NEEAP 2014

First National Energy Efficiency Action Plan of the Republic of Austria 2014 in accordance with the Energy Efficiency Directive 2012/27/EU

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1 Introduction

At the federal level, Austria has set itself the following targets for increasing energy efficiency:

In accordance with **Directive 2006/32/EC (Final Energy Efficiency and Energy Services Directive - ESD)**, Austria has calculated a savings target of 80.4 PJ in 2016. Energy efficiency measures should therefore result in savings of at least 80.4 PJ in final energy consumption by 2016.

The indicative national energy efficiency target in accordance with **Directive 2012/27/EU (Energy Efficiency Directive - EED)** anticipates a final energy consumption of 1 100 PJ based on the Austrian energy balance. It is only through the systematic pursuit of these objectives that it will be possible to achieve the targets set by the EU for 2020 for the reduction of greenhouse gas emissions and for the increase of the share of renewable energy sources to 34% of the gross final energy consumption for Austria.

The measures in the current Austrian Federal Government programme 2013–2018 (Federal Government of Austria, 2013) are designed to ensure *'an efficient, affordable and socially acceptable energy system, with security of supply, prosperity, competitiveness and a healthy environment'*. This underlines the central role of increased energy efficiency in Austrian energy policy.

The following information on the energy supply situation in Austria is taken from the Energy Status for Austria 2014, which is compiled on an annual basis by the Federal Ministry of Science, Research and Economy[1] (BMWFW, 2014). The Energy Status is attached to the NEEAP as Annex C.

It may be observed that gross domestic consumption has largely stagnated since 2005 at around 1 400 PJ. Between 1990 and 2005 gross domestic consumption displayed continuous growth, which was only temporarily interrupted as a result of external developments (economic situation, oil prices, different weather conditions).

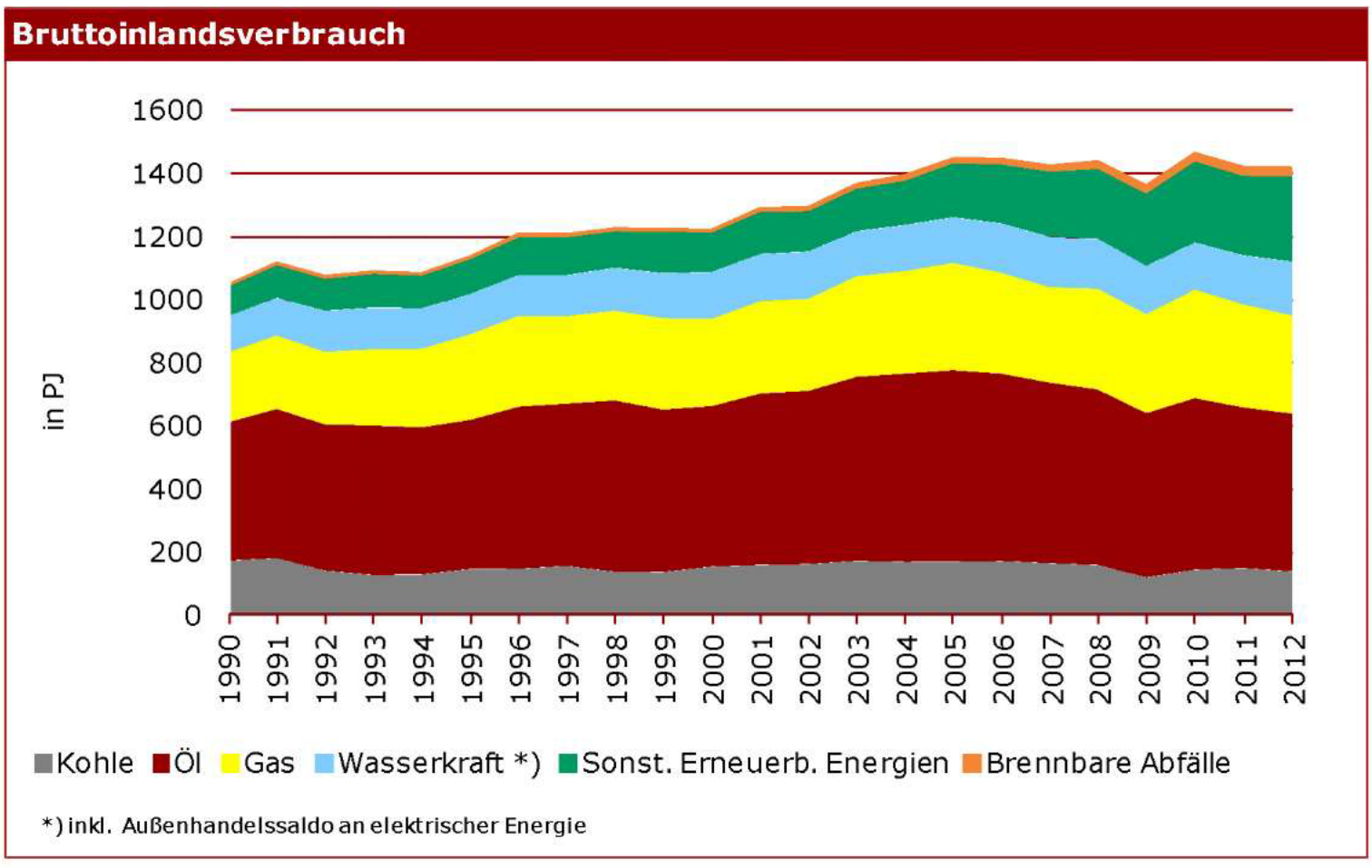

Figure 1: Gross domestic consumption in Austria

Gross domestic consumption

Coal, Oil, Gas, Hydroelectric, Other renewables, combustible waste

** including foreign trade balance of electrical energy*

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1 Following internal elections within Austria and the resulting ministerial reorganisations, it should be noted that energy is now the responsibility of the BMWFW (Federal Ministry of Science, Research and Economy), formerly known as the BMWFJ (Federal Ministry of Economy, Family and Youth) or the BMWA (Federal Ministry of Economy and Labour). This explains the differing references or citations in this NEEAP.

Until 2005, final energy consumption displayed a long-term upward trend; since then it has stabilised at a level of approx. 1 100 PJ.

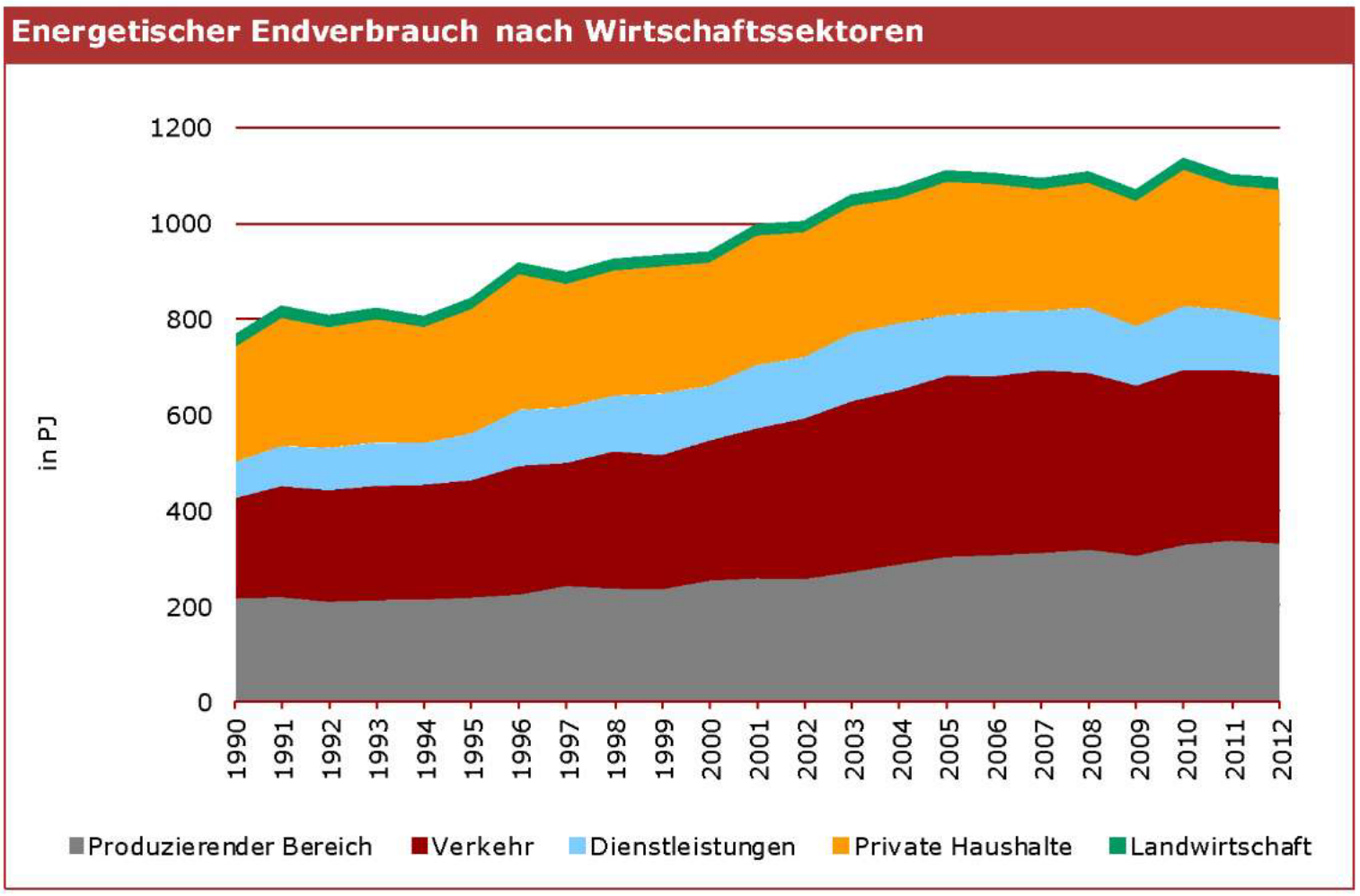

Figure 2: Final energy consumption in Austria

Final Energy consumption by sector

Industry, traffic, services, private households, agriculture

The stabilisation of final energy consumption in recent years at a time of rising economic output indicates that final energy consumption in Austria is becoming increasingly decoupled from economic growth (cf. illustration of energy intensity). Since 2004, energy intensity (climate-adjusted final energy consumption/GDP) has been falling steadily in Austria. In 2012 it is 6% below the 1995 level.

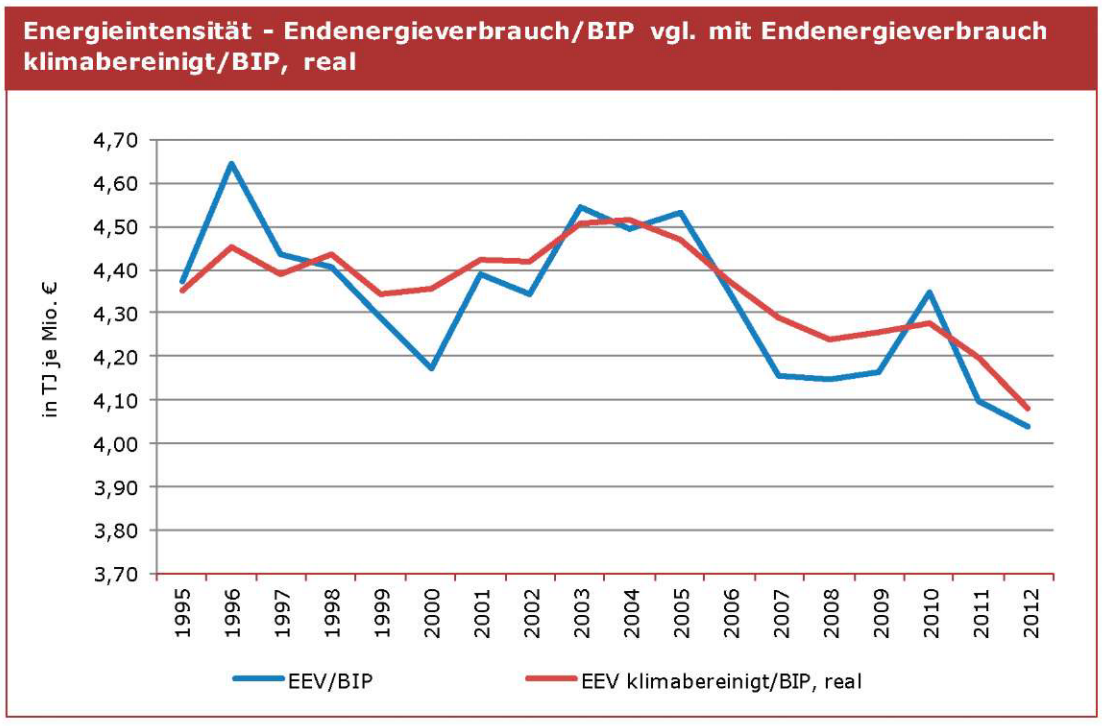

Figure 3: Final energy intensity (final energy consumption/GDP) in Austria

Energy intensity – Final energy consumption/GDP compared to climate-adjusted final energy consumption/real GDP

Final energy consumption/GDP, climate-adjusted final energy consumption/GDP

In summary, the following may be observed in Austria:

- A stabilisation of gross domestic and final energy consumption since 2005;

- A decoupling of energy consumption from economic growth;
- A change in the energy mix. For example, the already high share of renewables in gross domestic consumption has risen, while the proportions for coal and oil have fallen.

This National Energy Efficiency Action Plan (NEEAP) fulfils the reporting requirements of the Republic of Austria pursuant to Article 24(2) EED and was drawn up in cooperation with the federal government and the federal states. The structure of the various chapters is based largely on the European Commission's guidelines for National Energy Efficiency Action Plans. Annex A of the NEEAP contains the annual report on the Energy Efficiency Directive pursuant to Article 24(1).

Chapter 2 gives an overview of the existing energy efficiency targets in Austria, which were defined in the context of both the ESD and the EED. Furthermore, this chapter reports on the progress in achieving the indicative savings target pursuant to Article 4 of the ESD.

Chapter 3 represents the core of the NEEAP and contains the descriptions of the central measures for implementing the EED. Section 3.1.1 describes the planned implementation of Article 7 EED. The other sections of Chapter 3 report on the implementation of the other articles of the EED.

2 Overview of national energy efficiency targets and savings

2.1 Overview of national 2020 energy efficiency targets

This chapter describes the energy efficiency targets in accordance with Article 4 of Directive 2006/32/EC (ESD) and Article 3 of Directive 2012/27/EU (EED).

2.1.1 Indicative national energy efficiency target for Austria

In accordance with Article 3 EED, each Member State was obliged to set an indicative national energy efficiency target by the end of April 2013. This indicative target could refer to:

- primary or final energy consumption, or
- primary or final energy savings, or
- energy intensity.

In all cases, the target was to be expressed in terms of the primary and final energy consumption in 2020. The following was to be taken into account when setting the target:

- In 2020, total energy consumption in the European Union may not exceed 1 483 Mtoe of primary energy or 1 086 Mtoe of final energy, which corresponds to a 20% reduction by 2020 compared to the scenario in the PRIMES model 2007 (based on EU 28; the values include Croatia);
- Already implemented or mandatory energy efficiency measures adopted at national and European level were to be included in the setting of the target in accordance with Article 3. These include the mandatory requirements of the EED (such as the energy saving obligation scheme in accordance with Article 7) as well as measures that have already been implemented in the context of Directive 2006/32/EC.

Furthermore, when setting the target in accordance with Article 3, Member States could also take account of, among other things, GDP forecasts and the remaining cost-effective energy-saving potential.

Since, pursuant to the EED, the target was to be reported as an indicative final and primary energy consumption for 2020, it was not possible to derive from it, either for Austria or for the individual bodies, any specific obligation to act or any contractual infringement procedures or penalties in the event of failure to meet the target.
In 2013, in the first annual report pursuant to Article 24(1) EED, Austria notified the following national indicative energy efficiency target to the European Commission in accordance with Article 3(1) EED (BMWFJ, 2013):

The indicative national energy efficiency target for Austria is a **final energy consumption of 1 100 petajoules in 2020**[2]**.** It should be noted that this target is very ambitious and the implementation of the necessary measures will require substantial effort.

The target for final energy consumption in 2020 corresponds to **final energy savings of 200 PJ** compared to a ‘business as usual’ scenario.

For **primary energy consumption** (gross domestic consumption less non-energy consumption), this target represents a value of **1 320 petajoules in 2020.** A primary energy factor[3] of 1.2 has been assumed here. This value was calculated on the basis of developments in recent years and the assumption of a slight improvement in energy efficiency in energy transformation, transportation and distribution.

2.1.2 Justification of the indicative national energy efficiency target for Austria

The National Renewable Energy Action Plan 2010 for Austria (BMWFJ, 2010) had already included, in Chapter 1 on the national renewable energy strategy, a trajectory for final energy consumption targets which specified a final energy consumption of 1 100 PJ in 2020. This trajectory has

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2 This value refers to the national energy balance of Statistics Austria. See section 3.1.1.1 for the differences between the national energy balance and the energy balance according to Eurostat.

3 $\frac{Bruttoinlandsverbrauch - nichtenergetischer\ Verbrauch}{Endenergieverbrauch}$

therefore already been agreed and established in Austria in connection with other strategic areas of energy policy.

Over the past few decades, Austria has placed energy efficiency at the centre of its energy policy. As a result, energy efficiency has improved significantly during that period and energy consumption trends have been decoupled from economic growth. Although Austrian GDP grew by 138.5% in real terms between 1973 and 2012, gross domestic consumption in 2012 was only 54.8% above the 1973 level, a comparatively low increase. This means that energy intensity, or relative energy consumption (i.e. the amount of total energy required to produce a unit of gross domestic product), has fallen by 35.1% – or by more than a third.

The PRIMES 2007 model forecast used in the EED gives a final energy consumption for Austria in 2020 of 1 325 PJ. Given that PRIMES 2007 had forecast that the population of Austria would be 8.44 million in 2020, and that this figure had already been exceeded by 2012, with the national population projections from Statistics Austria indicating a figure of 8.71 million for 2020, this final energy consumption value should be adjusted to 1 367 PJ. The target value of 1 100 PJ represents a reduction of around 20% compared to 1 367 PJ.

In this way, in spite of Austria's already high level of energy efficiency, its above EU average share of energy-intensive industry and its above EU average population growth, Austria is nonetheless contributing to the achievement of the overall target in line with the EU average.

2.1.3 Energy production and consumption in 2020

The indicative energy efficiency target for final energy consumption in 2020 and the impact on primary energy consumption are shown in the table below.

Page 31 of the current Federal Government programme (Federal Government of Austria, 2013) specifies the development of an energy strategy for 2030, with the involvement of all relevant stakeholders. This strategy process commenced in early 2014. In this NEEAP, we have therefore made a conscious decision not to estimate the impact of the indicative national energy efficiency target (1 100 PJ in 2020) on the other indicators of national energy production and consumption, since the corresponding figures will only be agreed in the course of the year.

Table 1: Estimated figures for national energy consumption in 2020

Estimate of energy consumption in 2020	PJ
Total primary energy consumption 2020 (excluding non-energy consumption)	1 320
Total final energy consumption	1 100

2.2 Other energy efficiency targets 2.2.1 Savings target in accordance with the ESD (Directive 2006/32/EC)

In the first National Energy Efficiency Action Plan (NEEAP) in connection with the ESD, Austria calculated a 2016 savings target of EUR 80.4 PJ in accordance with the Directive. This means that savings of at least 80.4 PJ in final energy should be achieved by 2016 as a result of energy efficiency measures (BMWA, 2007).

The ongoing voluntary agreements[4] in place since 2009 (see also section 3.1.6) define quantitative energy savings targets for the participating organisations up to 2016. These are as follows:

- For the Association of Gas and Heat Suppliers: 1 800 TJ (500 GWh)
- For Oesterreichs Energie (Association of Austrian Electricity Companies): 1 512 TJ (420 GWh)
- For the Petroleum Industry Association and the Energy Trading Association (a voluntary agreement in which both associations participate): 7 560 TJ (2 100 GWh)

In these voluntary agreements, the interest groups undertake to encourage their member companies to adopt energy efficiency measures and energy services by making these measures and services available to them. The measures for achieving these saving targets can be freely selected by the companies, insofar as they are energy efficiency measures and energy services. The voluntary agreements are subject to regular monitoring.

2.3 Overview of primary energy savings

The specified energy consumption values for 2016 and 2020 are targets based on the **national energy balance.**

Table 2: Overview of estimated primary and final energy savings for 2016 and 2020

	2012	2016	2020
Primary energy consumption[5]	1 308 PJ	1 314 PJ	1 320 PJ
Primary energy savings	74 PJ	96 PJ	240 PJ
Final energy consumption	1 096 PJ	1 098 PJ	1 100 PJ
Final energy savings	62 PJ	80 PJ	200 PJ

The final energy savings value for 2012 was determined as part of the monitoring of the ESD (see section 2.4.1). The final energy savings value for 2016 corresponds to the savings target in accordance with the ESD (see section 2.2.1).

Both the final energy consumption target and the final energy savings value for 2020 are taken from the 'Austrian progress report on energy efficiency 2013' (BMWFJ, 2013). See also sections 2.1.1 and 2.1.2. The consumption and savings in primary energy are derived from the values for final energy and converted using a primary energy factor of 1.2[6].

[4] The voluntary energy efficiency agreements can be downloaded from http://www.monitoringstelle.at/Freiwillige-Vereinbarungen.351.0.html

[5] Gross domestic consumption minus non-energy consumption

[6] See section 2.1.1

2.4 Overview of final energy savings

2.4.1 Achieved and expected final energy savings for 2016

To measure the achievement of the final energy savings target in accordance with the ESD, a database[7] has been set up in which information on energy efficiency measures is collected and evaluated on an annual basis. Only incentive-based energy efficiency measures are considered; measures which merely reflect autonomous trends are not considered. In total, the reported final energy savings in 2012 amounted to 61,516 TJ. For an estimate of the expected savings in 2016, the average savings between 2008 and 2012 were calculated, taking into account the lifetime of the implemented measures, and these were then extrapolated to 2016. Based on average savings of 5 477 TJ/p.a., it is expected that savings of 84 234 TJ will be achieved, i.e. 4.8% above the ESD savings target of 80.4 PJ that was set for Austria (see section 2.2.1).

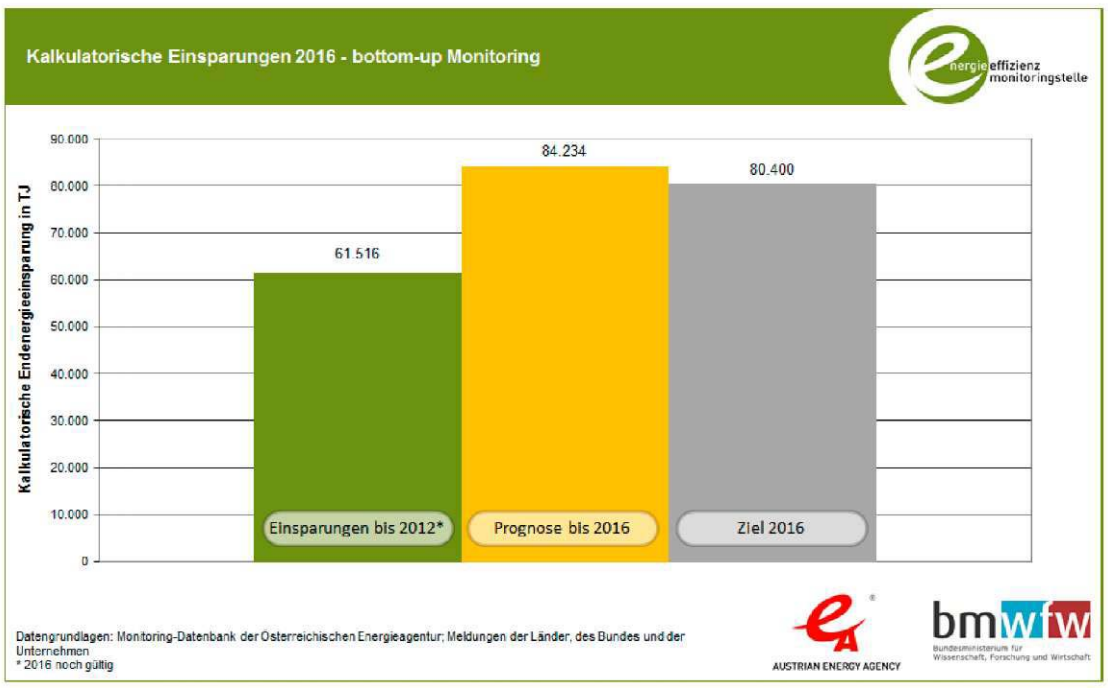

Figure 4: Calculated bottom-up final energy savings to document the achievement of the 2016 target in accordance with the ESD

The largest share of the savings reported up to 2012 has been produced by measures relating to space heating. The thermal enhancement of building envelopes (61.9%) and the switch to more efficient heating systems (31.9%), e.g. efficient boilers, heat pumps, solar thermal systems and district heating, together represent 93.8% of the total savings. The remaining 6.2% of the savings is achieved by measures in the transport sector, electrical appliances (lamps, circulating pumps, white goods etc.) and by switching to more efficient fuels.

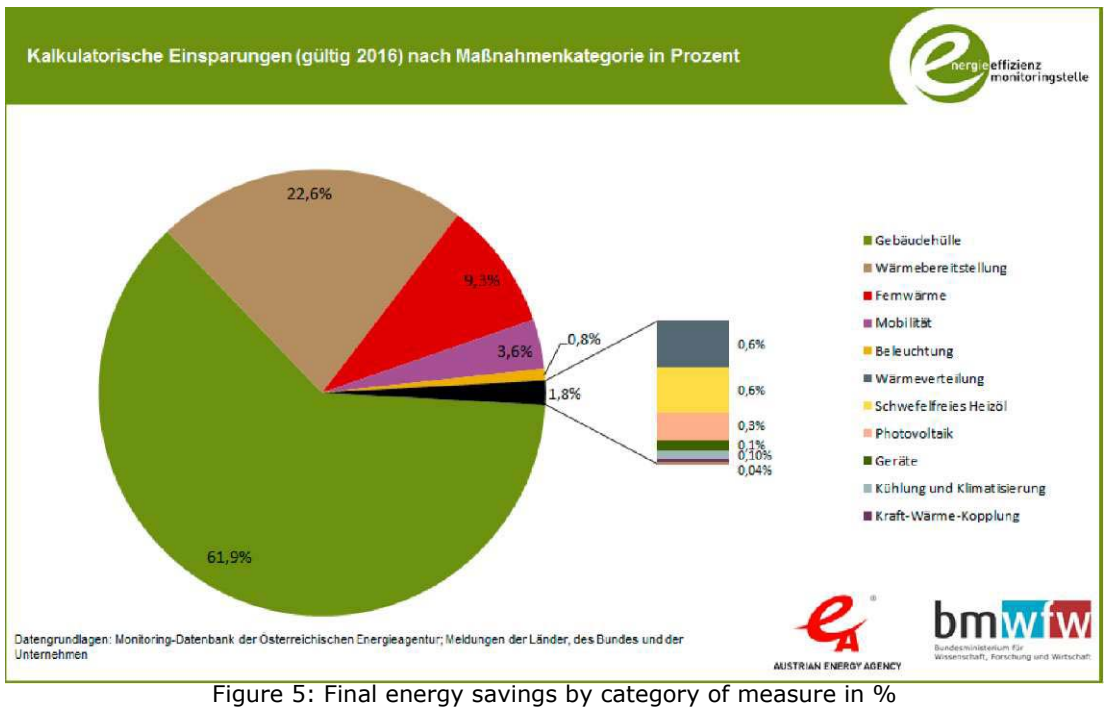

Figure 5: Final energy savings by category of measure in %

[7] http://www.monitoringstelle.at/Datenbank.472.0.html

Table 3: Calculated bottom-up final energy savings by category of measure to document the achievement of the 2016 target in accordance with the ESD

Category of measure	Lighting	Energy advice (Households)	District heating connection	Building envelope	Appliances	Cogeneration	Cooling and air conditioning	Mobility	Photovoltaics	Sulphur-free fuel oil	Smart meters (households)	Standby	Heat supply
Year	TJ	TJ	TJ	TJ	TJ	TJ	TJ	TJ	TJ	TJ	TJ	TJ	TJ
1991–2007	17	37	2 705	25 685	0	8	1	2 159	5	8	-	-	6 337
2008	228	66	638	638	21	4	-	3	3	234	5	-	1 442
2009	210	95	606	606	35	4	2	10	10	439	11	-	2 251
2010	66	68	616	616	34	4	38	7	33	421	12	-	1 773
2011	56	77	635	635	18	4	18	37	46	370	6	12	1 286
2012	54	72	654	654	21	4	11	11	88	354	6	2	1 198
Total	646	417	5 865	41 107	132	27	69	2 229	207	2 167	41	13	14 601
Early actions	14	-	2 660	2 660	0	5	1	2 158	5	-	-	-	5 636
Valid 2016	522	-	5 726	5 726	83	23	62	2 197	207	340	-	13	13 881

As described above, the savings shown below relate to measures that have been implemented since 1991 and which will still be effective in 2016. The final energy savings from measures to improve the thermal quality of building envelopes are 38 105 TJ in total and include incentive-based measures, measures in public buildings and public policy measures (further development of the building regulations). The calculated final energy savings resulting from amendments to the building regulations are 14 804 TJ; this only includes evaluating the savings in the area of new residential construction. Residential building subsidies for new residential construction contribute 3 432 TJ to the final energy savings. Renovation subsidies for residential buildings represent 17 064 TJ of the final energy savings in the form of improvements to thermal building envelopes. The remaining 2 805 TJ is derived from the new construction and renovation of public sector and commercial buildings.

The final energy savings in heat generation of 13 881 TJ are divided among the installation of solar thermal systems (37%), heat pumps (16%) and efficient boilers (42%), as well as directly measured projects and energy audits.

The final energy savings from district heating connections amount to 5 726 TJ; this only includes final energy savings in the connected dwellings and buildings. District heating connections contribute savings of 369 TJ in new residential construction, and 4 687 TJ in renovated residential buildings. The remaining savings are derived from district heating connections in public sector and commercial buildings.

The policy measures implemented to achieve these savings are described in the relevant chapters of the NEEAP.

2.4.2 Measurement and/or calculation method

As explained in the 2nd National Energy Efficiency Action Plan, the bottom-up evaluation methods for final energy savings were developed in a multi-year participatory process in conjunction with the stakeholders affected by the Directive (BMWFJ, 2011). In workshops and discussions held in small groups the methods proposed by the monitoring body were debated and amended to include the positions of the stakeholders. The methods developed and applied by the monitoring body focus on the methods proposed by the European Commission and can be reviewed in the current methods document. Any deviations from the European proposal are described in the methods document.

When it comes to assessing the achievement of the target, only incentive-based measures which generate final energy savings above and beyond a 'business as usual' scenario are considered.

The computational final energy savings from bottom-up monitoring were calculated in a four-stage process.

a) Data collection and evaluation: In the first stage, use was made of the data that had been entered into the monitoring database[8] by the federal states and the Austrian Government and which had then been checked for plausibility by the monitoring body. The final energy savings were then calculated using the bottom-up methods developed by the monitoring body on behalf of the BMWFW (formerly the BMWFJ) in cooperation with the federal states. These methods are described in detail in the methods document of the monitoring body (Adensam, et al., 2013). The methodology document is attached to this NEEAP as Annex E.
b) Adjustment owing to double counting: To avoid double counting of measures taken by the Austrian Government and the federal states (e.g. due to double subsidies), possible incidents of double counting were identified in the course of coordination meetings held between the monitoring body, the BMWFW and representatives of the federal states and were taken into account in the calculation of the actual savings. A restrictive approach was adopted for the deduction of double counting. A cross-check was carried out at the reporting entities where there was a risk of measures being reported twice, and all potential double counting was subtracted from the total savings. As a result, double counting has been excluded 100% from the reported savings.
c) Supplementary savings resulting from voluntary energy efficiency agreements: Savings reported by energy companies in the context of voluntary agreements which exceeded the savings reported by public entities also counted towards the achievement of the 2010 and 2016 goals.
d) Adjustment using an 'uncertainty factor': Although the calculations were based on the methods proposed by the European Commission, deviations were apparent in the calculation of the final energy consumption for space heating and hot water compared to the statistical values recorded by Statistics Austria. A factor of 0.75 was therefore applied to adjust for uncertainties in the savings for space heating and hot water[9]. The savings resulting from the district heating, heat production and building envelope measures were multiplied by this uncertainty factor.

The bottom-up evaluation methodology developed in Austria in the context of the ESD corresponds to the methods proposed by the European Commission. Two bottom-up evaluation formulas are presented in detail below by way of example. In general, the following applies to calculation formulas: to calculate the final energy savings, default values or project-specific information can be used for the individual parameters of the formulas, depending on the availability of data. The methodology document is attached to this NEEAP as Annex E.

[8] www.monitoringstelle.at/Datenbank.472.0.html

[9] This means that all uncertainties (spillover, rebound, uncertainty regarding the normalised installation of technologies and user behaviour) were combined into a single factor.

Example 1: Thermally enhanced building envelopes in new residential construction

If there are incentives for constructing new buildings to higher energy standards than those specified by the applicable building regulations, the corresponding savings may count towards the achievement of the target.

The formula for calculating the final energy savings is as follows:

$$FES = (HD_{BR} — HD_{new}) \times EEF_{new} \times m^2_{new} \times rb \times so \times cz$$

where

FES ***Final energy savings***

HD_{BR} ***Heating demand for a new building in accordance with current building regulations in kWh/m^2,a***

HD_{new} ***Heating demand of the newly constructed building in kWh/m^2,a***

EEF_{new} ***Energy expenditure factor for converting useful energy into final energy (efficiency of the heating system)***

m^2_{new} ***m^2 of new buildings constructed with the thermal quality HD_{new}***

rb ***Rebound effect***

so ***Spillover effect***

cz ***Safety margin (+/-)***

The values for the thermal quality of the building (HD_{new}) are not estimates, but are values achieved in practice which are to be supplied by the applicant for the subsidy.

As described above, the uncertainties regarding the actual achievement of the savings are represented by an uncertainty factor of 0.75. All the calculated savings are multiplied by this uncertainty factor and include the factors rb, so and cz from the above formula.

Example 2: Boiler replacement

If there are incentives for installing a more efficient heating system in new or existing buildings than is required by the applicable building regulations, the corresponding savings may count towards the achievement of the target.

$$FES = m^2 \times (HD + HWD) \times (EEF_{old} — EEF_{new}) \times rb \times so \times cz$$

where

EE: ***Final energy savings***

m^2: ***m^2 for which an efficient heating system has been installed***

HD: ***Heating demand of the relevant buildings in kWh/m^2,a***

HWD: ***Hot water demand of the relevant buildings in kWh/m^2,a***

EEF_{old}: ***Energy expenditure factor of the previous heating system for converting useful energy into final energy (efficiency of the heating system)***

EEF_{new}: ***Energy expenditure factor of the efficient heating system for converting useful energy into final energy (efficiency of the heating system)***

rb: ***Rebound effect***

so: ***Spillover effect***

cz: ***Safety margin (+/-)***

As described above, the uncertainties regarding the actual achievement of the savings are represented by an uncertainty factor of 0.75. All the calculated savings are multiplied by this uncertainty factor and include the factors rb, so and cz from the above formula.

3 Policy measures implementing EED

Chapter 3 describes policy measures for implementing the EED. The sum of all the measures described represents a significant contribution to the achievement of the national energy efficiency target in accordance with Article 3.

In connection with the implementation of measures to increase energy efficiency, please also refer to the Austrian Climate Change Act[10]. To implement this law, the federal government and the federal states have agreed packages of measures. Alongside the many measures described in the NEEAP, the package of measures for 2013 and 2014 also includes an energy research initiative for industrial prototypes and pilot plants.

The structure of this chapter reflects the Articles to be implemented and includes the following sections (with the corresponding EED Article shown in parenthesis):

- 3.1 Horizontal measures (Articles 7 to 13 and 16 to 20)
- 3.2 Energy efficiency measures in buildings (Article 4)
- 3.3 Energy efficiency measures in public bodies (Articles 5 and 6)
- 3.4 Energy efficiency measures in industry
- 3.5 Energy efficiency measures in the transport sector
- 3.6 Promotion of efficient heating and cooling (Article 14)
- 3.7. Energy transformation, transmission, distribution, and demand response (Article 15)

3.1 Horizontal measures

The section on horizontal measures includes:

- Energy efficiency obligation schemes and alternative policy measures (Article 7)
- Energy audits and management systems (Article 8)
- Metering and billing (Articles 9–11)
- Consumer information programmes and training (Articles 12 and 17)
- Availability of qualification, accreditation and certification schemes (Article 16)
- Energy Services (Article 18)
- Other energy efficiency measures of a horizontal nature (Articles 19 and 20)
- Savings arising from horizontal measures
- Financing of horizontal measures

3.1.1 Energy efficiency obligation schemes and alternative policy measures (EED Article 7)

3.1.1.1 Required final energy savings in the obligation period 2014–2020

Article 7 EED stipulates that between 2014 and 2020 Member States must achieve new energy savings each year of at least 1.5 % of the annual energy sales to final customers by energy distributors or retail energy sales companies, averaged over the most recent three-year period prior to 1 January 2013. The savings achieved must be cumulative and effective until at least 2020. Final energy quantities in the transport sector may be excluded from the calculation.

Data sources and target base

The following statistical data was used to determine the target base.

- Energy balance for Austria 1970–2012 (Statistics Austria, 2013)[11]
- Logging report (BMLFUW, 2013)

The final energy consumption in accordance with the Austrian energy balance was used as the basis for the 'average energy sales to final customers by energy distributors or retail energy sales companies'.

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10 https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20007500&ShowPrintPreview=True

11 Definitive values. Provisional values were used for the notification pursuant to Article 7 dated 12 May 2013, which explains the differing values of the target base.

To determine the savings target in accordance with Article 7, consumption in the transport sector[12] was subtracted from the final energy consumption in accordance with the energy balance.

Since, pursuant to the EED, the target is based on the volume of energy sold to final customers by energy distributors or retail energy sales companies, further reductions were made to the target base in addition to the deduction of transport consumption. For example, the target base minus transport was reduced by those quantities of energy that were not sold to final customers by energy distributors or retail energy sales companies. The availability of reliable data was an important criterion in the identification of possible deductions. In accordance with these guidelines, the following consumption quantities in the energy balance were identified as being deductible:

- Coke oven gas generated in the production of tar and coke;
- Blast furnace gas produced in the iron and steel industry;
- Residual lyes as by-products of paper-making;
- Ambient heat.

Discussion: differences between the Austrian and Eurostat energy balances

The following table shows the main differences between the Austrian energy balance and the energy balance produced by Eurostat. These differences may be explained by the different allocation of energy consumption to energy consumption categories.

Table 4: Differences between the national energy balance and the Eurostat energy balance[13]

Energy source	Eurostat	Austria	Note
General figures	in 1 000 tonnes	in tonnes	Rounding errors
Fuel oil in blast furnaces	Final energy consumption	Non-energy consumption and consumption in the energy sector	determined by metallurgy
Coke in blast furnaces	Final energy consumption	Non-energy consumption	determined by metallurgy
Natural gas[14]	Figures in m^3_S	Figures in m^3_N	
Electrical FEC of trams	Final energy consumption railways	Final energy consumption other land transport	

In absolute terms, the largest deviations between the values in Eurostat and the Austrian energy balance result from the different allocation of coal and fuel oil input in steel production. In the Eurostat statistics, these values are recorded in the final energy consumption. In contrast, in the Austrian energy balance produced by Statistics Austria coal and fuel oil input in steel production is considered to be non-energy final consumption or consumption in the energy sector. With regard to coal input, this is because it is not used for energy in an integrated steelworks according to the basic oxygen process, but rather is used to maintain the metallurgical reaction process in the production of crude steel.

In 2012, the final energy consumption of the 'Iron and Steel' industry in the Austrian energy balance is around 52 PJ lower than that reported in the Eurostat energy balance. Conversely, non-energy consumption is higher by 35 PJ and consumption in the energy sector by 13 PJ. The remaining difference of 4 PJ is divided among the sectors 'Non-metallic materials' and 'Commercial and public services'. On account of the differences described above, final energy consumption is in total 4 % lower in the Austrian energy balance than in the Eurostat energy balance.

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12 This value includes agricultural 'off-road' traction.

13 Information provided by Statistics Austria on 5 March 2014

14 S... standard cubic metres (measured at 15 ° C, 1 013 mbar), N... normal cubic metres (measured at 0 ° C, 1 013 mbar)

The values of the deductible quantities were subtracted from the final energy consumption figures for the aforementioned energy sources in the Austrian energy balance.

Residual lyes, blast furnace gas and coke oven gas are energetically useful waste products or by-products of industrial processes and are recycled within them. Ambient heat includes quantities of heat that are supplied by means of geothermal systems, solar thermal systems or heat pumps and which were therefore not sold to final customers.

A substantial proportion of the energy source 'fuel wood' is not sold, but is used for internal purposes. In the Logging report (BMLFUW, 2013), the relevant quantities of wood are reported in cubic metres without bark and are listed under internal consumption of fuel wood. Based on the assumption that fuel wood is not stripped of bark and that 12 % of an average tree trunk consists of bark, the reported quantity of wood was increased by the corresponding percentage. The quantities of wood were converted into quantities of energy using conversion factors for fuel wood of mixed assortment (Austrian Energy Agency, 2009).

After taking the relevant deductions into account, we are left with average energy sales **of 691 175 TJ** for the calculation of the savings target in accordance with Article 7 EED. The data for calculating the energy sales is shown in Table 5.

Table 5: Calculation of average final energy sales 2010–2012

			2010	2011	2012	Avg.	Source
Final energy consumption (FEC)		TJ	1 137 766	1 103 364	1 096 188	1 112 440	Energy balance
	FEC - Transport	TJ	366 494	357 424	351 874	358 598	Total energy balance
Deductions	FEC - Coke oven gas	TJ	3 129	3 130	2 282	2 847	Energy balance
	FEC - Blast furnace gas	TJ	1 652	1 547	1 275	1 491	Energy balance
	FEC - Residual lyes	TJ	20 815	20 475	20 574	20 622	Energy balance
	FEC - Ambient heat	TJ	11 941	12 827	13 594	12 787	Energy balance
	Internal use of fuel wood	TJ	21 296	26 231	27 234	24 920	Logging report
Average energy sales		**TJ**				**691 175**	

Pursuant to paragraphs 2 and 3 of Article 7, Member States may reduce the savings target by up to 25 % using the following options or combination of options:

a) Setting a target of 1 % for 2014 and 2015, 1.25 % for 2016 and 2017 and 1.5 % for 2018, 2019 and 2020.

b) Reducing the target basis by those amounts that are supplied by companies subject to the greenhouse gas Emissions Trading System.

c) Counting energy savings from measures relating to energy transformation, transmission and distribution.

d) Counting final energy savings that have been achieved by measures between 1 January 2009 and 31 December 2013 and which will still be effective in 2020 given the lifetime of the measures. These savings are referred to below as 'early actions'.

Austria has chosen to use option d) exclusively and has therefore reduced the savings target by 25 % by counting the final energy savings that were achieved between 1 January 2009 and 31 December 2013 and which will still be effective in 2020 given the lifetime of the measures (early actions).

Evidence for early actions

The early actions that may count towards the EED targets were identified using the data collected annually for the monitoring of energy efficiency in accordance with the ESD (see section 2.4.1). This data, which was collected in the context of ESD monitoring, was adjusted to the requirements of the EED. Table 6 shows an analysis of this data in the form of the aggregated final energy

savings for the reported measures per year for the listed categories of measures that, given their lifetime, will still have an impact on final energy consumption in 2020[15]. The values in the table are to be understood as annual savings commencing from their year of implementation. Between 2009 and 2020, savings of 21 391 TJ/a will be achieved. Differences from the savings values in Table 3 may be explained by the different methodological specifications in the ESD and the EED.

Table 6: Early actions by category and year of implementation

Category of measure	Lighting	District heating connection	Building envelope	Appliances	Cogeneration	Cooling and air conditioning	Mobility	Photovoltaics	Standby	Heat supply	Heat distribution	Total
Year	TJ/a	TJ/a	TJ/a	TJ/a	TJ/a	TJ/a	TJ/a	TJ/a	TJ/a	TJ/a	TJ/a	TJ/a
2009	124	606	3 127	27	4	0	3	10	-	2 251	7	6 158
2010	15	604	4 336	16	4	38	3	33	-	1 770	129	6 949
2011	39	601	2 689	13	4	12	3	46	12	1 285	205	4 908
2012	28	633	1 407	8	4	11	4	88	1	1 190	3	3 377
Total	206	2 443	11 560	64	14	61	12	177	13	6 496	343	21 391

Table 7 shows the totals of the final energy savings by year. The savings effect represents the annual savings from all early actions with an impact on final energy consumption between 2009 and 2020. The cumulative savings from early actions is calculated from the sum of the reported annual savings in the obligation period (2014–2020). The cumulative savings from early actions currently amount to **149 737 TJ.** This value will increase further once the data is available for 2013.

Table 7: Early actions – cumulative savings value

	Early actions					Obligation period							Total
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Σ
Measures adopted	6 158	6 949	4 908	3 377									
Savings effect	6 158	13 106	18 014	21 391	21 391	21 391	21 391	21 391	21 391	21 391	21 391	21 391	149 735

In accordance with Article 7(3) EED, up to 25 % of the savings target may be accounted for by measures pursuant to Article 7(2), which includes early actions. The following section describes the relationship between the calculated early actions and the savings target in accordance with Article 7(1) and the contribution that the early actions can make to this target.

Calculation of the target for Austria

Table 8 shows the partial results of the target calculation. In accordance with Article 7 EED, new savings of 1.5 % must be achieved annually between 2014 and 2020, which, based on the energy sales volume of 691 175 TJ calculated for Austria in the previous section, represents an annual savings target of 10 368 TJ. Aggregating this target over the period 2014 to 2020 produces a total target of 290 304 TJ.

The early actions described in the previous section for 2009–2012 would contribute 52 % to the cumulative target. In accordance with

[15] Data was unavailable or only partially available for 2013 at the time of data collection.

Article 7(3), the maximum value of 25 % of the overall target is accounted for by early actions, corresponding to a cumulative quantity of **72 576 TJ.**

Evidence must therefore be provided for cumulative savings of 217 728 TJ from measures with effect from 1 January 2014. After taking the early actions into account, this represents an annual savings target of 7 776 TJ for 2014 to 2020.

Table 8: Calculation of the target for Austria

Energy sales	691 175	TJ
Annual savings target	10 368	TJ
Cumulative savings target 2014–2020	290 304	TJ
Early Actions (EA)	21 391	TJ
Savings from EA 2014–2020	149 735	TJ
Share of EA in savings target	52%	
Allowable contribution of EA, cumulative	72 576	TJ
Cumulative savings target	**217 728**	**TJ**
Annual savings target	**7 776**	**TJ/a**

The target achievement trajectory is shown in Table 9. The figures displayed for early actions represent a uniform distribution of the allowable cumulative savings from early actions over the years 2014 to 2020. The annual savings in 2014 are assumed to be 3 888 TJ lower (50 % of the annual savings target of EUR 7 776 TJ) than in the subsequent years, since important decisions on the implementation of the EED in Austria will only be taken in the course of 2014. To ensure that the cumulative savings target of 217 728 TJ can nonetheless be achieved, in spite of the lower savings in 2014, the savings in the subsequent years will accordingly be increased uniformly to 9 072 TJ.

Table 9: Target achievement trajectory for Austria

	2014	2015	2016	2017	2018	2019	2020	Cumulative
Early actions up to max. 25 % of the target	10 368	10 368	10 368	10 368	10 368	10 368	10 368	72 576
	3 888	3 888	3 888	3 888	3 888	3 888	3 888	27 216
		9 072	9 072	9 072	9 072	9 072	9 072	54 432
Annual new savings from			9 072	9 072	9 072	9 072	9 072	45 360
Policy measures 2014 to 2020				9 072	9 072	9 072	9 072	36 288
					9 072	9 072	9 072	27 216
						9 072	9 072	18 144
							9 072	9 072
Total savings 2014–2020								217 728
Intermediate targets without early actions								
Total savings for early actions and measures from 2014	14 256	23 328	32 400	41 472	50 544	59 616	68 688	290 304

3.1.1.2 Consideration of lifetime and methodology

In addition to the general information on methodology in this section, detailed information is also available in the descriptions of measures in section 3.1.1.4.

Lifetime

With regard to the method for taking account of the lifetimes of measures (Annex V, paragraph 2e EED), Austria is currently planning to use the 'straightforward' method described in the European Commission's Guidance Note on Article 7 (European Commission, 2013).

Calculation methodology in accordance with Annex V(1)

Table 10 shows the calculation methodology for the planned measures implementing Article 7 in Austria. In accordance with Annex V(1) EED, the following calculation methods may be used:

a) Deemed savings
b) Metered savings
c) Scaled savings
d) Surveyed savings

Table 10: Calculation methodology for Article 7

Measure	a)	b)	c)	d)
Residential building subsidies from the federal states	X			
Operational domestic environmental support and regional programmes			X	
Statutory provisions to promote district heating	X			
Energy taxes	X			
HGV toll	X			
Green electricity subsidies from the federal government	X			
Further development of building regulations	X			
Other measures (lighting, federal buildings, energy companies)	X	X	X	

The bottom-up calculation methods already developed and applied in the context of the ESD for substantiating and checking the savings resulting from energy efficiency measures (monitoring and evaluation process for energy efficiency measures) and the corresponding lifetimes of each measure may be found on the website of the current monitoring body (http://www.monitoringstelle.at) (Adensam, et al., 2013).

In order to ensure the applicability of these methods for substantiating the energy savings and thus their ability to demonstrate the achievement of the EED target, they were adapted accordingly to meet the requirements of Article 7 and Annex V EED. Both the proposed adaptation of the methodology document for the purposes of the EED and the existing methodology document are annexed to the NEEAP. The amendments to the document that was previously used for the ESD are highlighted in colour. It should be noted that this document is a draft version that still needs to be agreed with the stakeholders concerned.

Materiality

In addition to the general information on materiality in this section, detailed information is also available in the descriptions of measures in section 3.1.1.4.

Depending on the type of measure, materiality is ensured as follows:

- Subsidies: the level of subsidy must be sufficient to act as an incentive.
- Energy taxes and HGV toll: The materiality is guaranteed by the price elasticities.
- Standards, norms: materiality is guaranteed in this case. The standard directly defines the implementation of the measure.

Additionality

In addition to the general information on additionality in this section, detailed information is also available in the descriptions of measures in section 3.1.1.4.

Additionality is ensured by the choice of baseline. Only those measures are evaluated that achieve higher standards than those specified by national or EU regulations.

Double counting

Information on the exclusion of double counting is available directly in the descriptions of measures in section 3.1.1.4.

3.1.1.3 National energy efficiency obligation scheme

For the implementation of Article 7, Austria has opted to use a system pursuant to Article 7(9), according to which both policy measures and obligation schemes can be implemented (see section 3.1.1.4).

3.1.1.4 Alternative policy measures in accordance with Article 7(9)

Austria continues to pursue the plan reported to the European Commission in the Article 7 Notification for 2013 (BMWFJ, 2013) for the introduction of alternative policy measures to achieve the savings target pursuant to Article 7 EED. This means that, for the implementation of Article 7, Austria has opted to use a system pursuant to Article 7(9), **according to which both policy measures and obligation schemes** can be implemented.

The planned obligation scheme and the policy measures for the implementation of Article 7 are described in detail below. An overview of the measures may be found in Table 11. Potential double counting has already been taken into account in the estimates of the expected savings. The savings reported in Table 11 should therefore be interpreted as net savings. Details on the exclusion of double counting may be found in the descriptions of measures on the pages below.

Table 11: Overview of policy measures for Article 7

Measures	Target groups/sectors	Expected cumulative savings 2014–2020 in TJ
Final energy savings obligation scheme	All sectors	at planning stage
Residential building subsidies from the federal states	Private households, residential buildings	73 000
Operational domestic environmental support and regional programmes	Industry and services, processes and non-residential buildings	11 000
Statutory provisions to promote district heating	Households, industry, services Heat supply	18 000
Energy taxes	All sectors Total energy consumption	74 900
HGV toll	Commercial transport	7 000
Green electricity subsidies from the federal government	Distributed energy generation	10 000
Further development of building regulations	Households, services, industry Residential and non-residential buildings	5 000
Other measures (lighting, federal buildings, energy companies)	All sectors	25 000
Total		**223 900**

Final energy savings obligation scheme	
Description	
Category	Obligation scheme
Target groups:	All sectors
Description	At the end of 2012, a government bill was submitted for an Austrian Energy Efficiency Act; this was adopted in spring 2013 by the outgoing government. A parliamentary decision was not taken, on account of the new elections in the last legislative period. A new bill is currently being drafted and will be submitted for consideration in the near future.
Implementation	
National/regional	National

Residential building subsidies from the federal states		
Description		
Category	Subsidies	
Duration	Start: 1982	Adjustments: continuous tightening of requirements
Target groups:	Private households Space heating and air conditioning	
Description	In the federal states, the enhancement of the thermal quality of residential buildings and the expansion of efficient heating systems are supported by the funds earmarked for residential building subsidies. The level of subsidy is dependent on the achieved thermal quality or the efficiency of the heating system. In addition to requirements relating to final energy, new construction subsidies are subject to increased requirements on primary energy demand and CO2 emissions. The nature of the support differs from federal state to federal state and is provided in the form of loans, grants and/or subsidies.	
Further information	https://www.help.gv.at/Portal.Node/hlpd/public/content/21/Seite.210301.html and Annex B	
Calculation method		
Method	Deemed savings (Annex V(1a)) The calculation is based on data in the annual reports by the federal states in the context of energy efficiency monitoring.	
Materiality	The financial subsidies represent up to 30 % of the investment costs. See also the Budget item on the next page.	
Additionality	Additionality is ensured by the baseline of the calculation method. Measures only generate savings if higher standards are achieved than those specified by current building and EU regulations.	
Double counting	It is impossible for double counting to occur within the residential building subsidies, since each federal state only provides subsidies for its own territory.	
Final energy savings (TJ)		
Per year	2 600	
2014–2020 (cumul.)	73 000	
Implementation		
National/regional	Nationwide, implemented in the federal states	
Budget and financial resources	In 2012: € 2 560 million, including around € 710 million for renovation; see (IIBW, 2013).	

Operational domestic environmental support and regional programmes		
Description		
Category	Subsidies	
Duration	Start: 1986	Adjustments: Last modified in 2009
Target groups:	Enterprises/industry	
Description	In addition to funding for initial consultations and implementation advice (see section 3.1.2), companies can also apply via the operational Domestic Environmental Support Scheme for support with investments in energy efficiency measures. The subsidy consists of an investment grant of up to 30% of the investment costs. Funding is provided for measures for the efficient use of energy in commercial and industrial production processes, the thermal renovation of existing buildings and heat recovery systems. These investment subsidies are also partly financed by the ERDF via the IWB programme for Austria. In addition to these national initiatives, all the federal states offer energy advice and support programmes for enterprises, in particular the regional programmes co-financed by the EU.	
Further information	Investment grants provided via the operational Domestic Environmental Support Scheme: http://umweltfoerderung.at/kpc/de/home/umweltfrderung/fr_betriebe/energiesparen/energiesparen_in_betrieben/ Regional programmes of the federal states: http://www.publicconsulting.at/kpc/de/home/umweltfrderung/fr_betriebe/weitere_frderungen/regionalprogramme http://www.landoberoesterreich.	
Calculation method		
Method	Scaled savings (Annex V(1)c) The calculation is based on data in the annual reports from Kommunalkredit Public Consulting in the context of energy efficiency monitoring.	
Materiality	The financial subsidies represent up to 30 % of the investment costs. See also the Budget item on the next page.	
Additionality	Measures are only eligible for subsidies if higher standards are achieved than those specified by the applicable national and EU regulations.	
Double counting	There is no possibility of double counting, since the data is taken from a central database.	
Final energy savings (TJ)		
Per year	395	
2014–2020 (cumul.)	11 000	

Operational domestic environmental support and regional programmes	
Implementation	
National/regional	National, regional
Budget and financial resources	€ 90 million/year (federal funds), federal states grant additional funds to varying degrees

Statutory provisions to promote district heating	
Description	
Category	Subsidies
Target groups:	Energy utilities
Description	The **District Heating and Cooling Network Expansion Act** provides investment grants for projects relating to the supply of district heating and the use of waste heat for air conditioning with large refrigeration equipment, including distribution via cold water pipelines. District heating, and increasingly district cooling, contribute to CO2 reduction in Austria thanks to the existing highly efficient energy generation mix. The objective is to take advantage of the existing potential of industrial heat and waste heat in a cost-effective manner, to use renewable energy sources for the expansion of small-scale, regional heating supply networks and to accelerate the expansion of district heating in the conurbations. The **CHP Act** provides for investment grants for new CHP plants and subsidies for the operation of existing CHP plants for the supply of public district heating. Both acts therefore contribute to the provision of district heating infrastructure. The instruments used by the federal states to implement the targets are regionally disparate and include compulsory connection under certain circumstances, promotion of district heating connections for private households and businesses, promotion of the expansion of district heating, in particular the expansion of biomass local and district heating.
Further information	http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20005917&FassungVom=2014-04-28 http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20005916
Calculation method	
Method	Deemed savings (Annex V(1a)) The calculation is based on data in the annual reports by the federal states in the context of energy efficiency monitoring. Savings from the operation of energy generation facilities for the supply of public district heating cannot be reported in the context of Article 7 EED. The creation of the district heating infrastructure is, however, a prerequisite for the accelerated connection of buildings to the district heating supply and thus for savings in final energy consumption. The reported savings are derived from the anticipated new district heating connections.
Materiality	The financial incentives are substantial.
Additionality	Additionality is ensured by the baseline of the calculation method. District heating connections only generate savings if the efficiency of a district heating system is higher than that of the heating system being replaced.
Double counting	It is impossible for double counting to occur within this measure, since each federal state only provides subsidies for its own territory.
Final energy savings (TJ)	
Per year	640
2014–2020 (cumul.)	18 000
Implementation	
National/regional	National, implementation in the federal states, with the federal state of Vorarlberg playing a coordinating role
Budget and financial resources	Included in the measure ‘Residential building subsidies from the federal states’

Energy taxes		
Description		
Category	Taxes	
Duration	Start: Mineral oil tax on fuels in the early 20th century, then fuel oils, natural gas and electricity in 1995, solid fossil fuels in 2004.	Adjustments: ongoing
Target groups:	Households, transport, industry, services, agriculture	
Description	The taxation of electricity, natural gas and various petroleum products is covered in Austria by the following three laws: - Electricity Taxation Act (Federal Law Gazette (BGBl.) No 201/1996) - Natural Gas Taxation Act (BGBl. No 201/1996) - Mineral Oil Taxation Act (BGBl. No 630/1994) All three laws provide for higher tax rates than the EU Energy Tax Directive (2003/96/EC).	
Further information	Electricity Tax Act http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10005027 Natural Gas Tax Act http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10005028 Mineral Oil Tax Act http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10004908	
Calculation method		
Method	Deemed savings (Annex V(1a)) The estimated savings from energy taxes are calculated using energy price elasticities. The following parameters are required: - Tax-relevant energy consumption - Amount of tax as a proportion of the energy price - Elasticity of energy consumption at the energy price Using the above parameters, the theoretical final energy consumption without additional taxes (exceeding EU requirements) is calculated. The difference between this theoretical consumption and the actual observed final energy consumption represents the final energy savings. The estimation is based on short-term elasticities, which primarily reflect consumers' short-term changes in behaviour in response to price changes. Detailed information on the estimation of the expected savings from energy taxes can be found in Annex G.	
Materiality	The materiality is guaranteed by the price elasticities.	
Additionality	See Method; only the difference between the national tax rate and the EU requirements is taken into account.	
Double counting	Electricity tax, natural gas tax: since the estimation of the final energy savings from energy taxes is based solely on short-term elasticities, there is no double counting of investment subsidies. For the mineral oil tax: no overlaps, since no further measures for the implementation of Article 7 are used for the transport sector.	
Final energy savings (TJ)		
Per year	10 700	
2014–2020 (cumul.)	74 900	
Implementation		
National/regional	National	
Budget and financial resources	In 2012, revenue from energy taxes was € 4 580 million	

HGV toll		
Description		
Category	Taxes	
Duration	Start: 2002	Adjustments: ongoing
Target groups:	Transport	
Description	The use of toll roads by motor vehicles with a gross vehicle weight in excess of 3.5 tonnes is subject to a distance-related toll. The toll amount depends on the distance travelled, the emission class and the number of axles. To keep tolls as low as possible, companies can adopt the following measures: reduce the distance travelled through optimisation of logistics, increase transportation capacity, use more energy-efficient vehicles, reduce the number of empty runs. All these measures lead to a more efficient use of energy in the transport sector and therefore to energy savings.	
Further information	Federal Road Toll Act: http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20002090	
Calculation method		
Method	Deemed savings (Annex V(1a)) The estimated savings from energy taxes are calculated using energy price elasticities. The following parameters are required: - Tax-relevant energy consumption - Amount of tax as a proportion of the energy price - Elasticity of energy consumption at the energy price Using the above parameters, the theoretical final energy consumption without additional taxes is calculated. The difference between this theoretical consumption and the actual observed final energy consumption represents the final energy savings. The estimation is based on short-term elasticities, which primarily reflect consumers' short-term changes in behaviour in response to price changes. Detailed information on the estimation of the expected savings from the HGV toll can be found in Annex G.	
Materiality	The materiality is guaranteed by the price elasticities.	
Additionality	See Method; only the difference between the national tax rate and the EU requirements is taken into account.	
Double counting	No double counting, since no further measures for the implementation of Article 7 are used for goods transport.	
Final energy savings (TJ)		
Per year	1 000	
2014–2020 (cumul.)	7 000	
Implementation		
National/regional	National	
Budget and financial resources	In 2012, revenue from the HGV toll was € 1 102 million	

Green electricity subsidies from the federal government		
Description		
Category	Subsidies	
Duration	Start: 2002	Adjustments: continuously, most recently in 2012
Target groups:	Households, services, industry	
Description	The Green Electricity Act provides for, among other things, feed-in tariffs for photovoltaic systems. For systems mounted exclusively on the side or on top of a building, a feed-in tariff of € 0.1812/kWh is granted on application if the contract was signed by the end of 2013. For photovoltaic systems installed in appropriate open spaces, the feed-in tariff is € 0.1659/kWh. These feed-in tariffs apply to systems with a maximum capacity of between 5 kWpeak and 500 kWpeak. For systems mounted on the side or on top of buildings, in addition to the feed-in tariff an investment subsidy of 30 % of the capital costs is granted, up to a maximum of € 200/kW (OeMAG). Furthermore, cogeneration plants are incentivised by means of investment subsidies pursuant to Article 25 of the Green Electricity Act.	
Further information	Green Electricity Act: http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20007386	
Calculation method		
Method	Deemed savings (Annex V(1a)) The calculation is based on data in the current funding statistics.	
Materiality	The financial incentives are considerable (see budget).	
Additionality	Only those quantities of final energy that are simultaneously generated and consumed on site are counted as savings.	
Double counting	There are overlaps with the residential building subsidies from the federal states. For descriptions of subsidy schemes at federal state level, please see section 3.2.2. There is no possibility of double counting, since only the green electricity subsidies from the federal government are used to implement Article 7.	
Final energy savings (TJ)		
Per year	350	
2014–2020 (cumul.)	10 000	
Implementation		
National/regional	National	
Budget and financial resources	2012: € 36.8 million for photovoltaics, € 30 million for cogeneration	

Further development of building regulations		
Description		
Category	Standards, norms	
Duration	Start: 1991	Adjustments: ongoing
Target groups:	Households, services, industry	
Description	In Austria, the thermal quality of buildings is determined in accordance with the building law or building regulations of the federal states. These contain binding quality criteria for buildings. These requirements vary from federal state to federal state; they may, for example, specify target figures for component U-values, energy indicators or LEK values. These building regulations contain requirements not only on the building envelope, but also on building technology. The guidelines of the Austrian Institute of Construction Engineering are used as the basis for harmonising the various building regulations. One of these guidelines, OIB Guideline No 6 on energy saving and heat insulation, has been in existence since 2007 (current version is 2011) and has been implemented by the federal states. This guideline contains requirements on the maximum heating demand for residential and non-residential buildings, with regard to both new builds and major renovations.	
Further information	http://www.help.gv.at/Content.Node/226/Seite.2260200.html http://www.oib.or.at/	
Calculation method		
Method	Deemed savings (Annex V(1a)) The calculation is based on data in the plans for the fu development of the building regulations by 2020 as well as current statistics on constru renovated buildings.	
Materiality	Compliance with building regulations is required by law.	
Additionality	Only changes to the building regulations are taken into account.	
Double counting	Double counting is methodically excluded, since the applicable building regulations are used as the baseline for all other evaluation methods in the building sector.	
Final energy savings (TJ)		
Per year	175	
2014–2020 (cumul.)	5 000	
Implementation		
National/regional	Nationwide, differences in implementation in the federal states	
Budget and financial resources	n.a.	

Other measures		
Description		
Category	Subsidies, standards, norms	
Duration	Start: n.a.	Adjustments: n.a.
Target groups:	Households, services, industry	
Description	Further measures for increasing energy efficiency include: - Energy-efficient lighting - Public buildings - Other measures implemented by energy companies in accordance with voluntary agreements (e.g. directly measured individual projects) **Lighting:** The operational Domestic Environmental Support Scheme, the energy companies and the federal states all create incentives for end customers to switch to energy-efficient lighting. Measures in public buildings are described in section 3.3. For the voluntary energy efficiency agreements, please see sections 2.2.1 and 3.1.6.1.	
Further information	Lighting: http://www.umweltfoerderung.at/kpc/de/home/umweltfrderung/fr_betriebe/energiesparen/ledsysteme_in_betrieben/	
Calculation method		
Method	Deemed savings (Annex V(1a)) Metered savings (Annex V(1b)) Scaled savings (Annex V(1)c) For the estimation of the savings, only those measures were taken into account which have an additional effect above and beyond the other measures adopted for Article 7.	
Materiality	The other measures involve subsidies, standards and norms.	
Additionality	Only those measures that go beyond existing national or EU regulations are counted as savings.	
Double counting	In the course of the final identification of other measures, steps were taken to exclude double counting in the same way as for the other alternative measures.	
Final energy savings (TJ)		
Per year	890	
2014–2020 (cumul.)	25 000	
Implementation		
National/regional	National, regional	
Budget and financial resources	n.a.	

3.1.2 Energy audits and management systems (Article 8)

3.1.2.1 Information on Article 8(4)

Article 8(4) EED will be implemented by the planned adoption of a Federal Energy Efficiency Act, which is currently in preparation. A first draft of the Act was submitted in 2013.

The business statistics available in Austria were used to estimate the number of companies affected by Article 8(4). According to the structural business statistics of Statistics Austria, **1 068 companies** in Austria (out of a total of 308 735) employed **more than 249 people** in 2012. This figure can therefore be considered as the upper limit of the number of companies affected.

In 2012, a total of 3 170 subsidised consultations and audits were carried out for companies (Ministry of Agriculture, Forestry, Environment and Water Management, 2013) and (KPC, 2013). Assuming that 10 % of consultations were not subsidised (expert estimate), this means that there are **nearly 3 500 consultations per year.** Experience suggests that small enterprises in particular are unlikely to consider an unsubsidised consultation. Among the medium-sized enterprises with 50–249 employees, it may be assumed that some energy-intensive industrial companies are not taking advantage of their entitlement to a consultation subsidy.

At present, the number of audits carried out in non-SMEs can only be estimated, but not recorded, since large enterprises often do not apply for a consultation subsidy. The following assumptions were made to estimate the number of consultations in non-SMEs:

- Enterprises that have received investment funding for energy efficiency projects or renewable energy sources have taken advantage of an energy consultation/energy audit or have used internal experts to identify appropriate measures.
- In the context of the Domestic Environmental Support Scheme (UFI – see description of measures below), 2 221 projects were supported in 2012 in the areas of energy efficiency and renewables.
- This number of projects does not correspond to the number of enterprises, since some companies implemented multiple measures simultaneously and therefore received more than one subsidy.
- Assuming that 20 % of enterprises implemented two measures, 2 221 projects would therefore mean that 1 850 enterprises received subsidies in 2012.
- If we further assume that the enterprises receiving advice in the regional programmes (1 457) are predominantly SMEs, that the conversion rate was approximately 80 % and that the companies received an investment subsidy for the implementation of the measures, 1 166 enterprises may be subtracted from the total number receiving subsidies. This gives a figure of around 680 enterprises that have received a UFI subsidy without having taken advantage of a subsidised consultation. If we now suppose that approximately 50 % of the non-SMEs use internal experts for the implementation of efficiency measures, that leaves around 340 non-SMEs that have been advised by external auditors.

This represents an estimated **maximum value of 680 consultations per year in non-SMEs (internal and external).** With a total figure of 1 068 non-SMEs, this value appears very high. It should be noted, however, that these consultations do not necessarily meet the requirements of the EED or of EN 16247 (standard for energy audits). This figure also includes specific brief consultations, e.g. on how to optimise lighting systems.

3.1.2.2 Measures to promote energy audits

There are programmes at both federal state and central government level to promote energy audits for households and enterprises.

Energy audits for households, local authorities and enterprises		
Description		
Category	Advice, subsidies	
Duration	Start: regional differences, first initiatives in 1980, systematically and comprehensive since 1990	Adjustments: n.a.
Target groups:	Private households Local authorities Enterprises (SMEs)	
Description	Energy consultations and audits are carried out in Austria by trained and independent auditors. <u>Energy audits (energy advice) for households:</u> In Austria, the energy advice bodies of the federal states offer energy advice to households. The quality of the energy advice is ensured by means of standardised training, consisting of a standard course (A course) and an advanced training course (F course). <u>Energy audits (energy advice) for local authorities:</u> In Austria, various energy advice programmes are available to local authorities. The aim is to support local authorities in all stages, from the planning of measures through to their implementation. These include the e5 programme for energy-efficient local authorities, the energy saving local authorities programme, environmentally friendly local authorities, EKKO, energy and climate model regions. <u>Energy audits for enterprises (SMEs):</u> Energy audits (initial consultations and advice on implementation) for enterprises are supported in Austria within the framework of the Domestic Environmental Support Scheme (UFI, a funding programme by the Ministry of Agriculture, Forestry, Environment and Water Management) in conjunction with the federal states. The state of Lower Austria provides additional support to local enterprises via its Eco-management advice programme, with approximately 150 consultations a year on environmental and climate protection and energy efficiency.	
Further information	Households: http://www.klimaaktiv.at/beratung/energieberatungen.html Local authorities: www.klimaundenergiemodellregionen.at/ www.e5-gemeinden.at http://www.esv.or.at/gemeinden/energiespargemeinde/ Enterprises: http://umweltfoerderung.at/kpc/de/home/umweltfrderung/fr_betriebe/energiesparen/energieeffizienzscheck/ http://www.wien.gv.at/umweltschutz/oekobusiness/angebot.htm http://www.eabgld.at; http://www.eubgld.at	
Calculation method		
Calculation method	Estimates are based on the number of consultations currently being carried out. The energy savings result both from the awareness-raising effect of the advice or audits and from the implementation of the technical and organisational measures identified during the advice or audits. The final energy savings for these technical measures are not reported with this measure, but rather in sections 3.1.1.2, 3.2 and 3.4. Only the awareness-raising effect of the advice is estimated here.	
Final energy savings (TJ)		
Savings (TJ)	Currently per year Households: 82 TJ	2020 (anticipated) Households: 164 TJ
2014–2020 (cumul.)	25 000	
Implementation		
National/regional	National and regional (audits for enterprises and local authorities), Regional (advice for households, enterprises and local authorities)	
Budget and financial resources	Total estimate for Austria EUR 5 to 10 million	
Overlaps, multipliers, synergies	Energy audits and energy advice have synergies with all other energy efficiency measures, since they lead to corresponding changes in behaviour and investment decisions among consumers.	

Example -– Energy advice in the federal state of Salzburg

The Salzburg Energy Advice (EBS) scheme was set up in 2004 as part of the federal state of Salzburg's 'Energy Active' implementation programme, which is based on the Salzburg energy guidelines of 1997 and which provides various measures to increase energy efficiency. The ultimate objective of the Salzburg Energy Advice scheme is, by means of energy consultations, to increase the implementation of measures for improving energy efficiency and thus to achieve a reduction in CO_2 emissions in the federal state of Salzburg. Based on the state government's energy guidelines, which were adopted in 1997, and the resulting 'Energy Active' implementation programme, the Salzburg Energy Advice scheme supports the targets specified therein for CO_2 reduction and energy savings in private households and public buildings (http://www.salzburg.gv.at/energieberatung). The Salzburg Energy Advice scheme is a collaboration between the federal state of Salzburg and the regional energy utility, Salzburg AG. These two partners each provide 50 % of the budget.

3.1.3 Metering and billing (Articles 9–11)

Smart Meters		
Description		
Category	Standards, norms	
Duration	Start: 2008	Adjustments: n.a.
Target groups:	Households, services, industry	
Description	Annex A of the Internal Market in Electricity Directive (2009/72/EC) in the EU's Third Energy Package calls for the introduction of 'intelligent metering systems', i.e. smart meters, for all consumers, to assist their active participation in the electricity supply market. The Directive requires, after a positive economic assessment on the part of the Member States, that at least 80 % of all electricity customers should be equipped with a smart meter by 2020. The 'Regulation on the Introduction of Intelligent Meters' (BMWFJ, 2012) stipulates for Austria that at least 10 % of the metering points connected to the grid should be equipped with smart meters by the end of 2015, and then at least 70 % by the end of 2017 and, insofar as is technically feasible, at least 95 % by the end of 2019. Austria is therefore planning to exceed the EU requirements in 2020.	
Further information	https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20007808	
Calculation method		
Calculation method	Estimates are based on monitoring for the ESD. Only the extent to which Austria exceeds the EU requirements is evaluated.	
Final energy savings (TJ)		
Savings (TJ)	Currently per year The measure will commence in 2015	2020 (anticipated) 3 800
2014–2020 (cumul.)	25 000	
Implementation		
National/regional	National	
Budget and financial resources	n.a.	
Overlaps, multipliers, synergies	Synergies exist with energy advice, which can be conducted more effectively on account of the more detailed consumption information.	

3.1.3.1 Legal framework

In principle, all information, promotional material and bills from energy suppliers must be transparent and customer-friendly (cf. Article 81(1) of the Electricity Act 2010 (ELWOG 2010), Federal Law Gazette I No 110/2010 amended by Federal Law Gazette I No 174/2013, and Article 126(1) of the Natural Gas Act 2011 (GWG 2011, Federal Law Gazette I No 107/2011 amended by Federal Law Gazette I No 174/2013). Pursuant to paragraph 3 of the aforesaid act, bills must also show the meter readings used for the bill, as well as information on how the meter was read. It should therefore indicate whether the meter was read by the network operator, the customer supplied his/her own reading, the meter was read remotely or the meter reading was estimated. The bill should also inform customers that they have the option of submitting their own readings.

Pursuant to Article 83(1) ElWOG 2010 or Article 128(1) GWG 2011, network operators are obliged to inform final consumers in good time about the installation of a smart meter and the associated conditions. The information provided to the final consumer on the details of the roll-out includes in particular technical aspects of the smart meter, the timing of the roll-out, consumer rights etc.

Pursuant to Article 84(3) ElWOG 2010 or Article 129(3) GWG 2011, those final consumers who have decided to make use of the information available in their daily quarter-hour values measured by the smart meter are to be informed by the network operator via a free, customer-friendly web portal that this requires the remote reading of their consumption data from the smart meter and that the data on the web portal will expire 36 months after becoming available or if the contract with the network operator is terminated. This express reference must at least appear in the network operator's Terms and Conditions, while the same wording must be displayed directly when consumers register for the web portal.

Pursuant to Article 84(6) ElWOG 2010 or Article 129(5) GWG 2011, final consumers are to be informed by the network operator, in a transparent and understandable manner, about how to access their consumption data via the web portal.

Pursuant to Article 84(7) ElWOG 2010 or Article 129(6) GWG 2011, the regulatory authority may issue an ordinance specifying the requirements on the level of detail and the way in which the consumption information is provided on the web portal pursuant to paragraph 2 of the aforesaid act.

At present, no data is available on the number of final consumers who have already been informed and advised, since only pilot projects have initially been implemented (see section 3.1.3.2)

3.1.3.2 Progress in the use of smart meters

In 2012, the starting signal was given for the introduction of smart meters in Austria with the 'Regulation on the Introduction of Intelligent Meters' (IME-VO). By the end of 2019, at least 95 % of all Austrian electricity customers must be provided with a smart meter. The switchover will take place in phases: 10 % of all customers must be provided with a smart meter by the end of 2015, and 70 % by the end of 2017.

This timeframe is very ambitious and represents a great challenge for network operators. Extensive reporting obligations to the authorities were therefore imposed. As of April 2013, 14 concrete projects, including 5 large ones, or roll-outs by individual network operators had been reported (124 operators have not yet implemented any concrete measures). The majority of these projects are being carried out by large network operators or public utilities. The largest roll-outs currently in progress in Austria can be found in Upper Austria, specifically in the grid companies Energie AG, Netz GmbH and LINZ STROM Netz GmbH. Of the approximately 5 841 000 metering points in total that are potentially affected by the IME-VO in the household sector, in SMEs and in the agricultural sector, 196 820 metering points had been equipped with a smart meter by April 2013. This corresponds to an Austria-wide coverage of around 3.4 %. According to the companies, the main obstacle to the smooth and rapid introduction of smart meters is the legal framework, which at present is still lacking or is insufficiently clear. This applies in particular to clarifications in the areas of data protection and measurement and calibration. Overall, it may be noted that in the reporting year 2012 (as of April 2013) the majority of system operators had not yet commenced pilot tests or projects. Larger projects or roll-outs were mainly to be found among those operators who had already been carrying out activities related to smart metering for several years, i.e. the 'early adopters'. In the meantime, however, other large projects were launched in 2013 and are now underway (e.g. Wien Energie Netz). The regulatory authority, E-Control Austria, is assuming that the projects – especially in the case of large companies – will be put out to tender by 2014 at the latest and will then commence soon afterwards, in order that the first phase of the specified plan, 10 % of all customers by the end of 2015, might be completed on time (E-Control, 2013).

3.1.3.3 Billing of individual heating and cooling consumption

The billing of individual heating and cooling consumption is regulated in the Heating Costs Act (Federal Law Gazette No 827/1992 amended by Federal Law Gazette I No 25/2009). This Act stipulates that heating and hot water costs are to be distributed on the basis of consumption in economic units containing at least four properties (dwellings, business premises etc.) with a common heating supply system. It does not explicitly regulate which metering devices are to be used (i.e. heat meters, evaporation indicators), nor are there any specifications concerning smart meters. Pursuant to Article 11 of the Heating Costs Act, the thermal emitter should determine the consumption proportions using a state-of-the-art method, based on the results of a recording (measurement) by suitable devices.

The Act also contains provisions with respect to economic units supplied with district heating. It does not, however, contain any provisions regarding the allocation of the consumption of cooling.

Billing, which must meet a series of minimum requirements (Articles 11 ff), should take place annually for a period of 12 months (a deviation from this period is only possible for technically justifiable reasons, e.g. if the heating supply system is changed).

3.1.3.4 Frequency of billing with smart meters and conventional meters

If consumption is measured by a smart meter,
the rules concerning the frequency with which the consumption data is read are as follows:

Pursuant to Article 83(2) ElWOG 2010 or Article 128(2) GWG 2011, smart meters must meet a certain minimum level of functionality. This includes, in particular, the requirement that smart meters must be able to record meter readings at 15 minute intervals, save data for 60 calendar days inside the device, enable remote retrieval of the data stored in the device via a bidirectional communications interface, permit remote disabling and enabling of the unit and allow the final consumer to retrieve the data via a unidirectional communications interface.

Pursuant to Article 84(1) ElWOG 2010, system operators must, no later than six months following the installation of a smart meter at a final consumer’s premises, start recording a daily consumption value and all quarter-hourly values in the smart meter and store this data for the customer for 60 calendar days for the purposes of billing, customer information (Article 81a), energy efficiency, energy statistics, and maintaining secure and efficient system operation.

Pursuant to Article 129(1) GWG 2011, system operators must ensure that a meter reading is transmitted once a day no later than six months after a smart meter has been installed at a final consumer’s premises. If the smart meter has an internal memory, it must record and store all hourly values for the customer in the smart meter for 60 calendar days for the purposes of billing, customer information (Article 126a), energy efficiency, energy statistics, and maintaining secure and efficient system operation.

Pursuant to Article 81a(1) ElWOG 2010 and Article 126a(1) GWG 2011, final consumers whose consumption is measured via a smart meter must receive detailed, clear and understandable information about their electricity consumption and total electricity costs from their supplier each month within one week of the smart meter readings being transmitted; this information must be calculated on the basis of the daily values or, where they are relevant to billing, the quarter-hourly values and must be transmitted electronically and free of charge. At the express request of the final consumer, this consumption and electricity cost information shall not be transmitted. Final consumers must have the option of also receiving this information in paper format, free of charge.

If smart meters are installed, final consumers may furthermore, pursuant to Article 81(6) ElWOG 2010 or Article 126(7) GWG, opt to receive either monthly or annual bills.

Pursuant to Article 84(2) ElWOG 2010 or Article 129(2) GWG 2011, system operators must make available to final consumers with smart meters, free of charge and via a customer-friendly web portal, at least the daily readings and, upon the consumer's express request and depending upon the contractual agreement, also quarter-hourly values, no later than twelve hours after they have been retrieved from the smart meter. As far as possible, final consumers without reasonable access to the Internet should be provided with a comparable level of information (see Point 7, DAVID-VO 2012).

If **consumption is measured using a conventional meter,** the rules governing the frequency of reading of consumption data are as follows:
Pursuant to Article 57(4) ElWOG 2010 or Article 77(4) GWG 2011, meters must be read at least annually, except in the case of load profile meters, which the system operator shall in all cases read at least monthly, and in the case of smart meters (see explanations above). The system

operator must itself perform a meter reading at least once every three years. If the reading and transmission of the metering data are performed by the system user, the system operator must check the plausibility of the supplied data. A computational estimation of the metering data is only permissible if the system user has not made use of the option of supplying his/her own reading to the system operator, and the system operator has not been able to perform a meter reading for a reason which is attributable to the system user.

Pursuant to Article 81b ElWOG 2010 or Article 126b GWG 2011, final consumers without load profile meters or smart meters must receive detailed, clear and understandable information on their consumption and electricity costs enclosed with their bills. Furthermore, system operators must offer these final consumers the option of submitting their meter readings once a quarter. If a final consumer submits a meter reading, the system operator must send the consumption data to the supplier without delay, and in no case later than ten days after the submission of the meter reading by the final consumer. Final consumers must receive detailed, clear and understandable consumption and electricity cost information in an electronic format within two weeks, free of charge; final consumers must have the option of also receiving this information in paper format, free of charge. At the express request of the final consumer, this consumption and electricity cost information shall not be transmitted.

Final consumers must be billed at least once a year. Pursuant to Article 81(2) ElWOG or Article 126(2) GWG 2011, final consumers should, on request, also be billed several times during the year.

Table 12 shows the requirements on billing and billing information based on actual consumption.

Table 12: Minimum requirements on billing and billing information based on actual consumption

EED Annex VII		
Billing	1x/year	
Information	1x/quarter on request or where consumers have opted to receive electronic billing otherwise 1x/six months	
National legislation		
	without smart meter	**with smart meter**
Billing	1x/year billing several times during the year on request pursuant to Art. 81(2) ElWOG or Art. 126(2) GWG 2011 as amended	1x/year or 1x/month: option pursuant to Art. 81(6) ElWOG 2010 or Art. 126(7) GWG as amended
Information	1x/year or if consumer supplies meter readings 1x/quarter pursuant to Art. 81b ElWOG 2010 or Art. 126b GWG 2011 as amended	1x/month pursuant to Art. 81a(1) ElWOG 2010 or Art. 126a(1) GWG 2011 as amended
Reading	1x/year pursuant to Art. 57(4) ElWOG 2010 or Art. 77(4) GWG 2011	4x/hour for electricity 1x/day for gas, plus reading 1x/day pursuant to Art. 84(1) and (2) ElWOG 2010 or Art. 129(1) and (2) GWG 2011

3.1.3.5 Additional information on actual consumption

Pursuant to Article 82(7) ElWOG 2010 or Article 127(7) GWG 2011, with effect from 1 January 2015 suppliers with more than 49 employees and a turnover or total assets in excess of € 10 million must make an information and advice centre available to their customers to answer questions relating to electricity labelling, switching suppliers, energy efficiency, electricity costs and energy poverty.

Pursuant to Article 83(2) ElWOG 2010 or Article 128(2) GWG 2011, smart meters must be equipped in such a way that final consumers may access data via a unidirectional communications interface. This ensures that end customers can monitor their actual consumption at all times. Pursuant to Article 84(2) ElWOG 2010 or Article 129(1) GWG 2011, system operators must make available to final consumers with smart meters, free of charge and via a customer-friendly web portal, at least the daily readings and, upon the consumer's express request and depending upon the contractual agreement, also quarter-hourly values, no later than twelve hours after they have been retrieved from the smart meter. As far as possible, final consumers without reasonable access to the Internet should be provided with a comparable level of information.

In connection with electricity, please also refer to the Ordinance on the Data Format and Representation of Consumption Information 2012 (DAVID-VO 2012), Federal Law Gazette II No 313/2012, which defines the data format for the transmission of smart metering data from the system operator to the supplier, as well as the level of detail and the way in which consumption information is provided to customers. In particular, it specifies what consumption data should be made available to final consumers on the system operator’s customer-friendly website; alternatively, it requires that the final consumer should be sent monthly consumption and electricity cost information free of charge; it also specifies the content of this information.

The measured daily consumption values of final consumers whose consumption is measured via a smart meter must be transmitted on a monthly basis by the system operator to the supplier in a defined form. The supplier must make monthly consumption and electricity cost information available to the final consumer in electronic form. The content of this information is defined in DAVID-VO 2012. Upon request, this information may also be sent by post.

The system operator must display the consumption data on the Internet by means of a website with specified minimum requirements (customer-friendly web portal). The data and information queries are to be supplied to final consumers and their authorised representatives in a form that can be saved and printed for further processing. This website must also include information on how final consumers can reduce their electricity consumption. Furthermore, the website must also provide information on the energy advice options available to consumers it they have any questions about their electricity consumption or ways of making savings.

It is also stipulated that final consumers whose consumption is not measured using a smart meter must receive detailed information on their consumption enclosed with their bills.

3.1.3.6 Electronic billing or more frequent transmission of billing information

No data is available on the percentage of final consumers who have opted for electronic billing or have requested a more frequent transmission of billing information, since neither the system operators nor the suppliers are obliged to provide any such details. A realistic estimate is not possible, because even some of the companies themselves do not record this data. It may, however, be assumed that suppliers operating throughout Austria prefer both electronic billing and payment by direct debit.

3.1.3.7 Additional measures

In Austria, there are existing metering and billing measures which go beyond the requirements of EED and which may help final customers save energy. These are described below.

In accordance with Annex VII(1.1.), billing should take place on the basis of actual consumption at least once a year; billing information should be made available at least quarterly, if requested by consumers or if consumers have opted to receive electronic billing, otherwise twice yearly.

On the other hand, as mentioned above, pursuant to Article 81a(1) ElWOG 2010 and Article 126a(1) GWG 2011, final consumers whose consumption is measured via a smart meter must receive detailed, clear and understandable information about their consumption and total electricity costs from their supplier each month within one week of the smart meter readings being transmitted; this information must be calculated on the basis of the daily values or, where they are relevant to billing, the quarter-hourly values and must be transmitted electronically and free of charge. Since final consumers must also be offered the option of receiving this consumption and electricity cost information in paper format free of charge, this monthly billing also applies in cases in which final consumers have decided against electronic billing.

If smart meters are installed, final consumers may, pursuant to Article 81(6) ElWOG 2010 or Article 126(7) GWG, opt to receive either monthly or annual bills.
Moreover, pursuant to Article 81(2) ElWOG or Article 126(2) GWG 2011, final consumers may also request to be billed several times during the year.

In 2012, the federal state of Lower Austria passed the Lower Austrian Energy Efficiency Act. This Act specifies comprehensive measures aimed at energy distributors, distribution system operators and retail energy sales companies which are designed to assist final consumers. These include Article 16 (Providing information to final consumers) and Article 17 (Recording of energy consumption). The Act is available at

www.noe.gv.at/Umwelt/Energie/Energie-Gemeinden/EEG.html.

3.1.4 Consumer information programmes and training (Articles 12 and 17)

There is a comprehensive range of consumer information and education programmes available in Austria. These programmes are aimed at both private individuals and professionals. Measures relating to education, training, information and awareness-raising are in principle offered by the Austrian Government and the federal states.

At federal level, klima**aktiv** (the Austrian Climate Initiative) is one of the most important information and awareness-raising programmes. Under the umbrella of klima**aktiv**, a large number of programmes have been launched to promote the topics of climate protection, energy efficiency and renewable energy sources, in the personal, commercial and public spheres, by means of information, advice, education, training, quality standards and networking. Information on the klima**aktiv** initiative is available at www.klimaaktiv.at/.

The energy agencies of the federal states offer a comprehensive range of information and services. This includes educational programmes for members of the public on a more efficient use of energy (evening events and excursions) as well as advanced training courses for professionals (ranging from one-day seminars to training courses). In addition, numerous activities are provided to inform the public about the careful use of energy. These activities include special events, appearances at trade shows, newspaper ads, brochures, website info etc.

Information on the programmes of the federal states is available at:

www.eabgld.at/

www.energieberatung-noe.at

www.energiebewusst.at/

www.energieinstitut.at

www.energie-tirol.at/

www.esv.or.at/

www.lev.at

www.salzburg.gv.at/energieberatung
www.wienenergie.at/eportal/ep/channelView.do/pageTypeId/11889/chan nelId/-22149

Since 2011, the Upper Austria Energy Academy has been offering training in energy efficiency and renewable energy. The main target groups are managers responsible for energy in enterprises, local authorities and institutions, energy consultants, building services engineers, building contractors, construction site managers, planners and architects.

The training programme includes seminars, field trips and courses, including training to become an energy consultant. Information is available at:

www.energyacademy.at

Example -– Lower Austrian Energy Efficiency Act
Article 8 of the Lower Austrian Energy Efficiency Act – Availability of information – specifies that information must be provided on energy efficiency measures, ways of comparing consumption and the legal framework.

Article 12 – Duties of energy managers – regulates the appointment, duties and training of managers responsible for energy in the public sector.

www.noe.gv.at/Umwelt/Energie/Energie-Gemeinden/EEG.htm

3.1.4.1 Communication and information measures on the introduction of smart meters

In the event of a large-scale roll-out of smart meters, it will of course be desirable (and indeed necessary) to seek the greatest possible involvement of the public and the relevant interest groups, in order to provide relevant (and reliable) information on the reasons for introducing smart metering and on how the collected data will be used. At present, no large-scale information campaigns are as yet being carried out, but accompanying information is provided with the pilot projects and roll-outs that are currently in progress. All legal requirements (including ordinances) are subject to corresponding consultation periods and are discussed in advisory councils (the Energy Advisory Council and the Regulatory Advisory Council).

3.1.5 Availability of qualification, accreditation and certification schemes (Article 16)

A study by the Austrian Energy Agency on behalf of the BMWFW into the various possibilities for implementing Article 16 EED is currently being drawn up. This study builds on the results of the status-quo analysis of the 'Build-Up Skills' initiative in Austria, as well as on the national project 'Master Plan for Ensuring Human Resources for Renewable Energies' (3s research laboratory et al, 2013). The final decisions on Article 16 will be taken once the results of this study are available.

Two certification programmes are already available in Austria for energy services (Energy Performance Contracting Eco-label[16] and Thermoprofit[17]). It is currently being investigated whether these programmes meet the requirements of the EED or whether amendments are necessary.

For energy audits in enterprises, there are at present no uniform national regulations regarding qualification, accreditation and certification. There are recognised training programmes for the qualification of energy consultants for private households (energy consultant A and F course, klima**aktiv** consultant training). An initiative involving the federal government and all the federal states is currently underway to standardise the training of energy auditors and their ongoing assessment. This will take account of the requirements of the EED and EN 16247.

There is a programme in Austria for the certification of energy managers: the well-established EUREM (European Energy Manager)[18] scheme, which is recognised throughout Europe. Two certification organisations (Quality Austria and TÜV Austria) also both offer training and certification for energy managers. The courses offered cover the essentials of ISO 50001.

The following certifications are already available in Austria for installers:

- Heat pump installer
- Heat recovery ventilation engineer
- Lighting technician
- Building air tightness specialist
- Passive house tradesperson

3.1.6 Energy Services (Article 18)

3.1.6.1 Measures to promote energy services

Article 18(1) EED lays down requirements for providing energy services to SMEs and the public sector.

As early as 2004, the 'Umbrella Organisation of Energy Savings Contractors' was set up with financial support from the federal government, with the aim of making energy performance contracting better known in Austria, promoting quality assurance and contributing to market transparency. In 2013, based on this umbrella organisation, the association of **'Austrian Energy Efficiency and Performance Contractors – DECA'**[19] was established, which aims to play a networking function in the further dissemination of high-quality energy services. In addition, the federally funded klima**aktiv**[20] contracting portal provides interested parties with information on the topic of energy performance contracting. The information available via the contracting portal includes:

- Basic information on energy performance contracting;
- Sector-specific information on opportunities and implemented projects;
- Information for companies that are considering setting up a new energy performance contracting division, or which are already offering such a service;
- A search function for energy performance contractors;
- Further information on the subject (links, studies, articles etc.).

The creation of **model energy performance contracts** was commissioned by the Federal Ministry of Science, Research and Economy (BMWFW); these are currently being finalised. These model contracts will shortly be available on the BMWFW website.

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16 http://www.umweltzeichen.at/cms/home/produkte/gruene-energie/content.html?rl=33

17 http://www.grazer-ea.at/cms/arbeitsfelder/contracting-thermoprofit/idart_934-content.html

18 http://at.eurem.net/display/euremat/Start

19 www.deca.at

20 www.contracting-portal.at

For the quality assurance of contracting projects, the Ministry of Agriculture, Forestry, Environment and Water offers the **Energy Performance Contracting Eco-label** (guideline UZ 50)[21] in Austria. This certificate formulates the requirements on the contractor, the course of the project and the energy performance contract necessary for awarding of the 'Energy Performance Contracting' ecolabel.

In the public sector, the market for energy services is supported by the comprehensive **Federal Property Contracting** programme for the renovation of more than 200 federal buildings since 2001[22]. As part of this programme, more than 600 buildings have been optimised and modernised in terms of energy efficiency. This makes the Contracting programme one of Europe's largest contracting authorities for energy performance contracts. In this connection, external service providers draw up complete concepts for the highest possible energy savings. 80 % of the calculated savings go towards financing the energy efficiency measures. The remaining 20 % are returned to the building user. On average, 20.3 % of the energy costs can be saved. 40 000 tons of CO_2 are saved each year thanks to the programme. The final energy savings are included in the savings in public buildings reported in section 2.4.1.

Article 18(3) EED requires Member States to ensure that energy distributors, distribution system operators and retail energy sales companies refrain from any activities that might impede the demand for and delivery of energy services or other energy efficiency improvement measures, or hinder the development of markets for such services or measures. These requirements are implemented in Austria by the conclusion of voluntary energy efficiency agreements. In the context of these agreements, the energy companies in question may offer energy services and energy audits, among other things. The voluntary agreements (see also section 2.2.1) have been subject to ongoing monitoring since their entry into force in 2009.

Example – Energy performance contracting programme of the state of Upper Austria

The Upper Austrian energy performance contracting programme subsidises energy saving measures (energy savings contracting) or the construction and operation of green energy plants (plant contracting) by authorised companies ('contractors'); these measures are financed by the energy savings or the revenue from the heating (or cooling and electricity) supplied. This programme supports the development of a market for energy performance contracting. To date, funded projects have given rise to investments of around € 45 million.
www.esv.or.at/foerderungen/unternehmen/contracting/

3.1.6.2 National market for energy services

A detailed description of the Austrian energy services market may be found in Annex D. This study, commissioned by the BMWFW, examines the size and maturity of the energy services market in Austria and also describes the corresponding potentials in detail. With regard to the exploitation of future potential, the following may be noted:

Various forms of energy performance contracting have been available in Austria for a long time, but the benefits do not always appear as clear-cut as might be expected from theoretical models, since EPC for the pre-financing of plant or building renovations represents a highly risky business model for energy suppliers and service providers. Many energy performance contractors therefore focus on commercial customers, public services and local authorities, since these market segments offer sufficient security of payback on investment, a clear legal framework and well-defined user behaviour. The private household sector, on the other hand, entails high payback risks for energy performance contractors and, furthermore, the potential for customer dissatisfaction.

Because of the impact of energy consumption on the costs of a business, major energy consumers have long since established internal structures and responsibilities to ensure a cost-effective supply of energy. In these businesses, which make up approx. 2/3 of the energy consumption in industry, the potential for optimisation is regularly examined and monitoring systems and/or energy management systems are already in place. In this segment, the economic potential has largely already been tapped; further ongoing improvements may be expected to have payback periods of several years.

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21 http://www.umweltzeichen.at/cms/home/produkte/gruene-energie/content.html?rl=33

22 http://www.bmwfw.gv.at/Tourismus/energieeinsparungen/Seiten/Bundescontracting.aspx

In SMEs, especially in the service sector, the energy cost factor is often considered to be less important, which also means that the monitoring of efficient energy usage is less well established. For this reason, there is more potential to achieve cost-effective percentage improvements here; but because of the lower energy intensity (making up only a third of energy usage), it is less significant for national energy consumption overall.

All the other details may be found in the attached study in Annex D.

3.1.7 Other energy efficiency measures of a horizontal nature (Articles 19 and 20)

With regard to the measures required by Article 19(1a) EED, the following aspects of the Work Programme of the Austrian Federal Government 2013–2018 (Austrian Federal Government, 2013) may be mentioned, in the section on 'Affordable housing' (starting on page 59):

- The Commonhold Act specifies the 'extent of allocation of funds to reserves' (Article 31 WEG 2002, as amended) which will subsequently make it easier to carry out renovations, because the commonhold association will have more money at its disposal. Current legislation does not prescribe any specific amount to be allocated to reserves, rather the apartment owners may set the level of the periodic payments. A discretionary rule on the extent of allocation of funds to reserves may be used as the basis for saving up for investments.
- The 'decision-making process in the residents' meeting' measure. This relates, for example, to arrangements that must in effect be agreed unanimously by all apartment owners, e.g. concerning the mortgage collateral for a renovation loan.

A legal provision relating to the measures required by Article 19(1b) EED is standardised in Article 19(5) of the Federal Procurement Act[23]. This stipulates that environmental compatibility must be taken into account in the public procurement process. This may be achieved, in particular, by including environmental aspects (such as final energy efficiency) in the performance or technical specifications or by defining concrete environmental criteria for awarding contracts.

Example – Lower Austrian Energy Efficiency Fund

In relation to Article 20 EED, Article 14 of the Lower Austrian Energy Efficiency Act of 2012 provides for the establishment of a management fund to promote energy advice, energy efficiency measures and the education and training of energy managers.
www.noe.gv.at/Umwelt/Energie/Energie-Gemeinden/EEG.htm

3.1.8 Savings arising from horizontal measures

Information on the energy savings achieved by horizontal measures is included with the descriptions of the various measures. An overview of final energy savings is available in section 2.4.1.

3.1.9 Financing of horizontal measures

Information on the financing of horizontal measures is included with the descriptions of the various measures.

[23] https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20004547

3.2 Energy efficiency measures in buildings

Section 3.1.1.2 describes the following measures in the building sector:

- Residential building subsidies from the federal states
- District heating subsidies
- Operational domestic environmental support
- Building regulations

3.2.1 Building renovation strategy (Article 4)

Residential building subsidies give rise to a significant volume of building renovation in the federal states. The strategies of the federal states in connection with residential building subsidies and other individual measures – e.g. actions aimed at increasing the renovation rate – are listed in Annex B Building Renovation Strategy.

An evidence-based estimate was carried out on the basis of the national building stock and the ongoing activities of the federal states and the federal government, particularly in the context of residential building subsidies (see section 3.2.2). This estimate (not taking into account any additional, as yet undefined future measures) produced an annual renovation rate relevant to energy savings of approximately one percent of the total old building stock. It should be expressly noted that this is merely the first version of an estimate of expected energy savings, which in subsequent years will be supplemented and refined by additional information on current developments in the building sector, at least with regard to

- the development of the provisions in building law for major renovations,
- new financing models,
- changes in the energy mix,
- rebound effects, and
- changing rates of increase in the use of solar thermal systems and heat pumps in the building stock.

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This estimate indicates a potential of 2 185 GWh/a for residential buildings and 1 130 GWh/a for non-residential building after 2020.

3.2.2 Other energy efficiency in buildings sector

There are a number of additional measures in the building sector at both federal government and federal state level. These are described below.

The Austrian Federal Government's renovation drive		
Description		
Category	Subsidies	
Duration	Start: 2009	Adjustments: ongoing
Target groups:	Private households, enterprises	
Description	The Austrian Federal Government's renovation drive has become established as an important and successful tool for encouraging companies and private individuals to reduce their energy consumption. The subsidies are provided in the form of one-off, non-reimbursable grants. In 2013, 24 028 renovation projects were supported, giving rise to sustainable investments of € 847 million. Up to € 9 300 could be claimed for the renovation of buildings and dwellings. The average grant per renovation project rose by 42 % from € 3 460 in 2012 to € 4 900 in 2013. **Thermal renovation, Renovation Check for private individuals 2014** The thermal renovation of private dwellings is supported in buildings that are more than 20 years old (date of building permit). Eligible measures include the insulation of exterior walls and top floor ceilings, the renewal of windows and exterior doors, and the conversion of heat generation systems to renewable energy sources. The Renovation Check is aimed at (joint) owners, leaseholders or tenants of detached or semi-detached houses or at owners/tenants of apartments in multi-storey residential buildings. The subsidy covers up to 30 % of the eligible costs, up to a maximum of € 6 000 for thermal renovation and € 2 000 for the conversion of heat generation systems. A supplement of € 500 may be claimed for the use of insulation materials made from renewable resources or with an eco-label, or for the purchase of wooden window frames. Furthermore, the cost of acquiring an energy performance certificate is subsidised with a flat-rate payment of € 300. A new feature of the 2014 Renovation Check compared to the federal government thermal renovation campaigns of recent years is that the klima**aktiv** standard, which is well-established in Austria, is now also eligible for subsidy, i.e. more support is provided for ambitious thermal renovation projects. **Thermal building renovation for enterprises 2014** Support is provided for measures to improve the thermal insulation of commercial buildings that are more than 20 years old. The level of subsidy is based on the renovation quality and the reduction in heating and cooling demand, and may cover up to 35 % of the eligible costs. A supplement is available for the combination of renovation measures with technological improvements for the more efficient use of energy.	
Further information	www.publicconsulting.at/kpc/de/home/aktuelles/sanierungsoffensive_2014	
Calculation method		
Calculation method	Estimates by Kommunalkredit Public Consulting based on the results of previous subsidies.	
Final energy savings (TJ)		
Savings (TJ)	Currently per year 1 100	2020 (anticipated) 8 000
Implementation		
National/regional	National	
Budget and financial resources	In 2014, funding of € 100 million has been earmarked for the federal government's renovation drive. € 70 million of this is available for private dwellings and € 30 million for enterprises.	
Overlaps, multipliers, synergies	There are overlaps and synergies with the residential building subsidies from the federal states (see section 3.1.1.2).	

The City Energy Efficiency Programme (CEEP) in the federal state of Vienna			
Description			
Category	Advice, subsidies, information, exemplary role of the public sector		
Duration	Start: 2006	End 2015	Adjustments: ongoing evaluation pursuant to the ESD; follow-up programme being prepared
Target groups:	Households, commercial and public services, industry and manufacturing		
Description	In 2006, the City Council of Vienna adopted the City Energy Efficiency Programme (CEEP). The CEEP is Vienna's contribution to the implementation of the ESD and provides the strategic framework, guidelines and numerous measures for the city's consumer-side energy policy up to the year 2015. The core of the CEEP consists of the many packages of measures designed to improve energy efficiency by means of technical or organisational measures or changes in behaviour. The focus is on those efficiency policy instruments that are within the direct competence of the federal state of Vienna. The packages of measures are broken down into more than 100 sub-measures or instruments which were allocated to the following consumption sectors in particular: - Households, - Commercial services, - Public services, - Industry and manufacturing, - Cross-sectoral measures. In 2012, the CEEP was subject to external evaluation or monitoring for the second time (the first time being in 2009). The third and final evaluation is scheduled for 2015. Since the framework conditions for energy efficiency policies have undergone significant developments, primarily at the European level (EED), and the implementation of the resulting energy (efficiency) legislation represents a major challenge for Austria and Vienna, it is essential that awareness of this topic should be consolidated even further in Vienna in the future. In 2014, therefore, work began on the preparations for a follow-up programme to the CEEP, which will be finalised in 2015. This will focus on the most important areas of energy consumption and will prioritise key activities. From today's perspective, the CEEP follow-up programme will create a longer-term framework for consumer-side energy policy in Vienna and will thus continue to have an effect significantly beyond 2020. The creation of this programme will involve setting targets for improvements in energy efficiency and energy savings in Vienna and the definition of detailed implementation measures. The Energy Strategy for Austria will be used as a point of reference for this.		
Further information	CEEP in general: http://www.wien.gv.at/stadtentwicklung/energieplanung/sep/ Current evaluation report: http://www.wien.gv.at/stadtentwicklung/energieplanung/pdf/sep-monitoringbericht.pdf		
Calculation method			
Calculation method	Estimates based on monitoring for the ESD		
Final energy savings (TJ)			
Savings (TJ)	Currently per year around 576	2020 (anticipated) not yet determined	
Implementation			
National/regional	Regional		
Overlaps, multipliers, synergies	Since the CEEP is a framework programme for all the significant energy efficiency measures implemented by the City of Vienna, the CEEP energy savings value includes the savings from all relevant measures relating to Vienna (e.g. residential building subsidies, operational subsidies etc.). The CEEP energy savings value cannot therefore be used in an additive manner.		

Example – Building measures in the Lower Austrian Climate and Energy Programme 2020

The Climate and Energy Programme 2020 adopted by the state government of Lower Austria in 2013 includes the following measures and instruments relevant to the building sector:

Measure G1: Promoting the thermal renovation of residential buildings:
- Increasing and expanding energy advice
- Renovation agreements with developers and property managers – Voluntary agreements

Measure G2: Promoting the thermal renovation of non-residential buildings:
- Supporting energy savings in enterprises
- Expansion of consultancy services: energy advice for enterprises and other organisations

Measure G3: Improving legal provisions for thermal renovation:
- Incorporating OIB guidelines in building law
- Reducing legal barriers to renovation
- Regulating renovation measures via building law/Energy Efficiency Act
- Concept for central energy performance certificate database

Measure G5: Promoting efficient energy systems (heating, ventilation, air conditioning, lighting, appliances) in buildings:
- Taking account of efficient energy systems in business subsidies
- Reinforcement of consultancy services for electricity savings
- Supporting local authorities by means of information campaigns
- Improved cooperation with industry: Voluntary agreement

Measure G6: Promoting future-proof new buildings:
- Aligning building law to energy targets
- Pioneering adaptations of building and energy law

Promotion of biomass district heating in Lower Austria		
Description		
Category	Subsidies	
Duration	Start: 1989	Adjustments: ongoing amendments
Target groups:	Operators of biomass district heating stations and biomass district heating distribution networks	
Description	Since 1989, the federal state of Lower Austria has been consistently supporting the creation of biomass district heating stations and biomass district heating distribution networks with the provision of direct grants. The underlying funding guidelines and budgets have changed repeatedly in the past 25 years, but it has been possible to provide continual support. Current subsidy programmes: - Domestic Environmental Support Scheme: co-financing by federal government/federal state - Rural development: co-financing by EU/federal government/federal state - Federal state subsidies: federal state funds alone	
Further information	Lower Austria state government office: www.noel.gv.at/energie	
Calculation method		
Calculation method	Values based on monitoring for the ESD.	
Final energy savings (TJ)		
Savings (TJ)	Currently per year 0.36	2020 (anticipated) -
2014–2020 (cumul.)	25 000	
Implementation		
National/regional	National, implementation by the Austrian Government and the federal states	
Budget and financial resources	Currently € 2 million of Lower Austria state funds per year	
Overlaps, multipliers, synergies	In order to ensure comprehensive funding for biomass district heating stations and distribution networks, the above funding categories may be supplemented, so that only one guideline is used for each project type (criteria such as subsidy applicant, fuel generation etc.).	

Eco-fund of the federal state of Styria		
Description		
Category	Subsidies	
Duration	Start: 2014/2015	Adjustments: ongoing
Target groups:	SMEs, local authorities and community-owned enterprises, households, non-residential buildings	
Description	In addition to promoting the creation of innovative systems for generating electricity from renewable energy sources, the goal of the Eco-fund since 2011 has been to subsidise energy efficiency programmes.	
Further information	http://www.technik.steiermark.at/cms/ziel/97564845/DE/	
Calculation method		
Calculation method	Estimates based on documents submitted by the projects receiving funding in the context of energy efficiency programmes (electricity generation from renewable energy sources is not reported here)	
Final energy savings (TJ)		
Savings (TJ)	Currently per year Around 2.8	2020 (anticipated) -
Implementation		
National/regional	Regional	
Budget and financial resources	Resources of the Styrian Eco-fund, in total approximately € 1.1 million per annum; € 0.4 million for the energy efficiency programme implemented from 2014 onwards	

Promotion of alternative energy systems and energy saving equipment in Burgenland			
Description			
Category	Subsidies		
Duration	Start: 2008	End:	Adjustments: annual
Target groups:	Private households, housing cooperatives		
Description	Funding in the form of a grant is provided for the installation of alternative energy systems and energy saving equipment.		
Further information	www.eabgld.at		
Calculation method			
Calculation method	Values based on monitoring for the ESD.		
Final energy savings (TJ)			
Savings (TJ)	Currently per year 63	2020 (anticipated) -	
Implementation			
National/regional	Regional		
Budget and financial resources	-		
Responsible body	Federal state of Burgenland (BOEF – Burgenland Green Energy Fund)		
Overlaps, multipliers, synergies	The funding guidelines ensure that there can be no double funding of systems.		

Green electricity and photovoltaic subsidies in Vienna		
Description		
Category	Subsidies	
Duration	Start: 2004	Adjustments: ongoing
Target groups:	Households, services, industry and manufacturing	
Description	The aim of the green electricity subsidy is to promote advanced electricity generation technology. This includes renewable energy sources, in particular photovoltaics, increased energy efficiency and energy savings. Technologies that will only be profitable in the longer term will also be supported.	
Further information	www.wien.gv.at/stadtentwicklung/energieplanung/foerderungen/oekostromfoerderung.html	
Calculation method		
Calculation method	Values based on monitoring for the ESD.	
Final energy savings (TJ)		
Savings (TJ)	Currently per year Around 0.5	2020 (anticipated) -
Implementation		
National/regional	Regional	
Budget and financial resources	The subsidy budget is financed by resources from the Vienna Green Electricity Fund.	

Example – Energy subsidies in the federal state of Carinthia

Energy subsidies in the federal state of Carinthia include support for efficient wood-based heating systems, solar thermal systems and district heating connections in residential and public buildings . The total budget is € 7.5 million per year.

Example – Photovoltaic subsidy in Burgenland

The aim of the photovoltaic subsidy in Burgenland, which has been in place since 2008, is to promote advanced technology for electricity generation by photovoltaics. This subsidy currently achieves energy savings of around 1.8 TJ per year. The funds are provided from the Burgenland residential building subsidies and are managed by the Burgenland Green Energy Fund. The funding guidelines ensure that there can be no double funding of systems. www.eabgld.at

Example – Independent energy performance monitoring system in the federal state of Salzburg

An independent energy performance monitoring system has been introduced for owners or tenants of air-conditioned buildings. This involves checking energy performance certificates for the optimum use of energy by technical building systems, correct installation, appropriate dimensioning and compliance with cost-optimal insulation thicknesses (www.energieausweise.net). The annual final energy savings are estimated at 110 TJ.

3.2.3 Financing of energy efficiency measures in buildings

Information on the financing of building measures may be found in the descriptions of the measures in sections 3.1.1.2 and 3.2.2.

3.3 Energy efficiency measures in public bodies (Articles 5 and 6)

The Federal Property Contracting programme was described in section 3.1.6.1. In addition to this programme, federal buildings are renovated by the Bundesimmobiliengesellschaft (Federal Property Agency – BIG) to a state-of-the-art standard. Since 1980, the Special Federal Energy Commissioners have been responsible for optimising the use of energy in all federal departments.

3.3.1 Central government buildings (EED Article 5)

3.3.1.1 Calculating the population (area) for the 3 % renovation rate

The building stock owned by the Republic of Austria which is used by the central government (ministries and their departments) may be characterised as follows: Only those buildings that are owned directly by the Republic of Austria are taken into account. This ownership can be determined by a corresponding entry in the land register.

The following ministries are authorised to manage property for the Republic of Austria:

- Federal Ministry of Science, Research and Economy BMWFW (formerly the Federal Ministry of Economy, Family and Youth BMWFJ)
- Federal Ministry of Defence and Sport BMLVS
- Federal Ministry of Justice BMJ
- Federal Ministry of Agriculture, Forestry, Environment and Water Management BMLFUW
- Federal Ministry of Transport, Innovation and Technology BMVIT

Buildings which are owned by private sector companies and only used by the central government are not counted in the population; nor are buildings which are owned by the Republic of Austria but which are rented out to third parties.

Buildings which are used by a federal department, but for which another Federal Ministry appears as the representative of the Republic of Austria in the land register, are of course counted in the population.

Historic buildings, i.e. listed buildings owned by the Republic of Austria, are not subject to the renovation obligation and are not counted in the total floor area.
To simplify the calculation, all buildings with a useful floor area of more than 250 m^2 were taken into account.

The majority of the relevant buildings and floor areas (around 70 %) are managed by the BMLVS. These are 310 buildings (no listed buildings, > 250 m^2 useful floor area, owned by the Republic of Austria and used by the BMLVS) with the usage categories ‘Accommodation’ (residential) and ‘Office’ (official buildings). 24 of these buildings already meet the requirements of the Energy Performance of Buildings Directive.

The BMJ is in second place in terms of floor area owned and used by the central government, with 74 relevant buildings. These are primarily penal institutions (no listed buildings > 250 m^2 of useful floor area).

48 relevant buildings are managed by the BMLFUW (no listed buildings > 250 m^2 useful floor area).

Die The following table provides an overview of the relevant floor areas by ministry and usage category and shows 3 % of the total floor area in m^2.

Table 13: Total floor area for the 3 % renovation rate

Overview of total floor areas for the 3 % renovation rate					
Ministry	**Description**	Total GFA[24] m^2	Total NFA[25] m^2	Total useful floor area m^2	Conditioned GFA (energy reference area) m^2
BMLVS	Office and Accommodation	693 210	582 987	444 538	544 955
BMJ	Penal institutions	188 550	157 125	107 180	146 874
BMLFUW	Educational establishments, Other	110 426	93 284	71 454	87 198
BMVIT, BMWFW	Various	11 855	9 902	7 212	9 256
	Total	**1 004 041**	**843 298**	**630 384**	**788 283**
	3%	**30 121**	**25 299**	**18 911**	**23 648**

In accordance with Article 5(1) EED, 3 % of the total floor area must be renovated each year to meet the standard prescribed by the Energy Performance of Buildings Directive 2010/31/EU. The reference area is the conditioned gross floor area (GFA from the energy performance certificate), since this is the reference area for the specific energy coefficient.
Austria has opted for the alternative approach pursuant to Article 5(6).

3.3.1.2 Energy savings target by 2020

The relevant floor area for determining the savings is the 788 283 m^2 conditioned gross floor area (GFA from the energy performance certificate). 3 % will be renovated each year, i.e. 23 648 m^2 in the first year, which will then be subtracted from the total for the calculation of the 3 % of the floor area to be renovated in the subsequent year (and so on). The following table shows the calculation of the savings: The savings per m^2 increase as the requirements become more stringent and will generate a return on investment each year up to 2020. According to this calculation, savings of around 48 GWh will be achieved by 2020.

Table 14: Average savings through renovation of public buildings

Initial values, required values and average savings							
Year	2014	2015	2016	2017	2018	2019	2020
HD savings per m^2 cond. GFA [kWh/m^2a]	74	74	78	78	83	83	87
m^2 cond. GFA	788 283	764 635	741 696	719 445	697 861	676 926	656 618
3%	23 648	22 939	22 251	21 583	20 936	20 308	19 698
MWh/year	1 750	1 697	1 736	1 684	1 738	1 686	1 714
Number of years	7	6	5	4	3	2	1
Total MWh	**12 250**	**10 185**	**8 678**	**6 734**	**5 213**	**3 371**	**1 714**

3.3.1.3 Alternative approach in accordance with Article 5(6) EED

Austria intends to implement the following alternative measures to achieve an equivalent improvement in the energy efficiency of buildings owned by the central government:

[24] GFA Gross Floor Area

[25] NFA Net Floor Area

- Individual measures with regard to the building envelope and building services engineering
- Deep renovations
- Reduction in floor area (e.g. by sale of buildings).
- Energy performance contracting
- Energy management (including measures for behavioural change of occupants)

These measures should achieve energy savings equal to those which could have been achieved by a 3 % rate of renovation to the energy standard in accordance with the Energy Performance of Buildings Directive 2010/31/EU.

The sum of the annual savings required in the period 2014–2020 is to be demonstrated in 2020.

The savings of 48.145 GWh are divided as follows between the above measures:

- Renovation measures and reduction in floor area: 40 GWh
- Energy performance contracting: 8 GWh[26]
- Energy management: 0.5 GWh

The expected measures for 2014 are based on the building survey carried out in 2013. The outcome of the survey was a list of buildings for which energy efficiency improvement measures were identified. The savings resulting from the implementation of these measures will be documented in due course.

The following categories of measures have been identified:

- Energy performance contracting: savings contracting; a mixture of savings contracting and plant contracting is permissible, as long as there are demonstrable energy savings.
- Floor area efficiency: sale, demolition, discontinuation of operation (decommissioning), consolidation (less floor area required)
- Deep renovation: two options: building envelope and building services engineering; building envelope (total)
- Individual renovation measures:
  - Insulation of top floor ceiling
  - Energy-efficient windows
  - External wall insulation
  - Insulation of ground floor ceiling
  - Boiler replacement
  - District heating connection (biomass)
  - District heating connection (other)
  - Replacement of lighting
  - Replacement of air conditioning system
  - External shading
  - Internal shading
  - Building management system
- Energy management measures:[27]
  - Training for users
  - Optimisation of occupancy
  - Optimisation of usage
  - Reduction in room temperature at night
  - Installation of motion sensors for lighting
  - Installation of meters
  - Daylight-controlled lighting
  - Optimised operation of ventilation
  - Optimised operation of air conditioning
  - Optimisation of controls
  - Hydraulic balancing
  - Energy accounting

In addition, the energy indicators are recorded:

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[26] In comparison, 262 TJ of savings are reported in section 3.3.4 for the Federal Property Contracting programme. This corresponds to approximately 73 GWh. The difference from the figure quoted here of 8 GWh may be explained by the different floor area used in the calculation. The figures in this section do not include listed buildings or buildings that are not owned and occupied by the central government.

[27] The difference between ‘individual renovation measures’ and ‘energy management measures’ is as follows: ‘Individual renovation measures’ require a comparatively high investment volume while ‘energy management measures’ entail low investment costs.

- In residential buildings (BMLVS): HD and/or HED in kWh/a
- In non-residential buildings (all): HD* and/or HED* in kWh/a

Savings must be demonstrated as follows:

Energy performance certificate: For deep renovation measures, an energy performance certificate should be issued before and after renovation; the difference between the relevant energy indicators is then recorded.

With energy performance contracting, energy management and individual measures, it is possible that the energy performance certificates may not be updated after the measure, or the energy performance certificate may not provide evidence of savings. In this case, other ways of demonstrating savings are possible; these are described below.

Energy performance contracts: The guaranteed average savings per year are specified; the savings arising during the reporting period (2014–2020) will be counted. The savings do not need to be specified at building level; the relevant share of the pool of buildings may be indicated.
Calculations: For savings resulting from energy management or individual measures (e.g. replacement of an old oil-fired boiler by a district heating connection), the status before and after the measure is described and the savings are demonstrated by calculation.

Other: In the case of floor area efficiency measures, reference is made to the corresponding documents. On the sale of a building, an energy performance certificate is issued and made available for the determination of energy savings.

3.3.1.4 Overview of energy efficiency measures for 2014 in relation to floor area

BMLVS: According to the building programme, in 2014 renovation measures (energy efficiency measures, individual measures and partial renovations) will begin in 16 buildings. 4 of these buildings are office or official buildings, while the others are used for accommodation ('Residential' category). The planned measures cover a total NFA of 33 085 m^2 (equivalent to 32 485 m^2 conditioned GFA on the energy performance certificate) and the actual implementation will depend on the availability of budget funds. Insulation measures are planned in 11 buildings, and measures relating to heat supply (heating, hot water) in 5 buildings.

BMLFUW: No renovation measures are planned for 2014 in buildings used by Torrent and Avalanche Control. The sale has been initiated of one building used by Torrent and Avalanche Control with an NFA of 686 m^2. The majority of agricultural colleges and a part of the Klosterneuburg Research Centre for Viticulture and Pomology are covered by energy performance contracts: 56 082 m^2 NFA (energy performance contracting pool expires in 2014; will be continued with a pool for 2015–2024). One extra building with an NFA of 6 692 m^2 is being added to the energy performance contracting pool for 2015–2024. Renovation measures (individual measures) are planned for 15 390 m^2 NFA of the agricultural colleges (4 buildings), the Klosterneuburg Research Centre for Viticulture and Pomology (3 buildings) and the Federal Institute of Water Management (1 building), insofar as budget resources are available.

BMJ: The sale has been initiated of buildings with a total NFA of 13 769 m^2. An NFA of 126 760 m2 is covered by energy performance contracts; this represents almost all the relevant buildings. Energy performance contracts are being prepared for those buildings that are not yet covered. No partial renovations or individual measures are planned.

Each ministry must finance the planned measures from its allocated budget. It should be noted that the federal government has not yet passed a final budget for 2014.

Table 15 shows an overview of the planned energy efficiency measures for 2014 in relation to floor area.

Table 15: Planned measures for 2014

Overview of floor areas and planned measures for 2014					
Ministry	Description	Total GFA[28] m^2	Total NFA[29] m^2	Conditioned GFA (energy reference area) m^2	Planned measures for 2014
BMLVS	Office and Accommodation	693 210	582 987	544 955	33 085 m^2 NFA partial renovations and individual measures planned
BMJ	Penal institutions	188 550	157 125	146 874	126 760 m^2 NFA covered by energy performance contracts Sale initiated of 13 769 m^2 NFA No partial renovations or individual measures planned
BMLFUW	Educational establishments, Other	110 426	93 284	87 198	56 082 m2 NFA covered by expiring (2014) and commencing (2015) energy performance contracts Sale initiated of 686 m^2 NFA 15 390 m^2 NFA individual measures planned
BMVIT, BMWFW	Various	11 855	9 902	9 256	not recorded
	Total	**1 004 041**	**843 298**	**788 283**	
	3%	**30 121**	**25 299**	**23 648**	

[28] GFA Gross Floor Area

[29] NFA Net Floor Area

3.3.2 Buildings of other public bodies (Article 5)

The Federal Ministry of Science, Research and Economy sent a communication to the federal states encouraging them, within their scope of action, including at local level and in social housing bodies governed by public law, to

a. adopt an energy efficiency plan, freestanding or as part of a broader climate or environmental plan, containing specific energy saving and efficiency objectives and actions, with a view to following the exemplary role of buildings of public bodies;
b. put in place an energy management system, including energy audits, as part of the implementation of their plan;
c. use, where appropriate, energy service companies, and energy performance contracting to finance renovations and draw up plans to maintain or improve energy efficiency in the long term.

For the preparation of this NEEAP, the **federal state of Upper Austria** provided information on the renovation of public buildings. If in connection with the State Energy Efficiency Act, which is still at the discussion stage, binding targets are set for the deep energy renovation of public buildings in Upper Austria, the initial situation with regard to the federal state government of Upper Austria and Landes-Immobilien GmbH (the state property agency) will be as follows.

Table 16: Upper Austria: Determination of public buildings affected by renovation

Number of buildings meeting current OIB Guideline 6 (= EPBD requirements)	**Number of non-listed buildings > 250m^2 (conditioned) requiring renovation**	**Conditioned gross floor area (GFA) requiring renovation**
59	160	433 000 m^2

As Table 17 shows, the aggregated annual savings result in a total final energy saving of 1 486 MWh by 2020.

Table 17: Upper Austria: Initial values, requirements and average savings based on 160 public buildings

Year	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
HD* saving per cond. m^3 [kWh/m^3a]	6.56	6.56	6.56	6.56	6.56	6.56
HD* saving per cond. m^2 [kWh/m^2a]	20.56	20.56	20.56	20.56	20.56	20.56
m^3 cond. volume	1 356 346	1 315 656	1 276 186	1 237 900	1 200 763	1 164 740
m^2 cond. GFA	432 740	419 758	407 165	394 950	383 102	371 609
3 % of the above (m^2)	12 982	12 593	12 215	11 849	11 493	11 148
Final energy savings MWh/year	267	259	251	244	236	229

Example – Lower Austrian Climate and Energy Programme 2020

The Climate and Energy Programme adopted by the state government of Lower Austria in 2013 provides for the following measures and instruments for public buildings:

V1 Promoting thermal renovation and replacement of boilers in public buildings (federal state buildings, municipal buildings):

- Renovation drive by local authorities
- Replacing oil and gas-fired heating in municipal buildings
- Applying and developing energy efficiency specifications for federal state buildings
- Ensuring mandatory compliance with the energy efficiency specifications
- Expanding reporting requirements for federal state buildings
- Switching from fossil fuels to renewable energy sources in federal state buildings
- Appointing energy managers for energy-relevant federal state buildings

V2 Increasing energy efficiency in the public sector:

- Implementing a training programme for climate protection managers for federal state buildings
- Implementing a training programme for energy managers for local authorities
- Launching awareness-raising measures
- Advice on energy performance contracting

www.noel.gv.at/Umwelt/Klima/Klima-Energieprogramm/KlimaEnergieprogramm.html

Example – Building renovation strategy in the federal state of Tyrol

In the federal state of Tyrol, the building renovation strategy for properties owned by the federal state is based on:

- the energy performance certificates issued in 2009/2010 for all relevant federal state buildings,
- the thermal improvement measures derived from them, and
- the potential energy savings that can be achieved by the implementation of these measures.

All the data required for the implementation of thermal renovation measures in the field of building maintenance is therefore available for every building in the following categories:state parliament buildings, district commission buildings, other official buildings, state vocational colleges, state agricultural colleges, special schools and student accommodation. Specifically, the planned renovation packages include the following energy efficiency measures:

- Continuation of the thermal renovation of existing buildings which had already commenced before 2009 – with the exception of listed buildings or buildings in conservation areas – to reduce HD or HD* (exterior insulation and finishing system, internal insulation, insulation of top floor and ground floor ceilings, replacement or renovation of windows).
- Replacement of inefficient heating systems (in particular fuel oil, which is currently still being used as fuel for heat recovery in approximately 20 % of the total conditioned gross volume of all public buildings) with efficient or highly efficient heating systems or district heating connections.
- Installation of solar water heaters in public buildings with a corresponding requirement for hot water (preferably student accommodation, vocational colleges and agricultural colleges).
- Installation of photovoltaic systems.
- Gradual renewal of lighting systems and reduction of energy consumption by switching to LED technology.

Ongoing and future new construction and major renovation projects for public buildings of the federal state of Tyrol are excluded from the package of measures, since these are already being carried out in accordance with the applicable OIB guidelines or Tyrolean building regulations. Both these sets of rules already contain the corresponding requirements on HD or HD*, FED and the U-values to be achieved and, in the context of the implementation of the national plan pursuant to Article 9(3) of Directive 2010/31/EU, will by 2020 meet the minimum requirements on the nearly zero-energy building standard to be implemented.

The state government of Tyrol is working on drawing up a list of public buildings with the associated energy indicators.

Example – Implementation of Article 5 in Burgenland

In 2013, the 'Burgenland Energy Strategy 2020' was adopted by the state government of Burgenland. Chapter 6 of the catalogue of measures also provides for measures to increase the renovation rate of public buildings. It also provides for the introduction of an energy accounting system. Energy accounting systems are already being tested in pilot local authorities.

Information on the federal states' programmes and regulations for public buildings are available from:

www.bev.gv.at/portal/page? pageid=713,1806671& dad = portal& sche ma=PORTAL

www.wien.gv.at/stadtentwicklung/energieplanung/sparen/contracting/obj ekte.html

www.esv.or.at/unternehmen/contracting/

www.noel.gv.at/Umwelt/Energie/Landesgebaeude/pflichtenheft.html

www.noel.Qv.at/Umwelt/EnerQie/NOe-EnerQiebericht-Zahlen-Daten-und-

Wissenswertes/landesgebaude.html

www.vorarlberg.at/vorarlberg/bauen wohnen/bauen/hochbauundgebaeu dewirtsch/start.htm

www.vorarlberg.at/vorarlberg/wasser_ energie/energie/energie/weitereinformationen/kundmachungen/kundmachungen.htm

3.3.3 Purchasing by public bodies (Article 6)

The obligation contained in Article 6 EED requiring certain contracting authorities to purchase only products and services with a high energy-efficiency performance was transposed into Austrian law with the amendment to the Federal Procurement Act (BVergG), Federal Law Gazette I No 128/2013[30]. Pursuant to the new Article 80a of the Federal Procurement Act, the central contracting authorities referred to in Annex V of the Act must, when awarding supply or service contracts in the upper threshold region, ensure that the purchased goods or the goods used in the performance of the service comply with certain requirements on energy efficiency, insofar as this is consistent with the basic principles of the procurement procedure, in particular the principles of free and fair competition and cost-effectiveness. The requirements on energy efficiency contained in Annex III of the Directive were transposed into Austrian law in Annex XX of the Federal Procurement Act.

In the explanatory memorandum on the amendment, it is noted that contracting entities which are not central contracting authorities in accordance with Annex V of the Federal Procurement Act may, when awarding supply or service contracts, also take account of the requirements on energy efficiency specified in Annex XX to the Act (cf. explanatory remarks on government bill 2170 d.B. XXIV. GP).

Article 80a and Annex XX of the Federal Procurement Act both entered into force on 1 January 2014.

With regard to the further obligation contained in Article 6 EED to purchase only energy-efficient buildings, a corresponding provision was included in Article 14 of the bill submitted in 2013 for a Federal Energy Efficiency Act. This stipulated that the federal government, when purchasing or leasing immovable property, must pay increased attention to the impact on energy efficiency and include energy consumption values in the purchasing or leasing decision. Since it was not possible to consider this bill in parliament during the last legislative period, on account of new elections, a new bill is currently being drafted; this also contains a corresponding provision and will shortly be submitted for consideration.

[30] https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20004547

Example - Action plan for sustainable public procurement

Since autumn 2010, an action plan for sustainable public procurement (naBE action plan) has been in effect in Austria. It serves as guideline for the procurement of environmentally friendly products and services. This action plan is designed to ensure that the public sector leads by example and to encourage enterprises and consumers to make their purchasing decisions based on sustainability criteria. In the public sector, total procurement accounts for 17 % of GDP. The aim of the action plan is to raise the awareness of contracting authorities and to provide them with effective support in their role as agents of change towards sustainable development.

The first evaluation after the three-year implementation of the naBe action plan shows that across Austria public procurement procedures include environmental requirements 11.4 % more frequently than in the initial survey in 2008. As the procurement service provider for the federal government, the BBG (Federal Procurement Agency) implements the requirements of the naBe action plan as an integral component of its invitations to tender. The BBG offers a wide range of environmentally friendly naBe-compliant products and services (e.g. electricity with the Austrian eco-label). Energy and the careful use of resources are important aspects in the implementation of the naBe action plan. In the construction sector, a comprehensive catalogue is offered containing, among other things, energy efficiency measures and requirements on environmentally friendly insulation and building materials (with the Austrian eco-label).

www.nachhaltigebeschaffung.at

Some examples of procurement measures by public bodies at federal state level are described below.

Example – ÖkoKauf Wien

The City of Vienna buys goods and services according to ecological criteria – from washing powder to office supplies to construction services. Since 1998, the catalogues of environmental criteria drawn up by 'ÖkoKauf Wien' have been a central control instrument for this. They list the requirements that should be placed on products and services – in terms of environmental friendliness, usability, economy, energy efficiency, quality and workplace safety. These catalogues of criteria are mandatory for all the offices and departments of the City of Vienna.
www.wien.gv.at/umweltschutz/oekokauf/

Example – Buy Smart, energy-efficient procurement in Upper Austria

Since 2009, the 'Buy Smart' project has been supporting the energy-efficient procurement of various product groups (office and household appliances, lighting, green electricity, building modernisation, vehicles) by public bodies in the federal state of Upper Austria. Together with partners from other European countries and with support from the European Commission, the following activities are carried out:

- Providing support information in the form of guidelines and calculators
- Support through advice, training seminars and a helpdesk
- Database of examples of best practice
- Information on energy labels
- Exchange of knowledge and experience with regard to energy-efficient procurement

www.buy-smart.info

Example – Lower Austrian Climate and Energy Programme 2020 and Lower Austrian Energy Efficiency Act

The Lower Austrian Climate and Energy Programme 2020

(www.noel.gv.at/Umwelt/Klima/Klima-Energieprogramm/KlimaEnergieprogramm.html), which was adopted in 2013, contains the following measures and instruments relating to public procurement:

V3 Establishing instruments and priority programmes for sustainable procurement

- Creating a Lower Austrian strategy for sustainable procurement
- Introducing a 'Procurement' sustainability check
- Monitoring and raising awareness of sustainable procurement
- Developing and applying the 'Project planning' sustainability check
- Implementing priority programmes for sustainable procurement
- Creating guidelines for 'Sustainable large-scale catering'
- Establishing a priority programme 'Sustainable procurement from socially acceptable production'
- Strengthening of alternative forms of mobility

V4 Carrying out networking, service and awareness-raising activities for sustainable procurement and building use:

- Introducing a Lower Austrian Buyer Day as a networking platform
- Incorporating sustainable procurement in the further education offered by the federal state
- Initiating 'sustainable and fair procurement' training and process support for local authorities
- Supporting the 'Healthy Schools' initiative

Article 10 of the **Lower Austrian Energy Efficiency Act** (Energy efficiency in the public sector), which was adopted in 2012, lays down various requirements and guidelines for the inclusion of energy efficiency and energy savings in public procurement and contracting procedures.

www.noe.gv.at/Umwelt/Energie/Energie-Gemeinden/EEG.html

Example – Public procurement in the federal state of Styria

The federal state of Styria has been actively involved in the 'National Action Plan for Sustainable Public Procurement' right from the start. This plan serves as a guideline for the appropriate department.

In addition, an energy saving competition has been launched in Styria for the federal state's administrative departments. It is expected that final energy savings of 4.8 TJ will be achieved by 2020 thanks to this competition.
www.verwaltung.steiermark.at/cms/beitrag/11332727/8535/

3.3.4 Savings arising from measures in central government and other public bodies

The Federal Property Contracting programme is currently generating savings of 262 TJ in final energy. In addition, the Federal Property Agency, which manages a large proportion of the federal government's public buildings, implements energy efficiency measures which lead to final energy savings of 31 TJ per year.

3.3.5 Financing of energy efficiency measures in public bodies

Energy efficiency measures in public buildings are financed firstly by energy performance contracting models and secondly from the current budgets of the public bodies.

3.4 Energy efficiency measures in industry

3.4.1 Main policy measures addressing energy efficiency in industry

The measures available for increasing energy efficiency in industry range from advice to audits to the identification of potential energy efficiency improvements through to subsidies for the implementation of energy efficiency measures (see sections 3.1.1.2 and 3.1.2).

Further energy efficiency measures in industry are described in this section.

klimaaktiv energy-efficient enterprises		
Description		
Category	Information, advice, education	
Duration	Start: 2014	Adjustment: n.a.
Target groups:	Enterprises	
Description	The klima**aktiv** energy-efficient enterprises programme, one of the klima**aktiv** sub-programmes, aims to achieve a significant increase in energy efficiency in Austrian companies. The development of guidelines for technologies and industries and the dissemination of know-how throughout Austria in the form of standardised training for energy consultants make an important contribution to the implementation quality of efficiency measures and thus to the full exploitation of efficiency potential. Best practices are used to demonstrate how enterprises can also benefit economically from increased energy efficiency. Together with partners from the federal states and the consultancy sector, the programme acts as a catalyst and, by means of quality assurance, supplies an important contribution to increasing energy efficiency in Austrian companies.	
Further information	klima**aktiv** enterprises: http://www.klimaaktiv.at/unternehmen.html	
Implementation		
National/regional	National	
Responsible body	BMLFUW, Kommunalkredit Public Consulting	

Green Energy Cluster – Energy efficiency network for companies in Upper Austria		
Description		
Category	Information, advice, education	
Duration	Start: 2000	Adjustments: n.a.
Target groups:	Enterprises	
Description	The aim of the Green Energy Cluster is to increase the innovative capacity and competitiveness of companies in the energy efficiency and green energy sector, thus also contributing to positive market developments in sustainable energy production and consumption. Cluster partners are companies and institutions in Upper Austria who manufacture technologies for the exploitation of renewable energy and energy efficiency or who act as ancillary suppliers at the various levels of supply and service provision. The Green Energy Cluster is primarily active in the following fields: - Information and communication - Human Resource Development - Cooperation & technology priorities	
Further information	www.oec.at	
Implementation		
National/regional	Regional	
Responsible body	Federal state of Upper Austria (OÖ Energiesparverband – Upper Austrian Energy Agency)	

3.4.2 Savings arising from measures in industry

The savings arising from measures in industry are reported in the description of the operational domestic environmental support and regional programmes in section 3.1.1.2.

3.4.3 Financing of energy efficiency measures in industry

Please see the relevant descriptions of measures in sections 3.1.1.2 and 3.4.1.

3.5 Energy efficiency measures in the transport sector

3.5.1 Main policy measures addressing energy efficiency in transport

Overall transport plan for Austria		
Description		
Category	Framework plan	
Duration	Start: 2012	Adjustments: n.a.
Target groups:	Transport	
Description	The overall transport plan for Austria has defined the targets and guidelines for Austrian transport policy up to 2025. Specifically, the overall transport plan for Austria aims to create a more social, safer, more environmentally friendly and more efficient transport system, which will be achieved by the implementation of measures with regard to modern infrastructure, public transport, security, planning / systematisation / networking, technology & innovation, removing of barriers, environmental protection & resource efficiency and international measures. For the goal of a more environmentally friendly and more efficient transport system, by 2025 the overall transport plan for Austria wishes to achieve a 19 % reduction in CO2 emissions compared to 2010 and reduce energy consumption in the transport sector from the current level of 240 PJ to 210 PJ by 2025. Measures are therefore planned in the following areas: - electromobility - relocation of transport - true cost of transport - reduction of congestion - noise protection - spatial planning - motorised private transport	
Further information	Overall transport plan for Austria: http://www.bmvit.gv.at/verkehr/gesamtverkehr/gvp/index.html	
Implementation		
National/regional	National, regional, municipal	
Overlaps, multipliers, synergies	Using a holistic approach, the overall transport plan covers the entire transport sector.	

In addition, a variety of different measures have been adopted by the federal government, the federal states and local authorities in order to increase energy efficiency in the transport sector. These include:

- Expansion of public transport,
- Improvement of combined transport (e.g. Park&Ride, Bike&Ride)
- Improvement of intermodality in goods transport,
- Relocating goods transport to the railways,
- Cycling: expansion of cycling infrastructure, construction of bike parking facilities,
- Subsidies for vehicles with efficient propulsion systems (e.g. electric cars).

klimaaktiv mobile - Promotion of energy efficiency measures in the transport sector			
Description			
Category	Support, advice, awareness raising, training and certification, partnerships		
Duration	Start: 2. phase of klimaaktiv mobile launched in 2013	End: 2. phase of klimaaktiv mobile implemented by 2020	Adjustments: ongoing
Target groups:	Enterprises, local authorities, associations, tourism and leisure organisations etc.		
Description	The klima**aktiv** mobile programme is an important driver for efficient, environmentally friendly mobility and makes important contributions to the achievement of the EU-wide and Austrian energy and environmental targets. Based on its positive track record in the first phase of the programme (2004–2012), its range of target group-oriented services will be continued/expanded in the second phase of the programme (2013–2020). The klima**aktiv** mobile programme focuses on supporting efficient, environmentally friendly mobility through mobility management, the conversion of vehicle fleets to alternative propulsion systems, electromobility and encouraging cycling, innovative public transport services and a fuel-saving, energy-efficient driving style. The services range from advice, awareness raising, training and certification and partnerships through to financial support in the form of grants. The klima**aktiv** mobile subsidy programme is also supported by the Climate and Energy Fund.		
Further information	Advice, awareness raising, training and certification, partnerships: http://www.klimaaktivmobil.at/ Subsidies: http://umweltfoerderung.at/verkehr		
Implementation			
National/regional	National		
Budget and financial resources	Subsidies: approximately € 10 million per annum (including resources from the Climate and Energy Fund) Advice, awareness raising, training and certification, partnerships: approximately € 2 million per annum		
Responsible body	BMLFUW (strategic control), Austrian Energy Agency (overall management of klimaaktiv mobile advice, awareness raising, training and certification, partnerships), Kommunalkredit Public Consulting GmbH (payment agency for klimaaktiv mobile subsidies)		
Overlaps, multipliers, synergies	Advice and implementation services are offered and subsidised in this comprehensive programme.		

Lower Austrian Electromobility Strategy 2014–2020			
Description			
Category	Subsidies, information, standards, norms, metering, research and development, exemplary role of the public sector		
Duration	Start: 2014	End: 2020	Adjustments: when required
Target groups:	General public, enterprises, public sector		
Description	With the Lower Austrian Electromobility Strategy 2014–2020, the federal state of Lower Austria has set three specific targets for electromobility in Lower Austria and defined the measures required to achieve these targets. - Target 1: electric vehicles to constitute 5 % of the total fleet of passenger cars in Lower Austria. - Target 2: reduction of individual passenger car transport by 25 000 people thanks to electromobility. - Target 3: Nationwide above-average rates of growth in added value and employment in the electromobility sector The emissions from the transport sector represent a major challenge for Lower Austria. The framework conditions for reducing transport emissions are more difficult to achieve in Lower Austria than in other federal states, on account of its many rural areas. At the same time, however, Lower Austria possesses great potential in the field of renewable energy. The federal state's energy target of meeting 100 % of electricity needs from renewable energy sources by 2015, combined with the 'Lower Austrian electromobility strategy', offers the ideal conditions for becoming a showcase region for Europe in the area of electromobility. Furthermore, the promotion of electromobility as a future technology provides a significant stimulus to Lower Austria as a business location.		
Further information	http://www.noel.gv.at/Umwelt/Energie/Elektromobilitaet/E-mobil_Strategie.html		
Implementation			
National/regional	Regional		
Budget and financial resources	Ongoing budget funds		
Responsible body	Office of the state government of Lower Austria		

Subsidies for electromobility in Lower Austria		
Description		
Category	Subsidies	
Duration	Start: 2014	Adjustments: -
Target groups:	Private individuals, enterprises, local authorities, associations	
Description	Subsidies are provided for one and two-track vehicles powered solely by an electric power train and for two-track vehicles with an extended range (plug-in hybrid, range extender).	
Further information	www.noel.gv.at/Umwelt/Energie/Elektromobilitaet.html	
Final energy savings		
Calculation method	Estimated based on forecast subsidies	
Savings (TJ)	Currently per year 22	2020 (anticipated) 1 080
Implementation		
National/regional	Regional	
Budget and financial resources	Currently € 2.0 million per annum	
Responsible body	Federal state of Lower Austria	
Overlaps, multipliers, synergies	Comprehensive promotion of alternative mobility in conjunction with federal initiatives	

3.5.2 Savings arising from measures in the transport sector

The savings arising from measures in the transport sector are reported directly in the descriptions of measures in section 3.5.1. The final energy savings from energy taxes and the HGV toll are reported in section 3.1.1.2.

3.5.3 Financing of energy efficiency measures in the transport sector

Please see the relevant descriptions of measures in sections 3.1.1.2 and 3.5.1.

3.6 Promotion of efficient heating and cooling (Article 14)

3.6.1 Comprehensive assessment in accordance with Article 14(1)

The comprehensive assessment is being drawn up on the basis of a scientific study by the Vienna University of Technology, Institute of Energy Systems and Electrical Drives, which was commissioned by the BMWFW at the end of 2013. This study should be completed by mid-2015. At present (as of March 2014), data is being compiled and a detailed concept is being developed. All relevant stakeholders will also be involved in the development of the concept, to allow them to have intensive discussions not only on how to meet the requirements of the Directive, but also on the future direction of the supply of heating and cooling in Austria.

3.7 Energy transformation, transmission, distribution, and demand response (Article 15)

3.7.1 Energy efficiency criteria in network tariffs and regulation

The setting of network tariffs for electricity and gas is overseen by the regulatory authority (E-Control). The legal basis is formed by Articles 48 ff ElWOG (Federal Law Gazette I No 110/2010, as last amended by Federal Law Gazette I No 174/2013) and Articles 69 ff of the Natural Gas Act (Federal Law Gazette I No 107/2011, as last amended by Federal Law Gazette I No 174/2013).

The setting of tariffs is a highly complex procedure based on allowed costs. The establishment of the tariff structure must take into account the preconditions and requirements of the energy system in question. For example, in the electricity sector, tariffs are set for interruptible supplies which should, among other things, lead to improved utilisation of the grid and thus reduce grid losses.

There are no quantity discounts etc. in the tariff system, i.e. customers derive no 'benefit' from consuming more energy in order to receive 'cheaper' network tariffs (this is, of course, different for supplies in the market system).

As part of the adaptation of the electricity grid system to the future requirements for an increase in distributed generation by wind and PV, it will also be necessary to adapt, modify and modernise the grids' technical control systems (e.g. demand response options for interruptible supplies).

The potential for efficiency improvements in the electricity and gas transmission systems is currently being evaluated in a study conducted by the Austrian Energy Agency on behalf of the Federal Ministry of Science, Research and Economy. The initial results are expected in early 2015.

3.7.2 Facilitation and promotion of demand response

The possible measures in the electricity sector are very extensive and complex. In principle, all producers and consumers are entitled to participate in the market and thus to take advantage of all the supply-side and demand-side possibilities. This ranges from time-dependent tariffs for customers (who already have smart metering systems) to the ability of producers to participate in the energy balancing and regulation markets.

It should also be noted that by 2020 a substantial switchover to smart meters at customers' premises is anticipated (see section 3.1.3).

In the gas sector, the situation is similar but somewhat more restricted, on account of the differences from electricity. Large customers have many options for reaching contractual arrangements for supplies (e.g. reduction of amount purchased at different times); in theory, the same options are available to small customers, but in practice they are rather limited.

No decision has as yet been taken in Austria on the roll-out of smart meters in the gas sector, but there are regulations regarding the technical requirements on these devices.

3.7.3 Energy efficiency in network design and regulation

Please refer to the study commissioned from the Austrian Energy Agency, see section 3.7.1.

3.7.4 Savings arising from all energy supply measures

The results that will be achieved in 2020 with the existing and future measures is currently the subject of further evaluations and cannot reliably be estimated at this time.

3.7.5 Financing of energy supply measures

With regard to district heating, there are subsidies within the framework of the Extension of District Heating and Cooling Infrastructure Act, in accordance with which approximately € 90 million has been made available from federal government funds since 2009. Small projects are also funded by the Domestic Environmental Support scheme.

With regard to the gas and electricity networks, financing is available for PCIs under the TEN-E or the CEF. To date, only a small number of projects have been subsidised or co-financed under the TEN-E and their impact on energy efficiency has not been evaluated in detail.

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Annex A Annual Report pursuant to Article 24(1) of Directive 2012/27/EU

Annex B Building Renovation Strategy for Austria

Annex C Energy Status for Austria

Annex D Implementation of the Energy Efficiency Directive in Austria – Analysis of the energy services market for potential further development

Annex E Methods for evaluating the achievement of targets in accordance with the Energy Efficiency and Energy Services Directive 2006/32/EC

Annex F Proposed amendments to the bottom-up methods for monitoring energy efficiency in accordance with the EED (2012/27/EU)

Annex G Calculation method for estimating the final energy savings resulting from energy-related taxes and duties