



**ENERGY EFFICIENCY WATCH**

## **Energy Efficiency Policies in Europe**



### **Case Study**

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*Large Industry Energy Network - Ireland*



Co-funded by the Intelligent Energy Europe  
Programme of the European Union

## Key facts and figures

<b>Country</b>	Ireland
<b>Name of policy</b>	Large Industry Energy Network (LIEN)
<b>Type of policy</b>	The LIEN belongs to the policy type “Voluntary Agreements”. The aim of the programme is not only to define energy saving targets for large industries but also to provide information and advice to the participants and to establish an energy management system. Therefore the LIEN also belongs to the policy types “Information and advice” and “Energy Management System”.
<b>Target sector</b>	The industry sector is the target group. Companies can join the LIEN if they spend more than € 1 million on energy yearly.
<b>Actions targeted</b>	Members of the LIEN have to introduce an energy management system, define individual energy saving targets, conduct annual energy audits and publish annual energy consumption reports. Workshops and seminars are organised on special issues of energy efficiency improvements. The focus of these educational measures is on energy efficient technologies, awareness raising, monitoring & evaluation and energy management approaches. Some technologies, which were already discussed within the network, are e.g. energy efficient refrigeration, lighting, motive power, compressed air, building management systems and combined heat and power (CHP).
<b>Duration</b>	The LIEN was established in 1995 and is ongoing. An end date is not envisaged.
<b>Overall target and/or achievements</b>	According to the EED Article 7 notification, which was published in 2014, projections for the years 2014 - 2020 result in expected energy savings of 3,153 GWh in 2020.
<b>Overall aim of the policy</b>	The overall aim of the LIEN is to support companies to build up or to further improve an energy management system and to achieve ISO 50001 certification. Furthermore, the LIEN also supports companies to identify implementation gaps, to broaden the existing (technical) knowledge, and to exchange experiences between the participants.
<b>Innovativeness</b>	The LIEN is accepted by the companies in the industry sector. In the past, significant energy savings were already realised by network participants. Evaluation activities are supported; the energy targets are recalibrated every year. A gap analysis is included in the Energy Agreement Programme to identify the existing barriers and missing tools to implement an energy management system.

## Policy objectives

The overall energy strategy of the Irish government is to ensure sustainability, competitiveness and energy security. The country’s overall targets are the following: to save energy, to facilitate investments, to create jobs, to promote innovative products, to boost the export and to accelerate economic growth (Department of Communications, Energy and Natural Resources, 2014a). Concrete targets to increase energy efficiency were published in the National Energy Efficiency Action Plan (2014) and in the Article 7 notification in accordance with the EU Energy Efficiency

Directive (EED). The Article 7 target is 30,844 GWh (PEE) and shall be achieved with an energy obligation scheme for energy providers (approximately 50% of energy savings) which started in 2014 in combination with alternative measures. To achieve the remaining energy savings, the industry is a very relevant sector due to the high energy consumption (approximately 24% of the total primary energy consumption of Ireland) and plays a significant role to achieve the target. The following table shows the overall energy performance of the Irish industry sector:

**Table 1: Overall Energy Performance Summary (2013)**

<b>LIEN Total Primary Energy Requirement 2013 (GWh)</b>	26,400
<b>National Total Primary Energy Requirement (TPER) (GWh)</b>	155,284
<b>LIEN as percentage of national TPER (%)</b>	17%
<b>Total CO<sub>2</sub> emissions (tonnes)</b>	5,926,406

Source: SEAI 2013a

A large amount of the EED target (10%) shall be achieved with the Large Industry Energy Network (LIEN) by 2020 (3,153 GWh PEE). This network aims to bring together energy-intensive companies “who recognise the benefits of better energy management for their own competitiveness, for Ireland’s economy and for the environment” (MURE II 2015). Therefore, the primary goal of the LIEN is to support companies to develop an energy management system, to gain comprehensive technical knowledge and to learn from each other.

Barriers addressed by LIEN are primarily the lack of information and awareness. Companies often have insufficient knowledge about (the drivers of) their own energy consumption, lack of knowledge about efficient technologies, missing competences and high search and transaction costs.

The LIEN programme is effective in removing these barriers through informational and networking activities. Participants have to conduct annual energy audits and establish an energy management system to overcome these barriers and to achieve their targets.

### **Beneficiaries and actions targeted**

The LIEN is a voluntary network for energy-intensive businesses. The largest number of participants are manufacturers of food/drinks (53) followed by pharmaceuticals (41), healthcare (18), electronics (10), and others (44) (SEAI 2013a). Members of LIEN have to undertake the following measures (SEAI 2015):

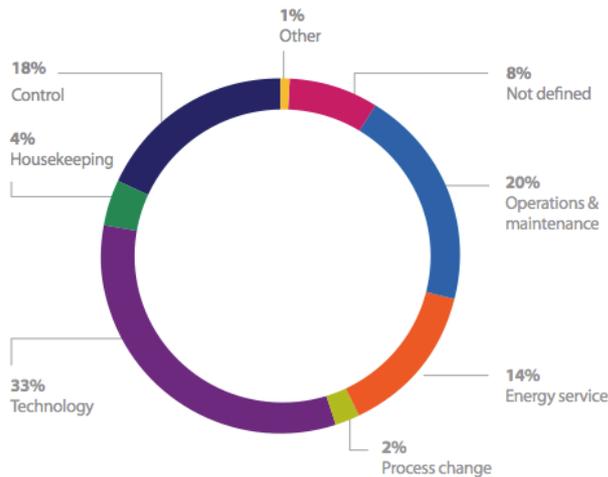
- Introduce an energy management system
- Define energy saving targets
- Conduct annual energy audits
- Publish annual energy consumption reports

LIEN supports the commitments of the companies by organising workshops and seminars, by providing access to energy experts and by organising working groups on special issues. Best practice examples are shared and promoted to the network members.

A wide variety of technologies and management approaches are discussed within the workshops and seminars. This includes discussions about e.g. energy efficient refrigeration, lighting, motive power, compressed air, building management systems and combined heat and power (CHP). However, the focus is not only on technologies. Other approaches include staff awareness, monitoring & targeting (M&T) and energy service approaches (MURE II 2015).

The last annual report, which was published in 2013, categorises the implemented energy saving projects by the type of activity.

**Figure 1: Categorisation of Energy Saving Projects (number of projects)**



Source: SEAI 2013a, p. 11

The following actors benefit directly or indirectly from the LIEN:

- Companies can save energy and costs as well as reduce their greenhouse-gas emissions. Furthermore, they can benefit from the network activities and get access to the energy expertise and knowledge. Good practice examples are shared within the LIEN members to learn from each other. Capacity building is supported. Another benefit is the increased reputation for social responsibility and environmental protection (SEAI 2015).
- Energy consultants and energy auditors can conduct the energy audits and support the company with the implementation of energy efficiency projects. Gap analysis studies are performed by local energy consultants.
- Energy contracting is promoted by LIEN. Therefore, Energy Service Companies (ESCOs) benefit indirectly from the network activities.

## Design and implementation

The LIEN was founded in 1995 and is operated by the Irish energy agency “Sustainable Energy Authority of Ireland (SEAI)”<sup>1</sup> for energy-intensive businesses. The membership is voluntary. Companies can participate if they have energy expenditures of more than EUR 1 million (MURE II, 2015). LIEN was established to support companies with the introduction and further development of an energy management system. Further tasks of the LIEN are the organisation of workshops and seminars, the special training for employees and the assistance in monitoring activities. The online platform LIEN LINK promotes the communication among the members and presents the upcoming events (SEAI 2015).

Around 170 companies are participants of the network. They are responsible for about 17% of the primary energy consumption of Ireland and about 50% of primary energy requirement in the industry sector (SEAI 2013a). It is already planned to extend the network to 200 companies.

More than 80 members of the LIEN are also participating in the Energy Agreement Programme, a sub set of the LIEN. The requirements of the programme go beyond the standard commitments of the LIEN. The members agree to pursue a more ambitious schedule of energy efficiency improvements in their company. They commit themselves to implement and maintain an Energy Management System and to achieve ISO 50001 certification within 12 month (maximum 24 month). The companies receive technical and financial support for implementation. This includes funding for a gap analysis study to identify what is missing to receive the ISO certification, financial incentives for evaluations of energy efficiency projects, and project-specific technical expertise. If a company does not meet the

<sup>1</sup> Formally Sustainable Energy Ireland (SEI)

target to achieve ISO 50001 certification within 24 month, it is excluded from the Energy Agreement Programme (Cahill & Gallachóir 2012).

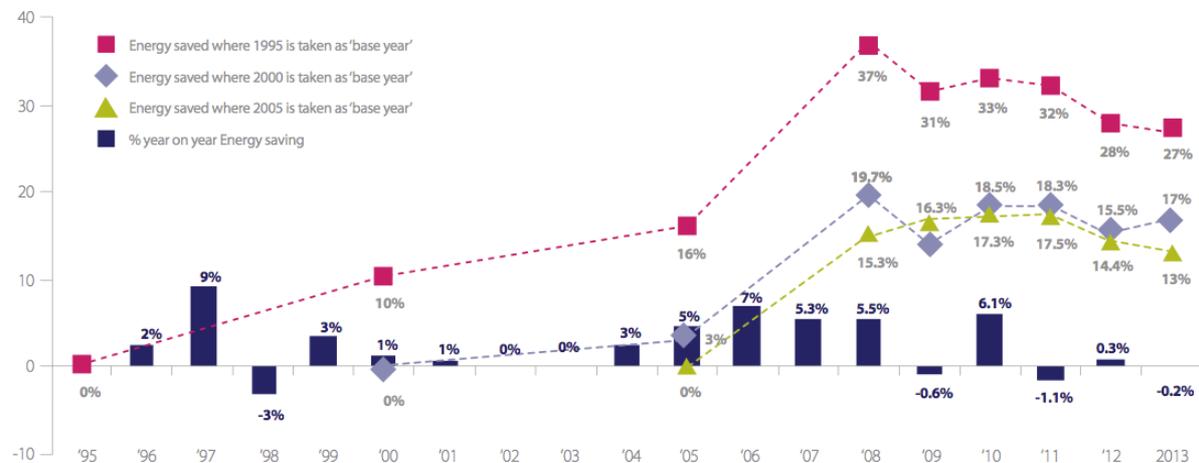
### Policy impacts

The method behind the energy saving calculations is based on an Energy Performance Indicator (EPI) assessment. If a company is a member of the LIEN, the EPI is set to 100 (baseline). This value indicates the energy intensity of the respective year. If the value decreases the energy intensity has improved. A value above 100 indicates a deterioration in energy intensity. Information and specific data about energy-savings measures are also collected via a questionnaire, which the participating companies have to fill out every year. The energy savings are calculated bottom-up (SEAI 2013a). The EPI value is recalculated every year to define new energy targets for the next year. However, the target is non-binding (Cahill & Gallachóir 2012).

The SEAI summarises and analyses the energy savings and targets and publishes annual reports to present the efforts of the programme to the public. According to the last annual report, which was published in 2013, 770 GWh of energy savings were achieved in 2013 through the implementation of energy saving measures by the participants. This is equivalent to EUR 32 million of avoided energy costs (SEAI 2013a).

Since the establishment of LIEN in 1995 the participants have saved between 1 and 2% of energy per year, on average. The companies that participate since 1995 on average achieved energy savings of 27% of final energy savings (SEAI 2013a). The next figure illustrates the achieved energy savings between 1995 and 2013.

**Figure 2: Achieved energy savings**



Source: SEAI 2013a, p. 10

The EED Article 7 notification, which was published in 2014, illustrates projections for the years 2014 to 2020 were published (see next table). This results in cumulated energy savings of 3,153 GWh in 2020.

**Table 2: Energy Savings from the LIEN in GWh (PEE)**

	2014	2015	2016	2017	2018	2019	2020
<b>Annual energy savings</b>	107	107	107	123	123	123	123
<b>Taking into account the lifetimes of savings 2014-2020</b>	747	640	533	493	370	247	123

**Source:** Department of Communication, Energy & Natural Resources 2013

Best practice examples of the LIEN programme are provided to other countries and interested companies. Some examples of these best practices were published in the last annual report (“Our member stories”<sup>2</sup>) and on the SEAI website<sup>3</sup>. Therefore it can be expected that the multiplier effect occurs.

## Policy Innovation

The policy innovation is high because the Large Industry Energy Network brings together energy-intensive industries and supports the exchange of experience. Approximately 170 companies participate in the LIEN, which means that it is accepted by a large amount of companies in the industry sector. The energy savings are also high. Since the beginning of the policy the participants have saved between 1 and 2% of energy per year. The companies that already participate since 1995 in average achieved energy savings of 27% of final energy savings (SEAI 2013a). However, other networks like the EnBW Network and the LEEN Network from Germany could achieve even higher energy savings per company than the LIEN programme indicating that the potential of the LIEN might have not been fully exploited. Another innovative element is the gap analysis, which analyses the barriers in implementing an energy management system and defines what is still needed for a successful implementation.

## Lessons learnt 1: Success factors

- The companies have to publish annual reports to monitor the energy savings and to recalibrate the saving target.
- The LIEN publishes its own annual report with results from each company. This is a further stimulus for companies to achieve the energy saving target and to improve the image of the company.
- Existing barriers like a lack of information is addressed through technology-specific information campaigns. An individual advice and support is guaranteed and tailored to the needs of the company.

## Lessons learnt 2: Factors to avoid and possible further improvements

The annual report quantifies the energy savings of the whole LIEN programme but does not explain the methodology to calculate the savings. Furthermore, the report does not “determine the proportion of the savings that could be attributed to participation in the programme” (Cahill & Gallachóir).

<sup>2</sup> [http://www.seai.ie/Your\\_Business/Large\\_Energy\\_Users/LIEN/LIEN\\_Reports/LIEN-Annual-Report-2013.pdf](http://www.seai.ie/Your_Business/Large_Energy_Users/LIEN/LIEN_Reports/LIEN-Annual-Report-2013.pdf)

<sup>3</sup> [http://www.seai.ie/Your\\_Business/Large\\_Energy\\_Users/Special\\_Initiatives/Industrial\\_Best\\_Practice\\_Initiative/](http://www.seai.ie/Your_Business/Large_Energy_Users/Special_Initiatives/Industrial_Best_Practice_Initiative/)

## References and further information

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- Cahill, Caiman J.; Gallachóir, Brian P.O. (2012): Quantifying the savings of an industry energy efficiency programme. *Energy Efficiency* (2012) 5:211-244
- Department of Communications, Energy and Natural Resources: Maximising Ireland's Energy Efficiency. Plan Under Article 12(2) of Directive 2006/32/EC
- Department of Communication, Energy & Natural Resources (2013): Report on the Implementation of Article 7(9) of the Energy Efficiency Directive in Ireland. Alternative Approach to the Energy Savings Obligation
- Department of Communications, Energy and Natural Resources (2014): National Energy Efficiency Action Plan 2014. Maßnahme B1
- Department of Communications, Energy and natural Resources (2014a): Green Paper on Energy Policy in Ireland
- MURE I (2012): Energy Efficiency Profile: Ireland. <http://www.odyssee-mure.eu/publications/profiles/ireland-efficiency-trends.pdf>
- MURE II (2015): Large Industry Energy Network (LIEN). IRL 2. [http://www.measures-odyssee-mure.eu/public/mure\\_pdf/industry/IRL2.PDF](http://www.measures-odyssee-mure.eu/public/mure_pdf/industry/IRL2.PDF)
- Sustainable Energy Authority of Ireland (SEAI) (2013): Success Stories. Large Industry Energy Network
- Sustainable Energy Authority of Ireland (SEAI) (2013a): Collaborating on Energy Efficiency Driving Ambition. Annual Report 2013  
[http://www.seai.ie/Your\\_Business/Large\\_Energy\\_Users/LIEN/LIEN\\_Reports/LIEN-Annual-Report-2013.pdf](http://www.seai.ie/Your_Business/Large_Energy_Users/LIEN/LIEN_Reports/LIEN-Annual-Report-2013.pdf)
- Sustainable Energy Authority of Ireland (SEAI) (2015): Large Industry Energy Network. [http://www.seai.ie/Your\\_Business/Large\\_Energy\\_Users/LIEN/](http://www.seai.ie/Your_Business/Large_Energy_Users/LIEN/)

## Disclaimer

The sole responsibility for the content of this publication lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME nor the European Commission are responsible for any use that may be made of the information contained therein. The analysis performed here is based almost exclusively on the information provided in the NEEAPs. Consequently, a low score for any of the criteria analysed could also be the result of a NEEAP lacking detailed information. Furthermore for some countries, national experts were consulted to review the reports. However, an expert was not available for every country and a full analysis of the policies and measures was only possible for a limited number of reports. The purpose of this assessment is not an absolute policy overview among Member States but is focusing on each Member State's individual conditions.

## The Project

The Energy Efficiency Watch Project aims to facilitate the implementation of the Energy Efficiency Directive but also related policies like the Energy Performance in Buildings Directive (EPBD) and the Ecodesign (ErP) Directive on the national, but also on the regional and local level. This country report shows the progress made in implementation of national energy efficiency policies identified via a screening of NEEAPs and an extensive EU wide expert survey.

[www.energy-efficiency-watch.org](http://www.energy-efficiency-watch.org)

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## List of Abbreviations

**EE** – Energy Efficiency, **EED** – Energy Efficiency Directive, **EPC** – Energy Performance Certificates, **EPBD** – Energy Performance of Buildings Directive, **ErP** – Energy-related Products, **EU** – European Union, **EEW** – Energy Efficiency Watch, **MEPS** – Minimum Energy Performance Standards, **MURE** – Mesures d'Utilisation Rationnelle de l'Énergie, **NEEAP** – National Energy Efficiency Action Plan, **nZEB** – nearly Zero Energy Buildings, **R&D** – Research and Development