be renewable. Norway is already a leading renewable power nation. As Europe's top hydropower producer, and number six globally, Norway is in a unique position with a wide array of possibilities. The future has a solid foundation in Norway, but needs continued innovation to make the renewable power production more competitive.

The sector's adaptability and innovation have been crucial in putting Norway in its current position. We have seen increased international demand for renewable energy as a result of the climate challenge. New energy technology will yield new possibilities for utilizing the potential and value of the green gold in Norway's natural resources.

TABLE 3.24 KEY FIGURES NORWEGIAN POWER SUPPLY

Indicator	Description	Size
Number of employees in the power sector[1]	Total	About 19 000
Values	Gross product in power supply	NOK 54.4 billion
	% of GNP in Mainland Norway	2.2%
	Investments in electricity supply	NOK 19.2 billion
	Of which are grid investments	NOK 10.2 billion
Power production in Norway	Total	142.0 TWh
	Hydropower	136.2 TWh
	Thermal power	3.6 TWh
	Wind	2.2 TWh
Eksport	Net	15.6 TWh
Electricity consumption	Total	117.1 TWh
Greenhouse gas emissions electricity production[2]	Norway	4.5 g/kWh CO_2 eqv.
	EU	396.1 g/kWh CO_2 eqv.

Table 3.24: The table shows key figures for Norwegian power supply. The reference year is 2014, except where otherwise specified. Sources: Statistics Norway and the European Environment Agency[2]

1 *Referance year 2013.*

2 *Referance year 2009.*

A total of 175 companies are currently producing power in Norway. The largest 10 manage nearly 70 per cent of total production capacity[15]. Ownership is generally public.

About 140 TWh of power are normally produced every year[16], while net consumption is around 120 TWh. Between 5 and 15 TWh are exported, while some is used for the actual power production or is lost in the grid. About 96 per cent of this production is hydropower. Both production and consumption have multiplied many times since 1950, but growth has started to stagnate. While energy consumption has levelled off over the past few years, the power requirement continues to grow. Access to power has become a relevant topic in major industry developments and in connection with electrification of the shelf. The development is headed in the direction of more unregulated power (wind, small-scale power, solar). Security of supply has become a question of energy, output and delivery reliability.

Norwegian power sector: 96 per cent renewable in need of renewal

The foundation for Norway's current power system was established in the late 1800s. Access to hydropower that produced cheap electricity was crucial for the location and development of power-intensive industry in Norway. While the industrial revolution elsewhere was based on coal and oil, Norway could develop its own industry on renewable hydropower, which generated no emissions. Despite a major effort by the Norwegian state, municipalities and power cooperatives, nearly every citizen in Norway had access to electricity in the mid-1960s. Norway was self-sufficient with renewable power.

With the deregulation of the market in 1991, the power sector was largely left to the market forces. Periods with a power surplus resulted in low electricity prices and low incentives for development and innovation. The power surplus turned into a power deficit. An official report on the energy and power balance from 1998 (NOU 1998:11) pointed out that Norway risked having a power deficit of 10 TWh in 2012. Enova was established as a direct result of this report.

Enova's mandate has been closely linked to strengthening security of supply. Energy consumption shall become more efficient and new production shall be renewable. From its establishment until 2010, Enova was responsible for development of wind power. This work paved the way for the development of wind power in Norway and the establishment of a Norwegian market. Enova laid the groundwork for the market-based electricity certificate system which currently supports the production of new renewable power. Today, Enova's role within renewable power is to provide support for technologies that have not been commercialised.

The current market conditions for investments in new renewable power production in Norway are challenging. This is because of a power surplus that yields low power prices, and a surplus of electricity certificates, which has in turn lowered their price. In the longer term, there is reason to believe that increasing value creation in mainland Norway within the framework of a low emission society will generate a substantially increased need for renewable energy.

Renewable power potential in Norway

Norway has a major untouched potential in its energy resources. The Norwegian Water Resources and Energy Directorate (NVE) estimates that the hydropower potential is 214 TWh, where nearly 34 TWh is remaining potential that has not been developed or is protected from hydropower development. According to calculations, the technical Norwegian wind power potential is three times larger than hydropower. The offshore power production potential is also significant, with a technical potential of more than 10.000 TWh.

The grid and transmission capacity sets the premises for the power market. A strengthening of the domestic transmission and distribution grid is required. Smart grids and storage technology can also free up the potential that lies in optimizing the interaction between production and consumption. Development of international transmission capacity increases security of supply, and will allow Norway to export renewable power.

Innovation and technology development within renewable power – status and expected development

The technologies within renewable power vary with regard to technology and market maturity, see Figure 3.23 and the fact box below. Sorted by maturity, we can split the various energy sources into three groups:

1. Mature market and mature technology that is already commercialized or close to commercial: hydropower, onshore wind power.
2. Expected commercialization of the technology in a ten-year perspective (2015-2025): solar power, partially offshore wind.
3. Immature market and technology and high cost level, not expected to be ready for market introduction/commercialization within a ten-year perspective; wave power, tidal power, etc.

FIGURE 3.23 EXPECTED DEVELOPMENT IN TECHNOLOGY MATURITY AND COSTS FOR RENEWABLE POWER TECHNOLOGIES

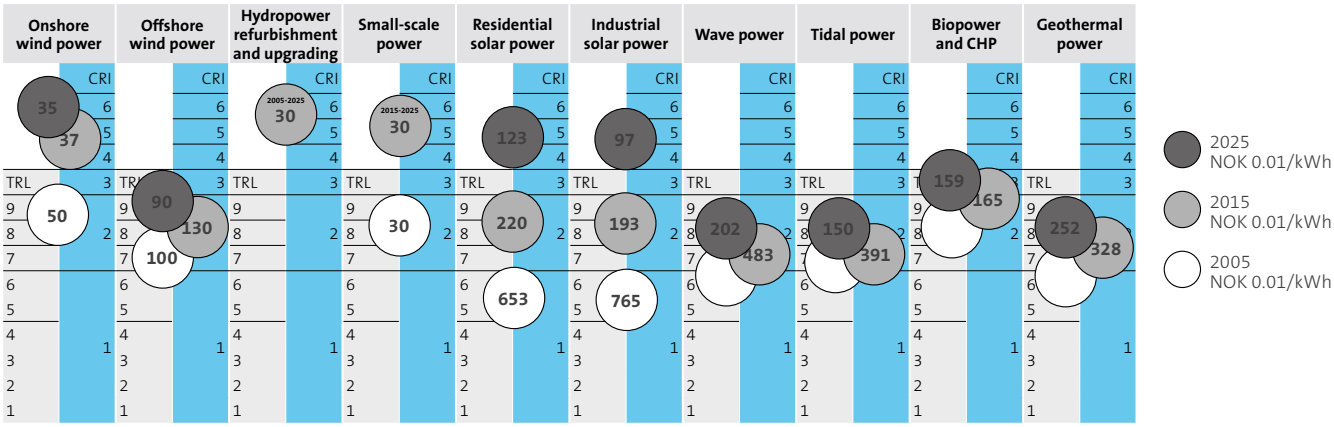

Figure 3.23 – A general assessment of expected development in costs (LCOE (levelized cost of electricity) shown in 2015 NOK 0.01/kWh) and maturity (TRL and CRI) for different types of renewable power production. Note that the figure has used the exchange rate from 2014 as a basis, and thus has not taken into account the substantial weakening of the NOK against the USD and Euro. In practice, this entails that the cost level is somewhat lower than what is the case in early 2016 for the technologies where a large share of the cost consists of imported components. An empty circle means that historic cost development has not been assessed for the period 2005-2015, due to limited data access and uncertainty. Source: Rambøll.

Technology Readiness Level (TRL) and Commercial Readiness Index (CRI)

Technology Readiness Level (TRL) is a widely used method for analyzing technology maturity. The method involves dividing technology development into a scale from one to nine, where the levels reflect the various development stages a technology must undergo on the way from basic research, via lab testing and demonstration, until the technology is introduced in the market. At the same time, different technologies can be verified and ready for commercialization, but have varying points of departure for competing on commercial market terms with regard to costs and market maturity. This can be highlighted by supplementing the TRL rating with a **Commercial Readiness Index (CRI)**. CRI provides an overall and broader assessment of the technology's maturity, the strength of the cost assessment and financial terms, as well as the market maturity in relation to the market player and competition situation on the supply and demand side. The Correlation between TRL and CRI is shown in the figure. Projects with a CRI 1 level are typically supported by the Research Council of Norway. The limit is for CRI 2 (TRL 7), which is full-scale projects that are financed through a combination of equity and government subsidies, for example Enova or Innovation Norway.

		CRI	
		6	Market-based and bankable
		5	Market competition, widespread use
		4	Multiple commercial applications
	TRL	3	Commercial scale-up
Commercial technology	9	2	Commercial trial
Market introduction	8		
Demo and pilot	7		
Experimental development	6	1	Hypothetical commercial proposition
	5		
Research and development	4		
	3		
	2		
	1		

Source: Rambøll

[15] *Source: http://energilink.tu.no/leksikon/kraftprodusent.aspx*
[16] *Source: http://publikasjoner.nve.no/rapport/2013/rapport2013_58.pdf*
[17] *Source: NVE. Obtained from "Fakta 2015. Energi og vannressurser" (MPE, 2015)*

Hydropower, wind power and solar power are expected to be the largest and most rapidly growing power technologies over the next ten years. Technology and market development are also expected within wave power, tidal power and geothermal power, while further technology development within biopower and osmotic power in particular is expected to be limited.

Currently, offshore wind power and solar power are considered equally commercially mature, with a Commercial Readiness Index (CRI, see fact box) of 2. Offshore wind is currently in the market introduction stage. Commercialization leading up to 2025 will require further cost and maturity development. The other marine technologies and geothermal power are lower on the CRI scale and are not expected to reach a commercial level by 2025. These technologies face considerable challenges in connection with high wear on the facility components. This results in a high need for maintenance and significant downtime, which means low availability and a short lifetime. In combination with high investment costs, these are considered the largest barriers for significant cost reductions going forward.

The figure shows that solar power is expected to see the most rapid development in both technology and market maturity, and thus also cost level. For solar power in commercial buildings, costs are expected to drop by half in relation to the current level leading up to 2025. The market competition situation is currently characterized by many small players. This, along with tendencies toward under-pricing/price-dumping of deliveries from China, could mean that the current cost level is artificially low.

Drivers and barriers for innovation in renewable power

Security of supply has been the key driving force for development of renewable power. The climate challenge has become another reason for further development. In the EU, emissions from energy supply constitute about one-fourth of all greenhouse gas emissions[18], which has resulted in goals to reduce greenhouse gas emissions and increase renewables. Norway has joined this mission. The electricity certificate market is essential for the power sector to achieve a renewables percentage of 67.5 by 2020.

The forecasts indicating that the current low power prices will persist in the short and medium term provide little incentive for large-scale development of new power production. Distributed and unregulated power production from new technology challenges the grid and power system model with regard to the quality of electricity and reliability of supply. This creates a need for new and smart technology that enables consumption management and bi-directional communication between the grid and so-called prosumers (end-users who also produce power). In turn, smart grids will create possibilities for grid owners through optimization of grid utilization.

For prosumers, savings in the grid tariff when producing for their own consumption constitute indirect added income. In practice, this means that the technologies are competing in a market where the prices (income) are higher than for large-scale power plants. When also developing technologies that can fulfil multiple functions simultaneously, for example solar cell technology that is integrated into the building structure, the costs will be distributed between the building and energy. New business models such as this yield improved profitability for new technology for distributed power production.

Norway has several comparative advantages for technology development. Norway is a large and important energy nation, with leading expert energy and climate research environments, a high level of industrial expertise from oil and gas, process and power industry. The Norwegian company culture also facilitates exploiting the generally high expertise level in the labour force. Norway has extensive expertise in the power production sector, within both renewable power production and marine operations. Overall, this makes Norway well-positioned for a leading role in the development of new energy and climate technology.

The objective of the electricity certificate market is to promote development of the most profitable renewable projects. However, a market-based instrument such as this is not suited for realizing new immature technologies, where the projects have high technology risk and high capital needs during the first installations up to commercialization and large-scale development.

A lack of risk-willing capital and willingness to invest have been challenges in the technology projects that Enova has supported within renewable power. The renewables percentage is already near 100, and power prices are low. The consequence of this is that several projects with promising technology have been unsuccessful in obtaining the necessary capital in the market. One example of this is the Flumill tidal technology that Enova supported in 2012, but which has not yet been realized.

The innovative players in the power market range from entrepreneurial start-ups to established power companies. The actual risk scenario differs, and the players' risk assessments vary widely. Larger companies have financial strength and organizational capacity, but are often unwilling to take risks. Small companies with one or few facilities and a small operating organization can be risk averse as a result of the vulnerability to lost income from downtime and lack of repeated experience with building and modifying power plants. Entrepreneurs are often optimistic about their own solutions and are unable to fully acknowledge the need for testing the technology in several stages. Based on experience, Enova has learned that it is crucial to reduce the technology risk before investing significant capital. Successful testing will increase the probability of attracting investors. If the testing provides unsatisfactory results, the project can be concluded before considerable costs have been incurred.

Success stories

Since 2012, Enova has awarded support to 12[19] plants for power production. Enova has awarded support to projects within wind (onshore and offshore), hydropower (small-scale power), wave, tidal, solar, bio, biogas from waste processing plants and osmotic power. There are also 21 projects that include production of power from solar, with the objective of testing new solar cell technologies, installation systems and storage technologies.

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[18] Emissions from production of electricity and district heating amounted to 27 per cent in 2012 within EU-27. Source: http://ec.europa.eu/eurostat/statisticsexplained/index.php/Greenhouse_gas_emissions_by_industries_and_households#Greenhouse_gas_emissions

[19] This figure also includes two power production projects from waste water and waste, as well as a funding commitment to support a tidal power project that was cancelled before development.

Wind power gains a foothold in Norway

WIND POWER TECHNOLOGY STATUS: ONSHORE AND OFFSHORE WIND

Energy source: Wind

QUALITATIVE ASSESSMENTS

- Onshore-based wind is currently a commercial technology in Norway, while offshore wind is at the market introduction stage and will be driven forward by international projects..
- Wind power is experiencing growth in Norway and globally
- Significant cost-reduction potential, driven by standardization, large-scale production and improved energy efficiency
- Service life for wind power is about 2400-3800 hours, where offshore wind is at the top. Service life is expected to increase over time

SUPPLIERS

- Few suppliers within offshore wind
- More suppliers within onshore wind, where some also deliver turbines to offshore
- International focus among both suppliers and market players

Onshore Wind

	2005	2015	2025
LCOE NOK 0.01/kWh	50	37	35
TRL	8	9	9

Offshore Wind

	2005	2015	2025
LCOE NOK 0.01/kWh	100	130	90
TRL	7	8	9

Source: Rambøll

Successful innovation and market introduction require education and innovation among a number of players beyond the project owner alone. Enova's support for onshore-based wind is an example of this. This support contributed to the development of a value chain with establishment of agreements, increased awareness among landowners, contractors and players beyond the actual power producer.

Along with limited support framework, few available projects and higher prices for other input factors, few developments were realized in Norway between 1999 and 2005. The energy result for wind power was about 1.1 TWh. No projects were realized in 2006 and 2007. Up to 2008, international wind power efforts contributed to driving up the price of wind power developments. With the strengthening of the Energy Fund in 2008, Enova also launched a new wind power programme with a higher framework. In 2008, 2009 and 2010, just under 1 TWh in new wind power was realized. A total of 19 projects were realized through support from Enova, with a total investment of NOK 7.5 billion and overall expected production of about 2.1 TWh. NOK 2.6 billion was awarded in support. In line with the intentions of the wind power goal and purpose of the restructuring of energy end-use and energy production, Enova considers this a successful investment in introduction and development of wind power in Norway.

Offshore wind – visions could turn into reality

Visions could turn into reality. Many have talked about Norway's offshore wind potential for years, and the possibilities of exploiting the offshore expertise to supply our offshore installations with a renewable power supply. A Norwegian player is finally taking the lead within floating offshore wind. In 2007, Statoil was awarded NOK 59 million from Enova for floating offshore wind with the Hywind turbine. The turbine has been operational for about five years and has provided valuable experience and verification of the technology. This led Statoil to the decision to build the Hywind Scotland wind farm, which will be the first floating offshore wind project in the UK. The wind farm will contain five turbines with an overall capacity of 30 MW.

Statoil is also looking at other areas of application for the technology. To expand the test programme for floating wind, Statoil is looking into the possibility of moving Hywind Demo to the Kvitebjørn-Valemon fields. Statoil is investigating whether it is possible to connect Hywind Demo to an oil and gas installation in a pre-project supported by Enova. The project will focus on how this will impact power consumption on the platforms, and well as how to optimize operations and maintenance by combining wind experience with oil and gas experience, as well as a number of other improvement areas for floating wind. The Hywind story is an excellent example of a challenging, thorough and successful verification process. The technology could become an important contribution towards realization of the considerable potential within floating offshore wind power in Norway and globally, and could bring us another step closer on the road towards a low emission society and sustainable change.

Hydropower – new technology realizes the potential
Hydropower is the most mature technology within renewable power production.

HYDROPOWER TECHNOLOGY STATUS: SMALL-SCALE POWER AND

Energy source: Water

QUALITATIVE ASSESSMENTS

- Hydropower is a mature, commercial technology
- Limited cost reduction potential
- Significant refurbishment and upgrading potential in existing power plants
- Variation in service life, typically between 2400-4500 hours for small-scale power and 800-2500 hours for refurbishment and upgrading (depending on the power plant type). Service life for small-scale power/run-of-river hydropower plants is normally higher than reservoir power plants
- Technology development is related to increased turbine efficiency, utilization of low water flow and low head and management/optimization

SUPPLIERS

- Low risk profile for projects and long technical lifetime
- Established supplier market
- Industry is dependent on economic cycles, particularly in connection with development and plants.

Hydropower refurbishment and upgrading (>10 MW)

	2005	2015	2025
LCOE NOK 0.01/kWh	30	30	30
TRL	9	9	9

Small-scale power (<10 MW)

	2005	2015	2025
LCOE NOK 0.01/kWh	30	30	30
TRL	8	9	9

Source: Rambøll

The opportunities for innovation are substantial, also with regard to new technology to extract potential that is not exploited for technical, environmental or financial reasons. One example of this is, loss of energy as a result of the minimum water flow requirement that many dammed waterways are currently subject to, due to environmental concerns. This potential is expected to increase in the future as a result of 395 hydropower licences being up for revision by 2022. The NVE proposes prioritizing 103 of these, and estimates that the power loss from minimum water flow will be 2.3-3.6 TWh/year. New technology that is able to exploit this water volume for power production while also safeguarding environmental concerns, could have a considerable potential in Norway. Agder Energi Vannkraft has led the way in exploiting this potential through utilizing new technology to use the minimum water flow for power production.

The road ahead
Full-scale implementation of new technologies under real operating conditions is a necessary step on the road towards commercialization. Norway holds a unique national and international position when it comes to renewable power. We have excellent preconditions for also contributing to global sustainable change. The potential is vast, but realization will require mobilization and increased commitment. The public sector can facilitate change and pave the way, but businesses and industry must implement the change. Overall, the technology companies within renewable energy are currently too few and willingness to invest in new technology is too low. Risk-willing investors deserve much of the credit for making the Norwegian oil and gas industry a global leader. Going forward, Norway will need more investors with venture capital that also see the possibilities and are willing to invest in renewable energy technology.

Enova wants to see more renewable power projects. It is very gratifying when the established power industry submits applications for realization of new technology projects. New technology increases the realm of what is feasible and the value of the considerable renewable power potential that Norway holds, both within already used and hitherto unused energy sources. At the same time, the power system (grid) must be organized to withstand the change in production and consumption patterns. Enova wants to contribute to the necessary renewal in the power industry, and will contribute to the application of new technology in this market.

We do not know what will sustain Norway in the low emission society, but we know it will require considerably more energy than what is currently available. This means we need to become even better at utilizing our renewable energy resources.

Extracting more power from the reservoir

Damming up to cut power loss: Damming up to cut power loss: New technology will help ensure water does not go to waste in Agder Energi's new power station (photo: Agder Energi).

Agder Energi's new power station in Iveland will prevent the minimum water flow requirement from resulting in water loss. A mini-turbine will generate electricity from the water that is released through the dam.

IVELAND

Espen Sletvold

When the power company was granted the licence to build a new power plant at Iveland, the licence came with a requirement for minimum water flow. A minimum water flow requirement means that a certain volume of water must flow through the waterway at all times, mainly out of concern for animal and plant life. This water is normally not used because the volume is too small.

– "We had to invest in new pipe solutions, modifications and a stream gauging system that ensures minimum water flow, in any case. This led us to the idea of seeing whether it was possible to combine this work with installing a mini-turbine at the same time," says project manager Tor Åmdal i Agder Energi Vannkraft AS.

Innovative

The answer became a turbine produced and developed by Clean Power for use in small-scale production of renewable power. This will now become part of the large-scale production in Southern Norway. According to calculations, the turbine will yield 1.8 GWh in added production each year.

Enova awarded NOK 3.4 million in investment support to the exciting project. "This is what innovation is all about; using challenges to find new solutions. If this project is successful, it could pave the way for similar solutions in other hydropower developments," says senior adviser Ingrid Slungaard Myklebust in Enova.

Enova would like to see more examples of innovation in the power industry.

"This industry has achieved a lot, and has a proud history. Hydropower is a fantastic resource for Norway. However, this does not mean that there is no potential for innovation. Good access to renewable power will be even more important on the road towards a low emission society, which means that we must ensure that we utilize our resources as efficiently as possible," says Slungaard Myklebust.

Reference plant

According to Slungaard Myklebust, many power plants are in need of upgrades, and she encourages power companies to look into how to use the available opportunities to implement new, energy-efficient solutions.

"Agder Energi is very proud to be among the companies leading the way. Unfortunately, the project has become delayed due to abnormally high water levels in Otra last autumn and summer, but we expect the installation to be in place for autumn. It will be very exciting to see the results from this," says Åmdal in Agder Energi.

The plant will be a reference plant for the industry, contributing useful experience data and lessons. A whopping 395 hydropower licences are up for potential revision by 2022. The NVE has proposed prioritizing 103 of these, and estimates that the minimum water flow requirements in these plants could lead to a power loss of 2.3-3.6 TWh/year.

"New technology, such as Clean Power's turbine, can help reduce losses without environmental consequences, and thus enables cooperation between nature conservation and value creation," says Ingrid Slungaard Myklebust in Enova.

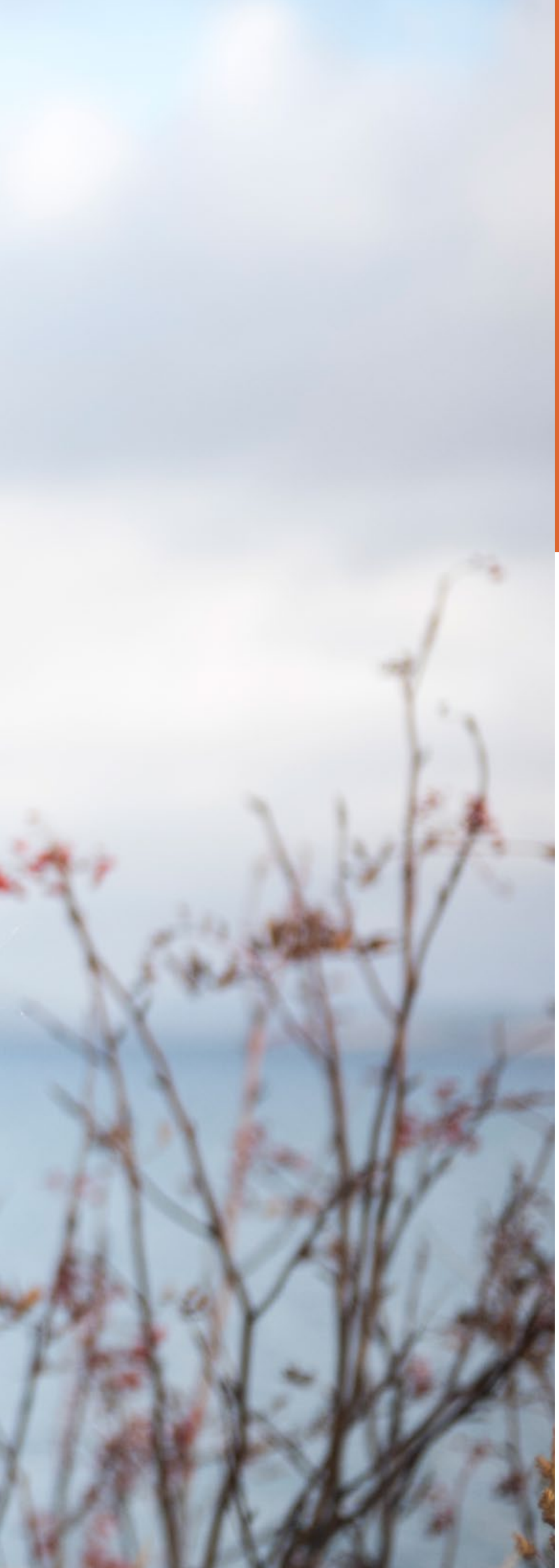
Facts

Project owner: Agder Energi Vannkraft
Year funded: 2015
Funding level: NOK 3.4 million
Energy result: 1,75 GWh
Planned completion year: 2016

Agder Energi Vannkraft AS

Agder Energi Vannkraft AS has several locations in the Agder counties, with headquarters in Kristiansand. The company has 160 employees distributed among the various locations in Agder and operates a total of 37 hydropower plants with an annual production of about 7.7 TWh. The company's products are renewable energy from hydropower plants.

Agder Energi Vannkraft AS is a wholly-owned subsidiary of Agder Energi AS, which is owned by Statkraft AS with 45.5 per cent and the Agder municipalities with 54.5 per cent.



Part IV
Management and control in the organization

Enova – market team player

Enova shall cultivate necessary changes to create a sustainable society based on green energy and low greenhouse gas emissions. In order to achieve this, we need to interact with the market, meet with market players and listen to their challenges.

Long term effects in the market

Enova's goal is to promote an environmentally friendly energy restructuring that contributes to increased security of supply and reduced greenhouse gas emissions. The markets in which Enova operates will look different in the future than they would have otherwise, as a result of Enova's activities.

An assessment of potentials and barriers forms the foundation when Enova develops strategies to create its support programmes for the market. With this basis, Enova stipulates goals for which market changes we will contribute towards and what programmes will stimulate this change. The extent of the potential and which barriers exist will vary between different markets.

There are often several barriers that must be overcome to create lasting change in a market. Barriers and market failure are found both on the supply and demand sides. Some challenges can be solved simultaneously, while others must be solved in a specific sequence.

As an example, it could hurt the market to stimulate a growth in demand without there being sufficient capacity on the supply side.

Changing markets usually takes a long time, and there is uncertainty related to how long it takes to counteract specific barriers to achieve lasting change. As a policy instrument player, Enova needs to be very familiar with the market, use the opportunities at its disposal and target the instruments so that they trigger the desired market changes. The challenge is sensing the market's maturity level at all times and also at what time it is appropriate to enter or exit the market, or change the services offered to the market. If we stop too soon, with time or money, we risk having the market return to its original state. This would be a wasted effort. Staying too long also comes at a cost, but it could be worthwhile to over-invest to ensure the change is permanent.

Some barriers are always present. Within technology development for example, the innovator will never be able to prevent the rest of the market from gaining access to all or parts of the new knowledge. The innovation therefore loses some of its value for the individual market player, while the value increases for society. The consequence is that each market player invests less than is optimal for society. Government support will always play a role in this connection.

FIGURE 4.1 MARKET CHANGE BARRIERS – WHEN TO STOP INFLUENCING THE MARKET?

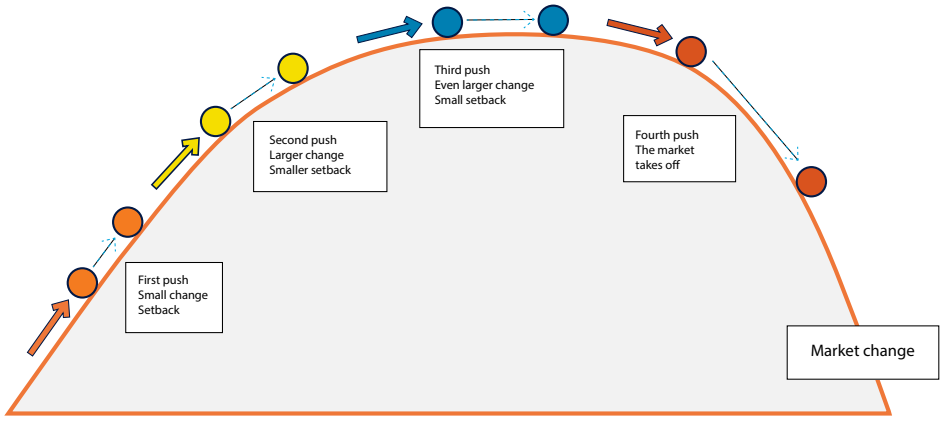


Figure 4.1: The figure shows the phases of market change.

Financing

Enova's foremost instrument is investment support for projects, whether they are large industrial projects or smaller measures in households. Enova shall manage Norway's funds so they yield the greatest possible benefit for society. These funds are what enable Enova to promote good energy and climate projects that would not otherwise have been realized without government aid. Enova does this by covering a portion of the added costs incurred by the market by choosing more energy and climate-friendly solutions. The support increases profitability and reduces risk for the project owner, and thus strengthens the good energy and climate projects.

Advisory services

The other essential instrument in Enova's portfolio is advisory services. In small projects, we provide advice through a telephone service, and through information and guidance on our website. In large projects, Enova works closely with applicants over time to improve the project with regard to technical solutions and implementation, as well as making the projects more financially robust. Through this dialogue, projects benefits from our advisers' expertise and the experience Enova has gained through managing a portfolio of several thousand projects.

Cooperation

One of the goals of public policy instruments is that more ideas will reach the market. The path from a good idea to application of a finished solution can be long, and the need for public support will change along the way. For Enova, expedient division of labour and sound cooperation with other public policy instrument players is essential.

Management and control in the organization

Enova manages the Norwegian state's resources on behalf of the society. Enova's tasks must be performed in an orderly and professional manner, and the management of the Energy Fund must take place in accordance with objective and transparent criteria. Enova sets requirements for its employees' integrity and business morals through value-based management and ethical guidelines. There are, for example, routine legal competence and impartiality assessments in connection with new applications.

Management of goals and results

Enova follows a goal management model which will help Enova achieve its strategic goals. The model is used in addition to traditional accounting and financial management. The model lists goals and key figures concerning results and processes within four perspectives: results/economy, customer/market, internal processes/case processing and organization/working environment.

The system was further developed in 2015 with close follow-up of results and risk and action plans in all units are assessed in relation to the goals on a quarterly basis. This process promotes learning and continuous improvement in the organization.
Enova completes systematic evaluations of all policy instruments. The support programmes are evaluated both during the early phase and at a later stage in the programme's lifetime. The results from these evaluations allow for adjustments, thereby increasing the probability of achieving the desired result.

Internal control and risk management

The work distribution in Enova is considered to be expedient for ensuring good internal control. Enova also has an Appropriations Committee that is independent of the line organization, in addition to verifications that are incorporated in the case processing systems and routines. The committee comprises employees that have not participated in the case processing, but that quality-assure, process and make decisions in appropriation cases in accordance with delegated authorizations.

Enova has various internal control functions with specialized responsibilities within follow-up of the project portfolio, allocations over the Energy Fund and operation of the company. A dedicated function also has overall responsibility for risk management and internal control in the company. Enova conducts regular external quality assurances of numbers and reporting of results in relation to the goals.

Agreed-upon verification assignments are carried out by an external auditor when necessary for objective and independent assessment of the company. The results of these agreed-upon verifications are included in our work on continuous development and improving efficiency.

In order to prepare Enova for a new agreement term, a mapping project was carried out in 2015 to describe Enova's core process. This provided a good overview of the overall risk scenario and basis for prioritizing further development measures in 2016.
Enova conducts regular risk mapping to assess risk in relation to goal achievement, efficient operations, reliable reporting and compliance with statutes and rules. An annual comprehensive risk assessment is submitted to the MPE in accordance with requirements in the Assignment Letter.

In 2015, Enova received a clean auditor's report for both management of the Energy Fund and for Enova SF. No significant nonconformities were identified in connection with the internal control in 2015. Based on the results from external controls over time and follow-up from Enova's own internal controls, Enova is considered to have an expedient internal control process for ensuring responsible and efficient management and operations. Enova's values and ethical guidelines are clearly communicated by management and are well-anchored in the company culture. Enova's control environment thus provides a solid foundation for efficient internal control.

Up to 2014, the Energy Fund was audited by the Office of the Auditor General, while Enova SF was audited by an external auditor. The Office of the Auditor General has decided to phase out auditing of funds that are managed by companies starting in the 2015 accounting year. Enova therefore entered into an agreement with the auditor for Enova SF to also audit the Energy Fund. The Office of the Auditor General will still be responsible for performance auditing and audit of corporate governance.

Support system and tools

Enova processes and follows up an ever-growing number of projects, while society is becoming increasingly digitalized. This increases the need to focus on data security, which requires sound control over IT systems, and increasing the awareness of employees in the company. For example, Enova participates annually in the Nasjonal Sikkerhetsmåned (national security month), where employees participate in an e-learning class focusing on information security.

Enova has started using StartTLS, a solution recommended by the Norwegian National Security Authority for securing e-mail. This ensures secure exchange of e-mail if both parties use the solution, and requires no effort on the part of users.

Enova works continuously and systematically to further develop and improve our case processing and support systems. We want to reduce paper-based processes, and therefore digitized internal support processes for human resources management and travel expenses in 2015. In 2016, we will review work processes for application processing with the goal of further development and increased efficiency.

Enova has an up-to-date and flexible financial management system which supports the management of the Energy Fund.

Key case processing methods

Enova's project portfolio is growing, with a significant portion of active projects in progress. The projects supported by Enova range from simple household measures to major, complex technology development projects in various industries. The reporting and accounting of results increase in scope and complexity every year, in line with the portfolio.

Performance monitoring and documentation method
When applying for subsidies from Enova, the applicant must describe the energy result the project expects to achieve upon completion. Enova quality-assures the estimated energy result as part of the case processing procedure. If established standards exist, they are used. For example, we use *Standardisert metodikk for beregning av energibruk i bygg* (standardized method for calculating energy consumption in buildings) as a basis for estimated energy results for support programmes within the building sector. In order cases, Enova uses empirical data from our extensive project portfolio. In some cases, particularly in connection with large projects, we use a third party assessment to verify the expected energy result.

The support recipient must report energy results at three stages; upon entering into the contract, upon final reporting to Enova and generally three years after the final report is submitted. Upon Enova's request, the subsidy recipient shall cooperate with Enova on performance monitoring and evaluation of the project for a period of up to ten years after the final report is submitted.

The projects supported by Enova may yield climate results. The climate accounts are based on the energy result from each project and standardized emission factors for the various energy carriers. The results are reported in CO_2 equivalents, which indicate the combined effect of CO_2 and other types of greenhouse gases.

Through the process from entering into a contract until evaluation and completed project, Enova operates with three different methods for recording energy results: contractual, final reported and realized energy result.

Contractual energy result:
Upon entering into a contract, the support recipient pledges that the project will achieve a future energy result. This pledge, a contractual energy result, is listed in the funding commitment letter. The contractual energy result is an estimate of the expected annual energy result after the project is completed.

Completing a project can take several years, and the results from the project are recorded in the year the support is granted. This provides quicker reporting and enables closer follow-ups from Enova, rather than waiting until the projects are complete. The energy results are then updated as the projects are completed.

Enova follows up all projects closely. If the project follows the progress plan, support is disbursed in arrears in accordance with incurred costs. Material deviations from the agreement could result in Enova demanding repayment of all or parts of the support amount.

Final reported energy result:
When the project is completed, the project owner must submit a final report. The final report summarizes the project and contains an up-to-date prognosis of expected realized annual energy and climate result.

The final report is enclosed with documentation of project costs. Documentation requirements are contingent on the size of the subsidy. If the subsidy exceeds NOK 1 million, the final progress and accounting report must be confirmed by an auditor. The auditor must confirm that audit procedures have been completed. The report shall be certified by the person responsible for finances in the subsidy recipient's organization, and signed by the subsidy recipient's representative.

Enova assesses whether the final reported energy result is reasonable, and whether documentation is sufficient. The final support amount is disbursed when the final report is approved, if all terms and conditions have been met.

Realized energy result:
Final reported projects are followed up with measurement and verification of energy results. This takes place after the fact, and is carried out three years after the final report has been delivered. The project owner will deliver the final report through Enova's digital application and reporting centre. Enova uses third party assessment for certain large projects to verify the quality of the reported result.

Realized energy results are measurements or estimates of achieved energy results after a measure has been completed, and its effects can be observed. Unlike contractual and final reported energy result, the realized energy result is based on observations, not expectations.

Method for measurement of support and triggering funding level
To ensure the most efficient utilization of Norway's resources, it is crucial that Enova's support programmes effectively handle barriers, and also trigger projects using the smallest support amounts necessary.

Two main principles form the basis for our assessment of the funding level in projects; the support must be necessary to trigger the project in question, and the support must be sufficient. These two criteria reflect the requirements in the guidelines for state aid.

- *Necessary support:*
  A fundamental principle for subsidizing projects through various types of support is that support changes behaviour. For our projects, this entails that the project owner will choose a more energy or climate-friendly project with the benefit of support than the project owner would choose without support. This means that Enova cannot support measures that the project owner will or must carry out for other reasons, such as regulation. This also means that we cannot support projects that have already been implemented. As a steward of

Norway's resources, we have an important responsibility for managing these resources so they yield the greatest possible benefit for society. It is important to avoid granting support to projects that would have been implemented in any case. In such cases, the support from the Energy Fund is not necessary to trigger the project.

- *Sufficient support:*
  The support must be sufficient to trigger changed behaviour, but no more. This entails that, after Enova has determined support is necessary to implement the project, we need to assess how much support is needed to trigger the project.

  If the funding level is too low, the project will not be carried out and the support was insufficient. If the funding level is too high, the project received more than necessary to change behaviour.

Method for assessing profitability

The basis for assessing necessary and sufficient support is a profitability assessment of the projects. The method used for the assessment is a standard net present value assessment, where the project-specific risk is reflected in the cash flows while the return requirement must reflect the applicant's market risk.

This approach forms the basis for all ordinary support measurement in Enova, but the application will vary somewhat depending on the market and project size.

Information asymmetry

When assessing necessary and sufficient support, either through a present value assessment or otherwise, Enova and the project owner will always have different information. This applies to technical and financial details in the project, as well as knowledge about the market in which the project takes place. Enova aims to minimize this information asymmetry as much as possible during the case processing by obtaining information from the project, and also sharing knowledge that Enova has gained in connection with the project.

Even if the information basis is as equal as possible, Enova and the project could assess this information differently. This means that, in some cases, Enova will consider the projects more attractive than the project owner, and occasionally the other way around.

Template versus project-specific assessment

Obtaining and assessing details and comprehensive information about technical and financial factors related to individual projects is very costly for both the project owner and Enova. In some markets, such as the buildings market, the potential volume of measures is significant, but each measure is relatively small. This can make it relatively expensive for the project owner to obtain enough information for Enova to conduct a sound, project-specific assessment.

For certain project types, having programmes that are based on standardized assessments is more expedient. This makes it easier for the market to use the programmes, and reduces the costs related to documentation as a barrier. In these cases, the profitability assessments and evaluation of necessary and sufficient support are based on standardized values for a broad set of measures.

For projects where standardized assessments are not suitable, Enova will carry out project-specific assessments. This largely applies to industrial projects, technology projects and major construction/building projects.

Reasonable returns

In order to ensure the support is sufficient for the projects to be completed, the project owner must consider the gains of the project to be higher than the costs. In a present value assessment, this is reflected by the present value in the project being positive, given the company's required rate of return. The required rate of return thus affects the level of funding needed to trigger projects – high rates of return require significant support.

To assess whether the funding level is sufficient, Enova must therefore also assess whether the required rate of return used by the project owner as a basis is reasonable. Enova uses a third party assessment of the normal rate of return in various sectors to conduct this evaluation. As different sectors are associated with varying degrees of risk, a reasonable required rate of return could vary between sectors.

There is often a difference between what returns you can expect within a sector after the fact, and what is necessary to trigger a new investment decision. Enova and the state aid regulations therefore allow approval of a different required rate of return for the project owner, if this can be sufficiently documented. Special required rates of return can either be project or company-specific. The state aid regulations and ESA guidelines for state aid for energy and the environment provide key premises for Enova's activities.

Major projects

For the largest projects, typically within industry and new technology, Enova carries out very thorough analyses of the project economy. This involves sensitivity analyses, assessment of market position and potential strategic assets in the projects.

Third party assessments of critical factors for the project economy are also obtained for major projects. This includes considerations regarding future price development for intermediate goods and products, and, as previously mentioned, a reasonability assessment of the energy result.

Projects that receive support exceeding EUR 7.5 million must be approved by EFTA's Surveillance Authority, ESA. Starting on 1 January 2016, the limit for most projects will be EUR 15 million. The criteria used as a basis in the ESA's assessment and Enova's assessment in the case processing must correspond. The ESA evaluates the projects' environmental effect against the negative impact on competition in the European market.

All projects supported by Enova with an amount exceeding the limit for special approval by the ESA have been approved.

Del V
Assessment of future prospects

Ready, set, adapt

Over the course of 50 years, the world needs to go from emitting 54 $GtCO_2$ equivalents, to emitting zero. A monumental challenge that the world leaders agreed to solve, after negotiations were over at the Paris climate summit on 12. December 2015. Global adaptations to a low emission society been launched. An adaptation that must be reflected in all of society's sectors and functions – including in Norway.

Norway emits about 54 $MtCO_2$ each year, about the same level as in 1995. During the same period, Norway experienced significant financial growth, which means that Norway is considerably more efficient in 2015 than in 1995. Regardless, we still have a long way to go to achieve a low emission society.

FIGURE 5.1 TOTAL GREENHOUSE GAS EMISSIONS (CO_2 EQUIVALENTS), PRODUCTION (FIXED 2005 PRICES) AND EMISSION INTENSITY FOR NORWEGIAN FINANCIAL ACTIVITY (EXCL. HOUSEHOLDS)

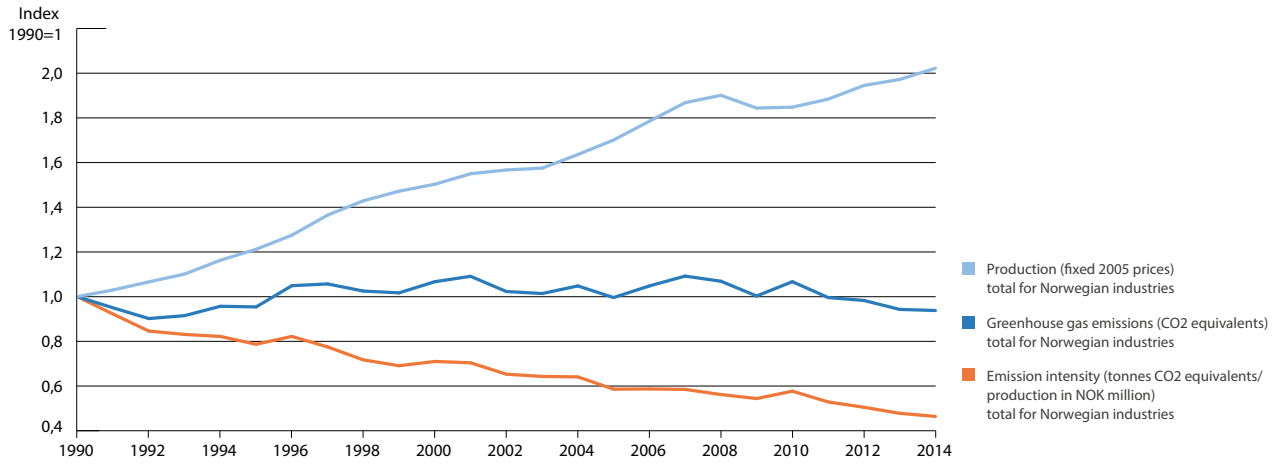


Figure 5.1: The figure shows total greenhouse gas emissions (CO_2 equivalents), production (fixed 2005 prices) and emission intensity for Norwegian financial activity (excl. households) from 1990 – 2014. Source: Statistics Norway (www.ssb.no)

The emissions represent our society – our lifestyle, jobs, welfare and the value creation that forms the foundation for these benefits.

Our prosperity and, not least, the growth we have experienced in prosperity over the past ten years is largely based on fossil resources. In its peak years, oil and gas production have represented value creation of just under NOK 700 billion. Since 1990, value creation from oil and gas production has been between two and three times as high as total value creation in other industries.

The value creation from fossil resources is one of the key reasons why Norway continues to be ranked among the world's best countries to live in. It has also made us highly dependent on our fossil income - income that is becoming increasingly uncertain in the transition towards a low emission society.

FIGURE 5.2 VALUE CREATION ACCORDING TO SECTOR AS A PERCENTAGE OF GDP, 2009-2014

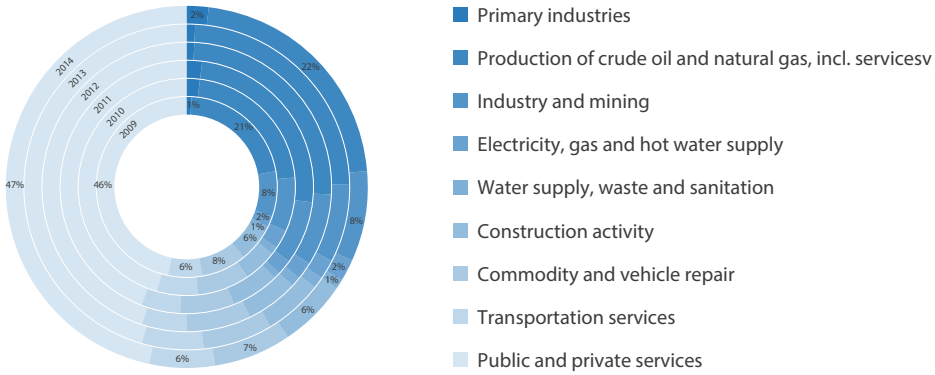


Figure 5.2: The figure shows value creation according to sector as a percentage of GDP for the years 2009-2014. Source: Statistics Norway (www.ssb.no)

On the same day the Paris Agreement was signed, the oil price was a scant USD 38 a barrel, a third of the average price over the past five years. The price drop has direct and serious consequences, firstly for those that have or are at risk of losing their jobs. Over time, lower activity and revenues from fossil energy will have an impact throughout the entire economy. The importance of having more legs to stand on has never been clearer.

In the long term, the growth capability and value creation in the mainland economy will determine the welfare development in Norway. The most recent Long-Term Perspectives for the Norwegian Economy report (2013) points out that the Norwegian State's required revenues (to maintain the current welfare services) will increase by about NOK 200 billion up to 2060[20]. In order to maintain the welfare level, production of welfare services either needs to become significantly more efficient (increased productivity), or value creation in the mainland economy needs to increase considerably.

Sufficient and secure access to energy is a prerequisite for societal development in Norway. In addition, energy is Norway's most important industry. At the same time, production and energy consumption have always had a negative impact on the environment. Both directly through the natural intervention that comes with hydropower and wind power, but also through emissions from the actual production processes, particularly production of oil and gas.

Norwegian energy policy has therefore had the goal of balancing three different concerns; the need for value creation; the requirement for security of supply and environmental considerations. The low emission society must, like our current society, be able to satisfy the same goals. This is why energy policy, and the instruments included therein, is essential in the transition to a low emission society.

While Norway will benefit from the income from the oil and gas industry for several decades to come, we need to take into account that it could take a long time to develop the industries that will carry on the baton in the long term. Regardless of which industries will be part of the solution, we know that they will need energy – renewable energy.

In other words, Norway is facing a two-part challenge – we must dramatically reduce greenhouse gas emissions along with the rest of the world, while also creating new value creation that can bring us closer to a low emission society.

New possibilities

Unlike many significant historical shifts in society, this time we have an idea about what a future society should look like and we want the societal development to be steered in the direction of a low emission society.

We know that we cannot continue on the same path as today. This would prevent us from being able to handle the climate challenge and the need for new value creation. We need a change in order to successfully adapt – a sustainable change.

Many enterprises have gotten off to a good start, with support from Enova. Most people have heard of Hydro and Elkem. There is also Arba Follum, which will produce biocoal for Europe's combined heat and power plants, Tizir in Tyssedal, which will cut emissions and energy consumption in the production of titanium dioxide, and ASKO is investing in environmentally friendly lorries.

As an increasing number of countries and regions take steps to reduce their own greenhouse gas emissions, the climate footprint

[20] *I scenariet med lav olje- og gasspris*

will become a more important argument. Energy-efficient and climate-friendly solutions will be a competitive advantage – green products will win out in the future.

Borregaard is a pioneer within this field, with its work on developing new biomass products that can replace fossil-based products. We need more bold innovators.

Norway is well-positioned for this competition, with good access to cheap and renewable energy, a high expertise level and stable political conditions. However, we know that Norwegian competitiveness could be significantly improved if we utilized the opportunities available to us more efficiently.

Back in 2010, Enova pointed out the considerable potential for improved competitiveness through increasing energy consumption efficiency in Norwegian industry. Though the figures are a few years old and some companies have taken significant steps since then, there is still plenty of room to reduce production costs by several billion kroner through further energy efficiency measures and reduced greenhouse gas emissions.

In addition to a growing market for green products, investments in renewable energy solutions have become considerable and must grow significantly if we want to achieve the ambitions in the Paris Agreement.

About USD 328 billion were invested in renewable energy globally in 2015 (Bloomberg New Energy Finance). Over the past years, investments in renewable energy have declined in Europe (down 18 per cent from 2014 to 2015), in part due to changes in and uncertainty related to existing subsidy schemes. China is currently the largest market, with 17 per cent growth from 2014 to 2015.

Based on figures from Rystad Energy and Bloomberg New Energy Finance, Export Credit Norway has estimated that the market for renewable energy technology is about USD 350 billion annually, the same size as the offshore oil and gas market (exploration and production). The major difference between the renewable and non-renewable technology markets is Norway's market share. Our market share within offshore oil and gas (development and production) is 8.5 per cent, while the market share within renewable technology is 0.3 per cent. In other words, substantial room for improvement, if we are bold enough to commit.

In 2014, renewable energy contributed 45 per cent of the growth in global power production. Over the next few years, the International Energy Agency, IEA, expects that two-thirds of growth will come from renewable energy sources.

In addition to increased use of renewable energy, carbon capture and storage (CCS) is essential for achieving the climate ambitions in the Paris Agreement. This will reduce emissions from use of fossil energy carriers and eventually allow us to achieve negative emissions through CCS related to use of bioenergy. Norway has the expertise, resources and infrastructure needed to take part in the CCS development.

Change requires innovation

We need to find new solutions, in addition to those we are already aware of but do not use, in order to succeed in the transition to a low emission society and contribute to new value creation within the framework of the low emission society.

Innovation is unlike research and idea generation as it covers the entire path from an idea to successful market introduction. The innovation white paper "Et nyskapende og bærekraftig Norge" (an innovative and sustainable Norway) from 2008 provides the following definition of innovation: "a new product, a new service, a new production process, application or organizational method that has been launched in the market or used in the production to generate financial value."

This means that innovation is more than new technologies. It is also about structural elements in society such as where and how we live, the infrastructure we choose and how we interact as people. And it is about how innovations on a structural, technological and human level mutually affect each other. Some of the most important innovations over the past decade have been in connection with how technology is used, for example smartphones, to develop new methods of cooperation, for example car sharing, which could in turn affect the need for cars and road infrastructure.

Innovation is a prerequisite for new value creation. We need to help ensure that more new solutions that can increase value creation, improve security of supply and reduce environmental impact are offered and demanded in the market.

If the market dares to invest in radical ideas, ground-breaking technologies and new talents, Enova will help ensure the path from idea to market is as short as possible. We can do this by meeting the projects at an earlier stage in the innovation chain, being more flexible as regards how we reduce risk and contributing capital for major advances.

All value creation requires energy – and the path to future value creation will be built on green energy.

Renewable thermal energy[21]

District heating expansions stimulate continued growth in the heating market

Market, potential and goals

Renewable thermal energy includes both heating and cooling, based on renewable energy sources or waste heat and waste cooling. Heating and cooling are used in commercial buildings, residential buildings, businesses and industry. Thermal energy can be produced locally with a dedicated heating plant for each building, connected between multiple buildings in local heating systems, or through larger district heating grids with large, central heating plants.

In addition to supplying buildings and industry with heating and cooling, the renewable thermal energy market plays a crucial role in the overall power system. Utilizing waste heat and other low-value energy sources for thermal heating increases the flexibility and optimization of the energy system. This also reduces greenhouse gas emissions from heating production, and frees up electricity for other purposes than heating, with a greater climate benefit.

The total thermal energy market within industry, residential buildings and non-residential buildings in Norway constituted 83.1 TWh in 2013. Of this, about half (42.9 TWh) is related to industry purposes[22].

Enova supports renewable thermal energy through programmes adapted to various types of market players, such as district heating companies, building owners and industrial companies. Enova's goal is to help increase flexibility in the energy system by supporting the construction of production capacity and infrastructure for distribution of renewable heating and cooling.

Market situation

District heating is an important part of the renewable thermal energy market. In Norway, most of the large infrastructure investments in new district heating plants and heating plants have already been made. Most Norwegian cities and towns currently have district heating infrastructure.

The market basis for district heating is defined by the development in heating need and how many end users facilitate use of renewable heating. The price of electricity governs the price of district heating and the low price level over multiple years has influenced the rate of investments. In 2014, investments in district heating plants amounted to around NOK 1.5 billion. This is only 40 per cent of the level in 2010. 4.4 TWh of district heating were delivered to consumers in 2014, compared to 4.7 TWh in 2013. The decline was caused by temperature differences between the years[23].

The market for small heating plants has remained stable over the past few years, due to the requirement for a renewables share in the building regulations for new buildings and more conversions from fossil fuel in existing buildings. For larger heating plants, the market is smaller and there are fewer projects. The largest barrier against more widespread use of renewable thermal energy for heating and cooling is the lack of internal distribution systems in buildings. And the most important barrier against water-borne heating in buildings is the costs, both in new buildings and existing buildings.

Prospects

Enova considers renewable thermal energy to be a robust solution to several of the energy challenges in the future. Functional and well-developed infrastructure is necessary to optimize resource use and develop an overall efficient energy system. Increasing requirements for energy-efficient new buildings reduce the need for thermal energy to heat individual buildings, but population growth and consumption that is contingent on temperature entail that we will also have a considerable thermal energy demand in the future. Furthermore, the need for cooling is expected to increase, and need for tap water heating will increase with population growth. In other words, there will be a substantial demand for thermal energy for a long time to come.

For district heating, the opportunities for continued growth primarily lie within expansions and compaction of existing infrastructure. The majority of residential development and industrial development going forward will take place in large cities and communities where district heating infrastructure already exists. The infrastructure is a costly basic investment, and when it has been put into place, the primary focus for market players is to increase the volume, as the marginal cost is very low, and cost efficiency increases in line with the volume.

Other heating plants belong in the flexible thermal energy system, preferably where the heating density and overall volume does not justify district heating development. Stand-alone heat pumps can contribute cooling in the summer. This need is expected to increase in the future. The prohibition against using fossil oil for heating in buildings will enter into force in 2020, and will provide an increased focus on changing heating sources for renewable alternatives for the buildings that still use fossil oil.

Energy efficient buildings and energy-plus houses may have a need for improved interaction between existing infrastructure and individual buildings, to ensure optimal energy transfer. In turn, this creates a need to develop technical components such as improved heat exchangers and management systems, to better exploit existing resources, infrastructure and inter-operable zones.

Renewable heating in general and district heating in particular will be part of the solution for a low emission society. The flexibility in the district heating grid will enable optimal resource utilization, as excess heating or cooling can be delivered in the grid and extracted by the consumers who need it.

The sector has also undergone a consolidation process over the past few years. There have been multiple sales and acquisitions, of both individual plants and companies. A reduction of the number of players in the market could improve profitability and result in a more professional industry.

Enova will continue its work in the area, with the goal of renewable thermal energy becoming the preferred heating and cooling method. Apart from continued development of infrastructure to increase the percentage of buildings that convert from full electrical heating to flexible thermal systems, innovation and introduction of new technology are important areas for Enova to stimulate. Increased use of new technology is important for making thermal energy more competitive.

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[21] *Read more at www.Enova.no: Market development 2015. Key trends in Enova's focus areas.*

[22] *Source: Statistics Norway – The energy balance 2013.*

[23] *Statistics Norway – District heating, 2014: https://www.ssb.no/energi-og-industri/statistikker/fjernvarme/aar/2015-10-02*

Industry and non-industrial plants and facilities[24]

More energy measures in industry

Market, potential and goals

For Enova, industry has traditionally been synonymous with mainland industry, which includes small and large companies, everything from small plants with no employees to process facilities with several hundred employees. Recently, Enova has also directed its focus towards the oil and gas sector. The non-industrial plants and facilities market includes roads, onshore power, water, sewage and waste plants, etc.

Overall, industry and oil and gas represent nearly half of all energy consumption and greenhouse gas emissions in Norway[25]. The mainland industry is characterized by relatively few power-intensive enterprises being responsible for a large share of energy consumption; around 100 market players are responsible for 80 per cent of the total consumption. Studies show a potential for improving energy efficiency in the mainland industry by 10-15 TWh up to 2020[26]. Enova's goal is to contribute to a more energy-efficient mainland industry that is supplied with renewable energy to the greatest extent possible.

There is a clear perception in the oil and gas industry that the potential for energy efficiency and reduction of greenhouse gas emissions is considerable. Enova wants to contribute to this energy efficiency.

The non-industrial plants and facilities market comprises a number of different segments, and there are no studies showing the total energy efficiency potential. However, we know that the possibilities for energy efficiency and transition from fossil to renewable energy sources are significant, for example in the aquaculture industry.

Through advisory services and financing, we reduce the market players' risk and increase the pace of restructuring of energy end-use and energy production in mainland industry, offshore and in non-industrial plants and facilities. Enova's goal is to contribute to a more climate-friendly and energy-efficient industry based on renewable energy.

Market situation

Energy consumption in mainland industry has remained stable for several years, while the value of production has increased[27]. Specific energy consumption has continuously improved over the years and the core processes have become more energy-efficient[28]. This is because some industries have reduced capacity, and others have increased activity in parallel with steady development and implementation of improved energy and climate technology.

Investments in mainland industry are at about NOK 20 billion a year. There are significant variations within the various segments. Investments are often competing for limited resources, such as capacity and capital. This also applies to energy and climate projects, where low energy and carbon quotas contribute to weakening profitability. Enova has noticed this as more funding is required to trigger projects, and there is an increased risk that approved projects will not be completed.

On a positive note, through our projects, Enova has detected a considerable interest among international companies to invest in Norway. One reason for this is Norway's stable and predictable framework conditions, which are essential when it comes to making long-term investment decisions[29].

Energy consumption and emissions have stabilized within oil and gas over the past few years as a result of somewhat lower production. This means that the energy and emission intensity has increased during the same period[30]. For the first time in a long time, the market is experiencing a downturn due to the low oil price. This results in a lower willingness to invest, but we are also seeing greater interest in energy efficiency measures for existing fields.

Prospects

Norway has natural advantages when it comes to energy in the form of good access to renewable power. Along with our productive and highly competent industry, this provides Norway with a unique basis for further development of energy and climate-friendly industry where we could have a global impact leading up to a low emission society. Increased energy efficiency in industry will strengthen security of supply and facilitate new industry and value creation. This will help building a more robust, competitive and sustainable economy.

In a global market, Norwegian industry must reduce its costs to ensure it is still competitive. Increased competition has a negative effect, making earnings lower and future investment budgets smaller. At the same time, this does have a positive contribution through increased efforts within developing new energy and climate technology. Long-term climate and innovation strategies are becoming more common among large market players, while more and more smaller industry players are starting energy and climate measures. The fact that more non-industrial plants and facilities players are now establishing energy management means that we are also expecting more energy projects within non-industrial plants and facilities in upcoming years.

Oil and gas has become a more prioritized focus area for Enova in recent years, and we are starting to see the results. Looking towards a low emission society, it will be important to also use the expertise and knowledge developed offshore, and turn this into sustainable activity and industry on shore.

The industry of tomorrow will depend on new technology to contribute to increased value creation while also reducing emissions on the path towards a low emission society. Enova will therefore place particular emphasis on stimulating increased innovation in our industry efforts, thereby contributing to the desired change.

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[24] *Read more at www.Enova.no: Market development 2015. Key trends in Enova's focus areas*

[25] *Statistics Norway: Energy accounts and energy balance*

[26] *Enova (2009): Potential for increased energy efficiency in Norwegian land-based industry. The Climate and Pollution Agency Norwegian Environment Agency (2010): Measures and instruments to reduce greenhouse gas emissions from Norwegian industry*

[27] *Statistics Norway 2015: Energy consumption in industry 2014*

[28] *Enova's Industry Network. Statistics Norway (2015): Energy consumption in industry 2014*

[29] *Carbon Limits (2014): Consequences of low quota prices in EU ETS*

[30] *Norwegian Oil and Gas (2015):Environmental report 2015*

Enova is investing NOK 122 million in Tyssedal

Green growth in Tyssedal: Changes in the smelting process will make titanium oxide production much more climate-friendly (photo: Sigbjørn Fjellheim).

Tizir Titanium & Iron (TTI) will be using new environmental technology at the smelting plant in Tyssedal outside Odda. Enova is investing NOK 122 million in the project.

TYSSEDAL

Daniel Milford Flathagen

-We are very pleased with Enova's decision. Norway now has the opportunity to help make future production of titanium oxide more energy-efficient and climate-friendly. This provides the foundation for changing the pace to a much more climate-friendly production, and for continued green technology development and growth in Tyssedal, says Managing Director of TTI Harald Grande.

Pioneer plant

Titanium oxide is an important component of paint and plastic, and can also be found in products such as sunscreen and fish pudding. Without titanium oxide, the fish pudding patties would be grey, not white. With Tizir's project, they will also be greener: The changes in the production process, which include a water cooled copper-ceramic roof and a system for controlled heat balance in the melting furnace, will result in conservation of 22 GWh each year. The emissions will be reduced by 23 000 tonnes of CO_2 per year, which corresponds to the emissions from 15 000 passenger cars per year.

"Water cooled copper-ceramic roofs have not previously been used in melting furnaces in Norway. This will be a pioneer plant," says Grande.

Proliferation potential

Tizir Titanium & Iron at Tyssedal is partially owned by Eramet, an international corporation with activities in a number of countries. Enova considers it very positive that the technology was developed in Norway, and that it could have applications in other industries.

"The technology was developed in Tyssedal by a strong expertise environment, in cooperation with Sintef and NTNU, among others. TTI's project is a good example of the industry's willingness to innovate when it comes to energy and climate technology," says Market Director Audhild Kvam in Enova.

Enova sees a considerable proliferation potential in the project:

"The smelting plant industry in particular, both nationally and internationally, could benefit from the results from this project, especially as regards liquid cooling of copper-ceramic roofs. If more players start using this technology in the long term, this could generate substantial energy efficiency gains and reduced CO_2 emissions," says Kvam.

Facts

Project owner: Tizir Titanium og Iron AS
Year funded: 2015
Funding level: NOK 122.7 million
Energy result: 22 GWh
Planned completion year: 2015

Tizir Titanium & Iron AS

Tizir Titanium & Iron AS is a company with about 180 employees located in Tyssedal (Odda municipality) that produces titanium dioxide concentrate and high purity pig iron from ilmenite.

Since 2011, the company has been owned by the UK joint venture company Tizir Limited, which is in turn owned 50% by French Eramet SA and 50% by Australian Mineral Deposits Limited. Tizir Limited also owns 90% of the mine Grande Côte Operations SA (GCO) in Senegal.

Non-residential buildings[31]

Green wave in the property sector

Market, potential and goals

The construction industry is one of Norway's largest and most complex industries, with many diverse players of varying sizes. Enova defines the market for non-residential buildings as all buildings that are not residential buildings, divided into two main sectors; the private sector with a majority of office buildings, commercial buildings, hotel buildings and warehouses, and the public sector with schools, day care centres, care facilities, culture buildings, hospitals and sports facilities.

Total energy consumption in the private and public sector is approx. 35 TWh. Studies from 2012 showed that the energy efficiency potential in existing buildings is around 7.5 TWh up to 2020[32].

Investments in building and construction activities have remained at a stable and high level in recent years. Investments in new non-residential buildings amounted to NOK 75.7 billion in 2014. This is up 2.4% from 2013[33]. NOK 73.1 billion were invested in ROT (renovation, reconstruction and additions) of non-residential buildings in the same year, up 5 per cent from 2013[34].

The goal of Enova's work within non-residential buildings is to increase the efficiency of energy consumption in the real estate sector to release renewable energy for other purposes, for example within industry and transport.

Market situation

From lessors, business property agents and developers, there are reports of increased interest in investments in energy-efficient buildings and more companies are realising that their reputation can be impacted by the energy and environmental profile of the building they work in. However, energy is not the primary focus for many property owners. One reason for this is that the energy-related costs constitute a relatively small portion of the total housing costs. In the private sector, it is challenging that the lessee pays for energy expenses, and often have short leases that make it less expedient to make long-term investments in the building. For the building owner, it is correspondingly less attractive to implement measures with no financial gains, because only the lessee sees these gains. This, which is often called the own/rent dilemma, also applies to a number of public players, due to separate budgets for investments and operation.

Enova is attempting to break down this barrier, for instance by providing investment support for building owners and lessees who want to upgrade their buildings. We can also see that an important driver for investing in green buildings is long-term and strategic considerations based on a belief that it is easier to rent green buildings than other buildings. This is generating investments in energy and climate measures, and we are seeing some positive trends: new buildings are increasingly getting better, while more and more market players are using Enova's programmes for existing buildings. The EPC (Energy Performance Contracting) model, where the municipality hires a contractor who guarantees energy results, has accelerated savings in municipal buildings.

Many new buildings are now being constructed with a better energy quality than what is required by technical regulations. Enova is also seeing that already ambitious energy efficiency projects are becoming increasingly ambitious.

Most spearhead efforts are seen in the public sector. Public building owners, such as municipalities, generally have high ambitions, in both new buildings and existing buildings, but follow-through is inconsistent. Enova has seen that within existing municipal buildings, the EPC model triggers more ambitious projects that are completed in less time.

Prospects

The green wave in the real estate sector can best be seen in new buildings[35], where Enova supports the spearhead efforts that forge ahead in the market. Based on Enova's driver survey, we expect the green wave to get stronger in the future, where the most energy-efficient buildings are getting even better, and new solutions are put to use. While these buildings are getting better, Enova sees a market that is becoming polarized; the large building owners are investing in green buildings to be competitive in the future rental market. The smaller players do not have the same long-term view as regards green buildings, but are still investing in certain measures within existing buildings.

The economic downturn will also influence the property market. A major drop in the oil price over the past year and a very low interest rate level indicates tighter times in business and industry[36]. There is a risk that the investment level in the private sector will be reduced in 2016 when it comes to energy efficiency measures, both within new buildings and existing buildings. In addition, a low energy price over time has negatively influenced the willingness to implement energy measures. Enova believes that the trend of perceiving green buildings as attractive will continue and somewhat balance the scenario.

Enova assumes that the investment level in the public sector will increase in 2016, in part as a result of political measures to curb unemployment. The national budget contains earmarked funds for public maintenance of existing buildings[37] and this could also mean an increased number of applications for Enova. Many EPC projects are expected going forward, and increased activity is also expected within new buildings in the public sector.

Buildings cannot waste energy in a low emission society. This is why innovation is also important within the construction market. Over the past few years, we have promoted several innovative individual buildings that help drive technology development forward. In upcoming years, Enova will also attempt to support projects that combine multiple buildings and areas. At the same time, Enova will continue its work to realize more of the energy efficiency potential in existing buildings. We can see that the changes made to our programmes are also causing more small players to implement energy measures in existing buildings.

Going forward, Enova will work to get even more real estate players to join the green wave that is driving the market in the right direction. We will still stimulate the players that are taking the lead and focus on new energy and climate-friendly technology and innovative solutions.

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[31] *Read more at www.Enova.no: Market development 2015. Key trends in Enova's focus areas*

[32] *Enova report 2012:01 Study of the potential and barriers: energy efficiency in Norwegian buildings.*

[33] *Prognosesenteret, 2015. New non-residential buildings*

[34] *Prognosesenteret, 2015. ROT Non-residential buildings*

[35] *TNS Gallup 2015: Enova's driver survey for energy measures in existing buildings*

[36] *Prognosesenteret 2015: Macro Norway and the world*

[37] *National Budget 2016: http://www.statsbudsjettet.no/Statsbudsjettet-2016/*

The site of Norway's greenest hospital

Leading the way: By combining innovative energy solutions, the hospital sets the standard for the hospitals of the future (Photo: Finn Ståle Felberg).

On Thursday, the Norwegian Heart and Lung Patient Organisation (LHL) broke ground for a completely new hospital at Gardermoen. The hospital's innovative energy solutions are so exciting that Enova is contributing nearly NOK 30 million in investment support.

GARDERMOEN

Inger Schedell Flattum / Espen Sletvold

"The LHL Clinics Gardermoen will undoubtedly become Norway's most innovative hospital when it comes to energy. Several of the solutions have not been extensively tested in Norwegian buildings. Enova has great faith that this excellent hospital will inspire others to use similar or other innovative solutions when they are constructing new buildings – both nationally and internationally, said head of marketing for non-residential buildings in Enova, Christian Hemmingsen during the construction kick-off ceremony on Thursday

Prototype hospital

With a building mass of 28 500 square metres, the LHL Clinics Gardermoen will be one of the country's largest private hospitals. In addition to providing excellent patient care, LHL has decided that the hospital will be a prototype project for universal design, indoor climate and energy and the environment.

"For LHL, there are multiple important perspectives for our environmental effort. A good indoor climate is extremely important for our patient groups. We also want to demonstrate that a good indoor climate, low greenhouse gas emissions and high energy efficiency can be combined and yield low operating costs," says secretary-general of LHL Frode Jahren.

The combination of high energy ambitions and more innovative energy solutions has caused Enova to award NOK 29.9 million in investment support. One of the chosen solutions involves extensive use of zone division, which will ensure the temperature and indoor climate can be adapted to various patients' needs. An automatic management system will ensure this is correctly regulated in the various rooms. Façade ventilation systems that recycle energy with 85% efficiency is another solution that caught Enova's interest. A local heating plant will deliver heating and cooling to the building.

Overall, these and other choices entail that the hospital will use 4.9 GWh less than if it were built according to the current regulations. The savings correspond to the energy consumption of about 250 households.

"This is a prototype project that is leading the way. The world is facing significant challenges, and we need sustainable changes within the construction sector as well," says Hemmingsen in Enova.

Gardermoen Campus Utvikling is responsible for the project.

Facts

Project owner: Gardermoen Campus Utvikling AS
Year funded: 2014
Funding level: NOK 29.9 million
Energy result: 4.9 GWh
Planned completion year: 2017

Gardermoen Campus Utvikling AS

Gardermoen Campus Utvikling AS is a company owned by Aspelin Ramm and Hemfosa Samfunnsbygg AS.

LHL Clinics

The LHL Clinics own and operate several medical clinics and medical treatment institutions, usually with heart and lung patients as primary target group. LHL Clinics is a private limited company owned by Norwegian Heart and Lung Patient Organisation. The company is operated according to a non-profit model where the owner does not take out dividends.

New energy and climate technology[38]

Support for innovation is sorely needed

Market, potential and goals
Innovation and technology development plays a key role in the conversion from fossil to renewable energy systems.

The market for new energy and climate technology comprises everything from Norwegian energy-intensive industry, oil and gas, transport, commercial buildings and players who develop new renewable energy production technology. The market players range from large corporations with dedicated development departments to one-man enterprises and entrepreneurial companies.

The future's energy and climate challenges require new and innovative energy and climate technology, but factors such as high risk and long development processes mean that the potential for development of new technological solutions is difficult to realize. Enova's instruments target the final part of the innovation chain: market introduction. Our goal is to contribute to realization of more projects with a high degree of innovation, so that more ideas reach the market. This also contributes to increasing the overall investments in energy and climate technology.

Market situation
The change process up to a low emission society is demanding, but also creates new growth opportunities. The combination of economic growth and reducing greenhouse gas emissions, requires players to start using more renewable energy while also developing new technological solutions. Energy and climate technology is becoming an increasingly essential part of large companies' strategy plans. Smaller technology suppliers are also starting to gain a foothold nationally and with a considerable export share.

While innovation is an important driving force in all competitive markets, in many cases the market forces will result in less innovation than is desirable in relation to what society needs. The gains from driving innovation are uncertain, and there is a risk that others than those who cover the costs will benefit from the results. This is particularly clear when the innovation is firstly suited to solve a problem where the solution will benefit the entire society, such as lower emissions and increased security of supply. The willingness to innovate can be stimulated by society compensating for or paying companies to innovate more than they would have otherwise. Public support has turned out to be particularly important for development of new energy and climate technology. The public policy instrument apparatus has continuity as it covers the entire development process from research to demonstration of new technology, thereby assisting projects in reaching the commercialization phase.

Enova has increased its efforts within new energy and climate technology in recent years. Through dialogues with several market players, Enova is still seeing a rising interest in energy and climate projects, and it is clear that an increasing number of players can see the commercial potential of investments in new green technology. Examples include Glencore Nikkelverk, which is planning a new electrolysis plant that could make copper and zinc production considerably more climate-friendly in the long term, and Arba Follum's plans for a world-leading biocoal production plant.

Enova is seeing more projects within more sectors compared to previous years, and the projects are more closely linked to long-term strategy processes in the companies. These projects often have small energy and/or climate results compared with conventional energy efficiency projects, but involve significant innovation and a major potential for distribution and considerable ripple effects in the long term. As the returns from such projects are highly uncertain, there is always a risk that the projects will falter due to a lack of willingness to invest. We have also unfortunately seen that operating expenses for R&D and the number of patent applications within renewable energy and CO_2 capture have declined in recent years[39].

Prospects
The transition towards a low emission society cannot be reached with the current solutions alone. The key to combining value creation with low emissions is new technology and innovation. In order for more new solutions that can increase value creation, improve security of supply and reduce environmental strain to reach the market, innovation and market introduction must grow with regard to both volume and speed. More ideas have to be developed, innovation processes must be accelerated and more climate-friendly products and services must be supplied to and demanded by the market.

An increasing number of players are realizing that there is a commercial potential in innovation and green technology. For individual market players realizing new technological solutions, goals such as increased competitiveness, lower greenhouse gas emissions and entry into new markets are important driving forces. By adding capital and reducing risk, Enova will contribute to realization of even more of this interest in concrete projects. Norway has unique access to renewable power, high productivity and a high level of expertise. Combined with a stable political situation and a well-functioning public policy instrument apparatus, this means that Norway can assume a strong position as a global player and supplier of new energy and climate technology.

It takes time to develop new technological solutions. Without the prospect of profitability, there is no foundation for technology development. Enova shall ensure that those who have the capacity and willingness to take the lead receive the necessary help along the way. We do this through predictable, stable programmes offered to the market. The support reduces risk and uncertainty and allows more innovative ideas to reach the market.

On the path towards a low emission society it will be crucial to make new climate-friendly solutions more competitive. Public support for energy and climate technology will be more important than ever in the years ahead. Enova and the rest of the public policy instrument apparatus, along with private businesses, have an important task in achieving greater progress in the green innovation effort.

New energy and climate technology is a very important focus area for Enova going forward. This work will allow for the realization of more demonstration projects, and allow more technologies to reach the market.

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[38] *Read more at www.Enova.no: Market development 2015. Key trends in Enova's focus areas*

[39] *Enovas markedsutviklingsrapport 2015: http://viewer.zmags.com/publication/cd1b83b8#/cd1b83b8/4*

NOK 138 million investment in biocoal plant

Cause for cake: The Enova funding commitment was celebrated with cake. From the left: Olav Brevik (Viken skog), Bjørn Knappskog (Arbaflame), Oskar Gärderman (Enova), Rolf Jarle Aaberg (Treklyngen) and Espen Lahnstein (Norges skogeierforbund) (Photo: Viken Skog).

Enova is investing NOK 138 million in a world-leading biocoal production plant at Follum. The plant will have a production capacity of up to 200 000 tonnes a year, which will reduce global CO_2 emissions by 400 000 tonnes a year.

OSLO

Ben Holan /Espen Sletvold

-Biocoal can become a very important contribution towards reducing global CO_2 emissions by replacing fossil coal. This makes it a future-oriented form of energy that can also give the Norwegian forestry industry a much needed boost, says General Manager of Treklyngen AS, Rolf Jarle Aaberg.

The biocoal is made from 100 per cent wood and has virtually the same properties as fossil coal. This means it is possible to replace fossil coal with renewable biocoal, without the coal power plants having to make major modifications.

"We need more legs to stand on. The green shift provides new opportunities for the forestry industry. It is therefore excellent news that the biocoal plant is receiving support. Good framework conditions and support from the public policy instrument apparatus entails that the project is now one step closer to realization," says Minister of Trade and Industry Monica Mæland (H).

Significant potential

Viken Skog acquired Follum paper mill from Norske Skog ASA in 2012 to establish new forestry industry on the site and the chairman of Viken Skog, Olav Breivik, is very positive about the opportunities that the plant could create.

"The production plant will create new jobs at Follum and is a boost for the forestry industry, which will deliver 500 000 cubic metres of forest raw material. It is important to use the wood from the forest which does not yet have a market in the industry, and to exploit the sidestreams in the sawmill industry. I believe it will inspire everyone who wants concrete examples of Norway creating new and green industry," says Breivik.

Arbaflame has already produced more than 100 000 tonnes of biocoal in a dedicated test plant at Kongsvinger. However, the production technology that will be used at Follum will become much more energy-efficient, which is the reason why Enova had decided to grant NOK 138 million in investment support for the project. Like all funding commitments of this size, the funding commitment is subject to approval by EFTA's Surveillance Authority, ESA.

"This project has significant potential. In order to face the climate challenge, we need to make renewable energy solutions more competitive. Making biocoal production more energy-efficient is an important contribution," says head of the industry market in Enova, Oskar Gärdeman.

Facts

Project owner: Arba Follum AS
Year funded: 2015
Funding level: NOK 138 million
Energy result: 142.5 GWh
Planned completion year: 2017

Arba Follum AS

The Arba Follum company was founded with the purpose of establishing demonstration plants for production of bio-based substitutes for fossil coal, Arbapellets, based on the Arbaflames company's production technology. Arba Follum is owned by Statsskog (20 per cent), Viken Skog (40 per cent) and Arbaflame (40 per cent).

Transport[40]

The transport industry goes electric

Market, potential and goals

The transport sector represents a third of total Norwegian emissions, and is the sector with the greatest potential for reducing Norwegian greenhouse gas emissions. The emissions from the sector have increased from 13.3 million tonnes of CO_2 equivalents in 1990 to 17.1 million tonnes in 2013. Emissions have remained stable over the past four years[41].

In 2015, Enova was tasked with reducing greenhouse gas emissions from the transport sector. Our goals within the sector are to contribute to more environmentally friendly energy consumption, more climate-efficient methods of transport and a reduction in the scope of transport.

Market situation

Electrification of the transport sector is well under way. The passenger car market has come far, and every fifth new car sold is electric. Beneficial advantages such as free parking and tolls, and well as a VAT exemption have been important drivers. In addition, more and more infrastructure is being developed for charging and quick charging, but the range of the cars is still a barrier[42].

Electrification has not progressed as far for larger vehicles and vessels, and technology development is still required. However, the market is on the move; Stavanger's first battery-electric buses are driving regular routes, and Asko is planning to roll out the nation's three first electric lorries in 2016. The world's first electric smack was constructed and tested in Norway, and the fully electric car ferry Ampere is running regular routes in Sognefjorden.

Production and consumption of biogas is on the rise, while the access to good quality liquid biofuel is low in Norway so far, due to limited production. Hydrogen may play a part both for phasing out fossil energy from the transport sector, and as a storage capacity and effect buffer in the electric energy system. As an energy carrier in transport, hydrogen is still just starting out. There are some filling stations in Eastern Norway and still a limited number of available cars globally.

Prospects

Projections from CenSES[43] indicate strong growth in all transport, well exceeding population growth, particularly on roads. Energy consumption in transport may increase gradually to 80 TWh in 2050, where road transport constitutes about half. Though the transport need is increasing, analyses from the Norwegian Environment Agency show that emissions from the transport sector will stabilize at 18 million tonnes of CO_2 equivalents from 2030 and beyond[44].

Energy efficiency measures and more energy-efficient methods of transport will become necessary to reduce the greenhouse gas emissions from the transport sector. In addition, near zero emission solutions must be phased in to all methods of transport. This is contingent upon significant technological development within e.g. batteries, hydrogen and biofuel production. Much of this development could take place in Norway.

The need for innovation relates to the entire value chain, including charging technology, battery and vehicle development, and for hydrogen also infrastructure, production and storage.

In order speed up development in the sector, Enova established dedicated support programmes that cover energy measures in both sea and inland transport. Enova supports development of charging infrastructure and onshore power, biofuel production and development of new energy and climate technology.

The electrification will accelerate. More people will switch from a combustion engine to an electric engine and battery, thanks to continued development of battery technology. Enova's work on charging stations along the main roads will help make it easier to use electric cars for long trips. For freight transportation, we are expecting electrification of local distribution of goods.

For sea transport, it is likely that batteries and power electronics between diesel engines and electric engines will become the norm in various types of vessels. Many vessels could also have charging options so they can run either purely on batteries or when they are near a harbour. Enova wants to help ensure more harbours and vessels are facilitated for onshore power and battery operation, so that engines and generators can be turned off in harbours. Enova will also push energy efficiency measures in the general maritime sector, with support for those who reduce energy consumption.

Alternative fuels such as hydrogen can become important on the road towards emission-free transport. Efficient production and distribution will be important to accelerate the hydrogen market, and filling stations and means of transportation are in the pipeline on land and at sea. It is likely that transport segments that are less suitable for electrification, such as heavy transport over long distances, will start using hydrogen in the future. Enova supports innovative hydrogen projects to bring the market forward.

In 2015, more market players started distributing and selling biofuel to passenger cars and long-haul transport, and both in Norway and abroad, many have started large-scale industrial biofuel production. More production plants can be realized with support from Enova, which will increase the availability of biofuel and lower the costs down to the level of fossil fuel. Biofuel can be used in both inland transport, at sea and in aviation, but should be prioritized in the sectors where use of electrification and hydrogen are challenging.

In a low emission society, the transport sector must be innovative, energy-efficient and virtually emission-free. Enova will also contribute to a green shift in the transport sector going forward, through supporting more environmentally friendly energy consumption.

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[40] *Read more at www.Enova.no: Market development 2015. Key trends in Enova's focus areas*

[41] *Statistics Norway (2015). Greenhouse gases, by source (activity), energy product, component, time and statistical variable*

[42] *NAF/Osloeconomics (2015): The electric car's competitiveness in Norway.*

[43] *CenSES (2014). Energy projections up to 2050.*

[44] *Norwegian Environment Agency (2014). Knowledge basis for low emission development*

Installing batteries on board

Smooth sailing ahead: With Enova's support, Eidesvik Offshore can implement their environmental work in good commercial solutions (Photo: Eidesvik Offshore).

Enova is contributing NOK 7.44 million to Eidesvik Offshore's installation of a battery system in the Viking Energy supply vessel.

BØMLO

Daniel Milford Flathagen

-Battery solutions in the maritime sector could significantly reduce greenhouse gas emissions going forward, and we are excited to contribute to the realization of Eidesvik's project. The shipping company has worked with a focus on energy and climate solutions for years, and are among those staking out a new course for the maritime industry, says Enova transport market manager Petter Hersleth.

Reducing emissions

The use of batteries on board reduces Viking Energy's annual energy consumption by 4.5 GWh, which corresponds to the consumption of more than 200 Norwegian households. The installation is a cooperation with Statoil, which recently extended its agreement with Eidesvik. "The energy storage system reduces fuel consumption and emissions as the generators on board can operate with a more even and optimal load. We have seen that Statoil is increasingly interested in these types of solutions. The battery installation was probably a contributing factor to the extension of the agreement, says CEO Jan Fredrik Meling in Eidesvik Offshore.

Enova support is a trigger

Eidesvik believes the support from Enova was essential for getting the battery solution into place.

"This makes it possible for us to use our environmental work in good commercial solutions in a challenging market. We have enjoyed a good dialogue with Enova, who were key in helping make this happen," says Meling.

Enova hopes more shipping companies will follow in Eidesvik Offshore's tracks:

"Batteries can and should be more widely used at sea. Different types of vessels have significant variations in the propulsion system, operational profile and which operations they perform, so even if there are already several vessels with battery systems on board, we still see a need for more projects so that systems like this will become the standard solution," says Hersleth.

Facts

Project owner: Eidesvik Offshore ASA
Year funded: 2015
Funding level: NOK 7.4 million
Energy result: 4.5 GWh
Planned completion year: 2016

Eidesvik Offshore ASA

Eidesvik Offshore ASA is an offshore shipping company, and operates vessels within supply, seismic and subsea.
Eidesvik has approx. 600 permanent employees, as well as long-term contracting of international crews (approx. 250 people). The shipping company is run from Langevåg at Bømlo. Eidesvik owns and operates a total of 26 ships which operate all over the globe.

Residential buildings[45]

More people realize the benefit of energy measures in their residence

Market, potential and goals

The residential buildings market includes construction of new residences and renovation, reconstruction and additions (ROT). Energy consumption in residences is 45 TWh, which accounts for just under 30 per cent of total stationary energy end-use in Norway. The potential for improving energy efficiency when upgrading all residences to the current construction standard is estimated at 13.4 TWh. 2.4 TWh of this is related to profitable measures where reduced energy costs will cover the investment expense[46].

Enova's goal within the residential market is to contribute to making more energy smart solutions competitive. If more homeowners start using such solutions, this will contribute to restructuring of energy end-use in Norwegian residences, which could free up renewable energy for use in other sectors. Enova supports residences with ambitious and innovative energy solutions, including new buildings and extensive upgrades. The purpose is to trigger prototype projects that develop the market for energy-efficient residences. The Enova Subsidy programme has a broader target group, and will increase the application of technically mature energy solutions, and thus contribute to restructuring of energy end-use in Norwegian residences.

Market situation

The results from Statistics Norway's household survey[47] show that energy consumption in Norwegian households has declined over the past few years. Thirty-six per cent of the households in the survey state that they have implemented measures to reduce energy consumption.

Some of the most important drivers for energy measures in residences are the households' spending power, interest rate levels and credit access and the price development in the residential market. Norwegians invest 31% of the household's consumption expenditures into the residence. This can be seen in the context of a strong residential market that entails that an attractive residence has a high value.

The ROT market for residences grew by three per cent and was estimated at NOK 67 billion in 2014. A continued growth of about three per cent was expected in 2015. The average annual rehabilitation rate for Norwegian residences was 1.89 per cent in the period from 2011-2013[48].

At the same time, a new study reveals that fewer than half of residences that are rehabilitated undergo energy upgrades[49]. The significant share of residences that are rehabilitated without energy upgrades, represent a major potential in the work to increase energy efficiency in Norwegian residences.

Most people renovate their residence to increase comfort and improve the indoor climate, not exclusively to save money[50]. Energy smart decisions are made when the energy and climate-friendly solutions have the best performance in the properties requested by the users. This is when it becomes attractive to be energy and climate-friendly.

Residential companies have a stable and low interest in energy measures. The decision processes in housing cooperatives result in financial drivers having a larger role than in individually owned housing. A low electricity price also dampens interest.

Prospects

The rate of construction is expected to remain high for the next few years, and the demand surplus for residences in city regions will persist. The interest in ROT measures in residences is expected to be somewhat diminished by weaker macroeconomic prospects[51]. In summary, the activity level still remains high in the residential market. This contributes to good market opportunities for energy upgrades.

When the settlement pattern changes in the direction of centralization, the need for more residences increases and puts pressure on areas and infrastructure. This poses challenges for climate, health and the environment. Compact and energy-efficient future cities will reduce the climate strain and play a vital role in the transition to a low emission society.

Enova launched the rights-based Enova Subsidy in January of 2015. It appears that the new programme has made a contribution towards implementation of more energy measures in residences with Enova's support. Using actual disbursed support as a basis, never before has so much support been granted to so many energy projects in this segment. We saw a rising tendency throughout 2015, and believe this trend will continue as knowledge of the programme continues to grow.

The interest in major upgrade projects has remained stable over the past few years. From 2016, we include the support for such projects in the Enova Subsidy as a rights-based measure. In addition to being able to receive subsidies to upgrade passive houses and low energy levels, it is now also possible to receive subsidies for upgrading to the current technical standard. Enova anticipates this will increase awareness regarding energy upgrades in the rehabilitation market.

Among residential companies, our new mapping support service has caused more people to gain an overview of potential energy measures that can be carried out when other rehabilitation measures are already planned.

Norway will need more renewable power in a low emission society. Energy consumption in Norwegian buildings is unnecessarily high, and power can be released for other purposes through energy efficiency measures. Enova will continue targeted work within the residential segment, with the aim of developing the market so it will become more common to carry out energy upgrades when renovating your residence. We will also continue supporting technologically mature energy solutions that do not yet have a sufficient foothold in the market. This is how we stimulate both supply and demand. Altogether, this will contribute to changes that will improve the energy standard of larger parts of the Norwegian residences over the long term.

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[45] *Read more at www.Enova.no: Market development 2015. Key trends in Enova's focus areas*

[46] *Study of the potential and barriers: energy efficiency in Norwegian buildings, Enova report 2012:01*

[47] *Statistics Norway, Household survey: https://www.ssb.no/energi-og-industri/statistikker/husenergi/hvert-3-aar*

[48] *Prognosesenteret, ROT residential prognosis, September 2015*

[49] *Enova SF Rehabilitation and energy upgrades in residences, 2015*

[50] *NTNU 2014, Åsne Lund Godbolt, "Market, Money and Morals. The Ambiguous Shaping of Energy Consumption in Norwegian Households".*

[51] *Prognosesenteret, ROT residential prognosis, September 2015*

Bioenergy

Increased demand over time

Market, potential and goals

Bioenergy is biomass (trees, plants, organic waste) that is used for energy purposes. Through refining and processing, the biomass is converted into fuels, both solid and liquid form. The bioenergy can be used to produce both heating and electricity, and can also be used as a fuel for transportation purposes.

The resource potential for bioenergy in Norway is estimated at being more than 30 TWh per year[52]. Forestry constitutes most of this potential, while other significant resources include waste, from agriculture, industry and households, and fertilizer. Bioenergy is used in both the energy sector and for end-use in various sectors. In the energy sector, bioenergy is primarily used to produce district heating, and to some degree electricity production. In 2014, about 1.6 TWh of the gross production in district heating is based on bark, chips, wood and bio-oils. In addition, part of the waste used in the district heating production is biomass. Biofuels corresponding to about 10 TWh were used for end-use in other sectors[53]. About half of this was use of wood in households. Other sectors with considerable biofuel consumption are industry, mining and transport.

Enova invests in bioenergy for several reasons. Through use of bioenergy, we can phase out fossil energy, both in the stationary sector and transport sector, thus contributing to reduced greenhouse gas emissions. An energy-efficient Norway needs solutions that efficiently utilize our renewable energy resources, and heating production based on bioenergy could make a positive contribution to security of supply. Enova supports establishment of biogas production plants, and will also include liquid biofuel plants starting in 2015.

Market situation

The use of bioenergy in 2014 declined by about 17 per cent compared with the previous year[54]. The decline was partially caused by shutdowns in the wood processing industry, and mild winters that have resulted in a lower heating need. Heat pump sales and more efficient wood-burning stoves may also have contributed to the development. In addition to these effects, the prices of alternative energy goods – primarily electricity, but also fuel oil – have been historically low. This has resulted in a lower willingness to pay for bioenergy compared to a few years ago. This particularly applies for bioenergy in the heating market, where competition from electricity has been quite substantial. It has thus become more challenging to make new bioenergy projects profitable.

A significant driver for use of biofuel in the transportation sector is the trading requirement which stipulates that a certain share of traded fuel must consist of biofuel. The trading requirement was increased from 3.5 per cent to 5.5 per cent from 1 October 2015. The use of biofuel for transport increased with the trading requirement and constituted 1.5 TWh in 2014. The new trading requirement level is expected to further increase the use of biofuel[55].

Despite somewhat challenging market conditions, Enova supported several biogas production plants in 2015.

Bioenergy 2015

BIO-BASED HEATING DELIVERY AND PRODUCTION OF BIOFUEL SUPPORTED BY ENOVA IN 2015:	269 GWH
OF WHICH:	
BIOGAS PRODUCTION	120 GWH
WASTE ENERGY	60 GWH
CHIPS	70 GWH
PELLETS AND BRIQUETTES	17 GWH
OTHER BIO	2 GWH

Prospects

Several biogas plants are expected to be completed in 2016. Along with existing plants, these plants contribute to increasing supply of biogas, particularly in Eastern Norway, but also Western and Central Norway. This enables increased use of biogas in the transportation sector, among others.

At the same time, the development in the short term will most likely continue in the same direction as in the past few years, with a continued decline in bioenergy use. There are mainly two reasons for this; firstly, more downscaling and shutdowns are expected within industry that has traditionally used a lot of biomass, for example wood processing. Secondly, electricity and oil prices are expected to remain low going forward, which makes it difficult to have profitable bioenergy projects. A factor that could help alleviate this decline is increased use of biofuel in the transportation sector that is driven by the new trading requirement.

In the slightly longer term, such new areas of applications for use of biomass will contribute to increased demand. Inland transport and aviation in particular could play an important part on the road towards a low emission society. There is increasing interest in developing second-generation biofuels[56], which in a Norwegian context are primarily based on cellulose from wood. If the efficiency and profitability of the chemical production process is improved, a rising demand for forest materials as fuel can be expected. There is also reason to believe that the percentage of bio within district heating and heating plants will increase as restrictions are introduced against fossil-based heating.

Enova will accelerate the desired market shift, and supports production of biofuel to increase access. We see that it will be particularly important to have good programmes in place for bioenergy aimed at new technology and innovation within both transportation and district heating. This will help make bioenergy competitive enough to meet the growing demand on the road towards a low emission society.

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[52] *NVE, Bioenergy in Norway http://webby.nve.no/publikasjoner/rapport/2014/-rapport2014_41.pdf. Various studies show that the potential for increased production of bioenergy for energy purposes is between 15-35 TWh per year*

[53] *Statistics Norway, Production and consumption of energy, energy balance, 2013-2014, final figures.*

[54] *Statistics Norway, Production and consumption of energy, energy balance, 2013-2014, final figures.*

[55] *Statistics Norway, Production and consumption of energy, energy balance, 2013-2014, final figures. https://www.ssb.no/energi-og-industri/statistikker/energibalanse/aar-endelige/2015-10-08*

[56] *IEA Bioenergy task 40 Country report 2013 for Norway.*

Not translated to english.

Del VI
Årsregnskap

Årsregnskap Energifondet

Ledelseskommentarer

Innledning
Energifondet skal være en forutsigbar og langsiktig finansieringskilde for arbeidet med å fremme en miljøvennlig omlegging av energibruk og energiproduksjon, samt utvikling av energi- og klimateknologi. Midlene skal bidra til å styrke forsyningssikkerheten og redusere utslippene av klimagasser.

Enova SF forvalter Energifondet.

Årsregnskapet for Energifondet er ført etter kontantprinsippet og viser innbetalinger og utbetalinger til/fra Energifondet i 2015, samt fondskapitalen pr 31.12.2015. Regnskapet viser et overskudd på 889 millioner kroner. Overskuddet er i sin helhet overført til fondskapitalen.

Overføring til fondet
Energifondets inntekter i 2015 er på 2 386 millioner kroner. Energifondets inntekter består av overføringer fra statsbudsjettet, renteinntekter og inntekter fra påslag på nettariffen.

Overføringer fra statsbudsjettet er avkasting fra grunnfond for klima, fornybar energi og energi- omlegging. I tillegg en overføring av ubrukte midler fra Samferdselsdepartementet i forbindelse med prosjekter overtatt fra Transnova. Renteinntektene kommer fra Energifondets midler i Norges Bank. Påslaget på nettariffen er en avgift som pålegges uttak av kraft i distribusjonsnettet. I 2015 er påslaget for elektrisitetsbruk i husholdningene 1 øre per kWh. Alle andre sluttbrukere betaler 800 kroner pr år per Målepunkt-ID.

Tilskudd
Total utbetalt tilskudd i 2015 er på 1 256 millioner kroner Tilskudd fra Energifondet utbetales etterskuddsvis i tråd med påløpte kostnader i prosjektene som har fått tilsagn om støtte. Enova har støtteprogrammer rettet mot private, næringslivet og offentlig sektor, innenfor energiproduksjon, energisparing og ny energi- og klimateknologi. Utbetaling til ikke finansielle foretak på 958 millioner kroner utgjorde majoriteten av utbetalingene i 2015.

Avtalefestede aktiviteter
Det er i 2015 utbetalt 94 millioner kroner til avtalefestede aktiviteter. I tråd med avtale med Olje- og energidepartementet finansierer fondsmidlene et landsdekkende tilbud av informasjons- og rådgivningstjenester som bygger opp under og legger til rette for at målene i avtalen nås.

Administrasjon av fondet
I henhold til vedtektene for Energifondet skal administrasjon knyttet til forvaltningen av midlene fra Energifondet dekkes av fondet. I 2015 var utbetaling av administrasjonshonorar 147,9 millioner kroner til Enova SF.

Balanse
Energifondets kapital var pr 31.12.2015 på 8 265 millioner kroner. Midlene er plassert i Norges Bank på en konto som er en del av statens konsernkontoordning. Energifondets kapital skal til en hver tid dekke Energifondets forpliktelser. I tillegg har Energifondet tilsagnsfullmakt til å forplikte 400 millioner kroner utover fondskapitalen.

Forpliktelser
Pr 31.12.2015 er netto forpliktelser på Energifondet 6 988 millioner kroner. Beløpet omfatter inngåtte forpliktelser redusert med gjennomførte utbetalinger.

Revisjonsordning
Riksrevisjonen har besluttet å avvikle revisjonen av fond som forvaltes av selskaper. Revisjon av Energifondet er fra 2015 overført til Deloitte som er Enovas valgte revisor. Revisoruttalelsen vedlegges årsregnskapet og bekrefter framlagt regnskap for fondet overfor Olje- og energidepartementet.

Avslutning
Årsregnskapet er avlagt i henhold bestemmelser om økonomistyring i staten, rundskriv fra Finansdepartementet og krav fra overordnet departement. Enova har ført et fullstendig og separat regnskap over alle inntekter og utgifter for Energifondet herunder tilsagn/forpliktelser. Dette gir etter styrets vurdering et dekkene bilde av Energifondets resultat og økonomiske situasjon i 2015.

Trondheim 18. februar 2016

Tore Holm
Styrets leder

Elizabeth Baumann Ofstad
Styrets nestleder

Eirik Gaard Kristiansen
Styremedlem

Olav Hasaas
Styremedlem

Dina Elverum Aune
Styremedlem

Einar Håndlykken
Styremedlem

Katharina Thøgersen Bramslev
Styremedlem

Tor Brekke
Styremedlem

Konrad Pütz
Styremedlem

Hege G. Wiggen
Styremedlem

Nils Kristian Nakstad
Administrerende direktør

Bevilgningsrapportering

Beholdninger rapportert i likvidrapport	Note	Regnskap 2015
Inngående saldo på oppgjørskonto i Norges Bank		7 346 797 800
Endringer i perioden		918 356 960
Sum utgående saldo oppgjørskonto i Norges Bank		**8 265 154 760**

Beholdninger rapportert til kapitalregnskapet (31.12)					
Konto	**Tekst**	**Note**	**2015**	**2014**	**Endring**
64.18.01	Ordinære fond (eiendeler)		8 265 154 760	7 346 797 800	918 356 960
81.18.02	Beholdninger på konto i Norges Bank		8 265 154 760	7 346 797 800	918 356 960

Note A Tildelinger av midler for Energifondet i regnskapsåret 2015				
Utgiftskapittel	**Kapittelnavn**	**Post**	**Posttekst**	**Årets tildelinger**
1825	Energiomlegging, energi- og klimateknologi	50	Overføring til Energifondet	1 496 209 671

Resultatregnskap for Energifondet 2015

	Note	2015	2014
Overføring til fondet			
Inntekter fra påslag på nettariffen		669 615 846	648 449 474
Overføring over statsbudsjettet		1 636 925 671	1 215 506 883
Renter på innskudd i Norges Bank		78 985 915	96 707 361
Sum overføringer til fondet	**1**	**2 385 527 431**	**1 960 663 718**
Overføringer fra fondet			
Tilskudd til kommuner		139 426 177	93 564 947
Tilskudd til fylkeskommuner		13 313 752	15 436 910
Tilskudd til ikke-finansielle foretak		957 690 507	755 120 982
Tilskudd til finansielle foretak		1 179 905	143 110
Tilskudd til husholdninger		87 669 777	50 143 599
Tilskudd til ideelle organisasjoner		17 818 512	12 692 436
Tilskudd til statsforvaltningen		39 200 796	47 674 082
Sum tilskudd	**2**	**1 256 299 425**	**974 776 067**
Avtalefestede aktiviteter	3	94 050 402	98 780 519
Administrasjon av fondet	4	147 860 476	128 500 000
Sum overføringer fra fondet		**1 498 210 303**	**1 202 056 586**
Finansinntekter			
Innskuddsrenter Danske bank/SMN		1 774 671	2 766 072
Renteinntekter nettariff		55 673	67 381
Netto finansinntekter	**5**	**1 830 344**	**2 833 453**
Årsresultat	**6**	**889 147 473**	**761 440 586**
Disponering av årsresultat			
Overføring av periodens resultat til opptjent fondskapital		**889 147 473**	**761 440 586**

Balanse for Energifondet 2015

	Note	2015	2014
Innestående Norges bank		8 265 154 760	7 346 797 800
Kortsiktig fordring OED		-	29 209 487
Sum eiendeler	**7**	**8 265 154 760**	**7 376 007 287**
Energifondets kapital		8 265 154 760	7 376 007 287
Sum fondskapital og gjeld	**7**	**8 265 154 760**	**7 376 007 287**

Note 1
Energifondets inntekter i 2015 skriver seg fra påslag på nettariffen, bevilgninger over statsbudsjettet og opptjente renter fra Norges Bank.

Note 2
Beløpene representerer utbetalinger i tilknytning til støtteprosjekter vedtatt av Enova SF på vegne av Energifondet, redusert med tilbakebetalt støtte i forbindelse med kansellerte tilsagn. Nye forpliktelser som er inngått av Enova SF på vegne av Energifondet i 2015 beløper seg til kr. 2 970 390 449.

Gjenstående forpliktelse total pr. 31.12.2015 er på kr 6 988 446 797 og fremkommer på følgende måte:

Forpliktelse Energifondet 01.01.2015	5 930 689 362
Nye forpliktelser i 2015	2 841 010 712
Forpliktelse overtatt Transnova 2015	129 379 737
Kansellerte forpliktelser 2015	-414 423 298
Sum utbetalt fra fondet 2015	-1 498 209 715
Forpliktelse Energifondet 31.12.2015	6 988 446 797
Innestående Norges Bank 31.12.2015	8 265 154 760
Sum overført til 2016	-1 276 707 963

Sum overført 2016 består av:	
Ikke disponerte midler pr 31.12.2015	-1 197 722 048
Renteinntekter Norges Bank 31.12.2015	-78 985 915
Sum overført til 2016	-1 276 707 963

Note 3
Beløpene representerer utbetalinger i forbindelse med pålagte oppgaver i avtale med OED, som i hovedsak omfatter landsdekkende svartjeneste, markedskommunikasjon, holdningsskapende arbeid, internasjonalt arbeid, analysevirksomhet og kunnskapsgenerering.

Note 4
Utbetalt administrasjonshonorar til Enova SF beløper seg til 147 860 476 inkl mva, som utgjør kr 118 360 476 eks.mva. Reelle administrasjonskostnader for Energifondet i 2015 var på kr 113 804 761.

Note 5
Innbetalte renter skriver seg fra renter opptjent i Energifondets konto i Danske bank/SMN og renter fra nettselskapene i forbindelse med for sent innbetalt nettariff.

Note 6
Årsresultatet i 2015 viser et overskudd på kr 889 147 473. Overskuddet er forskjellen mellom inn- og utbetalinger på Energifondets konto i Norges Bank i 2015.

Note 7
Beløpene viser Energifondets kapital pr 31.12.2015, som består av innestående i Norges Bank.

Deloitte.

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www.deloitte.no

Til Olje- og Energidepartementet

REVISORS BERETNING

Uttalelse om årsregnskapet

Vi har revidert årsregnskapet for Energifondet som viser et overskudd på kr 889.147.473,-. Årsregnskapet består av bevilgningsrapportering og fondsregnskap avsluttet per 31.12.2015, med en beskrivelse av vesentlige anvendte regnskapsprinsipper og andre noteopplysninger, og ledelseskommentarer til årsregnskapets ulike oppstillinger.

Styrets ansvar for årsregnskapet

Styret i Enova SF er ansvarlig for å utarbeide årsregnskapet og for at det gir et rettvisende bilde i samsvar med Reglement for økonomistyring i staten og Bestemmelser for økonomistyring i staten, og for slik intern kontroll som styret finner nødvendig for å muliggjøre utarbeidelsen av et årsregnskap som ikke inneholder vesentlig feilinformasjon, verken som følge av misligheter eller feil.

Revisors oppgaver og plikter

Vår oppgave er å gi uttrykk for en mening om dette årsregnskapet på bakgrunn av vår revisjon. Vi har gjennomført revisjonen i samsvar med lov, forskrift og god revisjonsskikk i Norge, herunder International Standards on Auditing. Revisjonsstandardene krever at vi etterlever etiske krav og planlegger og gjennomfører revisjonen for å oppnå betryggende sikkerhet for at årsregnskapet ikke inneholder vesentlig feilinformasjon.

En revisjon innebærer utførelse av handlinger for å innhente revisjonsbevis for beløpene og opplysningene i årsregnskapet. De valgte handlingene avhenger av revisors skjønn, herunder vurderingen av risikoene for at årsregnskapet inneholder vesentlig feilinformasjon, enten det skyldes misligheter eller feil. Ved en slik risikovurdering tar revisor hensyn til den interne kontrollen som er relevant for selskapets utarbeidelse av et årsregnskap som gir et rettvisende bilde. Formålet er å utforme revisjonshandlinger som er hensiktsmessige etter omstendighetene, men ikke for å gi uttrykk for en mening om effektiviteten av selskapets interne kontroll. En revisjon omfatter også en vurdering av om de anvendte regnskapsprinsippene er hensiktsmessige og om regnskapsestimatene utarbeidet av ledelsen er rimelige, samt en vurdering av den samlede presentasjonen av årsregnskapet.

Etter vår oppfatning er innhentet revisjonsbevis tilstrekkelig og hensiktsmessig som grunnlag for vår konklusjon.

Konklusjon

Etter vår mening er årsregnskapet avgitt og gir et rettvisende bilde av den finansielle stillingen til Energifondet per 31.12.2015 og av resultater for regnskapsåret som ble avsluttet per denne datoen i samsvar med Reglement for økonomistyring i staten og Bestemmelser for økonomistyring i staten.

Deloitte.

Uttalelse om øvrige forhold

Konklusjon om registrering og dokumentasjon

Basert på vår revisjon av årsregnskapet som beskrevet ovenfor, og kontrollhandlinger vi har funnet nødvendig i henhold til internasjonal standard for attestasjonsoppdrag (ISAE) 3000 "Attestasjonsoppdrag som ikke er revisjon eller forenklet revisorkontroll av historisk finansiell informasjon", mener vi at ledelsen har oppfylt sin plikt til å sørge for ordentlig og oversiktlig registrering og dokumentasjon av Energifondets regnskapsopplysninger i samsvar med Reglement for økonomistyring i staten og Bestemmelser for økonomistyring i staten.

Trondheim, 18. februar 2016
Deloitte AS

Morten Alsos
statsautorisert revisor

Årsregnskap Enova SF

Styrets årsberetning 2015

Enova SF

Enova SF (Enova) er et statsforetak eid av Olje- og energidepartementet (OED). Enova ble stiftet 22. juni 2001, og er lokalisert i Trondheim.

Enova forvalter flere oppdrag, med Energifondet som det desidert største. Energifondet er et statlig fond hvor de viktigste finansieringskildene er påslag på nettariffen og avkastning fra Fondet for klima, fornybar energi og energiomlegging. Enova sitt oppdrag for forvaltning av Energifondet er regulert gjennom vedtektene, samt gjennom rullerende avtaler med OED. Gjeldende avtale for 2012-2016 reflekterer at Enova både skal være et viktig verktøy for å realisere miljø- og klimavennlig energiomlegging, og fremme utvikling av ny energi- og klimateknologi.

Sentrale forhold 2015

Enovas visjon er "Livskraftig forandring". Ved å gjøre det enklere for næringslivet og privatpersoner å ta livskraftige valg bidrar vi til et fremtidig lavutslippssamfunn. I tillegg til å jobbe for markedsendring og nå resultatmål i gjeldende avtale, har det i 2015 vært lagt vekt på utarbeidelse av strategier og forberedelse av organisasjonen frem mot ny avtaleperiode.

I 2015 kontraktsfestet Enova forpliktelser på vegne av Energifondet på 2,8 milliarder kroner. Det ga et energiresultat på 1,8 TWh. Det er i 2015 satt ny rekord i antall søknader om støtte til energi- og klimaprosjekter. Ved utgangen av året er akkumulert netto energiresultat for perioden 2012-2015 på 6 TWh.

Det viktigste virkemidlet i Enova er finansiering i form av støtte til prosjekter i ulike markeder. Industrien utgjør en vesentlig del av vår aktivitet. Enova har i 2015 støttet en stor bredde av industriprosjekter som forsterker inntrykket av at det grønne skiftet brer om seg. Innenfor yrkesbygg har det også vært rekordmange søknader.

Et tydelig trekk i 2015 er at stadig flere aktører ser mulighetene ved å investere i ny energi- og klimateknologi. Utvikling av teknologi er helt avgjørende for å få frem fornybare og effektive løsninger som muliggjør lavutslippssamfunnet. Ved å utvikle og eksportere slik teknologi kan støtte fra Enova bidra til å redusere globale utslipp.

Fra 1.1.2015 fikk Enova utvidet ansvarsområdet til å omfatte effektivisering av energibruken og redusere klimagassutslippene fra transportsektoren. Enova opererer nå i markeder som samlet sett står for over 90 % av de norske klimagassutslippene. Gjennom året er det utviklet strategier og lansert en rekke tiltak rettet mot transportsektoren.

Ved starten av året lanserte Enova en ny rettighetsbasert ordning for husholdningene, Enovatilskuddet. Søknadstilgangen har vært betydelig lavere enn målet for året, men det er utbetalt støtte til flere boligprosjekter i 2015 enn noen gang tidligere. Det tar tid å innarbeide et nytt tilbud i markedet, og det har vært en positiv utvikling gjennom året. Det henvises til Enovas resultat- og aktivitetsrapport for ytterligere informasjon om forvaltningen av Energifondet.

Redegjørelse for årsregnskapet

Enova har i all hovedsak driftsinntekter gjennom administrasjonshonorar for forvaltning av Energifondet. Administrasjonshonoraret fastsettes av OED.

Samlet driftsinntekt i 2015 var kr. 118 417 436 (eks mva), hvorav kr. 118 360 476 (eks mva) var administrasjonshonorar knyttet til forvaltning av Energifondet.

Resultat for 2015 viser et overskudd på kr 4 605 716. Lavere kostnader enn planlagt for 2015 er i det vesentligste et resultat av lavere lønns- og reisekostnader, samt at vi har valgt å utsette noen utviklingsprosjekter til neste år.

Selskapets totalkapital per 31.12.15 var kr 37 225 934 og egenkapitalen var kr 14 117 360. Dette gir en egenkapitalandel på 38 %. Selskapet hadde ved årsslutt en annen egenkapital på kr 9 117 360. Likviditetsbeholdning utgjorde kr 31 745 223 som ansees som god likviditet.

Risikofaktorer og risikostyring

Enova er eksponert for ulike former for risiko, og styret følger utviklingen innenfor de ulike risikoområdene. Det utarbeides en årlig risikovurdering til OED.

Følgende risikokategorier er gjenstand for vurdering:

- Risiko i forhold til oppnåelse av hovedmål og innenfor de ulike markedene
- Omdømmerisiko
- Risiko knyttet til interne forhold (prosesser, nøkkelpersoner og verktøy)
- Risiko for mislighold/brudd på lover og regler

Risikovurderinger utføres også løpende som en integrert del i resultatledelse, saksbehandling, oppfølging av tilsagn og intern prosjektgjennomføring. Det er gjennom året jobbet systematisk med risikoreduserende tiltak innenfor alle deler av virksomheten.

Arbeidsmiljø og personal

Enovas fremste aktivum er den enkelte medarbeiders kompetanse og hvordan vi får nyttiggjort denne gjennom godt samspill. Enova arbeider målrettet for å være en attraktiv arbeidsplass og søker å underbygge den enkeltes styrker og ønsker om å yte sitt beste. Verdiene (tydelig, inspirerende, ansvarlig og markedsnær) legger føringer for hvordan den enkelte forventes å opptre. Selskapet utøver verdibasert ledelse, og jobber med å integrere verdiene i alle deler av arbeidshverdagen, knyttet til beslutninger, væremåte, prioriteringer og medvirkning. Alle ansatte har individuelle utviklingsplaner i tråd med dette.

Den enkeltes kompetanse utvikles gjennom å utfordre på oppgaver, mulighet for å jobbe på tvers i organisasjonen og gjennom eksterne tilbud. Den årlige medarbeiderundersøkelsen viste fortsatt stabilt svært gode resultater. Den bekrefter at medarbeiderne i stor grad identifiserer seg med Enova sine verdier og mål, og at arbeidsmiljøet oppleves som godt.

Selskapet har en innarbeidet policy om at det ikke skal forekomme forskjellsbehandling grunnet kjønn eller etnisk bakgrunn. Enova hadde 77 fast ansatte medarbeidere pr 31.12.15, fordelt på 40 kvinner og 37 menn. Ledere i virksomheten fordelte seg med 31 % kvinner og 69 % menn. Det arbeides med å øke andelen kvinnelige ledere på alle nivå. Gjennomsnittsalderen er 43 år. Utdannings- og erfaringsbakgrunnen til medarbeiderne varierer innen mange fagområder. Enova mener det er helt

avgjørende med likestilling og mangfold på arbeidsplassen.

Det samlede sykefraværet for 2015 var på 3,86 %. Herav utgjorde sykdom med sykemelding 2,31 %, egenmeldt sykefravær 1,11 % og barns sykdom 0,44 %. Det er ikke rapportert om arbeidsuhell eller ulykker i løpet av 2015. Enova er en IA bedrift og jobber systematisk for å tilrettelegge arbeidssituasjonen for sykemeldte.

Arbeidsmiljøutvalget i Enova har avholdt 4 møter i 2015. Det er behandlet 10 saker i tillegg til lovpålagte rapporteringer. Referat fra møtene er tilgjengeliggjort for de ansatte.

Samfunnsansvar
Enova skaper livskraftig forandring gjennom støtte slik at flere private og offentlige aktører kan ta sitt samfunnsansvar ved bærekraftige miljø- og klimavalg.

Enova fremmer også økt kunnskap i samfunnet om mulighetene for å ta i bruk energieffektive og miljø- og klimavennlige løsninger. Enova jobber med holdningsskapende arbeid overfor næringsliv og privatpersoner, og iverksetter tiltak for å påvirke neste generasjons beslutninger innen energi og klima. De to viktigste tiltakene er Nasjonal innovasjonscamp i samarbeid med Ungt Entreprenørskap for elever i videregående skole, og Enovas Energiutfordring, et læringsverktøy for mellomtrinnet i grunnskolen.

Enovas ledelse arbeider målrettet for at etiske retningslinjer sammen med verdiene, fungerer som en rettesnor for å opptre etisk forsvarlig. Dette står sentralt i organisasjons- og lederutviklingen. Enovas innkjøpsprosesser stiller krav om etisk handel og å unngå sosial dumping. Enova tilrettelegger også for praksisplasser for personer med spesielle oppfølgingsbehov.

Enova forsøker å minimere bedriftens påvirkning på det ytre miljø. Enova har kontorlokaler med lavt energiforbruk og fornybare energikilder. Vi har i 2015 jobbet for BREEAM-sertifisering av våre kontorlokaler, og samarbeider med huseier om tiltak innen energibruk, vannforbruk og avfallssortering. Vi oppfordrer ansatte til å velge miljøvennlig transport til og fra jobb.

Ingen varslingssaker eller andre hendelser knyttet til brudd på god forretningsskikk er rapportert i 2015. Enova har en aktiv tilnærming til at det vi gjør skal være transparent og åpent. Etisk forretningsførsel er et grunnleggende prinsipp for oss.

Enova vil i 2016 fortsette arbeidet med samfunnsansvar, etikk og verdiutøvelse, integrert i mål, strategier, styringen av virksomheten, og i leder- og organisasjonsutviklingen.

Retningslinjer for fastsettelse av lønn og annen godtgjørelse til ledende ansatte
For å tiltrekke og beholde dyktige og kompetente medarbeidere er Enova opptatt av å tilby konkurransedyktige vilkår, uten å være lønnsledende. Dette gjelder for alle ansatte uavhengig av organisatorisk nivå.

Lønn og annen godtgjørelse til ledende ansatte i Enova SF består av tre deler:
- Ordinær lønn
  - Annen godtgjørelse
  - Kjøregodtgjørelse
  - Forsikringer (gruppeliv, reise og ulykke)
  - Elektronisk kommunikasjon (telefon og bredbånd)
- En fri avis til hjemmeadresse
- Pensjon

Ledende ansatte har samme vilkår for godtgjørelser og pensjon som øvrige ansatte i selskapet. Unntaket er fast kjøregodtgjørelse til administrerende direktør.

Enova SF har ikke avtaler om etterlønn, bonuser eller aksjer og opsjoner.

Styret erklærer at den lederlønnspolitikk og de retningslinjer for lederlønnsfastsettelse som foretaksmøtet 19.06.15 sluttet seg til, har blitt etterlevd i 2015 innenfor de rammer retningslinjene gir.

Framtidsutsikter
Fondet for klima, fornybar energi og energiomlegging økes frem til 2016 til total 62,75 milliarder, som gjennom økt avkastning utvider den finansielle rammen for Energifondet. Gjennom reforhandlet avtale gjeldende fra 1.1.2015 fikk Enova et utvidet oppdrag og en bredere plattform for virksomheten. Avtalen i klimatoppmøtet i Paris 12. desember 2015 gir økt oppmerksomhet om klimautfordringene. Klimagassutslipp kommer som et resultat av aktivitet som samfunnet er avhengig av. All verdiskaping er avhengig av energi, og energi representerer i seg selv et betydelig potensial for verdiskapning. I ny avtaleperiode for 2017-2020 forventes Enova fortsatt å være et sentralt virkemiddel i framtidens energisystem og lavutslippssamfunn.

Fortsatt drift
Årsoppgjøret er avlagt under forutsetning om fortsatt drift. Til grunn for antagelsen ligger et solid og langsiktig økonomisk grunnlag gjennom vedtektene for Energifondet og stiftelsesdokumentet for selskapet, samt at selskapet har en god likviditet og soliditet.

Årsresultat og disponeringer
Enova SF hadde i 2015 et årsresultat på kr 4 605 716. Styret foreslår følgende disponering av årsoverskuddet i Enova SF:

Overføres annen egenkapital	kr 4 605 716

Styret takker de ansatte for god innsats i 2015.

Trondheim 18. februar 2016

Tore Holm Styrets leder	Elizabeth Baumann Ofstad Styrets nestleder	Eirik Gaard Kristiansen Styremedlem	Olav Hasaas Styremedlem
Dina Elverum Aune Styremedlem	Einar Håndlykken Styremedlem	Katharina Thøgersen Bramslev Styremedlem	Tor Brekke Styremedlem
Konrad Pütz Styremedlem	Hege G. Wiggen Styremedlem	Nils Kristian Nakstad Administrerende direktør	

Resultatregnskap

	Note	2015	2014
DRIFTSINNTEKTER OG DRIFTSKOSTNADER			
Driftsinntekter			
Administrasjonshonorar	1,2	118 367 436	102 851 441
Gevinst ved salg av driftsmidler		50 000	-
Sum driftsinntekter		**118 417 436**	**102 851 441**
Driftskostnader			
Lønnskostnad	4,7	79 898 098	68 331 853
Avskrivning på varige driftsmidler	3	561 999	71 223
Annen driftskostnad		33 840 795	35 606 658
Sum driftskostnader		**114 300 892**	**104 009 733**
DRIFTSRESULTAT		**4 116 544**	**-1 158 292**
FINANSINNTEKTER OG FINANSKOSTNADER			
Finansinntekter			
Annen renteinntekt		532 941	580 659
Annen finansinntekt		-	1 546
Sum finansinntekter		**532 941**	**582 205**
Finanskostnader			
Annen rentekostnad		6 950	7 051
Annen finanskostnad		36 819	5 348
Sum finanskostnader		**43 769**	**12 400**
NETTO FINANSPOSTER		**489 172**	**569 805**
ORDINÆRT RESULTAT FØR SKATTEKOSTNAD		**4 605 716**	**-588 487**
Skattekostnad på ordinært resultat		-	-
ORDINÆRT RESULTAT		**4 605 716**	**-588 487**
ÅRSRESULTAT		**4 605 716**	**-588 487**
OVERFØRINGER OG DISPONERINGER			
Overføringer annen egenkapital	6	4 605 716	-588 487
SUM OVERFØRINGER OG DISPONERINGER		**4 605 716**	**-588 487**

Balanse pr. 31.12

	Note	2015	2014
EIENDELER			
ANLEGGSMIDLER			
Varige driftsmidler	3	4 003 432	441 993
SUM ANLEGGSMIDLER		**4 003 432**	**441 993**
OMLØPSMIDLER			
Fordringer			
Andre kortsiktige fordringer		1 477 278	2 430 745
Sum fordringer		**1 477 278**	**2 430 745**
Bankinnskudd, kontanter o.l.	5	31 745 223	28 959 757
SUM OMLØPSMIDLER		**33 222 502**	**31 390 502**
SUM EIENDELER		**37 225 934**	**31 832 495**
EGENKAPITAL OG GJELD			
EGENKAPITAL			
Innskutt egenkapital			
Selskapskapital	6	5 000 000	5 000 000
Sum innskutt egenkapital		**5 000 000**	**5 000 000**
Opptjent egenkapital			
Annen egenkapital		9 117 360	4 511 644
Sum opptjent egenkapital		**9 117 360**	**4 511 644**
SUM EGENKAPITAL		**14 117 360**	**9 511 644**
GJELD			
KORTSIKTIG GJELD			
Leverandørgjeld		2 499 383	4 264 382
Skyldig offentlige avgifter		9 566 090	8 674 896
Annen kortsiktig gjeld		11 043 101	9 381 572
SUM KORTSIKTIG GJELD		**23 108 574**	**22 320 851**
SUM GJELD		**23 108 574**	**22 320 851**
SUM EGENKAPITAL OG GJELD		**37 225 934**	**31 832 495**

Kontantstrømoppstilling

	Note	2015	2014
Kontantstrømmer fra operasjonelle aktiviteter			
Resultat før skattekostnad		4 605 716	-588 487
- Periodens betalte skatt		-	-
+ Tap / - Vinning ved salg av anleggsmidler		-50 000	-
+ Ordinære avskrivninger		561 999	71 223
+/- Endring i leverandørgjeld		-1 764 999	1 333 203
+/- Endring i andre tidsavgrensningsposter		1 651 828	3 161 941
= Netto kontantstrøm fra operasjonelle aktiviteter		**5 004 545**	**3 977 880**
Kontantstrømmer fra investeringsaktiviteter			
- Utbetalinger ved kjøp av varige driftsmidler		-2 269 078	-
+ Innbetaling ved salg av varige driftsmidler		50 000	-
= Netto kontantstrøm fra investeringsaktiviteter		**-2 219 078**	**-**
Kontantstrømmer fra finansieringsaktiviteter			
= Netto kontantstrøm fra finansieringsaktiviteter		-	-
= Netto endring i kontanter mv		**2 785 466**	**3 977 880**
+ Beholdning av kontanter 01.01.		28 959 757	24 981 877
= Kontantbeholdning 31.12.		**31 745 223**	**28 959 757**
Kontantbeholdning mv framkommer slik:			
Kontanter og bankinnskudd pr 31.12.		28 885 064	25 755 054
+ Skattetrekkinnskudd o.l. pr 31.12.		2 860 159	3 204 703
= Beholdning av kontanter mv 31.12.		**31 745 223**	**28 959 757**

NOTE 1 REGNSKAPSPRINSIPPER

Årsregnskapet er satt opp i samsvar med regnskapslovens bestemmelser og anbefalinger til god regnskapsskikk.

Inntekter
Ramme for administrasjonshonorar fastsettes av Olje- og energidepartementet på årlig basis for hvert enkelt oppdrag. Honoraret kan kun benyttes til å dekke administrasjonskostnader for oppdraget det er tildelt.

Klassifisering og vurdering av balanseposter
Omløpsmidler og kortsiktig gjeld omfatter poster som forfaller til betaling innen ett år etter anskaffelsestidspunktet, øvrige poster er klassifisert som anleggsmidler. Anleggsmidler omfatter eiendeler bestemt til varig eie og bruk. Anleggsmidler vurderes til anskaffelseskost med fradrag for avskrivinger, og nedskrives til virkelig verdi ved verdifall som forventes ikke å være forbigående. Anleggsmidler med begrenset økonomisk levetid avskrives lineært over antatt levetid.

Kundefordringer og andre fordringer er oppført i balansen til pålydende etter fradrag for avsetning til forventet tap. Avsetning til tap gjøres på grunnlag av individuelle vurderinger av de enkelte fordringene.

Pensjonsforpliktelser
Enova SF har en pensjonsordning i Statens Pensjonskasse med ikke-fondsbasert premieoppfølging. Enova er derved del av et premiefellesskap med andre selskaper med lignende demografi. Dette medfører at det ikke er mulig å aktuarberegne en netto pensjonsforpliktelse for balanseføring. Premieinnbetaling til ordningene resultatføres derfor som pensjonskostnad og ingen netto pensjonsforpliktelse er balanseført. Enova har også en ordning for avtalefestet pensjon (AFP) gjennom Fellesordningen for avtalefestet pensjon.

Leieavtale
Enova driver sin virksomhet i leide lokaler. Leieavtalen er ikke balanseført.

Skatt
Selskapet er ikke skattepliktig.

Kontantstrømoppstilling
Kontantstrømoppstillingen er utarbeidet etter den indirekte modellen.
Kontanter mv omfatter bankinnskudd.

NOTE 2 DRIFTSINNTEKTER

I 2015 forvaltet Enova SF oppdragene; Energifondet og Naturgass.

Rammen for administrasjon av Energifondet ble satt til kroner 147 860 476 inklusiv merverdiavgift (118 360 476 ekskl. merverdiavgift). Rammen finansieres i sin helhet med tilskudd fra Energifondet.

Spesifikasjon av administrasjonshonorar:

Oppdrag	2015	2014
Energifondet	118 360 476	102 800 000
Naturgass	6 960	8 550
NER 300	-	42 891
Total	**118 367 436**	**102 851 441**

NOTE 3 VARIGE DRIFTSMIDLER

	Kunst ikke avskrivbar	Kontor-maskiner	Inventar	Transport-midler	Sum
Anskaffelseskost pr. 1/1	426 822	99 290	1 780 740	220 890	2 527 742
+ Tilgang			4 123 439		4 123 439
- Avgang				220 890	220 890
Anskaffelseskost pr. 31/12	**426 822**	**99 290**	**5 904 179**	**-**	**6 430 291**
Akk. av/nedskr. pr 1/1	-	99 290	1 780 225	206 235	2 085 749
+ Ordinære avskrivninger			547 344	14 655	561 999
- Avgang				220 890	220 890
Akk. av/nedskr. pr. 31/12	**-**	**99 290**	**2 327 569**	**-**	**2 426 859**
Balanseført verdi pr 31/12	**426 822**	**-**	**3 576 610**	**-**	**4 003 432**
Økonomisk levetid		3 år	5 år	3 år	

Varige driftsmidler verdsettes til virkelig verdi på anskaffelsestidspunktet, og avskrives linjert over driftsmidlets levetid.

Ombygging i 2009, som tidligere var klassifisert som andre kortsiktige fordringer, er i 2015 klassifisert som anleggsmiddel og inngår i noten ovenfor som tilgang på inventar med kroner 1.854.361,-

Enova leier kontorlokaler i Professor Brochs gt. 2. Det ble i 2014 inngått ny leieavtale for 3+1+1 år. Leieforholdet løper fra 01.09.2015 til 31.08.2018

NOTE 4 LØNNSKOSTNADER, ANTALL ANSATTE OG GODTGJØRELSE TIL REVISOR

Selskapet har sysselsatt i gjennomsnitt 75,9 årsverk i regnskapsåret.

Spesifikasjon av lønnskostnader	2015	2014
Lønn	60 579 594	51 789 465
Arbeidsgiveravgift	9 976 355	8 302 195
Pensjonskostnader	7 555 084	6 415 891
Andre lønnsrelaterte ytelser	1 787 065	1 824 302
Total	**79 898 098**	**68 331 853**

YTELSER TIL LEDENDE PERSONER

Navn	Stilling	Lønn	Annen godtgjørelse	Pensjons-kostnader	Samlet godtgjørelse
Nils Kristian Nakstad	Administrerende direktør	1 684 694	105 680	126 985	1 917 359
Øyvind Leistad	Direktør for programutvikling og drift	1 301 551	6 786	126 985	1 435 322
Audhild Kvam	Markedsdirektør	1 297 682	6 708	126 985	1 431 375
Geir Nysetvold*	Direktør for strategi og kommunikasjon	1 118 372	10 351	92 959	1 221 682
Gunn Jorun Widding	Direktør for virksomhetsstyring	1 288 408	6 786	126 985	1 422 179

* Sluttet 30.09.15
Det eksisterer ingen avtaler om etterlønn.

GODTGJØRELSE TIL STYRET - UTBETALT I 2015

Navn	Rolle	Styrehonorar
Tore Holm	Styrets leder	225 000
Elizabeth Baumann Ofstad	Styrets nestleder	121 000
Eirik Gaard Kristiansen	Styremedlem	108 500
Olav Hasaas	Styremedlem	108 500
Dina Elverum Aune	Styremedlem	108 500
Einar Håndlykken	Styremedlem	108 500
Katharina Thøgersen Bramslev	Styremedlem	108 500
Håvard Solem	Styremedlem	108 500
Marit Sandbakk	Styremedlem	108 500

Frem til 31.12.2014 ble utbetaling av styrehonorar delt i forskudd og avregning på ulike år. Det er endret prinsipp i 2015 hvor selskapet går bort fra forskuddsbetaling. Utbetaling i 2015 er styrehonorar for 2015 fratrukket forskudd utbetalt i 2014.

GODTGJØRELSE TIL REVISOR

	2015	2014
Revisjonshonorar Enova SF	60 000	84 251
Revisjonshonorar Energifondet	60 000	
Avtalte kontrollhandlinger forvaltningsoppdrag	5 000	130 898
Andre tjenester	77 500	44 661
Sum	**202 500**	**259 810**

Riksrevisjonen har besluttet å avvikle revisjonen av fond som forvaltes av selskaper. Revisjon av Energifondet er fra 2015 overført til Enova SF valgte revisor.

NOTE 5 BANKINNSKUDD, KONTANTER O.L.

	2015	2014
Sum bankinnskudd 31.12.	31 745 223	28 959 757
Herav skattetrekkinnskudd 31.12.	2 860 159	3 204 703

NOTE 6 EGENKAPITAL

Enova SF har innskutt egenkapital på kr. 5 000 000. Enova SF eies av den norske stat ved Olje og Energidepartementet

	Aksjekapital / selskapskapital	Annen egenkapital	Sum egenkapital
Pr 1.1.	5 000 000	4 511 644	9 511 644
Overført årets resultat		4 605 716	
Pr 31.12.	**5 000 000**	**9 117 360**	**14 117 360**

NOTE 7 PENSJON

Enova har pensjonsordning som tilfredsstiller lov om obligatorisk tjenestepensjon.
Pensjonsordningen omfatter i alt 81 personer. Den er basert på at pensjonsalderen i foretaket er 67 år og at samlet kompensasjonsgrad ikke skal overstige 66 % av lønnen, begrenset opp til 12G. Ordningene gir rett til definerte fremtidige ytelser, avhengig av antall opptjeningsår, lønnsnivå ved oppnådd pensjonsalder og størrelsen på ytelsene fra folketrygden. Pensjonsordningen ivaretas av foretakets medlemskap i Statens Pensjonskasse.

I tillegg har Enova en AFP-ordning. Dette er en tilleggspensjonsordning som gir ansatte som fyller kravene i ordningen rett til å gå av med AFP fra fylte 62 år. Ordningen ivaretas av Fellesordningen for avtalefestet pensjon.

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Til generalforsamlingen i Enova SF

REVISORS BERETNING

Uttalelse om årsregnskapet

Vi har revidert årsregnskapet for Enova SF som viser et overskudd på kr 4.605.716,-. Årsregnskapet består av balanse per 31.12.2015, og resultatregnskap og kontantstrømoppstilling for regnskapsåret avsluttet per denne datoen, og en beskrivelse av vesentlige anvendte regnskapsprinsipper og andre noteopplysninger.

Styret og daglig leders ansvar for årsregnskapet

Styret og daglig leder er ansvarlig for å utarbeide årsregnskapet og for at det gir et rettvisende bilde i samsvar med regnskapslovens regler og god regnskapsskikk i Norge, og for slik intern kontroll som styret og daglig leder finner nødvendig for å muliggjøre utarbeidelsen av et årsregnskap som ikke inneholder vesentlig feilinformasjon, verken som følge av misligheter eller feil.

Revisors oppgaver og plikter

Vår oppgave er å gi uttrykk for en mening om dette årsregnskapet på bakgrunn av vår revisjon. Vi har gjennomført revisjonen i samsvar med lov, forskrift og god revisjonsskikk i Norge, herunder International Standards on Auditing. Revisjonsstandardene krever at vi etterlever etiske krav og planlegger og gjennomfører revisjonen for å oppnå betryggende sikkerhet for at årsregnskapet ikke inneholder vesentlig feilinformasjon.

En revisjon innebærer utførelse av handlinger for å innhente revisjonsbevis for beløpene og opplysningene i årsregnskapet. De valgte handlingene avhenger av revisors skjønn, herunder vurderingen av risikoene for at årsregnskapet inneholder vesentlig feilinformasjon, enten det skyldes misligheter eller feil. Ved en slik risikovurdering tar revisor hensyn til den interne kontrollen som er relevant for selskapets utarbeidelse av et årsregnskap som gir et rettvisende bilde. Formålet er å utforme revisjonshandlinger som er hensiktsmessige etter omstendighetene, men ikke for å gi uttrykk for en mening om effektiviteten av selskapets interne kontroll. En revisjon omfatter også en vurdering av om de anvendte regnskapsprinsippene er hensiktsmessige og om regnskapsestimatene utarbeidet av ledelsen er rimelige, samt en vurdering av den samlede presentasjonen av årsregnskapet.

Etter vår oppfatning er innhentet revisjonsbevis tilstrekkelig og hensiktsmessig som grunnlag for vår konklusjon.

Konklusjon

Etter vår mening er årsregnskapet avgitt i samsvar med lov og forskrifter og gir et rettvisende bilde av den finansielle stillingen til Enova SF per 31.12.2015 og av resultater og kontantstrømmer for regnskapsåret som ble avsluttet per denne datoen i samsvar med regnskapslovens regler og god regnskapsskikk i Norge.

Deloitte.

Uttalelse om øvrige forhold

Konklusjon om årsberetningen

Basert på vår revisjon av årsregnskapet som beskrevet ovenfor, mener vi at opplysningene i årsberetningen om årsregnskapet, forutsetningen om fortsatt drift og forslaget til anvendelse av overskuddet er konsistente med årsregnskapet og er i samsvar med lov og forskrifter.

Konklusjon om registrering og dokumentasjon

Basert på vår revisjon av årsregnskapet som beskrevet ovenfor, og kontrollhandlinger vi har funnet nødvendig i henhold til internasjonal standard for attestasjonsoppdrag (ISAE) 3000 "Attestasjonsoppdrag som ikke er revisjon eller forenklet revisorkontroll av historisk finansiell informasjon", mener vi at ledelsen har oppfylt sin plikt til å sørge for ordentlig og oversiktlig registrering og dokumentasjon av selskapets regnskapsopplysninger i samsvar med lov og god bokføringsskikk i Norge.

Trondheim, 18. februar 2016
Deloitte AS

Morten Alsos

Morten Alsos
statsautorisert revisor

Appendices

APPENDIX A PROJECTS WITHIN NEW ENERGY AND CLIMATE TECHNOLOGY 2012-2015

CONTRACT YEAR	PROJECT OWNER	PROJECT DESCRIPTION	TECHNOLOGY SUPPLIERS	SUPPORT AWARDED (NOK)	PROJECT'S ENERGY RESULT (kWh/year)
Renewable heating					
2012	Nord-Trøndelag county authority	Dynamic thermal energy storage (DTES) in low-temperature local heating system at Mære Landbruksskole in Steinkjer	• Technology developer: Gether AS • Energy circulation system: Kværner Piping Technology AS • Management systems/cybernetics: Enoco AS • Energy tanks: Vangstad AS	6 756 755	1 400 000 Conversion from electricity, oil and natural gas
2013	Oslo Lufthavn AS	Snow cooling plant at Oslo Airport Gardermoen	• Technology developer: Oslo Airport and Team-T AS (e.g. Norconsult and Cowi are partners) • Contractor: Veidekke AS	4 260 306	940 000 Production of free cooling, alternatively for electricity
2013	Agder Energi Varme AS	New solutions for heating from hydronic systems for low energy buildings in Kristiansand	• Developer of solution: Agder Energi Varme	3 813 750	810 000 New application of district heating (from waste), alternatively for electricity
2015	Asker municipality	Drilling of two approx. 800-metre deep geothermal energy wells in Asker municipality	• Project developer: Asplan Viak AS • Drilling energy wells: Båsum Boring AS • Collectors: Protan AS and Abbakonda AS	2 564 500	232 000 Production of heating
Renewable power					
2012	Tjeldbergodden Kraft AS	Tjeldbergodden Gjenvinningskraftverk, low-pressure turbine for power recovery from waste water (seawater) from the methanol plant at Tjeldbergodden in Aure	• Turbine, generator: CleanPower AS • Runner: Oshaug Metall AS • Expertise runner: Evald Holmén Consulting AB • Generator configuration: InPower AS	4 774 792	2 500 000 Production of electricity
2013	Returkraft AS	Combined heat and power production from low-temperature waste heat from Returkraft's waste combustion facility in Kristiansand using CraftEngine piston engine	• Technology developer: Viking Heat Engines AS • Partners development piston engine: Institutt for Produktutvikling (IPU), AVL Schrick GmbH	3 361 526	150 000 Production of electricity
2013	Asker municipality	Combined heat and power production from landfill gas from Yggeset waste park in Asker using stirling engines	• Stirling engine: Cleanergy AB • Partner: Wärmeprozesstechnik Gmbh • Gas plant: MGE Teknikk	1 468 120	336 955 Production of electricity and heating
2013	Nordre Follo Renseanlegg IKS	Combined heat and power production from biogas using micro gas turbine at Nordre Follo's plant in Ås	• Technology developer: Adigo AS • Gas turbines: Capstone Turbine Corporation	1 310 000	600 000 Production of electricity
2013	Vardar Varme AS	Power production from utilizing available excess heat from low-pressure vapour from bio-boilers at Follum in Hønefoss by using a Tocircle expander	• Technology developer: Tocircle Industries AS	6 571 344	4 698 268 Production of electricity
2014	Gjøvik, Land og Toten Interkommunale Avfallsselskap IKS	Energy utilization of landfill gas with installation of five stirling engines at Dalborgmarka Miljøpark at Gjøvik	• Technology supplier: Cleanergy AB, MGE-Teknik AB	1 400 300	486 000 Production of electricity and heating, as well as conversion
2015	Agder Energi Vannkraft AS	Integrated small-scale power turbine ("turbinator") for production of electricity from releasing minimum water flow from the Gåseflå dam	•Turbine, generator: CleanPower AS	3 412 553	1 750 000 Production of electricity

Appendix A: The table shows projects within new energy and climate technology that received support in 2012-2015. Approved support and the contractual energy result have been corrected for the final reported result.

PROJECT'S CLIMATE RESULT IN NORWAY (kg CO_2 equiv/year)	PROJECT STATUS	INNOVATION	EXPERTISE DEVELOPMENT
379 000 Conversion from oil and natural gas	Under development, partially operational	• Dynamic thermal energy storage • Patenting technology • New combination of technology with low-temperature local heating systems • Multiple innovations in system, individual technologies, storage and management for optimization of performance and utilization of low-temperature surplus energy	• Cooperation with the Norwegian University of Science and Technology (NTNU), University of Oslo (UiO) and Bioforsk, as well as Nord-Trøndelag county authority, which is in turn building operative experience in relation to other market players • Research arena at Mære landbruksskole • Horizon 2020 application submitted with SINTEF as the coordinator, NTFK and Gether as partners, and the DTES system facility at Mære as the main case • Publication in the media and interest in public agencies • Master and doctorate degrees at NTNU
0	Ready for commissioning	• Utilization of snow as source of free cooling	• Demonstration facility • Knowledge about system development, functionality and suitability of the technology • Information dissemination with associations, e.g. Norsk VVS Energi- og Miljøteknisk Forening and Fjernvarmeforeningen • Presentations at various conferences • Project tasks associated with the project, master's thesis or doctoral assignments relevant when the facility becomes operational
0	Two building projects in operation, one project under development	• Innovative composition of technology, introduced in new market segment • Simplified and more efficient hydronic system inside the building, suitable for industrialization • Utilization of structure for distribution of hot water for consumption for floor heating • Try new consumption points, e.g. washing machine and dishwasher for hot water from renewable sources • Prøve nye forbrukspunkt, f.eks. vaskemaskin og oppvaskmaskin på varmtvann fra fornybarkilder	• Demonstration facility for the district heating industry, architects and property developers • Cooperation with other expertise environments (major contractors, the HVAC sector, Bellona) • Objective measurement of consumption for verification and analysis • Tailored measurement programme offered to end user for customer follow-up and increased awareness • Presentations in meeting arenas and at conferences • Various articles in technical press
54 056 Reduced propane consumption	Under establishment	• Demonstration of deep drilling under Norwegian conditions and in typically Norwegian bedrock • Drill bit developed to handle crystalline bedrock • Continuous casting in critical zones to reduce the risk of landslides and leaks • New type of coaxial collectors enables high energy withdrawal	• Demonstration facility • Experience transfer, e.g. via involvement in FutureBuilt • Expertise development among all involved players • Information dissemination via technical press, seminars, conferences, etc.
0	Not operational in 2015 (due to deficient water access)	• Turbine and generator in the same unit makes gearbox unnecessary • Adapted tempered seawater with regard to corrosion • Replaceable runner for seasonal variation in water volume • Patenting of technology is under consideration	• Reference facility for the industry • Facilitated for monitoring, measurement and learning • Relevant for connection to research projects and education • Information dissemination through presentations and conferences, nationally and internationally • Granted EU funds for further development of the technology in cooperation with Spanish Gas Natural Fenosa • 260 kW turbine under development for utilization of minimum water flow at Gåseflå dam with support from Enova (see project under owner Agder Energi Vannkraft) • Important lessons learned in the design (corrosion protection, fastening of composite component, etc.) • Exhibited at Hydro 2014 (Italy) and Hydro 2015 (France)
0	Under commissioning	• Known motor technology (piston engine) adapted to new area of application • Simple design, very effective • Several patents, e.g. on heat recovery unit and valve system (injection system)	• Demonstration facility (Returkraft has about 3 000 visitors each year) • Several cooperation projects with research and educational institutions, e.g. Sintef, Teknova, Denmark Technical University (DTU) • Doctorate at DTU
0	Operational	• Verification of stirling engines' suitability for power production from low-quality landfill gas with low methane content. Can tolerate impurities in gas • Several patents, e.g. for the burner, gas cooler and piston	• Demonstration facility, open for tours • Continued major interest in the facility • New knowledge about solving the challenge with significant variation of the gas production against the fact that the stirling engines need constant gas pressure
0	Operational	• Newsworthiness as this is first-time implementation of micro-turbine cleaning facility for production of power and heat (co-gen) • Development of complete control system	• Demonstration facility. Available for visitors from industry and academia • Web-based monitoring of the facility enables easy data acquisition and sharing
0	Under development	• Enables power production from steam with low pressure and temperature • Flexibility in using multiple machines adapted to seasonal fluctuations • Patented technology	• Demonstration facility • Included in Viken Skog's efforts in "Treklyngen" at Follum, a business cluster for comprehensive and coordinated utilization of forestry, including sharing of expertise
56 358 Conversion from oil	Under establishment	• Stirling engine can withstand polluted landfill gas • Can be run with landfill gas with a methane content down to 18%	• Learning arena for dissemination of experience and knowledge is established when needed or based on demand • Facility can be used for tours upon request
0	Under development	• Simplified method for verification for the general public for the regulatory requirement relating to release of minimum water level • Semi-regulated axial kaplan turbine with integrated generator • Standardization of total solution for turbinating small water volumes • Cost-optimized valve solution for controlling the minimum water flow release	• Reference facility for the industry • Facilitated for measurement, monitoring and learning • Potentially opened for tours for students from the University of Agder • Development of several new key suppliers

REALIZED DISSEMINATION OF TECHNOLOGY	FURTHER DEVELOPMENT AND DISSEMINATION
• First implementation of full-scale facility in Norway and globally • Development cooperation with the University of Oslo with regard to further cooperation at the Natural History Museum in Tøyen. Two minor special contracts at the UiO Natural History Museum related to management system	• Particularly suited for buildings with glass/atriums, historical buildings, energy efficiency for buildings on small lots, cooling in supermarkets • Technology supplier estimates potential spread to several thousand plants in Norway. • National potential for reduced greenhouse gas emissions • International potential for spread that can result in conversion to renewable energy and reduced greenhouse gas emissions
• First snow-cooling plant in Norway • Implemented in one hospital in Sweden	• Suitable for meeting cooling needs in buildings and facilities in areas with snow and frost in the winter and large areas available for snow harvesting and storage. • International potential for dissemination in areas with similar climatic conditions, which can yield greater use of renewable energy for cooling and reduced greenhouse gas emissions.
• Parallel development courses underway through Enova's competition for simplified heating solutions. • A building with only a tap water structure, where floor heating is taken from the tap water, planned construction start-up: Spring 2015 • A new building with 70 apartments under construction with new solution • Industrialized production at LK system's plant in Sweden	• Suitable in buildings with very low energy consumption, cf. TEK15 • Industrialization makes the solution suitable for water-borne facilities throughout Norway. • Relevant for major contractors, associations and the industry • Several equipment producers want to participate, planning multiple prototypes of integrated cabinet solutions in the near future • In negotiations with developer to test and further develop the solution with hot tap water as the energy carrier
• First full-scale implementation of the technology in Norway • There are energy wells of a corresponding depth abroad, but with different subsurface conditions.	• Suitable in city neighbourhoods where area usage and energy price are decisive • Asker municipality is considering energy wells for a specific development area (Føyka/Elvely) • Technology supplier estimates that the spread potential is for geothermal drilling projects in city neighbourhoods, where multiple shallow wells can be replaced with one deeper well. The potential in Norway is expected to be about 1000 wells a year. • National potential for spread that could contribute to increased renewable energy production and reduced greenhouse gas emissions
• Pilot in the Nea watercourse is operational every summer (Statkraft) • Sales agent agreement with company in Puerto Rico (covers the Caribbean, Central America, and northern South America) • Sales agreement with company in Turkey (covers Turkey)	• Transferable to utilization of mandatory minimum release in watercourse. Increasing focus in Europe with implementation of the EU's Water Directive • Transferable to water canals and dams connected to irrigation/water supply • Technology supplier estimates spread potential at around 20 industry plants in Norway, with comparable water consumption • Approved two SkatteFunn (Tax Deduction Scheme) applications for further development of the technology • Gas Natural Fenosa indicates a potential for 100 additional facilities following successful pilot installation in Spain • International potential for spread that can yield improved utilization of waste water for power production and reduced greenhouse gas emissions
• First implementation globally • Developer signed agreement with BE Aerospace, the first test machines have been delivered • Two test machines delivered to Caterpillar in the US/Germany (exhaust heat) • One test machine delivered to Mitsui in Japan (geothermal)	• Suitable for other energy sources: solar thermal, biomass and geothermal energy • Technology supplier estimates own spread potential to 2000 units globally by 2016, increasing to 4000 units total by 2017 • International potential for spread that can yield increased production of electricity from renewable energy and energy recovery, and reduced greenhouse gas emissions
• Norway: Two orders for corresponding facilities • Internationally: There are currently facilities in the UK, Germany, Poland, Slovenia	• Suitable for landfill facilities and methane gas plants. In Norway: 62 landfills in operation and 85 methane gas facilities • International potential for dissemination that can yield increased production of electricity and reduced greenhouse gas emissions
• First implementation in Norway • Implemented in several facilities internationally, e.g. in the US and Europe	• Suitable for biogas plants, landfill facilities and facilities for handling food and other waste. • In Norway there are 20 biogas facilities which treat drain mud from cleaning plants in Norway. 62 waste disposal sites in operation and 85 methane gas plants. • Primarily relevant for medium-sized facilities. • Suitable for large greenhouse facilities which need power, heating and CO_2. • Project owner is experiencing major interest from the market • International potential for spread that can yield increased production of electricity from renewable energy and energy recovery, and reduced greenhouse gas emissions
• The project is a second-time implementation of a full-scale facility • Turbine previously implemented at Senja Avfall IK	• The project creates a platform for further dissemination of steam expanders in the Nordic countries, and then internationally. • Repetition of expander production and run-time enables roll-out of other energy solutions with similar technology, e.g. ORC systems • Technology supplier estimates spread potential at about 20 district heating plants in Norway, and 90 plants in the rest of the Nordic countries • International potential for dissemination that can yield increased production of electricity from waste heat, and reduced greenhouse gas emissions.
• Second-time implementation of technology in this application area in Norway	• Suitable for biogas, natural gas and a mix of natural and biogas • Further spread of the technology could take place through information on the project's owners website and tours of the facility • National and international potential for dissemination that can yield increased production of electricity and reduced greenhouse gas emissions
• First full-scale turbinator installed at Tjeldbergodden Gjenvinningskraftverk, with support from Enova • Pilot in the Nea watercourse is operational every summer (Statkraft)	• Suitable for utilization of minimum water flow in watercourses • Suitable for industry with sizable water flows • Transferable to water channels and dams connected to irrigation/water supply • Technology support estimates spread potential at about 50 plants in Norway in a 10-year perspective • Increasing focus on turbining minimum water flow release in Europe • International potential for dissemination that can yield increased use of water resources for power production and reduced greenhouse gas emissions

102 projects in 2012-2015

New energy and climate technology is essential for adaptation to a low emission society. Enova's work within new energy and climate technology will help reduce greenhouse gas emissions and support the development of restructuring of energy end-use and energy production in the long term through developing and utilizing technologies and new solutions that can contribute towards this.

In the 2012-2015 period, Enova supported a total of 102 new energy and climate technology projects with a total of NOK 3.3 billion.

APPENDIX A PROJECTS WITHIN NEW ENERGY AND CLIMATE TECHNOLOGY 2012-2015

CONTRACT YEAR	PROJECT OWNER	PROJECT DESCRIPTION	TECHNOLOGY SUPPLIERS	SUPPORT AWARDED (NOK)	PROJECT'S ENERGY RESULT (kWh/year)
2015	Kildal Kraft AS	340 kW micro power plant in Meløy municipality with a new turbine concept and standardized and prefabricated mini power plant installed in a container solution	Concept developer: Standard Hydro Power AS Turbine: Tocircle AS Container principle: Minipower AS	2 774 671	1 200 000 Production of electricity
2015	Waves4Power AS	Full-scale demonstration of 100 kW wave power buoy near Runde Miljøsenter in Herøy municipality	Technology supplier: Waves4Power AS Others: Siemens, OPD Hydraulic system: Petronas, Parker Bottom colour/rust treatment: Jotun Cables: Nkt cables Simulations, etc.: Chalmers, SP Buoy transport: Olympic Shipping	12 005 100	250 000 Production of electricity
2015	Hans Arild Grøndahl	Solar cell roof using new technology. Norway's first CIGS solar cell system with a new installation system adapted to Norwegian weather conditions. Automatic fire switch installed.	CIGS solar cells: SolarFrontier Fire switches: Santon Installation system: Mul10metal	942 760	65 561 Production of electricity
2015	Statkraft AS	Test turbine - Smøla	Project developer: Statkraft AS	30 734 876	31 000 000 Production of electricity
Non-industrial plants and facilities					
2013	Digiplex Fet AS	Construction of cost-efficient, safe and environmentally friendly data centre in Heia Næringspark in Fet municipality	• Overall contractor and construction contractor: Miljøbygg • M&E contractor: Gunnar Karlsen	30 300 000	7 358 400 Energy efficiency
2014	Norwegian Public Roads Administration Region South	Installation of intelligent lighting system in the tunnel between Gvammen (Hjartdal municipality) and Århus (Seljord municipality). Traffic is registered using a camera, and light zones are activated and follow the car through the tunnel	• Technology supplier: not determined	499 920	114 006 Energy efficiency
2015	Lyse Elnett AS	Demonstration of smart grid technology in an area in downtown Stavanger with 25 power grid stations and approx. 1 300 customers	•Concept: Lyse Elnett and ABB Norway AS •Measurement and management system in customer point, etc.: Lyse Elnett •Power grid stations, switchgear, management system: ABB Norway AS	14 687 000	500 000 Reduction of grid loss (electricity)
Transport					
2015	Eidesvik Offshore ASA	Installation of energy storage system (battery) in the Viking Energy supply vessel	Multiple suppliers will be used, but a final decision has not yet been made	7 440 000	4 541 547 Reduced fuel consumption (LNG and MGP and energy efficiency)
2015	Grieg Star AS	Hybrid operation of electric cranes on cargo ship	• Battery solution: Grenland Energy • Management system: Kongsberg Maritim • Cranes: MacGregor	1 150 000	1 014 361 Reduced fuel consumption
2015	Lindum AS	Introduction of a hyperthermophilic biological pre-processing stage in the production of biogas at Lindurn in Drammen. Active degradation of biomass with bacteria culture that replaces the passive heating stage and increases the capacity without added energy supply	Technology developer: Hyperthermics Energy AS	7 200 000	4 010 000 Production of biogas, and energy efficiency
2015	Asko Norge AS	Commercial operation of three electric lorries in Norway	• Service: Norsk Scanla AS • Supplier and contractual party: HyTruck • Constructor: Emoss BV • Addition: SpesialKarosser AS • Cooling unit: ThermoKing AS	2 250 000	349 500 Reduced diesel consumption, and conversion from diesel to electricity
2015	Nel Fuel Norway AS	Energy-efficient hydrogen filling station with a new hydrogen production concept based on electrolysis of water. The station will be located in Akershus county authority, adapted for taxis and passenger cars	• Technology developer: Nel Fuel AS • Electrolysis provider: NEL Hydrogen AS • Hydrogen filling station: H2 Logic	7 760 000	2 600 000 Energy-efficient production and filling of hydrogen
2015	Halstensen Granit AS	Grain mill on board the shipping company's new trawler "Granit", with production steps not yet tested at sea	Not chosen yet	5 700 000	12 622 500 Reduced oil consumption and utilization of waste heat
2015	Halstensen Granit AS	Installation of electric winch motor based on PM (Permanent Magnetic)	• Technology: Rolls Royce	2 347 500	7 200 000 Reduced fuel consumption and electricity consumption
2015	Hordaland county authority	Hordaland county authority will build an onshore facility that will facilitate zero and low emission ferries for up to eight ferry routes in Hordaland	• Consultant: DNV GL	133 600 000	62 133 000 Reduced marine diesel consumption and conversion to electricity

Appendix A: The table shows projects within new energy and climate technology that received support in 2012-2015. Approved support and the contractual energy result have been corrected for the final reported result.

PROJECT'S CLIMATE RESULT IN NORWAY (kg CO_2 equiv/year)	PROJECT STATUS	INNOVATION	EXPERTISE DEVELOPMENT
0	Under development	• Turbine with permanent generator maintains high performance over varying rotational speeds, and thus optimally exploits variations in water level • Standardized container solution for micro power plant	• Cooperate with Østfold University College for engineering of the container solution – completed bachelor's thesis with related scientific theory and method • Cooperation with various cutting-edge environments for development of system solution and standardization solutions
0	Under development	• 25-year rust and anti-fouling protection, developed by Jotun and SP • New generation of dynamic cables for marine energy • Connection hub for connecting marine energy to the grid • Relief system for dynamic cables	• Coordinated cooperation and exchange of experience between involved players and expert environments through the development of the wave power plant's technology elements. Extensive verification of technologies • Development of simulation models and testing of cable strain in cooperation with Chalmers Tekniska Högskola, Technical Research Institute of Sweden • Media coverage • Sharing technical solutions with the marine energy industry
0	Near completion and operational	• CIGS technology is new in Norway • New installation system	• Empirical data from the project determines spread, particularly assessment of new CIGS technology with new installation system in relation to normal crystalline solar cells • IFE Kjeller will use the facility for research • Information meeting with Øvre Romerike fire and rescue
0			
0	Commissioning	• Use of evaporation/adiabatic cooling units • Use of the building as a local route for ventilation air	• Company network established • Participating contractor is building expertise • Execution of tests at the University of Leeds to optimise the rack design to reduce PUE
0	Under establishment	• Connection of two familiar technologies; AID cameras and dimming system for LED lighting systems • Light level in the tunnel controlled based on need using AID cameras, where lighting zones are activated when there is traffic and follow the car through the tunnel • The lighting level will be reduced to 10% when there is no traffic	• Prestigious project where a future-oriented and energy conservation profile is selected • Project owner assumes expertise development and spread both internally and externally
0	Under establishment	• Smart grid technology for electric power systems that use bidirectional communication, distributed measurement and management systems, new sensor technologies and management of equipment (load, prod.) with grid customers • Test new solutions, concepts and technologies • Verify useful values of reducing grid losses • Lay foundation for future development and efficiency	• Demonstration project • Goal to establish industry standard • Project under Demo Norge via the Smart Grid Centre in Norway • Communication via industry network • Continuous measurement and documentation • Made available to research institutions upon completion, including Sintef and others
969 441 Reduced fuel consumption (LNG and MGO)	Under establishment	• Installation of batteries in existing vessels with dual fuel propulsion (LNG and MGO) • Batteries function as storage and additional energy source • Stable load for generators where the batteries will handle the high peaks (peak-shaving) • Alternating use of generator and battery ("charge/discharge") reduces use of generators with low output (where both consumption and emission are disproportionately high)	• Contribute to use of battery technology achieving broader market introduction • The first such facilities will create a reference for cost and gains for other corresponding projects • Participating sub-suppliers are developing knowledge (Kongsberg Maritime, Westcon Power & Automation, ZEM, Electro Automation Austevoll, etc.)
270 145 Reduced diesel consumption/ LSMGO (Low Sulfur Maritime Gas Oil)	Under establishment	• Installation of battery system for operation of electric cranes on cargo ships • The cranes produce electricity when the load is lowered • More optimised crane operation and reduced energy and fuel consumption	• Development and lab testing for verification of associated control system • Verification of the solution under real operating conditions • Quantify emission reductions and fuel savings
1 054 627 Production replaces diesel	Under establishment	• Patented hyperthermophilic bacteria break down biomass very quickly in phase 1 in a biogas plant • Biological generation of heat during the process reduces the energy need for pre-processing • Biological hydrogen generation as added effect	• Expertise development surrounding multiphase biogas process internally at Lindum's two plants in Norway and in the company's R&D department • Experience from the project is shared in several research and development projects • Expertise transfer to other players in the waste industry through a biological work group in Avfall Norge
141 016 Reduced diesel consumption, and conversion from diesel to electricity	Under establishment	• Electric lorries will replace traditional diesel lorries 1-1 • New combination of lorry and cooling unit	• Better experience basis • Knowledge sharing with other players • Expertise development for electric vehicles among service and maintenance suppliers • Test reach and battery capacity in a winter climate
0	Under establishment	• Compact and more energy-efficient hydrogen production adapted to hydrogen stations • Higher capacity than previously demonstrated • Modular station for flexibility when scaling up	• Demonstration facility • Internal expertise development, as well as expertise development with associated partners • Information dissemination through conferences, seminars and inspections
3 824 618 Reduced oil consumption	Under establishment	• Integration of new production stages that exploit waste heat and waste for production of new products • Considerable improvement in specific energy per produced good • Exploitation of everything from the fish that is collected from the ocean, including valuable fish oils	• Increased expertise and experience regarding the equipment's functionality on board during movement
2 181 600 Reduced fuel consumption	Under establishment	• The new winch will yield higher fishing capacity (reduced trawling operation) • The winch is operated by a motor with no gears • Better performance and regenerative effect • Energy consumption reduced by about 25 per cent	• Employees who operate the equipment will gain new experience • Learning about the winch motor's interaction with existing deck machinery
16 547 261 Reduced marine diesel consumption	Under establishment	• Norwegian maritime cluster is at the global forefront and the probability of technological innovations in tenders is significant • Contribute to testing and gaining experience with more new technology elements (charging solutions and battery technology)	• Involved partners will considerably increase their expertise regarding battery solutions in ferries, which will provide an important head start in further development and sale of such solutions

REALIZED DISSEMINATION OF TECHNOLOGY	FURTHER DEVELOPMENT AND DISSEMINATION
• First-time global implementation of the turbine technology for hydropower production • The turbine technology is a further development of turbine technology based on gas and vapour, implemented at Senja Avfall IK in Lenvik and Vardar Varme in Hønefoss, with support from Enova • The system solution is a composition of existing technology in a new application	• The technology is primarily suited for micro power plants of < 1 MW – multiple containers can be installed and operated in parallel and thus increase capacity • Technology supplier estimates that spread potential is 50-100 facilities in Norway under 1 MW. Furthermore, the supplier estimates a major international spread potential – several hundred over a few years • International potential for spread that can yield increased production of renewable power and reduced greenhouse gas emissions
• First implementation in Norway and globally	• The technology is suited for input to the grid, or for remote areas or installations far from the grid, e.g. electrification of aquaculture facilities, offshore installations, etc. • Technology supplier estimates a significant spread potential along the Norwegian coastline up to 2020, as well as about a hundred buoys outside the UK within 2017/2018 • International potential for spread that could yield increased production of renewable power and reduced greenhouse gas emissions
• First national installation of new CIGS technology	• Already national interest (TV2) in the solar cell industry and among potential buyers • International potential for areas with a Nordic climate
• First-time implementation in Norwegian data centres • Implemented in Sweden • Corresponding technology will be used in ongoing development of Digiplex data centre in Sweden	• Several construction steps are under consideration • Potential unclarified, but growing Norwegian industry and several establishments are expected • Transferable to Nordic data centres • International potential for spread that can yield improved energy efficiency and reduced greenhouse gas emissions
• First-time implementation of the combination of AID cameras and lighting management in Norway and globally	• Project owner estimates a future national potential for improved energy efficiency of 3 GWh/year, based on the Norwegian Public Roads Administration's manual (N500) • International potential for spread that can yield improved energy efficiency
• First-time implementation of the total concept globally • Certain parts of the technology have previously been demonstrated internationally, but this is the first time in Norway	• Transferable to Lyse Elnett's other grids and facilities • Significant international potential for the smart grid concept, including switchgear, power grid stations, measurement and management systems, etc. with smart grid functionality • Technology supplier estimates a substantial spread potential; 20-50% of the 130 000 power grid stations in Norway are expected to have a form of smart grid technology over the next ten years. The potential for export of the solutions is expected to cover all the 60 countries to which they currently deliver switchgears and power grid stations • National and international potential for spread that results in reduced grid losses and increased possibility for handling local power production and power-intensive equipment
• Second-time implementation in Norway in a ship with dual fuel operation (LNG and MGO)	• Eidesvik wants to use corresponding technology on as many of their supply vessels as possible (own and operate 26 ships) • The technology is also transferable to other companies' supply vessels, as well as to vessels within related vessel groups such as anchor handling vessels, construction vessels, etc. – both nationally and internationally • International potential for spread that could result in reduced use of fossil fuels and reduced greenhouse gas emissions
• First installation of such a system on board a ship in a global scale	• Could potentially be installed in all of Grieg Star's newer ships • The technology is transferable to corresponding ships with electric cranes, which are starting to become a standard • International potential for spread that could yield reduced consumption of fossil fuel and reduced greenhouse gas emissions
• First full-scale implementation of the technology in Norway and globally	• Suitable for implementation when producing biogas from waste and other biological material • Technology supplier sees a possibility for implementation in the company's other focus areas, such as fish sludge from aquaculture and fertilizer from agriculture • Technology supplier estimates that spread potential is approx. 30 plants in Norway, 250 plants in Scandinavia and 7500 plants in Germany • International potential for spread that could result in increased biogas production with reduced energy consumption, conversion to renewable energy and reduced greenhouse gas emissions
• First electric lorries in commercial operation in Norway • Electric lorries are already operational in other European countries, but only in a pilot scale	• Potential for larger scale phase-in of electric lorries in ASKO's fleet • National and international potential for phase-in of electric lorries for city distribution in other transportation enterprises
• First implementation of the technology solutions (pressure electrolysis in filling station) globally • First hydrogen station in Norway aimed at the passenger car segment with robustness and capacity for commercial operations	• National and international potential for energy-efficient hydrogen production and simple, modular hydrogen solutions that could result in increased use of hydrogen as fuel
• First-time implementation of the technology in Norway and globally	• Potential for spread to other trawlers with rights for production processes on board, nationally and globally • There is currently a high demand for the products that are produced on board the vessel due to the high degree of freshness • Large volumes of available residual raw material that can be used in the new technology
• First-time implementation of complete outfitting in Norway and globally	• The winches are designed for both trawlers and anchor handling vessels. Large markets may open up that could lead to more energy-efficient vessels in various sectors
• Norway only has one fully electric car ferry, this project will result in more fully electric ferries and plug-in hybrids • The project will provide an important experience basis for further implementation of battery technology in ferries and other vessel types	• The project will help lower prices of several key components • Large market for ferry operations in Norway and significant potential for transition to more electrical operations • The project will stimulate new technology and advance the industry • The project will lead to more tenders with more stringent requirements for reduced energy consumption and reduced greenhouse

Enova's support programmes for new technology

New energy and climate technology will be a crucial contribution towards solving the energy challenges of the future. However, introduction of new technologies is demanding, in part due to the increased risk compared with conventional technology and reduced profitability.

Enova's support programmes in this area will contribute to the introduction of new energy and climate technology in the market, by reducing risk and increasing profitability for those who are the first to use a new technology.

We have five support programmes for new technology:
- Pre-project support – new energy and climate technology in industry
- Support for new energy and climate technology in industry
- Support for new technology for the buildings of the future
- Support for new energy and climate technology in transport
- Support for introduction of new technology

APPENDIX A PROJECTS WITHIN NEW ENERGY AND CLIMATE TECHNOLOGY 2012-2015

CONTRACT YEAR	PROJECT OWNER	PROJECT DESCRIPTION	TECHNOLOGY SUPPLIERS	SUPPORT AWARDED (NOK)	PROJECT'S ENERGY RESULT (kWh/year)
Industry					
2012	Hydro Aluminium AS	Hal4e Amperage Increase Project – Reduced specific energy use in aluminium production through increase of the amperage on the HAL4e cells at the test centre in Årdal	• Technology developer: Hydro Aluminium	6 159 496	835 000 Energy efficiency
2013	Vulkan Infrastruktur og Drift	Heat recovery plant for using steam from bakery ovens in a new production site for Mesterbakeren AS in Oslo	• Technology developer: Foodtech Bakeri og Industry AS • HVAC engineering: Erichsen & Horgen AS	467 003	58 897 Heating production
2013	Mostad Mekaniske AS	Energy cap on existing building in Oppdal, for insulation and capture and storage of solar heating, with energy storage in well for utilization of varying seasonal production and consumption in building	• Technology supplier: Mostad Mekaniske	42 580	30 000 Production of heating, alternatively for electricity
2013	Resitec AS	Improved energy utilization through recovery of silicone from the waste flows from silicone production at Elkem Solar's facility in Kristiansand	• Technology supplier: Resitec	4 766 500	8 665 200 Improved energy efficiency through recovery
2013	Nøsted Kjetting AS	New continuous process for production of high-strength chain at Nøstad Kjetting's facility in Mandal	• Technology developer: Nøsted Kjetting • Welding technology: ESAB • Robotics: ABB • Heat treatment and automation: SINTEF Raufoss Manufacturing AS • Project development: Enøk Total AS • Adiabatic cutting: Schubert, EFT Induction technology	12 000 000	5 000 000 Energy efficiency
2013	Metallco Aluminium AS	Use of induction for drying aluminium shavings for aluminium recycling at Metallco Aluminium's facility in Toten	• Technology developer: Metallco Aluminium AS and Plasma Kraft AS	283 463	0 (not operational)
2013	Hydro Aluminium AS	HAL4e Pilot Plant – Further development and prototype testing of the next generation HAL4e cells at Hydro's reference centre in Årdal	• Technology developer: Hydro Aluminium	39 181 500	5 100 000 Energy efficiency
2013	Scanbio Ingredients AS	New energy-efficient drying process of fish peptides at Scanbio Ingredients in Bjugn	• Technology developer: Scanbio Ingredients • Management system: VisionTech AS • Engineering: Multiconsult AS	11 350 000	19 018 000 Reduced use of heating from fuel oil
2013	Andersen Gartneri AS	Installation of AGAM dehumidifier in greenhouses in Råde municipality. Uses low-temperature regeneration of hygroscopic salt	• Technology developer: Agam FlexTechnic Aps	174 295	180 000 Energy efficiency, and reduced propane consumption
2014	Enpro AS	Technology to reduce energy consumption and greenhouse gas emissions through use of CO_2 from impure exhaust in production of industrial mineral products. The pilot will be installed at	• Technology development: Enpro in cooperation with ENGSL Minerals	40 000 000	6 800 000 Energy efficiency
2014	Moelven Mjøsbruket AS	Rehabilitation and isolation of drying plant for timber at Moelven Mjøsbruket in Gjøvik	• Technology developer: Drytec Sverige AB	443 121	529 400 Energy efficiency
2014	Hydro Aluminium AS	Construction of an industrial pilot on Karmøy for next generation energy-efficient primary aluminium production based on a new technological platform, called HAL4e	• Technology developer: Hydro Aluminium	1 555 000 000	96 000 000 Energy efficiency
2014	Elkem AS Bremanger	Pilot facility for dry classification in silicone production at Elkem in Bremanger	• Technology developer: three suppliers are under evaluation	3 825 025	13 555 100 Energy efficiency
2014	Nutrimar AS	Energy optimization of production process for processing offal from salmon at Nutrimar on Frøya	• Technology developer: Nutrimar AS	18 500 000	7 500 000 Energy efficiency and conversion from oil
2014	Rørosmeieriet AS	CADIO energy system with CO_2 as the cooling medium will be installed at Rørosmeieriet at Røros	• Technology supplier: CADIO • Ventilation system: Omicron Automasjon AS	1 557 500	471 000 Energy efficiency
2014	Norsk Titanium AS	Demonstration plant with two machines for 3D printing of titanium at Norsk Titanium in Ringerike	• Technology developer: Norsk Titanium • Supplier of main components: Tronrud Engineering • Welding solution: SBI	7 715 700	747 00 Energy efficiency
2015	Klavenes gård og gartneri DA	Installation of a new type of dehumidifier in greenhouse in Holmestrand with air-to-water heat pump, which also enables regulation of dehumidification between multiple departments	• Technology supplier: SmartTekEnergi AS	282 127	108 000 Energy efficiency, and reduced propane consumption
2015	Tizir Titanium og Iron AS	Verification of new furnace technology in titanium oxide production at TTI's smelting plant in Tyssedal	• Technology supplier: Tizir	122 734 320	22 000 000 Energy efficiency, and reduced consumption of coal/coke

Appendix A: The table shows projects within new energy and climate technology that received support in 2012-2015. Approved support and the contractual energy result have been corrected for the final reported result.

PROJECT'S CLIMATE RESULT IN NORWAY (kg CO_2 equiv/year)	PROJECT STATUS	INNOVATION	EXPERTISE DEVELOPMENT
39 000 Reduced process emissions	Commissioning	• Improved anode production technology • Next level process management and operating procedures	• Included in Hydro's reference centre in Årdal • Increasing expertise in Hydro's technology environment and with external partners such as the Norwegian University of Science and Technology (NTNU) and SINTEF • Related projects have several doctorates in subjects highly relevant to the project • Experience with improved production technology and use of next level procedures • Expecting to publish important operating results after a verification period
0	Operational	• Verification of possible achievable energy recovery and energy utilization	• Demonstration facility • Case study for the industry must be prepared to communicate and highlight the possibilities • Relevant to provide experience data to SINTEF's project INTERACT (supported by NFR) • Meetings with the bakery industry and technology supplier to present operating results that will arise over time
0	Under commissioning	• Embedding hydronic heating pipes for solar heating on roofs. • The heating system is connected to energy storage in existing well • It is being investigated whether the method can be patented	• Tailored measurement and follow-up forms the basis for further development and optimization • Planned publication of results in professional journal • Company is open to student theses, and other connections from expertise environments
3 320 000 Reduced process emissions	Under development, partially operational	• Use of known separation methods applied in a new way to clean waste flows from silicone production and upgrading it to silicone powder with a high value and more applications • Added substance to prevent oxidation for cuttings • Separation and cleaning of very fine-grained powder in several stages • Safe drying of fine-grained powder	• Close cooperation with the Eyde network, e.g. in the "zero waste" project • Cooperation with Sintef and others, where results from this project will be shared and used further • Implemented publication at EuroPM2015 in Reims, France • Technology and results are shared through work in Cabriss, which is a Horizon 2020 project with 15 European partners
30 000 Reduced use of fuel oil	Under commissioning	• Reducing number of production steps from 19 to 10 steps, of which the number of heating steps is reduced from five to two • Transition from production machines to integrated process. There is no commercial equipment for this	• Important lessons are energy management, new processes with reduced resource consumption, energy and raw material utilization • Collaboration with the University of Agder (UiA) and Umoe: Establishment of centre for innovative design for smart production • Expertise sharing between the involved expertise suppliers through an extensive test programme • Two Master's degrees completed (UiA)
0 (not operational)	Completed, not operational	• Verification of suitability for use of induction for drying metal • Increased material and energy utilization • Combustion of undesirable organic elements on ingoing materials	• Building expertise through experience with testing and operation • Planned development of contract network with various expertise and certification environments in the industry • Experience from the pilot project will be used towards a full-scale installation • When the facility is operational, it will be published and attempts will be made to sell the facility to other users • Have verified the technology
510 000 Reduced process emissions	Under development	• Innovative cathode and anode solutions • Next level procedures for process management and operation	• Included in Hydro's reference centre in Årdal • Increasing expertise in Hydro's technological environment and with external partners such as the Norwegian University of Science and Technology (NTNU) and SINTEF • Related to technology programme supported by Innovation Norway, where Sintef is among the participants • Related projects have several doctorates in subjects highly relevant to the project
5 762 000 Reduced use of fuel oil (diesel)	Under commissioning	• New specially designed evaporator • New system for washing with extraction substance • Regeneration of electricity in one of the process systems • Patenting of process is under evaluation	• Possibility to licence the technology to others in the same sector in Norway and abroad, alternatively enter into a joint venture with the partners that want to use the technology
19 000 Reduced use of propane	Operational	• Reduces energy consumption for dehumidification by 25% due to energy-efficient low-temperature regeneration of hygroscopic salt	• Company network established • Continuous measurement and documentation ongoing • Publication in a scientific periodical is under assessment
14 400 000 Reduced emissions compared with best available technology	Under establishment	• Use of CO_2 from industrial exhaust with a concentration of 4-5% • No other impurities than CO_2 are collected during the process • Production of superior mineral products • Known elements individually, composed in a new way	• Expertise development related to process efficiency, CO_2 utilization in value chain, production of "green" minerals and chemicals • Verification of the technology in an industrial scale • Detailed results from the facility will be given to the ISO 14000 series (lifecycle analysis) and thus contribute to the best practice database globally
0	Operational	• New method for maintenance of timber dryer with concrete structures • New type of insulation (polyurethane) is sprayed on all external walls/roof of the dryer followed by flexible sealing layer	• Cooperation with the Norwegian Institute of Wood Technology with a large contact network within wood processing in Norway, the expertise will be developed and spread in this environment • The durability of this technology will be evaluated in 5-10 years
7 000 000 Reduced process emissions	Under establishment	• New design of technological platform for aluminium production with low energy consumption, high production efficiency and low environmental impact • New principles for cathode design • Several technology elements have been patented • Larger cells and increase in electricity strength and productivity	• Demonstration project for verification of technology • Expertise development internally in Hydro and external expertise environments in Norway • Project is part of Hydro's long-term vision for development of the electrolysis technology • Related projects have several doctorates on topics that are highly relevant to the project
0	Under establishment	• Verification of technology for dry classification of silicone products • Energy use is reduced in relation to delivered end product per produced unit • Opens for a superior product, and more new products	• Suitable for removing barriers in further roll-out of the technology • Cooperation with Sintef/NTNU and Comex AS • Expertise dissemination internally in the Elkem system
2 272 500 Conversion from oil to LPG gas	Under development	• Known technologies are put together and used in new ways to optimize the production process • Production of more superior end-products	• Learning about system development and the suitability of the technology • Sharing expertise with Pescatech, Entro, among others • NTNU will be contacted regarding project and master's theses connected to the project
142 713 Reduction of oil	Under establishment, partially in commissioning	• New type of facility with CO_2 as the working medium; in addition to cooling, hot water can also be delivered • CO_2 provides the opportunity to achieve a temperature difference on the hot side • In combination with propane, the facility will also be efficient at high	• Training of employees. Cadio will train employees that will operate the system • Project owner is positive to establishment of arena to share knowledge • Facility will be open for tours
0	Under development	• Reduced use of titanium and need for machining • Goal for pilot to become the first commercial 3D printer for major, complex titanium components • Enables local production with few process steps, as well as lower energy use through less waste • Several patents related to the concept	• Dissemination of expertise internally in the company • One of the goals of the project is to establish an arena to spread experience and knowledge, as well as training for future commercial production units • Further develop machines and software for new generation machines and more efficient production
13 090 Reduced propane consumption	Commissioning	• Testing of new type of dehumidifier for reducing costs related to dehumidification in greenhouses • The solution is based on known technology put together in a new way • The system benefits from flexible air and heat distribution	• Demonstration facility • Experience that shows operational stability has been gained • Dehumidification capacity, operating conditions and energy consumption are registered • Publication in scientific periodicals and conferences • Cooperation with Norsk Landbruksrådgivning, Covent, Silicia companies in Forskningsparken Vestfold, etc.
7,106 000 Reduced use of coal/coke	Under development	• New water-cooled copper ceramic roof • System for controlled heating balance in melting furnace • New cleaning and degasification handling system	• Technology spread in the Eramet system through "Challenge Initiative", the research centre in Trappes and the corporate department Industrial Management • Information dissemination in the industry through participation in Ferrolegeringsindustriens Forskningsforening (FFF) • PhD study within the Gassmaks research programme

REALIZED DISSEMINATION OF TECHNOLOGY	FURTHER DEVELOPMENT AND DISSEMINATION
• First implementation of the technology in Norway and globally • Technology forms the basis for the Karmøy Technology Pilot project	• Part of an internal technology development course, for use in Hydro's future plants in Norway and globally • Some spin-off potential for transfer to Hydro's existing plants • National and international potential for dissemination which could improve energy efficiency and reduce greenhouse gas emissions
• First implementation of the technology in Norway • Previously tested in Germany	• Suitable for implementation in all industrial bakeries and restaurants • Technology's profitability increases with the size of the bakery/installation • Expansion of the installation is under way to see if it is possible to increase the energy result with new implementations • Technology supplier estimates dissemination to 30-40 facilities in Norway • International potential for dissemination which could provide increased utilization of waste heat and reduced greenhouse gas emissions • Using the technology in new projects is being considered due to the project results
• First implementation in Norway • Not aware of any other corresponding system solutions internationally	• Suitable for large existing and new buildings with a heating demand and energy storage possibilities (e.g. large business buildings, shopping centres, storage buildings, public buildings, industry buildings and agricultural buildings) • National potential for increased utilization of renewable energy
• First facility is being installed and commissioned in Norway	• Suitable for implementation in connection with solar cell silicone production and kerf • Work is ongoing at the R&D stage with multiple potential sources where the technology can be used on concrete installations in Europe • There is a larger market for this in Asia • International potential for dissemination which could increase efficiency and increased material utilization and reduce greenhouse gas emissions
• First implementation of the technology in Norway and globally	• Project owner estimates a dissemination potential to own production, as well as globally to about 100 installations (of which five are in Scandinavia, 20 in Europe) • National potential for reduced greenhouse gas emissions • International potential for dissemination which can increase efficiency, as well as reduce consumption of raw materials (steel), and reduce greenhouse gas emissions
• First implementation of the technology in Norway and globally	• The technology can be transferred to industry that uses drying technology on semi-conductive materials • Suitable for combustion of several types of organic elements (lacquer, hydrocarbons) on inbound material in the same process • Project owner estimates that the technology could be implemented throughout its entire production • Technology supplier estimates an international dissemination potential, focusing on aluminium producers in Russia, the EU and US/CND • National potential for reduced greenhouse gas emissions • International potential for dissemination which can increase energy efficiency and reduce use of propane, and reduce greenhouse gas emissions
• First implementation of the technology in Norway and globally • Technology forms the basis for the Karmøy Technology Pilot project	• Included as part of the technology development course in Hydro Aluminium, very significant for future facilities • Spin-off potential for transferring to Hydro's existing facility • National potential for reduced greenhouse gas emissions • International potential for dissemination which can increase energy efficiency and reduce greenhouse gas emissions
• First implementation of the technology in Norway and globally	• Suitable for all drying processes where proteins are involved, both marine (for example by-products from aquaculture) and animal (for example slaughterhouse waste), etc. • Project owner/technology developer estimates a dissemination potential to their facilities nationally and internationally • National potential for reduced greenhouse gas emissions • International potential for dissemination which could reduce use of fossil fuels, and reduce greenhouse gas emissions
• First implementation in Norway • Implemented abroad (Denmark and Israel) • Installation of eight identical machines due to good results after a short time in operation	• Suitable for implementation in greenhouses • Project owner estimates that technology is relevant for 60% of all Norwegian greenhouses • National potential for reduced greenhouse gas emissions
• First implementation on a commercial scale globally • Technology tested in a downscaled size in Abu Dhabi	• Technology is suitable for stationary CO_2 emission sources with access to saltwater • Spread potential is global, but with a primary focus on developing geographical areas, where consumption of end-products is major • Expansion facility, which is three times larger, planned in the same area with the same CO_2 source • National potential for energy efficiency and reduced greenhouse gas emissions
• First implementation in Norway • Previously tested in Sweden	• Suitable for timber mills that are isolated in the "traditional" manner • National potential for more implementation is considered great (there are many timber dryers consisting of concrete/concrete elements) • International potential for dissemination which could provide increased energy efficiency and reduced greenhouse gas emissions
• First implementation in Norway and globally • Technology platform has been tested at Hydro's reference centre in Årdal	• Possibility for spread of the technology beyond Hydro's own smelting plants • Installation of test cells with the goal of further developing the technology • National potential for energy efficiency and reduced greenhouse gas emissions • International potential for dissemination which could provide increased energy efficiency and reduced greenhouse gas emissions
• First implementation in Norway and globally • Small-scale tests and trials have been carried out	• Interesting and relevant for players also outside the process industry • Goal to build an industrial-scale plant based on the pilot • National potential for energy efficiency • International potential for dissemination which could provide increased energy efficiency and reduced greenhouse gas emissions
• First implementation in Norway and globally	• Transferable to other industries • The technology developer considers the spread potential major, both nationally and internationally • Nutrimar will continue development and investment in the technology in connection with the industry's further development • National and international potential for increased energy efficiency and reduced greenhouse gas emissions
• First implementation in Norway and globally • Carried out testing for more than two years	• Potential for application in the food industry, other process industry, hotels and housing cooperatives • Technology supplier estimates construction of two facilities per year in a ten-year period • Technology supplier will develop market activities in cooperation with relevant partners • National and international potential for increased energy efficiency and reduced greenhouse gas emissions
• First implementation in a commercial scale in Norway and globally • Multiple-year test production and development of prototype and pilot machines • Production of (a considerable volume) of components for qualification of the technology vis-à-vis aviation	• This facility will form the basis for construction of more production units • Very relevant for the aviation industry, which is experiencing major growth • Could eventually become relevant for the automobile industry, defence, oil/gas, maritime and other areas • Potential for increased use of titanium in new areas when the cost of production of titanium components is reduced • National and international potential for spread that could increase energy efficiency
• First implementation in Norway	• The technology is suitable for dehumidification in greenhouses • The technology is transferable to the industry for dehumidification and drying for a number of purposes • The technology supplier estimates that the technology is relevant for about 40% of the national greenhouse industry, with a considerable international spread potential • National and international potential for spread that could increase energy efficiency, reduce fossil fuel consumption and reduce greenhouse gas emissions
• First implementation nationally and internationally	• Considerable spread potential in transfer to Eramet's other facilities • Parts of the technology are transferable to the smelting plant industry in general and Ferro, Ferrosilicone and silicone production in particular. Nationally and internationally • International potential for spread that could increase energy efficiency, reduce fossil fuel consumption and reduce greenhouse gas emissions

Drammen adorns itself with solar smaragd

In the property business, “green buildings” has become an established term for buildings with environmental qualities. Now, Drammen will get its own solar smaragd. In the seven-floor office building currently being erected by Union Eiendomsutvikling AS, green solar cells will become an integrated part of the façade. Enova is supporting the technological innovation with NOK 1.5 million.

However, the solar cells are only one of several energy and climate-friendly solutions chosen for the building, which will be named “EnergiBygget” (the energy building). The dialogue with Enova has caused the property company to increase its energy ambitions for the jewel several times during the project.

APPENDIX A PROJECTS WITHIN NEW ENERGY AND CLIMATE TECHNOLOGY 2012-2015

CONTRACT YEAR	PROJECT OWNER	PROJECT DESCRIPTION	TECHNOLOGY SUPPLIERS	SUPPORT AWARDED (NOK)	PROJECT'S ENERGY RESULT (kWh/year)
2015	Alcoa Norway ANS	Demonstration of advanced technology for production of primary aluminium at Alcoa's plant at Lista in Farsund municipality	Technology developer: Alcoa	280 448 695	9 700 000 Energy efficiency
2015	Glencore Nikkelverk AS	Energy-efficient 1-stage electrowinning process for production of copper at the Glencore Nikkelverk in Kristiansand	Concept developer: Glencore Nikkelverk AS Cathodes: Glencore Technology Pty Ltd DSA anodes: Outotec Oyj Measurement system (HelmTracker): Hatch Ltd Extract system: SAME Ingeniera	380 000 000	35 000 000 Energy efficiency
2015	Arba Follum AS	Demonstration facility for production of a bio-based substitute for fossil coal at Treklyngen's plant area at Follum in Drammen	Process and technology owner: Arbaflame AS	138 000 000	142 500 000 Heat recovery, and production and consumption of biogas
Buildings					
2012	Lerkendal Invest AS	Scandic Lerkendal Hotel in Trondheim, energy-efficient hotel at a passive house level and comprehensive system solution w/ focus on needs based management and regulation, decentralized ventilation, solar collector, LED lighting	• Principal design: Rambøll Norge AS, HENT AS • Management system: GK Norge AS, Bravida Norge AS • Cooling: GK Norge AS, K.Lund AS • Ventilation: GK Norge AS	14 000 000	1 979 127 Energy efficiency
2012	Rema Eiendom Nord AS	Use of new energy technology and development of comprehensive energy system for the future's grocery stores, implemented at Rema Kroppanmarka in Trondheim	• Principal design: SINTEF Energi AS • Management system: Danfoss AS • Cooling system: Carrier Refrigeration AS • Ventilation: Systemair AS • Façade: Aerogel Norge AS	1 000 000	123 750 Energy efficiency
2013	City of Oslo, Kulturbyggene in Bjørvika	The new public library in Oslo. Heating and cooling with TABS (Thermoactive building elements), reduces energy and effect for cooling and heating, in addition to passive house design (needs-based management, decentralized hybrid ventilation, low SFP, free cooling)	• TABS and façade (advisors and developers): Lund Hagern Arkitekter, Atelier Oslo, Asplan Viak, Multiconsult AS • Façade: Contractor – Roschman Konstruktionen aus Stahl und Glas GmbH • TABS: Supplier(s) not yet determined	10 839 144	325 300 Energy efficiency
2013	Kjørboparken AS	Rehabilitation of Powerhouse Kjørbo in Bærum into an energy-plus office building. The building will produce more energy over the course of its lifetime than is used for construction and operation. Innovative total concept, with a focus on building structure, technical installations and local production of energy	• Concept solutions: Skanska Norge AS, Snøhetta AS, SAPA Building System AB, Asplan Viak AS, Multiconsult AS and ZEB. • Overall contractor: Skanska Norge AS • Suppliers: Hubro, Stokkan lys Systemair, Sunpower, Bærum Byggmontering, KlimaControl, Johnsen Control, Thermocontrol AS, SAPA	12 960 447	349 364 Energy efficiency, conversion, as well as production of power, heating and cooling
2013	Skanska Norge AS	Skarpnes Boligfelt in Arendal with a passive house standard for houses and apartment buildings that produce as much energy as they consume over the year, with local storage and deliveries to the grid	• Principal design: Skanska Norge AS, ZEB	5 271 853	271 800 Energy efficiency, as well as production of power and heating
2013	Aktivhus Entreprenør AS	Huldra Økogrend in Hurdal, Eco-village consisting of 34 buildings and 44 dwelling units	• Principal design: Aktivhus AS/Aktivhus Entreprenør AS • Management system, ventilation, solar cell, LED lighting, windows w/blinds: Isoreflect Energy Products AS	12 866 302	497 710 Energy efficiency and electricity production
2014	Orkla Elektronikk Lomundal	Solar roofing on villa rooftops in Orkdal	• Technology supplier: SED Photovoltaik • Partners: Orkdal Energi AS, Jøla Takservice AS	80 242	1 195 Production of electricity
2014	Kjeldsberg Sluppen ANS	Sluppenveien 17bc in Trondheim will be erected with high ambitions, including several innovative energy solutions	• Overall contractor: NCC Construction AS • Technical sub-contractors: K.Lund AS, Tekniske Ventilasjon and Vintervoll AS and Johnson Controls	737 000	187 000 Energy efficiency
2014	Fantoft Utvikling AS	A combined retail building and office building in Bergen is being built with high energy ambitions; 50% lower delivered energy compared with energy label A (will be rented to Sweco and Meny)	• Engineering group: Sweco • Architect: Lund&Partners • Total contractor: Lars Jønsson • Electrical: BI Elektro • Ventilation: GK • Piping: Vestrheim	5 400 000	1 099 429 Energy efficiency, as well as production of power and heating
2014	NG Kiwi Oslo Akershus AS	New Kiwi shop in Nes, Akershus, with several technical solutions that will be coordinated to run the shop, and also achieve a passive house standard	• Contractor: Panelbygg • Refrigeration system: Carrier Refrigeration Norway • Solar cell system: Sol og Vind AS	3 328 170	502 658 Energy efficiency, and production of power and heating
2014	Norwegian Defence Estates Agency (OSLO)	Construction of a zero energy office building, "Haakonsvern" in Bergen (according to SINTEF ZEB's requirements) through optimization of technical solutions	• Total contractor: Veidekke Entreprenør • Builder: Norwegian Defence Estates Agency • Control function: Multiconsult AS and LINK arkitektur AS • Project development: SINTEF/NTNU	2 350 000	273 396 Energy efficiency, and production of power and heating
2014	Bjørkheim Senter AS	Low energy business building with a grocery shop part and residential block in Samnanger. New solutions for interaction between cooling and heating system in addition to utilization of seawater	• Builder: Bjørkheim Senter AS through Finn Moen • Architect: Architect Helge Christiansen AS • Advisers: Energi, Kulde og VVS, Energi og miljøutvikling AS • Total contractor: Montasje Kompaniet AS	3 000 000	352 127 Energy efficiency, and production of heating

Appendix A: The table shows projects within new energy and climate technology that received support in 2012-2015. Approved support and the contractual energy result have been corrected for the final reported result.

PROJECT'S CLIMATE RESULT IN NORWAY (kg CO_2 equiv/year)	PROJECT STATUS	INNOVATION	EXPERTISE DEVELOPMENT
5 260 000 Reduced process	Under establishment	• Advanced smelting technology for primary aluminium production with lower energy consumption and lower direct CO_2 emissions	• Expertise development at Alcoa Norge for demonstration, operation and verification of advanced smelting technology • New technology requires "high-expertise jobs" in Norway
0	Under establishment	• Permanent cathodes in Duplex steel with microstructure surface • Low-energy dimension-stable anodes (DSA) with defined nano structure • New measurement principles and monitoring system that results in improved process control and possibility for automatization • Set new industry standard with regard to working environment, emissions and safety	• Demonstration facility • Expertise elevation at Nikkelverket and among the involved technology suppliers • Participation in the SUPREME research project with other smelting plant industry and research environments • Communication through the Eyde network • Presentation of the technology in industry networks and international conferences • Cooperation with NTNU, Teknova and international expertise companies
0	Under establishment	• One-stage energy-efficient production of quality raw material from round timber • Thermal integration and heat exchange in pellet production • Heat recovery from process condensate with high organic content • Integrated process for production and use of biogas • Scale-up of production capacity/plant size	• Market and customer expertise is developed through marketing and testing activities • Lectures and posters at energy and industry conferences • Cooperation with NGOs
0	Operational	• Sum of many measures focusing on needs based management and regulation, goal is 50 kWh/m2 • Decentralized ventilation systems, two on each floor • Solar collectors with accumulation • Energy recovery from lift	• Demonstration building • Reference project for the hotel industry • Information dissemination through presentations in industry networks and at conferences
0	Operational	• Waste heat utilization from cooling to heat floors, ventilation. Stored in accumulator tanks • Ventilation solutions with bypass. Reduced fan energy • Very advanced integrated SD facility • Nanomaterial in translucent façade connected together with light management (façade solution)	• Measurements after commissioning show a 30% reduction • Spin-off from the CREATIV research project • Master and doctorate at the Norwegian University of Science and Technology (NTNU), to continue internationally in EU project • Carried out publications nationally and internationally • Continuation of the work with Snøhetta and development of the Technical Function Description
0	Under development	• Newly developed transparent façade with increased exposure to daylight • Reduced cooling need due to TABS (concrete core activated cooling)	• Groundwork has started • Participating parties are building expertise • New Oslo Public Library is part of a training programme for young employees in Multiconsult • The project is being published on Kultur- og idrettsbygg's website (kulturbyggene.no) and FutureBuilt's website
0	Operational	• Low energy use for construction, reuse of materials, better insulation and airtightness than passive house level, innovative façade solutions • State of the art lighting and management system • Energy-efficient hybrid ventilation system • Energy production covers energy for operation and construction (solar cells, heat pump and waste heat utilization)	• Demonstration building and flagship building • Spin-off from the Powerhouse Alliance and ZEB • Important expertise development for all players, advisers, producers, suppliers • Masters and doctorates at the Norwegian University of Science and Technology (NTNU) associated with the project • Several presentations at courses and conferences; the ZEB conference, Enova conference, VVS-dagene, etc. • Established extensive network of technology suppliers to develop better solutions for energy-plus buildings
0	Under development	• 100% renewable energy supply, solar collectors, heat pump, energy well, heat storage, solar cells • App for controlling own energy use • Development of the Plus customer programme • Hot fill dishwasher and washing machine	• Demonstration area • Connected to R&D EBLE, pilot in ZEB, planned solar irradiation measurement Teknova/Sintef, grid connection cooperation with Agder Energi, sustainable buildings (Agder Wood) • Master at the University of Agder (UiA)
0	Commissioning	• Zensehome advanced management and regulation system for ventilation and heating via a pipeline grid • Dwelling units equipped with several technical elements in a unique combination • Satisfies passive house energy level without balanced ventilation	• Reference project with an entire neighbourhood will make it possible to conduct comparative studies. Zensehome provides the opportunity for collecting detailed knowledge regarding energy use, usage pattern, etc. • Master's theses at NTNU and University of Southern Denmark related to the project • Master's thesis at NMBU; "fukt og naturlig ventilasjon (Spring 2016) • Research project: "Power from the people" • Expertise contribution from the Norwegian State Housing Bank; Fukt og naturlig ventilasjon. Measurements in two dwelling units
0	Operational	• Building-integrated solar cells in roofing with natural cooling of the solar cells • Installation of measurement station for solar radiation, to measure efficiency	• Demonstration and showcase facility aimed at interested market players • Suitable for removing barriers for further implementation in the Norwegian market • Learning project to acquire experience and expertise • Verification of product properties
0	Completed	• Thermal covers to improve the indoor climate while also reducing energy use and power draw • Covers cast in place provide the possibility of increasing the capacity of energy storage through cast-in water pipes • For added energy, a combined heat pump/cooling machine to provide heating and cooling from outdoor air is used	• Testing and verification of thermal cover in a large-scale • Experience and documentation from the project will be used in future construction projects • Carried out lectures on concrete associations at Gløshaugen • A course in COWI AS is planned • Work on a technical article in several periodicals about the project and concept have started
0	Under development	• Interaction between all components and building parts, where energy efficiency is an important focus (e.g. needs-based ventilation solution with exchanger, adiabatic cooling for reduced cooling need, utilization of waste heat between the two building parts)	• Prototype project across industries with regard to exploiting joint operation of technical facilities • Meny will use the project as a reference for the Meny shop of the future • Sweco will open the building for showings, and is marketing the building nationally
0	Under commissioning	• Passive house level supported by Enova • Combination and coordination of technical solutions, such as building-integrated solar cells, aerogel panels and light management, LED lighting indoors and outdoors • Maximum utilization of waste heat from refrigeration plant and wells/ heat pump for heating from hydronic systems. Heat pump/well also used for cooling and for lower energy consumption by the refrigeration plant	• Relevant universities/colleges will be contacted in 2016 with an offer to use metering data for analyses • The building has a considerable number of measurements that will be used for analyses to gain experience with coordinating the technical solutions
0	Complete, move-in process is ongoing	• Unique interaction between the best available passive measures in c ombination with optimized technical solutions and own production of energy (e.g. the orientation of the building, solar screening, solar cell system) ensure a delivered energy figure down to 16 kWh/m2	• The building was built according to the planned ambitions. If operation of the building is completed with the stated ambition, information about the project will be provided locally and nationally • The building's results will be followed up, published and analysed • SINTEF ZEB has contributed to development of the pre-project and will contribute in the continuation with the contractors
0	Engineering	• LED lighting in grocery shop and rental area • Comprehensive solutions in interaction through use of seawater collectors, recovery of waste heat from the grocery shop, as well as use of energy-efficient equipment	• The project has a considerable learning and demonstration potential for NorgesGruppen internally • Provides learning and expertise to advisers and executors • Prototype project for how renters can contribute in the most energy-efficient building possible • The project will be open to tours • Learning arenas for sharing of information and expertise are planned

REALIZED DISSEMINATION OF TECHNOLOGY	FURTHER DEVELOPMENT AND DISSEMINATION
• First implementation of the technology in Norway and globally	• Design and installation of multiple furnaces/cells in Norway for further development and commercialization of the technology • National and international potential for spread which could increase energy efficiency and reduce greenhouse gas emissions
• First full-scale implementation of the total concept which results in record-low electricity consumption, in Norway and globally • Some individual elements have been implemented at plants in the US and Chile. None in Norway	• Considerable spread potential in transfer to production of copper through electrolysis • Elements of the technology have a spread potential for general production of copper, as well as zinc and nickel • Technology supplier estimates that spread potential within copper and zinc production is 6-7 TWh • International potential for spread which could increase energy efficiency and reduce greenhouse gas emissions
• Arbaflame has installed a pilot plant at Grasmo in Eidskog • First full-scale demonstration of use of the product in Thunder Bay, Canada • Knowledge of technology and product is spread through technical sales and marketing, and through full-scale testing with customers	• Suitable as a co-incineration fuel or complete substitute for fossil coal in power production with very low investment requirements at the customer stage • Suitable as replacement for fossil coal in metallurgical industry; carbon source and reduction agent • Suitable as energy carrier for production of next generation biofuel • Technology supplier estimates that spread potential is 5 million tonnes of Arbapellets annually over a 5-10 year period • National and international potential for spread through energy-efficient production of a renewable energy carrier, which can contribute to increased renewable energy production and reduced greenhouse gas emissions
• First implementation in Norway • Not aware of any other corresponding system solutions internationally	• Comprehensive concept relevant for hotels in Norway • All or parts of concept interesting internationally • International potential for dissemination which could increase energy efficiency and reduce greenhouse gas emissions • Due to reduced construction activity, multiple planned projects where parts of the solutions would be used have been postponed
• First implementation in Norway • No identical projects tested internationally, but elements are being tested in Switzerland and Germany • Elements have been utilized in own shops	• Suitable for implementation in other grocery stores, several chains have now started using all or parts of the concept solution • Several of the solutions and technologies are suitable for other types of non-residential buildings • Technology developer indicates that they want to implement the technology and solution in the EU • International potential for dissemination which could increase energy efficiency and reduce greenhouse gas emissions
• First implementation of TABS in Norway. Has been implemented abroad • First implementation of façade solution in Norway and globally	• Suitable for implementation in several types of non-residential buildings • Technology indicates an international potential for selling the façade solution • International potential for dissemination which could increase energy efficiency and reduce greenhouse gas emissions
• The world's first rehabilitation to an energy-plus house in a lifetime perspective globally, first Norwegian which incl. bound energy	• Relevant for all future Norwegian rehabilitation and new buildings • Particularly interesting for rehabilitation in cold areas • International potential for dissemination which can increase energy efficiency and conversion, and reduce greenhouse gas emissions • Nationally and internationally recognised demonstration project, has completed a substantial number of tours • The solutions are followed up in the operations phase. Relevant technology suppliers are involved
• First implementation in Norway • No identical projects tested internationally, but elements have been tested • Reduced scope due to deficient sales	• Testing of various production methods (buildings), as well as technical solutions • Relevant for future residential area development • International potential for dissemination which could increase energy efficiency and conversion and reduce greenhouse gas emissions
• First combination of the technologies in Norway and globally	• Relevant for housing development • Project owner and technology developer indicate a potential in further development locally, as well as nationally in Finnmark County • The active house concept combined with eco-society models have a considerable potential as sustainable local communities • Deliveries are planned in other construction projects and stages. Boligtun 2-5 in Hurdal is currently in the engineering phase
• First implementation in Norway and Scandinavia (previously implemented in Austria)	• Relevant for the building materials of the future, the market potential here is nearly unlimited (estimated 250 million m2 residential area in Norway) • Solar roofing can replace ordinary roofing on all types of roofs, which makes the project interesting in projects where roofing is being replaced • National potential for increased production from renewable energy • International potential for dissemination which could result in increased production of electricity from renewable energy, as well as reduced greenhouse gas emissions
• First implementation of TABS system in Norway, but has been used somewhat on the Continent	• The builder considers such a concept to be the solution of the future • Thermal covers are being used to an increasing extent in Europe • National potential for reduced energy consumption • The concept is under consideration in other places by Uponor • The results of Sluppenvegen 17bc can impact sales/the market's interest in chosen solutions
• Interaction between these components has not been previously tested in Norway	• Relevant for the entire construction industry • National potential for increased energy efficiency, and increased utilization of renewable energy • International potential for dissemination which could increase energy efficiency, increased utilization of renewable energy sources and reduce greenhouse gas emissions
• Kiwi Auli has been a source of inspiration for new projects in NorgesGruppen (under realization and planning), and has helped elevate the level of ambition for the new projects • Continuing certain technologies with both the same and new suppliers to test various producers and gain experience with other suppliers	• Kiwi has already started constructing a new environmental shop where parts of the technical solutions have been continued/ further developed. Additional shops are under consideration. • Kiwi is considering whether to incorporate several of the technical solutions in Kiwi's technical standard, which could have consequences for both existing shops and new shop projects. In connection with redesign of Kiwi's grocery shop, the environment was also assigned greater significance than before, and one of the concepts will continue some of the technologies from Kiwi Auli • International potential for spread which could increase energy efficiency and production, and reduce greenhouse gas emissions
• First implementation of the comprehensive interaction in Norway	• If the energy goals are reached, the solutions could contribute premises for new building regulations • The project could be a template for other projects in the Norwegian Defence Estates Agency and others who are interested • International potential for spread which could increase energy efficiency and production, and reduce greenhouse gas emissions
• Known technologies, but the comprehensive solution is very newsworthy • First implementation of such a comprehensive solution in Norway	• Major national grocery retail players are involved, as well as advisers who work nationally • Such a comprehensive concept will be of great value for future solutions • National potential that could improve energy efficiency • International potential for spread which could result in reduced energy use, as well as reduced greenhouse gas emissions

Energy-efficient indoor swimming pool in Asker municipality

Ambitions are high as Asker municipality starts construction of a new indoor swimming pool that will be complete in the summer of 2017. By combining several exciting technological solutions, Asker is building a swimming pool for the future. The facility will not solely be conserving electricity. The roof will have an approx. 500 m2 solar cell system, with highly efficient solar cell panels, where the solar cells will ensure that the facility also produces electricity. Heat pumps will collect energy from 15 geothermal wells to heat the facility, while other heat pumps will recover energy from the ventilation system for air, pool and tap water.

The swimming pool will be a prototype project in the FutureBuilt programme for climate-friendly city neighbourhoods and buildings, one of the nation's first passive house level swimming pools and will be among the most energy-efficient swimming pools in Norway.

Enova is contributing NOK 9.9 million to the project.

APPENDIX A PROJECTS WITHIN NEW ENERGY AND CLIMATE TECHNOLOGY 2012-2015

CONTRACT YEAR	PROJECT OWNER	PROJECT DESCRIPTION	TECHNOLOGY SUPPLIERS	SUPPORT AWARDED (NOK)	PROJECT'S ENERGY RESULT (kWh/year)
2014	Gardermoen Campus Utvikling AS	Construction of ambitious low energy hospital in Ullensaker, for rent to LHL, with energy rating A	• Builder: Aspelin Ramm Eiendom AS, through Gardermoen Campus Utvikling AS • Contractor: HENT AS • Technical subcontractors: Gunnar Karlsen AS	29 900 000	4 882 200 Energy efficiency
2014	City of Oslo Kulturbyggene i Bjørvika	A new Munch museum with a passive house standard and high environmental ambitions	• Advisers and developers: eStudio Herreros, LPO Arkitekter AS, Asplan Viak, Multiconsult AS • Suppliers of lift and escalators are Reber Schnidler AS and Thyssen AS for freight lift • No other contracts have been awarded so far	13 391 000	2 060 157 Energy efficiency
2014	Våler Distribusjonslager AS	Expansion of storage building with extensive measures on energy supply, advanced technical systems and optimal management of this	• Total contractor: Peab AS • Architect: Meter Arkitekter AS • Construction manager: Brick AS	11 427 800	1 705 639 Energy efficiency, and production of electricity, heating and cooling
2014	Entra Eiendom	Papirbredden 3 in Drammen; new office building of 7 floors with energy demand below "passive house level" and 0% heating supply based on fossil fuels or direct electricity	• Builder: Papirbredden Eiendom AS • Total contractor: Strøm Gundersen AS • Architect: LPO Arkitekter AS • Advisers: EvoTek AS, EM Teknikk AS, EM Teknikk Energi AS, Rambøll Norge AS and ECT AS	3 393 441	869 803 Energy efficiency, and production of cooling
2014	Undervisningsbygg Oslo KF	New primary school (Brynsengfaret skole) in Oslo with ambitious environmental and energy goals. Energy need will be reduced beyond regulatory requirements, as well as production of electricity for own use	• Overall contractor: NCC Construction AS	4 556 000	660 386 Energy efficiency, and production of electricity and heating
2014	Bergen municipality	Rehabilitation of Varden school in Bergen; "State of the art" energy system using multiple renewable energy sources	• Technology supplier: Zolas energi	551 802	60 000 Energy efficiency, and production of electricity and heating
2014	Wergelandsveien 7 ANS	Rehabilitation of Wergelandsveien 7 in Oslo: Reduction of real energy use in commercial buildings through a newly developed, innovative façade (Qbiss)	• Technology developer: Trimo	16 212 000	1 180 000 Energy efficiency
2014	Haram municipality	Construction of a care centre in Haram municipality where both construction and energy use must fulfil the requirements according to NS3701 as a minimum	• Overall contractor: Ålesund Bygg	3 400 000	1 251 741 Energy efficiency, and production of electricity and heating
2014	Grønland 67 AS	Drammen's Solar Smaragd: Façade-integrated solar cell system with new architectural solutions for Norwegian office buildings	• ISSOL	1 553 236	105 900 Energy production
2015	Tromsø municipality	New swimming facility in Tromsø; swimming pool for sporting events, family-friendly pool with connection to an outdoor pool, health and spa pool	• Concept development: Asplan Viak AS • Supplier not determined	3 350 000	1 219 050 Energy efficiency and heat recovery
2015	Directorate of Public Construction and Property	Energy-efficient office building in Brønnøysund	• Supplier not determined	14 970 000	1 848 225 Energy efficiency and heat recovery
2015	Asker municipality	Holmen indoor swimming pool, among Norway's most energy-efficient swimming pool facilities with innovative structural and technical solutions, e.g. underground solar collectors, solar cells and user-friendly energy-optimized operations, passive house standard	• Pooltech AS – Steel pools with bottom that can be lowered and raised • Enwa – cleaning technology with membrane filter • Solel AS – solar cells • TS Electro – SD and EOS facilities	9 944 000	1 227 398 Energy efficiency, heat recovery, and production of electricity and heating
2015	Directorate of Public Construction and Property	New administration building Evenstad. Gasification of chips for production of electricity and heating using CHP		3 000 000	350 198 Production of electricity and heating, and energy efficiency
2015	Rossabø Eiendom AS	24/7 building: An office building with a good environment, where the user can impact the most important environmental factors, individual monitoring and control in each office	• Supplier not determined	2 579 672	586 289 Energy efficiency and production of electricity
2015	Vestaksen Kobbervikdalen 4 AS	Buskerud Storcash environmental building, an energy-efficient wholesaler for food. Passive house standard with optimal energy solutions	• Supplier not determined	1 600 000	730 737 Energy efficiency and production of electricity and heating
2015	Fjeldset Elverum AS	KIWI Fjeldset Miljøbygg, commercial building/ grocery shop with comprehensive energy solution	• Fusen AS will deliver the solar cell system and battery bank	1 897 492	279 043 Energy efficiency and production of electricity and heating

Appendix A: The table shows projects within new energy and climate technology that received support in 2012-2015. Approved support and the contractual energy result have been corrected for the final reported result.

PROJECT'S CLIMATE RESULT IN NORWAY (kg CO_2 equiv/year)	PROJECT STATUS	INNOVATION	EXPERTISE DEVELOPMENT
0	Under establishment	Sum of multiple technical solutions • Detailed, coordinated room management logic • Ventilation system divided by façade, energy-efficient cross flow heat exchangers with separated air flows • Low temperature heating and "high temperature" cooling, one-pipe system for heating and cooling • Directly cooled, energy-efficient hospital equipment	• Prototype project within energy, indoor climate, and universal design • Annual results in Aspelin Ramm's projects are published in an environmental report • Information dissemination through conferences, seminars and inspections • Cooperation with Sintef energy research in the Interact project • Consultants discuss the project in their environments
0	Engineering	Meets high requirements for energy efficiency, greenhouse gas emissions, as well as storage of Munch's art • Division into zones according to the building's function and need, use of low emission materials • Airborne heating and cooling with a high level of heat recovery, natural ventilation at times when heating or heat recovery is not needed in dynamic zone • Electricity-producing lift, and energy-efficient escalators • Innovative solutions for solar screening	• The building (12 floors) will become an attractive landmark in Oslo • A lot of media attention regarding the innovative solutions is expected • Mention in professional journals that will contribute to a focus on the energy and environmental results • The building will be made available to visitors who want to see the building's energy solutions • Cooperation with FutureBuilt will function as a learning arena
0	Under development	Combination of various measures and a high degree of energy self-sufficiency: • Considering Norway's largest solar cell system connected to a single building, in combination with large freezer installations • Utilization of excess heat from freezer installations	• Prototype project within energy use and energy supply • Frequent inspections of the building • Cooperation with educational institutions is under consideration • Storebrand Eiendom is an owner, and there is a possibility of transfer of expertise
0	Partial move-in	Combination of solutions to fulfil requirements beyond the passive house level: • Heating from heat pump and energy wells • Heat recovery unit • Measures to satisfy thermal conditions without using mechanical cooling • Special measures to reduce internal load • Direct use of well water for comfort cooling	• Included in Drammen's knowledge park • Increase of expertise with involved parties • Demonstration effect
0	Under development	Combination of solutions to achieve high energy goals: • Façade-integrated solar cell panels • Liquid-to-water heat pump with energy well for heating production, as well as free cooling • Placement of sports centre on the roof with translucent aerogel walls (very low U value and G value)	• Could become an important reference for other buildings • Experience with new energy requirements • Is a prototype project in Future Built • Advisers, architects and other enterprises in the City of Oslo will be invited on tours • Relevant to link the project with research forums
0	Under development	Energisystem som kombinerer flere fornybare energikilder; • Hybride solfanger/solcellepanel (PVT) i synergi med varmepumpe med borehull som varmekilde	• Demonstrasjonsprosjekt • Kompetanseheving for de involverte i prosjektet • Bygget stilles disponibelt for visninger og presentasjoner for spredning av kompetanse
0	Under commissioning	• Façade system with up to seven layers of glass/aluminium in a framework • Pressure equalization system that reduces the impact from physical forces, particularly temperature variations • Increased insulation effect through reflective insulation • Qbiss is a new element façade with very good U values compared to the thickness of the façade elements	• The building will be open for tours • Developers, contractors and architects will get useful knowledge from the project
0	Under establishment	Comprehensive solution with known technology composed in new ways to achieve ambitious energy goals: • Water-to-water heat pump connected to discharge air and energy wells • Solar heat collector for e.g. heating tap water • Solar cell system for production of electricity • Measurement of energy items • Fans and ventilation with needs based management	• A lighthouse will be built locally with a focus on energy efficiency and renewable energy sources • Contributes to learning locally, and somewhat nationally • The building will be open for tours • The contractor chosen will increase its expertise in constructing energy-efficient buildings • Marketing in a local and national scale is planned
0	Commissioning	• Use of façade-integrated solar cell panels in facades and on roof • 4mm-thick glass laminated with crystalline solar cells in between • Façade panels are "tailored" in relation to format, colour and transparency to achieve desired architectonic expression by printing a picture of grass on the inside of the outermost glass to achieve desired colour/expression	• Demonstration facility/reference facility with regard to measurement and follow-up, compared with simulation of annual energy production • Dimensioning of electric parameters such as circuits/loops, inverters, measurement, distribution, fuses • Photo printing on glass, cost-efficient systems for installing panels • Dimensioning of mechanical parameters such as glass finishing, resistance against breaking, wind, etc. • Overview of the supplier market for façade-integrated solar cells
0	Under establishment	• Increased utilization of waste heat from discharge air • Use of LED and 80% heat recovery • Energy-efficient tap water production	• Obtained foundation and experience from foreign swimming pool facilities • Detailed engineering in cooperation with suppliers, i.e. proposals for energy conservation measures are challenges with regard to available products and cost • Developing national expertise along with NTNU
0	Under establishment	• Combination of building design and technical solutions • Thermal storage • Efficient utilization of local energy sources and daylight	• Expect expertise development within engineering group and participating contractor
0	Under development	• Better than passive house standard with innovative standalone measures and comprehensive solutions • Needs based operation • Recovery of heat from greywater and ventilation system • Local production of electricity and heating from geothermal wells, ground solar collectors, solar cells on roof, façade • Innovative monitoring and management system	• Demonstration project, facilitated for simple and energy-efficient operation, highly relevant for future sports facilities • SIAT/NTNU will use readings from the swimming facility for further research and education on energy consumption in swimming pools • One master's thesis has been written on Holmen svømmehall by an NTNU student, and another master's thesis will be written in the next semester
0	Engineering	• ZEB COM objective • Cogeneration (CHP) using bio • Hybrid ventilation and needs based LED lighting	• One of few very Norwegian CHP will provide vital operating experience • Reduced greenhouse gas emissions
0	Under establishment	• ZEB-O-EQ objective • Covers half of energy demand through self-production • Decentralized needs based management of ventilation and lighting	• The building will become a demonstration building where industry and schools will be invited on tours for information about our solutions • Stord/Haugesund University College is involved • Local contractors are able to increase their expertise
0	Under establishment	• Passive house standard focussing on energy supply, technical installations and management • 100 per cent self-sufficient with heating, improved refrigeration room solution, CO_2 cooling agent, solar power production, LED lighting installation, utilization of daylight and needs based ventilation	• Demonstration project, sharing experiences externally, and facilitates inspections, etc. • Active sharing of experience through dedicated website and inspection possibilities are planned • Experience and new expertise developed through the project shall initially be shared internally and in NorgesGruppen • Solutions are implemented in the Aksen Næringspark project
0	Commissioning	• Comprehensive energy concept • Low energy standard, local energy production, solar cells on roof and walls, storage in battery bank • Use of wood materials in substructure and utilization of the wood siding's hygrothermal properties • Aerogel in roof, utilization of waste heat for heating via ventilation and air heaters • Use of insulation in ground with low GWP and steel containing a high percentage of recycled steel	• Demonstration project is compared with the chain's other buildings • Norwegian Institute of Wood Technology is involved • Considering cooperation with universities/colleges to follow up and analyse energy consumption and operation of the facility

REALIZED DISSEMINATION OF TECHNOLOGY	FURTHER DEVELOPMENT AND DISSEMINATION
• Solutions are unknown in connection with construction of a hospital in Norway and globally	• Relevant for the industry, but interest beyond this industry is also assumed • The project will have significant media coverage regarding detailed engineering, recruitment of other renters and during the development phase • International potential for spread that could increase energy efficiency and production, and reduce greenhouse gases
• Parts of the solution have previously been tested • First implementation of the solutions within the category Kulturbygg	• Cooperation with FutureBuilt can function as a dissemination arena nationally and internationally • National potential for energy efficiency • International potential for spread which could result in energy efficiency and reduced greenhouse gas emissions
• First implementation of the solution in a warehouse in Norway	• Demonstrasjonseffekt gjennom de involverte aktørene • Potensiale nasjonalt for energieffektivisering, og økt utnyttelse av fornybar energi
• First implementation of an office building with this combination of technical solutions in Norway	• Experience from the project could be continued as general knowledge in the long term • Helps develop the Drammen area as an expertise and innovation area • National potential for energy efficiency • International potential for spread which could result in energy efficiency and reduced greenhouse gas emissions
• First implementation of a school with façade-integrated solar cells	• Solution is considered to have a major potential for spread/ripple effects • National potential for energy efficiency and increased production from renewable energy • International potential for spread which could result in energy efficiency, increased utilization of renewable energy and reduced greenhouse gas emissions
• First implementation of the technology in Norway, there are fully developed products from e.g. Sweden, the Netherlands and Germany	• Considered to have major ripple effects • Relevant for large buildings where a compromise between the available area and desired energy production is necessary • National potential for energy efficiency and increased production from renewable energy • International potential for spread which could increase energy efficiency, particularly in southern areas with considerable sunlight
• First implementation in Norway. The solution with façade-integrated solar cells with printing to achieve the desired impression has not previously been used in Norway or elsewhere before this project • Press coverage from multiple media, and the building has been visited by numerous interested parties	• National potential • Project owner describes potential for using solar cell panels as façade panelling in all new and existing buildings • International potential for spread in corresponding climate zones, which could increase energy efficiency and production, and reduce greenhouse gas emissions
• No care facilities in Norway with corresponding energy ambitions	• National potential for spread which could result in energy efficiency • International potential for spread which could result in energy efficiency and reduced greenhouse gas emissions • Major interest among local contractors
• First implementation in Norway. The solution with façade-integrated solar cells with printing to achieve the desired impression has not previously been used in Norway or elsewhere before this project • Press coverage from multiple media, and the building has been visited by numerous interested parties	• National potential • Project owner describes potential for using solar cell panels as façade panelling in all new and existing buildings • International potential for spread in corresponding climate zones, which could increase energy efficiency and production, and reduce greenhouse gas emissions
• One of the first facilities in Norway with a comprehensive energy concept	• The technology is transferable to corresponding facilities
• One of few facilities in Northern Norway	• The technology is transferable to corresponding building types in the same climate
• Either the first or second implementation of several of the individual measures in Norway	• Major national potential, reference for indoor swimming pools in Norway, innovative structural and technical energy solutions that will yield savings of several million kroner a year • Potential for corresponding buildings in corresponding climates
• One of the first facilities in Norway	• National potential • Depending on price, this could become interesting technology in locations with substantial forestry
• One of the first facilities in Norway, the first in Western Norway	• Local potential
• One of the first facilities in Norway	• National potential
• Use of wood building materials and a battery bank have been considered for future projects in KIMI and NorgesGruppen	• National potential • Too early to determine further spread without gaining operating experience

Millions awarded to the power grid of the future

Lyse Elnett will receive NOK 15 million in investment support from Enova for a project that will build and test the power grid of the future. A total of 30 power grid stations in downtown Stavanger and Sandnes will be made fully automatic through use of new technology.

Smartgrid is the name used for power grids that are more "intelligent" through the use of instrumentation and communication technology. This is the first time the smartgrid technology has been tested on this scale in Norway.

Lyse's goal and ambition is to achieve energy savings partially directly in the power grid, in part through reduced losses in the grid and indirectly through facilitating increased interaction with customers and application of new technology to manage electricity consumption. Another important goal is further increasing security of supply.

APPENDIX A PROJECTS WITHIN NEW ENERGY AND CLIMATE TECHNOLOGY 2012-2015

CONTRACT YEAR	PROJECT OWNER	PROJECT DESCRIPTION	TECHNOLOGY SUPPLIERS	SUPPORT AWARDED (NOK)	PROJECT'S ENERGY RESULT (kWh/year)
2015	SIT Geovarme AS	District library/activity house in connection with Moholt student village with e.g. local heating production, greywater recycling, heat sharing	• Supplier not determined	8 200 000	1 081 029 Energy efficiency, and production of heating
2015	Fosnes municipality	Combined indoor swimming pool/multipurpose house at Jøa in Fosnes municipality	• Supplier not determined	1 700 000	235 898 Energy efficiency, and production of heating
2015	Entra Eiendom AS	Powerhouse Brattørkaia	• Concept development: Powerhouse alliance	36 500 000	3 652 351 Energy efficiency, and production of electricity and heating
2015	Skanska CDN Oslo 3 AS	Storo Garden, office building with passive cooling and heating of the building via heat exchange with a geo-well, and heating/cooling of ventilation air. Comfort cooling via a self-regulating system without using regulation components	• Supplier not determined	5 815 320	1 186 800 Energy efficiency, and production of heating
2015	St. Olavs Hospital HF	Østmarka – energy-ambitious development Psychiatry	• Supplier not determined	2 900 000	442 577 Energy efficiency
2015	Stiftelsen Glasslåven Granavollen	Net heat-producing, rehabilitated building with comprehensive focus on reusing natural materials, heat recovery from glass furnace, measurement of vapour buffer, output and application of new commercial technology products	• Supplier flue gas cooler – Bioovn (Danish company) • Supplier ventilation windows – Ventilationsvinduet (Danish company) • Partner moisture readings – Treteknisk (research institute) • Partner energy solution – Asplan Viak AS	850 000	108 345 Energy efficiency
2015	R. Gjestad AS	Integrated design with recovery of waste heat and cooling. Innovative CO_2-based cooling plant that primarily delivers cooling to the refrigerated cases in the shop and secondary ice water (climate cooling) for connected buildings with very high energy efficiency	• Design: SINTEF Energi AS • Management system: Danfoss • CO_2 system: enex srl • Installation: Trondheim Kulde AS	600 000	100 000 Energy efficiency
2015	Boligbygg Oslo KF	Façade rehabilitation of preserved building with super-insulating plaster containing Nano particles	Isokalk Norge AS	460 000	19 764 Energy efficiency
2015	Stormberg AS	Solar cell system with battery storage capacity for delivery to warehouse in Kristiansand	• Technology supplier (battery system with storage and management): Eltek AS	1 607 278	68 400 Production of electricity
2015	Vestfold and Telemark KFUK-KFUM	Knattholmen Kystleirskole. Combined (integrated) solution solar collectors along with liquid-to-water heat pumps (HYSS: Hybrid Solar System)	• Technology supplier: Free-Energy	709 000	88 978 Energy efficiency, and production of heating
2015	Directorate of Public Construction and Property	Integration of a so-called Power Optimizer (PO) for optimization of electricity production from a 251 kW highly efficient solar cell system in the Directorate of Public Construction and Property's new office building for the police and the Norwegian Public Roads Administration at Stord	• Builder: Directorate of Public Construction and Property • Technical consultant: Multiconsult ASA • Contractor: Kvinnherad elektro AS, supported by Future Solutions AS and Kraftpojkarna AB • Solar cells: ECSOLAR (Wuxi Saijing Solar Co., Ltd) Power Optimizer: Solar Edge Technologies Inc	2 263 238	206 157 Production of electricity
2015	Posten Norge AS	Low-energy logistics building with an energy-efficient solution for gates (72), and renewable energy production based on wind and solar, storage of energy and sale of excess heat to the area's local heating grid	• Supplier not determined	14 200 000	2 956 847 Energy efficiency, recovery of waste heat, and production of electricity
2015	Overhalla municipality	Skage day-care centre, nearly zero energy level, hybrid collectors (solar) integrated in the building, storage solutions for heating and heat recovery of greywater	Supplier not determined	1 331 000	166 115 Energy efficiency, production of electricity, and heat recovery
Residences					
2014	Geir Mikkelsen	Construction of a small house in Larvik. The house will deliver more power to the grid than it consumes over the course of one year, through electricity production from solar cells	• Electrical system: Sønnico AS • Architect: French Touch • Lighting: SG AS • Building contractor: TS-Elementer AS • Plumber: Rørleggermester Lysebo AS	115 600	16 284 Energy efficiency, and production of electricity and heating
2015	Henriksen, Andreas	House near the passive house requirements with comprehensive smart house solution. Extensive management of lighting, heating and ventilation through advanced KNX smart house solution	• Rambøll, BBT, LOS Elektro, Bergen Varme & Sanitær Ventilasjon – Bygg og Ventilasjon as	80 898	13 048 Energy efficiency, and production of heating

Appendix A: The table shows projects within new energy and climate technology that received support in 2012-2015. Approved support and the contractual energy result have been corrected for the final reported result.

PROJECT'S CLIMATE RESULT IN NORWAY (kg CO_2 equiv/year)	PROJECT STATUS	INNOVATION	EXPERTISE DEVELOPMENT
0	Under development	• Comprehensive energy solution • Energy-efficient building structure, solar collectors, delivers energy to neighbouring buildings, waste heat from greywater, free cooling, heat storage • Façade air aggregates, room management logic for solar screening, air volumes, energy-efficient cross exchangers 85%	• Expect expertise development among the engineering group and participating contractor
0	Under establishment	• Comprehensive energy solution • Passive house level, bottom of pool can be raised and lowered, needs based circulation of pool water, LED lighting, needs based ventilation, economy showers and free cooling via wells • Local production 109 261 kWh from heat pump with geo-well, solar heating, recovery of heat from ventilation system and bleed water exchanger	• Demonstration project • Cooperation with NTNU – SIAT • The project is followed up in the construction and operating phase to verify performance and function over time. Results will be published as Bachelor's and Master's theses, and articles and presentations at conferences
0	Under establishment	• Comprehensive energy concept • Energy plus building, produces more energy than is consumed for lighting, heating, ventilation and cooling, material use, construction and future rehabilitation • Needs based management, hybrid low SFP ventilation, reduced heat loss from distribution of heating and tap water, free cooling, waste heat • Production of energy from heat pumps and solar cells	• Demonstration project • Part of the Powerhouse alliance is in close cooperation with NTNU/SINTEF • Expect multiple master and project theses • National and international publication
0	Engineering	• Energy-efficient and environmentally friendly cooling/pre-heating solution for ventilation in office building without cooling compressor • Passive cooling solution through underground storage system, seasonal storage of heating • Integrated cooling and heating system, increased well diameter (14 cm)	• The facility will be facilitated for demonstration • The result is verified via detailed measurements • Expertise development among suppliers regarding geo-wells (changed dimensioning conditions), aggregate suppliers (changed system solution), and supplier of cooling/air conditioning system internally in the building (changed dimensioning conditions, system solution)
0	Under establishment	• Passive house solutions and products security building with the requirements that apply for physical load, self-harm, installations cannot be used as "weapons", management of installations (e.g. lighting, sun screening) in relation to people with psychological illnesses	• Demonstration building, could spread to e.g. psychiatric buildings, hospitals, prisons • Cooperation with St. Olavs Hospital, NTNU, Sykehusbygg HF, engineers, contractors, etc.
0	Under development	• Demonstration facility (first in Norway with recovery of small-scale heat recovery of glass furnace)	• Demonstration facility (first in Norway with recovery of small-scale heat recovery of glass furnace) • Build knowledge about system structure, functionality and suitability for technology interaction • Presentations at meeting forums and various conferences • Measurement of and recovery/consumption for verification and analysis • The facility can be opened for tours • Cooperation with Treteknisk and Asplan Viak
	Commissioning	• Comprehensive design • Integration of a parallel compression CO_2 cooling unit with three temperature levels (AC-cool-freeze) in a multipurpose building	• Demonstration facility with detailed measurement of energy consumption • Further development after Rema Kroppanmarka • Follow-up of SINTEF/NTNU, several master's degree students involved • Reference project for the grocery industry (KPN-INTERACT)
	Under development	• Lime plaster with super-insulating properties • Enables new insulation of preserved buildings, as it can be approved by the preservation authorities • Contribute to energy efficiency and improved indoor climate	• Demonstration facility with measurements • Also builds expertise among
0	Under establishment	• Sum of multiple technical solutions; • New energy storage solution • Compact current transducer that is bi-directional between the grid and batteries • New technology for management system that predicts and optimizes interaction between power production, energy storage and consumption	• Measurement programme for documentation and exchange of experience • Development of experience from use of various solar cell technologies (mono and polycrystalline) placed on the roof and south-facing wall of the building • Internal and external expertise development • Information dissemination through conferences, seminars and inspections • Development of experience from use of bi-directional current transducer in zero building as a plus customer
	Under establishment	• Norwegian-developed combined/integrated solution for solar collectors with liquid-to-water heat pumps • Integrated design results in high performance for the heat pump system (SCOP on 6-8)	• Demonstration facility with measurement/software for documentation of energy result/energy follow-up • Increased expertise within good integration of heat pumps vis-à-vis other energy systems and optimization with regard to heating need in building • Communication during engineering/execution phase to installers/contractors • Active marketing and publication in technical periodicals (Teknisk Ukeblad, Kulde, VVS)
0	Under establishment	• Innovative system solution with highly efficient PV panels with integrated Power Optimizer for each panel, connected to two accumulator tanks (hot and cold) for storage of excess production during summer	• Demonstration facility • Empirical data from solar power production in the south-western region of Norway • Expanded measurement programme for documentation and exchange of experience • Building experience for alternative system solution for battery bank • Internal expertise development • Information dissemination through conferences, seminars and inspections
0	Under establishment	• Comprehensive concept consisting of a solar cell system, wind turbine, buffer battery and autonomous streetlights • Local energy production covers 100% of energy for electric fleet of vehicles and for use in the building • Excess heat is delivered to the area's joint local heating grid	• Demonstration facility is expected to receive major local/national attention • Experience from local renewable energy production vs. energy storage of electricity and supply of electric car fleet, energy exchange in the area and partially also the quick gate solution • Touring facility for solution with self-production of electricity for a dedicated fleet of electric vehicles
0	Under establishment	• Comprehensive concept • Very well insulated building structure, rotating heat recovery units in series 92-5%, needs based ventilation/lighting, low-temperature heating from hydronic systems • Combination of solar cells and thermal solar collector in same module with energy storage in wells • Greywater recycling	• Local/regional demonstration project • Local/regional expertise development
0	Commissioning	• Familiar technology is put together in new ways • Ventilation system with heat pump for heating ventilation air and tap water. Pre-warming of supply air via ventilation duct in the ground. This will also provide "free" cooling in the summer	• Touring and reference residence for Sønnico and builder • Experience will be shared on the project website • Established contact with the electrician study programme at Thor Heyerdal Upper Secondary School • Article about the project in local paper, and Teknisk Ukeblad TU
0	Commissioning	• Comprehensive solution with familiar technology for commercial buildings, infrequently used in a residential connection (management and ventilation) • Needs based management, low-temperature heating 19 different zones, thermal mass/storage	• Extensive measurement and instrumentation of all energy flow • Expertise development among involved local/regional contractors, major national adviser • Stipulates requirements for close cooperation between electrician, plumber and ventilation and to optimize the smart house functions

REALIZED DISSEMINATION OF TECHNOLOGY	FURTHER DEVELOPMENT AND DISSEMINATION
• One of the first facilities in Norway	• National potential
• One of the first facilities in Norway, and first in the region	• Local and national potential
• Realization of the first newly built energy plus office building in Norway	• Major national potential for all or parts of the solutions • International potential for spread that could increase energy efficient and production and reduce greenhouse gas emissions
• Components in the system are known in Norway today, system solution is not common, challenges involve dimensioning the facility so necessary cooling/heating capacity can be extracted from the system at the correct temperature	• National potential • Skanska CDN intends to use the technology in several of its construction projects, where a cooling need exceeding a certain limit is expected +M92
	• National potential • Project owner lists major spread potential for own and other buildings
• First building in Norway with heat recovery from small-scale glass furnace • Corresponding heat recovery projects known in Denmark • There are currently some rehabilitated buildings in Norway with net heat delivery • Projects with a total focus on sustainable rehabilitated buildings (energy solutions and use of natural materials) are still considered ground-breaking	• Small-scale heat recovery from glass furnaces can be added to existing and new establishment of small-scale glass production • Experience from using hybrid ventilation solution, particularly in combination with use of natural materials, can be used in buildings with corresponding internal load sizes • Quantification of "indoor climate effect" from buffering of moisture in untreated wood panel with support increased use of wood in buildings
• First implementation in Norway • About 20 installations implemented globally +1.83	• Potentially a concept that should be used in multipurpose buildings (with grocery shop) that need climate cooling, heating of tap water and general heating • Transferable to multipurpose buildings with high energy consumption for heating and cooling, also without grocery shops • Project estimates that spread potential is 1000 facilities in Norway, globally, this system could be used in most grocery shops
• First implementation in Norway, result will determine future investment in the product	• National potential for new insulation of preserved brick buildings with plaster • Internationally interesting for buildings in corresponding climate zones
• First implementation of corresponding facilities in Norway today	• Particular spread potential for commercial buildings that need to store excess production • Technology supplier estimates a spread potential for all new power grid stations in the distribution grid, telecom base stations, energy-plus houses, etc.
• First Norwegian installations, apart from three test facilities	• National potential Norwegian-developed solution • Project owner estimates major national potential, relevant in e.g. day-care centres, schools, sports facilities, office buildings, etc. in areas with the possibility for well drilling/ground loops • Less suitable for small houses • Potential for other countries with a Nordic climate
• First implementation in Norway	• Particular spread potential for commercial buildings that need heating and cooling at the same time • Project owner is building experience, and will consider the solution's suitability for future new buildings • National potential for spread that could yield increased production of renewable power
• First implementation in Norway • No known corresponding projects within this building category with corresponding solutions for energy production and energy exchange with other buildings in the area	• National potential • Applicant is planning more corresponding buildings
• Considered on a national level as one of the most ambitious day-c are centres in relation to net energy demand and own renewable energy production	• Local/regional potential
• No corresponding buildings in Vestfold, one of the first energy-plus houses in Norway	• Relevant for players that are constructing new buildings or implementing energy measures • Focus on constructing energy-efficient residences without costs being too high, and increased comfort • Want to increase focus on solar power
• Few known residences in Bergen/Hordaland with such extensive management and regulation	• National potential

Efficient ship cranes improve air quality

Enova is investing NOK 1.15 million in the Grieg Star shipping company. The cranes on board Grieg Star's ships can now charge batteries when they are lowering cargo, just like electric cars charge their batteries when the car brakes. The battery system is the first high-efficiency optimized battery package for maritime use and was developed and produced in Norway. Apart from emitting less CO_2, it could help improve local air quality in the harbours by reducing emissions of SOx, NOx and soot particles. One bonus effect is that the cranes will become more efficient, reducing the turn-around time.

Another effect of the installation is that the ship will be prepared for using onshore power in the harbours that provide this. This will further reduce local pollution such as sulphur and soot particles. The battery system will save in excess of one gigawatt hour per year for each ship it is installed on. Grieg Star has ten suitable ships in its fleet, and this pilot project comprises one of them.

APPENDIX B **PROJECT LIST 2015** - *NOT TRANSLATED TO ENGLISH*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
Fornybar varme						
Program fjernvarme						
14/1707	Lønningen	7 441 350	6 000 000	BKK Varme AS	Bergen	Hordaland
14/1762	Energisentral og energidistribusjon på Ørland Hovedflystasjon / F35 Kampflybase	8 127 143	11 600 000	Forsvarsbygg (OSLO)	Ørland	Sør-Trøndelag
14/1764	Sagabyen fjernvarme	9 379 200	10 500 000	Pemco Energi AS	Ullensaker	Akershus
14/1964	Søknad om støtte utbygging av fjernvarme til Røysveien Moss	409 500	585 000	Statkraft Varme AS	Moss	Østfold
14/1969	Søknad om støtte utbygging av overføringsledning til Jeløya Moss	1 386 000	2 100 000	Statkraft Varme AS	Moss	Østfold
14/1971	Fjernvarme Finnsnes - ny søknad 2014	34 093 000	52 000 000	Finnsnes Fjernvame AS	Lenvik	Troms
15/1007	Utbygging av fjernvarmenett Flisa, 2015	760 000	1 100 000	Åsnes Fjernvarme AS	Åsnes	Hedmark
15/122	Bragevegen, utvidelse av fjernvarmenett på Nærbø, Hå kommune	96 060	111 000	Jæren Fjernvarme AS	Hå	Rogaland
15/1248	Stange	1 045 000	1 454 000	Oplandske Bioenergi AS	Stange	Hedmark
15/1349	Fjernvarmeutbygging - Kongsvinger 2015-2016	1 728 000	2 700 000	Kongsvinger Bioenergi AS	Kongsvinger	Hedmark
15/1381	Christian Michelsens gate	1 360 100	2 300 000	BKK Varme AS	Bergen	Hordaland
15/1403	Nærvarme Jessheim Park	2 871 700	3 675 000	Pemco Energi AS	Ullensaker	Akershus
15/1426	Nærvarme Odelsvegen	2 907 420	2 633 326	Pemco Energi AS	Ullensaker	Akershus
15/1511	Utvidelse Exporama varmesentral	1 353 600	1 230 000	Pemco Energi AS	Skedsmo	Akershus
15/1582	Hovedprosjekt- om å etablere biovarmesentral og fjernvarmeanlegg i Lista Fly- og Næringspark, Farsund Kommune	1 128 000	1 230 000	Icetech Norge AS	Farsund	Vest-Agder
15/1721	Fjernvarme utvidelse Tangmoen Stjørdal	944 295	957 000	Stjørdal Fjernvarme AS	Stjørdal	Nord-Trøndelag
15/2166	Fornybar energiproduksjon i Elverum fra biomasse	20 907 000	27 000 000	Elverum Fjernvarme AS	Elverum	Hedmark
15/2323	Utvidelse av fjernvarmekapasiteten i Alta	8 477 000	7 775 000	Hexa Bioenergi AS	Alta	Finnmark
15/2347	LHL	2 245 000	3 550 000	Oslofjord Varme AS	Ullensaker	Akershus
15/2442	Fjernvarme Lystlunden-Karljohansvern	5 500 000	8 350 000	Skagerak Varme AS	Horten	Vestfold
15/2804	Dikemark fjernvarme utvidelse etappe 4	1 080 000	1 000 000	Bioenergi AS	Asker	Akershus
15/2844	Nordnes 2	3 770 760	2 800 000	BKK Varme AS	Bergen	Hordaland
15/3229	Kronstad utvidelse av nettet	489 100	700 000	BKK Varme AS	Bergen	Hordaland
15/3315	Møhlenpris utvidelse av nettet	509 200	725 000	BKK Varme AS	Bergen	Hordaland
15/3488	Laksevåg	9 751 850	14 000 000	BKK Varme AS	Bergen	Hordaland
15/3858	Harestua fjernvarme	8 107 390	11 600 000	Miljøvarme Hadeland AS	Lunner	Oppland
15/3989	Levermyr Nærvarme	1 400 000	1 800 000	Grimstad kommune	Grimstad	Aust-Agder
15/431	Utvidelse fjernvarme Sutterø Stjørdal	796 500	761 260	Stjørdal Fjernvarme AS	Stjørdal	Nord-Trøndelag
15/450	Nesoddtunet sykehjem og Sunnaas sykehus	4 163 000	5 169 000	Norsk Bioenergi AS	Nesodden	Akershus
15/5203	Fjernvarme- og fjernkjøleutbygging fra Forus til Sandnes sentrum	23 649 000	36 000 000	Lyse Neo AS	Sandnes	Rogaland
15/616	Fjernvarme Sorgenfri - Elvekryssing til Sagabakken skole	5 782 000	6 000 000	Fredrikstad Fjernvarme AS	Fredrikstad	Østfold
15/701	Fjernvarmeutbygging Prins Oscarsgt - Solbakken	1 299 125	1 423 000	Drammen Fjernvarme KS	Drammen	Buskerud
15/995	Utvidelse av fjernvarmenettet på Sørsileiret i Steinkjer	2 500 000	2 615 000	InnTre Energi Steinkjer AS	Steinkjer	Nord-Trøndelag
Støtte til introduksjon av ny teknologi						
15/2609	Asker/Føyka - Dype energibrønner 800 m	232 000	2 564 500	Asker kommune	Asker	Akershus
Fornybar kraft						
Støtte til introduksjon av ny teknologi						
15/163	Strømproduksjon fra minstevannsføringslipp Gåseflå Dam	1 750 000	3 412 553	Agder Energi Vannkraft AS	Vennesla	Vest-Agder
15/3090	Søknad til Enova om støtte til bygging av solcelletak med bruk av ny teknologi	65 561	942 760	Hans Arild Grøndahl	Nes	Akershus
15/347	Evaluering av Waves4Power´s bølge kraft system.	250 000	12 005 100	Waves4Power AS	Herøy	Møre og Romsdal
15/3555	Testturbin - Smøla	31 000 000	30 734 876	Statkraft AS	Smøla	Møre og Romsdal
15/471	Kildal pilotprosjekt SHP kraftstasjon	1 200 000	2 774 671	Kildal Kraft AS	Meløy	Nordland
Industri						
Støtte til energitiltak i industrien						
14/1386	Gjenvinning av varmen fra hydraulikkaggregat	100 000	119 889	Furnes Jernstøperi AS	Stange	Hedmark
14/1490	Ny ovnsforing som enøk-tiltak	2 144 000	1 600 000	Hydro Vigelands Brug AS	Kristiansand	Vest-Agder
14/1666	Dampleveranse til TINE Meieriet Ålesund fra fjernvarme gjennom høytemperatur varmepumpe.	5 000 000	5 799 000	Single-Phase Power AS	Ålesund	Møre og Romsdal
14/1731	Energi sentral i Astafjord.	2 870 000	2 874 025	Astafjord Industrier AS	Gratangen	Troms
14/1904	Energigjenvinning i destilleri rom og tapperi i Arcus på Gjelleråsen	1 200 000	1 320 000	Arcus AS	Oslo	Oslo
14/2020	Nye lysarmaturer 2014	364 000	455 000	Schrader Gartneri AS	Nesodden	Akershus
14/2063	Reduksjon av energibruk i filter og ovn	16 100 000	16 951 000	Wacker Chemicals Norway AS	Hemne	Sør-Trøndelag
14/2081	Energieffektivisering av av ystevannslinje	130 000	139 759	Tine SA avd. Byrkjelo	Gloppen	Sogn og Fjordane

1 *Enovatilskuddet (3819 tilskudd), Energitiltak i bolig (39 tiltak) samt Støtte til energirådgiving (4 prosjekter) er ikke inkludert i oversikten*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
14/2096	Energisparing med sentralt vaskeanlegg hos Nortura Sarpsborg	1 680 000	1 700 000	Nortura SA	Sarpsborg	Østfold
14/2120	SAR AS, Averøy - Energiprosjekt 2015-16	7 899 000	7 400 000	Sar AS	Averøy	Møre og Romsdal
15/103	Varmegjenvinner-varmeveksler	129 000	165 000	Fadum Landbruk AS	Tønsberg	Vestfold
15/1030	Utskifting til led-lys	1 700 000	1 700 000	NorDan	Lund	Rogaland
15/1038	TINE Meieriet Tretten - Søknad om investeringsstøtte for realisering av enøktiltak	1 700 000	1 650 000	Tine Meieriet Øst, Tretten	Øyer	Oppland
15/1070	Forbedring av utstøping og ny raffineringsstasjon.	17 400 000	12 100 000	Elkem AS Bremanger	Bremanger	Sogn og Fjordane
15/1109	Polymer Injection	5 900 000	5 340 000	Celsa Armeringsstål AS	Rana	Nordland
15/1137	Utfasing av oljefyr -brennere	960 000	960 000	Strandveien 1-3 AS	Fredrikstad	Østfold
15/1342	Fyringsanlegg Ringalm Tre AS	15 000 000	6 000 000	RingAlm Tre AS	Ringsaker	Hedmark
15/1380	Nytt flisavsug Moelven Mjøsbruket AS	556 000	390 000	Moelven Mjøsbruket AS	Gjøvik	Oppland
15/1486	Varmegjenvinning i forbindelse med utvidelse av produksjonslinjen i malingsavedelingen	290 300	360 000	Arbor-Hattfjelldal AS	Hattfjelldal	Nordland
15/152	Energieffektivisering Elkem Thamshavn 2015/16 - Rammesøknad	8 400 000	4 000 000	Elkem AS Thamshavn	Orkdal	Sør-Trøndelag
15/1566	Trykkluft for MS-reaktor.	650 000	546 750	Fesil Rana Metall AS	Rana	Nordland
15/1583	Forbedret størkningsforløp for Silgrain feedstock	22 900 000	17 860 000	Elkem AS Bremanger	Bremanger	Sogn og Fjordane
15/1585	Konvertering til vassboren oppvarming av prosessvarme på Ottadalen mølle SA	374 000	234 000	Ottadalen Mølle SA	Lom	Oppland
15/1645	Vajda-Papir Scandinavia AS - Søknad om investeringsstøtte for realisering av enøk-tiltak	2 830 000	2 800 000	Vajda-Papir Scandinavia AS	Drammen	Buskerud
15/1682	Reduksjon av dampforbruk til oppvarming	5 357 760	5 332 760	Dynea AS	Skedsmo	Akershus
15/1744	Forsan Smoltanlegg (settefiskanlegg)	10 000 000	7 000 000	Cermaq Norway AS	Steigen	Nordland
15/1791	Kværner Verdal - enøktiltak i sandblåsehall 2015	1 000 000	1 250 000	Kværner Verdal AS	Verdal	Nord-Trøndelag
15/1803	Fjernvarme til Saudahallen	1 000 000	500 000	Sauda kommune	Sauda	Rogaland
15/1933	Auka varmegjenvinning på vask av etterpresse.	200 000	200 000	Tine SA avd. Byrkjelo	Gloppen	Sogn og Fjordane
15/1935	Renere og mer effektiv brennerteknologi for dolomitt-tørke	280 000	336 000	Miljøkalk AS	Ballangen	Nordland
15/2043	Nortura Tønsberg - Anleggsoppgradering 2015 - Energigjenvinningsystem med Varmepumpe Trinn III	2 500 000	2 000 000	Nortura SA	Tønsberg	Vestfold
15/2133	Energitiltak 2015 - 2017	1 423 400	1 600 000	Moelven Soknabruket AS	Ringerike	Buskerud
15/2163	Overgang til LED lyskilder i vår fabrikk hall	2 300 000	1 488 000	Farsund Aluminium Casting AS	Farsund	Vest-Agder
15/2192	Støvprosjekt	5 550 600	7 500 000	Hellefoss paper AS	Øvre Eiker	Buskerud
15/2235	Kværner Verdal - enøktiltak i hall A2 2015	900 000	1 100 000	Kværner Verdal AS	Verdal	Nord-Trøndelag
15/2274	Ny kryssserigg Su3	3 384 000	1 375 000	Hydro Aluminium AS	Sunndal	Møre og Romsdal
15/2447	Effektivisering av varmeanlegg i produksjonshall Roverud	190 000	300 000	Contiga AS	Kongsvinger	Hedmark
15/2582	Varmegjenvinning	2 487 000	2 340 000	Orkla Foods Norge AS	Fredrikstad	Østfold
15/2591	Energigjenvinning og optimalisering med høytemperatur varmepumpe	1 300 000	2 080 000	Jackon AS avd Bergen	Sund	Hordaland
15/2592	LED-belysning lager og kontor Idun Rygge	530 000	636 000	Orkla Foods Norge AS	Rygge	Østfold
15/2806	HOFF SA - Realisering av enøktiltak alle fabrikker 2015-2018	4 675 000	3 116 000	Hoff Norske Potetindustrier	Landsdekkende	Landsdekkende
15/2832	Energigjenvinning fra trykkluftanlegg	180 000	230 000	Arbor-Kragerø AS	Kragerø	Telemark
15/2959	Nye øsebrennere	3 755 000	4 100 000	Celsa Armeringsstål AS	Rana	Nordland
15/3210	Oppgradering lysanlegg 3 da veksthus	213 000	400 000	Riis Gartneri AS	Skedsmo	Akershus
15/3281	Østerdalsbruket - nye varmeledning med bedre isolering	500 000	500 000	Moelven Østerdalsbruket AS	Stor-Elvdal	Hedmark
15/3345	Skifte av tekkemateriale -Vollen Gartneri AS	234 000	279 000	Vollen Gartneri AS	Asker	Akershus
15/3491	Bytte ut eksisterende belysning med ny LED belysning	250 000	300 000	Norsk Stein AS	Suldal	Rogaland
15/3542	Forsan Smoltanlegg - Energivurdering	3 223 680	2 900 000	Cermaq Norway AS	Steigen	Nordland
15/3558	Oppgradering og modernisering av sentral garderobe	800 000	950 000	Boliden Odda AS	Odda	Hordaland
15/3635	Energireduksjon og utfasing olje	2 560 000	3 000 000	Wilhelmsen Chemicals AS	Nøtterøy	Vestfold
15/3824	Big Dutchman Earny Varmegjennvinning til slaktekyllinghus	150 000	140 000	Ove Byberg	Sola	Rogaland
15/3857	Silver Seed Smoltanlegg (Settefiskanlegg)	3 400 000	3 100 000	Silver Seed AS	Vågan	Nordland
15/3897	Energireduksjon i Homogeniseringsanlegg og Fabrikkbelysning	2 420 000	2 900 000	Hydro Aluminium AS	Karmøy	Rogaland
15/3904	Avfukter til 2500 m2	144 000	87 000	Magne Bergerud og sønn AS	Rygge	Østfold
15/3909	Lavenergi, semilukket veksthus	4 480 000	5 300 000	Wiig Gartneri AS	Klepp	Rogaland
15/3960	Avfukter - Drygair 2015	923 000	200 000	Andersen Gartneri AS	Råde	Østfold
15/4026	Bytte 480 flomlys til Led-lys for å energieffektivisere	7 500 000	6 700 000	Statoil Petroleum AS Melkøya	Hammerfest	Finnmark
15/41	Energigjenvinning i vaskeriet på Linnestranda 2 i Drammen	581 960	440 000	Oxer Management AS	Drammen	Buskerud
15/4130	Installasjon av elektroklorinator	88 660 000	40 916 988	Statoil Petroleum AS Melkøya	Hammerfest	Finnmark
15/4154	Nytt varmenett Bergen Holm avd. Haslestad	2 340 000	1 236 341	Bergene Holm AS	Hof	Vestfold
15/423	Optimalisering av energibruk ved Skaland Graphite AS	565 000	550 000	Skaland Graphite AS	Berg	Troms
15/4301	Elektrifiserng av flisterminal Orkanger for produksjon av treflis brukt i smelteverksindustrien	1 162 013	1 452 516	Allskog Bio AS	Orkdal	Sør-Trøndelag
15/4424	Utskiftning til LED lys NorDan AS avd Otta	169 000	180 000	NorDan	Sel	Oppland
15/4427	Skumglassovner , ombygging til EL	5 000 000	4 100 000	Glasitt AS	Skjåk	Oppland

APPENDIX B **PROJECT LIST 2015** - *NOT TRANSLATED TO ENGLISH*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/4863	8 avfuktere til 13 000 M2 veksthus	896 000	735 000	Sørby Gartneri AS	Øvre Eiker	Buskerud
15/4881	Portefølje SynEnergi	12 500 000	12 145 000	Borregaard AS	Sarpsborg	Østfold
15/4915	Energitiltak Veksthus 1100 m2	300 000	258 000	Bjørn Larsens gartneri	Larvik	Vestfold
15/5002	Skifte av belysning i Plateverkstad 3 Hall K-plan	200 000	152 000	Kværner Stord	Stord	Hordaland
15/5059	Energigjenvinning i Menova AS avd. vaskeri	250 000	328 500	Menova AS avd. Vaskeri	Ringerike	Buskerud
15/5172	Lukket Fakkel, Snorre A	15 500 000	15 000 000	Statoil Petroleum AS Snorre	Kontinental-sokkelen	Kontinentalsok-kelen
15/5178	Energiforbedringsprosjekter 2016 - Skretting Stavanger	1 071 600	950 000	Skretting AS	Stavanger	Rogaland
15/5184	Energisparende tiltak i produksjonslokaler Orkel	298 000	357 600	Gjønnes Eiendom AS	Orkdal	Sør-Trøndelag
15/52	Diverse prosjekter 2015	733 123	900 000	Tine SA avd Verdal	Verdal	Nord-Trøndelag
15/5208	Energitiltak Hofseth Biocare ASA	3 900 000	4 400 000	Hofseth Biocare ASA	Midsund	Møre og Romsdal
15/5298	Oppgradering lysanlegg 5802 m2	678 000	650 000	Ra Gartneri AS	Stokke	Vestfold
15/5586	6 avfuktere- AGAM	678 000	729 000	Andersen Gartneri AS	Råde	Østfold
15/5702	Energieffektivisering med nytt strømbesparende prosessutstyr	3 290 400	1 550 000	Kronos Titan AS	Fredrikstad	Østfold
15/5912	Energieffektivisering fødevannstank og punktbefuktning i prosessen	1 134 000	870 000	Sandnesgarn AS	Sandnes	Rogaland
15/6121	ENØK for Reinertsen AS Orkanger	811 444	973 709	Reinertsen AS avd Orkanger	Orkdal	Sør-Trøndelag
15/623	Varmegjenvinning fjørfe hus	130 000	142 000	Runa Ø. Gabrielsen	Re	Vestfold
15/632	Energibesparende Produksjon.	150 000	187 500	Vestnes Land AS	Flora	Sogn og Fjordane
15/641	Energieffektiviseringsprosjekt Norbar	1 690 000	2 000 000	Norbar Minerals AS avd Karmøy	Karmøy	Rogaland
15/705	Diverse rørisolering	140 000	150 000	Tine SA avd. Byrkjelo	Gloppen	Sogn og Fjordane
15/737	Redusering av energiforbruk i rugeeggsproduksjon ved hjelp av varmeveksler	130 000	142 000	Torgunrud AS	Østre Toten	Oppland
15/768	Enøk lakkanlegg A6	13 000 000	9 400 000	Hydro Aluminium Rolled Pro-ducts AS avd Holmestrand	Holmestrand	Vestfold
15/869	Lofoten Industri AS - Sentralvaskeri Leknes	120 000	120 000	Lofoten Industri AS avd. Leknes	Vestvågøy	Nordland
15/889	Redusering av energiforbruk i kyllinghus ved hjelp av varme-veksler	160 000	142 000	Svend Erik Bones	Midtre Gauldal	Sør-Trøndelag
Støtte til introduksjon av energiledelse i transport, industri og anlegg						
14/1623	Støtte til etablering av ISO 50001 på TINE Sømna	1 116 470	67 900	Tine SA avd Sømna	Sømna	Nordland
14/1733	Energiledelse i Schlumberger D og M	332 264	200 000	Schlumberger Norge AS avd. Drilling og Measurement	Sola	Rogaland
14/1802	Innføring av energiledelse ved Sør-Norge Aluminium A/S	11 296 344	1 000 000	Sør-Norge Aluminium AS	Kvinnherad	Hordaland
14/2017	Energiledelse i Nexans Karmøy	441 700	200 000	Nexans Norway AS avd. Håvik	Karmøy	Rogaland
14/2029	Introduksjon av Energiledelse - Drammen Fjernvarme	2 053 340	1 000 000	Drammen Fjernvarme KS	Drammen	Buskerud
14/2094	Energiledelse Innvik Sellgren	326 698	115 000	Innvik Sellgren AS	Stryn	Sogn og Fjordane
14/2121	Energiledelse hos Takeda farmasøytiskfabrikk i Asker	1 497 000	726 500	Takeda Nycomes AS avd Asker	Asker	Akershus
14/2124	Energiledelse Båtservice	121 233	100 000	Båtservice Holding AS	Mandal	Vest-Agder
14/2126	Energiledelse Fjordlaks Aqua Tafjord	324 828	200 000	Fjordlaks Aqua AS avd 18 Tafjord	Norddal	Møre og Romsdal
14/2128	Energiledelse Europrofil	205 620	200 000	Europrofil AS	Sykkylven	Møre og Romsdal
14/2129	Energiledelse Sperre Industri AS	401 793	200 000	Sperre Industri AS	Ålesund	Møre og Romsdal
14/2130	Energiledelse Fjordlaks AS	2 047 907	200 000	Fjordlaks AS	Ålesund	Møre og Romsdal
15/1033	Innføring av energiledelse - Drammen	946 000	200 000	Mills DA avd Drammen	Drammen	Buskerud
15/1034	Innføring av energiledelse - Fredrikstad	1 942 100	1 000 000	Mills DA avd Fredrikstad	Fredrikstad	Østfold
15/1068	Energiledelse og EOS	3 472 962	1 000 000	Franzefoss Gjenvinning AS avd Eide	Fjell	Hordaland
15/112	Energiledelse Salmar Farming - Avd. Frøya	537 952	200 000	Salmar Farming AS avd Frøya	Frøya	Sør-Trøndelag
15/113	Energiledelse Salmar Farming - Avd. Revsnes	271 107	200 000	Salmar Farming AS avd Revsnes	Åfjord	Sør-Trøndelag
15/114	Energiledelse Salmar Farming - Avd. Bessaker	243 626	200 000	Salmar Farming AS avd Bessaker	Roan	Sør-Trøndelag
15/115	Energiledelse Salmar Farming - Avd. Aure	138 243	130 000	Salmar Farming AS avd Aure	Aure	Møre og Romsdal
15/12	Energiledelse Fiskerstrand	578 426	200 000	Fiskerstrand Verft AS	Sula	Møre og Romsdal
15/1202	Energiledelse i Menova vaskeri	142 460	130 000	Menova AS avd. Vaskeri	Ringerike	Buskerud
15/124	Innføring av energiledelse i Nova Sea	1 688 451	237 500	Nova Sea AS	Lurøy	Nordland
15/1311	Innføring av Energiledelse ved Orkla Foods Norge AS Toro Arna	2 420 000	1 000 000	Orkla Foods Norge AS avd Toro Arna	Bergen	Hordaland
15/1327	Energiledelse Hofseth Biocare	368 000	200 000	Hofseth Biocare ASA avd Midsund	Midsund	Møre og Romsdal
15/1332	Støtte til introduksjon av energiledelse i industri og anlegg	4 802 432	1 000 000	Sisomar AS	Sørfold	Nordland
15/1335	Energiledelse Seafood Farmers AS	180 946	200 000	Seafood Farmers of Norway AS	Giske	Møre og Romsdal
15/1355	Energiledelse Mandal Maskinering	112 000	100 000	Mandal Maskinering AS	Mandal	Vest-Agder
15/1358	Innføring av energiledelse ved Smurfit Kappa Norpapp AS	1 579 955	1 000 000	Smurfit Kappa Norpapp AS avd Hønefoss	Ringerike	Buskerud

1 *Enovatilskuddet (3819 tilskudd), Energitiltak i bolig (39 tiltak) samt Støtte til energirådgiving (4 prosjekter) er ikke inkludert i oversikten*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/1395	Etablering av enerrgiledelse ved Hansa Borg Bryggerier AS avd Sarpsborg	1 024 209	700 000	Hansa Borg Bryggerier AS avd Borg	Sarpsborg	Østfold
15/1404	Miljôfor AS - Søknad om støtte for etablering av energiledelse forenklet	344 702	200 000	Miljøfor Norge AS avd Hamar	Hamar	Hedmark
15/1412	Energiledelse Ekornes Skumplastfabrikken	267 100	200 000	J E Ekornes AS avd Ikornnes	Sykkylven	Møre og Romsdal
15/1535	Innføring av energiledelse ved Romerike Avfallsforedling IKS	445 900	200 000	Romerike Avfallsforedling IKS	Skedsmo	Akershus
15/1540	Reduksjon av forbruk og utslipp	6 613 507	1 000 000	Stangeland Maskin AS	Sola	Rogaland
15/1825	Energiledelse IMG	265 000	200 000	IMG AS	Sykkylven	Møre og Romsdal
15/1881	Energiledelse ABS	264 300	200 000	ABS AS	Ålesund	Møre og Romsdal
15/1883	Innføring av energiledelse, Sandnes Garn	960 667	200 000	Sandnesgarn AS	Sandnes	Rogaland
15/1927	Energiledelse Ekornes Hareid	280 815	200 000	Ekornes AS avd. Hareid	Hareid	Møre og Romsdal
15/1928	Energiledelse Ekornes Beds	529 494	200 000	Ekornes Beds AS	Fet	Akershus
15/1965	Etablering av energiledelse ved Plastal AS	1 344 889	1 000 000	Plastal AS	Vestre Toten	Oppland
15/2039	Etablering av energiledelse - Ambisiøs	2 185 442	1 000 000	Maarud AS	Sør-Odal	Hedmark
15/2077	Energiledelse Salmar Farming - Avd. Hitra	260 848	200 000	Salmar Farming AS avd Hitra	Hitra	Sør-Trøndelag
15/2335	Introduksjon til energiledelse - Agder Energi Varme Arendal	1 520 900	1 000 000	Agder Energi Varme AS avd Arendal	Arendal	Aust-Agder
15/2464	Energiledelse i Allskog Bio AS	138 150	130 000	Allskog Bio AS	Orkdal	Sør-Trøndelag
15/2495	Implementering av EOS	1 074 351	160 000	Framo Flatøy AS	Bergen	Hordaland
15/2551	Kartlegging av energiforbruk og tiltaksliste	204 407	190 000	Multiblokk AS	Sandnes	Rogaland
15/2558	Innføring av energiledelse ved Omya Hustadmarmor AS, Elnesvågen	7 442 425	975 000	Omya Hustadmarmor AS avd Elnesvågen	Fræna	Møre og Romsdal
15/2571	Tiltaksliste for reduksjon av energiforbruk	1 549 019	1 000 000	Velde Produksjon AS	Sandnes	Rogaland
15/2572	Tiltaksliste for reduksjon av energi	452 781	200 000	Velde Pukk AS	Sandnes	Rogaland
15/2573	Energiledelse NOV Kristiansand	426 980	200 000	National Oilwell Varco Norway AS avd Kristiansand	Kristiansand	Vest-Agder
15/2575	Energiledelse NOV Molde	104 714	50 000	National Oilwell Varco Norway AS avd Molde	Molde	Møre og Romsdal
15/2576	Energiledelse NOV Stavanger	349 671	200 000	National Oilwell Varco Norway AS avd Stavanger	Stavanger	Rogaland
15/2645	Søknad om økonomisk støtte til introduksjon av energiledelse i industri og anlegg	198 577	185 000	Vesteraalens AS avd Hermetikk	Sortland	Nordland
15/2829	Energiledelse Hennig Olsen IS AS	1 828 943	1 000 000	Hennig-Olsen Is AS	Kristiansand	Vest-Agder
15/2958	Søknad om støtte til etablering av energiledelse på Brage plattform	10 000 000	1 000 000	Wintershall Norge AS Brage	Stavanger	Rogaland
15/3018	Innføring av system for energiledelse	2 250 000	500 000	Lauvsnes Gartneri AS	Finnøy	Rogaland
15/309	Innføring av energiledelse i NGI, avd. Porsgrunn	181 841	170 000	Norsk gjenvinning Industri AS avd Porsgrunn	Porsgrunn	Telemark
15/3100	Ellingsen Seafood Søknad om økonomisk støtte til energiledelse på 5 flåter forenklet	289 431	200 000	Ellingsen Seafood AS avd Tysfjord	Vågan	Nordland
15/3103	Lopack AS/ Ellingsen Seafood Søknad om økonomisk støtte til energiledelse for EPS fiskekassefabrikken i Svolvær forenklet	164 252	150 000	Lopack AS	Vågan	Nordland
15/314	Introduksjon av energiledelse Marine Harvest AS, avd. Ulvan	655 269	199 250	Marine Harvest Norway AS avd Ulvan	Hitra	Sør-Trøndelag
15/315	Introduksjon av energiledelse i glassfiberproduksjon	1 900 000	1 000 000	3B-Fibreglass Norway AS	Birkenes	Aust-Agder
15/326	Introduksjon av Energiledelse	447 000	200 000	COOP Norge Kaffe AS	Oslo	Oslo
15/3363	Introduksjon av Energiledelse	592 840	200 000	Lillrent AS	Lillehammer	Oppland
15/3450	Introduksjon av Energiledelse	1 037 784	595 000	Tine SA avd. Ørsta	Ørsta	Møre og Romsdal
15/350	Innføring av Energiledelse hos AS Rockwool, Moss	1 877 660	1 000 000	AS Rockwool avd Moss	Moss	Østfold
15/3548	Introduksjon til Energiledelse ved Jevnaker og Austjord energiproduksjon	571 208	200 000	Oplandske Bioenergi AS	Jevnaker	Oppland
15/355	Energiledelse	1 662 778	200 000	Jackon AS avd Fredrikstad	Fredrikstad	Østfold
15/363	Energiledelse	637 596	200 000	Fatland Sandefjord AS	Sandefjord	Vestfold
15/3738	Introduksjon av energiledelse	589 028	200 000	Lemminkäinen Norge AS avd Elverum	Elverum	Hedmark
15/3740	Introduksjon av energiledelse	584 114	200 000	Lemminkäinen Norge AS avd Harstad	Harstad	Troms
15/3742	Introduksjon av energiledelse	879 908	200 000	Lemminkäinen Norge AS avd Tromsø	Tromsø	Troms
15/3743	Introduksjon av energiledelse	406 278	200 000	Lemminkäinen Norge AS avd Buskerud	Øvre Eiker	Buskerud
15/3764	Innføring av energiledelsessystem på Gran Tre KS	1 006 400	500 000	Gran Tre KS	Gran	Oppland
15/383	Innføring av energi ledelse hos Astafjord slakteri AS	170 104	160 000	Astafjord Slakteri AS	Gratangen	Troms
15/3911	Implementering av energiledelse ved Forus Energigjenvinning	2 656 000	1 000 000	Forus Energigjenvinning 2 AS	Sandnes	Rogaland
15/408	Energiledelse NOAH	832 721	200 000	Noah AS	Holmestrand	Vestfold
15/4274	Energiledelse SalMar Nord AS - Region Finnmark	110 700	100 000	Salmar Nord AS Region Finnmark	Båtsfjord	Finnmark
15/4275	Energiledelse SalMar Nord AS - Region Troms	485 700	200 000	Salmar Nord AS Region Troms	Lenvik	Troms
15/4406	Innføring av energiledelse ved Kemira Chemicals AS, etter standard ISO 50001	473 530	200 000	Kemira Chemicals AS	Fredrikstad	Østfold

APPENDIX B **PROJECT LIST 2015** - *NOT TRANSLATED TO ENGLISH*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/4454	Etablering av energiledelse ved Longyear Energiverk	4 125 178	1 000 000	Longyearbyen Lokalstyre Longyearbyen Energiverk	Svalbard	Svalbard
15/4719	Introduksjon av Energiledelse ved Gullfaks	43 180 000	1 000 000	Statoil Petroleum AS Gullfaks	Kontinental-sokkelen	Kontinentalsok-kelen
15/4833	Innføring av energiledelse ved Coca-Cola Enterprises Norge AS	2 758 300	1 000 000	Coca Cola Enterprises Norge AS Hovedkontor/Region Oslo	Lørenskog	Akershus
15/5099	Introduksjon av energiledelse	320 265	200 000	Lemminkäinen Norge AS Ravneberget	Risør	Aust-Agder
15/5100	Introduksjon av energiledelse	739 598	200 000	Lemminkäinen Norge AS avd Grenland	Skien	Telemark
15/512	Søknad om støtte til innføring av energiledelse ved TINE Meieriet Byrkjelo	3 387 479	200 000	Tine SA avd. Byrkjelo	Gloppen	Sogn og Fjordane
15/5135	Energiledelse ved Hammerfest LNG	29 870 000	1 000 000	Statoil Petroleum AS Melkøya	Hammerfest	Finnmark
15/5209	Energiledelse Salmar Organics AS - Avd. Rauma	156 200	140 000	Salmar Organic AS avd Rauma	Rauma	Møre og Romsdal
15/5211	Energiledelse Salmar Organics AS - Avd. Midsund	202 400	190 000	Salmar Organic AS avd Midsund	Midsund	Møre og Romsdal
15/5253	Energiledelse Salmar Organics AS - Avd. Vestnes	198 810	180 000	Salmar Organic AS avd Vestnes	Vestnes	Møre og Romsdal
15/530	Energiledelse Salmar Farming - Avd. Smøla	730 064	200 000	Salmar Farming AS avd Smøla	Smøla	Møre og Romsdal
15/5422	Energiledelse ved Fibo Trespo AS	475 200	200 000	Fibo Trespo AS	Lyngdal	Vest-Agder
15/5568	Energiledelse	2 742 200	200 000	Norsk Kylling AS	Midtre Gauldal	Sør-Trøndelag
15/5725	Energiledelse asfalt produksjon avdeling Tønsberg	1 094 066	200 000	Lemminkäinen Norge AS avd Tønsberg	Tønsberg	Vestfold
15/5727	Innføring av energiledelse ved Maritim Food AS, Fredrikstad	168 000	158 500	Maritim Food AS	Fredrikstad	Østfold
15/5729	Energiledelse anlegg Lillehammer	374 223	200 000	Lemminkäinen Norge AS avd Lillehammer	Lillehammer	Oppland
15/5861	Introduksjon av Energiledelse på Leca fabrikk i Borge	499 661	200 000	Saint-Gobain Byggevarer AS avd Leca Borge	Fredrikstad	Østfold
15/6238	Introduksjon av Energiledelse på Weber fabrikk i Trondheim	345 733	200 000	Saint-Gobain Byggevarer AS avd Trondheim	Trondheim	Sør-Trøndelag
15/635	Energiledelse Kværner Verdal	1 980 000	1 000 000	Kværner Verdal AS	Verdal	Nord-Trøndelag
15/6373	Energiledelse ved WM	3 790 600	1 000 000	Washington Mills AS	Orkdal	Sør-Trøndelag
15/66	Innføring av energiledelse for Miljøvarme VSEB med datter-selskaper	1 144 703	1 000 000	Miljøvarme VSEB AS	Nedre Eiker	Buskerud
15/702	Energiledelse ved Sandnessjøen Fjernvarmeanlegg AS	270 823	200 000	Sandnessjøen Fjernvarmean-legg AS	Alstadhaug	Nordland
15/714	TINE Meieriet Øst Tretten - Etablering av energiledelse am-bisiøs	1 779 988	1 000 000	Tine Meieriet Øst, Tretten	Øyer	Oppland
15/754	Innføring av energiledelse ved Orkla Confectionary&Snacks Norge avd Trondheim	2 506 364	1 000 000	Orkla confectionery & snacks avd. Trondheim	Trondheim	Sør-Trøndelag
15/756	Introduksjon av energiledelse ved Orkla Health AS, avd. Peter Møller	657 022	200 000	Orkla Health AS avd. Peter Møller	Oslo	Oslo
15/791	Innføring av Energileiing og EOS i Marine Harvest - Egges-bønes	1 307 200	1 000 000	Marine Harvest Norway AS avd 60/61/62 Processing	Herøy	Møre og Romsdal
15/793	Innføring Energileiing og EOS i Marine Harvest - Ryfisk	414 070	200 000	Marine Harvest Norway AS avd Industri	Hjelmeland	Rogaland
15/86	Energiledelse - optimalisering av internt energiforbruk og energiproduksjon	1 034 615	940 000	Tafjord Kraftvarme AS	Ålesund	Møre og Romsdal
15/923	Introduksjon av Energiledelse ved Ullevål Universitetssykehus	2 223 200	1 000 000	Oslo universitetssykehus HF Ullevål - adm / fellestjenester	Oslo	Oslo
15/977	KA. Rassmussen	523 927	200 000	Rasmussen K A AS	Hamar	Hedmark
Støtte til ny energi- og klimateknologi i industrien						
14/1056	Søknad om støtte til ny energi- og klimeteknologi TiZir Tita-nium & Iron AS	22 000 000	122 734 320	Tizir Titanium og Iron AS	Odda	Hordaland
14/1585	Alcoa Advanced Smelting Technology	9 700 000	280 448 695	Alcoa Norway ANS	Farsund	Vest-Agder
14/2113	Copper demonstration plant	35 000 000	380 000 000	Glencore Nikkelverk AS	Kristiansand	Vest-Agder
15/1702	Arba Follum - Etablering av demonstrasjonsanlegg for bioba-sert kullsubstitutt	142 500 000	138 000 000	Arba Follum AS	Ringerike	Buskerud
Støtte til introduksjon av ny teknologi						
15/828	Avfukting av 1476m2 veksthus	108 000	282 127	Klavenes gård og gartneri DA	Re	Vestfold
Varmesentral utvidet						
12/1211	Nye Bryne vgs. - varmepumpe med grunnvarme	580 500	464 400	Rogaland fylkeskommune	Klepp	Rogaland
15/2272	Seiersten Idrettspark - energisentraler basert på bergvarme-pumper	567 276	567 276	Frogn kommune	Frogn	Akershus
Støtte til forprosjekt for energitiltak i industrien						
14/2057	Forprosjekt Eramet Norway	-	910 408	Eramet Norway AS	Sauda	Rogaland
15/1497	Utredning fjernvarmeuttak fra renset avløpsvann	-	300 000	Oslo kommune, Vann- og avløpsetaten	Oslo	Oslo
15/1790	Forprosjekt Veidekke Industrier	-	900 000	Veidekke Industrier AS	Moss	Østfold

1 *Enovatilskuddet (3819 tilskudd), Energitiltak i bolig (39 tiltak) samt Støtte til energirådgiving (4 prosjekter) er ikke inkludert i oversikten*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/1988	Hydro Sunndal, Reduksjon av effekttap i strømledende komponenter	-	579 060	Norsk Hydro ASA	Sunndal	Møre og Romsdal
15/2227	Forprosjekt investering i smeltetransformatorer ovn 5	-	1 000 000	Fesil Rana Metall AS	Rana	Nordland
15/2474	Ringnes	-	900 000	Ringnes Supply Company AS	Nittedal	Akershus
15/2715	Forprosjekt Brage Waste Heat Recovery	-	1 000 000	Wintershall Norge AS	Kontinental-sokkelen	Kontinentalsok-kelen
15/3540	Dampproduksjon fra spillvarme hos Nikkelverk Glencore, Kristiansand - Energigjenvinning med SPP HighLift-varmepumpe	-	392 000	Single-Phase Power AS	Kristiansand	Vest-Agder
15/4549	Forprosjekt Ewos Florø	-	1 000 000	EWOS AS	Flora	Sogn og Fjordane
15/4862	Konvertering av LNG til fornybar energi	-	240 000	Kronos Titan AS	Fredrikstad	Østfold
15/630	Installere elektroklorinator i sjøvannssystemet	-	470 194	Statoil ASA	Hammerfest	Finnmark
15/88	Forprosjekt varmegjenvinning Sibelco Åheim	-	375 000	Sibelco Nordic AS avd Åheim Utvinning	Vanylven	Møre og Romsdal
15/91	Forprosjekt Nortura Målselv	-	650 000	Nortura SA	Målselv	Troms
15/926	Forprosjekt, Økt fornybar energiproduksjon ved Borregaard AS, Sarpsborg	-	1 000 000	Borregaard AS	Sarpsborg	Østfold
Støtte til forprosjekt - ny energi- og klimateknologi i industrien						
15/2193	Gjenvinning av næringsstoffer, vann og energi på en klimavennlig måte fra krill limvann - Søknad om Forprosjekt	-	6 100 000	Aker biomarine Antarctic AS	Oslo	Oslo
15/3236	Oppgradering ny ovnsteknologi, nye driftkonsepter og restarting av Herøya 3 og 4	-	7 600 000	Elkem Solar AS	Porsgrunn	Telemark
15/3316	Forprosjekt til 1/100 demonstrasjonsanlegg for hydrogenreduksjon av ilmenitt	-	5 242 464	Tizir Titanium og Iron AS	Odda	Hordaland
15/4379	Videre bruk av Hywind Demo	-	8 470 000	Statoil ASA avd kontor Fornebu	Kontinental-sokkelen	Kontinentalsok-kelen
15/497	Støtte til forprosjekt - ny energi- og klimateknologi i industrien (Søknad)	-	8 950 000	Elkem Solar AS	Kristiansand	Vest-Agder
Transport						
Støtte til biogassproduksjon						
14/2022	Biogassprosjekt ved Norske Skog Saugbrugs AS	46 100 000	52 000 000	Norske Skog Saugbrugs AS	Halden	Østfold
15/4065	Oppgraderingsanlegg for biogass på Veas	93 000 000	31 000 000	Vestfjorden Avløpsselskap (VEAS)	Røyken	Buskerud
Støtte til energitiltak i anlegg						
14/1947	LED armaturer i Ringsaker kommune	775 000	775 000	Ringsaker kommune	Ringsaker	Hedmark
14/2093	Utskifting av eksisterende NAV armaturer med nye LED armaturer langs kommunevegane i Volda.	167 000	160 320	Volda kommune	Volda	Møre og Romsdal
14/2114	Utskifting av Veilysarmaturer til LED armaturer	203 000	203 000	Vennesla kommune	Vennesla	Vest-Agder
15/1413	Utfasing av kvikksølvlampar, overgang til LED	130 000	150 000	Stryn kommune	Stryn	Sogn og Fjordane
15/1958	LED gatebelysning Rana Kommune	460 376	460 000	Rana kommune	Rana	Nordland
15/32	Nye gatelys	104 400	105 000	Gausdal kommune	Gausdal	Oppland
15/54	Konvertering gatelys	385 000	385 000	Flekkefjord kommune	Flekkefjord	Vest-Agder
15/68	Søknad om støtte til energi besparing i strømforsyningen til trikkenettet	6 100 000	5 200 000	Sporveien Oslo AS	Oslo	Oslo
15/827	Utskifting av vei-, gate- og parkbelysning i Oslo	10 270 000	10 270 000	Oslo kommune, Bymiljøetaten	Oslo	Oslo
Støtte til ny energi- og klimateknologi i transport						
15/2802	Elektrisk Lastebil – Asko Norge AS	349 500	2 250 000	Asko Norge AS	Landsdekkende	Landsdekkende
15/2803	HyNor A1	2 600 000	7 760 000	Nel Fuel Norway AS	Skedsmo	Akershus
15/3829	Batterihybrid Installasjon - Viking Energy	4 541 547	7 440 000	Eidesvik Shipping AS	Kontinental-sokkelen	Kontinentalsok-kelen
15/405	Hybriddrift av Elektriske Kraner	1 014 361	1 150 000	Grieg Star AS	Bergen	Hordaland
15/4196	PM-vinsjmotor	7 200 000	2 347 500	Halstensen Granit AS	Landsdekkende	Landsdekkende
15/4215	Melfabrikk	12 622 500	5 700 000	Halstensen Granit AS	Landsdekkende	Landsdekkende
15/5411	Miljøferjer i Hordaland	62 133 000	133 600 000	Hordaland Fylkeskommune	Bergen	Hordaland
Støtte til introduksjon av ny teknologi						
15/1804	Hypertermofil forbehandling for biogass	4 010 000	7 200 000	Lindum AS	Drammen	Buskerud
Støtte til introduksjon av energiledelse i transport, industri og anlegg						
15/3937	Innføring av energiledelse - Brønnøysund lufthavn	164 044	131 295	Avinor AS Avd Brønnøysund Lufthavn	Brønnøy	Nordland
15/3938	Innføring av energiledelse - Bardufoss lufthavn	121 350	96 884	Avinor AS Avd Bardufoss Lufthavn	Målselv	Troms
15/3939	Innføring av energiledelse - Hammerfest lufthavn	244 678	131 294	Avinor AS Avd Hammerfest Lufthavn	Hammerfest	Finnmark
15/3940	Innføring av energiledelse - Lakselv lufthavn	205 882	123 794	Avinor AS Avd Banak Lufthavn	Porsanger Porsángu Porsanki	Finnmark
15/4120	Innføring av energiledelse - Svalbard lufthavn	442 215	180 704	Avinor AS Avd Svalbard Lufthavn	Svalbard	Svalbard
15/4342	Energiledelse	2 254 960	1 000 000	Leiv Sand Transport AS	Levanger	Nord-Trøndelag
15/5449	Innføring av Energiledelse ved K.A. Aurstad AS	4 545 000	1 000 000	K A Aurstad AS	Ørsta	Møre og Romsdal

APPENDIX B **PROJECT LIST 2015** - *NOT TRANSLATED TO ENGLISH*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
Støtte til ladeinfrastruktur						
15/5254	E18 Oslo-Grenland-Kristiansand	-	489 000	Fortum Markets AS	Landsdekkende	Landsdekkende
15/5256	E6 Oslo-Trondheim	-	1 230 000	Fortum Markets AS	Landsdekkende	Landsdekkende
15/5260	RV3 Kolomoen-Ulsberg	-	4 700 000	Fortum Markets AS	Landsdekkende	Landsdekkende
15/5261	E16 Sandvika-Bergen	-	1 725 000	Fortum Markets AS	Landsdekkende	Landsdekkende
15/5272	RV7 Hønefoss-Gol og RV52 Gol-Borlaug	-	740 000	Fortum Markets AS	Landsdekkende	Landsdekkende
15/5274	E39 Kristiansand-Stavanger	-	1 650 000	Fortum Markets AS	Landsdekkende	Landsdekkende
Anlegg						
Støtte til energitiltak i anlegg						
14/2000	Norsk Bio - Byggvarme fra fast biobrensel	1 480 000	1 240 000	Norsk Bio AS	Landsdekkende	Landsdekkende
15/1052	Undervarmeprosjektet på Korsvollbanen	400 000	450 000	Korsvoll Idrettslag	Oslo	Oslo
15/1954	Nytt varmeanlegg hos Skardalen Settefisk	1 080 000	800 000	Skardalen Settefisk AS	Gáivuotna Kåfjord	Troms
15/2042	Landstrømanlegg for oppdrettsanlegg	8 400 000	10 000 000	Salmar Farming AS	Frøya	Sør-Trøndelag
15/2443	Utskiftning av lys	700 000	840 000	Sapa Profiler Magnor AS	Eidskog	Hedmark
15/2445	Landstrøm på fôrflåter på Kleiva, Bjørnstein og i Gregusvika	754 500	390 000	Gratanglaks AS	Gratangen	Troms
15/2501	Energieffektivisering ventilasjon Stiftelsen Trondheim Pirbad	1 305 000	1 400 000	Stiftelsen Trondheim Pirbad	Trondheim	Sør-Trøndelag
15/2559	Landstrøm Ystevika	260 000	257 073	Trollvika Drift AS	Skånland	Troms
15/294	Lefdal Mine Datacenter AS - Investering i kjølesystem	6 200 000	7 000 000	Lefdal Mine Datacenter AS	Eid	Sogn og Fjordane
15/3232	Lørenbanen	1 658 000	1 658 000	Sporveien Oslo AS	Oslo	Oslo
15/3691	Klemetsrudanlegget AS - Økning fjernvarmeleveranser Oslo - Forbrenningslinje 3 - Varmepumpeprosjekt 2015-2016	40 000 000	42 000 000	Klemetsrudanlegget AS	Oslo	Oslo
15/3931	Undervarme Røa kunstgress	400 000	480 000	Røa Allianseidrettslag	Oslo	Oslo
15/4277	Støtte til energibruk til anlegg	408 000	490 000	Kristiansund kommune	Kristiansund	Møre og Romsdal
15/964	Røyken Svømmehall	1 010 000	940 000	Røyken Eiendom AS	Røyken	Buskerud
Støtte til introduksjon av ny teknologi						
15/498	Demonstrasjonsprogram for SmartGrid-teknologi	500 000	14 687 000	Lyse Elnett AS	Stavanger	Rogaland
Yrkesbygg						
Støtte til eksisterende bygg						
14/1239	Nordlandet ungdomsskole - Rehabilitering	48 600	-	Kristiansund kommune	Kristiansund	Møre og Romsdal
14/1939	Energieffektiv drift	379 310	474 138	Follum Eiendom AS	Ringerike	Buskerud
14/1965	Rehabilitering av blokkajordet barnehage	173 162	164 168	Omsorgsbygg Oslo KF	Oslo	Oslo
14/1978	Årstad vgs, A-bygget	1 222 205	1 527 757	Hordaland Fylkeskommune	Bergen	Hordaland
14/1981	Enøk-tiltak i og rundt Treskeveien 5 4043 Hafrfjord	459 949	489 637	Revheim Eiendom AS	Stavanger	Rogaland
14/2006	Varmepumpe	339 312	273 165	Ringsaker kommune	Ringsaker	Hedmark
14/2010	IKM-Mekaniske, Nærbø	58 920	73 651	Bjorhaugsletta 22-85 AS	Stavanger	Rogaland
14/2018	Energibesparelser byggevarehus nesmoen	190 240	128 000	Beia Eiendom AS	Nes	Buskerud
14/2021	Oppgradering eksisterende kontorlokaler Vestre Braarudgate 2	132 304	165 380	Kompetansehuset AS	Horten	Vestfold
14/2025	Snarøyveien 34	175 064	204 009	Sethia Nordic AS	Ås	Akershus
14/2041	Magnus Poulssons vei 7	479 164	598 956	NPJ AS	Bærum	Akershus
14/2043	Toppsystem for bygg, Sliperiet, Plateverkstedet og Fritzøe Brygge	406 594	508 244	Fritzøe Eiendom AS	Larvik	Vestfold
14/2044	Stamas Solutions AS, Hammaren 9A	138 052	76 773	Stamas Solutions AS	Stavanger	Rogaland
14/2048	Tankbåtvegen 1, rehabilitering	214 467	268 085	Tankbåtveien 1 AS	Stavanger	Rogaland
14/2049	Kulturbygget AS	295 023	365 338	Hemne Prosjekt AS	Hemne	Sør-Trøndelag
14/2079	Energibesparelser i eksisterende bygg 2014	1 300 327	1 625 409	Trelleborg Offshore Norway AS	Nedre Eiker	Buskerud
14/2112	Rissa EPC Fase 2, del 2 resterende bygg	1 547 977	1 053 575	Rissa kommune	Rissa	Sør-Trøndelag
14/2117	Energibesparende tiltak skolebygg Sandnes kommune	3 267 678	3 502 523	Sandnes kommune	Sandnes	Rogaland
15/102	Energieffektivisering av bygg	149 025	172 301	Eskoleia AS	Kongsvinger	Hedmark
15/1031	Sykkylven kommune arbeider med energikartlegging av sine bygninger og ønsker å komme i gang med investeringer som reduserer energiforbruket.	2 527 012	2 649 530	Sykkylven kommune	Sykkylven	Møre og Romsdal
15/1035	Oppgradering Varden skole, Bygg A	421 030	526 288	Bergen kommune	Bergen	Hordaland
15/1037	Kirkegaten 15 - ombygging 5.-9. etg inkl fellesarealer	825 152	1 031 440	Kirkegaten 15 DA	Oslo	Oslo
15/1039	Søknad Lillo Studenthus Sandakerveien 99 Oslo, revidert søknad	902 364	949 524	Studentsamskipnaden i Oslo og Akershus	Oslo	Oslo
15/1051	Bulandet Fiskeindustri A/S, utviding 2015.	178 350	120 000	Bulandet Eigedom AS	Askvoll	Sogn og Fjordane
15/1069	Energieffektiv SPAR Grandsenteret	249 637	312 047	NG Spar Innland AS	Hamar	Hedmark
15/11	EPC Gausdal kommune	4 103 077	4 988 101	Gausdal kommune	Gausdal	Oppland
15/1121	Enøk Traktor Eiendom AS	142 054	134 918	Traktor Eiendom AS	Kristiansand	Vest-Agder
15/1159	dhusgaten 1-3	348 815	265 193	Rådhusgaten 1-3 Eiendom AS	Oslo	Oslo
15/118	Bugården, Sandefjord og Sandar kirker	645 367	432 396	Sandefjord kommune	Sandefjord	Vestfold

1 *Enovatilskuddet (3819 tilskudd), Energitiltak i bolig (39 tiltak) samt Støtte til energirådgiving (4 prosjekter) er ikke inkludert i oversikten*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/120	Rehabilitering forretningsbygg	1 109 370	1 237 438	Båtmannsgt 4 AS	Trondheim	Sør-Trøndelag
15/1205	Utbyttelse av overskuddsvarme Asko Kalbakken	2 917 143	2 758 512	Asko Norge AS	Oslo	Oslo
15/1211	Strandvegen 32, Brumunddal	208 049	163 986	Tema Eiendom AS	Ringsaker	Hedmark
15/1221	Rehabiliteringsprosjekt Skodje - redusert miljøpåvirkning	398 034	446 299	Nordic Supply AS	Ålesund	Møre og Romsdal
15/1287	Oslo Konserthus	620 065	192 272	Oslo Konserthus AS	Oslo	Oslo
15/1289	Tollbugata 8	1 315 402	1 205 870	T8 Holding AS	Oslo	Oslo
15/1290	Energitiltak Rådhusteateret	37 532	46 915	Kongsvinger kommune	Kongsvinger	Hedmark
15/132	Utfasing av olje som grunnlast	2 430 686	1 657 200	Statsbygg	Landsdekkende	Landsdekkende
15/1324	Varmepumpe Borglia barnehage	41 592	26 400	Frosta kommune	Frosta	Nord-Trøndelag
15/1325	EPC Flesberg	746 909	897 384	Flesberg Kommune	Flesberg	Buskerud
15/1341	Enøktiltak PTS1	1 165 104	1 456 380	Stiftelsen SINTEF	Trondheim	Sør-Trøndelag
15/140	Energiledelse og enøktiltak Vestby kommune	5 851 030	5 946 014	Vestby kommune	Vestby	Akershus
15/1411	Energieffektivisering av Omsorgsbygg sine sykehjem	4 921 114	6 133 993	Omsorgsbygg Oslo KF	Oslo	Oslo
15/1419	Lys og ventilasjon Schenker Kristiansand	100 334	125 418	Schenker AS	Kristiansand	Vest-Agder
15/1433	Rehabilitering Baker Østbysvei - Kontorer, Tesla verksted og salgsareal	1 351 525	1 689 407	Baker Østbyes vei 5-13 AS	Bærum	Akershus
15/146	Enøktiltak Pharmaq Overhalla	528 461	413 526	Pharmaq Holding AS	Overhalla	Nord-Trøndelag
15/150	Energitiltak Omsorgsenter og Ungdomsskole	1 071 245	1 307 070	Lindesnes kommune	Kristiansand	Vest-Agder
15/1563	Galleri Oslo	2 575 130	2 633 157	Sameiet Galleriet	Oslo	Oslo
15/1567	Kirkegate 25-27 Lillestrøm	24 793	18 197	Nordiske Eiendommer	Ås	Akershus
15/1581	Fauske Helsetun	413 524	201 424	Fauske Eiendom KF	Fauske	Nordland
15/159	IKM-Mekaniske bygg2, Nærbø	23 474	29 344	Bjorhaugsletta 22-85 AS	Hå	Rogaland
15/1606	Energitiltak eksisterende bygg NMR	144 625	144 597	Universitetet i Bergen Eiendom AS	Bergen	Hordaland
15/162	Skedsmo kommune - Gjennomføring av tiltak i EPC-prosjekt (pakke 1)	6 106 151	7 126 221	Skedsmo kommune	Skedsmo	Akershus
15/1626	Energieffektiviseringstiltak for Jordfagbygget på Norges miljø- og biovitenskapelige universitet	348 364	363 997	Norges Miljø- og biovitenskaplige universitet	Ås	Akershus
15/1646	Holbergsgate 21 - Enøkprosjekt og overgang fra elektrisk energi	1 038 093	856 729	Eiendomsspar AS	Oslo	Oslo
15/1678	Dronning Mauds gate 11	1 430 655	1 788 319	Vestre Vika DA	Oslo	Oslo
15/1683	Sol - varme og strøm - campinganlegg	48 941	40 863	Lyngstrand Camping Selj	Søndre Land	Oppland
15/1684	Diakonhjemmet sykehus	399 273	499 092	Diakonhjemmet sykehus AS	Oslo	Oslo
15/1685	Lysaker Torg 6-12 - energieffektivisering	1 918 531	2 398 164	Lysaker Torg 6-12 ANS	Oslo	Oslo
15/1687	PBM - Teknisk oppgradering - Portefølje av bygg	942 958	950 017	Pareto Business Management AS	Landsdekkende	Landsdekkende
15/1703	Rehabilitering Østerlide	67 896	84 870	Stavanger Røde Kors	Stavanger	Rogaland
15/1716	Jevnaker kommune - gjennomføring av energitiltak (fase 2) i EPC-prosjekt	2 358 629	2 543 506	Jevnaker kommune	Jevnaker	Oppland
15/1749	Oslo Areal - byggportefølje rehabilitering til mer energieffektive bygg	1 892 636	1 338 138	Oslo Areal AS	Landsdekkende	Landsdekkende
15/1771	Rehabilitering tekniske anlegg	1 043 303	1 103 280	Fjell kommune eigedom	Fjell	Hordaland
15/1776	Rehabilitering fase 3 - Grieghallen	264 049	330 062	Grieghallen AS	Bergen	Hordaland
15/1806	Rehabilitering av Vonheim	71 340	48 000	Kodal Ungdomslag	Andebu	Vestfold
15/1813	Energisparing eksisterende kommunale bygg	1 947 039	2 159 300	Tynset kommune	Tynset	Hedmark
15/1841	Enøktiltak for Bjerkely folkehøyskole	155 970	99 000	Bjerkely Folkehøgskole	Åsnes	Hedmark
15/1878	Enova søknad 2	305 749	222 398	KA Kirkelig Arbeidsgiver- og interesseorganisasjon	Landsdekkende	Landsdekkende
15/1879	Breivika Utvikling AS	980 332	1 225 415	Breivika Utvikling AS	Tromsø	Troms
15/1880	Energisparing hos Fjordlaks Aqua AS (Eksisterende Bygg)	1 596 537	1 995 672	Fjordlaks aqua AS	Ålesund	Møre og Romsdal
15/1887	E-kutt 1 i Norsk Butikkdrift AS	2 151 812	2 689 765	Coop Norge SA	Oslo	Oslo
15/191	Energitiltak Den Lille dyrehagen	570 758	354 520	Heia-Eiendom AS	Gjerstad	Aust-Agder
15/1929	Berg gård - Omsorgsboliger, dagsenter og barnehage	1 366 837	1 291 511	Omsorgsbygg Oslo KF	Oslo	Oslo
15/1990	Energireduksjon Rødmyrlia 39	351 196	438 996	Bama Storkjøkken Telemark AS	Skien	Telemark
15/2000	ROM for ENØK - ENOVA prosjekt 1 (2015-2018)	4 444 355	5 418 194	Rom Eiendom AS	Landsdekkende	Landsdekkende
15/2036	Nygårdsporten G, F og D-blokk	2 534 329	2 383 531	Odfjell Eiendom AS	Bergen	Hordaland
15/2040	Oppgradering Hå Rådhus	396 523	359 700	Hå kommune	Hå	Rogaland
15/2076	Scandic Vadsø - nytt ventilasjonsanlegg	403 169	327 636	Rica Eiendom Holding AS	Alta	Finnmark
15/2108	Enova søknad 3	129 254	113 225	KA Kirkelig Arbeidsgiver- og interesseorganisasjon	Landsdekkende	Landsdekkende
15/2118	DNB klimavennlig	319 656	306 890	Måløy eiendomsutvikling	Vågsøy	Sogn og Fjordane
15/2119	Nytt varmeanlegg ved Hunn skole samt enøktiltak med ventilasjonen.	875 126	493 000	Overhalla kommune	Overhalla	Nord-Trøndelag
15/2134	Renovering og rehabilitering av Narvik Rådhus	1 418 897	1 613 684	Narvik kommune	Narvik	Nordland
15/2140	Iveland Skole	262 250	261 933	Iveland kommune teknisk etat	Iveland	Aust-Agder
15/2164	Fønix, Ekte treningsglede ny ventilasjon.	240 948	239 578	Brumunddal Næringspark AS	Ringsaker	Hedmark

APPENDIX B **PROJECT LIST 2015** - *NOT TRANSLATED TO ENGLISH*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/2170	Energisparing hos ABS AS (Eksisterende Bygg)	1 252 062	1 503 950	ABS AS	Ålesund	Møre og Romsdal
15/2188	Enøktiltak for Rosenhoffgata 1	207 960	132 000	Stiftelsen Kaare Berg	Oslo	Oslo
15/2194	Nytt ventilasjonsanlegg samt fasaderehabilitering - administrasjonsbygg Varanger Kraft	156 434	51 248	Varanger Kraft AS	Vadsø	Finnmark
15/2195	Enøktiltak i Pilestredet 27	1 019 542	1 274 428	Pilestredet 27 ANS	Oslo	Oslo
15/2196	Enøktiltak Spareebank 1 - fase 1	3 991 574	4 989 469	SpareBank 1 Forsikring AS	Oslo	Oslo
15/2225	Rehabilitering og Enøktiltak I Blokk 1 - Høiax, Fredrikstad	232 884	222 481	Trippeveien Eiendom AS	Fredrikstad	Østfold
15/2226	Rehabilitering av Nygata 3 fra 1850	147 426	171 931	Nygata 3 AS	Grimstad	Aust-Agder
15/2276	Rehabilitering av eksisterende kontorbygg - Herredhuset	215 077	204 872	Verdal kommune	Verdal	Nord-Trøndelag
15/2277	Oppgradering varme.isolasjon og ventilasjon eksisterende bygg. Varme ventilasjon i nytt tilbygg.	157 502	158 448	Menigheten Betel Haga	Nes	Akershus
15/2305	MCB - Støtte til eksisterende bygg	7 888 029	9 860 037	Lars Hillesgate 30 AS	Bergen	Hordaland
15/2307	Kongen - nytt ventilasjonsanlegg og arealer med ny belysning	51 618	51 420	Bulk Eiendom AS	Oslo	Oslo
15/2308	EPC Orkdal kommne	2 464 329	2 737 287	Orkdal kommune	Orkdal	Sør-Trøndelag
15/2309	Støtte eksisterende bygg - 2015	303 512	379 391	Trondheim Eiendom	Trondheim	Sør-Trøndelag
15/2319	Høgås Teknologipark AS	723 528	714 433	Høgås Teknologipark AS	Notodden	Telemark
15/2370	Prinsensgate 32	79 720	99 651	Trym Bolig AS	Trondheim	Sør-Trøndelag
15/2380	Enova søknad 5	305 148	157 145	KA Kirkelig Arbeidsgiver- og interesseorganisasjon	Landsdekkende	Landsdekkende
15/2384	Fyrstikkalleen 7	108 578	135 723	Fyrstikkalleen AS	Oslo	Oslo
15/2405	Bergen Maritime vgs	121 312	77 865	Hordaland Fylkeskommune	Bergen	Hordaland
15/2414	Bruksomta Næringapark - Energieffektive bygg	1 003 511	1 190 663	Brukstomta Næringspark AS	Bindal	Nordland
15/2441	Årstad vgs, C - bygget	835 355	1 044 195	Hordaland Fylkeskommune	Bergen	Hordaland
15/2446	Rehabilitering tak og ventilasjon Fredrikstad	264 826	331 033	Schenker AS	Fredrikstad	Østfold
15/2463	ENØK gjennomføring - Dronning Eufemias gate 16	451 089	278 208	Barcode 112 AS	Oslo	Oslo
15/2466	EPC i Spydeberg kommune	2 152 123	2 288 610	Spydeberg kommune	Spydeberg	Østfold
15/2477	Flisfyring Kvisle	1 477 500	850 000	Kvisle Utviklingspark AS	Våler	Hedmark
15/2491	Diakonhjemmet eiendomsavdeling Enovaprogram	2 443 885	3 006 819	Det Norske Diakonhjem	Oslo	Oslo
15/2499	Rehabilitering	171 042	114 598	Prestegårdsstien 6 AS	Namsos	Nord-Trøndelag
15/2549	Oppgradering av Tårnbygget NMBU	478 674	598 343	Norges Miljø- og biovitenskaplige universitet	Ås	Akershus
15/2556	Energieffektivisering AS Bøndernes Hus	789 879	329 286	AS Bøndernes Hus	Trondheim	Sør-Trøndelag
15/2593	Rolf E Stenersen alle 28B 30 32 34 36	401 783	502 230	Studentsamskipnaden i Oslo og Akershus	Oslo	Oslo
15/2641	Rehabiltering ombygging av Birkeland skole (gammel del)	276 301	345 377	Birkenes kommune	Birkenes	Aust-Agder
15/2672	Rehab Rolf Wickstrømsveien 15	285 237	356 547	Aberdeen Eiendomsfond Norge I AS	Oslo	Oslo
15/2732	E-kutt 2 i Norsk Butikkdrift AS	698 900	873 625	Coop Norge SA	Oslo	Oslo
15/2737	E-kutt 3 i Norsk Butikkdrift AS	3 607 284	4 509 105	Coop Norge SA	Oslo	Oslo
15/2764	Energieffektiv konvertering av Bunnpris Aure og Bismo	539 763	674 704	Bunnpris Møre AS	Molde	Møre og Romsdal
15/2765	Energieffektiv konvertering av Bunnpris Sartor	612 795	555 097	Bunnpris Vest AS	Fjell	Hordaland
15/2771	Energikutt i REMA Franchise Norge 2015	2 058 867	1 806 963	Rema Franchise Norge AS	Oslo	Oslo
15/278	Fyringsanlegg/ventilasjon	107 010	72 000	Lalm Samfunnshus SA	Vågå	Oppland
15/2795	Enøk II - Akersgata 35-39 og Gullhaug Torg 2	1 607 059	2 008 824	Storebrand Eiendom Holding AS	Oslo	Oslo
15/2798	1020901 Steinkjer passivhus	917 848	2 753 544	Statsbygg	Steinkjer	Nord-Trøndelag
15/2924	Kongsberg Teknologipark - Enovasøknad 2015	850 917	365 670	Kongsberg Teknologipark AS	Kongsberg	Buskerud
15/295	Fornying av eksisterende ventilasjons- og varmeanlegg fra 1979 Hovedbygg	173 300	110 000	Union Hotel Eiendom AS	Ålesund	Møre og Romsdal
15/2962	Ombygging Storsenteret	206 379	129 185	H I Giørtz Sønner AS	Ålesund	Møre og Romsdal
15/2970	Kongeveien 101-Kongsvinger	516 137	345 812	Or Eiendom AS	Kongsvinger	Hedmark
15/3091	Isola Porsgrunn - Tiltak i administrasjonsbygg	103 050	128 813	Isola AS	Porsgrunn	Telemark
15/3092	Energitiltak etter energimerking av utesteder	1 161 983	1 452 479	Akershus Universitetssykehus HF	Skedsmo	Akershus
15/3093	Enova søknad 6	290 247	238 068	KA Kirkelig Arbeidsgiver- og interesseorganisasjon	Landsdekkende	Landsdekkende
15/3126	Etterisolering Skjøndal	148 798	185 998	Trøgstad kommune	Trøgstad	Østfold
15/3129	Enova søknad 4	2 103 201	1 261 584	KA Kirkelig Arbeidsgiver- og interesseorganisasjon	Landsdekkende	Landsdekkende
15/3130	Rehabilitering av Tofte skole	456 773	447 442	Hurum Eiendomsselskap KF	Hurum	Buskerud
15/3132	Søknad basert på Kartlegging av ENØK-tiltak - Br. Jangaard AS	4 572 637	5 715 797	Brødrene Jangaard AS	Ålesund	Møre og Romsdal
15/3207	Nedre Slottsgate13-15	1 322 915	1 449 990	Promenaden NSG 13 AS	Oslo	Oslo
15/3226	Kjøita 40	249 236	311 545	Kruse Smith Gruppen AS	Kristiansand	Vest-Agder
15/3267	Pillefabrikken	2 398 426	2 208 283	Gjellebekkstubben 2 AS	Lier	Buskerud

1 *Enovatilskuddet (3819 tilskudd), Energitiltak i bolig (39 tiltak) samt Støtte til energirådgiving (4 prosjekter) er ikke inkludert i oversikten*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/3284	Rehabilitering av eksisterende byggninger	329 218	411 523	Ålgård Offset AS	Stavanger	Rogaland
15/33	Enøk tiltak på Skolebygning Ansgarskolen	59 866	74 833	Ansgar Drift og Eiendom AS	Kristiansand	Vest-Agder
15/3320	Utfasing av eksisterende oljefyringsanlegg og bygging av nytt biovarmeanlegg basert på flis som brennsel.	2 659 500	1 530 000	Onsrud Gård AS	Ullensaker	Akershus
15/3332	Utskifting av oljekje og erstatning med varmepumpe. Utskifting av vinduer	106 823	91 079	Ohren Eiendom AS	Flatanger	Nord-Trøndelag
15/339	Rehab av Valldal samfunnshus.	132 118	161 557	Norddal kommune	Norddal	Møre og Romsdal
15/34	Nytt ventilasjons- og avfuktingsanlegg Våganhallen	258 796	253 302	Vågan Eiendom KF	Vågan	Nordland
15/3489	Enova søknad 7	156 948	74 443	KA Kirkelig Arbeidsgiver- og interesseorganisasjon	Landsdekkende	Landsdekkende
15/3490	EPC Bærum kommune (1)	909 164	989 567	Bærum kommune	Bærum	Akershus
15/3499	Energieffektiv SPAR Steinsland	211 264	245 369	Klepsvik Eiendom AS	Sund	Hordaland
15/3538	Energieffektivisering bygg Gumpengruppen	1 620 585	1 705 857	Gumpens Auto AS	Kristiansand	Vest-Agder
15/357	Verdal Helsesenter	414 346	441 163	Verdal kommune	Flatanger	Nord-Trøndelag
15/3637	Rehabilitering av VVS anlegg	633 897	792 372	Clarence Jensen Eiendom AS	Oslo	Oslo
15/3662	Opprusting industribygg	166 965	141 533	A. Kvam AS	Ålesund	Møre og Romsdal
15/3665	Energieffektivisering for Kjørbekkdalen 14 i Skien	606 183	757 221	Kjørbekkdalen 14 AS	Skien	Telemark
15/367	EOS/SD/Toppsystem for Mariakirken i Bergen	26 046	22 087	KA Kirkelig Arbeidsgiver- og interesseorganisasjon	Bergen	Hordaland
15/3688	Avinor Kontrollsentral tiltak	597 691	339 210	Avinor Flysikring AS	Røyken	Buskerud
15/3692	Oppgradering av bygg i Lindesnes kommune	1 038 020	1 190 901	Lindesnes kommune	Kristiansand	Vest-Agder
15/3693	Rehabilitering Nomehallen	405 076	438 906	Nome kommune	Nome	Telemark
15/3711	UPL - Magasinet	318 831	398 539	Utstillingsplassen Eiendom AS	Alvdal	Hedmark
15/3712	Lyngmyrhallen	223 320	215 175	Lyngmyrhallen AS	Tvedestrand	Aust-Agder
15/376	Energieffektivisering Tvetenveien 4	211 190	263 988	Arepo Eiendom AS	Oslo	Oslo
15/377	Energieffektivisering Slynga 10	107 773	134 717	Pinnås Eiendom AS	Rælingen	Akershus
15/378	Energieffektiv butikketablering SPAR Dokka	412 406	404 151	Land Handel AS	Nordre Land	Oppland
15/3797	Rehabilitering Hwa41	408 744	298 928	Capnova Handelseiendommer AS	Tønsberg	Vestfold
15/3823	Utskifting till LED belysning og SD anlegg	778 443	973 054	Trysilfjellet Hotelldrift AS	Trysil	Hedmark
15/3910	Youngskvartalet	1 220 892	1 123 019	Youngskvartalet AS	Oslo	Oslo
15/3929	Øvre Vollgate 9	155 989	194 986	Øvre Vollgt 9 AS	Oslo	Oslo
15/3973	ENØK-tiltak Familiesenteret og tilknyttede bygninger	186 220	231 683	Eidsberg kommune	Eidsberg	Østfold
15/3974	Enøk investeringer Vip - senteret Verdal	594 226	742 784	Siva Verdal Eiendom AS	Verdal	Nord-Trøndelag
15/4066	Diakonhjemmet sykehus - hovedsøknad	2 329 979	2 912 474	Diakonhjemmet sykehus AS	Oslo	Oslo
15/407	Seilmakergt 1 - Energitiltak - Div Ombygging	927 050	957 022	Håkkagata Eiendom AS	Steinkjer	Nord-Trøndelag
15/4095	Energieffektiv konvertering Bunnpris Tjensvoll	574 491	494 859	Bunnpris Vest AS	Stavanger	Rogaland
15/4152	Oppgradering automatikk for ventilasjonsanlegg på Meløy	130 014	162 518	Meløy Eiendom KF	Meløy	Nordland
15/4169	E-kutt 4 i Norsk Butikkdrift AS	4 198 931	5 248 665	Coop Norge SA	Oslo	Oslo
15/4192	Trysil videregående skole. Oppgradering 2015 Fløy B samt utfasing el i ventilasjon til fjernvarme	789 588	659 709	Hedmark Fylkeskommune	Trysil	Hedmark
15/4216	Wergelandsveien 15	319 433	399 292	Lektorenes Hus - Wergelandsveien 15 AS	Oslo	Oslo
15/424	Enøktiltak for hotellbygg i Statsråd Mathiesens vei 8 og 10	1 274 360	1 089 724	Norwegian Hospitality Group AS	Oslo	Oslo
15/425	Energieffektivisering av Kipervik gata 9	406 354	425 203	Brødrene Jangaard AS	Ålesund	Møre og Romsdal
15/427	Energieffektivisering Nedre Storgate 9	804 039	642 314	G Kjemprud Nedre storgate AS	Drammen	Buskerud
15/430	Eiendomsspar - Energieffektivisering av tre bygg	1 039 341	1 047 424	Eiendomsspar AS	Oslo	Oslo
15/4305	Elverum videregående skole-rehab	2 563 702	3 204 628	Hedmark Fylkeskommune	Elverum	Hedmark
15/435	Enøktiltak for bygningsmassen til Askvoll kommune	1 125 403	1 204 167	Askvoll kommune	Askvoll	Sogn og Fjordane
15/4372	Energibesparelse	292 379	218 616	Elmico AS	Sør-Odal	Hedmark
15/4377	Energikutt i Rema Franchise Norge 2015-2	2 223 506	2 779 383	Rema Franchise Norge AS	Oslo	Oslo
15/4378	Søknad basert på Kartlegging av energitiltak sentrum og skøyen porteføljen. Pulje 2	3 968 664	4 960 831	SpareBank 1 Forsikring AS	Oslo	Oslo
15/4407	Ventilasjon, Ørnes omsorgshjem	458 598	311 775	Meløy Eiendom KF	Bodø	Nordland
15/4453	Varmepumpe Lægreid industribygg seksjon 32D	17 330	11 000	Tømrar Arne Bu	Bergen	Hordaland
15/4482	Ringsaker videregående skole rehab bygg A	1 676 729	1 501 578	Hedmark Fylkeskommune	Ringsaker	Hedmark
15/4523	TH Spektrum, Osterhaugsgt 11, Hausmannsgt 33, Akersbakken 27	3 330 698	3 230 970	Stormgård AS	Oslo	Oslo
15/4541	Høvleriveien 10	330 786	298 193	Energihuset Mo AS	Rana	Nordland
15/4567	Oppgradering av eksisterende bygg	1 478 100	1 527 750	Hunsfos Næringspark	Kristiansand	Vest-Agder
15/4570	Energisparing hos Fiskerstrand Verft AS (Eksisterende Bygg)	342 773	428 467	Fiskerstrand Verft AS	Ålesund	Møre og Romsdal
15/4596	Renovering av hotell	288 456	167 266	Efinor Jobbhotell AS	Flora	Sogn og Fjordane
15/4597	EPC Bærum kommune (2)	3 294 762	3 335 323	Bærum kommune	Bærum	Akershus
15/461	ENØK gjennomføring Kirkeveien 61	225 680	282 100	Kirkeveien 61 AS	Oslo	Oslo
15/4642	Utskifting fra oljefyr til bergvarme	142 680	96 000	Skjelfoss Psykiatriske Senter	Hobøl	Østfold

APPENDIX B **PROJECT LIST 2015** - *NOT TRANSLATED TO ENGLISH*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/47	Ombygging Rundehaugen 19	355 287	420 777	Rundehaugen 19 AS	Stord	Hordaland
15/470	Bilhuset AS, Konverting til vannbåren varme og fjernvarme-tilknytning	425 888	285 345	Eidskogveien 48 AS	Alvdal	Hedmark
15/4720	Utskifting av lysarmatur	64 489	80 611	Felleskjøpet Agri SA FKA Stavanger Havnesilo	Stavanger	Rogaland
15/4793	Rehabilitering av tek anlegg - Dampsagveien 25, 2004 LS	35 933	44 917	Nitelva Helsesenter AS	Skedsmo	Akershus
15/4794	Bytte lys Norrek	169 963	212 454	Norrek Dypfrys AS	Larvik	Vestfold
15/4828	Rehabilitering Svend Haugsgate 9	485 291	606 614	Svend Haugs gate 9 AS	Drammen	Buskerud
15/4842	Rehabilitering av fløy 1 i TF-bygningen - Drøbakveien 31	706 457	883 072	Norges Miljø- og biovitenskap-lige universitet	Ås	Akershus
15/4861	Furu Enøk	48 981	61 227	Furu Skole AS	Alvdal	Hedmark
15/4866	Energikutt i Rema Franchise Norge 2015-3	6 568 911	8 211 139	Rema Franchise Norge AS	Oslo	Oslo
15/4879	Enøktiltak for Trondheimsveien 273, Oslo - Tribunebygg ved Bjerke Travbane	845 229	1 056 536	Bjerke Travbane Eiendom AS	Oslo	Oslo
15/488	Nye tekniske installasjoner Arendal vgs. avd. Tyholmen, avd. Barbu og Setesdal vgs. avd. Hovden	840 690	1 050 863	Aust-Agder fylkeskommune	Arendal	Aust-Agder
15/491	Ombygging av eksist. kontorfløy med bygningsmessige tiltak inkl.nye tekniske anlegg	43 139	53 924	Trønderbilene AS	Levanger	Nord-Trøndelag
15/4998	Konvertering fra elektrisk til vannbåren oppvarming/ventila-sjon fjernvarme	254 708	170 655	Felleskjøpet Rogaland Ag-der SA	Kristiansand	Vest-Agder
15/5060	Investering i energibesparende tiltak for kommunal bygnings-masse i Lyngdal kommune	1 753 013	1 959 961	Lyngdal kommune	Kristiansand	Vest-Agder
15/5090	Energitiltak i kommunale bygg - Trinn 2	3 295 754	4 055 312	Stavanger kommune	Stavanger	Rogaland
15/5103	Rømskog kommune, 5 bygg	307 732	384 665	Rømskog kommune	Rømskog	Østfold
15/5163	Energieffiktivisering Bergomsvegen 2	395 860	295 450	El-Service Eiendom AS	Lom	Oppland
15/5167	Energieffektivisering eksisterende bygg - Øyrane Torg	619 700	741 456	Øyrane Eiendom AS	Bergen	Hordaland
15/5180	Enøk tiltak i Øksnedad Næringspark	2 146 912	2 256 140	Øksnevad næringspark AS	Stavanger	Rogaland
15/5182	Kaigaten 4	849 616	1 062 021	MNG Kaigaten AS	Bergen	Hordaland
15/5186	Ullevålsalleen 2 - Fredensborg Eiendom	381 775	386 588	Fredensborg Eiendom AS	Oslo	Oslo
15/5187	Oppgradering og bytte av lys i P-hus - Aker Brygge	735 843	772 071	Bryggedrift AS	Oslo	Oslo
15/5192	Energieffektivisering av Omsorgsbygg sine bygg i 2016	3 149 102	2 733 341	Omsorgsbygg Oslo KF	Oslo	Oslo
15/5193	OMT 6-10	1 849 934	2 312 418	Studentsamskipnaden i Oslo og Akershus	Oslo	Oslo
15/5197	Tiltak i kommunehus og Vikevåg skole	314 145	392 682	Rennesøy kommune	Rennesøy	Rogaland
15/5202	Energieffektivisering Petrines Gjestegiveri	93 849	104 888	Petrines gjestegiveri AS	Ålesund	Møre og Romsdal
15/5205	Rom for ENØK i Mantena – Enova prosjekt 2 (2015-2018)	10 072 606	11 827 256	Rom Eiendom AS	Landsdekkende	Landsdekkende
15/5255	SiB Studentboliger, Fantoft - Lavenergi	3 666 629	17 599 819	Studentsamskipnaden i Bergen	Bergen	Hordaland
15/5262	Strømsveien 96 - Totalrehabilitering	3 704 070	3 678 879	Entra Utleie AS	Oslo	Oslo
15/5275	Folkehelseinstituttet	1 841 637	2 302 046	Statsbygg	Oslo	Oslo
15/5286	Portefølje 2016 Atlantic_Brynsengveien 10_Pilestredet 40_42_46	6 743 030	8 140 900	KLP Eiendom	Landsdekkende	Landsdekkende
15/5287	Energieffektivisering Industrivegen 10	328 208	217 104	Industrivegen 10 Eiendom AS	Vefsn	Nordland
15/5288	Enova søknad 8	428 621	290 007	KA Kirkelig Arbeidsgiver- og interesseorganisasjon	Landsdekkende	Landsdekkende
15/5290	Mustad Eiendom, Lilleakerveien 4A og E, Lilleakerveien 6	4 200 520	4 509 122	Mustad Eiendom AS	Oslo	Oslo
15/5292	XXL Sport & Villmark - Søknad om Støtte til eksisterende bygg	5 591 996	6 989 995	XXL Sport og Villmark AS	Landsdekkende	Landsdekkende
15/5293	Jotun AS - Gjennomføring av tiltak, Vindal. Bygg 501 og 507	1 970 100	1 913 626	Jotun AS	Sandefjord	Vestfold
15/531	Energisparetiltak Sam Eydesgate 71	126 118	157 648	Sam Eydsgt. 71 AS	Tinn	Telemark
15/5311	Ombygging/Rehablitering kommunehuset	125 066	156 333	Sund kommune	Sund	Hordaland
15/5451	Høgskolebygget i Kongsvinger	991 921	981 987	Høgskolebygget AS	Kongsvinger	Hedmark
15/5510	Energieffektivisering av Forusbeen 78 Kontorbygg	400 460	500 575	Seabrokers Eiendom AS	Stavanger	Rogaland
15/5527	Storgaten 16 ENØK Totalmodernisering	299 391	280 456	S16 Halden Bevaring og Utvikling AS	Halden	Østfold
15/556	Eitrheimsveien 10	132 680	128 938	Odda Boligutleie AS	Odda	Hordaland
15/5665	Hovedbygg samlet søknad	205 177	256 472	CGG Services (Norway) AS	Oslo	Oslo
15/5674	Utskifting av varmekilde olje / elektrisk til fjernvarme	282 237	189 099	Kristiansen, Steinar	Kongsvinger	Hedmark
15/5680	Renovering av tekniske innstallasjoner	393 646	492 058	Ensto Nor AS	Oslo	Oslo
15/57	Karlsengarasjen Varmepumpe	111 766	75 200	Flateby Eiendom AS	Enebakk	Akershus
15/5787	ASKO-Norge AS Tiltakspakke Bygg	13 828 682	14 847 866	Asko Norge AS	Landsdekkende	Landsdekkende
15/58	Luft /Vann varmepumper i formålsbygg i Kr Sand Kommune	2 452 195	1 556 500	Kristiansand kommune	Kristiansand	Vest-Agder
15/5802	Tiltakspakke bygg ved Furene AS	178 571	223 214	Furene AS	Volda	Møre og Romsdal
15/5977	Renovering av Tekniske Installasjoner	705 600	882 000	DHL Supply Chain (Norway) AS	Ås	Akershus
15/60	Hedmarksgata 13 - Gjennomføring av enøktiltak	406 130	323 738	Hedemarksgården AS	Oslo	Oslo

1 *Enovatilskuddet (3819 tilskudd), Energitiltak i bolig (39 tiltak) samt Støtte til energirådgiving (4 prosjekter) er ikke inkludert i oversikten*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/6045	Lakselv vgs Paviljongen	211 895	177 825	Finnmark Fylkeskommune	Porsanger Porsángu Porsanki	Finnmark
15/609	Oppgradering av kontorbygg	340 295	316 408	Østre Strandgate 80 AS	Kristiansand	Vest-Agder
15/627	Vinderen Sykeshus	330 295	412 869	Diakonhjemmet sykehus AS	Oslo	Oslo
15/628	Rehabilitering av Tastagt.30-32B AS	707 316	725 231	Tastagaten 30-32 B AS	Stavanger	Rogaland
15/6299	Nye Tou trinn 2	559 055	446 342	Stavanger kommune	Stavanger	Rogaland
15/633	Technopolis Energy Management Project	3 634 317	4 542 897	Technopolis AS	Bærum	Akershus
15/634	Tindlund barne og u-skole, Varmepumpe bergvarme	713 400	480 000	Sarpsborg kommune	Sarpsborg	Østfold
15/640	Oppgradering av næringsbygg	96 498	97 660	Ibygget AS	Kristiansand	Vest-Agder
15/70	Portifoliosøknad Rezidor Hotels del 2 revidert	2 804 229	3 505 287	Rezidor Hotels Norway AS	Landsdekkende	Landsdekkende
15/707	ENØK - Ragde Eiendom	2 721 861	3 402 327	Ragde Eiendom AS	Oslo	Oslo
15/716	Hassingveien 40 - Rehab	213 495	266 869	Aberdeen P-N Hassingveien 40 ANS	Fredrikstad	Østfold
15/744	FB40 varmesentral	445 381	282 700	Folke Bernadottesvei 40 AS	Bergen	Hordaland
15/755	Oppgradering med fokus på energibesparelse og levetidsforlengelse bygg Leangen	1 168 335	1 093 082	Wullum Hus AS	Trondheim	Sør-Trøndelag
15/78	Ole Deviks vei 10 K1 og K2	217 418	271 773	ABB AS	Oslo	Oslo
15/784	Enøk investeringer St.Olav Hospital - 2015	4 242 800	2 524 296	St. Olavs Hospital HF	Trondheim	Sør-Trøndelag
15/786	Utskifting av el-kjel	65 854	41 800	Helvig Eiendom AS	Stavanger	Rogaland
15/789	Ny oppvarmingsløsning i forsamlingslokale, Misjonssalen i Mandal	33 292	22 400	Norsk Luthersk Misjonssamband	Mandal	Vest-Agder
15/795	Oppgradering av eget bygg	349 542	313 402	ERV Teknikk Lyngdal AS	Kristiansand	Vest-Agder
15/815	Enøktiltak i bygninger for skoledrift, administrajon og internat	399 056	442 869	Gjennestad Drift	Stokke	Vestfold
15/816	Rehabilitering i eksisterende bygninger i Giske Kommune	2 488 855	2 839 408	Giske kommune	Giske	Møre og Romsdal
15/837	Chr Krohgsgate 32	1 624 279	2 030 350	Chr Krohgsgate 32 Holding AS	Oslo	Oslo
15/84	Øvre Slottsgate 12 - Rehabilitering og miljøsertifisering av hele bygget	1 182 429	1 259 376	Øvre slottsgate 12 AS	Oslo	Oslo
15/856	Energi reduserende tiltak Off. bygg	286 349	357 937	Lillesand kommune	Lillesand	Aust-Agder
15/868	Oppbygging etter brann	387 700	484 626	St. Elisabethsøstrene i Norge	Oslo	Oslo
15/875	Oppgradering av Gamle Lardal sykehjem	199 883	215 542	Lardal kommune	Lardal	Vestfold
15/888	Lilleeng - energitiltak	4 071 100	2 285 771	Lilleeng AS	Moss	Østfold
15/890	Dynamisk belysningsanlegg med LED Hall 70	1 092 393	1 365 492	GKN Aerospace Norway AS	Ål	Buskerud
15/896	Tiltak i eksisterende bygg Glamox Molde	1 187 836	1 484 795	Glamox ASA Glamox Production Molde	Ålesund	Møre og Romsdal
15/920	Fjernvarme tilknytning og konvertering til vannbårenvarme	126 608	84 828	Brødrene Bakkes Bilverksted AS	Trysil	Hedmark
15/921	Fauske Kommune - Enovasøknad Finneid Skole	142 210	177 763	Fauske kommune	Fauske	Nordland
15/925	Energieffektiviseringstiltak i eksisterende bygningsmasse som skal gjennomføres i henhold til energikartleggingen.	961 468	1 036 288	Skodje kommune	Ålesund	Møre og Romsdal
15/94	Kongens gate 11 - teknisk oppgradering	497 600	526 038	Ans Kongensgate 11	Oslo	Oslo
15/945	Energieffektivisering og oppgradering av Oset Høyfjellshotell	1 063 627	913 035	Oset høyfjellshotell AS	Gol	Buskerud
15/947	Oppgradering lys i auditorei samt bytte av ventilasjon i treningsområdet	325 597	323 830	International School of Stavanger	Stavanger	Rogaland
15/963	Fjernvarmetilknytning av Norske Backer	215 631	95 549	Norske Backer AS	Kongsvinger	Hedmark
15/974	Energisparing hos Johan Giskeødegård AS (Eksisterende Bygg)	984 182	1 230 229	Johan Giskeødegård AS	Giske	Møre og Romsdal
15/985	TEAS 350 Arnemannsveien 3 Rehabilitering og ombygging	805 598	800 219	Tronrud Eiendom AS	Ringerike	Buskerud
15/986	TEAS 100 SD-anlegg og automatiseringsanlegg Verkstedveien 14 Hensmoen	32 722	40 903	Tronrud Eiendom AS	Ringerike	Buskerud
Støtte til ny teknologi for fremtidens bygg						
14/1778	Energibygget - En Solsmaragd til Drammen	105 900	1 553 236	Grønland 67 AS	Drammen	Buskerud
14/1973	Glasslåven Granavollen	108 345	850 000	Stiftelsen Glasslåven Granavollen	Gran	Oppland
15/1110	Energieffektiv kjølesentral i kombinert kontor og butikklokale	100 000	600 000	R. Gjestad AS	Trondheim	Sør-Trøndelag
15/2320	Knattholmen Kystleirskole	88 978	709 000	Vestfold og Telemark KFUK-KFUM	Sandefjord	Vestfold
15/3196	Stormberg Nullenergibygg med lagring av solenergi	68 400	1 607 278	Stormberg AS	Kristiansand	Vest-Agder
15/3663	1019301 - Power Optimizer for Solcelleanlegg	206 157	2 263 238	Statsbygg	Stord	Hordaland
15/3689	Bergsliensgate 12B-C, utvendig rehabilitering med superisolerende kalk puss med Aerogel	19 764	460 000	Boligbygg Oslo KF	Oslo	Oslo
Støtte til energieffektive nybygg						
15/1112	Nytt administrasjonsbygg Evenstad	350 198	3 000 000	Statsbygg	Stor-Elvdal	Hedmark
15/1717	Buskerud Storcash miljøbygg	730 737	1 600 000	Vestaksen Kobbervikdalen 4 AS	Drammen	Buskerud
15/1742	24/7-bygget	586 289	2 579 672	Rossabø Eiendom AS	Haugesund	Rogaland
15/2074	Innovative nybygg og fornybar energi til Moholt studentby	1 081 029	8 200 000	SIT Geovarme AS	Trondheim	Sør-Trøndelag
15/2103	KIWI Fjeldset Miljøbygg	279 043	1 897 492	Fjeldset Elverum AS	Elverum	Hedmark
15/2167	Fosnes svømmehall/flerbrukshus	235 898	1 700 000	Fosnes kommune	Fosnes	Nord-Trøndelag

APPENDIX B **PROJECT LIST 2015** - *NOT TRANSLATED TO ENGLISH*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/2643	Powerhouse Brattørkaia	3 652 351	36 500 000	Entra Eiendom AS	Trondheim	Sør-Trøndelag
15/3505	Storo Garden	1 186 800	5 815 320	Skanska CDN Oslo 3 AS	Oslo	Oslo
15/3869	Nybygg Logistikksenter i Trondheim	2 956 847	14 200 000	Posten Norge AS	Trondheim	Sør-Trøndelag
15/3930	Østmarka - energiambisiøs utbygging Psykiatri	442 577	2 900 000	St. Olavs Hospital HF	Trondheim	Sør-Trøndelag
15/554	Tromsøbadet	1 219 050	3 350 000	Tromsø kommune	Tromsø	Troms
15/5616	Skage barnehage	166 115	1 331 000	Overhalla kommune	Overhalla	Nord-Trøndelag
15/683	12273 Brønnøysundregistrene	1 848 225	14 970 000	Statsbygg	Brønnøy	Nordland
15/978	Holmen Svømmehall	1 227 398	9 944 000	Asker kommune	Asker	Akershus
Varmesentral utvidet						
14/1837	OBUS Ungdomskolen og basseng nytt varmeanlegg	400 000	400 000	Overhalla kommune	Overhalla	Nord-Trøndelag
14/2015	Brødrene Karlsen Eiendom AS- Ny fiskeribedrift	368 036	368 036	Brødrene Karlsen Eiendom AS	Tromsø	Troms
14/2023	Energisentral med varmepumpe for oppvarming og varmtvann til Boligsameiet Kollen	656 205	656 205	Boligsameiet Kollen	Bærum	Akershus
14/2122	Ny energisentral Selvik skole	206 622	206 622	Sande kommune	Sande	Vestfold
15/1550	Nærvarmeanlegg Vensmoen	865 674	865 674	Vensmoen Eiendom AS	Saltdal	Nordland
15/2557	Varmepumpe anlegg med bergvarmepumper	325 521	325 521	Fredheim Borettslag	Bergen	Hordaland
15/2642	Blaker bo- og omsorgssenter - felles varmesentral	361 102	361 102	Sørum Kommunale Eiendoms-selskap KF	Sørum	Akershus
15/3323	Prosjekt 1216, Ny energisentral for bygg i Rådhus- og Sivdam-området	2 100 000	2 100 000	Time kommune	Time	Rogaland
15/346	Spikkestad ungdomskole	559 349	559 349	Røyken Eiendom AS	Røyken	Buskerud
15/3936	Nærvarmeanlegg Eikertun (SID 15/3638 -Revidert søknad)	1 374 930	1 374 930	Øvre Eiker kommune	Øvre Eiker	Buskerud
15/4170	Biofyr RCMI	250 000	250 000	Røros Container og Miljø AS	Røros	Sør-Trøndelag
15/4452	Varmepumpeanlegg Moan	401 472	401 472	Balsfjord kommune	Tromsø	Troms
15/4994	Geoenergianlegg - Døli pleie- og omsorgssenter	553 500	553 500	Nittedal kommunale eien-domsforetak	Nittedal	Akershus
15/535	Nye varmepumper i varmesentral	1 432 854	1 432 854	Storgården Borettslag	Oslo	Oslo
15/547	Varmepumpe med brønnpark - Postens terminaler Alnabru	343 170	343 170	Posten Eiendom Alnabru Utvikling AS	Oslo	Oslo
15/6232	Strandpromenaden 50 - Sjøvannsbasert CO_2-varmepumpe	775 427	775 427	Kongsberg Næringsbygg 2 AS	Horten	Vestfold
Varmesentral forenklet						
14/1189	Verksted Frya	363 465	199 500	Erling Rolstad AS	Ringebu	Oppland
14/1980	Ny Rygge USK - grunnvarme varmepumpe	147 410	77 500	Rygge kommune	Rygge	Østfold
14/2003	Montering av vann- vann varmepumpe på Nes driftstasjon	19 021	12 800	Ringsaker kommune	Ringsaker	Hedmark
14/2007	Varmepumpe Krokstad Senter	259 989	165 000	Sektor Krokstad Eiendom AS	Nedre Eiker	Buskerud
14/2042	Ny varmepumpe Remo	64 131	35 200	OK Vedlikehold AS	Averøy	Møre og Romsdal
14/2115	Væske-vann varmepumpe	71 328	48 000	Borettslaget Etterstad I	Oslo	Oslo
15/1139	Søknad om støtte til nytt flisfyringsanlegg	398 925	200 000	Ola Olderøyås Snekkerifa-brikk AS	Trondheim	Sør-Trøndelag
15/1160	Økernveien 9 varmepumpe	235 723	149 600	Økernveien 9 Eiendom AS	Oslo	Oslo
15/1161	Luft/vann varmepumpe	36 398	23 100	Handelstandens Aldersboliger	Haugesund	Rogaland
15/1329	Skogbygda skole - konvertering fra oljefyring til bergvarme-pumpe	190 207	128 000	Nes kommune	Nes	Akershus
15/1330	Fenstad skole - konvertering fra oljefyring til borehullsvarme-pumpe	190 207	128 000	Nes kommune	Nes	Akershus
15/1331	Framtun skole- konvertering fra olje til bergvarmepumpe	190 207	128 000	Nes kommune	Nes	Akershus
15/1354	Flisfyrt Varmesentral	177 300	102 000	Hoffart Magne	Sigdal	Buskerud
15/1417	Luft vann varmepumpe	25 999	16 500	Frosta Innkjøpslag SA	Frosta	Nord-Trøndelag
15/1489	Væske / vann varmepumpe	54 685	36 800	Sameiet Generalbirchs gate 20	Oslo	Oslo
15/1490	Veske-veske varmepumpe (Bergvarme)	97 481	60 800	Catch Eiendom AS	Ås	Akershus
15/1492	Nedre Bøbakkane	133 145	70 000	Å&Ø Utvikling AS	Førde	Sogn og Fjordane
15/1496	Væske / vann varmepumpe	47 552	32 000	Sameiet General Birchs gate 26	Oslo	Oslo
15/1532	Væske-vann varmepumpe	142 655	96 000	Sameiet Ullevålsveien 109	Oslo	Oslo
15/1551	Prosjekt Rådhuskvartalet	161 676	85 000	Nittedal kommune	Nittedal	Akershus
15/1589	Væske-væske varmepumpe	399 435	200 000	Blekebakkvegen 5 Eiendom AS	Skien	Telemark
15/1630	Væske-væske varmepumpe	42 797	28 800	Mari Østbye	Eidsvoll	Akershus
15/1714	Væske - Væske varme pumpe. Skal bore etter jordvarme	55 160	29 000	Porsgrunn Eiendom AS	Porsgrunn	Telemark
15/1741	Bergpumpe	38 042	20 000	Dammen Eiendom AS	Nedre Eiker	Buskerud
15/1745	Væske - væske varmepumpe	38 041	25 600	Jørn Røe	Øystre Slidre	Oppland
15/1772	Prosjekt Dokka	28 531	19 200	Auctus Eiendom AS	Nordre Land	Oppland
15/1788	Væske-vann varmepumpe danfoss ca. 90kw med brønnpark	213 983	144 000	Skattebo Eiendom AS	Nord-Aurdal	Oppland
15/1802	Væske-væske varmepumpe	47 552	32 000	Øgle Eiendom AS	Røros	Sør-Trøndelag

1 *Enovatilskuddet (3819 tilskudd), Energitiltak i bolig (39 tiltak) samt Støtte til energirådgiving (4 prosjekter) er ikke inkludert i oversikten*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/1882	Gartneriveien 1, Væske-væske varmepumpe.	43 748	23 000	Gartneriveien AS	Øvre Eiker	Buskerud
15/1884	Nytt Klubbhus, Væske-væske varmepumpe	13 314	7 000	Eiker Kvikk Idrettsforening	Øvre Eiker	Buskerud
15/2017	Luft-vann varmepumpe	20 799	13 200	Grane Ungdomslag	Grane	Nordland
15/2087	væske-væske med spisslast el-kjele	57 062	38 400	Ljanshuset SA	Oslo	Oslo
15/2237	Borgenhaven nærvarmesentral	85 593	45 000	Borgen Utvikling AS	Asker	Akershus
15/2273	Flisfyringsanlegg 115kW Mysen	339 825	195 500	Pietaris AS	Eidsberg	Østfold
15/2321	Kvinesdal Svømmehall	133 145	70 000	Kvinesdal kommune	Kvinesdal	Vest-Agder
15/2336	Anlegg for flisfyring hos Vegårshei Trappeverksted AS	797 850	200 000	Vegårsheim Trappeverksted AS	Vegårshei	Aust-Agder
15/2366	Mellomila 39	21 000	14 070	Borettslaget Mellomila 39	Trondheim	Sør-Trøndelag
15/2408	Frogn renseanlegg-varmesentral	523 070	200 000	Frogn kommune	Frogn	Akershus
15/2444	Bergvarmepumpe Frognerkilen Barnehage	35 664	24 000	Frognerkilen Barnehage AS	Oslo	Oslo
15/2467	Flisfyring og solvarme fossbergveien	206 850	119 000	Maheto AS	Øvre Eiker	Buskerud
15/2553	Væske-væske varmepumpe	113 173	59 500	Arca Nova Bolig AS	Fredrikstad	Østfold
15/2583	Bergvarmepumpe	38 041	25 600	Trollskogen barnehage Bjørndal SA	Oslo	Oslo
15/2584	Luft - vann varmepumpe	48 531	30 800	Røde Kors stua	Steigen	Nordland
15/2675	Luft-vann varmepumpe	43 331	27 500	Storgata 6 Molde AS	Molde	Møre og Romsdal
15/2799	Skifte oljefyr til væske-vann varmepumpe	128 390	86 400	Salhushallen SA	Bergen	Hordaland
15/2914	Varmesentral basert på flis	354 600	200 000	Fallingen AS	Skjåk	Oppland
15/3015	Løvenstadtunet Nybygg og ombygging, energibrønner/var-mepumpe	58 964	31 000	Rælingen kommune	Rælingen	Akershus
15/3123	Luft - vatn varmepumpe	15 599	9 900	Rygg Barnehage SA	Gloppen	Sogn og Fjordane
15/3125	Utskifting av oljekjel - Dale	55 464	35 200	Bankeigedom Sogn og Fjor-dane AS	Fjaler	Sogn og Fjordane
15/3197	Væske-væske varmepumpe, basert på jordvarme	60 866	32 000	Blakstad Haagen	Nes	Akershus
15/3221	Bergvannspumpe	71 328	48 000	Hafslundsøy Musikkorps	Sarpsborg	Østfold
15/3227	Varmepumpebasert oppvarming. Møbelforretning	29 465	18 700	ANS Yngvar J. Fredheim	Andøy	Nordland
15/3230	Konvertering til fyrsentral for pellet Grensen Kultur og Gjes-tehus	171 088	125 800	Grensen Kultur og Gjestehus Kristin Ingeborg Hagen	Grue	Hedmark
15/3322	Kleivane bhg nybygg inneværende øp varmesentral	95 103	50 000	Sandnes Eiendomsselskap KF	Sandnes	Rogaland
15/340	Sula kommune , Langevåg Barnehage	17 119	9 000	Sula Kommune Sentraladmi-nistrasjon	Sula	Møre og Romsdal
15/3431	Innstallering av væske-væske varmepumpe for oppfyring av Driftsbygning istedenfor ren elektrisitet	35 664	14 400	Dalby Sagen Maskinservice	Åsnes	Hedmark
15/3451	Flisfyrt Varmesentral	344 827	200 000	Bismo Vekst AS	Skjåk	Oppland
15/3549	Borehullsbasert væske-vann varmepumpe	130 768	81 000	Udland Omsorgsboliger AS	Haugesund	Rogaland
15/356	Installasjon av varmesentral basert på flis	325 050	187 000	Melby Maskin og import	Verdal	Nord-Trøndelag
15/366	Væske-veske varmepumper	190 207	128 000	Studentsamskipnaden i Finnmark og Tromsø	Tromsø	Troms
15/3687	Installasjon av ny luft-vann varmesental	24 266	15 400	Simonsens Eiendom AS	Lindesnes	Vest-Agder
15/3710	Luft-vann varmepumpe 60kw	103 996	66 000	Tore Gudmestad	Hå	Rogaland
15/3713	Jordvarme	328 107	200 000	Aslak Boltsgt 41 AS	Hamar	Hedmark
15/3796	Borehullsbasert væske-vann varmepumpe	95 104	50 000	Beverskaret 1 AS	Haugesund	Rogaland
15/380	Nytt flisfyringsanlegg Fabrikk Høylandet 2015	1 063 800	200 000	Nye PH Takstoler AS	Høylandet	Nord-Trøndelag
15/3913	Varmeanlegg Tana kirke	97 063	61 600	Deanu Gielda -Tana kommune	Deatnu Tana	Finnmark
15/4110	Bytte ut oljefyr med luft til vann pumpe	20 799	13 200	Langlis Vei Eiendom ANS	Spydeberg	Østfold
15/4153	Luft-vann varmepumpe	27 732	17 600	Ekum Eiendom AS	Molde	Møre og Romsdal
15/4162	Innstallere varmpepumpe	142 655	96 000	Nythun Høyfjellstue AS	Nord-Aurdal	Oppland
15/4172	Luft/vann-varmepumpe	294 654	187 000	Ørsnesveien 37 AS	Nøtterøy	Vestfold
15/4236	Nye Øyra skule - Varmesentral væske-vann varmepumpe m/ energibrønner	257 731	135 500	Volda kommune	Volda	Møre og Romsdal
15/43	luft-vann varmepumpe 12 kw	20 799	13 200	Metodistkirken i Norge Kongs-vinger Menighet	Kongsvinger	Hedmark
15/4472	Varmepumpe luft til vann	27 732	17 600	Advokat Jon Reidar Aae	Orkdal	Sør-Trøndelag
15/463	Væske-vann varmepumpe	114 124	60 000	Industriveien 17 C AS	Ullensaker	Akershus
15/4649	Luft/vann varmepumpe	24 266	15 400	Skafu Eiendom AS	Moss	Østfold
15/4681	Luft-vann varmepumpe	19 066	12 100	Engesmo Snekkeri	Midtre Gauldal	Sør-Trøndelag
15/487	Oppvarming verkstadbygg	27 732	17 600	Oseberg Eiendom v/Roar Oseberg	Vanylven	Møre og Romsdal
15/490	Væske-vann varmepumpe	106 992	72 000	Hardhaus Eigedom AS	Austevoll	Hordaland
15/5058	Installasjon av luft-vann varmepumpe Polleidet	20 799	13 200	Polleidet AS	LYNGEN	Troms
15/511	Varmepumpe	81 463	51 700	Undertun Eigendom AS	Skodje	Møre og Romsdal
15/5128	Konvertering til bergvarmepumpe	71 328	48 000	Lensmann Hiorths allé 1	Oslo	Oslo
15/5419	Enøktiltak Galsomelen	124 795	79 200	Avfallsservice AS	Nordreisa	Troms
15/5445	Pelletsfyringsanlegg	73 984	54 400	Hamar Sagbladfabrikk	Hamar	Hedmark

APPENDIX B **PROJECT LIST 2015** - *NOT TRANSLATED TO ENGLISH*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/5447	Væske- væske Varmepumpe for oppvarming av eksisterende areal Elvland barnehage	38 041	25 600	Holtålen kommune	Holtålen	Sør-Trøndelag
15/550	Væske-væske varmepumpe	35 664	24 000	Myklebostad Kretsutvalg	Tjeldsund	Nordland
15/5750	Jordvarmepumpe væske-vann	242 514	163 200	Olefina Eiendom AS	Nord-Odal	Hedmark
15/5935	Væske/vann varmepumpe ny og gammel idrettshall	114 124	60 000	Åmot kommune	Åmot	Hedmark
15/6122	Konvertering til luft-vann varmepumpe	173 326	110 000	Sildinvest AS	Bergen	Hordaland
15/6220	Luft-vann varmepumpe SR	10 400	6 600	Sentrum Rør AS	Volda	Møre og Romsdal
15/6241	Ny reversibel varmepumpe og kjølemaskin	408 945	200 000	Rinus Invest AS	Oslo	Oslo
15/6277	Installering av varmepumper væske-væske	1 069 916	200 000	Smøla Klekkeri og Settefisk-anlegg AS	Smøla	Møre og Romsdal
15/6284	Installering av varmepumpe væske- væske sagafisk	1 069 916	200 000	Sagafisk AS	Aure	Møre og Romsdal
15/6286	Væske-vann varmepumpe Horten medisinske senter	383 743	200 000	Horten Kommune	Horten	Vestfold
15/6293	Varmepumpe norsk industriarbeidermuseum	178 319	120 000	Norsk Industriarbeidermu-seum	Tinn	Telemark
15/6352	Installasjon av bergvarme i Rossabø kirke	142 655	96 000	Haugesund Kirkelige Fellesråd	Haugesund	Rogaland
15/6431	Nye Varmepumper Eiken Bedehus	61 817	41 600	Eiken Indremisjonslag	Hægebostad	Vest-Agder
15/717	Luft vann varmepumpe i industrihall	355 318	200 000	Nor Element AS	Marnardal	Vest-Agder
15/739	Geovarmeanlegg	71 328	48 000	Rælingen Kirkelige Fellesråd	Rælingen	Akershus
15/742	Flisbasert varmesentral	384 150	200 000	Takstolteknikk AS	Lardal	Vestfold
15/766	Varmepumpeinstallasjon ved Boligsameiet Knausen	285 311	192 000	Boligsameiet Knausen	Bærum	Akershus
15/82	Bergvarme, vannbåren varme.	23 776	16 000	Doktorgården AS	Kongsvinger	Hedmark
15/922	Pellets fyringsanlegg	138 720	102 000	Fred Lind	Øksnes	Nordland
15/950	Varmepumpe anlegg med tillhørende brønnpark	142 655	96 000	Søre Øyjorden borettslag	Bergen	Hordaland
15/973	Væske-væske varmepumpe, Kjørbekkdalen 4. Varmesentral Forenklet (Søknad)	190 207	100 000	Buffin Real Estate Norway AS	Skien	Telemark
15/975	Utskifting av oljefyr	28 531	19 200	Kløfta Rotary Klubb	Ullensaker	Akershus
Kartleggingsstøtte for eksisterende bygg						
15/1386	Kartlegging av ENØK-tiltak - Br. Jangaard AS	-	109 277	Brødrene Jangaard AS	Ålesund	Møre og Romsdal
15/1418	Kartlegging Ekornes AS	-	163 400	Ekornes ASA	Landsdekkende	Landsdekkende
15/1569	Kartleggingsstøtte - Trondheim Eiendom 2015	-	89 644	Trondheim Eiendom	Trondheim	Sør-Trøndelag
15/1679	Utarbeidelse av ENØK-analyser i forbindelse med EPC-prosjekt	-	130 162	Bærum kommune Eiendom	Bærum	Akershus
15/1722	Kartlegging av Oslo City og Royal Christiania Hotell i Oslo	-	92 492	DNB Næringseiendom AS	Oslo	Oslo
15/1875	Emta - Realisering av ENØK potensiale - Pilot	-	174 232	Statsbygg	Landsdekkende	Landsdekkende
15/1932	Kartlegging av energi tiltak i Obligos norske portefølje	-	158 678	Obligo Investment manage-ment AS	Landsdekkende	Landsdekkende
15/2037	Kartlegging Romeriksenteret, Oasen Storsenter og Gunerius kjøpesenter	-	55 305	Olav Thon Eiendomsselskap ASA	Landsdekkende	Landsdekkende
15/2041	Kartlegging av tiltak i eiendomfondet Norge 1, NNPK, APNI og Nordic 1	-	364 592	Aberdeen Asset Management Norway AS	Landsdekkende	Landsdekkende
15/2075	Nordea Liv - AAM - Kartlegging	-	236 829	Nordea Liv Eiendom Hol-ding AS	Landsdekkende	Landsdekkende
15/2082	Kartlegging Thon Kjøpesenter Vest	-	106 007	Thon Holding AS	Landsdekkende	Landsdekkende
15/2083	Kartlegging Lagunen Storsenter	-	70 000	Lagunen Senterforening	Bergen	Hordaland
15/2084	Kartlegging Strømmen Storsenter	-	100 205	Vats AS	Skedsmo	Akershus
15/2085	Kartlegging Sørlandsenteret	-	122 868	Sørlandssenteret Eiendom AS	Kristiansand	Vest-Agder
15/2101	Karlegging av byggportefølge	-	67 784	Jaras Drift AS	Landsdekkende	Landsdekkende
15/2114	Kartlegging av tiltak ved Lilleakerveien 6 og Lilleakerveien 4	-	57 638	Mustad Eiendom AS	Oslo	Oslo
15/2131	Kartlegging Vestkanten Storsenter	-	61 200	Vestkanten AS	Bergen	Hordaland
15/2135	Kartlegging Thon Kjøpesenter Øst	-	111 360	Thon Holding AS	Landsdekkende	Landsdekkende
15/2189	Kartlegging av energibesparende tiltak i boligblokker	-	150 000	Stiftelsen Kaare Berg	Oslo	Oslo
15/2236	Energiinventering och kartlegging av eksisterande hotellbygg	-	58 500	Nordic Property Manage-ment AS	Landsdekkende	Landsdekkende
15/2238	Automobil AS - Energikartlegging av 18 bilforretninger/-verksteder	-	54 450	Automobil AS	Landsdekkende	Landsdekkende
15/2493	Kartlegging Enøk II	-	162 228	Storebrand Eiendom Hol-ding AS	Landsdekkende	Landsdekkende
15/2542	Kartlegging enøktiltak DNB Bank	-	258 129	DNB Bank ASA	Landsdekkende	Landsdekkende
15/2552	Energikartlegging Grimstad kommune 2015	-	50 174	Grimstad kommune	Grimstad	Aust-Agder
15/2561	Kjefting av vinduer i nærings bygg.	-	50 000	Raufoss Apartment Hotel AS	Vestre Toten	Oppland
15/2925	Kongsberg Teknologipark - Kartlegging av energitiltak	-	81 460	Kongsberg Teknologipark AS	Kongsberg	Buskerud
15/3020	Jotun AS - enøk-kartlegging av bygninger i Sandefjord og Larvik	-	55 120	Jotun AS	Sandefjord	Vestfold
15/3485	Enøk-kartlegging - SIB Bolig Fantoftvegen 14 AB og EFGH	-	250 000	Studentsamskipnaden i Bergen	Bergen	Hordaland

1 *Enovatilskuddet (3819 tilskudd), Energitiltak i bolig (39 tiltak) samt Støtte til energirådgiving (4 prosjekter) er ikke inkludert i oversikten*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/3487	Enøk-kartlegging - SiB Bolig Fantoftvegen 14 CD	-	250 000	Studentsamskipnaden i Bergen	Bergen	Hordaland
15/3728	XXL Sport og Villmark AS - Enøkkartlegging av forretninger og sentrallager	-	115 015	XXL Sport og Villmark AS	Landsdekkende	Landsdekkende
15/3787	Kartleggingsstøtte Christofferstunet AS	-	100 000	AS Christofferstunet	Oslo	Oslo
15/3927	Kartleggingsstøtte for prosjektet Rom for Enøk i Mantena	-	149 827	Rom Eiendom AS	Landsdekkende	Landsdekkende
15/4028	Kartlegging kontorbygg Nov	-	53 696	National Oilwell Varco Norway AS	Landsdekkende	Landsdekkende
15/4237	Enøk-kartlegging St.Olav Hospital	-	107 942	St. Olavs Hospital HF	Trondheim	Sør-Trøndelag
15/4422	Kartlegging eksisterende bygg Helse Møre og Romsdal HF	-	255 401	Helse Møre og Romsdal HF	Ålesund	Møre og Romsdal
15/5156	Kartlegging bygningsmasse Ahus	-	161 466	Akershus Universitetssykehus HF	Lørenskog	Akershus
15/5164	Kartleggingsstøtte til eksisterende bygg	-	88 892	KS Coast Center Base	Fjell	Hordaland
15/5252	Kartlegging av energitiltak	-	50 463	Zurhaar og Rubb AS	Landsdekkende	Landsdekkende
15/538	Kartleggingstøtte for 7 av Amfi kjøpesentera	-	61 500	Amfi drift AS	Landsdekkende	Landsdekkende
15/5450	Energikartlegging T1 Oslo lufthavn Gardermoen	-	140 398	Oslo Lufthavn AS	Ullensaker	Akershus
15/5499	Skisseprosjekt	-	200 000	Gransletta Borettslag	Oslo	Oslo
15/5567	Kartlegging av energibruk	-	52 380	R8 Management AS	Porsgrunn	Telemark
15/5614	Nedre Eiker kommune. Fase 1 i EPC-prosjekt. Energianalyse av byggportefølge	-	58 912	Nedre Eiker kommune	Nedre Eiker	Buskerud
15/606	Kartlegging av energitiltak sentrum og skøyen porteføljen	-	159 563	SpareBank 1 Forsikring AS	Oslo	Oslo
15/6119	Tromsø Kommune. Fase 1 EPC prosjekt. Energianalyser av byggportefølge.	-	89 414	Tromsø kommune	Tromsø	Troms
15/6403	Kartleggning av eksisterende bygg	-	106 962	Frydenbø Eiendom AS	Bergen	Hordaland
15/704	Asko Norge - Energianalyser av 11 anlegg	-	311 559	Asko Norge AS	Landsdekkende	Landsdekkende
15/854	Kringsjå og Fjellbirkeland studentby	-	250 000	Studentsamskipnaden i Oslo og Akershus	Oslo	Oslo
15/948	Kartlegging Kringsjå og Fjellbirkeland studentby Trinn 2	-	250 000	Studentsamskipnaden i Oslo og Akershus	Oslo	Oslo
15/976	Kartleggingsstøtte for eksisterende bygg - Nord-Trøndelag fylkeskommune	-	115 507	Nord- Trøndelag fylkeskommune	Landsdekkende	Landsdekkende
15/981	Kartleggingsstøtte portefølje 2015	-	84 593	KLP Eiendom	Landsdekkende	Landsdekkende
Bolig						
Støtte til eksisterende bygg (boliger og sameier)						
15/1113	Pynten	600 000	750 000	Pynten Borettslag	Oslo	Oslo
15/1740	Fjordgata 10 og 12 AS	136 420	91 402	Fjordgata 10 og 12 AS	Trondheim	Sør-Trøndelag
15/1874	Avtrekksgjenvinning	360 000	450 000	Grøndalsbakken Borettslag	Elverum	Hedmark
15/2138	Montere væske-vann varmepumper som leverer energi til oppvarming og tappevann til 4 boligbygg.	594 500	400 000	Øvre Bergmo I Borettslag	Molde	Møre og Romsdal
15/2269	Brl. Mellomila 39	215 566	1 034 717	Borettslaget Mellomila 39	Trondheim	Sør-Trøndelag
15/2644	Energibesparende tiltak ved Hillevågstunet	116 290	145 364	Hillevågstunet	Stavanger	Rogaland
15/2748	Installering av balansert ventilasjon med varmegjenvinning i Stranden Boliglag AS	417 402	259 446	Stranden Boliglag AS	Bergen	Hordaland
15/3209	Kvartal XXIV Fasadeoppgradering.	487 213	609 017	Kvartal XXIV borettslag	Sunndal	Møre og Romsdal
15/3319	Vestlibakken boligsameie - rehabilitering med fokus på miljøet	1 151 806	1 439 759	Vestlibakken boligsameie	Oslo	Oslo
15/352	Ny varmeløsning 2015 Svoldergata 8	317 021	310 304	Sameiet Svoldergata 8	Oslo	Oslo
15/353	Enøktiltak 2015 Etterstad Øst BRL	213 338	266 672	Borettslaget Etterstad Øst	Oslo	Oslo
15/3771	Fasader og tak	56 849	71 062	Bratrom borettslag	Lier	Buskerud
15/3912	Teknisk oppgradering Bjørnefaret borettslag	2 310 703	2 083 844	Bjørnefaret Borettslag	Oppegård	Akershus
15/426	Markensgate 35	228 360	235 243	Markens Grøde AS	Kristiansand	Vest-Agder
15/44	Tjernet Borettslag	420 000	525 000	Tjernet Borettslag	Bergen	Hordaland
15/4744	Hørra brl. Utskifting av ventilasjonsanlegg	200 000	250 000	Hørra Borettslag	Fredrikstad	Østfold
15/475	Takrehabilitering mm.	341 529	166 320	Berger Boligsameie	Bærum	Akershus
15/4969	Enøktiltak Fossum Terrasse	305 018	381 272	Fossum Terrasse Boligsameie	Bærum	Akershus
15/5155	Fasaderehabilitering - Tøtta II Brl.	309 335	386 669	Tøtta II Borettslag	Narvik	Nordland
15/5206	Rehabilitering av fasader	261 756	327 196	Munkebekken borettslag	Oslo	Oslo
15/5250	Øvre Tordenskjoldsgates Borettslag	575 844	2 764 051	Øvre Tordenskjoldsgates borettslag AL	Kristiansand	Vest-Agder
15/5258	Søknad basert på Tveita Borettslag kartlegging	1 820 643	2 267 237	Tveita Borettslag	Oslo	Oslo
15/5283	Enøktiltak i Haugerud borettslag	2 375 421	980 023	Haugerud borettslag	Oslo	Oslo
15/5289	Bodøsjøen borettslag - lavenergi oppgradering	462 354	2 219 299	Bodøsjøen Borettslag	Bodø	Nordland
15/5294	Søknad basert på ENØK-kartlegging av leilighetsbygg	101 700	109 726	Sameiet vesteråsveien 14	Oslo	Oslo
15/5530	Tøtta I Brl - Fasaderehabilitering	309 335	386 669	Tøtta I Borettslag	Narvik	Nordland
Støtte til energieffektive nybygg						
14/1535	Sæterveien 18B	13 048	80 898	Henriksen, Andreas	Bergen	Hordaland
Støtte til oppgradering av bolig						
14/1645	Oppgradering av bolig	31 418	103 200	Høiseth, Kjell	Notodden	Telemark

APPENDIX B **PROJECT LIST 2015** - *NOT TRANSLATED TO ENGLISH*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
14/1650	Oppgradering av bolig	30 105	109 380	Wang, Ove Knut	Målselv	Troms
14/1967	Oppgradering av bolig	28 177	85 500	Drage, Helge	Oslo	Oslo
14/1999	Oppgradering av bolig	44 389	110 000	Maehlum, Marit	Oslo	Oslo
14/2046	Oppgradering av bolig	203 041	125 000	Høgset, Svein	Oslo	Oslo
14/2047	Oppgradering av bolig	66 022	104 100	Kjønstad, Terje Kristian	Levanger	Nord-Trøndelag
14/2052	Oppgradering av bolig	27 863	80 400	Aanonsen, Erika Agnes	Sandefjord	Vestfold
14/2109	Oppgradering av bolig	21 283	97 080	Utne, Trond	Trondheim	Sør-Trøndelag
14/2111	Oppgradering av bolig	28 382	73 200	Haylock, Thomas	Bergen	Hordaland
14/2125	Oppgradering av bolig	34 654	100 200	Oldervoll, Magne	OS (HORDA-LAND)	Hordaland
14/760	Oppgradering av bolig	1 270	2 100	Bodsberg, Nils Rune	Melhus	Sør-Trøndelag
14/761	Oppgradering av bolig	2 460	4 320	Bodsberg, Nils Rune	Melhus	Sør-Trøndelag
15/1032	Oppgradering av bolig	16 349	76 800	Langsåvolde, Ivan	Meråker	Nord-Trøndelag
15/1040	Oppgradering av bolig	27 852	110 000	Berge, Øyvind	Asker	Akershus
15/1071	Oppgradering av bolig	16 030	63 720	Walle, Siv Berget	Søndre Land	Oppland
15/1111	Oppgradering av bolig	26 583	101 766	Hedly, Jan-Ove	Bærum	Akershus
15/1162	Oppgradering av bolig	30 302	83 400	Balsnes, Terje Giskeødegård	Askøy	Hordaland
15/1189	Oppgradering av bolig	48 454	80 400	Vinje, Øystein	Levanger	Nord-Trøndelag
15/1288	Oppgradering av bolig	34 428	104 100	Harbu, Lill Berget	Oslo	Oslo
15/1351	Oppgradering av bolig	34 030	89 400	Lingelem, Lars	Oslo	Oslo
15/1385	Oppgradering av bolig	24 957	110 000	Knut-Aril Farnes	Trondheim	Sør-Trøndelag
15/1487	Oppgradering av bolig	26 327	110 000	Thomassen, Gro	Bodø	Nordland
15/15	Oppgradering av bolig	43 215	110 000	Bakken, Ole Edvard	Ringsaker	Hedmark
15/1570	Oppgradering av bolig	53 869	110 000	Wiborg, Peder	Oslo	Oslo
15/1588	Oppgradering av bolig	19 069	73 800	Søyseth, John	Sunndal	Møre og Romsdal
15/1605	Oppgradering av bolig	43 281	110 000	Rune Smistad	Voss	Hordaland
15/1608	Oppgradering av bolig	31 432	125 000	Bjarte S. Karlsen	Lillesand	Aust-Agder
15/1609	Oppgradering av bolig	38 944	94 800	Kari Hage	Bergen	Hordaland
15/1628	Oppgradering av bolig	52 678	110 000	Herløsund, Trond	Førde	Sogn og Fjordane
15/1647	Oppgradering av bolig	20 858	61 250	Bekkevold, Atle	Ringsaker	Hedmark
15/1648	Oppgradering av bolig	20 412	43 680	Almesveen, Anders	Stavanger	Rogaland
15/1793	Oppgradering av bolig	37 021	125 000	Haug, Harald	Asker	Akershus
15/1840	Oppgradering av bolig	30 598	102 000	Maråk, Knut Arild	Trondheim	Sør-Trøndelag
15/1955	Oppgradering av bolig	25 555	110 000	Stephansen, Ken	Holmestrand	Vestfold
15/2018	Oppgradering av bolig	54 054	110 000	Horgøien, Reidar	Midtre Gauldal	Sør-Trøndelag
15/2038	Oppgradering av bolig	30 242	110 000	Sund, Espen	Inderøy	Nord-Trøndelag
15/2045	Oppgradering av bolig	76 932	110 000	Bøe, Leif Inge	Sunndal	Møre og Romsdal
15/2100	Oppgradering av bolig	54 132	100 140	Andersen, Ivan	Oslo	Oslo
15/2216	Oppgradering av bolig	52 364	110 000	Søraas, Camilla Lund	Bærum	Akershus
15/2217	Oppgradering av bolig	26 728	96 000	Saeeideh Varastefar	Lørenskog	Akershus
15/2218	Oppgradering av bolig	17 663	60 540	Hansen, Jesper Fog	Asker	Akershus
15/2219	Oppgradering av bolig	38 302	110 000	Stastad, Iver Tollef	Jevnaker	Oppland
15/2233	Oppgradering av bolig	61 610	110 000	Øiulfstad, Brit Anniken	Oslo	Oslo
15/2254	Oppgradering av bolig	18 327	70 200	Bessesen, Therese	Bergen	Hordaland
15/2306	Oppgradering av bolig	70 101	110 000	Reistad, Iver	Lillehammer	Oppland
15/2346	Oppgradering av bolig	20 325	71 820	Nordskag, Glenn	Eigersund	Rogaland
15/2353	Oppgradering av bolig	36 978	110 000	Østby, Harald	Asker	Akershus
15/2406	Oppgradering av bolig	22 286	66 600	Børli, Nils-Ivar	Ski	Akershus
15/2439	Oppgradering av bolig	25 681	54 000	Havik, Tor Joakim	Trondheim	Sør-Trøndelag
15/2450	Oppgradering av bolig	24 238	54 000	Havik, Tor Joakim	Trondheim	Sør-Trøndelag
15/2465	Oppgradering av bolig	11 763	47 700	Nøsterud, Geir	Kongsvinger	Hedmark
15/2508	Oppgradering av bolig	20 504	106 020	Neverdal, Gaute	Asker	Akershus
15/2570	Oppgradering av bolig	30 637	110 000	Joseph, Anton Trevor	Lørenskog	Akershus
15/2607	Oppgradering av bolig	36 898	81 000	Schjei, Linn	Bergen	Hordaland
15/268	Oppgradering av bolig	52 768	110 000	Stjer, Elin Kjølgård	Lillehammer	Oppland
15/2791	Oppgradering av bolig	22 728	110 000	Antonsen, Rune	Voss	Hordaland
15/2793	Oppgradering av bolig	14 564	81 000	Antonsen, Rune	Voss	Hordaland
15/2805	Oppgradering av bolig	16 820	78 420	Olden, Helge	Ørland	Sør-Trøndelag
15/2899	Oppgradering av bolig	31 404	110 000	Mendoza, Juan Carlos	Bergen	Hordaland
15/2978	Oppgradering av bolig	17 765	110 000	Ingvoldstad, Ingrid-Anne	Hamar	Hedmark
15/3017	Oppgradering av bolig	20 053	81 000	Woll, Tore	Oslo	Oslo

1 *Enovatilskuddet (3819 tilskudd), Energitiltak i bolig (39 tiltak) samt Støtte til energirådgiving (4 prosjekter) er ikke inkludert i oversikten*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/3097	Oppgradering av bolig	19 298	81 000	Rønning, Lars Erik	Steinkjer	Nord-Trøndelag
15/316	Oppgradering av bolig	70 194	110 000	Eggen, Jørund Halvdan	Verdal	Nord-Trøndelag
15/3194	Oppgradering av bolig	46 832	125 000	Ekre, Bente Elisabeth Henriksen	Nord-Fron	Oppland
15/3208	Oppgradering av bolig	46 649	110 000	Reknes, Sandra Veddeng	Sula	Møre og Romsdal
15/3217	Oppgradering av bolig	31 805	125 000	Krodemansch, Gert	Kvænangen	Troms
15/3218	Oppgradering av bolig	27 178	66 240	Lindahl, Hans Øyvind	Bærum	Akershus
15/3222	Oppgradering av bolig	53 773	110 000	Nes, Thuy-Anh Le	Leikanger	Sogn og Fjordane
15/3223	Oppgradering av bolig	38 346	78 000	Hustad, Anniken	Bærum	Akershus
15/3234	Oppgradering av bolig	28 117	77 400	Alyas, Dani Toma Alyas	Oslo	Oslo
15/3282	Oppgradering av bolig	50 889	85 200	Skarsbø, Terje	Gjemnes	Møre og Romsdal
15/330	Oppgradering av bolig	28 024	110 000	Rannem, Kenneth	Trondheim	Sør-Trøndelag
15/3346	Oppgradering av bolig	40 669	94 200	Svindseth, Mads	Trondheim	Sør-Trøndelag
15/3394	Oppgradering av bolig	70 344	110 000	Solvang, Torodd	Karmøy	Rogaland
15/348	Oppgradering av bolig	18 818	81 600	Strøm, Joar	Horten	Vestfold
15/3484	Oppgradering av bolig	71 919	110 000	Seeland, Bjørn	Bærum	Akershus
15/349	Oppgradering av bolig	38 256	104 400	Hope, Hege	Bergen	Hordaland
15/3553	Oppgradering av bolig	34 025	100 800	Blålid, Silje	Sandefjord	Vestfold
15/3569	Oppgradering av bolig	56 515	110 000	Sletten, Rajamohan Mani	Oslo	Oslo
15/3603	Oppgradering av bolig	29 954	106 200	Vangsnes, Erik Loland	Kristiansand	Vest-Agder
15/3636	Oppgradering av bolig	43 049	107 100	Overå, Lene Bjørlo	Ålesund	Møre og Romsdal
15/3730	Oppgradering av bolig	14 635	110 000	Hagen, Erik	Øyer	Oppland
15/3777	Oppgradering av bolig	24 861	66 000	Sæterhaug, Bjørnar	Bodø	Nordland
15/3830	Oppgradering av bolig	59 596	125 000	Wiggen, Magne Magler	Bærum	Akershus
15/3856	Oppgradering av bolig	34 393	110 000	Thompsen, Kjell Inge	Oslo	Oslo
15/3882	Oppgradering av bolig	47 188	100 980	Småbrekke, Berit	Bergen	Hordaland
15/4129	Oppgradering av bolig	76 653	110 000	Stokke, Randi Johanne	Gjemnes	Møre og Romsdal
15/4252	Oppgradering av bolig	17 955	61 500	Langseid, Rune	Skien	Telemark
15/4264	Oppgradering av bolig	34 073	125 000	Pedersen, Anne	Elverum	Hedmark
15/4314	Oppgradering av bolig	35 723	88 800	Olsen, Roger	Stavanger	Rogaland
15/432	Oppgradering av bolig	17 897	110 000	Dokken, Henning	Nittedal	Akershus
15/436	Oppgradering av bolig	27 189	125 000	Gjertsås, Hans-Petter	Lierne	Nord-Trøndelag
15/4503	Oppgradering av bolig	19 342	79 800	Gullaksen, Kristian	Hole	Buskerud
15/4534	Oppgradering av bolig	27 826	95 220	Engeland, Anders	Oslo	Oslo
15/462	Oppgradering av bolig	15 596	47 100	Berge, Ole Raimund	Sund	Hordaland
15/4754	Oppgradering av bolig	37 648	57 000	Sandberg, Jens Helge	Østre Toten	Oppland
15/4829	Oppgradering av bolig	62 380	110 000	Sørlie, Morten	Trondheim	Sør-Trøndelag
15/4908	Oppgradering av bolig	23 891	93 030	Kjeldsen, Ole Dybro	Selbu	Sør-Trøndelag
15/4944	Oppgradering av bolig	52 649	110 000	Bjerkan, Ola	Melhus	Sør-Trøndelag
15/4964	Oppgradering av bolig	14 084	71 400	Grytten, Sigurd	Oslo	Oslo
15/4987	Oppgradering av bolig	33 499	85 200	Røkenes, Kjersti	Trondheim	Sør-Trøndelag
15/5048	Oppgradering av bolig	53 747	110 000	Sandberg, Timo T M	Haugesund	Rogaland
15/5154	Oppgradering av bolig	18 692	56 400	Stenehjem, Jo Steinson	Oslo	Oslo
15/546	Oppgradering av bolig	31 718	110 000	Overå, Kristian	Stranda	Møre og Romsdal
15/549	Oppgradering av bolig	31 015	104 340	Fetveit,Arne	Oslo	Oslo
15/5615	Oppgradering av bolig	27 657	109 440	Eikrem, Sindre	Sula	Møre og Romsdal
15/5694	Oppgradering av bolig	29 213	109 900	Haugen, Stian	Grimstad	Aust-Agder
15/5906	Oppgradering av bolig	54 288	110 000	Høy, Martin	Oslo	Oslo
15/5923	Oppgradering av bolig	25 636	102 120	Eriksen, Dan Peder	Oslo	Oslo
15/6095	Oppgradering av bolig	12 483	55 530	Lindeberg, Eivind	Oslo	Oslo
15/6096	Oppgradering av bolig	12 033	53 220	Jordahl, Magnus	Oslo	Oslo
15/6115	Oppgradering av bolig	28 010	110 000	Kvalsund, Tor-Martin	Stavanger	Rogaland
15/626	Oppgradering av bolig	26 285	109 900	Bertelsen, Joachim F.	Nittedal	Akershus
15/631	Oppgradering av bolig	15 949	91 500	Carlstedt, Andreas Elstadt	Kongsberg	Buskerud
15/757	Oppgradering av bolig	56 240	110 000	Jacobsen-Ellegård, Astri	Kragerø	Telemark
15/785	Oppgradering av bolig	24 787	110 000	Sommerseth, Vanja	BØ (N.)	Nordland
15/787	Oppgradering av bolig	25 517	110 000	Paulsen, Christopher	Kristiansand	Vest-Agder
15/952	Oppgradering av bolig	22 616	110 000	Selseng, Robert	Stavanger	Rogaland
15/959	Oppgradering av bolig	40 044	79 200	Gjersdal, Rune	Klepp	Rogaland
Kartleggingsstøtte bolig						
15/1260	Energirådgivning	-	50 000	Sørbytunet Sameie	Re	Vestfold
15/1402	Bodøsjøen Borettslag	-	250 000	Bodøsjøen Borettslag	Bodø	Nordland

APPENDIX B **PROJECT LIST 2015** - *NOT TRANSLATED TO ENGLISH*

SID	Prosjekttittel	Energiresultat (KWh)	Vedtatt støtte	Søker	Kommune	Fylke
15/1494	Bodøsjøen Borettslag - Ankerveien 2	-	50 000	Bodøsjøen Borettslag	Bodø	Nordland
15/1510	Karivold Borettslag - Reduserte fyringskostnader	-	50 000	Karivold Borettslag	Fredrikstad	Østfold
15/1568	Energimerking av boliger og tiltak for grønnere energibruk	-	50 000	Eugeniesgate 23 A Sameie	Oslo	Oslo
15/1610	Fasaderehabilitering	-	29 440	Borettslaget Nardo Søndre	Trondheim	Sør-Trøndelag
15/1743	Kartlegging av enøktiltak	-	41 540	Sameiet Krusesgate 13	Oslo	Oslo
15/1824	Kartlegge aktuelle investeringer i energitiltak for Puddefjorden borettslag	-	150 000	Puddefjorden Borettslag	Bergen	Hordaland
15/1869	Vestlibakken Boligsameie - rehabilitering med fokus på miljøet	-	95 000	Vestlibakken boligsameie	Oslo	Oslo
15/1975	ENØK-kartlegging av leilighetsbygg	-	21 695	Sameiet vesteråsveien 14	Oslo	Oslo
15/1976	Energitiltak Sameiet Gamletorget	-	50 000	Sameiet Gamletorget	Sandnes	Rogaland
15/2132	Etterisolering av yttervegger og utskifting av vinduer	-	50 000	Borettslaget Bendixensvei 1-9	Bergen	Hordaland
15/2197	Rehabilitering av Solheimslien Borettslag	-	250 000	Solheimslien Borettslag	Bergen	Hordaland
15/2407	Rehabilitering	-	100 000	Granåsvegen Borettslag	Trondheim	Sør-Trøndelag
15/2506	Kvartal XXIV Fasadeoppgradering	-	100 000	Kvartal XXIV borettslag	Sunndal	Møre og Romsdal
15/2507	Hovsvegen Borettslag - Fasaderehabilitering	-	50 000	Hovsvegen borettslag	Sunndal	Møre og Romsdal
15/2554	Energikartlegging Bjørnefaret borettslag	-	250 000	Bjørnefaret Borettslag	Rælingen	Akershus
15/279	Utskiftning av varmekilder	-	150 000	Vesleenga Borettslag	Skedsmo	Akershus
15/3317	Oppgradering av varme og ventilasjonsanlegg,	-	150 000	Kvartal XV Borettslag AL	Sunndal	Møre og Romsdal
15/3666	3416 Brl Kristianslyst 3	-	150 000	Kristianslyst III Borettslag	Stavanger	Rogaland
15/3772	Energikartlegging	-	50 000	Fjordparken borettslag	Drammen	Buskerud
15/3881	Kartlegging av aktuelle energitiltak i boligblokk	-	50 000	Sameiet Hjemly	Ås	Akershus
15/4210	Energi optimalisering av Ulsmåg borettslag	-	250 000	Ulsmåg Borettslag	Bergen	Hordaland
15/4211	Oppgradering Øvre Grønlivei	-	50 000	Sameiet Øvre Grønlivei 16	Lørenskog	Akershus
15/4347	Oppgradering av Månebakken Borettslag	-	50 000	Månebakken Borettslag	Trondheim	Sør-Trøndelag
15/437	Enøkanalyse 2015, ny varmeløsning	-	150 000	Snarøya Sameie	Bærum	Akershus
15/451	Kartlegging energitiltak sameiets boliger	-	50 000	Sameiet Stakkevollveien 33	Tromsø	Troms
15/4648	Skissprosjekt	-	100 000	Sameiet Søndre Nes	Ås	Akershus
15/4671	Kartlegging varmeanlegg	-	250 000	Manglerudjordet Borettslag	Oslo	Oslo
15/468	Kartlegging av enøktiltak Åsen Terrasse B/L II	-	24 866	Åsen Terrasse II Borettslag	Horten	Vestfold
15/4960	Forprosjekt våtrom	-	50 000	Borettslaget Sørmarkå	Stavanger	Rogaland
15/4963	Brl Hundvåg Ring 1 – Rehabilitering av ventilasjonsanlegg - blokker	-	250 000	Hundvåg Ring I Borettslag	Stavanger	Rogaland
15/499	Termografering i Fjordgata 26-28	-	50 000	Sameiet Fjordgata 26-28	Trondheim	Sør-Trøndelag
15/5170	Klarlegging av årsaker til taklekkasjer og forslag til utbedrende tiltak	-	50 000	Bekkensten Boligsameie	Oslo	Oslo
15/5173	Kartlegging av energitiltak i Midtre Ravnåsen Borettslag	-	50 000	Midtre Ravnåsen Borettslag	Oslo	Oslo
15/5247	Enøk Kartlegging - SiB Bolig Øyjordsveien 11 og Hatleveien 5 F	-	150 000	Studentsamskipnaden i Bergen	Bergen	Hordaland
15/5249	Enøk Kartlegging - SiB Bolig Hatleveien 5 AB og CDE	-	250 000	Studentsamskipnaden i Bergen	Bergen	Hordaland
15/5263	Energikartlegging Borettslaget Vestre Lavblokker	-	250 000	Borettslaget Vestre	Bergen	Hordaland
15/5264	Energikartlegging Borettslaget Vestre Høyblokk	-	150 000	Borettslaget Vestre	Bergen	Hordaland
15/5267	Energikartlegging Vadmyra Borettslag Lavblokker	-	200 000	Vadmyra Borettslag	Bergen	Hordaland
15/5270	Energikartlegging Vadmyra Borettslag Høyblokker	-	250 000	Vadmyra Borettslag	Bergen	Hordaland
15/5677	Myrheim III	-	50 000	Myrheim III Borettslag	Tromsø	Troms
15/5843	Energikartlegging	-	50 000	Sameiet Oksevollen Øst	Mandal	Vest-Agder
15/6027	Energibesparende tiltak	-	200 000	Aamodthagen Boligsameie	Rælingen	Akershus
15/6192	Disen Borettslag AL, Kartlegging av energitiltak i eksisterende bygg	-	250 000	AL Disen Borettslag	Oslo	Oslo
15/629	Tveita Borettslag kartlegging	-	114 925	Tveita Borettslag	Oslo	Oslo
15/636	Sparetiltak Seilduksgata 5	-	50 000	Borettslaget Seilduksgaten 5	Oslo	Oslo
15/852	Rehabilitering Olav Engelbrektssons Alle 51-57	-	15 460	Olav Engelbrektsons Alle 51-57 AS	Trondheim	Sør-Trøndelag
15/962	Rehabilitering Sørhellinga Borettslag	-	100 000	Sørhellinga Borettslag	Oslo	Oslo
Formidlingsløsninger fra AMS						
15/6099	Smarte målere - Smarte forbrukere - Fjordkraft	3 826 486	6 300 000	Fjordkraft AS	Landsdekkende	Landsdekkende
15/6104	Smarte målere - Smarte forbrukere - Lyse	18 011 891	13 317 784	Lyse Energisalg AS	Stavanger	Rogaland
15/6105	Smarte målere - Smarte forbrukere - Eidsiva	3 765 840	6 393 866	Eidsiva Marked AS	Alvdal	Hedmark
15/6107	Smarte målere - smartere forbrukere - Follo	11 288 935	9 995 750	Follo Energi AS	Fredrikstad	Østfold
15/6109	Smarte målere - smartere forbrukere - NTE	7 155 000	7 496 503	NTE Marked AS	Flatanger	Nord-Trøndelag
15/6111	Smarte målere - smartere forbrukere - EB Strøm	3 176 000	6 803 125	EB Strøm AS	Drammen	Buskerud
15/6112	Smarte målere - Smarte forbrukere - Ringeriks-Kraft	6 776 000	9 436 867	Ringeriks-kraft strøm AS	Ål	Buskerud

1 *Enovatilskuddet (3819 tilskudd), Energitiltak i bolig (39 tiltak) samt Støtte til energirådgiving (4 prosjekter) er ikke inkludert i oversikten*

Appendix C

Assignments outside the Energy Fund

Natural gas
On behalf of the Ministry of Petroleum and Energy (MPE), Enova has administered the funds of the support programme for natural gas infrastructure during the 2003-2009 period. The last allocation over the national budget was in 2009.

The objective of this arrangement was to facilitate increased domestic use of natural gas, and particular emphasis has been placed on ensuring that the use of natural gas has a positive impact on the environment. Conversion from heavier fuels in industry, shipping and transport were prioritized market areas.

Any remaining funds following completion of the projects must be returned to the public purse.

At year-end 2015, only one ongoing project remains with a residual commitment of NOK 38.5 million.

Publications and consultation statements

Publications

Enovas Resultat- og Aktivitetsrapport 2014
Enova rapport 2015:1

Enova Annual Report 2014
– Results and Activities
Enova rapport 2015:2

Råd om energimerking av varmepumpe
for boligeiere
Enova rapport 2015:3

Kjøpsveileder solceller
Enova rapport 2015:4

Kjøpsveileder varmegjenvinning av gråvann
Enova rapport 2015:5

Kjøpsveileder avtrekksvarmepumpe
Enova rapport 2015:6

Teknologikartlegging kraftgjenvinning fra
lavtemperatur spillvarme
Enova rapport 2015:7

Analyse av feltmålinger av varmepumper i boliger
Enova rapport 2015:8

Markedsutviklingen 2015. Hovedtrender i Enovas
satsingsområder
Enova rapport 2015:9

Rehabilitering og energioppgradering av boliger.
Drøfting av begreper og måling av omfang
Enova rapport 2015:10

Consultation statements

The invitation from Direktoratet for byggkvalitet to submit a consultation statement on: *Nye energikrav til bygg. Forslag til endringer i tekniske krav til byggverk (byggteknisk forskrift) av 26.mars 2010 nr. 489.*

The invitation from The Norwegian Water Recourses and Energy Directorate to submit a consultation statement on: *Tariffer for uttak i distribusjonsnettet.*

The invitation from The Ministry of Trade, Industry and Fisheries to submit a consultation statement on: *Innføring av et register for offentlig støtte.*

The invitation from The Ministry of Petroleum and Energy to submit a consultation statement on: *Forslag til endring av lov om elsertifikater.*

Definitions and explanation of terminology

CO_2 equivalent
Unit that corresponds to the effect a volume of CO_2 has on global warming over a certain period, normally 100 years. Emission of other greenhouse gases is converted to CO_2 equivalents according to their global warming potential.

Climate result
A climate result is calculated for each project supported by Enova. This calculation corresponds to the change in greenhouse gas emissions as a result of various measures in the project (energy efficiency measures, conversion, production or distribution). The calculation takes a basis in the project's energy result (kWh) and emission coefficients for various energy carriers. The climate result is measured in CO_2 equivalents.

Contractual energy result
Contractual energy result is the annual energy result a project is expected to realize in the future. The energy result is included as part of the contractual basis between the support recipient and Enova. All decisions within a calendar year are included in the calculation of gross contractual energy result for the year in question.

Cost efficiency
One of the objectives when establishing Enova was to achieve a more cost-effective effort in renewable energy and efficient energy end use. Enova prioritizes projects based on the size of the support need in relation to the energy result (NOK/kWh), given the project's lifetime and the goals stated in the agreement with the MPE.

ESA
ESA is the abbreviation for the EFTA Surveillance Authority. The EFTA Surveillance Authority ensures that the EFTA nations, Iceland, Lichtenstein and Norway comply with their obligations under the EEA Agreement.

The EFTA Surveillance Authority also enforces the general ban against state aid, and assesses national support programmes vis-à-vis the EEA rules and has the authority to demand that illegal support be returned.

Energy restructuring
The contract between the MPE and Enova stipulates that the Energy Fund will be used to promote an environmentally friendly restructuring of energy end-use, energy production and development of energy and climate technology. The energy restructuring is a long-term effort in the development of the market for efficient and environmentally friendly energy solutions that help strengthen the security of energy supply and reduce greenhouse gas emissions.

Energy result
The energy result is a goal (in kWh) for what the projects we support will deliver (per year) through more efficient energy consumption, increased production and increased use of renewable energy.

Final reported energy result
The final reported energy result is an updated forecast of a project's expected realized annual energy result. Enova assesses whether the project's final reported energy result is reasonable when the final report is submitted.

Lifetime
A key issue related to new production of energy and reduced energy end-use is how long we will reap benefits from the results. Here one can differentiate between technical and economic life. The technical life is connected to how long the equipment can function with normal maintenance, while economic life is related to how long it will take before it will be more profitable to replace the equipment with new and improved technology. Enova bases its lifetime consideration on economic life. This is also reflected in Enova's investment analysis. In addition to the importance of project lifetime as a parameter in the assessment of the support need, it also expresses how long we will benefit from the energy result provided by the project. The project's lifetime multiplied by annual energy result [year*kWh] will express the project's total energy result over its lifetime. Similarly, the energy cost is also expressed over the lifetime [NOK/[year*kWh]].

Passive houses/buildings
Passive houses/buildings are buildings which require very little heating. Norwegian standards have been established both for passive residences (NS3700) and passive commercial buildings (NS3701), adapted to Norwegian climatic conditions.

Programmes
Enova has chosen to focus the use of policy instruments through programmes. A programme is an instrument directed towards one or more specific target groups, with set application deadlines and application criteria.

Realized energy result
Realized energy results are measurements or estimates of achieved energy results after a measure has been completed, and its effects can be observed. It takes time from when the measures are implemented until realized results can be reported.

Renewable energy
Enova uses the same definition of renewable energy used in the EU's Renewables Directive (2001/77/EC). In the directive, renewable energy is defined as renewable, non-fossil energy sources (wind, solar, geothermal energy, tidal energy, hydropower, biomass, gas from treatment plants, gas from cleaning facilities and biogases). Biomass is furthermore defined as biologically degradable fractions of products, waste and agricultural remnants (plant or animal-based), forestry and associated industries, in addition to biologically degradable fractions from industrial and municipal waste.

The Energy Fund

The purpose of the Energy Fund is to be a predictable and long-term source of financing for the environmentally friendly restructuring of energy end-use and energy production and development of energy and climate technology.

The Energy Fund is based on Section 4.4 of the Act relating to amendment of Act No. 60 of 29 June 1990 relating to the generation, conversion, transmission, trading, distribution and use of energy, etc. (Energy Act), cf. Odelsting Proposition No. 35 (2000-2001) and Recommendation to the Storting No. 59 (2000-2001). The Ministry of Petroleum and Energy (MPE) determines the statutes for the Energy Fund.

The Energy Fund is financed through grants in the national budget and a parafiscal charge on the grid tariff for withdrawing power in the distribution grid.

The grants to the Energy Fund mainly consist of returns from the Fund for climate, renewable energy and energy restructuring. At year-end 2015, the capital in this fund was NOK 53.5 billion. In connection with the Climate Compromise in 2012, a decision was made to strengthen the Fund for climate, renewable energy and energy restructuring with a capital contribution of NOK 25 billion over the period from 2013-2016. In the revised national budget for 2014 (Storting White Paper No. 2 (2013-2014), Recommendation to the Storting No. 260 S (2013-2014)), a decision was made to increase capital in the Fund by NOK 4.25 billion beyond the contribution approved in the Climate Compromise. This was also continued for 2015. An additional increase of NOK 5 billion was approved for the 2016 national budget. It is not certain that the entire returns from these new contributions will be added to the Energy Fund.

Triggering effect

As an administrator of public resources, it is important for Enova to ensure that the resources we manage are used in the best possible manner. This principle is stipulated in the agreement between Enova and the MPE in that support must contribute to realizing projects that would not have been realized otherwise. Projects with a low cost per generated or reduced kWh will often be profitable by themselves, and therefore do not require support from the Energy Fund. Support is also considered to be triggering if it advances a project in time, or if a project has a larger scope than it otherwise would have had.

This year's report bears the Nordic Ecolabel (the Swan)

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Enova is a government agency which promotes environmentally friendly restructuring of energy end-use, renewable energy production and new energy and climate technology. Our goal is to create lasting changes in the supply of and demand for efficient and renewable energy and climate solutions.

Enova's reports can be found at **www.enova.no**

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