



Comprehensive analysis of funding mechanisms

Work package 1

D1.6

TrustEE

Grant number: 696140

15.11.2016

H2020-EE-2014-2015/H2020-EE-2015-3

TrustEE

**INNOVATIVE MARKET BASED TRUST FOR ENERGY EFFICIENCY INVESTMENTS IN
INDUSTRY**

Report Prepared by:

Roberto Giralda, Alfredo Rodrigo
AINIA

The sole responsibility for the content of this deliverable lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME (Executive Agency for Small and Medium-sized Enterprises) nor the European Commission are responsible for any use that may be made of the information contained therein.

This project has received funding from the European Union's (EU) Horizon 2020 research and innovation programme under grant agreement No 696140.

Table of Contents

1	Executive Summary	1
2	Target and Methodology.....	3
3	Funding Programmes and Financial Instruments	4
3.1	Taxes /Fiscal Instruments	4
3.2	Investment grants/Subsidies	6
3.3	Energy Audit/Advice services	12
3.4	Feed In Tariffs	13
3.5	White Certificates.....	18
3.6	Green Certificates.....	19
3.7	Credits/Loans (with and without subsidy)	20
3.8	Contracting.....	26
3.9	Innovation Vouchers	27
4	Austria.....	29
4.1	Eco-Electricity Act.....	30
4.2	Regional programmes supporting energy consultancy for businesses.....	31
4.3	Energy supply contracting & energy performance contracting	34
4.4	Energie Contracting Programm Oberösterreich	37
4.5	Bank loans	39
4.6	Umweltförderung im Inland / Energy (Energie).....	39
4.7	Solar thermal – solar thermal large plants.....	40
4.8	Erp Loan, Loan Guarantee for investments in Environmental protection	41
5	Germany.....	42
5.1	EEG	44
5.2	Climate Protection Initiative	45
5.3	Subsidy for Mini CHP plants	46
5.4	Funding programme for Micro-CHP-heating devices.....	46
5.5	Compensation for electricity generated by CHP plants	47
5.6	Climate Initiative – Measures for industrial cooling plants.....	47
5.7	Environment Innovation Programme.....	48
5.8	BMWi- Innovation Bonuses (go-inno).....	49
5.9	KfW- Funding Initiative Energy Transition.....	50
5.10	Funding of measures to adapt to climate change.....	51
5.11	KfW- Energy Efficiency Funding Programme	52
5.12	KfW-Programme: Renewable Energies – Standard.....	53
5.13	KfW-Programme: Renewable Energies – Premium.....	53
5.14	Energy consulting for SMEs.....	55
5.15	Investment grant for the use of highly efficient cross-sectional technologies in medium-sized businesses.....	55
5.16	“Prozesswärme” - Market Incentive Programme-	56
6	Portugal.....	58
6.1	Fundo de Eficiência Energética.....	60

6.2	Fundo de Apoio à Inovação	64
6.3	Plano de Promoção da Eficiência no Consumo de Energia Eléctrica	65
6.4	Sistema de Gestão dos Consumos Intensivos de Energia	67
6.5	Cogeração.....	69
6.6	Microgeneration and minigeneration of Electric energy from Renewable Energies	70
7	Spain	72
7.1	Renewal Plan for Industry Components to Gas (2016)	74
7.2	Renewal Plan for Industrial Boilers	75
7.3	CLIMA Projects.	76
7.4	Grants to finance tourism and agro industrial companies in the area of Extremadura.....	77
7.5	Fondo JESSICA-F.I.D.A.E. FEDER	78
8	Sweden	79
8.1	Local government (“kommun”) climate and energy advisors.....	79
9	General webpages and references	80
10	Anex I: Summary of relevant financial and funding instruments.	81
11	Anex II: List of relevant EE and/or RES associations and public bodies....	91

1 Executive Summary

The present report summarizes relevant information gathered about funding options and available incentives related to PHES investments. Based on the previous works of the consortium in the GREENFOODS IEE project, a comprehensive analysis of other relevant funding mechanisms is conducted. Based on this work further analysis for financing schemes also suitable for other industry sectors will be done.

Project partners performed a detailed mapping of funding programmes available in Austria, Germany, Portugal, Sweden and Spain and filled out one template per programme. Most partners concentrated on nationally available instruments, but some regional instruments are also listed in this report.

This compilation of several different funding and financing schemes will serve as a basis for helping to develop and/or optimise financing and funding schemes in the countries of the TRUSTEE partners (Austria, Germany, Portugal, Sweden, Spain) and three additional European countries considered in this report (France, Italy and Poland). These latter three countries have been also analyzed because they are important potential markets for new PHES investments and they have developed some relevant EE and/or RES funding mechanisms.

Tax incentives have been only reported by Sweden and Portugal. In Sweden the principal policy instrument for energy efficiency is taxation on energy and CO₂ emissions. The main incentive in Portugal for renewable energy use in transport is a tax exemption for biofuels. Tax regulation mechanisms (Energy and CO₂-Tax) for biofuels have been found both in Sweden and Portugal.

Investment grants are heavily used in almost all considered countries, especially the following institutions run important programmes: KPC in Austria, KfW-Bank in Germany and ADEME in France. Relevant programmes also exist in Spain, Portugal, Sweden and Poland. The main advantage of this kind of financial support is that grants can be specific and improve the pay-back of investments in energy efficiency and renewable energy. Very often the availability of grants raises the company managers' awareness of certain technologies. This instrument is very useful especially for new technologies. The disadvantage is that they suppose a burden for public budgets and those budgets are very often available only for a short period of time which makes medium to long term planning more difficult for investors. Usually very economic measures (pay-back below 3-5 years) are not subsidised and de minimis rules¹ have to be observed owing to the European state aid restrictions. Minimum savings or maximum subsidies per saved ton of CO₂ are also often defined. National subsidies are improved by using European structural funds. Subsidies are mainly paid for projects including fields of Energy Efficiency and Renewable Energy and/or pilot projects. Several of the TRUSTEE participating states have developed

¹ **De minimis rule:** "Article 108(3) of the Treaty on the Functioning of the European Union (TFEU) (ex-Article 88(3) of the Treaty establishing the European Community (TEC)) requires state aid to be notified to the European Commission so that it can assess whether the aid is compatible with the common market in the light of Article 107(1) TFEU (ex-Article 87(1) TEC). However, under [Regulation \(EC\) No 994/98](http://europa.eu/legislation_summaries/competition/state_aid/l26121_en.htm) certain categories of aid can be exempted from the notification requirement." "Aid of no more than EUR 200 000 granted over a period of three years is not regarded as state aid within the meaning of Article 107(1) TFEU." (http://europa.eu/legislation_summaries/competition/state_aid/l26121_en.htm, downloaded 28.1.2014)

also special programmes via grants to support energy audits performed by independent companies.

Electricity production from renewable energy sources is supported in Germany and Austria by paying money for electricity delivered to the public grid (**Feed in Tariff**). In general, the main disadvantage of feed in tariffs (FITs) (vs. market premium system) is that the need for support depends on the market price: The cost of this particular system represents the difference between the market price and the FIT times the amount of renewable energy produced. Additionally, renewable electricity producers frequently get the tariff even if no electricity is necessary in the grid at the moment of production.

White Certificates were reported in France and Poland. The different methods to calculate the savings include already some energy efficiency measures in industry. Later the savings can be sold. As an advantage a real business for energy efficiency can be developed by such obligation schemes.

A wide variety of **loans** were reported by the diverse countries. Activities related to energy efficiency and/or renewable energy are often eligible for special conditions (e.g. lower interest rates, grace periods). **Guarantees** are also available for this type of loan. Three different kinds of loans can be described:

- general loans given by private banks (similar to other usual forms of loans)
- loans supported by public sources and have a general target (esp. regional growth) and
- loans intended for special investments in energy efficiency and/or renewable energy sources (esp. used in Germany KfW).

Green Certificates are used in Sweden. The mechanism of green certificates (CV) is a form of incentives for the production of electricity from renewable sources. This mechanism is based on the mandatory rule that producers and importers of electricity generated from non-renewable sources, must annually introduce into the national or transnational electricity system a minimum share of electricity produced by plants using renewable sources.

Contracting programmes and initiatives must help to overcome the main barriers of energy efficiency investments: the higher costs in the beginning and the risk associated to this kind of projects. In one Austrian region, in Poland, and in Germany, there are support schemes for contracting either via subsidies or via loans.

Financial support for energy audits is usually provided in the form of a **grant**. **Innovation vouchers** are quite similar; nevertheless their use is not constrained to energy related services.

2 Target and Methodology

This report summarizes some results of task 1.4 “PHES investment parameters database” of the work package 1 “Potential and Impact assessment “ of the project TRUSTEE.

The national and regional funding and investment programmes applicable to energy-efficiency and/or measures for the energy supply based on renewable sources were mapped and the best practices identified. The existing opportunities offered by the national/regional funding programmes include public funding programmes like e.g. not only the use of structural funds but also advise on financing mechanisms for energy related investments concerning other stakeholders like financing institutions, energy service companies and the potential of energy performance contracting etc.

First a methodology for effectively collecting and analysing information about the available financial resources for SMEs to implement energy saving measures was developed. This methodology makes possible the analysis and comparison among existing funding sources in the target countries (Austria, Germany, Spain, Portugal and Sweden) plus France and Poland.

A template was distributed to the project partners for the survey. This template was developed for the survey of those programmes. It included relevant issues for funding programmes and financing instruments. The Information collected is listed below:

- name of the programme or instrument
- webpage
- category (e.g. loan, grant)
- administering organization
- budget, number of applicants
- source of budget, legal background
- geographical area covered
- technology or service covered
- sector and size of company
- programme content
- conditions of funding
- availability of best practice examples

A detailed mapping of existing funding programmes and financing instruments of their country was conducted by each partner and from previous documents and relevant sources. One template per programme was filled out. Most of the countries focused on nationally available instruments, but also regional instruments are included in this report.

All the relevant information has been included in one report instead of making one document per country. A particular chapter summarises the programmes organized according to the type of instrument.

The current document is organized as follows:

- First, the report begins with an executive summary.
- The programmes of the different countries are categorised and summarized according to the kind of instrument;
- Finally, the results of the mapping of funding programmes and other financial instruments are explained in chapters three to four to ten for each country, (Austria, France, Germany, Poland, Portugal, Spain, and Sweden).

3 Funding Programmes and Financial Instruments

The different funding and financial tools reported by the different countries in chapters four to ten are classified and listed below according to the kind of instrument (e.g. grant, credit etc.).

3.1 Taxes /Fiscal Instruments

Tax incentives have been reported mainly by Portugal. Instruments based on fuel or energy taxes or tax regulation mechanisms have been found in Sweden and Spain and they would also belong to this group. Those taxes and the level of the energy price have an impact on the investment activity in energy efficiency and renewable energy carriers. Fuel or energy taxation can be regarded as important policy instruments for energy efficiency and renewable energy; however this kind of taxes were not considered as a financing instrument in this document.

The disadvantage of taxes or fiscal instruments in comparison to subsidies is generally that they are not as flexible as subsidies and cannot be changed, for example, each year. In addition, usually more ministries are involved for taxes, for example, the ministry of finance in addition to the ministry of environment and/or the ministry of economics.

Portugal

There is an existing tax regulation mechanism for biogas, biomass and solar energy. The amount of subsidy is equal to the amount of taxes entitled people are exempt from. At the moment, the consumption tax on electricity amounts to PLN 20 (approx. € 4.55) per MWh (art. 89 par. 3 Tax Act).

The main incentive for renewable energy use in transport is a tax exemption for biofuels. In this way there is a tax regulation mechanism affecting biofuels. In Portugal companies supplying, importing and producing fossil fuels are obliged to pay energy and carbon dioxide taxes. Biofuels are exempt from these taxes. In the transport sector, the main incentives are a biofuel quota system and a tax exemption to small producers of biofuels (PPDs).

Italy

Tax regulation mechanisms are in place for investment in RES-E plants. A tax regulation mechanism is currently in place for the promotion of RES-H.

Tax regulation mechanisms I (Reduction in value-added tax)

Since 1993, Italy has promoted the generation of electricity from wind and solar energy through a reduction of 10% on the value-added tax (l'aliquota agevolata del 10 per cento) for deliveries and services related to investments in wind power plants and solar energy installations and investments in grids that distribute this electricity.

Tax regulation mechanisms II (Reduction in real estate tax)

The Budget Act of 2008 gives municipalities the opportunity to grant a reduction in real estate tax (*imposta municipale propria*, IMU) to buildings equipped with renewable energy installations. The amount of IMU depends on the value of the property and differs from municipality to municipality.

Tax regulation mechanism (Tax deduction)

This scheme allows for a 65 % tax deduction (“*detrazione*”) for expenses related to refurbishment of existing buildings and / or energetic requalification of buildings and / or installation of RES-H technologies (Art. 1, c. 344 – 347, l. 296/06). This disposition is valid for works undertaken up to 31 December 2014 (Art. 1, c. 48, L 220/10 in conjunction with Art. 16 DL 4/6/2013). For works undertaken between 1st January 2015 and 31 December 2016 the tax deduction will be lowered to 50%.

Sweden

The main policy instrument for energy efficiency, among other objectives, is taxation on energy and CO₂ emissions. The general level for the CO₂ tax is 1.08 SEK/kg (2014). Taxes are levied on electricity, fuels and emissions of carbon dioxide. The tax level varies according to whether fuel is used for heating or as motor fuel. There are also variations depending on whether energy is used by households, industry or in the energy conversion sector. Taxes on electricity vary according to geographical location.

The Kingdom of Sweden promotes renewable electricity through a quota system, tax regulation mechanisms and a subsidy scheme.

Regarding support mechanisms for renewable heating in Sweden, tax exemptions are the main instruments to support renewable heating:

Energy and carbon dioxide taxes. In Sweden, energy and carbon dioxide taxes are levied on the supply, import and production of fossil fuels for heating purposes. Renewable energy sources are exempt from these taxes. The amount of subsidy is equal to the amount of taxes entitled persons are exempt from.

Nitrous oxide tax. The producers of heat are obliged to pay a tax according to their nitrous oxide emissions. Heat producers using renewable energy sources are exempt from this obligation.

There is another tax regulation mechanism affecting to renewable electricity: Tax reduction for micro production of renewable electricity for biomass and solar energy. The tax reduction amounts to 60 öre (€ct. 6.3) per kWh of renewable electricity fed into the grid at the access point during the calendar year. However, the tax reduction may not exceed 30,000 kWh or the amount of electricity withdrawn from the electricity grid at the access point during the same year per natural person / legal entity or per connection point (§§ 5, 8 Act No. 2013/14:151).

There is a tax regulation mechanism (Energy and CO₂-Tax) also available for biofuels. For low-percentage blend in petrol of ethanol produced from biomass the maximum deduction amounts to 74% from energy tax and 100% of CO₂-tax on the share of fuel produced from biomass (Chapter 7 § 3c Act No. 1994:1776). For ethyl tertiary butyl ether (ETBE) produced from biomass the maximum deduction amounts to 100% from both energy tax and CO₂-tax on the share of fuel produced from biomass (Chapter 7 § 3c Act

No. 1994:1776). For low-percentage blend in diesel of rapeseed methyl ester (RME) and fatty acid methyl esters (FAME) produced from biomass the maximum deduction amounts to 8% from energy tax and 100% of CO₂-tax on the share of fuel produced from biomass (Chapter 7 § 3d Act No. 1994:1776).

For hydrogenated vegetable and animal oils and fats (HVO) and other biofuels that have the same codes (CN codes) as diesel or petrol the maximum deduction amounts to 100% from both energy and CO₂-tax on the share of fuel produced from biomass. This deduction may be made in addition to the deduction for RME or FAME mentioned above (Chapter 7 § 3a and 3b Act No. 1994:1776).

The amount of subsidy is equal to the amount of taxes eligible persons are exempt from. The energy and CO₂-tax for petroleum amounts to range between SEK 4.52 (€ 0.48) and 7.12 (€ 0.76) per litre. The energy and CO₂-tax for diesel amounts to range between SEK 846 (€ 90) and 5,983 (€ 639) per m³ (Chapter 2 § 1 par. 1 No. 1, 2 and 3 Act No. 1994:1776).

Spain

A tax regulation mechanism for investments related to RES-E plants is in place. There is a tax credit for solar thermal and for biofuels in transport. Although a quota system for biofuels is also in place.

3.2 Investment grants/Subsidies

Investment grant or subsidies are a widely used instrument in almost all analyzed countries, especially in Austria (KfW), Germany (KfW) and France (ADEME). Some relevant programmes also exist in Spain, Portugal, Sweden and Poland. One of the greatest *advantages* of subsidies is that they can be specific and enhance the pay-back of investments in energy efficiency and renewable energy. In addition to this the availability of subsidies often increases the awareness of companies of certain technologies. This instrument is especially useful in the case new technologies. Nevertheless the main disadvantage is that subsidies are a burden for public budgets and those budgets are very often limited for only one year which makes medium and long term planning more complex for investors. Investments with a pay-back below 3-5 years are usually not subsidised and de minimis rules² have to be observed because of European state aid restrictions. Minimum savings or maximum subsidies per saved ton of CO₂ are also generally defined. National subsidies have risen by using European structural funds.

Subsidies are mainly indented for projects in the fields of:

- Renewables and heat pumps for heat production (Austria, Germany, Portugal)
- CHP (based on biomass and/or gas) (Austria, Germany, Portugal)
- Energy efficiency (Austria, Germany)

² **De minimis rule:** "Article 108(3) of the Treaty on the Functioning of the European Union (TFEU) (ex-Article 88(3) of the Treaty establishing the European Community (TEC)) requires state aid to be notified to the European Commission so that it can assess whether the aid is compatible with the common market in the light of Article 107(1) TFEU (ex-Article 87(1) TEC). However, under [Regulation \(EC\) No 994/98](http://europa.eu/legislation_summaries/competition/state_aid/l26121_en.htm) certain categories of aid can be exempted from the notification requirement." "Aid of no more than 200,000 Euro granted over a period of three years is not regarded as state aid within the meaning of Article 107(1) TFEU." (http://europa.eu/legislation_summaries/competition/state_aid/l26121_en.htm, downloaded 28.1.2014)

- Special programmes for industrial cooling systems (Germany, Austria)
- Fuel-Switch (Spain)
- Pilot projects (Germany, Poland, France)
- Modernization of plants in the food sector (Poland)
- Investment in new technologies, implementation of CSR (Poland)

Austria

In **Austria**, the subsidy programme (Umweltförderung Inland) is given by Kommunal Kredit Public Consulting (KPC). Under the bearing of "energy supply" wood boiler heating systems, local heating plants on the basis of renewable energy, heat pumps, biomass CHPs, natural gas CHPs and solar thermal plants are subsidised. The support normally lies in the range of 20-30% of eligible costs with a minimum investment of 10,000 Euro.

The following energy saving measures are subsidised in Austria under the heading of "energy saving": buildings insulation (for company), air conditioning and cooling systems (ad- and absorption cooling driven by renewable energy or industrial waste heat up to 750 kW), free cooling, process cooling with alternative refrigerant (NH₃ or CO₂), energy saving measures in companies (heat recovery, heat pumps, energy efficient production processes, efficient lighting systems, optimisation of heating systems in existing buildings), induction ovens and LED systems. Generally, if a minimum investment of 10,000 Euro is required, the minimum pay-back of the measures has to be from three to five years and the de minimis rules must be considered (200,000 Euro per company within three years). The subsidy is in general between 30-35% of eligible (environmentally relevant) costs. In Austria co-financing for such projects is offered via European Regional Development Fund (ERDF) and European Agricultural Fund for Rural Development (EAFRD).

France

The ADEME aid program for energy savings may finance investments in newest technologies as well as production processes, distribution and use of energy having the goal of energy saving for private industrial and services companies of all sizes in **France**. In total 20 to 50 projects are financed with 5 to 10 Millions Euro per year by ADEME usually through Regional Directions. ADEME program is made of two different kind of operations: not only demonstration operations which are a first use in real industrial-sized applications of new or innovative and energy efficient technology but also exemplary operations, which are committed to validated technologies when it is necessary to create best practices examples in a specific territory or branch. The incentive should cover only partly the additional cost related to the energy efficiency technology. The total of payback from energy savings during five years will be deducted from the incentive.

The ADEME Heat Fund is committed to support heat production projects on the basis of renewable energy sources in production companies of all sizes (but also public bodies) that have a remarkable heat production capacity. The Fund is supported by a budget of about 200 Mio. Euro per year. It comprises the following installations: Biomass industrial and agricultural plants, solar thermal plants for hot water production and 350kWh minimum per m² with special attention to be paid to milk and cheese producers, deep geothermal production, geothermal heat pumps (with a technical specification), biogas plants of more than 100 toe for agriculture, plus technical specifications and heating networks in case that they are supplied with at least 50% renewable sources or heat recovery.

Germany

There are several **available** Investment Grant programmes In **Germany**. The following were considered as relevant for this study on a national level:

The Federal Office for Economics and Export Control (Bundesamt für Wirtschaft und Ausfuhrkontrolle (BAFA)) gives subsidies to investment measures to improve energy efficiency by using highly efficient cross-sectional technologies that are available on the market, that are for instance: pumps, electrical engines, ventilation and air conditioning, compressed air systems and systems for heat recovery and use of waste heat. Previous to adopting the measures, an energy advisor must develop an energy saving concept. Adopted measures have to attain an end energy saving of at least 25% to be subsidised. De minimis aid: SMEs can achieve a grant of up to 30% of the eligible costs for particular measures. But other companies can reach a grant of up to 20% of the eligible costs for particular measures.

Under the Market Incentive Programme (Marktanreizprogramm, MAP) SMEs can obtain **investment grants for heat provision** by using solar thermal sources (up to 100 m²), biomass or heat pumps (both up to 100 kW) depending on the size and particular technology.

Measures for industrial cooling plants can be subsidized by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. The following kinds of measures are specifically included within the Climate Initiative: energetic baseline studies for existing cooling devices (Status- Check- Funding), renovation of existing cooling devices, actions for energy efficient future systems and measures for waste heat valorization. The energetic baseline study (status check) has to prove an energy saving potential of at least 35% by using more efficient components and systems. New facilities have to use CO₂, NH₃ or non-halogenated refrigerants and installed components have to work very efficiently. The yearly electricity demand of the cooling system has reach at least 100,000 kWh or else the cost for the electricity and power of the plant has to overcome 10,000 Euro per year at minimum. The systems must include electricity meters with separate remote reading systems, The maintenance has to be done by a specialised company and measures to minimise emissions of cooling solvents have to be adopted. The status check is covered by a subsidy of 75% of the costs, with a 1,000 Euro maximum. Other measures are funded between 15% and 35% of the net investment costs.

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety also subsidises new **(Mini-)CHP** (Combined Heat and Power) systems with an electrical power of 20 kW or lower in existing buildings via a one-time investment grant. The Federal Office of Economics and Export Control (BAFA) manages this particular funding system. Large plants with an electric power of 19 kW can receive a 3,450 Euro subsidy. A German energy supplier (E.ON Energie Deutschland) subsidises the installation of Micro-CHP heating devices (electrical power output of roughly 1 kW) for private customers offering a 1,000 Euro grant.

R & D projects in the field of biomass production and energy efficiency measures can be supported by two different programmes:

The Climate Protection Initiative - research and development for climate efficient optimisation of **biomass energy recovery** - subsidises the following types of projects: projects for developing new technologies, flexible system technologies and concepts for biomass products oriented towards sustainable and efficient power generation and/or sustainable and efficient heat production. Industrial companies can receive a grant of up to 50%, whereas universities and other research institutions can achieve up to 75% of the

eligible costs from the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

The scheme called "Funding of measures to adapt to climate change" (Förderung von Maßnahmen zur Anpassung an den Klimawandel) from the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety supports projects related to the **development of climate friendly concepts** and other areas. the maximum amount is 100,000 Euro per project For SMEs in order to develop climate-friendly and climate adapted concepts (two years duration).

Poland

The **Rural Development Programme** for 2007-2013 (PROW) supports activities aimed at **modernization of the food sector** and the creation of new companies that increase employment in rural areas. This covers enterprises (employing up to 750 people with a turnover up to 200 Mio. Euro) and also cooperatives whose business is registered in the agro-food sector (mainly producers and wholesalers working in urban and rural areas), e.g. companies processing meat, milk, vegetables, fruits and other agricultural products, can apply for structural funds. SMEs can obtain a refund of up to 40% of eligible costs for investments, including construction, renovation, modernization of facilities, purchase of production lines, transportation, equipment, and software. SMEs with signed long-term contracts with producer groups for the supply of agricultural commodities will obtain the highest level of support (up to 50 per cent.). This activity involves implementation of projects in the field of production and distribution of energy generated from renewable sources.

The Project "**Enhancement of regional competitiveness through Corporate Social Responsibility (CSR)**" is aimed at increasing the level of awareness and knowledge on social corporate responsibility (CSR) among representatives of the Offices of the Marshal Centre of Service for Investors and Exporters (COIE) and SMEs. Other purpose includes the endorsement of socially responsible enterprises in the local policy for entrepreneurship and the implementation of CSR through pilot SME projects. The project is accomplished as part of the Swiss-Polish Cooperation Programm and financed by Switzerland as part of the of Swiss cooperation programme with new EU Member States. The whole budget of the project is CHF 4,866,117. Public Partners are the Offices of the Marshal Centres of Service for Investors and Exporters. Approximately 90 small- and medium-sized enterprises will be supported by co-financing pilot projects that take specific measures such as making greater use of renewable energy sources.

Program "**PO IG 4.4 – "New investments of high innovative potential, Operational Programme - Innovative Economy, Measure 4.4"**" supports investment projects of Micro, Small, Medium Enterprises connected to the application of new technological, product, service or organizational solutions and training and also consultation projects needed to develop investment projects. New jobs Creation connected to the new investments are pertinent. The budget comes from EU-funds. The level and amount of support varies from 40% to 70% of eligible costs, in accordance with the Regulation on the establishment of a regional aid map, where the total value of the project is not exceeding 50 Mio. Euro and expenditure eligible for support under the project is at least PLN 8 Mio. But lower than PLN 160 Mio.. The minimum amount of support for investments of high innovative potential is PLN 2.4 Mio..

The maximum amount of support for one entrepreneur per project was determined as follows:

- for the investment part – PLN 40 Mio.
- for the advisory part – PLN 1 Mio.
- for the training part – PLN 1 Mio.

There is a specific program called “**Support for obtaining grants**” addressed to enterprises which submit their project applications using an international innovation programme as coordinators, or participate in such a project as partners. The cooperation must engage entities from at least two countries. The amount of support for obtaining a grant may reach up to 100% of eligible expenditures for grant being a de minimis aid. The maximum total of the support for obtaining grants to be paid to one enterprise cannot surpass PLN 75,000.00 for a coordinator of an international innovation project and PLN 35,000.00 in the case of a partner.

Spain

The following local subsidy programmes were identified in Spain:

Industrial companies settled in the Madrid Region can apply for a public grant to replace or revamp **industrial equipment** using **coal, LPG or diesel oil** in order to allow using **natural gas**. **The subsidy is** managed by the Energy Foundation of Madrid. The amount of the grant varies between 1,511 Euro and 6,685 Euro. This grant is supplied by state funds and it has a budget of 5 Mio. Euro. More than 100 replacements are foreseen.

The goal of the Renewal Plan for Industrial Boilers, which is administered by the Energy Foundation of Madrid, is to replace or **renovate thermal installations** with a heat generator based on coal, LPG or fuel from industrial processes. Industrial companies that are settled in Madrid and installers of new heat generators using natural gas (steam boiler, superheated water and thermal fluid and hot water boilers) can request public grants depending on the thermal power.

The investment fund JESSICA – F.I.D.A.E. FEDER supports energy efficiency projects and renewable energy in industry in companies of all sizes via public grants. The fund is available for 10 autonomous communities of Andalucía, Canary Island, Castilla and León, Castilla-La Mancha, Ceuta, Comunidad Valenciana, Extremadura, Galicia, Melilla and Murcia. The Fund is financed by ERDF and IDAE and managed by the European Investment Bank (EIB) having a budget of 123 Mio. Euro. Energy Efficiency and Energy Management projects for such as the refurbishing of existing buildings, with performances in the thermal envelope, heating-, cooling-, lighting optimisation etc., and renewal or extension of existing networks of heat or cold in new buildings are financed in case that they count with an energy rating of A or B. In addition, renewable energy investments as solar thermal, PV (in case they are integrated into an energy efficiency project) and biomass are also financed. Projects have to be part of integrated plans for sustainable urban development and also they have to guarantee an acceptable return on investment.

CLIMA is a program for purchasing CO₂ avoided emissions by the Spanish Ministry of agriculture, food and environment (MAGRAMA).

The target of the CLIMA projects are promoting the reduction of emissions of greenhouse gases in Spain, through the purchase of tons of equivalent CO₂ reduced emissions (tCO₂e) once verified at a fixed price during the first four years of the project lifetime.

Basically, a company proposes a project that will reduce emissions of CO₂ and the application is submitted to the Climate Change Office. In case the application is accepted,

a so-called created 'carbon fund' has the commitment of buying to the company the CO2 emissions saved over the next 4 years at a set price (by 2015 was €9.7 per tonne of CO2.)

Portugal

There is a special subsidy for renewable energy affecting biogas, biomass and solar called (National Fund for Environmental Protection and Water Management - Prosumer) The budget of the programme for the timeframe 2015-2022 is the following:

- for subsidies: PLN 249.8 million (€ 56.87 m.)
- for loans: PLN 467.2 million (€ 106.36 m.)

Within the 3 Priority Programme Prosumer, the amount of a loan and the subsidy granted together may cover up to 100% of the eligible costs and must be higher than PLN 200,000 (€ 45,530) (7.2.1 and 7.3.1 Priority Programme Prosumer).

The interest rate of the loan is 1% with a maximum duration of loan support of 15 years. The investment must be completed within 24 months from the first loan payment (NFOŚiGW governed) or 18 months from the date of the loan agreement (bank governed) (7.3.3, 7.3.5, 7.3.6 and 7.3.8 Priority Programme Prosumer).

The subsidy can cover up to 15% of the installation costs of biomass and solar collectors and up to 30% for photovoltaic, wind energy and micro-cogeneration installations. However in the years 2015-2016, in the first case up to 20% and in the latter up to 40% (7.2.1b Priority Programme Prosumer).

The subsidy provided through the Energy Efficiency Fund ("Efficient Building 2012") to solar thermal installations for heating water investments is closed for new applications and no direct support scheme for RES in the heating sector is currently in place (as of April 2016).

In Portugal, the government has set a fund to finance research and projects on innovation and technological development in the field of renewable energy, as well as has launched campaigns to raise awareness on RES issues. With regards to policies in the building sector, the obligation to use solar thermal collectors for heating water and other regulations on the certification of performance and durability of installations and components are in place. In addition, training programmes for installers of RES plants are already part of the educational system.

Sweden

Regarding subsidies in Sweden, there is a grant for the installation of photovoltaic installations. The grant amount is up to 30 % of the eligible costs for companies and 20% for private individuals and municipalities (§ 5 par. 1 Regulation No. 2009:689). Eligible costs include labour costs, costs of materials and planning costs (§ 6 Regulation No. 2009:689). Costs of the connection to an external electricity grid are excluded from the eligible costs (§ 6 Regulation No. 2009:689). The maximum grant per installation is SEK 1.2 million (§ 5 par. 3 Regulation No. 2009:689). The total eligible costs must not exceed SEK 37,000 (plus VAT) per kW of installed maximum capacity. The eligible costs for hybrid installations must not exceed SEK 90,000 per kW of installed maximum capacity. If the solar system was funded by insurance payments, aid shall be reduced by an amount corresponding to the remuneration (§ 5 par. 4 Regulation No. 2009:689). The total budget

for the scheme for the timeframe from 2009 until the end of 2016 is SEK 210 million (€ 25 million).

Sweden also offers a direct capital subsidy for the installation of grid-connected PV systems, which covers 35% of the installation cost. This is available for systems with a cost below SEK 37,000/kWp (excluding value-added tax). For solar power and heating hybrid systems, this maximum is SEK 90,000/kWp (excluding value-added tax). When system costs exceeds SEK 1.2 million only the part of the system below this value is subsidized.

Concerning policies promoting the development, installation and use of RES-installations, there is a grant for research and development in the field of wind energy.

3.3 Energy Audit/Advice services

Energy audit are not an additional financing instrument, but they are included here because some TRUSTEE participating states have special programmes to support energy audits carried out by independent companies via grants.

Two main programmes have been found In **Austria**, the national programme supporting the initial audit and one implementing support (max. amount 2 times 675 Euro, 75% of consultant costs are funded). A total of 4,000 such "Energy checks" were issued during the last four years.

The previous regional programmes changed from more general environmental programmes which now have been focused on energy. The consultation for the implementation of energy management systems is also supported in addition to the energy audits. Consultancy is supported from half day to 8 days so 50-75% of the costs are usually financed. 3,500 companies have taken advantage from those visits during the past 10 years.

ADEME provides financial incentives (grants) to industrial and service companies wishing to do an energy efficiency study through regional offices In **France**. An energy efficiency study includes energy efficiency audits (incl. pre-audits), energy management studies, feasibility studies and assistance to investment in energy efficiency. In case of services for the use of renewable energy sources, it comprises all sources. Maximum eligible expenditures are as follows: 5,000 Euro for pre-audits, 50,000 Euro for audits, and 100,000 Euro for feasibility studies. The maximum subsidy rate differs from 50% of eligible expenses for big enterprises (more than 250 employees), 60% for medium-sized enterprises (50 to 250 employees) and 70% for small-sized enterprises (less than 50 employees). Particular conditions and amounts can be applied depending on the regions. Between 500 to 1,000 energy services are financed per year with an annual budget between 1.5 and 2.0 Mio.

The KfW Bank supports energy consulting for SMEs In **Germany**. This offer comprises an initial consulting to identify potentials and later a detailed audit to develop a plan of measures containing efficiency potentials, proposals for renewable energies and the economic feasibility. An 80% of the amount with a maximum amount of 1,280 Euro of the initial consulting is subsidised. 60% of the costs of the detailed audit are funded by the KfW with a maximum of 4,800 Euro.

In **Poland** The National Fund of Environmental Protection and Water Management allocates funds (state and EU-funds) as part of the 11th Call for proposals for audits with an amount up to PLN 5 Mio. Including the preparation of energy and power audits in enterprises to identify opportunities for energy saving, reduce greenhouse gas emissions

and accomplish investment activities for energy efficiency improvement. The subsidy covers up to 70% of eligible costs of the project. Energy and power audits at entities with a minimum average consumption of 20,000 MWh/year of end energy (sum of electricity and heat energy) are subsidised during the previous year the submission of the application to fund the audit, this includes:

- Energy audits of technological processes;
- Power audits of buildings and internal industrial networks;
- Energy audits of sources of heat energy, electricity and cold;
- Energy audits of internal heat installations and buildings.

In Poland the project called **“Test and implementation of a pilot service in the area of managing energy efficiency of enterprises”** supports pilot services in the area of managing energy efficiency of enterprises, consulting and training service. More than 3,000 enterprises will be covered by the project. The project's main target group will be Micro, Small, Medium Enterprises. The service comprises two stages:

a. Stage I – energy audit.

b. Stage II – consultation in implementing recommendations ensuing from energy audit.

The competition's total budget is PLN 4,3 Mio. A maximum aid of PLN 500,000.00 can be applied by one applicant. For instance, the development of enterprises by enhancing energy efficiency through optimisation of energy consumption, cost reduction or system improvement of energy management at the enterprise will be supported.

The grants programme in **Spain** for sustainable energy development in Analucia, which is administered by the Agencia Andaluza de la Energía, Consejería de Economía, Innovación y Ciencia de la Junta de Andalucía, is aimed at developing a sustainable energy model based on economic prosperity, social cohesion and environmental protection using funding programmes for energy saving, energy efficiency and renewable energies. Companies and company associations located in Andalucía can apply for an investment grant or tax incentives. In case of energy studies and audits in companies the following investment grants are obtainable: up to 50% for large companies or for studies unrelated to an investment up to 60% for medium-sized companies and up to 70% for small companies.

Sweden also offers local government (“kommun”) climate and energy advisors aimed at providing services to help private households, businesses including small and medium sized enterprises, local governments, schools and others to reduce energy consumption and invest in renewable energy. The energy advice services are offered free to private and public building owners, households and businesses throughout Sweden. Advice is offered cost free and services are commercially independent. The public funds (grants) are provided by the Swedish Energy Agency to local governments (regional energy offices).

3.4 Feed In Tariffs

Feed in tariffs are an instrument that supports the electricity production from renewable energy sources by giving money to electricity delivered to the public grid. The main disadvantage of feed in tariffs (FITS) relies on the fact that the need for support depends on the market price. Besides, the producer usually receives the tariff even if there is no electricity demand in the grid when it is delivered. As a result, there are discussions within the EU about replacing or not fixed-price FITs (FFITs), which guarantee a fixed price for

every unit of produced electricity, with premium-based FITs (PFITs), which pay a premium on top of the market price.

Austria

Eco-electricity produced from almost all renewable sources, including wind, biomass, biogas, sewage gas, geothermal and photovoltaic is supported by a guaranteed tariff for 13 or 15 years in Austria. The tariff ranges from 5 cent to 25 cent per kWh, depending on the different technologies. In some cases, only installations respecting certain minimum/maximum sizes can receive a FIT. All Austrian electricity consumers pay for this support through their invoices.

Germany

In **Germany**, the EEG (Law for the Preference of Renewable Energies) establishes the compensation for electricity delivered to the grid for biomass, biogas, PV, wind energy. Biomass plants operators can obtain between 6.0 to 14.3 cent/kWh (depending on the size) and, 4.87 cent/kWh in the case of wind.

In addition to this, German plant operators of highly efficient and modern CHP systems can add a so-called CHP compensation from the Federal Office of Economics and Export Control (BAFA) over a certain period of time for the produced electricity delivered into the grid. The payment is done by the energy supplier that owns the electricity grid where the plant operator is connected.

Italy

In Italy, support schemes for RES-E are managed by Gestore dei Servizi Energetici (GSE – Manager of Electricity Services). Electricity from renewable sources is mostly supported through a combination of premium tariffs, feed-in tariffs and tender schemes. Moreover, Gestore dei Servizi Energetici (GSE – Manager of Electricity Services) shall manage the sale of renewable energy on request, and interested parties can make use of net-metering. A price based mechanism has also been made available for the support of RES-H installations. Depending on the source and the size, RES-E plant operators may be obliged to opt for a certain system or may choose between the available ones. Electricity may be sold on the free market or through "ritiro dedicato" (purchase by Gestore dei Servizi Elettrici at a guaranteed price). Under certain conditions, electricity producers can make use of "scambio sul posto" (net-metering).

Feed-in tariff I (tariffa onnicomprensiva)

All plants except for PV plants with an installed capacity between 1 kW and 1 MW are entitled to choose this feed-in tariff in alternative to the premium tariff I (Art. 3, c.1, & 7, c. 4 DM 06/07/12). Depending on their size, plants may access this scheme directly or after undergoing a listing in a registry with capacity limits set per year. Since 1 January 2016 the FIT I (tariffa onnicomprensiva) is not in place anymore. The new RES regulation, which is expected to be issued this year 2016, will establish another FIT or tariffa onnicomprensiva similar to the FIT I.

Feed-in tariff II (Ritiro dedicato)

"Ritiro Dedicato" is the regulation for the sale of electricity in Italy rather than a "classical" feed-in tariff. GSE (Gestore Servizi Energetici) manages the sale on behalf of the producers,

who thus do not need to sell their energy on the free market in person. For this reason, GSE can be considered a mediator between the producers and the market. This system enables renewable energy to access the market indirectly and more easily.

Producers up to certain capacities (100kW for PV and 500kW for Hydro if they make use of other support schemes, 1 MW for all sources if they do not make use of support schemes) may choose between the minimum tariff (prezzo minimo garantito) determined by the energy authority and the market prices (Art. 7 AEEG 280/07 in connection with Art. 4 AEEG 34/05). Minimal tariffs from 2015 onwards are calculated and updated according to the formulas set in Art. 7, par. 6, adapted Annex A under AEEG 280/07. The adapted Table 1 (GSE and AEEG) shows the values of the guaranteed minimal tariff for RE plants with an annual electricity capacity of up to 1 MW for the year 2015. Ritiro dedicato is not eligible for plants that benefit from Net-Metering (scambio sul posto), Premium Tariff II, the Tendering scheme or Feed-in Tariff I (Tariffa Omnicomprensiva) (Art. 7, c. 7 DM 06/07/12)

Premium tariff I

All plants except for PV plants are eligible for receiving this premium tariff. Plants with an installed power between 1kW and 1 MW are entitled to choose the feed-in tariff I (tariffa onnicomprensiva) in alternative to the premium tariff (Art. 7, c. 4 DM 06/07/12). This system is alternative to any other public incentive, to the ritiro dedicato and to the Scambio sul Posto (Art. 7, 23 and 29 DM 06/07/12)

Premium tariff II (Conto energia per il solare termodinamico)

In this premium tariff scheme, plants are granted a tariff which depends on the percentage of electricity actually produced from solar energy (in case of hybrid installations, i.e. plants that pair CSP with another source for electricity production).

Tenders

All plants beyond a certain capacity except for PV plants are eligible for receiving incentives in the form of a premium tariff after undergoing a tendering process. This system is alternative to any other public incentive, to the Ritiro Dedicato and to the Scambio sul Posto (Art. 7, 23 and 29 DM 06/07/12)

Price-based mechanisms (Conto Termico)

A price-based scheme (Conto Termico) is in place in Italy for small RES-H sources. Heat pumps (aerothermal, geothermal, hydrothermal), biomass and solar thermal are eligible technologies and the incentive is granted for a period varying between 2 and 5 years.

Portugal

In Portugal, electricity from renewable sources from existing plants is mainly promoted through a feed-in tariff (FiT). Support to new RES plants can be provided through a general regime (i.e. energy market) or under the guaranteed remuneration system. The latter is contingent upon the capacity allocated through public tender initiative. However, tender RES rules have never been published, nor has any auction initiative been launched. In this way, currently new RES plants can only be remunerated through the open energy market. A unique remuneration regime for electricity produced from small production (UPP) and

self-consumption (UPAC) units, has come into force in January 2015 and is based on a bidding model in which producers offer discounts to a reference tariff. UPPs and UPACs have common regulations and certain particularities. There is currently no direct support mechanism, or fiscal benefits for RES-H in place (as of February 2016).

For existing installations, the amount of feed-in tariff depends on the source of energy used. Where statutory law does not specify a feed-in tariff for an individual technology, the amount of payment can be calculated only by using a formula (art. 2 DL 225/2007). With the introduction of the coefficient Z by Decree-Law 339-C/2001, the remuneration system for renewable energy distinguishes between several tariff levels based on the technology used. The formula is rather complex and Z is the coefficient reflecting the specific characteristics of the resource and the technology used in licensed facilities. In case of UPPs, remuneration tariffs are set based on a bidding scheme in which producers offer discounts to the reference tariff, which is established annually by the government through an ordinance issued until the 15 December of each year (art. 31 DL 153/2014). The reference tariff for the year 2015 is € 95/MWh (art. 2 of Ordinance 15/2015). The tariffs for UPPs are not subject to degression and limited to 15 years (art. 31 DL 153/2014). After that period, the produced electricity is remunerated through the energy market (art. 31 DL 153/2014). In the case of UPACs, they are supposed to meet individual consumption needs. Nevertheless, UPACs that are connected to the grid and have a capacity of up to 1 MW can feed their excess of electricity into the national grid and commercialise it on the electricity market. For their electricity excess they receive a remuneration tariff that is 10% less than the market price (DL 153, 2014).

Regarding the different RES-E technologies the following comments can be made:

Biogas: Fermentation of solid municipal waste, sewage sludge from waste water treatment, waste water and waste from the agricultural and food industries: Indicative average rate: € 115-117 per MWh (DL 225/2007). For existing landfill gas plants, the Indicative average rate is € 102-104 per MWh (DL 225/2007). For UPPs, the 90% of the reference tariff (art. 3 of Ordinance 15/2015).

Solar: For existing photovoltaic installations as defined in DL 132-A/2010, the Indicative average rate of the FiT is € 257 per MWh (DL 132-A/2010). For existing concentrated photovoltaics (CPV) with Installations with a capacity ≤ 1 MW up to a limit of 5 MW of installed power on the national level the indicative average rate of the FiT is € 380 per MWh (Ordinance 1057/2010). For existing Concentrated Solar Power (CSP) installations with a capacity ≤ 10 MW the Indicative average rate is € 267-273 per MWh (DL 225/2007). For UPPs, the FiT consists of 100% of the reference tariff (art. 3 of Ordinance 15/2015). The reference tariff in 2015 is € 95/MWh (Ordinance 15/2015).

Biomass: For existing biomass plants, the indicative average rate is € 119 per MWh for forest Biomass and € 102-104 per MWh (DL 225/2007) for animal biomass. For UPPs, the FiT consists of 90% of the reference tariff (art. 3 of Ordinance 15/2015).

The capacity for Feed-in tariff (Tarifas feed-in) is described above:

Solar energy (solar-thermal): until 21 GWh is reached (Annex II of DL 189/88 as amended by art 2(c) of DL 225/2007). **Solar energy (photovoltaic installations as defined by DL 132-A/2010):** until 34 GWh is reached (art. 7 of DL 132-A/2010). For Small Production Units (UPP), the generation capacity annually assigned shall not exceed 20 MW (art. 29, DL 153/2014).

The duration of payment for existing installations depends on the technology used:

Solar energy (solar-thermal): The payment ends either after 15 years or when 21 GWh of electricity have been generated (art 2(c) of DL 225/2007). Solar energy (photovoltaic installations as defined by DL 132-A/2010): The payment ends either after 20 years of operation or when 34 GWh of electricity have been generated (art. 7 of DL 132-A/2010). Biogas: Payment during the first 15 years of operation (art 2(f) of DL 225/2007). Biomass: Payment during the first 25 years of operation (art 2(e) of DL 225/2007).

Sweden

In October 2009 the government decided to provide a new funding for biogas. The funding is meant for spreading of already available technique which is not yet competitive on the market and will be used for projects contributing to increased production, distribution and use of biogas and other.

Spain

In Spain, The main support scheme (the “Régimen Especial”) operated until the end of 2011 and was suspended at the beginning of 2012. The generation of electricity from renewable sources was mainly promoted through a price regulation system. Plant operators could choose between two options: a guaranteed feed-in tariff and a guaranteed bonus (premium) paid on top of the electricity price achieved on the wholesale market.

In Spain, A different regulation that had previously suspended the support schemes, before their final phasing out: RD 6/2009 established that by 2013 a part of the consumers’ electricity bill (the “peajes the acceso”) should be able to fully balance the costs incurred by the State arising from the support scheme. It was deemed, however, that the situation would not have allowed this goal to be reached by 2013. For this reason, and together with the high growth of RES-E in the past years, even beyond the set goals, all support schemes for RES-E were blocked.

The price regulation system was phased out through Real Decreto-ley 9/2013. The reason for this suspension is traced in the preamble of RDL 1/2012. On October 2015, a new support scheme (the “Régimen Retributivo Específico”) was established. The aim was to grant a specific remuneration regime for new biomass plants located in the mainland electricity system and for wind energy plants. The allocation of the referred specific remuneration regime has been done through a competitive call for tenders.

Only for biomass Premium tariff (Régimen retributivo específico) The amount of the premium tariff for an actual plant is based on the values of the compensation parameters for the standard plants applied to mainland biomass and wind energy plants, which are listed according to the operating year (2015 -2020) in par. 1 of the Annex, Order IET/2212/2015. The main parameters for calculating the compensation amount are listed as follows (Art. 4, Order IET/2212/2015):

- Useful regulatory life.
- Standard value for the initial investment of the reference plant.
- Number of equivalent operation hours.
- Considered price to estimate the revenues from the sale of energy. • Upper and lower limits of the market price.

- Operating costs.
- Return on investment for the reference plant.
- Reasonable rate of return.
- If applicable, fuel costs.

In addition to this In 2015 Royal Decree 900/2015 was approved, establishing charges on existing and new self-consumption RES plants, both on capacity and generation levels. According to RD 900 these are not taxes or compensation for utility losses, but contributions to overall system costs. Self-consumption installations under 10 kW and plants located not on the Spanish mainland will be spared the generation charge, but will still be subject to a fixed charge per kW of capacity. The royal Decree 900/2015 does not affect the heating or cooling self-consumption units.

3.5 White Certificates

A white certificate is an “official certificate, tradable on an open market or bilaterally, issued by an authority or an independent certifying body, confirming the claims of energy savings by an entity consequent on energy efficiency improvement actions” according to the final draft of the FprCEN/CLC/TR 16567:2013. In this section the schemes in France and Poland are explained.

France

The energy saving obligations or white certificates were created by the French law n° 2005-781 on July 13, 2005. The programme and objectives are renegotiated every three-year period. The budget is decided by the energy suppliers themselves. This system is based on a three-year obligation of energy savings required by public authorities to energy suppliers (the obligated). These suppliers are in consequence incited to promote energy efficiency towards their own customers; households, public and private sectors. The programme obliges, therefore, energy producers/suppliers in the first and private industrial and services companies in second rank.

The CEEs (Energy Saving Certificates) are allocated under conditions by the Ministry in charge of Energy services to the eligible actors who carry out energy efficiency operations.

The energy efficiency operations can be implemented in all kind of activity sectors like housing, tertiary, industry, agriculture, transport etc. A large range of eligible actions covering most energy uses can be implemented.

Those who are eligible may implement these energy efficiency operations on their own property or on other properties where they encourage, persuade or support energy efficient operations. The obliged also have the option of buying the CEEs from other stakeholders who succeeded in achieving energy efficiency operations;

It is based on two systems; standardised operations or specific operations (evaluated by ADEME): Standardised operations records, defined by law, have been made in order to ease building up energy efficiency operations. In each sector, these records define a lump-sum amount of energy savings for the most frequent operations. Energy saving achieved without these standardised operations (specific operations) are to be proven and validated by ADEME.

At the end of the three-year period, the “obliged” energy suppliers have to validate that they succeeded in achieving their energy saving obligation in holding the required CEE amount. If they don’t have enough CEEs, they must pay a penalty of 0.02 Euro per missing kWh.

Poland

The White Certificates System in Poland is based on the already existing systems for supporting cogeneration and renewable energy resources. The system comprises a wide group of recipients, enterprises to invest in IAIEE, of any size:

- Energy company selling electric energy, heat or natural gas to end users connected to the network in the territory of Poland
- End users connected to the network in the territory of Poland being a member of the commodity exchange (pursuant to the Article 2 point 5 of the Commodity Exchange Act of 26 October 2000), in respect of transactions entered into on his own behalf on a commodity exchange
- Commodity brokerage house or brokerage house (referred to in Article 2 points 8 and 9 of the Commodity Exchange Act of 26 October 2000), in respect of transactions performed on a commodity exchange pursuant to orders by end users connected to the network in the territory of Poland

The White Certificate system is a system that allows getting additional funds for the investments made in the energy efficiency via selling them through bids. The following categories of investments in energy efficiency are regarded as eligible under the WC scheme: Insulation of industrial installations; alterations or renovation of buildings; modernisation of appliances intended for domestic use, appliances and installations used in industrial processes; local heating grids and heat sources; energy recovery in industrial processes; heating or cooling facilities with energy produced in own renewable energy sources and others.

3.6 Green Certificates

The mechanism of green certificates is a form of incentive for the production of electricity from renewable sources. This mechanism is based on the mandatory rule that producers and importers of electricity generated from non-renewable sources, must annually introduce into the national or transnational electricity system a minimum share of electricity produced by plants using renewable sources.

Sweden

Sweden also has a green electricity certificate system and shares a joint certificate market with Norway. In 2013 the average price of a certificate was SEK 197/MWh. Regarding solar power currently only about one eighth of all PV-generated electricity receives green electricity certificates, because only surplus exported electricity receives certificates.

The government contributes with 50 millions on Swedish kronor per year for the period 2009–2011 to the electricity certificate system for renewable gases.. To receive funding a project must be favourable from a climate perspective, energy efficient and resource efficient and have the technical potential for development and competitiveness. The highest amount of funding for a project is 25 million Swedish kronor. The new funding could therefore be of interest for those who intend to start larger projects. The new funding complements both the means for research, development and innovation which

the Swedish Energy Agency disposes of and the funding for manure based biogas production available from the Swedish Rural Development Programme comprising 200 million Swedish kronor during 2009–2013. The funding will encourage the development of enterprises, adjust them to new conditions, increase the quality of the production, strengthen the competitiveness and improve the environment and the animal welfare. The Government has earlier given the Swedish Energy Agency the commission to develop a national biogas strategy and suggest measures contributing to increased biogas use. Swedish Energy Agency handles the new funding.

3.7 Credits/Loans (with and without subsidy)

A wide variety of loans were identified in the analyzed countries. Activities in the field of energy efficiency and renewable energy are considered eligible for special conditions (e.g. lower interest rates, grace periods). Guarantees are also available for this kind of loan. Three types of loans can be found:

- general loans that are given by private banks (generally similar to other forms of loans)
- loans that are supported by public sources and have a general target (esp. regional growth) and
- loans for special investments in energy efficiency and/or renewable energy sources (especially in Germany KfW).

Austria

Loans financed from the funds of banks are issued by all large banks located in Austria. In the case of soft loans, the bank loans may be re-financed by from EIB (European Investment Bank) or other institution or in combination with guarantees e.g. from Austria Wirtschaftsservice (AWS), ERP-Funds or Agencies active in only one Province. The main criterion of the bank to take the decision is whether or not the client is expected to be able to repay the loan. The particular conditions of the loan depend on the general and financial status (credit rating) of the company, and also on the existence of available guarantees.

The AWS is a business development /subsidy bank of the federal government supporting companies to finance their projects with erp-loans, guarantees, and subsidies. The funds are provided by the ERP Funds and underlie the European law on state aid. Generally, the use of Energy Efficient Technologies and Renewables can be supported for SMEs. Nevertheless bigger Companies can be supported only under specific circumstances. There is a **financing guarantee of 80%** (quota) with a running time of 6-12 years in the case of bank loans intended for investments with the character of environmental protection. Usual investments are energy saving measures, measures for improving energy efficiency, use for renewable energy or highly efficient CHPs.

The **Erp-SME Programme** supports SMEs via loan with a financing volume from 100,000 Euro to 7.5 Mio. Euro. The running time is 6 years with one year payback grace period. Interest rate is 1%. The **Erp small-loan** supports small companies in the renovation and capital-widening investments with a financing volume from 10,000 Euro to 100,000 Euro.

France

The so-called (FOGIME) 'Fonds de garantie des investissements de Maîtrise de l'énergie' guarantees funds for loans and lean purchases for SMEs. If an SME asks for a loan to a

bank, if it is related to energy efficiency or renewables, the bank asks for a financial guarantee to FOGIME that will cover 70% of the loan. In this way, the SME will not pay for this guarantee. The duration of loan must be longer than 2 years and an outstanding maximum of 750,000 Euro.

Germany

Under the Funding Initiative Energy Transition (Finanzierungsinitiative Energiewende) the KfW Bank offers **financing to large investment projects** of German companies aimed at one or more of the following measures: refurbishing or new buildings that fulfill, or in the case of a new building, exceed the requirements of the "Energieeinsparverordnung 2009"; energy efficiency measures that lead to an energy saving of 15% compared to the average of the specific branch; replacement investments in technical installations when the energy consumption is at least 20% below the average of the past three years; further and new development of energy saving technologies for efficient energy production, for energy storages and for efficient energy transmission; investments for using renewable energies. Industrial companies with consolidated sales revenue between 500 Mio. Euro and 4 billion Euro can apply for a loan covering up to 50% of the overall amount required for a specific investment. In general, these are between 25 Mio. Euro and 100 Mio. Euro per project.

Within the KfW – Energy Efficiency Funding Programme (KfW – Energieeffizienzprogramm) the KfW Bank subsidises **investment measures in energy efficiency** listed below: building equipment and appliances, energy and plant technology, process heat and cooling, measurement and control technology and the renovation and construction of buildings. The investments have to make possible significant energy savings. Replacement investments of energy efficiency measures have to reach a specific energy saving of at least 20%, compared to an average of the last three years. New investments of energy efficiency measures have to lead to a minimum energy saving of at least 15%. Industrial companies with consolidated sales revenue is up to 2 billion Euro (in exceptional cases up to 4 billion Euro), as well as companies acting as energy services providers for a third party within contracting can obtain a low interest loan. The loan can cover up to 100% of the eligible investment costs, generally up to 25 Mio. Euro per project.

The programme Renewable Energies – Standard the KfW Bank offers a low interest loan for projects using **renewable energies to produce electricity or electricity and heat in CHP plants**, as well as for investments in close low and medium voltage grids, especially the installation, expansion and acquisition of facilities and grids that comply with the EEG (Renewable Energies Law) and measures that improve the environmental situation. The loan can cover up to 100% of the investment costs up to a maximum of 25 Mio. Euro.

The programme Renewable Energies - Premium subsidises especially large scale installations for the **use of renewable energies in the heat market** such as: solid biomass for thermal use, heat driven biomass CHP, large solar thermal collectors, heat supply grids driven by renewable energies, large scale heat storage, large efficient heat pumps and plants for the exploitation and use of deep geothermal energy. Companies (SMEs) and other organisations can ask for a low interest loan. The loan can cover up to 100% of the investment costs, usually not exceeding 10 Mio. Euro per project. In case of geothermal projects up to 80% of the net investment costs can be subsidised.

Italy

A guarantee fund is in place for supporting district heating network development. In addition, loans can also be used for supporting investment in research, development, production and new RES-E and RES-H plants. Furthermore, a loan is provided for new RE thermal plants. District heating and cooling networks are managed at local level.

Loan (Fondo Kyoto).

The Kyoto fund has a total amount of € 460 million (Art. 2.1, C 18/01/2013). The fund supports investments in different sectors related to the “green economy”, including investments in biomass, biogas, geothermal and solar thermal plants.

Poland

There are many options of credits/loans available in Poland from different sources:

The **JASPERS** (Joint Assistance to Support Projects in European Regions) initiative supports the preparation of large projects, i.e. projects of more than 50 Mio. Euro total value, that are candidates to be supported from the European Regional Development Fund and the Cohesion Fund (European Structural Funds). For example: gas networks, electricity distribution grids, retrofitting of public buildings, energy efficiency topics.

Projects being proposed to JASPERS should count with one of the following properties:

- Having a unique, exceptionally complicated character, for instance, associated with environmental issues, public assistance, eligibility etc.
- they should be pilot projects so that the results obtained from project may be used in other, similar projects, and
- the value of the project should condition the success of the entire priority/programme

Joint European Resources for Micro to Medium Enterprises **or JEREMIE** is an initiative of the European Commission, developed together with the European Investment Fund. Its purpose is to promote the use of financial engineering instruments to improve the access of SMEs to finance through the interventions of the structural funds. The financing options include **credits, loans and sureties** for those companies. In Poland, the JEREMIE initiative does not comprise additional European Union resources but it is separated from the resources within Regional Operational Programmes foreseen for the development of entrepreneurship. The JEREMIE initiative is being carried out as part of ROP in the following provinces: dolnośląskie, kujawsko-pomorskie, łódzkie, pomorskie, wielkopolskie and zachodniopomorskie. The Funds can support, for instance, technological modernization of production structures oriented to achieving targets in the area of low carbon economy.

The **JESSICA** initiative – (Joint European Support for Sustainable Investment in City Areas) is an initiative of the European Commission developed in co-operation with the European Investment Bank (EIB) and the Council of Europe Development Bank (CEB). It supports sustainable urban development and regeneration through financial engineering mechanisms. The initiative offers repayable financial instruments (**loans, guarantees**), aimed at improving the use of resources from the structural funds and to gain participation of financial institutions, banks and entrepreneurs, among other things, thanks to public and private partnership. JESSICA is also being implemented regionally in Poland as part of Regional Operational Programmes (ROP). Five provinces have decided so far, which are: wielkopolskie, zachodniopomorskie, śląskie, pomorskie and mazowieckie.

The programme **Polish Sustainable Energy Financing Facility** provides funding in the form of a loan or a lease of up to 1 Mio. Euro for investments to SMEs (production companies) through certain administering partner banks and leasing companies. Banks participating in the programme are: Millennium, BNP Paribas, BGŻ, BZ WBK. More than 1,500 companies from the Polish SME sector have financed their investments in improving energy efficiency or in renewable energy solutions through PolSEFF. There are different types of projects financed:

- Projects aimed at improving Energy Efficiency solutions based on individual energy savings (reaching at least 20%), financing must not exceed 1 Mio. Euro (the technical qualification of the project in terms of energy savings is performed by consultants PolSEFF).
- Projects aimed at enhancing the efficiency of energy use in buildings by 30%.
- Investments in renewable energy sources.
- Investment projects to improve Energy Efficiency based on devices and solutions from the the list of eligible materials and equipment (LEME), the projects funding will not exceed 250,000 Euro.

The following credits are offered by private banks in **Poland**:

The private bank BOŚ Bank (Bank For Environmental Protection) gives credits (**Energy-saving Credit**) for investments leading to reduction electricity consumption to entrepreneurs and housing cooperatives and Micro Enterprises. The following credit conditions are available, partly depending on the borrower: up to 80% of the investment costs, crediting period up to 10 years (with possible grace period in repaying the principal amount), interest rate - variable WIBOR 1M/ 3M/ 6M + margin. It is possible to repay the credit from savings resulting from reduced consumption of electricity, achieved thanks to the investment. In this case an estimation of the electricity savings and financial savings should be attached to the credit application form.

The BOŚ Bank (Bank For Environmental Protection) offers credits to micro-enterprises for the acquisition or installation of environmental protection devices and products for one's own home, apartment and office. (**Credits for environmental protection devices and products**). Solar collectors, heat pumps, heat recovery units, sewage treatment plants, building insulation systems and many other efficiency technologies are financed. Maximum value of the credit is up to 100% of purchasing costs and installation costs, the crediting period is up to 8 years.

The private banking (BOŚ Bank) also offers long-term financing (**credit with climate**) for micro, small and medium enterprises and large enterprises concerning energy efficiency. The terms are: maximum share in financing the projects is 85% of the investment's cost, maximum credit value of 1 Mio. Euro, a period of financing of up to 10 years, the minimum period of financing is 4 years. The following activities for increasing the energy efficiency are financed consisting in a reduction of the demand for heat energy and electricity: modernization of small thermal power networks, modernization of buildings consisting in insulation, replacement of lighting or installation of an efficient ventilation or cooling system, assembly of a renewable energy installation in existing buildings or industrial plants (biomass furnaces, solar panels, heat pumps, photovoltaic panels, it is acceptable to integrate renewable sources of energy with the existing source of heat or to exchange it for renewable sources of energy), liquidation of the individual source of heat and hooking the building up to the local network, installation of devices increasing energy efficiency, installation of small cogeneration or tri-generation units.

The **investment credit from NIB** (Nordic Investment Bank) line offers a long-term financing for a client's projects aimed at improving the natural environment in Poland in three strategic sectors associated with protection of air, water and waste management. The maximum exposure of NIB in financing the project is 50%. The private bank BOŚ Bank (Bank For Environmental Protection) is the national bank offering those credits. The credit conditions are favourable interest rates, crediting period: minimum 3 years - not later than until 30 May 2019, possibility to have a grace period in repaying the principal amount up to 2 years, possibility to combine different sources of financing - credits from the NIB line may co-finance projects supported by funds from the European Union. There is the possibility to spread the costs of the investment over many years thanks to an extended period of financing the investment, which will make it possible to adjust the instalments to the borrower's financial capabilities. The production of electricity using wind turbines and the thermomodernization of existing buildings are financed, when this contributes to reduction of emissions into the air and will improve the energy efficiency of the buildings or whether they consist in a switch from fossil fuel to renewable sources of energy.

An **investment credit** is offered at the private Bank Zachodni WBK, Santander Group, which finances various types of investments. Enterprises of any size scheduling investments and development are the target group. This is a flexible long term credit a with a maximum repayment period of 15 years (investment's depreciation period cannot be exceed) with a possible grace period for the company's investment needs. The credit is granted for up to 80% of the expenditures and up to 95% of the investment's value.

The aim of the priority programme 12 Call for proposals "**Efficient use of energy. Part 2**) Funding investment tasks leading to energy savings or increased energy efficiency of enterprises" is to fund investment projects being carried out by entrepreneurs, leading to efficient use of energy or to measurable energy savings. The loans are selected by a competition of the National Fund of Environmental Protection and Water Management. Companies with an average energy consumption of 20,000 MWh during the year before the application was filed can apply for the loan. The programme amount is PLN 742 Mio. The scope of investments supported covers modernizations and improvements in new facilities, and control systems, technical installations and equipment at the plants, whose aim is to improve energy efficiency, as well as technological changes at existing facilities. The minimum cost of the project must be PLN 5 Mio.; the value of the loan can range between PLN 3.5 Mio. to PLN 90 Mio.; the value of the loan may cover up to 75% of the eligible costs of the project; annual interest rate on the loan is WIBOR 3M -100 base points but not less than 3.5%. The loan may be granted for a maximum period 10 years, a grace period can be given.

The call for proposals under NFOSiGW programme (**Support of distributed, renewable sources of energy. Part 1**) **BOCIAN - Distributed, renewable sources of energy**) is aimed at reducing or avoiding emission of CO₂ by raising energy production from facilities using renewable sources of energy (wind, PV, geothermal, small water power plants, biomass heating, biogas plants and high efficient biomass CHPs). As a result, loans are given to such kind of projects. Payouts of funds from undertaken and planned commitments for repayable forms of funding amount to PLN 420,000,000.00. The funding may cover between 30 and 75% of the eligible costs of the project depending on the renewable energy technology. The value of the loan can range from PLN 2 Mio. to PLN 40 Mio.;) The loan may be granted for a maximum period of 15 years, a grace period can be given.

The target of programme's **RES and cogeneration (5.1 Part I, II and III)** is to increase energy production from renewable sources and high efficiency cogeneration plants. The production of heat from biomass (distributed energy sources lower than 20 MWt);

production of electricity in combination with heat from biomass (distributed energy sources lower than 3 MWe); production of electricity and/or heat from biogas created as a result of sewage treatment or decay of plant and animal remains, high efficiency cogeneration without using biomass, and other investments are financed. Loan can vary from PLN 4 Mio. to PLN 50 Mio. The total amount of the loan can range from PLN 4 Mio. to PLN 50 Mio. The annual interest rate on the loan is WIBOR 3M -100 base points but higher than 4%. The gross subsidy equivalent cannot be higher than 30% of discounted eligible costs of the project and cannot exceed PLN 20 Mio. per project. Minimum total cost of the project must be at least PLN 10 Mio. The loan maximum period must be 15 years, a grace period can be offered. The value of the loan can cover up to 75% of the eligible costs of the project. Payouts of funds from undertaken and planned commitments for repayable forms of funding amount to PLN 1,222,305,900.00. Part II of the programme will give loans for the regional divisions of the Fund.

The programme (**financing of long term investment activities**) is aimed at to allocateing private and public enterprises to carry out investment projects. It provides support to the development of large and medium enterprises by financing them in long term operations. Precisely, the Industrial Development Agency (ARP S.A.) takes part in innovative, modernization and energy-saving investments. Support can be given to material as well as capital investments. It offers both instruments loans and sureties financed by state funds, as ARP is a national agency. **Loan** conditions are the following: for a period no longer than 7 years, up to 80% of the net value of the project is financed, one-off fee – ranging from 0.3% to 1%, depending on the assessment of the risk of financing, the interest rate is WIBOR rate accordingly: 1M, 3M, 6M or 1R + margin ranging from 1.2% to 5%, set individually. The **surety** conditions are: up to 80% of the value of the financial liability and a quarterly fee depending on the assessment of the risk of financing ranging from 0.3% to 1.5%. ARP S.A. charges a fee for processing the application in the amount of PLN 1,500.00.

The Industrial Development Agency (ARP S.A.) supports (**financing of developmental restructuring**) to financial activities leading to the improvement of profitability and effectiveness of business activity for large (private and public) enterprises in the form of loans, sureties, bonds or shares. Financed activities are for instance: investments covering comprehensive modernization of the current machine park, modernization of the plant, fundamental changes in the production technology and other pro-efficiency activities. Maximum 80% of the total costs directly associated with the project can be financed. A **loan** period of up to 7 years with a grace period in repaying the principal amount is attainable. Depending on the assessment of the risk of financing and the level of collaterals both One-off fee ranging from 0.35% to 1% and a variable interest rate is allotted. The fee for the **surety** depends both on the assessment of the risk of financing and the level of collaterals.

The programme “**Financing of on-going activities**” gives support to the development of large and medium enterprises for on-going operations by financing them on market terms. The target of the programme is precisely to support the enterprise's financial liquidity to perform contracts/orders. Two instruments are offered: loans or sureties financed by state funds, as ARP is a national agency. The conditions of the loan are as follows: One-off fee – ranging from 0.3% to 1%, depending on the assessment of the risk of financing and the level of collaterals and an interest rate of WIBOR rate accordingly: 1M, 3M, 6M or 1R (depending on the frequency of repayment of interest charges and the duration of the lending period) + margin ranging from 1.2% to 5%, set individually depending on the assessment of the risk of financing and the level of collaterals. The condition for the surety

is a quarterly fee depends also on the assessment of the risk of financing and the level of collaterals ranging from 0.3% to 1.5%,

Spain

The programme “Grants to finance tourism and agro industrial companies in the area of Extremadura”, which is administered by the Ministry of Agriculture, Rural Development, Environment and Energy, subsidizes upgrades, modifications or extensions of thermal plants using solar energy and/or biomass. Micro, small or medium-sized enterprises from tourism and agro industrial sectors in the area of Extremadura can gain the following subsidy: The aid consists of a grant of 5 percentage points of interest calculated on the first two years under the terms of an arranged loan. The minimum eligible investment shall not be less than 10,000 Euro but the maximum eligible investment per project cannot exceed 100,000 Euro.

Portugal

There is a loan for (National Fund for Environmental Protection and Water Management - Stork) for solar, biogas and biomass. The overall budget of the programme is PLN 570 million (€ 130 m.) for the timeframe 2015-2023 (3 Priority Programme RES Stork). Loans shall cover max. 85% of investment's eligible costs (7.2 Priority Programme RES Stork). The loan amounts to PLN 40 million (€ 9.11 m.) (7.3.1 Priority Programme RES Stork). Interest rate of the loan is: WIBOR (Warsaw Interbank Offered Rate) 3M – 100 base points but at least 2% (7.3.2 Priority Programme RES Stork). The maximal duration of loan support is 15 years (7.3.4 Priority Programme RES Stork).

The special subsidy from National Fund for Environmental Protection and Water Management - Prosumer includes also a loan for renewable energy affecting biogas, biomass and solar. The budget of the programme for the timeframe 2015-2022 is:

- for subsidies: PLN 249.8 million (€ 56.87 m.)
- for loans: PLN 467.2 million (€ 106.36 m.)

Regarding the 3 Priority Programme Prosumer, Taken together, the amount of a loan and the subsidy granted may cover up to 100% of the eligible costs and must be more than PLN 200,000 (€ 45,530) (7.2.1 and 7.3.1 Priority Programme Prosumer).

The interest rate of the loan is 1%. The maximum duration of loan support is 15 years. The investment must be finalised within 24 months from the first loan payment (NFOŚiGW governed) or 18 months from the date of the loan agreement (bank governed) (7.3.3, 7.3.5, 7.3.6 and 7.3.8 Priority Programme Prosumer).

3.8 Contracting

Contracting programmes and initiatives must be oriented to overcome major barriers of energy efficiency investments: the higher investment costs and the risk attached to such projects. In one region of Austria, in Poland and in Germany, support for contracting is available either via subsidies or via loans.

In **Austria**, the members of DECA (Dienstleistung Energieeffizienz und Contracting Austria), an association of ESCOs that are active in Austria have invested around 100 Mio. Euro in the period from 2005-11 only in Energy Performance Contracting (EPC).³ DECA Members

³ DECA press release, June 2013: http://www.deca.at/up_files/75.pdf

have made approximately 750 EPC and Energy Supply Contracting (ESC) projects in the period 2005-2011.⁴ Within manufacturing industry, Energy performance contracting is mostly used for the optimisation of heating and lighting in office buildings, manufacturing halls, storage rooms and garages. EPC can also be used within the manufacturing processes, such as compressed air systems optimisation and using efficient motors, ventilators etc. but this type of projects is less usual.⁵ Energy supply contracting is also frequently used for the supply of heat and electricity (e.g. via combined heat and power).

In Austria, a specific programme supports energy performance and energy supply contracting projects in businesses and municipalities in upper Austria region by partly covering the client's payments to the ESCO using a public grant. The target of the programme is to provide an additional support for the contracting market and promote the offer of new qualified services. More than 150 projects (financed by contracting), with investments of about 40 Mio. Euro have been supported with approx. 2.6 Mio. Euro. The amount of investment must range between 50,000 and 500,000 Euro. The percentage of the subsidised investment lies between 5,5 and 20% depending on the kind of contracting (EPC or ESC) and the duration of the contract.

In Germany the KfW-bank supports with investment measures in energy efficiency also contracting companies by low interest loans. (see under "credits").

In **France**, contracting is not well considered as in most cases the contracts are oriented to maximise the supplier income instead of improving the customer's energy efficiency.

In **Poland** the **Third Party Financing (TPF)** consists of a specialized enterprise (Implementer) carrying out an investment at the user's (Contracting party's) facilities, This includes supplying technical and organizational solutions (as well as guarantees financing), under the statement that the return of the investment costs will be achieved by the savings from the reduced expenditure. Entrepreneurs (Implementors) installing a new technology at the contracting party's facilities aimed at obtaining profit from the savings or fees can apply for a credit under this programme. The credit is available under the following conditions: Max. value of the credit - up to 80% of the task's costs, crediting period - up to 10 years, grace period - not longer than 6 months of the date of completion of the task. Investment projects oriented to save electricity, heat energy, water consumption or to reduce fees for commercial use of the environment can be financed.

3.9 Innovation Vouchers

This tool resembles to the financing of energy audits, which are usually done by means of a grant, but it is not constrained to energy related services.

In **Poland** the aim of the programme "Innovation Voucher - support for the smallest enterprises" is to begin contacts of micro and small enterprises with scientific institutions. Support offered as part of the programme Innovation Voucher can be solely chosen towards the purchase of a service connected to implementation or development of a product or technology. The programme is proposed to micro and small enterprises, which did not use any services of a scientific institution related to the implementation or development of a product or technology. The amount of the support given to a single entrepreneur as part of the programme Innovation Voucher cannot exceed PLN 15,000.00.

⁴ Telephone conversation with Mrs. Auer, DECA, 4.10.2013

⁵ <http://www.contracting-portal.at/show.php?nid=3&mid=7>

The total amount of the support may equal 100% of the expenditures eligible for support, provided that the actual net cost of the service amounts to a maximum of PLN 15,000.00. 500 projects have received a positive score. Due to the Programme's budget, 451 entrepreneurs were supported.

4 Austria

For Austria the following financial instruments and funding programmes were reported:

Austria	Instrument	Source	Sector	Technology	Impact
Eco-Electricity Act	Feed In Tariff	Electricity Consumer	All	Production of Electricity from Renewable Energy (Biomass, Biogas, Geothermal, PV)	In 2016 the supporting volume was € 41,829,570, 9,168 GWh of national subsidised eco electricity were produced.
Regional programmes	Subsidy	Public	All	Energy Audits, EMS	Over 10 years, about 3,500 companies have benefited from 4,700 subsidised consultant visits
Energy Contracting	Financing Instrument	Diverse	ESCOs	Energy Efficiency, Renewables	Members have invested around 100 Mio. Euro in the period from 2005-11 only in Energy Performance Contracting. ⁶
Energy Contracting OÖ	Subsidy	Public (Regional funds)		Energy Efficiency, Renewables	Over 150 projects, total investment 40 Mio. Euro, Subsidy: 2.6 Mio. (state 2013)
Bank loans	Loan Soft Loan	Bank funds Others for Soft Loans	All	All	N/A
UFI Energy (Energie)	Subsidy (Grant)	Public/National	Companies, municipalities	Renewables, Energy services Energy Efficiency	€ 62 Mio. for all UFI projects in 2015. More than 1970 projects in 2015 (regarding all UFI projects)
Solar Thermal Large Plants	Investment incentive (Grant)	Public/National	All	Solar Thermal	Small
ErP Loan, Guarantee	Soft Loan	ERP Funds	Small, SMEs, big	RES, Energy Efficiency,	Yearly donation of fund: € 500 – 600 Mio.

Table 4-1 financial instruments and funding programmes in Austria

⁶ DECA press release, June 2013: http://www.deca.at/up_files/75.pdf

4.1 Eco-Electricity Act

The Austrian Ökostromverordnung 2012 (Eco-electricity ordinance, in short ÖSVO 2012) supports the electricity production from renewable energy sources with feed in tariffs for newly built plants. For PV, Geothermal and landfill and sewage gas plants those tariffs are granted for 13 years, for biomass, liquid biomass and biogas these tariffs are granted for 15 years. For existing wood-like biomass plants with high efficiency and enlarged capacity additional tariffs are available.

The following renewable technologies are covered:

- PV
- Geothermal plants
- Landfill- and sewage gas plants
- Biomass (including waste with high biogenic share)
- Liquid biomass
- Biogas
- Hydropower

For the period between 2010 and 2020 the Ökostromgesetz 2012 (Eco-Electricity Act) defined the following targets for plants to be installed:

- 1,000 MW (4 TWh) Hydropower (or was that on purpose not with a bullet point?)
- 2,000 MW (4 TWh) Windpower
- 1,200 MW (1,2 TWh) PV
- 200 MW (1,2 TWh) Biomass and Biogas

In 2016 the supporting volume was € 41,829,570, 9,168 GWh of national subsidised eco electricity were produced.

The results and annual reports are available on the following webpages:

<http://www.oem-ag.at/de/oekostromneu/foerderlandkarten/>

<http://www.oem-ag.at/de/oemag/oemag/geschaeftsberichte/>

Contact

OeMAG Abwicklungsstelle für Ökostrom AG

Alserbachstrasse 14-16

A-1090 Wien

Tel.: +43 5 787 66-10

Fax: +43 5 787 66-99

E-Mail: kundenservice@oem-ag.at

Webpage

<http://www.oem-ag.at/>

4.2 Regional programmes supporting energy consultancy for businesses

In Austria so called “regional programmes” support energy consultancy for businesses. Most programmes also support consultancy on environmental topics (e.g. waste management), or the implementation of an energy or environmental management system, incl. CSR and support with obtaining the environmental label for tourism businesses. Those programmes enable businesses to detect energy savings potentials and potentials for the use of RES and decide on appropriate implementation measures.

This instrument is aimed at an optimized use of subsidies for consultancy, planning as well as investments regarding climate and environmental protection. It offers subsidies (in most cases) and non-repayable funds.

The programmes focus on the following service:

- energy consultancy
- consultancy on environmental topics (e.g. waste management)
- implementation of an energy or environmental management system for detecting energy saving potentials and potentials for the use of RES

The budget comes from each region and a part is co-financed by the ministry of environment. In some provinces also other players contribute, e.g. the regional chamber of commerce or the regional energy utility.

Each regional programme covers the territory of that region. Usually there are no restrictions regarding size of the company. Sometimes there are small differences in the rate of subsidy for smaller/bigger companies.

Usually, there are minimum criteria for the consultants. For example (Burgenland):

- Proof of registration of company
- Registration with Chamber of Commerce or Architects and Consulting Engineers
- Proof of permission to carry out this type of business
- Description of 3 reference projects for which they were responsible (time period, project goals, contents and results achieved)

In some regions consultants must attend meetings or trainings once or twice a year to ensure continuing education. (Styria)

The budget differs from region to region. For the bigger ones (Salzburg, Styria) it is around 2.5 Mio. Euro over the past 10 years. During the past 10 years, about 3,500 companies have benefited from 4,700 subsidised consultant visits.

In the Burgenland different modules can be subsidized. The range is quite big reaching from € 228 to € 6,825 depending on the module.

In Lower Austria, the chamber of commerce offers short (max. 8 hours, subsidy 100%) and intensive (max. 40 hours, subsidy 100%) consultancy visits.

In Styria consultancy is offered within the programme WIN. The funding rate is 70% with a maximum of € 1,000.

In Carinthia companies can choose from different subsidized consultancy projects. One option is the "Ökofit-Kärnten" programme which focuses on different topics (environmental management, waste, climate, energy mobility) and the other option are consultancies subsidised by the province and the Chamber of Commerce. The rate is 50% with a maximum of € 500.

Also in Tirol, there are 2 types of modules for energy consulting: a short check, that is free, and a more intensive consulting, up to 24 hours, 50% of which is financed by the Province and the Chamber of Commerce. SMEs can use this intensive consulting module also for support with the implementation of an environmental or energy management scheme.

Upper Austria offers a funding rate of 75% for energy consultancy services. A deductible of max. € 400 occurs.

In Vorarlberg, there are initial checks, and a range of detailed support modules (general in-depth check (up to 40 hours), as well as support for subsidy applications. The rate of subsidy is up to 50%. In addition, there is a "learning network on energy efficiency", which is organised in the framework of the Interreg-Project "EIVRIG", and where participation of the companies in this network is also subsidized.

Also Salzburg offers different consultancy programmes and energy checks. The funding rate for consulting of producing industry is 50%.

Contact

Burgenland: Technologieoffensive Burgenland GmbH

Kärnten: Wirtschaftskammer Kärnten, Gründer- und Unternehmerservice

Niederösterreich: Wirtschaftskammer Niederösterreich, Ökologische Betriebsberatung

Oberösterreich: O.Ö. Energiesparverband

Salzburg: umwelt service salzburg

Steiermark: Wirtschaftskammer Steiermark, Betrieb und Umwelt

Tirol: Wirtschaftskammer Tirol, Innovation und Technologie

Vorarlberg: Energieinstitut Vorarlberg

Wien: Wirtschaftskammer Wien, Energie- und Umweltreferat

Contact person:

Christian Spindelbalker (christian.spindelbalker@wko.at)

Webpages

These pages provide the links to all the regional programmes, listing the website and contact data:

http://portal.wko.at/wk/format_detail.wk?AngID=1&StID=364334&DstID=6963

http://www.klimaaktiv.at/energiesparen/betriebe_prozesse/beratung_foerderung/beratungsleist_bdd.html

Evaluation Reports

The Styrian Programme WIN, the annual report of which is on a prominent position on the website and includes evaluation results, and a separate evaluation report about "10 years WIN" was published in 2012.

Evaluation 10 Jahre Wirtschaftsinitiative Nachhaltigkeit, Martinuzzi, A. et al, 2012,
http://www.win.steiermark.at/cms/dokumente/11701000_10343237/3c58e6a7/Evaluation%2010%20Jahre%20WIN.pdf

The Viennese "Ökobusinessplan" has published the summary of the evaluation report for the year 2010

Ökobusinessplan Wien (ÖBP), Evaluierung Programmjahr 2014, Windsperger, A. & Windsperger, B., 2014

<https://www.wien.gv.at/umweltschutz/oekobusiness/pdf/evaluierung2014-kurzfassung.pdf>

The umwelt service salzburg has published some facts on their webpage.

<http://www.umweltservicesalzburg.at/de/presse/detail.asp?id=44&tit=Unsere+Erfolgszahlen+2015+%2D+Daten+und+Fakten>

Best cases can be found at the HP:

https://www.umweltfoerderung.at/fileadmin/user_upload/media/umweltfoerderung/Uebergeordnete_Dokumente/regionalprogramme_digitaleversion_060313.pdf

Frisch & Frost – ökomangement niederösterreich

Frisch & Frost is a producer of potato products (e.g. French fries, potato salad, potato dumplings, frozen sweet dishes...), the company has about 250 employees and uses about 97,000 Tonnes of potatoes per year.

With the help of the ökomangement niederösterreich Programme, this company has trained 6 employees that are mainly responsible for waste management and environment issues. One employee was responsible to co-ordinate the implementation of an environmental management system (according to ISO 14001, certification was achieved in 2006) – also this was supported by the programme.

The company is already now using part of its organic waste as feedstock for a biogas plant, which produces electricity that amounts to approximately a third of the company's consumption. The waste heat is integrated in the production.

It is planned to enlarge the biogas plant in order to use 100% of the organic waste in it. This will reduce the consumption of originally about 4 mio. m³ natural gas by approximately 15%.

Another plan foresees the addition of a denitrification basin to the wastewater treatment plant, in order to complete all steps of the water treatment in the company.

Alpenmilch Salzburg GmbH – umwelt service salzburg

Alpenmilch Salzburg GmbH is a dairy with 160 employees, using about 156 Mio. litres of milk per year. In 2009 the dairy company did an "energy check for production companies" subsidised by UmweltServiceSalzburg.

Before that, the energy consumption for water heating was 1.015 MWh/year. As a result of the consultant visit, the temperature of the storage tank was lowered, and the waste heat from the cooling units was integrated. In winter, even more heat is integrated, namely via the ventilation/air conditioning system. These measures achieve total energy savings of 780,000 kWh/a, corresponding to 155 t CO₂ and 28,000 Euro energy cost.

4.3 Energy supply contracting & energy performance contracting

Energy Supply Contracting (ESC) means that efficient supply of useful energy such as heat, steam or compressed air is contracted and measured in Megawatt hours (MWh) delivered.

Under an Energy Performance Contracting (EPC) arrangement an external organisation (ESCO) implements a project to deliver energy efficiency, or a renewable energy project, and uses the stream of income from the cost savings, or the renewable energy produced, to repay the costs of the project, including the costs of the investment.

This instrument is aimed at an efficient use and saving of energy, making efficient technologies and RES accessible.

In Austria, the members of DECA (Dienstleistung Energieeffizienz und Contracting Austria, an association of ESCOs that are active in Austria, which had 20 members in Oct. 2013) have invested around 100 Mio. Euro in the period from 2005-11 only in Energy

Performance Contracting.⁷ DECA Members have realized approximately 750 EPC and ESC projects in the period 2005-2011.⁸

In manufacturing and industry, Energy performance contracting is usually used for the optimisation of heating and lighting in:

- Office buildings
- Manufacturing halls
- Storage rooms
- Garages

EPC can also be used within the manufacturing processes, such as optimisation of compressed air system and the use of efficient motors, ventilators etc. but this type of projects is less frequent.⁹

Energy supply contracting is being used relatively frequently for the supply of heat and electricity (e.g.. via combined heat and power).

In Austria depending on the financing model chosen, usually there are three actors involved: a production company & an ESCO & bank (see link in footnote¹⁰ for examples).

For companies that do not have a significant energy consumption, transaction costs (setting up the contract, monitoring results etc.) will usually be too high to be attractive for an ESCO. A rule of thumb says that this is usually the case for annual energy costs lower than 20,000 Euro, but this may vary depending on the company, the ESCO and the amount of work to be done. In some cases, the bundling of different buildings or facilities into one project ("pooling"), in order to reach a good size, may be an option.

A feasibility study is usually carried out by the contracting company before drawing up a contract.

IPMVP is already being used by the bigger companies in Austria

Advantages of contracting (for barriers, disadvantages see above)

- Investment possible without "burden" on the budget of the client. The measures are being pre-financed by the contractor and available capital can be used elsewhere.
- Long-term reduction of energy cost
- Improved liquidity
- Savings (or maximum amount of energy cost) contractually guaranteed
- Risk transfer to contractor – the ESCO takes on the risk for technical and economical reliability of the facilities.

⁷ DECA press release, June 2013: http://www.deca.at/up_files/75.pdf

⁸ Telephone conversation with Mrs. Auer, DECA, 4.10.2013

⁹ <http://www.contracting-portal.at/show.php?nid=3&mid=7>

¹⁰ http://www.contracting-portal.at/_downloads/129.pdf

- Extensive specialised knowledge: professional planning and realisation so that all technical potentials are being considered
- One contact person and contract partner for the whole project, i.e. less co-ordination effort for the client in the implementation phase.
- Fewer organisational tasks

The following factors should be taken into consideration when deciding about contracting out an energy service:

- Company secrets: some companies wish to avoid giving too much insight into production processes to outsiders.
- Difficulty to define the borders of process steps/areas with energy relevance
- Reluctance to allow changes in the production process
- Long contracts: In times of rapidly changing economic conditions, companies are sometimes reluctant to commit themselves for more than 3-5 years.
- Accounting considerations: In the case of energy services, the capital invested by the ESCO sometimes is being treated in the balance sheet like a loan taken out by the company, so that contracting doesn't offer an advantage as regards the structure of the balance sheet.
- Creditworthiness: The Company needs to be in a relatively good situation in order for the ESCO to be able to commit to the investments.

Pro Pet Austria Heimdiernahrung GmbH

This company producing animal food extended their production and storage facilities in 2007 and 2012. The contractor guaranteed the following services: Year-round heat supply for process heat, space heating and hot water; performance guarantee and supply guarantee by technical and organisational rules; agreement on penalties, rules about succession in law;

Energy sources: 99% Biomass (Woodchips) 1% Oil

Base load: 1,500 + 1,500 kW Biomass plant

30 m³ buffer storage

Peak load: 2,000 kW Oil-fired boiler

Flue gas cleaning: electric filter

Heating facilities are underground

CO₂-reduction: 2,800 t/a

Contractor: Ing. Aigner Energiecontracting GmbH

Contact

DECA

Mrs. Monika AUER,

Tel: +43 1 315 63 93 -17,

Webpages

The website of the Website of DECA (Dienstleistung Energieeffizienz und Contracting Austria)

http://www.deca.at/view_site/site.php?lang=de&mid=1

4.4 Energie Contracting Programm Oberösterreich

This programme supports energy performance and energy supply contracting projects in businesses and municipalities by partially covering the client's payments to the ESCO for projects located in Upper Austria via a public grant. Contracting has been supported in Upper Austria since 2002. It is quite likely that the programme will be continued after 2016, but this is up to political budget decision.

The goal of the programme is to give an additional impulse for the contracting market and foster the offer of new qualified services. This is also a preparatory measure for the implementation of the energy efficiency regulation in the service and buildings sectors.

So far more than 150 projects, with investments of about 40 Mio. Euro (which were financed by contracting) have been supported with approx. 2.6 Mio. Euro. (state 2013)

The programme supports the following investments if contracting is used to finance the investment:

- Construction of energy installations using mainly renewable sources (energy supply contracting)
- buildings refurbishment with energy efficiency improvements in a wide definition of the term, i.e. for example improvements in lighting, compressed air, heat recovery or similar should be eligible) (energy performance contracting)
- A rough feasibility study for the project.

The amount of investment must be between 50,000 and 500,000 Euro.

The percentage of the subsidised investment depends on the duration of the contract (column 1 in the table below) and the type of contracting (energy performance contracting (column 2) or energy supply contracting (column 3)) A maximum of 10 years duration of the contract is subsidised. For projects that combine both forms of contracting the subsidy rate will be calculated proportional to the share of the both forms in the eligible costs.

Contracting-Laufzeit (in Jahren)	Einspar-Contracting max. in %	Anlagen-Contracting max. in %
2	8	5,5
3	9,5	6,5
4	11	7,5
5	12,5	8,5
6	14	9,5
7	15,5	10,5
8	17	11,5
9	18,5	12,5
10	20	13,5

Source: Regulation for the subsidy programme:

https://www.land-oberoesterreich.gv.at/Mediendateien/Formulare/DokumenteAbt_Ge/Richtlinie_ECP_2016.pdf

- The subsidy is subject to "de minimis" rules, i.e. beneficiaries must not receive more than 200,000 Euro in 3 years (total of all subsidies)
- The implementation must not start before the subsidy application has been submitted.
- The subsidy is paid out as a grant covering part of the eligible cost. 50% of a so called "rough analysis" (Grobanalyse) for the preparation of the project can be financed for ESCOs already carried out a project in the framework of this subsidy programme.

The following can be counted as eligible cost: Cost for investment into energy-related refurbishment of buildings and/or investment into installations for the use of renewable energy sources. In addition, the costs for consulting and planning the investment as well as for the contingent liability and costs for necessary measures to improve the security of supply.

At the end of the duration of the contract, a proof of its fulfilment has to be submitted.

Kremsmünster Monastery

The Kremsmünster Monastery includes the monastery, grammar school, pupils residence, administrative building, restaurant, wine cellar, brewery, and outdoor swimming pool. Energy contracting project consisted of the heat supply of by a 1 MW biomass plant, the refurbishment of old energy appliances, and the replacement of old heating system.

The CO₂-reduction amounts to 720 t/year.

Contact

ESCO

Ing. Aigner GmbH.

Contact

Oberösterreichische Energiesparverband (regional energy agency)

E-Mail: office@esv.or.at

Amt der Oberösterreichischen Landesregierung

Abteilung Wirtschaft

E-Mail: wi.post@ooe.gv.at

Ing. Karl Fürstenberger

karl.fuerstenberger@esv.or.at

Webpages

<https://www.land-oberoesterreich.gv.at/22833.htm>

<http://www.energiesparverband.at/english/home.html>

Annual report and results :

http://www.energiesparverband.at/fileadmin/redakteure/ESV/Info_und_Service/Energie_in_OOe/Umsetzungsbericht/2015-Energiebericht.pdf

<http://www.energiesparverband.at/?id=503>

4.5 Bank loans

A loan is given either directly to the end-user or to the ESCO; it is the agreement to lend a principal sum for a fixed period of time to be repaid by a certain date with an interest calculated as percentage of the principal sum per year and other transaction costs. This enables the company to cover the up-front cost of the investment, if the company doesn't have large enough cash reserves.

Usually the loan is financed of the funds of the bank. In case of soft loans, re-financing of the bank may be from EIB (European Investment Bank) or a similar institution or a combination with guarantees e.g. AWS, ERP-Funds or Agencies active in only one Province (such as Wiener Kreditbürgschafts-und Beteiligungsbank AG for Vienna).

A loan is given either directly to the end-user or to the ESCO; it is the agreement to lend a principal sum for a fixed period of time to be repaid by a certain date with an interest calculated as percentage of the principal sum per year and other transaction costs. This enables the company to cover the up-front cost of the investment, if the company doesn't have large enough cash reserves. The main criterion for the decision of the bank is whether the client is expected to be able to repay the loan. The exact conditions of the loan depend on the general and financial standing (credit rating) of the company, and whether securities are available.

An investment in energy efficiency may be considered less risky than e.g. an investment in a new market or similar, thus a loan for that may have slightly better conditions.

Also, a confirmation of approval for public funding (e.g. an UFI-grant) is an asset, as this means the project has been evaluated and considered viable by another competent expert. But in general, it is not the evaluation of the investment in itself, but the whole company, that is decisive.

4.6 Umweltförderung im Inland / Energy (Energie)

The target of this subsidy programme is to lead to CO₂ savings giving non-repayable funds to companies or organisations for the sector building and rehabilitation, energy savings and renewable energies. Responsible is the Ministry of Environment, the subsidies are based on the Umweltförderungsgesetz and the Förderungsrichtlinien für Umweltförderung im Inland (2009). The subsidy is executed by the Kommunal Kredit Public Consulting.

The following technologies are covered:

- Energy Efficiency (Awareness rising activities in companies, building of knowhow)

- Renewables (Biogas, Wood, renewable heat,)
- Energy Services (Energy management)

The average subsidy 2015 of all UFI projects: € 31,462€

The average subsidy depends on the focus of the project. Examples:

Conversion to LED € 3,557 (on average), project for the production of biogenic fuels € 496,108 (on average)

Funding rate for electricity production sites 35% (on average), funding rate for biomass – micro-network 28% (on average)

- Funding rate for investments in renewable energies up to 40%
- Funding rate for investments in using energy of biogenic waste up to 30%

62 Mio. for all UFI projects in 2015

More than 1970 projects in 2015 (regarding all UFI projects)

There are different funding schemes depending on company size.

Contact

Kommunalkredit Public Consulting
 Türkenstraße 9
 1092 Wien
 Tel: +43/1/31631
 E-Mail: kpc@kommunalkredit.at

Webpages

<https://www.umweltfoerderung.at/>

Results on webpage:
<https://www.publicconsulting.at/berichte-publikationen.html>

4.7 Solar thermal – solar thermal large plants

Solarthermie – Solare Großanlagen: The Kommunalkredit Public Consulting for the Klima+Energie Fonds (Federal Ministry for Transport, Innovation and Technology and Ministry of Life) subsidizes the realization of large solar thermal plants including measurements and evaluation for solar process heat, solar integration in heating grids, high solar yield in trade and service companies, solar air-conditioning and solar integration in new technologies and innovative approaches.

Year to year the call is open from May till end of September, the time for implementation is 18 months. The overall budget for 2016 is € 3.5 Mio.

The funding is between 40 to 45% of total costs for solar thermal plants between 100 m² and 2,000 m² depending on innovation and accompanying measurement and monitoring. The funding is between 20 to 30% of total costs for solar thermal plants between 2001 m² and 5001 m². Partly small plants of 50 m² are funded in case very innovative approaches and new technologies. Consultants and planning costs can be included in overall costs.

The following numbers represent the number of counseling interviews:

- 41 (2010)
- 51 (2011)
- 46 (2012)
- 39 (2013)

Opinion:

- General high interest but decreasing number of interested projects
- Good initiative

Contact

Kommunalkredit Public Consulting for the Klima+Energie Fonds (Federal Ministry for Transport, Innovation and Technology and Ministry of Life)

Mag. Gernot Wörther +43 1 585 03 90-24

gernot.woerther@klimafonds.gv.at

Webpages

<https://www.klimafonds.gv.at/foerderungen/aktuelle-foerderungen/2016/solarthermie-solare-grossanlagen/>

Results a on webpage:

<http://www.solare-grossanlagen.at/daten-und-fakten>

4.8 Erp Loan, Loan Guarantee for investments in Environmental protection

Erp Loan, Loan Guarantee for investments in optimization of products/processes, environment- and energy technologies, prototypes, pilot- and demonstration sites:

The Austrian Wirtschaftsservice as business development /subsidy bank of the federal government supports companies at financing of their projects with erp-loans, guarantees, subsidies and liabilities.

In particular projects in research within research reconciliation within the meaning of experimental development are supported. Examples for investments are energy saving measures, measures for improving energy efficiency, use for renewable energy or high efficient CHPs.

The funds come from the ERP Funds and underlie the European law on state aid.

In principle the use of Energy Efficient Technologies and Renewables can be supported for Medium-, Small sized Companies. Big Companies can be supported under specific circumstances. The yearly donation of fond is between € 500 – 600 Mio.

Erp Loans supports companies in the modernization and capital-widening investments with a financing volume of 10,000 Euro- 100,000 Euro. The running time: 6-10 years with a two year payback grace period. The interest is 1% for amortization term and 0.5% for the first two years. In addition there is a 0.9% one-time fee.

Contact

Austrian Wirtschaftsservice (AWS)

Wolfram Anderle

+43 1 501 75 408

w.anderle@awsg.at

Webpages

<https://www.awsg.at/Content.Node/innovation-investition/nationale-finanzierung/kredite/48412.php>

Results on webpage:

<https://www.awsg.at/Content.Node/ueber-die-aws/berichte/46810.php>

5 Germany

For Germany the following financial instruments and funding programmes were reported on national level:

Germany	Instrument	Source	Sector	Technology	Impact
EEG	Feed-in tariff	Federal funds	Plant operator	Biomass, biogas, PV, wind energy and other installations for renewable electricity	23.6 billion Euro (forecast 2014)
Climate Protection Initiative	Investment grant	Federal funds	Companies, research institutions, universities, municipalities, public institutions, private persons and associations	Biomass, production of heat, development projects	280 Mio. Euro for Germany, 120 Mio. Euro international (in total)
Subsidy for Mini CHP plants	Investment grant	Federal funds	Plant operator	Mini CHPs (up to 20 kW) Natural gas, liquid gas, biogas, oil	8.9 Mio. Euro (April 2012 to June 2013)
Funding programme for Micro-CHP-heating devices	Investment grant	Energy supplier	End customers	Micro CHPs Natural gas	100,000 Euro (in total)
Compensation for electricity generated by CHP plants	Feed-in tariff	Electricity system operator	Plant operator	High efficient CHPs (new and refurbished)	
Climate Initiative – Measures for industrial cooling plants	Investment grant	Federal funds	Companies of the industrial economy	More efficient industrial cooling, waste heat recovery	

Germany	Instrument	Source	Sector	Technology	Impact
Environment Innovation programme	Loan or investment grant	Federal funds	Companies of the industrial economy, other natural or judicial private persons, municipalities, public institutions and associations	Energy efficiency and renewable energies Large scale plants with demo character	10 Mio. Euro (in 2012)
BMWi-Innovation Bonuses (go-inno)	Investment grant	Federal funds	Industrial companies incl. handcraft, esp. SMEs	Consultancy for energy efficiency projects	
KfW- Funding Initiative Energy Transition	Loan	Bank	Companies of the industrial economy	Investments in energy efficiency, innovative and efficient technologies and utilization of renewable energies	65 Mio. Euro (in 2012)
Funding of measures to adapt to climate change	Investment grant	Federal funds	Municipalities and municipal companies, associations, SMEs, initiatives and organisations	Energy efficiency measures Concepts, pilot and demo projects	
KfW- Energy Efficiency Funding Programme	Loan	Bank	Companies of the industrial economy	Energy efficiency measures (building applications, process heat, control tech)	3.5 billion Euro (in 2012)
KfW-Program: Renewable Energies – Standard	Loan	Bank	companies that are mostly privately owned, others	Renewable energies CHPs, Grids (applying to EEG)	7.9 billion Euro (in 2012)
KfW-Programme: Renewable Energies – Premium	Loan and redemption grant	State Funds	ESCOs Big/medium/small companies	Renewable energies: <i>Solar Thermal, biomass, heat pumps, geothermal</i>	
KfW – Program: Energy Consulting for SMEs	Grant	Bank	SMEs and freelance professionals, if energy costs exceed 5000 Euro/a	Initial and detailed energy efficiency consulting	

Germany	Instrument	Source	Sector	Technology	Impact
Refurbishing energy efficiently – Supplementary credit	Loan	Bank	Persons who refurbish their home or are the first buyer of refurbished homes	Renewable energies: heating systems based on RES (solar, biomass, heat pumps)	
Investment grant for the use of highly efficient cross-sectional technologies in medium-sized businesses	Investment grant	Federal funds	Companies	Energy efficiency measures (Pumps, Ventilation, Compressed Air, Heat Recovery)	
“Prozesswärme” (Market Incentive Programme)	Investment grant	State funds	SMEs	Solar energy, biomass, heat pumps	over €300 million/year (in 2016)

Table 5-1 Financial instruments and funding programmes in Germany

5.1 EEG

EEG is part of the Gesetz für den Vorrang Erneuerbarer Energien (Law for the Preference of Renewable Energies). The short term for this law is Erneuerbare-Energien-Gesetz (Renewable-Energies-Law).

The articles 23 - 33 regulate the compensation for electricity fed into the grid on a federal level, whereas the electricity has to be produced by the named sources like biomass, biogas, PV or wind.

The funding is offered by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

For biomass, the plant operator can gain the following feed-in tariff:

Rated power	Feed-in tariff
≤ 150 kW	14.3 cent/kWh
≤ 500 kW	12.3 cent/kWh
≤ 5 MW	11.0 cent/kWh
≤ 20 MW	6.0 cent/kWh

For electricity from wind power plants (on shore) operators can get a basic compensation of 4.87 cent/kWh for the feed-in into the grid.

Details to the feed-in tariffs and regulations of other renewables can be found in the EEG - Erneuerbare-Energien-Gesetz.

Contact Coordinating Institution in Germany

Bundesamt für Wirtschaft und Ausfuhrkontrolle
Frankfurter Straße 29 - 35
65760 Eschborn
Telefon: +49 (0)6196 908-0
Telefax: +49 (0)6196 908-800

English webpage

<http://www.erneuerbare-energien.de/en/topics/acts-and-ordinances/renewable-energy-sources-act/eeg-2012/>

German webpages

www.erneuerbare-energien.de
<http://dejure.org/gesetze/EEG, §§ 23- 33>

5.2 Climate Protection Initiative

The Climate Protection Initiative - research and development for climate efficient optimisation of biomass energy recovery subsidises the following kinds of projects:

- Projects for practical development of trendsetting and competitive technologies
- Flexible system technologies and concepts
- Biomass products aimed at a
 - Sustainable and efficient electricity generation
 - Sustainable and efficient production of heat

Companies, research institutions, universities, municipalities, public institutions, private persons and associations can gain a grant from the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. This subsidy is basically running for three years.

Companies of the industrial economy can gain a grant of up to 50% of the eligible costs. Universities and non-university research institutions can gain a grant of up to 75% of the eligible costs.

Contact

Coordinating Institution in Germany

Projektträger Jülich (PtJ)
Geschäftsbereich Umwelt (UMW)
Außenstelle Berlin
Zimmerstraße 26–27
10969 Berlin
Tel. (0 30) 2 01 99-5 17
Fax (0 30) 2 01 99-4 30
E-Mail: h.neumann@fz-juelich.de

Webpages

<http://www.ptj.de/klimaschutzinitiative>
http://www.ptj.de/lw_resource/datapool/items/item_2725/2011_08_30_bundesanzeige_rdruck.pdf

5.3 Subsidy for Mini CHP plants

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety subsidises new CHP (Combined Heat and Power) systems with an electrical power of up to 20 kW in existing buildings. The Federal Office of Economics and Export Control (BAFA) administers this funding system.

The plant operator of highly efficient and modern CHP systems can gain a one-time investment grant. The CHP plant has to be accredited by the general decree and listed in the type and manufacturer list of the BAFA as an eligible system.

The amount of the grant depends on the electric power of the plant. For example: Small plants, suitable for single and semi-detached houses, with an electric power of 1 kW are subsidised with 1,500 Euro. Large plants with an electric power of 19 kW are subsidised with 3,450 Euro.

Contact

Coordinating Institution in Germany

Bundesamt für Wirtschaft und Ausfuhrkontrolle
Frankfurter Straße 29 - 35
65760 Eschborn
Telefon: +49 (0)6196 908-0
Telefax: +49 (0)6196 908-800

German webpage

http://www.bafa.de/bafa/de/energie/kraft_waerme_kopplung/mini_kwk_anlagen/index.html

5.4 Funding programme for Micro-CHP-heating devices

The German energy supplier E.ON Energie Deutschland subsidises the installation of Micro-CHP-heating devices for private customers that are living within the sales region of E.ON. The first 100 customers can gain a grant of 1,000 Euro. Micro-CHP-heating devices have an electrical power output of roughly 1 kW and a varying thermal power.

The device has to be installed from an installer from a defined company mentioned on the website or a qualified/certified installer.

Contact

Coordinating Institution in Germany:

E.ON Energie Deutschland GmbH
Lilienthalstr. 7
93049 Regensburg
Telefon: 089-125401
E-Mail: mikro-kwk@eon.com

German webpage

https://www.eon.de/de/eonde/pk/produkteUndPreise/Foerderprogramme/Foerderprogramm_Mikro-KWK/index.htm

https://www.eon.de/resources/base/docs/pdf/Dokumente/eonde/Sonderdruck_gas.pdf

5.5 Compensation for electricity generated by CHP plants

The Federal Office of Economics and Export Control (BAFA) subsidises highly efficient new or refurbished CHP plants according to the Law for the Maintenance, Modernisation and the Expansion of CHP (Gesetz für die Erhaltung, die Modernisierung und den Ausbau der Kraft-Wärme-Kopplung).

The plant operator of highly efficient and modern CHP systems can gain a so-called CHP compensation over a certain period of time for the produced electricity fed into the grid. The payment is done by the energy supplier on whose electricity grid the plant operator is connected.

The CHP plant has to be accredited by the general decree and listed in the type and manufacturer list of the BAFA as an eligible system.

Rated power	Feed-in tariff
≤ 2 kW	5.41 cent/kWh
≤ 50 kW	5.41 cent/kWh
> 50 - 250 kW	4 cent/kWh
> 250 kW – 2 MW	2.40 cent/kWh
> 2 MW	1.80 cent/kWh

Contact

Coordinating Institution in Germany

Bundesamt für Wirtschaft und Ausfuhrkontrolle
Frankfurter Straße 29 - 35
65760 Eschborn
Telefon: +49 (0)6196 908-0
Telefax: +49 (0)6196 908-800

German webpage

http://www.bafa.de/bafa/de/energie/kraft_waerme_kopplung/stromverguetung/index.html

http://www.bafa.de/bafa/de/energie/kraft_waerme_kopplung/publikationen/flyer_kwk.pdf

5.6 Climate Initiative – Measures for industrial cooling plants

This subsidy is based on the Integrated Energy and Climate Protection programme (Integriertes Energie- und Klimaschutzprogramm - IEKP) of the federal government. The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety subsidises the following kinds of measures:

- Energetic baseline study for existing cooling devices (Status- Check- Funding)
- Measures for renovation of existing cooling devices and measures for future systems, for which the use of more efficient technologies ensure energy savings (base funding)

- Measures for the use of waste heat resulting from production processes and cooling systems (bonus funding)

The energetic baseline study (status check) has to approve an energy saving potential through the application of more efficient components and systems of at least 35% . New installations have to use CO₂, NH₃ or non-halogenated refrigerants and installed components have to work highly efficient. The yearly electricity use of the cooling system has to be 100,000 kWh at minimum or the costs for the electricity and power of the plant has to be 10,000 Euro per year at minimum. The system has to have a separate remote reading of the electricity meters, it has to be maintained by a specialised company and provisions to minimise emissions of cooling solvents have to be made.

Companies of the industrial economy can gain the following subsidies:

The status check is subsidised with 75% of the costs according to invoices, but 1,000 Euro maximum. In case of systems with extraordinary calculation effort the maximum amount is 1,300 Euro.

In case of base funding the subsidy is 15% of the net investment costs or in case of the use of CO₂, NH₃ or non-halogenated refrigerants 25% of net investment costs are subsidised.

In case of bonus funding the subsidy is 25% of the net investment costs and in case of the use of CO₂, NH₃ or non-halogenated refrigerants 35% of net investment costs are subsidised.

Contact

Coordinating Institution in Germany

Bundesamt für Wirtschaft und Ausfuhrkontrolle
Frankfurter Straße 29 - 35
65760 Eschborn
Telefon +49 (0)6196 908-0
Fax +49 (0)6196 908-800

German webpage

<http://www.bafa.de/bafa/de/energie/kaelteanlagen/>

5.7 Environment Innovation Programme

The Environment Innovation Programme (Umweltinnovationsprogramm – UIP) offers an investment grant or an interest subsidy for large scale technical plants with demonstration character.

The Federal Environment Agency in Germany (Umweltbundesamt – BMU), the KfW-Bank and the Federal Environment Agency (UBA) subsidise demonstration projects with the following character:

- Environmental protection facilities
- Facilities for disposal, supply or treatment
- Environmentally friendly production processes
- Installations for the production or utilization of environmentally friendly products or substitute materials

- Environmentally friendly products or substitute materials

if investment is necessary for a significant reduction of

- Emissions of pollutants to air, water or soil,
- Waste by type and quantity,
- Noise emissions,
- Impairment of soil

The systems and techniques have to correspond to the advanced state of technology or should show new operating and technique concepts or the project should be specifically advanced and innovative by integrating the procedures in the production process.

Companies, other natural or judicial private persons, municipalities, public institutions and associations can apply for a subsidy of interest or an investment grant:

- Loan of the KfW Bank with a subsidy of interest up to 70% of the eligible investment costs
- Investment grant of up to 30% of the eligible investment costs

Contact

Coordinating Institutions in Germany

KfW Bankengruppe
 Palmengartenstraße 5 – 9
 60325 Frankfurt am Main
 Infocenter +49 (0)800 539 90 01
 Telephone +49 (0)69 7431-0
 Fax +49 (0)69 7431-2944
 E-Mail info@kfw.de

Umweltbundesamt (UBA)
 Wörlitzer Platz 1
 06844 Dessau
 Telephone +49 (0)340 2103-0
 Fax +49 (0)340 2103-85
 E-Mail info@umweltbundesamt.de

German webpage
<http://www.umweltinnovationsprogramm.de/>
http://www.umweltinnovationsprogramm.de/sites/default/files/benutzer/36/dokumente/130201_foederrichtlinie.pdf

5.8 BMWi- Innovation Bonuses (go-inno)

The Federal Ministry for Economics and Technology (Bundesministerium für Wirtschaft und Technologie – BMWi) subsidises external consultancy services in industrial companies including the handcraft. The funding programme comprises the modules "innovation management" and "resource and material efficiency".

The module "innovation management" contains a grant to the arising consultancy costs for supporting the preparation and implementation of product and technical process innovations in companies with technical potential. It addresses companies employing less than 100 employees and having a maximum yearly turnover of 20 Mio. Euro.

The module "resource and material efficiency" supports the technical consultancy in companies for a profitable increase of the resource and material efficiency in the production process or the use of the products at clients. It addresses small and medium sized companies of the producing branch with less than 250 employees and a maximum yearly turnover of 43 Mio. Euro. In certain exceptional cases companies with less than 1,000 employees can also gain this subsidy.

Basically there is no thematic constraint regarding specific technologies, products, branches or branches of economy.

In the module "Innovation management" companies can gain a grant up to 50% of the eligible expenditures. For one consultancy day expenditures up to 1,100 Euro are eligible and at maximum there can be gained 5 bonuses with up to 20,000 Euro per year.

In the module "resource and material efficiency" the maximum subsidy amount in level 1 is 17,000 Euro within a consultancy duration of maximum three months.

For both levels there is a maximum subsidy amount of 80,000 Euro.

Contact

Coordinating Institutions in Germany

EuroNorm GmbH

Projektträger des BMWi
Stralauer Platz 34
10243 Berlin
Telephone +49 (0)30 97003-043
Fax +49 (0)30 970103-044
E-Mail info@inno-beratung.de

Deutsche Materialeffizienzagentur (demea)

VDI/VDE Innovation + Technik GmbH
Steinplatz 1
10623 Berlin
Telephone +49 (0)30 310078-200
Fax +49 (0)30 310078-222
E-Mail info@demea.de

German webpage

<http://www.bmwi-innovationsgutscheine.de>

http://www.bmwi-innovationsgutscheine.de/go-inno-wAssets/docs/downloads/Richtlinie_BMWi-Innovationsgutscheine.pdf

5.9 KfW- Funding Initiative Energy Transition

Within the Funding Initiative Energy Transition (Finanzierungsinitiative Energiewende) the KfW Bank offers financing of large investment projects of companies in Germany which target one or more of the following measures:

- Reconstructions or new buildings that fulfill or in the case of a new building exceed the requirements of the "Energieeinsparverordnung 2009"
- Energy efficiency measures that lead to an energy saving of 15% compared to the average of the specific branch
- Replacement investments in technical installations, if the energy consumption is at least 20% below the average of the past three years
- Further and new development of energy saving technologies, for efficient energy production, for energy storages and for efficient energy transmission
- Investments for using renewable energies

Domestic and foreign companies of industry which are mainly privately owned and whose consolidated sales revenue is between 500 Mio. Euro and 4 billion Euro can apply for a loan at KfW bank which can cover up to 50% of the overall loan that is required for a specific investment. Generally these are between 25 Mio. Euro and 100 Mio. Euro per project.

Contact

Coordinating Institution in Germany

KfW Bankengruppe
 Palmengartenstraße 5-9
 60325 Frankfurt am Main
 Infocenter +49 (0)800 5 39 90 01
 Telephone (0)69 74 31-0
 Fax +49 (0)69 74 31-29 44
 E-Mail info@kfw.de

German webpage

<https://www.kfw.de/inlandsfoerderung/Unternehmen/Energie-Umwelt/Finanzierungsangebote/Finanzierungsinitiative-Energiewende-%28291%29/#1>

5.10 Funding of measures to adapt to climate change

Within the programme funding of measures to adapt to climate change (Förderung von Maßnahmen zur Anpassung an den Klimawandel) the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety subsidises the following projects:

- Development of climate friendly concepts
- Learning opportunities regarding climate change and impacts
- Funding of municipal demonstration projects
- Support to regional and intercommunal/inter-municipal organisations

Municipalities and municipal companies, associations, SMEs, initiatives and organisations can gain a grant.

The grant amounts to a maximum of 65% of the total eligible costs. For SMEs the maximum amount is 100,000 Euro per project for the development of climate friendly and climate adapted concepts (with a duration of two years).

The funding of learning opportunities including the realisation of pilot and demonstration projects are subsidised with up to 300,000 Euro per joint project (with a duration of three years).

Contact

Coordinating Institution in Germany

Projekträger Jülich (PtJ)
Geschäftsbereich UMW, Fachbereich Klimaschutz
Forschungszentrum Jülich GmbH
Zimmerstraße 26 – 27
10969 Berlin
Telephone +49 (0)30 20199-577
Fax +49 (0)30 20199-3100
E-Mail ptj-ksi@fz.juelich.de

German webpages

<http://www.bmu.de/themen/forschung-foerderung/foerderprogramme/anpassung-an-die-folgen-des-klimawandels/>

<http://www.ptj.de/folgen-klimawandel>

<http://www.ptj.de/index.php?index=753>

5.11 KfW- Energy Efficiency Funding Programme

Within the KfW – Energy Efficiency Funding Programme (KfW – Energieeffizienzprogramm) the KfW Bank subsidises the following investment measures in energy efficiency:

- Building equipment and appliances
- Energy and plant technology
- Process heat and cooling
- Measurement and control technology
- Renovating and construction of buildings

The investments have to lead to substantial energy savings.

Replacement investments of energy efficiency measures have to lead to a specific energy saving of at least 20%, compared to an average of the past three years. New investments of energy efficiency measures have to lead to a specific energy saving of at least 15% compared to the average of the specific branch.

Domestic and foreign companies of industry, which invest in Germany, which are mainly privately owned and whose consolidated sales revenue is up to 2 billion Euro (in exceptional cases up to 4 billion Euro) as well as companies providing (energy) services for a third party within contracting can gain a low interest loan.

The loan can be gained up to 100% of the eligible investment costs, generally up to 25 Mio. Euro per project. Either the loan period does not exceed five years with a grace period of one year or the funding programme provides a loan period of 10 years with a grace period of two years.

Contact**Coordinating Institution in Germany**

KfW Bankengruppe
Palmengartenstraße 5-9
60325 Frankfurt am Main
Infocenter +49 (0)800 5 39 90 01
Telephone (0)69 74 31-0
Fax +49 (0)69 74 31-29 44
E-Mail info@kfw.de

German webpage

<https://www.kfw.de/inlandsfoerderung/Unternehmen/Auslandsvorhaben/Finanzierungsangebote/Energieeffizienzprogramm-%28242-243-244%29/#1>

5.12 KfW-Programme: Renewable Energies – Standard

Within this programme the KfW Bank offers a low interest loan for projects to use renewable energies to produce electricity or electricity and heat in CHP plants as well as for investments in close low and medium voltage grids, especially the installation, expansion and acquisition of facilities and grids that comply with the EEG (Renewable Energies Law) and measures that improve the environmental situation.

Domestic and foreign companies that are mostly privately owned, enterprises at which municipalities, churches or charitable institutions participate, farmers, members of liberal professions, natural persons and non profit applicants who feed in or sell the produced heat can apply for a low interest loan.

The loan can be gained up to 100% of the investment costs up to a maximum of 25 Mio. Euro.

Contact**Coordinating Institution in Germany**

KfW Bankengruppe
Palmengartenstraße 5-9
60325 Frankfurt am Main
Infocenter +49 (0)800 5 39 90 01
Telephone +49 (0)69 74 31-0
Fax +49 (0)69 74 31-29 44
E-Mail info@kfw.de

German webpage

<https://www.kfw.de/inlandsfoerderung/Unternehmen/Auslandsvorhaben/Finanzierungsangebote/Erneuerbare-Energien-Standard-%28270-274-275%29/index.html#1>

5.13 KfW-Programme: Renewable Energies – Premium

Within this programme “KfW-Programm Erneuerbare Energien - Premium” especially large scale installations for the use of renewable energies in the heat market are subsidised:

- Large solar thermal collectors
- Solid biomass for thermal use

- Heat driven biomass CHP
- Heat supply grids driven by renewable energies
- Large scale heat storage
- Biogas pipelines for crude biogas
- Large efficient heat pumps
- Plants for the exploitation and use of deep geothermal energy

Natural persons (only for own usage), charitable institutions, SMEs, regional administration bodies, enterprises for solar thermal energy, geothermal power, heat storage or district heating that are contractors can gain loans and redemption grants for solar thermal, biomass, large heat pumps and geothermal systems. The maximum loan is €10 million per system.

Duration: 5, 10 or 20 years

Redemption grant (means that one does not have to repay a certain amount of the loan) is of:

- Up to 50% for solar thermal process heat
- Up to €50/kW for biomass for thermal heat (maximum of €100,000 per system)
- Up to €40/kW for biomass CHP
- €80/kW for heat pumps (minimum of €10,000 and maximum of €50,000 per system)
- €200/kW for geothermal for thermal heat (maximum of €2 million)
- Up to €1 million for geothermal CHP

For current interest rates see the following:

<https://www.kfw-formularsammlung.de/KonditionenanzeigerINet/KonditionenAnzeiger>

Contact

Coordinating Institution in Germany
KfW – Kreditanstalt für Wiederaufbau

KfW Bankengruppe
Palmengartenstraße 5–9
60325 Frankfurt am Main
Infocenter: (08 00) 5 39 90 01
Tel. (0 69) 74 31-0
Fax (0 69) 74 31-29 44
E-Mail: info@kfw.de
German webpage

[https://www.kfw.de/Download-Center/F%C3%B6rderprogramme-\(Inlandsf%C3%B6rderung\)/PDF-Dokumente/6000002410-Merkblatt-271-281-272-282.pdf](https://www.kfw.de/Download-Center/F%C3%B6rderprogramme-(Inlandsf%C3%B6rderung)/PDF-Dokumente/6000002410-Merkblatt-271-281-272-282.pdf)

5.14 Energy consulting for SMEs

The KfW Bank subsidises energy consulting for SMEs. This offer includes an initial consulting to identify potentials as well as a detailed audit to develop a prioritized plan of measures that contains efficiency potentials, proposals for renewable energies and the economic feasibility. 80% with a maximum amount of 1,280 Euro of the initial consulting is subsidised. For the detailed audit 60% of the costs are funded by the KfW with a maximum of 4,800 Euro.

This grant can be used by SMEs and freelance professionals that are located in Germany, if the net energy costs exceed 5,000 Euro per year.

Contact

Coordinating Institution in Germany

KfW Bankengruppe
Palmengartenstraße 5-9
60325 Frankfurt am Main
Infocenter +49 (0)800 5 39 90 01
Telephone +49 (0)69 74 31-0
Fax +49 (0)69 74 31-29 44
E-Mail info@kfw.de

German webpage

<https://www.kfw.de/inlandsfoerderung/Unternehmen/Unternehmen-erweitern-festigen/Finanzierungsangebote/Energieberatung-Mittelstand-%28EBM%29/>

5.15 Investment grant for the use of highly efficient cross-sectional technologies in medium-sized businesses

The Federal Office for Economics and Export Control (Bundesamt für Wirtschaft und Ausfuhrkontrolle (BAFA)) subsidises investment measures to improve energy efficiency by using high efficient cross-sectional technologies available on the market:

- Pumps
- Electrical engines
- Ventilation and air conditioning
- Compressed air systems
- Systems for heat recovery and use of waste heat

Before starting measures an energy saving concept has to be developed by an energy advisor. Measures have to reach an end energy saving of 25% at minimum to be subsidised.

De minimis aid: Small and medium-sized companies can gain a grant of up to 30% of the eligible costs for single measures. Other companies can gain a grant of up to 20% of the eligible costs for single measures.

For systematic optimisation measures according to the size of the enterprise and according to the energy saving, up to 30% of the eligible costs but at most 100,000 Euro per applicant are subsidised.

General block exemption Regulation (AGVO): In this case 40% of the eligible extra costs for small companies but at most 15% of the total investment costs are subsidised. Medium-sized companies can gain 30% of the eligible extra costs but at most 7.5% of the total investment costs. Otherwise 20% of the eligible costs but at most 5% of the total investment costs are subsidised.

The companies have to have maximum 500 employees and an annual volume of sales of maximum 100 Mio. Euro.

Contact

Coordinating Institution in Germany

Bundesamt für Wirtschaft und Ausfuhrkontrolle
 Frankfurter Straße 29 - 35
 65760 Eschborn
 Telephone +49 (0)6196 908-0
 Fax +49 (0)6196 908-800

German webpage

<http://www.bafa.de/bafa/de/energie/querschnittstechnologien/index.html>

http://www.bafa.de/bafa/de/presse/pressemitteilungen/2012/31_querschnittstechnologien.html

5.16 “Prozesswärme” - Market Incentive Programme-

Within the Market Incentive Programme (Marktanreizprogramm MAP) big/medium companies and ESCOS can gain investment grants for heat provision using solar thermal, biomass or heat pumps.

The Grants are intended for solar thermal, biomass and heat pump systems that provide process heat. The total budget is over €300 million/year. Application has to be done before investment.

The grant covers up to a certain percentage of investment cost of process heat systems:

Solar thermal	up to 50% of net investment cost for systems larger than 20 m2
Biomass	up to 30% of net investment cost for systems from 5 to 100 kW (maximum of €12,000)
Heat pumps	up to 30% of net investment cost for systems up to 100 kW (maximum of €18,000)

Contact**Coordinating Institution in Germany**

German Federal Office for Economic Affairs and Export Control (Bundesamt für Wirtschaft und Ausfuhrkontrolle – Bafa)

Bundesamt für Wirtschaft und Ausfuhrkontrolle

Erneuerbare Energien

Frankfurter Straße 29 – 35

65760 Eschborn

Telefon: 06196 908-1625

Telefax: 06196 908-1800

German webpage

http://www.bafa.de/bafa/de/energie/erneuerbare_energien/waermepumpen/publikationen/foerd_uebersicht_prozess.pdf

6 Portugal

Portugal	Instrument	Source	Sector	Technology	Impact
<i>Fundo de Eficiência Energética, FEE</i> (Energy Efficiency Fund)	Public grants	The fund is financed by the revenues of multiple taxes and penalties.	Most industry related application periods focus on operators with an ARCE (<i>Acordo de Racionalização dos Consumos de Energia</i> , energy consumption rationalization agreement).	<u>EE – transversal measures</u> and <u>EE – sector specific measures</u>	Budget varies for each tender procedure and specific program and measures.
<i>Fundo de Apoio à Inovação, FAI</i> (Innovation Support Fund)	Nonrefundable and refundable subsidies;	Initial funds were the contributions of two private consortiums as counterparts for the capacity to inject wind energy in the electric public system.	Any public or private entities that fulfill the mandatory requests. All sizes	Scientific and technical studies within the scope of EE and ER.	Initial allocation was 76 833 493 € and 19 projects approved.

Portugal	Instrument	Source	Sector	Technology	Impact
<p><i>Plano de Promoção da Eficiência no Consumo de Energia Eléctrica</i> (PPEC). Promotion Plan of Efficiency in Electric Energy Consumption.</p>	Subsidies	Not available	<p>ESCO, grid operators and distributors, consumers' protection associations and entities, municipal associations, business associations, energy associations, higher-education institutions and research centers.</p> <p>All sizes</p>	Several EE Technologies are covered	For the period 2017-2018 the budget is 11 500 000€, with 3 500 000€ allocated to industry and agriculture
<p><i>Sistema de Gestão dos Consumos Intensivos de Energia</i>, SGCIE. Intensive energy consumption management system.</p>	<p>Tax incentives related to petroleum products.</p> <p>Subsidies for energy audits.</p> <p>Subsidies for equipment and management systems.</p>	State funds	This system is mandatory, with some exceptions, to all intensive energy consumption installations with an annual energetic consumption equivalent to 500 toe.	Energy audits and energy management plans	In June 2016 there were 1078 registered companies in this system

Portugal	Instrument	Source	Sector	Technology	Impact
CHP legal and remuneration regime	Feed-in-tariff, contracting	Not available	All	CHP: Combined-cycle gas turbines with heat recovery; Steam back-pressure turbines; Steam extraction condensing turbines; Gas turbines with heat recovery; Internal combustion engines; Microturbines; Stirling engines; Fuel cells; Steam engines; Organic Rankine cycles and Any other type of technology or combination of technologies corresponding to the law definition of CHP	Some quick reports are available in the DGEG website related with electric energy from renewable energy sources.
Legal regime applied to electricity production by microgeneration and mini-generation.	Feed-in tariff	Not available	All	Micro and mini-generation of electricity	Not available

Table 8-1 financial instruments and funding programmes in Portugal

6.1 Fundo de Eficiência Energética

Fundo de Eficiência Energética, FEE (Energy Efficiency Fund) is a programme providing public grants in Portugal. The objective of this fund is to finance programs and measures defined in the PNAEE (*Plano Nacional de Ação para a Eficiência Energética*, National action plan for energy efficiency). The general objective of this program is to improve energy efficiency through the reduction of the primary energy consumption.

The [PNAEE executive commission](#) is responsible to identify and approve projects, celebrate contracts and supervise their execution.

The fund is financed by the revenues of multiple taxes and penalties; revenues from financial applications; funds from donations, heritages, legacies and free contributions; assigned funds from the state budget; other revenues assigned by other laws or juridical deals.

Instrument is based on EU directives (e.g., 2006/32/CE) in the scope of the European goals «20-20-20» and national laws (e.g., resolution 80/2008 amended by resolution 20/2013; decree law 50/2010; ordinance 26/2011).

Budget varies for each tender procedure and specific program and measures.

The fund does not have a validity period but the energy efficiency national plans are valid for 3 years. The current one runs from 2013 until 2016.

The next list is only related to the industrial programs and measures, these measures are discriminated in the PNAEE.

EE – transversal measures

Electric motors (optimization of electric motors, pumping systems, ventilation systems, compression systems);

Heating and cooling production (cogeneration, combustion systems, heat recovery systems, industrial refrigeration);

Illumination (efficient illumination);

Industrial process efficiency (Monitoring and control, effluent treatment, processes integration, upkeep of energy consuming devices, thermal isolation, transports, training and awareness raising of human resources, reactive energy reduction);

EE – sector specific measures

Food and beverages (sterilization optimization, membrane separation processes, change of horizontal to vertical mills, vacuum distillation);

Ceramics (oven optimization, dryer improvement, steam extrusion, stiff extrusion, dust production optimization, use of alternative fuels);

Cement (grinding optimization, use of alternative fuels, e.g., biomass, reduction of clinker use in cement, replacement of petroleum coke by natural gas);

Wood and wood products (replacement of pneumatic by mechanical conveying, biomass reutilization, optimization of greenhouses and ovens);

Electro-Mechanical (submerge combustion for emulsion and solution heating, waste reuse, oven optimization);

Metallurgy and metal foundry (improvement of anode and cathode quality, fusion sector, melted metal by cavity, cast metal yield, casting rejects rate reduction, takt time improvement, reduction of over thicknesses);

Pulp and paper (gasification/combustion of dark liquor and other residues, drying optimization);

Chemical, plastics and rubber (new separation processes, new catalysts usage, distillation optimization);

Steel mills (electric oven improvement, smelting reduction processes, simultaneous casting and formation);

Textile (optimization of the processes involving solutions, mechanical/IR pre-drying, use of solar panels for water heating, optimization of textile production processes);

Clothing, footwear and tannery (improved cleaning/solutions cutting and “sewing” technologies, use of solar panels for water heating);

Glass (oven optimization, glass recycling).

Applications are planned to open three times a year, always preceded by warnings.

Opened applications will be organized by sets of programs or measures established in the national plan, and are conditioned by the availability of existing funds.

Most industry related application periods focus on operators with an ARCE (*Acordo de Racionalização dos Consumos de Energia*, energy consumption rationalization agreement).

This fund activity is related with the economic development policy to be implemented between 2014 and 2020, with the aid of Structural and Investment European Funds. The main target of this policy is to reach in this period a 25% energy consumption reduction in Portugal with special focus on the public administration energy consumption where a 30% energy consumption reduction is the target.

The fund was created as an instrument to support financially the programs and measures established in the PNAEE 2008-2015, now replaced by the PNAEE 2013-2016.

The fund supports technologic projects (in the areas of transports, housing and services, industry, agriculture, and public services), and actions with the capability to induce energy efficiency (in the areas of behaviors, taxation, incentives and financing). Other projects not directly identified in the national plan with proven ability to contribute to energy efficiency can also be supported by this fund.

Any natural or legal person, from public, cooperative or private sectors, with or without intent to profit is eligible to receive funding provided that: all legal conditions related to the activity are fulfilled, all fiscal and social security issues are paid.

The precise specifications are detailed in the applications period calls.

Some examples of past periods:

SGCIE 2012 I and SGCIE 2012 II: Aimed at operators with ARCE. Two types of funding. Category 1: refund of 50% of the costs of the mandatory energy audits for operators with annual consumption inferior to 1000 toe, with a limit of 750.00 €. Category 2: refund of 25% of the investments used in equipment and energy consumption management and monitoring systems with a limit of 10 000.00 €. Projects of this category have a maximum duration of 12 months.

SGCIE – Incentivo à Promoção da Eficiência Energética 2014: Three types of funding. Category 1: refund of 50% of the investments in thermal isolation with a limit of 2 500 €. Category 2: refund of 50% of the costs of the mandatory energy audits for operators with annual consumption inferior to 1000 toe, with a limit of 750 00 €. Category 3: refund of 25% of the investments used in equipment and energy consumption management and monitoring systems with a limit of 10 000.00 €.

SGCIE – Incentivo à Promoção da Eficiência Energética II 2015. Three funding categories. Category 1: aimed at investments in cross-cutting measures for technologic actions in electric engines, heating and cooling production and efficiency of the industrial processes. This category can refund until 25% of the expenses with a maximum limit of 60 000.00 € or 65 000.00 € depending on the operator type. Category 2: funding provided for investments in energy consumption management and monitoring systems with a limit of 25% with a maximum limit of 7 500.00 € or 10 000.00 € depending on the operator type. Category 3: refund of 50% of the costs of the mandatory energy audits for operators with annual consumption inferior to 1000 toe, with a maximum limit of 1 000.00 €. Categories 1, 2 beneficiaries are industrial installations operators (Economic Activity Code: 01 a 33) not covered by the European Emissions Trading Scheme. All categories beneficiaries have

to comply with the provisions of the SGCIE (Sistema de Gestão de Consumos Intensivos de Energia, Intensive energy consumption management system) regulations and have an ARCE running.

Every year the fund director has to publish in the webpage of the organism responsible for the fund management a report that identifies the obtained revenues and application, as well as identifying and describing the activities promoted and financed by the fund. This is stated in the article 6 of the fund constitution (decree law 50/2010), added by article 22 of the law 82-D/010.

SGCIE 2012 I – Link to approved applications

SGCIE 2012 II - Link to approved applications

SGCIE 2014 - Link to approved applications

SGCIE 2015 – Link to preliminary report

Regarding the programme results some examples of past programs related to industry are listed below:

SGCIE 2012 I: 1 500 000.00 €;

SGCIE 2012 II: 1 000 000.00 €;

SGCIE 2014: 350 000.00 €;

SGCIE 2015: 1 100 000.00 €

Energy Efficiency in industry 2015: 891 028.56 €.

Some examples of past application periods related to industry:

SGCIE 2012 I: 60 applications, 49 eligible;

SGCIE 2012 II: 55 applications, 43 eligible;

SGCIE 2014: 92 applications, 53 eligible;

SGCIE 2015: 19 applications, 14 eligible;

Energy Efficiency in industry 2015: applications are currently being analyzed.

Contact

The [PNAEE executive commission](#) is responsible to identify and approve projects, celebrate contracts and supervise their execution.

Plano Nacional de Ação para a Eficiência Energética (PNAEE)

Av. 5 de Outubro, 208, 2.º Piso (Ed. Santa Maria) 1050 - 065 Lisboa, Portugal

Portuguese webpages

<http://www.pnaee.pt/fee>

<http://www.pnaee.pt/avisos-fee>

6.2 Fundo de Apoio à Inovação

The objective of this fund is supporting innovation, technological development and investment in renewable energies and energetic efficiency in order to achieve the objectives defined in the PNAER and PNAEE (*Plano Nacional de Ação para as Energias Renováveis e Plano Nacional de Ação para a Eficiência Energética*, National Action Plan for Renewable Energies and National Action Plan for Energetic Efficiency), and in the national energy strategy.

The programme comprises both nonrefundable and refundable subsidies;

Repayable subsidies: They are incentives in the form of loans, without interest, for project promoters with a maximum period of 6 years. The promoter may also benefit from a grace period of 2 years after the project starts, to begin the refunding payments.

Non-repayable subsidies: They are non-repayable funds.

The same project can benefit from both incentives types. There is also the possibility of converting (total or partial) a repayable subsidy in a non-repayable one provided that the project objectives defined in the financial incentives contract were punctual and integrally achieved. The incentive limits are still applied in this case.

Initial funds were the contributions of two private consortiums as counterparts for the capacity to inject wind energy in the electric public system. Initial allocation was 76 833 493 € and 19 projects were approved.

The instrument is based on National laws (e.g., ordinance 32276-A/2008; ordinance 57/27/2013; resolution 20/2013) in line with EC directives regarding EE and ER.

Research and development projects, demonstration projects and EE projects applications are currently suspended.

Applications to technical and scientific studies are continuously open.

Projects considered for funding:

Innovative technology research and development projects that involve private companies and/or scientific and technologic institutions;

Technology demonstration projects involving companies and entities of the national scientific and technologic system;

Research projects aimed at improving energy efficiency;

Technical and scientific studies that support the knowledge of public and private entities in the area of energy efficiency or renewable energies.

The limits of funding depend on the application/project type. Currently the fund only accepts proposals related to technical or scientific studies that effectively support energy efficiency and renewable energies usage with a maximum subsidy limit of 200 000 €.

Contact

ADENE

Address: Avenida 5 de Outubro, 208. 1069-203 Lisboa.

Telephone: +351 217 922706

Email: geral@fai.pt

Portuguese webpages

<http://fai.pt/o-fai/>

<http://fai.pt/projectos-aprovados/>

6.3 Plano de Promoção da Eficiência no Consumo de Energia Eléctrica

The so-called 'Plano de Promoção da Eficiência no Consumo de Energia Eléctrica (PPEC)'. (Promotion Plan of Efficiency in Electric Energy Consumption) promotes measures aimed at improving efficiency in the consumption of electric energy by encouraging the adoption of better consumption habits and more efficient equipment by the electric energy consumers.

Current program is 2017-2018 with 6 tender procedures.

For the period 2017-2018 the budget is 11 500 000€, with 3 500 000€ allocated to industry and agriculture.

The 2017-2018 results are presented below:

Concurso destinado a todos os promotores

Medidas	Candidaturas	
	Elegíveis	Selecionadas
Intangíveis	53	10
Tangíveis – Segmento Indústria e Agricultura	15	12
Tangíveis - Segmento Comércio e Serviços	24	11
Tangíveis - Segmento Residencial	12	7

Concurso destinado a promotores que não sejam empresas do setor elétrico

Medidas	Candidaturas	
	Elegíveis	Selecionadas
Intangíveis	67	16
Tangíveis	34	20

This plan is established, by ERSE (*Entidade Reguladora dos Serviços Energéticos*, Energetic services regulatory entity) in the tariff regulation of the electric sector.

For Energy Efficiency the following eligible measures are covered:

Measures aimed at the permanent reduction of the electricity consumption or at load management. These goals should be easily controlled and measured and their impacts on energy savings should not have been considered in other specific measures.

Information and dissemination measures that, although not producing measurable impacts, induce more rational behaviors and allow for better management decisions regarding more effective solutions as far as electric energy consumption is concerned.

Technologies covered:

- Efficient heating and cooling, namely, heat pumps and installation or substitution of more efficient electric air-conditioning systems.
- Efficient illumination (new high performance light bulbs, digital control centers, motion detectors in commercial illumination systems).
- Food and beverage production with more efficient cooling systems.
- Other equipment and devices aimed at reducing electric energy consumption (new, and more effective devices, timers for optimal energy use, reduction of energy losses by stand-by modes, transformers with reduced losses)
- More efficient process in products manufacture.
- More efficient engines and transmission systems (increasing the use of electronic controls and speed regulators, integrated applications processing, high efficiency electric engines).
- Ventilators and speed regulators for more efficient applications.
- Consumption management and control systems (load and power control).
- Training and education that lead to the application of energy efficiency techniques/technologies.

For **tangible actions** the maximum incentive for each measure is 80% of the total costs, including the costs related with the verification plan and measurements of the respective impacts. The remaining 20% should be reimbursed by the promoter or participant consumer.

For **intangible actions** the maximum incentive can be the totality of the costs supported by the promoter, including the costs related with the verification plan and measurements of the respective impacts.

For the incentives to be granted, the execution costs cannot be superior to the ones foreseen in the application.

If the execution costs are lower than foreseen in the application, the incentives will also be lower.

Contact

ERSE

Address: Rua Dom Cristóvão da Gama, 1 - 3^o.1400 - 113 Lisboa, Portugal.

Telephone: + 351 213 033 200

Fax: + 351 213 033 201

Email: erse@erse.pt

Portuguese webpages

[Results and reports for the 2013-2014 program](#)

<http://www.erse.pt/eng/eng/eng/eng/eng/Paginas/default.aspx>

6.4 Sistema de Gestão dos Consumos Intensivos de Energia

The overall target of this instrument (*Sistema de Gestão dos Consumos Intensivos de Energia*, SGCIE. Intensive energy consumption management system) is promoting energy efficiency and monitoring the energy consumption of energy-intensive consumers' facilities. The instrument includes Tax incentives related to petroleum products, subsidies for energy audits and Subsidies for equipment and management systems and it is based on the National energy strategy (resolution 169/2005) National program for climate changes (resolution 104/2006) and Directive 2003/96/CE.

In June 2016 there were 1078 registered companies in this system. This system is mandatory, with some exceptions, to all intensive energy consumption installations with an annual energetic consumption equivalent to 500 toe.

The steps for the implementation of this instrument are as follows:

Registry of the company with ADENE;

Energy audits: Installations consuming more than 1000 toe annually need to perform audits every 6 years, the first one occurring 4 months after the registry. Installations with an annual consumption between 500 and 1000 toe need to perform audits every 8 years, the first one taking place in the year after the registry.

Rationalization plan: Based on the reports of the energy audits a PReN (Plano de Racionalização do Consumo de Energia, energy consumption rationalization plan) is created. This plan should consider the implementation of all identified measures within a 3 year period with a payback period for the investment lower or equal to 5 years for installations with consumption above 1000 toe and a payback period of less or equal to 3 years for the remaining installations. This plan should also establish goals related to energetic and carbon intensities. These goals need to achieve a minimum improvement of 6% in 6 years for energetic intensity in installations with more than 1000 toe annual consumption and 4% in 8 years for the remaining installations. Relating to carbon intensity, the historical registries have to be maintained. After approval, the PReN is called ARCE (Acordo de Racionalização dos Consumos de Energia, energy consumption rationalization agreement).

Every 2 years a report regarding the ARCE needs to be delivered to ADENE, the last one should include the final assessment and is considered the final report.

There is the possibility of inspections, and sanctions will be applied, if the goals are not reached or the measures are not implemented.

The operator of facilities covered by an ARCE benefits from stimulus and incentives to promote energy efficiency:

For installations with a consumption lower than 1000 toe per year - 50% Reimbursement of the cost of mandatory energy audits, up to € 750 depending on the availability of funds. This incentive is available if the execution and progress report confirms the execution of at least 50% of the measures in the ARCE;

Reimbursement of 25% of the investments in equipment and energy consumption management and monitoring systems up to € 10 000, depending on the availability of funds. For installations that only use natural gas as a fuel and/or renewable energy sources, the limits laid down in the preceding paragraphs shall be increased by 25% for renewables and 15% for natural gas.

Tax benefits in petroleum products are granted.

Contact

ADENE; DGEG;DGAIEC

ADENE – Agência para a Energia

Av. 5 de Outubro, 208 - 2º Piso

1050-065 LISBOA Portugal

Tel.: (+351) 214 722 800 Fax: (+351) 214 722 898

e-mail: sgcie@adene.pt web: www.adene.pt

Direção-Geral de Energia e Geologia (DGEG)

Av. 5 de Outubro, nº 208

1069-203 Lisboa

Tel.:(+351) 217 922 700/217 922 800 Fax: (+351) 217 939 540

e-mail: sgcie@dgeg.pt web: www.dgeg.pt

Autoridade Tributária e Aduaneira

Rua da Alfândega, n.º 5, R/C

1149-006 Lisboa

CAT - Centro de Atendimento Telefónico: 707 206 707

Tel.: 21 881 37 00

Linha Azul: 21 881 38 18

E-mail: at@at.gov.pt

Portuguese webpages

<http://sgcie.publico.adene.pt/Paginas/default.aspx>

Results:

[Reports repository.](#)

6.5 Cogeração

The CHP legal and remuneration regime is a Feed-in-tariff/contracting mechanism aimed at the Regulation of CHP production. This instrument is based on Decree law 23/2010 altered by law 19/2010, and by decree law 68-A/2015. These national laws establish the legal and remuneration regime framework of CHP. Directive 2012/27/UE.

The regime covers the following CHP technologies:

- Combined-cycle gas turbines with heat recovery;
- Steam back-pressure turbines;
- Steam extraction condensing turbines;
- Gas turbines with heat recovery;
- Internal combustion engines;
- Microturbines;
- Stirling engines;
- Fuel cells;
- Steam engines;
- Organic Rankine cycles;
- Any other type of technology or combination of technologies corresponding to the law definition of CHP (simultaneous production, in an integrated process, of thermal and electric or mechanical energy).

General regime for CHP that do not fit into the special regime:

-Sub-modality A, CHP units with injection capacity equal or lower than 20 MW and that operate for own consumption, being the electricity surplus delivered to a final trader. In this case the contract: a) has a maximum duration of 10 years, renewable each 5 years; b) has to define the remuneration of the purchased energy; this value is determined by the government in specific legislation; c) has to establish the billing frequency, which cannot be larger than two months.

-Sub-modality B, applicable to all CHP units that sell the electric energy produced in organized markets or by means of bilateral contracts. The remuneration of the energy supplied by the CHP operators occurs through: a) Thermal energy supply to a third part, being the price determined by a contract between parts; b) Supply of electric energy to clients directly connected to the CHP installations, being the price freely established by both parts (without the inclusion of grid access tariffs, with exception of the global system

use tariff); c) Supply of electric energy through the celebration of bilateral contracts with clients or final traders, being the price freely established between parts; d) Supply in organized markets, resulting the price from the sells in those markets.

Subsidized regime. For facilities with injection capacity lower or equal to 20 MW and that followed the required licensing procedures. This regime is in place, as long as the initial conditions are kept, during 120 months after the emission title. This period can be extend once, by request of the producer, for a 60 month period. The remuneration is as followed:

- Thermal energy supplied to a third part, being the price agreed by both parts;
- Supply of electric energy to a final trader, being the energy price equal to a reference tariff. Bonuses can be added to this tariff: a high efficiency bonus related to the primary energy saving of high efficiency CHP; a renewable energy bonus related with the proportion of renewable energy sources used, regardless of the installation efficiency. Both the tariffs and bonuses are defined by ordinance.
- The payments of the tariff and bonuses require that the produced electricity and residual heat are effectively used to save primary energy.
- The value of the efficiency and renewable energy bonuses, independently or cumulatively, cannot exceed 7.5€/MWh.

Some quick reports are available in the DGEG website related with electric energy from renewable energy sources.

Contact:

DGEG

Av. 5 de Outubro, nº 87

1069-039 Lisboa, Portugal

Phone

+351 217 922 700

+351 217 922 800

Email: energia@dgge.pt

6.6 Microgeneration and minigeneration of Electric energy from Renewable Energies

The Legal regime applied to electricity production by microgeneration and mini-generation is a Feed-in tariff administered by the DGEG whose overall target is the regulation of microgeneration and mini-generation of electricity, integrating it in the national electric power market.

The instrument is based on the following Decree laws:

- Decree law 34/2011 amended by decree law 25/2013 (Integration of mini-generation of electricity in the electricity market).

- Decree law 363/2007 altered by law 67-A/2007 and by the decree law 25/2013 (Integration of microgeneration of electricity in the electricity market).
- Decree law 215-A/2012 and decree law 215-B/2012 that regulate the electricity market in line with the directive 2009/72/CE.

The programme supports the following technologies:

- Microgeneration of electricity from renewable energy sources and microgeneration from CHP units, even if not renewable, with the condition that a single or three phase unit is used in low voltage with a connection power of 5.75 kW. Microgeneration has to have a single production technology.
- Mini-generation of electricity from renewable energy sources, based in a single production technology with a connection power lower or equal to 250 kW. This modality does not cover all microgeneration installations, CHP and innovation innovative projects.

Both types of generations have two types of remuneration schemes. The general and the subsidized regimes.

MICROGENERATION

In the subsidized regime the producer is remunerated, for a maximum period of 15 years, according to a reference tariff (one feed-in tariff for the first 8 years and a different one for the last 7 years. Both tariffs have an annual decrease of € 20/MWh). The final value is calculated accordingly to the reference values and the type of electricity production:

-Solar: 100% (limited to 2.4 MWh year)

-Wind: 80% (limited to 2.4 MWh year)

-Hydro: 40% (limited to 4 MWh year)

-Biomass CHP: 70% (limited to 4 MWh year)

-Fuel cells powered by renewable hydrogen: the percentage is provided in the preceding paragraphs, according to the renewable energy used for hydrogen production (limited to 4 MWh year).

-Non-renewable CHP: 40% (limited to 4 MWh year)

These limits are applied to each connected kilowatt.

The maximum electricity capacity for new applications each year is 25 MWh.

At the end of each year, the DGEG's director publishes the reference tariff and the capacity that will be allocated in the following year.

The producers that do not fit into the subsidized regime are considered in the general regime.

MINI-GENERATION

Subsidized regime:

This regime is aimed at producers that fulfil the following cumulative requisites: the connected power should be above the microgeneration limit, and the mini-generation unit uses one of the accepted renewable energy sources (solar, wind, hydro, biogas, biomass, fuel cells powered by renewable hydrogen).

In the subsidized regime the producer is remunerated for a maximum period of 15 years. The reference tariff is € 250/MWh with an annual decrease of 7%). This tariff and the annual decrease rate can be redefined.

The final remuneration value is calculated according to the reference tariff and the type of electricity production:

-Solar: 100% (limited to 2.6 MWh year)

-Wind: 80% (limited to 2.6 MWh year)

-Hydro: 50% (limited to 5 MWh year)

-Biogas: 60% (limited to 5 MWh year)

-Biomass: 60% (limited to 5 MWh year)

-Fuel cells powered by renewable hydrogen: the percentage is provided in the preceding paragraphs, according to the renewable energy used for hydrogen production (limited to 5 MWh year).

These limits are applied to each connected kilowatt.

The maximum electricity capacity for new applications each year is 50 MWh.

The producers that do not fit into the subsidized regime are considered in the general regime.

Contact:

DGEG

Av. 5 de Outubro, nº 87

1069-039 Lisboa, Portugal

Phone

+351 217 922 700

+351 217 922 800

Email: energia@dgge.pt

7 Spain

Spain	Instrument	Source	Sector	Technology	Impact
-------	------------	--------	--------	------------	--------

Spain	Instrument	Source	Sector	Technology	Impact
Renewal Plan for Industry Components to Gas (2016)	Investment grant	Federal funds	Industrial companies located at Madrid Region	Fuel switch to gas for industrial equipment	5 Mio., 100 Euro replacements planned
Renewal Plan for Industrial boilers	Investment grant	Federal funds	Industrial companies located in Madrid	Fuel switch to gas for industrial boilers (Steam boiler, superheated water and thermal fluid)	
Grants to finance tourism and agro industrial companies in the area of Extremadura	Investment grant	Federal funds	Micro, small or medium-sized enterprises belonging to tourism and agro industrial sectors and also Town Halls in the area of Extremadura	Solar heating - low temperature -Biomass for heating or hot water -Hybrid systems, which combined solar thermal of low temperature and biomass installations in the same production facility	
JESSICA-F.I.D.A.E. FEDER Fund	Public grants	ERDF and IDAE and operated by the European Investment Bank (EIB)	Building, Industry, Infrastructure	Renovation of existing buildings: thermal envelope, heating, cooling , lighting etc. New buildings with an energy rating of A or B; Renewal or extension of existing networks of heat or cold; Renewable Energy Projects : Solar Thermal, PV if integrated into an energy efficiency project, Biomass	123. Mio. Euro
CLIMA PROJECTS	Public grant	FES-CO 2: Carbon Fund created by the Spanish Ministry of agriculture, food and	Diffuse sectors; transport, services, waste management, etc.	Several technologies that involve a reduction of emissions of CO2, in order to fight against the climate change.	20 Mio Euro in 2016

Spain	Instrument	Source	Sector	Technology	Impact
		environment (MAGR AMA)			

Table 7-1 financial instruments and funding programmes in Spain

7.1 Renewal Plan for Industry Components to Gas (2016)

The target of the Renewal Plan for Industry Components to Gas, which is based on the Energetic Plan of Madrid, is to replace or reconstruct industrial equipment using coal, LPG or diesel oil in order to allow working with natural gas which will increase the security of the facilities.

Industrial companies located at the Madrid Region can apply for the following public grant which is administered by the Energy Foundation of Madrid:

Annual consumption	Bonus of Red of Madrid Gas Company
70 MWh - 160 MWh	1.511€
161 MWh - 240 MWh	3.100€
241 MWh - 420 MWh	4.500€
421 MWh - 600 MWh	5.500€
More than 600 MWh	6.685€

This grant supplied by state funds has a budget of 5 Mio. Euro. More than 100 replacements are planned. The Programme is running from 20th May 2016 to 31st December 2016.

Contact

Energy Foundation of Madrid
www.fenercom.com
Madrid.
ASEFOSAM: 91 468 72 51
Spain

Renovecalderaindustrial@asefosam.com

Spanish webpage

http://www.madrid.org/cs/Satellite?c=CM_ConvocaPrestac_FA&cid=1354186301270&definicion=AyudaBecaSubvenciones&idConsejeria=1109266187242&idListConsj=1109265444710&idOrganismo=1109266227096&language=es&pagename=ComunidadMadrid%2FEstructura&sm=1109265843990&tipoServicio=CM_ConvocaPrestac_FA

<http://www.cambiatu Caldera.com/EquiposGas2013/#8>

7.2 Renewal Plan for Industrial Boilers

The target of the Renewal Plan for Industrial Boilers, which is based on the Energetic Plan of Madrid, is to replace or reconstruct thermal installations with a heat generator based on coal, LPG or fuel from industry processes.

Industrial companies located in Madrid and new heat generators installers using natural gas can apply for the following public grant which is administered by the Energy Foundation of Madrid:

1. Steam boiler, superheated water and thermal fluid

Depending on the thermal power, the grant will be calculated by the following formulas:

Power (kW)		Bonus of Natural Gas Company Bonus* (Euro)	Bonus of Red of Madrid Gas Company* (Euro)	
P ≤ 1,000		$F_{12/Presión} \times (6 \times P + 685)$	$F_{12/Presión} \times (6 \times P + 685)$	
P >1,000		$F_{12/Presión} \times 6.685$	$F_{12/Presión} \times 6.685$	
$F_{12/8} = 0,92$	$F_{12/10} = 0,96$	$F_{12/12} = 1$	$F_{12/14} = 1,12$	$F_{12/16} = 1,20$

2. Hot water boilers.

The maximum grant is calculated as follows:

Power (kW)	Bonus of Natural Gas Company Bonus* (Euro)	Bonus of Red of Madrid Gas Company* (Euro)
P ≤ 1,000	$(6 \times P + 685)$	$(6 \times P + 685)$
P >1,000	6.685	6.685

In all cases, grants will be limited to:

- 12% of the investment costs (no tax included) from Natural Gas Company.
- 12% of the investment costs (no tax included) from Red of Madrid Gas Company.

The programme is running until the 15th December 2013.

Contact

Energy Foundation of Madrid
www.fenercom.com
Madrid. Spain
ASEFOSAM: 91 468 72 51
renovecalderaindustrial@asefosam.com

Spanish webpage

<http://www.cambiatucaldera.com/CalderasIndustriales2013/>

7.3 CLIMA Projects.

CLIMA is a program for purchasing CO2 avoided emissions by the Spanish Ministry of agriculture, food and environment (MAGRAMA).

The target of the CLIMA projects is promoting the reduction of emissions of greenhouse gases in Spain, through the purchase of tons of equivalent CO2 reduced emissions (tCO2e) once verified at a fixed price during the first four years of the project lifetime.

Basically, a company proposes a project that will reduce emissions of CO2 and the application is submitted to the Climate Change Office. In case the application is accepted, a Carbon Fund has the commitment of buying to the company the CO2 emissions saved over the next 4 years at a set price (by 2015 was €9.7 per tonne of CO2.)

The purchase price of the verified reductions is €9.7 ton during a limited period of time not exceeding four years. (data by 2015, for the new call could even rise)

The actions must meet the following requirements to be eligible for these grants:

- Projects must be located in Spain
- The facility requesting the help should not be subject to the emissions trading scheme, to avoid a double counting of reductions.
- The reduction of the emissions is allowed in several sectors: diffuse, transport, services, waste management, etc. I.e.,

Actually there are great variety of projects that involve a reduction of emissions of CO2, in order to fight against the climate change.

Program to be open in 2016

Type of funding: grant

Contact

Ministerio de Agricultura, Alimentación y Medio Ambiente(MAGRAMA)
fes-co2@magrama.es

Spanish webpage:

<http://www.magrama.gob.es/es/cambio-climatico/temas/proyectos-clima/>

7.4 Grants to finance tourism and agro industrial companies in the area of Extremadura

Within this funding programme, which is administered by the Agriculture, Rural Development, Environment and Energy Ministry upgrades, modifications or extensions of thermal plants that use solar energy and/or biomass are subsidised.

The funding programme is based on the following instruments:

- DECRETO 130/2013, de 23 de Julio
- Regulation (EC) n.º 1998/2006, of the Commission, of 15th December 2006, on the application of the Articles 87 and 88 of the Agreement of minimum grants (DOUE number. L 379 de 28th December 2006)

Micro, small or medium-sized enterprises belonging to tourism and agro industrial sectors and also Town Halls in the area of Extremadura can gain the following subsidy:

The subsidy consists of a grant of 5 percentage points of interest calculated on the first two years under the terms of a loan arranged. The minimum eligible investment shall not be less than 10,000 Euro. Likewise, the maximum eligible investment per project cannot exceed 100,000 Euro.

- There shall be a maximum repayment term of 10 years mainly including an optional waiting period of one year which, if any, will be the first.
- The revision of the interest rate and the interest settlement post payment is adapted to the characteristics of the loan. The calculation of the subsidy is considered to be settled on an annual basis.
- A single commission of 0.5% maximum is required.

The deadline for submission of applications is from the beginning of the term of the corresponding call to the end of it, but may not exceed one year.

<p>Contact</p> <p>Ministry of Agriculture, Rural Development, Environment and Energy http://ciudadano.gobex.es/directoriopdf/30c7d16e-d69c-420e-863d-9ad0b2377b33 Department of Agro - Industrial and Energy Bonus General Manager - D. Juan José Cardesa Cabrera Address: Avda. Luis Ramallo, S/N , 06800 , Merida Telephone: 924002359 / Fax: 924002134 Email: dgiaye.adrmaye@gobex.es http://aym.juntaex.es/organizacion/energia/</p> <p>Spanish webpage</p> <p>http://doe.juntaex.es/pdfs/doe/2013/1450o/13040149.pdf</p>
--

7.5 Fondo JESSICA-F.I.D.A.E. FEDER

This investment fund finances energy efficiency projects and renewable energy in industry in companies of any size via public grants. It is based on 10 of the autonomous communities of Andalucía, Canary Islands, Castilla and León, Castilla-La Mancha, Ceuta, Comunidad Valenciana, Extremadura, Galicia, Melilla and Murcia.

The Fund is financed by ERDF and IDAE and operated by the European Investment Bank (EIB) and has a budget of 123 Mio. Euro April 2015.

The following sectors can apply to funds:

- Building: public buildings and private buildings
- Industry: companies of any size
- Transports: infrastructure , equipment and fleets of public and private transport (for public use)
- Utility infrastructure related to energy : Public outdoor lighting and traffic lights
- Local infrastructure, including smart grids and information technology and communications related to the priority themes (ICT)

Measures in the following areas are financed:

Projects for Energy Efficiency and Energy Management:

- Renovation of existing buildings, with performances in the thermal envelope, heating, cooling, lighting etc.
- New buildings with an energy rating of A or B
- Renewal or extension of existing networks of heat or cold

Renewable Energy Projects:

- Solar Thermal
- PV integrated into an energy efficiency project
- Biomass

Related clean transport which contribute to the improvement of energy efficiency and use of renewable energy (electric charging infrastructure for plug-in electric or hybrid vehicles, electric energy recovery braking electric public transport , fleet management, bus projects electric or hybrid etc.)

Projects have to ensure an acceptable return on investment and have to be included in integrated plans for sustainable urban development.

The projects have not to be completed at the time of receiving the funding.

Contact

IDAE – Institute for Diversification and Energy Savings

www.idae.es

Madrid, Spain

Tel. 91 456 49 00

Webpages

<http://www.idae.es/index.php/relcategoria.3957/id.728/relmenu.408/mod.pags/mem.de.talle>

https://www.bbva.es/estaticos/mult/Guia_elegibilidad_v17_25jun.pdf

8 Sweden

8.1 Local government (“kommun”) climate and energy advisors

These grants are aimed at providing services to help private households, businesses including small and medium sized enterprises, local governments, schools and others to reduce energy consumption and invest in renewable energy.

Sweden has a long history of supporting local energy and climate advisors. The energy advice services are offered free to private and public building owners, households and businesses throughout Sweden. Advice is offered cost free and services are commercially independent. The public funds (grants) are provided by the Swedish Energy Agency to local governments (regional energy offices).

Swedish Energy Agency (Svenska Energimyndigheten) provides funds to local governments. Local governments must apply for funding. The details on how much funding and associated conditions has not yet been made available. It should be released this fall (October). 290 local governments (kommuns) are eligible for advice, and to date 287 provide such advice. There are local government partners (kommuns) that are involved in administration. Regional energy offices (Energikontor) are involved in providing support and advice.

SMEs can receive finance under another programme (SME focused energy analysis service) for the feasibility studies.

Contact

Christina Nordenbladh (central government) 08-405 22 65.

Swedish Energy Agency is lead and phone number is 016-544 20 00.

Each local government has their own point of contact.

Webpage

<http://www.energimyndigheten.se/energieffektivisering/program-och-uppdrag/kommunal-energi-och-klimatradgivning/>

Sweden	Instrument	Source	Sector	Technology	Impact
--------	------------	--------	--------	------------	--------

Sweden	Instrument	Source	Sector	Technology	Impact
Local government ("kommun") climate and energy advisors	Public funds (grants)	State funds (Swedish)	Public, private buildings and households, and transport	<i>Advice services are offered in the areas of energy efficiency, climate change and affects, energy usage and potential changes in buildings, housing, and the transport sector.</i>	To be determined

Table 8-1 financial instruments and funding programmes in Sweden,

9 General webpages and references

- Austrian "Energie Contracting Programm Oberösterreich:
<https://www.land-oberoesterreich.gv.at/22833.htm>
<http://www.energiesparverband.at/english/home.html>
- Austrian Erp Loans:
<https://www.awsg.at/Content.Node/innovation-investition/nationale-finanzierung/kredite/48412.php>
- Austrian Regional programmes supporting energy consultancy for businesses:
<https://www.umweltfoerderung.at/regionalprogramme.html>
<https://www.wien.gv.at/umweltschutz/oekobusiness/pdf/evaluierung2014-kurzfassung.pdf>
<http://www.betrieblicheumweltoffensive.at/Erfolgsbeispiele.pdf>
<http://www.umweltservicesalzburg.at/de/presse/detail.asp?id=44&tit=Unsere+Er-olgszahlen+2015+%2D+Daten+und+Fakten>
- Energy Efficiency trends and policies in Sweden, Swedish Energy Agency, 28th September 2015.
- FEE - Fundo de Eficiência Energética (Energy Efficiency Fund): Website, Information specific for each applications.
- International energy agency webpage.
<https://www.iea.org/policiesandmeasures/energyefficiency/>
- PNAEE - Plano Nacional de Acção para a Eficiência Energética (National Action Plan for Energetic Efficiency): Website, Legislation links;
- RES LEGAL Europe, website on regulations on renewable energy generation
<http://www.res-legal.eu/>

10 Anex I: Summary of relevant financial and funding instruments.

Country	Name	Instrument	Source	Sector	Technology	Impact
Austria	Eco-Electricity Act	Feed In Tariff	Electricity Consumer	All	Production of Electricity from Renewable Energy (Biomass, Biogas, Geothermal, PV)	In 2016 the supporting volume was € 41,829,570, 9,168 GWh of national subsidised eco electricity were produced.
Austria	Regional programmes	Subsidy	Public	All	Energy Audits, EMS	Over 10 years, about 3,500 companies have benefited from 4,700 subsidised consultant visits
Austria	Energy Contracting	Financing Instrument	Diverse	ESCOs	Energy Efficiency, Renewables	Members have invested around 100 Mio. Euro in the period from 2005-11 only in Energy Performance Contracting. ¹¹
Austria	Energy Contracting OÖ	Subsidy	Public (Regional funds)		Energy Efficiency, Renewables	Over 150 projects, total investment 40 Mio. Euro, Subsidy: 2.6 Mio. (state 2013)
Austria	Bank loans	Loan Soft Loan	Bank funds Others for Soft Loans	All	All	N/A
Austria	UFI Energy (Energie)	Subsidy (Grant)	Public/National	Companies, municipalities	Renewables, Energy services Energy Efficiency	€ 62 Mio. for all UFI projects in 2015. More than 1970 projects in 2015 (regarding all UFI projects)
Austria	Solar Thermal Large Plants	Investment incentive (Grant)	Public/National	All	Solar Thermal	Small
Austria	ErP Loan, Guarantee	Soft Loan	ERP Funds	Small, SMEs, big	RES, Energy Efficiency,	Yearly donation of fond: € 500 – 600 Mio.

¹¹ DECA press release, June 2013: http://www.deca.at/up_files/75.pdf

Country	Name	Instrument	Source	Sector	Technology	Impact
Germany	EEG	Feed-in tariff	Federal funds	Plant operator	Biomass, biogas, PV, wind energy and other installations for renewable electricity	23.6 billion Euro (forecast 2014)
Germany	Climate Protection Initiative	Investment grant	Federal funds	Companies, research institutions, universities, municipalities, public institutions, private persons and associations	Biomass, production of heat, development projects	280 Mio. Euro for Germany, 120 Mio. Euro inter-national (in total)
Germany	Subsidy for Mini CHP plants	Investment grant	Federal funds	Plant operator	Mini CHPs (up to 20 kW) Natural gas, liquid gas, biogas, oil	8.9 Mio. Euro (April 2012 to June 2013)
Germany	Funding programme for Micro-CHP-heating devices	Investment grant	Energy supplier	End customers	Micro CHPs Natural gas	100,000 Euro (in total)
Germany	Compensation for electricity generated by CHP plants	Feed-in tariff	Electricity system operator	Plant operator	High efficient CHPs (new and refurbished)	
Germany	Climate Initiative – Measures	Investment grant	Federal funds	Companies of the industrial economy	More efficient industrial cooling, waste heat recovery	

Country	Name	Instrument	Source	Sector	Technology	Impact
	for industrial cooling plants					
Germany	Environment Innovation programme	Loan or investment grant	Federal funds	Companies of the industrial economy, other natural or judicial private persons, municipalities, public institutions and associations	Energy efficiency and renewable energies Large scale plants with demo character	10 Mio. Euro (in 2012)
Germany	BMW-i-Innovation Bonuses (go-inno)	Investment grant	Federal funds	Industrial companies incl. handcraft, esp. SMEs	Consultancy for energy efficiency projects	
Germany	KfW-Funding Initiative Energy Transition	Loan	Bank	Companies of the industrial economy	Investments in energy efficiency, innovative and efficient technologies and utilization of renewable energies	65 Mio. Euro (in 2012)
Germany	Funding of measures to adapt to climate change	Investment grant	Federal funds	Municipalities and municipal companies, associations, SMEs,	Energy efficiency measures Concepts, pilot and demo projects	

Country	Name	Instrument	Source	Sector	Technology	Impact
				initiatives and organisations		
Germany	KfW- Energy Efficiency Funding Programme	Loan	Bank	Companies of the industrial economy	Energy efficiency measures (building applications, process heat, control tech)	3.5 billion Euro (in 2012)
Germany	KfW- Program: Renewable Energies – Standard	Loan	Bank	companies that are mostly privately owned, others	Renewable energies CHPs, Grids (applying to EEG)	7.9 billion Euro (in 2012)
Germany	KfW- Programme: Renewable Energies – Premium	Loan and redemption grant	State Funds	ESCOs Big/medium/small companies	Renewable energies: <i>Solar Thermal, biomass, heat pumps, geothermal</i>	
Germany	KfW – Program: Energy Consulting for SMEs	Grant	Bank	SMEs and freelance professionals , if energy costs exceed 5000 Euro/a	Initial and detailed energy efficiency consulting	
Germany	Refurbishing energy efficiently – Supplementary credit	Loan	Bank	Persons who refurbish their home or are the first buyer of refurbished homes	Renewable energies: heating systems based on RES (solar, biomass, heat pumps)	

Country	Name	Instrument	Source	Sector	Technology	Impact
Germany	Investment grant for the use of highly efficient cross-sectional technologies in medium-sized businesses	Investment grant	Federal funds	Companies	Energy efficiency measures (Pumps, Ventilation, Compressed Air, Heat Recovery)	
Germany	“Prozesswärme” (Market Incentive Programme)	Investment grant	State funds	SMEs	Solar energy, biomass, heat pumps	over €300 million/year (in 2016)
Portugal	<i>Fundo de Eficiência Energética, FEE (Energy Efficiency Fund)</i>	Public grants	The fund is financed by the revenues of multiple taxes and penalties.	Most industry related application periods focus on operators with an ARCE (<i>Acordo de Racionalização dos Consumos de Energia, energy consumption rationalization agreement</i>).	<u>EE – transversal measures</u> and <u>EE – sector specific measures</u>	Budget varies for each tender procedure and specific program and measures.
Portugal	<i>Fundo de Apoio à</i>	Nonrefundable and	Initial funds were the	Any public or private entities	Scientific and technical studies within the scope of EE and ER.	Initial allocation was 76 833 493 € and 19 projects

Country	Name	Instrument	Source	Sector	Technology	Impact
	<i>Inovação, FAI (Innovation Support Fund)</i>	refundable subsidies;	contributions of two private consortiums as counterparts for the capacity to inject wind energy in the electric public system.	that fulfill the mandatory requests. All sizes		approved.
Portugal	<i>Plano de Promoção da Eficiência no Consumo de Energia Eléctrica (PPEC). Promotion Plan of Efficiency in Electric Energy Consumption.</i>	Subsidies	Not available	ESCO, grid operators and distributors, consumers' protection associations and entities, municipal associations, business associations, energy associations, higher-education institutions and research	Several EE Technologies are covered	For the period 2017-2018 the budget is 11 500 000€, with 3 500 000€ allocated to industry and agriculture

Country	Name	Instrument	Source	Sector	Technology	Impact
				centers. All sizes		
Portugal	<i>Sistema de Gestão dos Consumos Intensivos de Energia</i> , SGCIE. Intensive energy consumption management system.	Tax incentives related to petroleum products. Subsidies for energy audits. Subsidies for equipment and management systems.	State funds	This system is mandatory, with some exceptions, to all intensive energy consumption installations with an annual energetic consumption equivalent to 500 toe.	Energy audits and energy management plans	In June 2016 there were 1078 registered companies in this system
Portugal	CHP legal and remuneration regime	Feed-in-tariff, contracting	Not available	All	CHP: Combined-cycle gas turbines with heat recovery; Steam back-pressure turbines; Steam extraction condensing turbines; Gas turbines with heat recovery; Internal combustion engines; Microturbines; Stirling engines; Fuel cells; Steam engines; Organic Rankine cycles and Any other type of technology or combination of technologies corresponding to the law definition of CHP	Some quick reports are available in the DGEG website related with electric energy from renewable energy sources.

Country	Name	Instrument	Source	Sector	Technology	Impact
Portugal	Legal regime applied to electricity production by microgeneration and mini-generation.	Feed-in tariff	Not available	All	Micro and mini-generation of electricity	Not available
Spain	Renewal Plan for Industry Components to Gas (2016)	Investment grant	Federal funds	Industrial companies located at Madrid Region	Fuel switch to gas for industrial equipment	5 Mio., 100 Euro replacements planned
Spain	Renewal Plan for Industrial boilers	Investment grant	Federal funds	Industrial companies located in Madrid	Fuel switch to gas for industrial boilers (Steam boiler, superheated water and thermal fluid)	
Spain	Grants to finance tourism and agro industrial companies in the area of Extremadura	Investment grant	Federal funds	Micro, small or medium-sized enterprises belonging to tourism and agro industrial sectors and also Town Halls in the area of Extremadura	Solar heating - low temperature -Biomass for heating or hot water -Hybrid systems, which combined solar thermal of low temperature and biomass installations in the same production facility	

Country	Name	Instrument	Source	Sector	Technology	Impact
Spain	JESSICA-F.I.D.A.E. FEDER Fund	Public grants	ERDF and IDAE and operated by the Euro-pean Invest-ment Bank (EIB)	Building, Industry, Infrastructure	Renovation of existing buildings: thermal envelope, heating, cooling , lighting etc. New buildings with an energy rating of A or B; Renewal or extension of existing networks of heat or cold; Renewable Energy Projects : Solar Thermal, PV if integrated into an energy efficiency project, Biomass	123. Mio. Euro
Spain	CLIMA PROJECTS	Public grant	FES-CO 2: Carbon Fund created by the Spanish Ministry of agriculture, food and environment (MAGRAM A)	Diffuse sectors; transport, services, waste management , etc.	Several technologies that involve a reduction of emissions of CO2, in order to fight against the climate change.	20 Mio Euro in 2016
Sweden	Local government ("kommun") climate and energy	Public funds (grants)	State funds (Swedish)	Public, private buildings and households,	<i>Advice services are offered in the areas of energy efficiency, climate change and affects, energy usage and potential changes in buildings, housing, and the transport sector.</i>	To be determined

Country	Name	Instrument	Source	Sector	Technology	Impact
	advisors			and transport		

11 Anex II: List of relevant EE and/or RES associations and public bodies

Relevant EE and/or RES associations and public bodies										
Acronym	Country	Type	Description	Tel	Web	Corporate e-mail	Contact-1	Position 1	Tel-1	Email1
Swedish Energy Agency	Sweden	Public authority	National Energy Agency for Sweden	+46 (0)16-544 20 00	http://www.energi myndigheten.se/	N/A	Thomas Björkman	Industrial group lead	+46 (0)16 544 22 82	thomas.bjorkman@energimyndigheten.se
DGEG	PT	Public	Direção Geral de Energia e Geologia (General Directorate of Energy and Geology)	217 922 700 217 922 800	DGEG	energia@dgeg.pt				
ERSE	PT	Public	Entidade Reguladora dos Serviços Energéticos (Energetic services regulatory entity)	213 033 200	ERSE	erse@erse.pt				

Relevant EE and/or RES associations and public bodies

Acronym	Country	Type	Description	Tel	Web	Corporative e-mail	Contact-1	Position 1	Tel-1	Email1
APREN	PT	Association	Associação das Energias Renováveis (Renewable Energies Association)	213 151 621	APREN	apren@apren.pt				
ADENE	PT	Public	Agência para a Energia (Energy Agency)	214 722 800	ADENE	geral@adene.pt				
CBE	PT		Centro da Biomassa para a Energia (Center of Biomass for Energy)	239 532 436 239 532 488	CBE	geral@centrodabiomassa.pt				
APA	PT	Public	Agência Portuguesa do Ambiente (Portuguese Agency for Environment)	214 728 200	APA	geral@apambiente.pt				
LNEG	PT	Public	Laboratório Nacional de	210 924 600 214 705 400	LNEG	info@lneg.pt				

Relevant EE and/or RES associations and public bodies

Acronym	Country	Type	Description	Tel	Web	Corporative e-mail	Contact-1	Position 1	Tel-1	Email1
			Energia e Geologia (National Laboratory of Energy and Geology)							
BSW	Germany	Association	Federal Association of Solar Energy	030 29 777 88-0	https://www.solarwirtschaft.de/en/start/english-news.html		Jörg Mayer	Managing Director	+49 (0)30 2977788-51	Geschaeftsleitung@bsw-solar.de
BMWi	Germany	Ministry	German Ministry of Economy and Energy. Drives the program on Energy Efficiency for Industry.		http://eneff-industrie.info/					
BMUB	Germany	Ministry	Federal Ministry for the Environment, Nature Conservation, Building and	+49 (0) 30 - 183 05-0	www.bmub.bund.de					

Relevant EE and/or RES associations and public bodies										
Acronym	Country	Type	Description	Tel	Web	Corporative e-mail	Contact-1	Position 1	Tel-1	Email1
			Nuclear Safety							
UBA	Germany	Governamental Agency	Federal Environment Agency	+49 (0) 340 - 21 03-0	www.uba.de					
DENA	Germany	Association	German Energy Agency	+49 (0)30 72 61 65-600	http://www.dena.de/					renewables@dena.de
BBE	Germany	Association	German BioEnergy Association (BBE)		http://www.b2bbioenergy.eu/b2b/companies/23/german-bioenergy-association-bbe.html					
BEE	Germany	Association	German Renewable Energy Federation	+49 (0) 30 - 275 81 70-0	www.bee-ev.de					
FEE	Germany	Association	Association for the Promotion of Renewable	+49 (0) 30 - 84 71 06 97-0	www.fee-ev.de					

Relevant EE and/or RES associations and public bodies

Acronym	Country	Type	Description	Tel	Web	Corporative e-mail	Contact-1	Position 1	Tel-1	Email1
			Energy							
BBE	Germany	Association	German Bioenergy Association	+49 (0) 228 - 810 02-22	www.bioenergie.de					
DEPV	Germany	Association	German Energy Pellet Association	+49 (0) 30 - 688 15 99-66	www.depv.de					
FNR	Germany	Association	Agency for Renewable Resources	+49 (0) 3843 - 69 30-0	www.fnr.de					
FvB	Germany	Association	German Biogas Association	+49 (0) 8161 - 98 46-60	www.biogas.org					
FnBB	Germany	Association	German Biogas and Bioenergy Society	+49 (0) 7954 - 926-204	www.fnbb.org					
BVES	Germany	Association	German Energy Storage Association	+49 (0)30 - 30 01 45-711	www.bves.de					

Relevant EE and/or RES associations and public bodies										
Acronym	Country	Type	Description	Tel	Web	Corporative e-mail	Contact-1	Position 1	Tel-1	Email1
OeMAG	Austria		Winding up body supporting the electricity production from renewable energy sources with feed in tariffs							
Wko	Austria		Association coordinating regional programmes supporting energy consultancy for businesses							
DECA	Austria		Platform focusing on Energy Supply Contracting and Energy Performance Contracting							

Relevant EE and/or RES associations and public bodies										
Acronym	Country	Type	Description	Tel	Web	Corporative e-mail	Contact-1	Position 1	Tel-1	Email1
Energies parverband Oberösterreich (ESV)	Austria		Association focusing on consulting, funding, networking and raising of awareness of households, municipalities and companies.							
KPC	Austria		Consulting and winding-up body for funding of environment related projects							
Klima- und Energiefonds	Austria		The Climate and Energy Fund is understood to be an impulse giver and innovation booster for sustainable							

Relevant EE and/or RES associations and public bodies										
Acronym	Country	Type	Description	Tel	Web	Corporative e-mail	Contact-1	Position 1	Tel-1	Email1
			energy technologies relevant to the climate. We support ideas, concepts and projects in the areas of research and development, mobility, market penetration and raising awareness.							
Austrian Wirtschaftsservice (AWS)	Austria		Austria Wirtschaftsservice Gesellschaft mbH (aws) is the Austrian federal promotional bank. It assists companies in their							

Relevant EE and/or RES associations and public bodies

Acronym	Country	Type	Description	Tel	Web	Corporative e-mail	Contact-1	Position 1	Tel-1	Email1
			implementation of innovative projects by granting loans, awarding subsidies and issuing guarantees at favorable interest rates, particularly in cases in which it is not possible for these companies to obtain the necessary funds in a sufficient amount from other sources of financing. In addition, it provides support in the form of specific							

Relevant EE and/or RES associations and public bodies

Acronym	Country	Type	Description	Tel	Web	Corporative e-mail	Contact-1	Position 1	Tel-1	Email1
			information, advisory and other services to prospective, established and expanding companies.							
IDAE	Spain	Public	IDEA: Instituto para la Diversificación y Ahorro de la Energía. Institute for diversification and energy savings	+34 913 14 66 73	http://www.idae.es/index.php	ciudadano@idae.es				
APPA	Spain	Technology suppliers	Spanish Association of Renewable	+34 91 409 75 05	http://www.appa.es/index.php	appa@appa.es				

Relevant EE and/or RES associations and public bodies

Acronym	Country	Type	Description	Tel	Web	Corporative e-mail	Contact-1	Position 1	Tel-1	Email1
		Association	Energy							
AEBIG	Spain	Association	Spanish Biogas Association		http://www.aebig.org/	aebig@aebig.org	Paco Repullo	President	+34 902 00 66 87	presidente@aebig.org
BIOPLAT	Spain	Platform	Spanish Biomass Technology Platform	+34 91 400 96 91	http://www.bioplat.org/	secretaria@bioplat.org				
F4L	Spain	Platform	Technology Platform Food for Life-Spain	+34 91 411 72 11	http://foodforlife-spain.es/	sg@foodforlife-spain.es	Andrés Pascual	Chair of the Sustainability Group		
AVAESEN	Spain	ESCO-investors	Valencian Association of Energy Companies	+34 96 136 66 79	http://www.avaesen.es/	info@avaesen.es	Bianca Dragomir	Director		

Relevant EE and/or RES associations and public bodies										
Acronym	Country	Type	Description	Tel	Web	Corporative e-mail	Contact-1	Position 1	Tel-1	Email1
FIAB	Spain	Companies	Spanish Federation of Food and Drink companies	+34 91 411 72 11	http://www.fiab.es/es/index.asp	fiab@fiab.es	Paloma Sanchez	FIAB	Spain	Companies