



Federal Ministry of  
Science, Research and Economy

# NEEAP 2017

Second National Energy Efficiency Action Plan of the  
Republic of Austria 2017 in accordance with the Energy  
Efficiency Directive 2012/27/EU

[www.bmwf.gv.at](http://www.bmwf.gv.at)

**IMPRINT:**

Owner, editor and publisher:  
Federal Ministry of Science, Research and Economy  
Section III  
1010 Vienna, Stubenring 1

Created by: Austrian Energy Agency – AEA / Monitoring Body on behalf of the Federal Ministry of Science, Research and Economy  
Vienna, April 2017

## Contents

|   |           |
|---|-----------|
| <b>1 Introduction</b> .....   | <b>3</b>  |
| <b>2 Overview of national energy efficiency targets and savings made</b> .....                        | <b>5</b>  |
| <b>2.1 National energy efficiency targets</b> .....   | <b>5</b>  |
| 2.1.1 Energy consumption target 2020 (Article 3 EED).....   | 5         |
| 2.1.2 Energy saving targets for 2016 and 2020 (ESD and EED).....                                      | 5         |
| <b>2.2 Achievement of targets</b> .....   | <b>5</b>  |
| 2.2.1 Energy consumption target for 2020 (Article 3 EED).....   | 5         |
| 2.2.2 Final energy saving target for 2016 (Article 4 ESD) .....                                       | 6         |
| 2.2.3 Energy consumption target for 2020 (Article 7 EED).....   | 6         |
| <b>2.3 Primary energy savings pursuant to Art. 24(2)</b> .....  | <b>6</b>  |
| <b>3 Measures implementing the EED</b> .....  | <b>7</b>  |
| <b>3.1 Energy efficiency obligation schemes and alternative policy measures (Article 7)</b> .         | <b>9</b>  |
| 3.1.1 Required final energy savings in the obligation period 2014–2020.....                           | 9         |
| 3.1.2 Consideration of lifetime and methodology .....   | 10        |
| 3.1.3 Measures for achieving the savings target pursuant to Article 7 EED.....                        | 10        |
| <b>3.2 Energy audits and management systems (Article 8)</b> .....                                     | <b>21</b> |
| 3.2.1 Information on implementation of Article 8 EED .....  | 21        |
| <b>3.2.2 Results of the audit obligation pursuant to Article 8</b> .....                              | <b>21</b> |
| 3.2.3 Measures to promote energy audits.....  | 22        |
| <b>3.3 Availability of qualification, accreditation and certification schemes (Article 16)</b> .      | <b>26</b> |
| <b>3.4 Energy Services (Article 18)</b> .....   | <b>27</b> |
| 3.4.1 Measures to promote energy services .....   | 27        |
| 3.4.2 National market for energy services .....   | 28        |
| <b>3.5 Metering and billing (Articles 9 to 11)</b> .....  | <b>29</b> |
| 3.5.1 Legal framework .....   | 29        |
| 3.5.2 Progress in the use of smart meters .....   | 29        |
| 3.5.3 Billing of individual heating and cooling consumption.....                                      | 30        |
| 3.5.4 Frequency of billing with smart meters and conventional meters .....                            | 30        |
| 3.5.5 Additional information on actual consumption.....   | 31        |
| 3.5.6 Electronic billing or more frequent transmission of billing information .....                   | 32        |
| 3.5.7 Additional measures .....   | 32        |
| <b>3.6 Consumer information programmes and training (Articles 12 and 17)</b> .....                    | <b>33</b> |
| <b>3.7 Other energy efficiency measures of a horizontal nature (Articles 19 and 20)</b> .....         | <b>35</b> |
| <b>3.8 Energy efficiency measures in buildings</b> .....  | <b>35</b> |
| 3.8.1 Building renovation strategy (Article 4).....   | 36        |
| 3.8.2 Additional energy efficiency measures in buildings .....  | 36        |
| 3.8.3 Financing of energy efficiency measures in buildings .....                                      | 48        |
| <b>3.9 Energy efficiency measures in public bodies (Articles 5 and 6)</b> .....                       | <b>49</b> |
| 3.9.1 Central government buildings (EED, Article 5) .....   | 49        |
| 3.9.2 Buildings of other public bodies (Article 5).....   | 49        |
| 3.9.3 Purchasing by public bodies (Article 6).....  | 56        |
| 3.9.4 Savings arising from measures in central government and other public bodies.....                | 58        |
| 3.9.5 Financing of energy efficiency measures in public bodies.....                                   | 58        |
| <b>3.10 Energy efficiency measures in industry</b> .....  | <b>59</b> |
| 3.10.1 Measures relating to energy efficiency in industry.....  | 59        |
| 3.10.2 Savings arising from measures in industry.....   | 64        |
| 3.10.3 Financing of energy efficiency measures in industry.....                                       | 64        |
| <b>3.11 Energy efficiency measures in the transport sector</b> .....                                  | <b>65</b> |
| 3.11.1 Main policy measures addressing energy efficiency in transport.....                            | 65        |
| 3.11.2 Savings arising from measures in the transport sector .....                                    | 79        |
| 3.11.3 Financing of energy efficiency measures in the transport sector.....                           | 79        |
| <b>3.12 Promotion of efficient heating and cooling (Article 14)</b> .....                             | <b>80</b> |
| 3.12.1 Comprehensive assessment in accordance with Article 14(1) .....                                | 80        |
| 3.12.2 Individual plants: cost-benefit analyses and results .....                                     | 80        |
| 3.12.3 Individual plants: exemptions and decisions in this regard.....                                | 80        |
| <b>3.13 Energy transformation, transmission, distribution, and demand response (Article 15)</b> ..... | <b>81</b> |
| 3.13.1 Energy efficiency criteria in network tariffs and regulation .....                             | 81        |
| 3.13.2 Facilitation and promotion of demand response.....   | 81        |

3.13.3 Energy efficiency in network design and operation..... 81  
3.13.4 Savings arising from all energy supply measures..... 84  
3.13.5 Financing of energy supply measures..... 84  
**4 Bibliography..... 85**

**Annex A** Annual report pursuant to Art. 24(1) of Directive 2012/27/EU  
**Annex B** Building renovation strategy Austria  
**Annex C** Details of the final energy savings pursuant to Directive 2006/32/EC (ESD)

## 1 Introduction

The consistent increase in energy efficiency in all sectors is a key factor in the success of Austrian energy and climate policy because the cheapest, cleanest and safest energy is that which we do not consume in the first place. More efficient energy usage leads not only to costs savings for energy consumers, but also makes a contribution to reducing greenhouse gas emissions and to maintaining security of supply. A secure and cost-effective supply of energy improves the competitiveness of the Austrian economy and thus also the labour market situation. Thus, optimising the input/output ratio creates an extremely cost-effective means of supporting the economy and promoting growth, employment and investment.

For that reason, effective measures for promoting energy efficiency have already been introduced in Austria in the past. This has enabled energy efficiency to be significantly improved in recent years and has allowed the growth of energy consumption to be decoupled from economic growth. Over the long term, it can be seen that although Austria's actual gross domestic product increased by 140.9% between 1973 and 2015, gross domestic consumption for 2015 was a comparatively modest 53.4% above the 1973 level. Thus, the energy intensity or the relative energy consumption (i.e. the quantity of total energy needed for the creation of a unit of gross domestic product) decreased by 36.3% - i.e. by much more than a third.

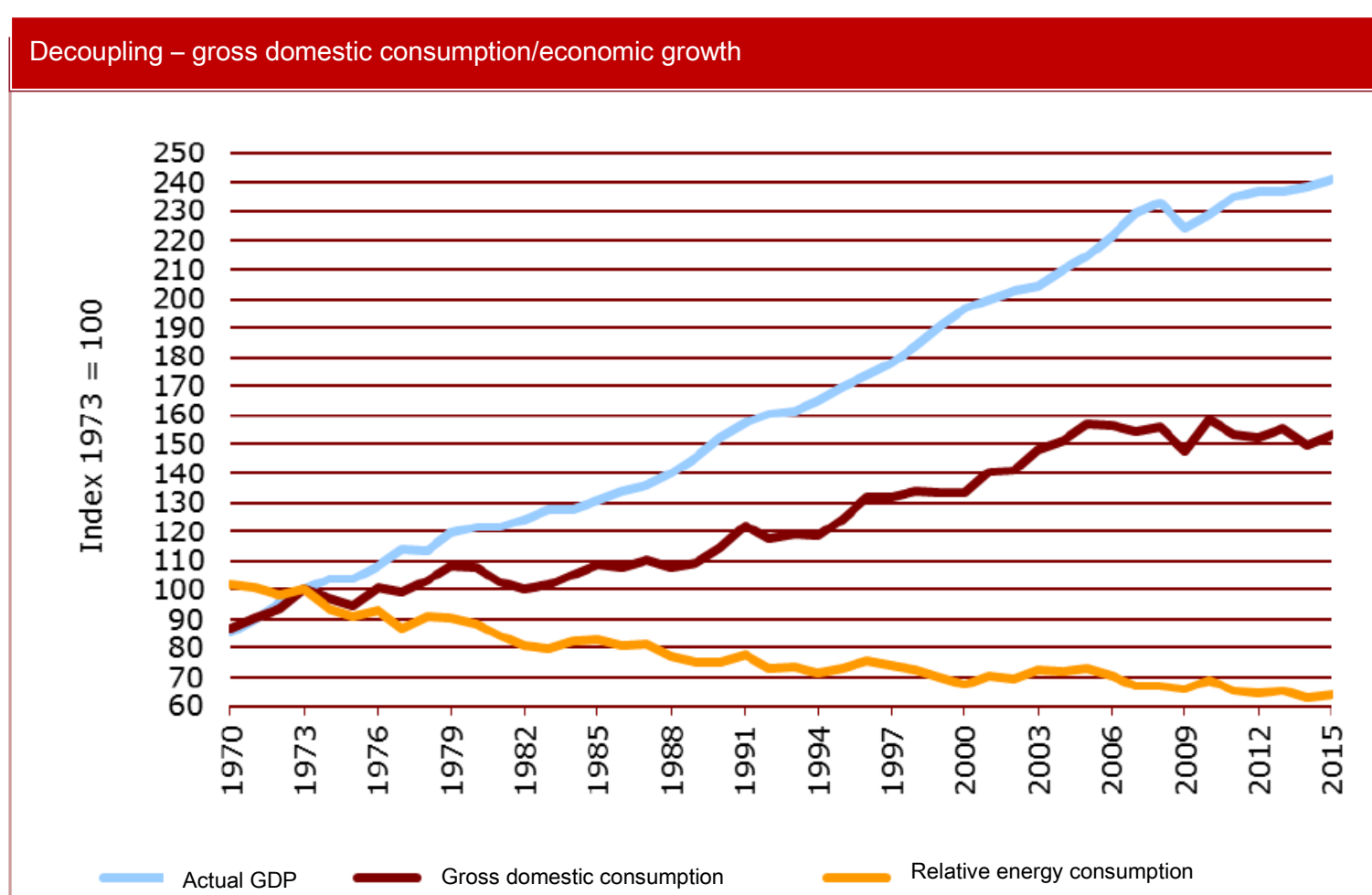


Figure 1: Development of energy intensity in Austria

The EU has also set itself the target of improving energy efficiency Europe-wide by 20% by 2020. Under the Energy Efficiency Directive (EED; 2012/27/EC), Member States had to set themselves a national target for 2020. By way of implementation of the EED, a corresponding Energy Efficiency Act (EEffG) entered into force in Austria in 2014. The target stated therein of reducing final energy consumption to 1050 PJ in 2020 by means of energy efficiency measures is highly ambitious in view of an expected increase in economic and population growth up to that date.

In addition to this target of reducing final energy consumption, the EEffG also defines energy saving targets. Overall, 310 PJ of final energy savings are intended to be achieved in the period from 2014 to 2020. 159 PJ of this are to be accounted for by the energy suppliers (= suppliers' obligation) and the remaining 151 PJ are to be brought about by public-sector measures, such as for example subsidies for energy efficiency measures.

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 provinces. The structure of the various sections is based largely on the

European Commission's guidelines for National Energy Efficiency Action Plans. Annex A to the NEEAP contains the annual report on the Energy Efficiency Directive pursuant to Article 24(1).

Section 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 section reports on the progress in achieving these targets.

Section 3 contains the descriptions of the measures implementing the EED.

## 2 Overview of national energy efficiency targets and savings made

### 2.1 National energy efficiency targets

On the basis of the provisions of Directive 2006/32/EC (ESD) and Directive 2012/27/EU (EED), Austria has set itself energy consumption targets and energy saving targets.

#### 2.1.1 Energy consumption target 2020 (Article 3 EED)

The target described and justified in Section 2.1 of the NEEAP 2014 in accordance with Article 3 EED of 1 100 PJ of **final energy consumption** in 2020 was reduced to **1 050 PJ** in the Federal Energy Efficiency Act and was notified to the European Commission as the new target. The target for primary energy consumption in 2020 (excluding non-energy use) that was notified to the European Commission is 1 320.

The indicative energy efficiency target for final energy consumption in 2020 and the target for primary energy consumption in 2020 that was notified to the European Commission are shown in the table below.

Table 1: Estimated key 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   | 1 050 |

It is intended that the common, integrated energy and climate strategy of the Federal Government will have been completed and will have been passed by the Austrian Council of Ministers by summer 2017. In this NEEAP, we have therefore made a conscious decision not to estimate the impact of the indicative national energy efficiency target (1 050 PJ in 2020) on other relevant indicators of national energy production and consumption, since the corresponding figures will only be agreed in the course of the year.

#### 2.1.2 Energy saving targets for 2016 and 2020 (ESD and EED)

The **final energy saving target** pursuant to Directive 2006/32/EC (ESD) Article 4 amounts to **80.4 PJ in the year 2016** and is described in Section 2.1 of the NEEAP 2014. Accordingly, it is intended that by 2016 at least 80.4 PJ of final energy will be saved as a consequence of energy efficiency measures (BMWA [Federal Ministry of Economics and Employment], 2007).

The **final energy saving target** pursuant to Directive 2012/27/EU (EED) Article 7 amounts cumulatively to 290 304 TJ and is described in Section 2.1 of the NEEAP 2014. After early actions have been taken into account, in implementation of Article 7 of the EED, evidence must therefore be provided of **cumulative savings of 217 728 TJ** in Austria from measures with effect from 1 January 2014.

### 2.2 Achievement of targets

This section summarises the extent of the achievement of the three targets described in Section 2.1. A detailed description of the extent of the achievement of the final energy saving target pursuant to Article 4 ESD is given in Annex C, and a more detailed description of the extent of the achievement of the final energy saving target pursuant to Article 7 ESD is given in Section 3.1.

#### 2.2.1 Energy consumption target for 2020 (Article 3 EED)

In 2015, final energy consumption in Austria was 1 087 PJ – above the target of 1 050 PJ for 2020.

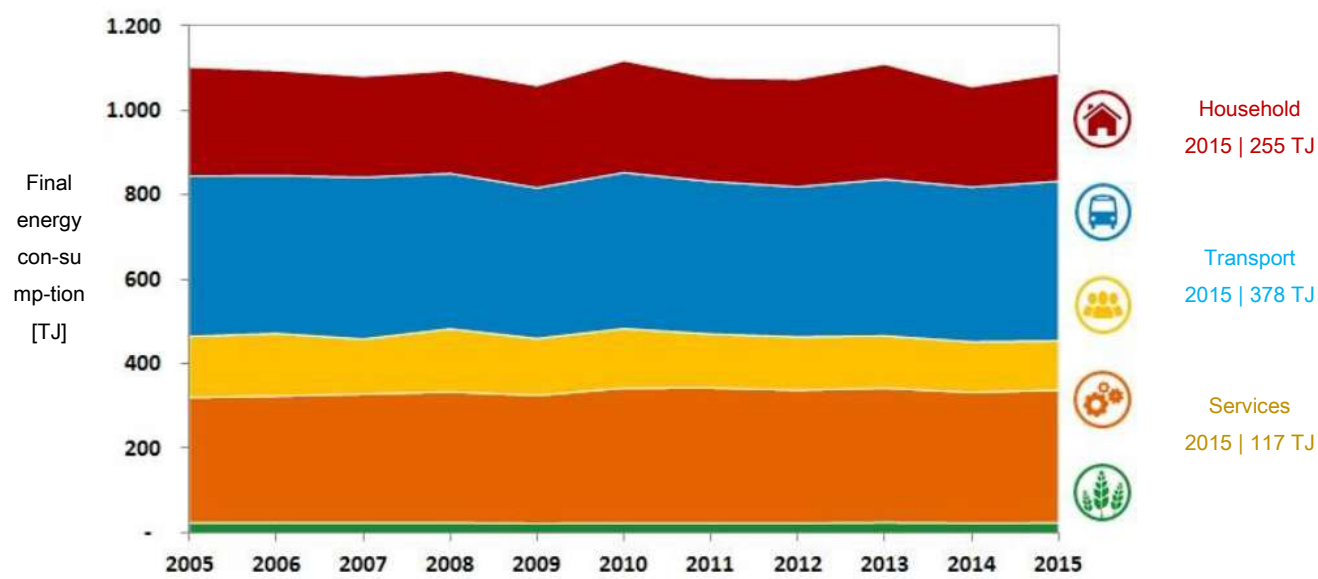


Figure 2: Final energy consumption in Austria by sector

Assuming a continuation of the trend of decoupling between economic growth and energy consumption that has been ongoing for many years (see Section 1, Figure 1), it is expected that the target of 1 050 PJ will be achieved in 2020.

### 2.2.2 Final energy saving target for 2016 (Article 4 ESD)

Overall, the final energy savings reported for the years 1991 to 2015 amount to **88 601 TJ**. Thus, the target of 80.4 PJ that was stipulated for 2016 was already able to be achieved in 2015.

A detailed description of the achievement of the final energy saving target pursuant to Article 4 ESD is given in Annex C.

### 2.2.3 Energy consumption target for 2020 (Article 7 EED)

The measures from the years 2014 and 2015 that have been reported to date in respect of Article 7 EED make a cumulative contribution of 167 PJ to the savings target of 218 PJ.

A detailed description of the achievement of the final energy savings target pursuant to Article 7 ESD is given in Section 3.1.

## 2.3 Primary energy savings pursuant to Art. 24(2)

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

Table 2: Overview of achieved and estimated primary energy savings for 2015, 2016 and 2020

|   | 2015     | 2016     | 2020     |
|---|----------|----------|----------|
| Primary energy consumption <sup>1</sup> | 1 329 PJ | 1 327 PJ | 1 320 PJ |
| Primary energy savings                  | 239 PJ   | 257 PJ   | 330 PJ   |

The primary energy savings value for 2015 results from the value of 1 568 PJ set out in the PRIMES scenario 2007 and the actual final energy consumption of 1 329 PJ. The values for 2016 are interpolated on the assumption of a linear reduction trajectory between 2015 and 2020.

The consumption target for 2020 for primary energy corresponds to the value notified to the European Commission by Austria pursuant to Article 3 EED in the amount of 1 320 PJ. The savings for 2020 are calculated on the basis of the value of 1 650 PJ stated in the PRIMES scenario 2007.

<sup>1</sup> Gross domestic consumption minus non-energy consumption



### **3 Measures implementing the EED**

Section 3 describes 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 EED.

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

- 3.1 Energy efficiency obligation schemes and alternative policy measures (Article 7)
- 3.2 Energy audits and energy management systems (Article 8)
- 3.3 Availability of qualification, accreditation and certification schemes (Article 16)
- 3.4 Energy services (Article 18)
- 3.5 Metering and billing (Articles 9 to 11)
- 3.6 Consumer information programmes and training (Articles 12 and 17)
- 3.7 Other horizontal measures to promote energy efficiency (Articles 19 and 20)
- 3.8 Energy efficiency measures in buildings (Article 4)
- 3.9 Energy efficiency measures in public bodies (Articles 5 and 6)
- 3.10 Energy efficiency measures in industry
- 3.11 Energy efficiency measures in the transport sector
- 3.12 Promotion of efficient heating and cooling (Article 14)
- 3.13 Energy transformation, transmission, distribution, and demand response (Article 15)

Information about energy savings and about the financing of horizontal measures is directly incorporated in the respective descriptions of the measures.

**Excursus: The Monitoring Body** – Independent control of the obligation scheme under Article 7 and the energy audit obligation under Article 8

The Federal Energy Efficiency Act, which entered into force in 2014, provides for the establishment of a National Energy Efficiency Monitoring Body (hereafter the Monitoring Body). The duties of the Monitoring Body comprise:

- Provision of information about the Energy Efficiency Act for obligated parties and parties concerned
- Identification of the obligated undertakings
- Development of methods for evaluating energy efficiency measures
- Controlling of undertakings' obligations
- Evaluation of the qualifications of energy service providers
- Observation of the energy services market
- Evaluations regarding the status of the meeting of national targets
- Production of energy efficiency action plans and reports

The Monitoring Body receives the measure reports in the context of the energy efficiency obligation scheme (see Section 3.1.3) and the reports in the context of the audit obligation for non-SMEs (see Section 3.2).

The data forwarded to the Monitoring Body is evaluated and assessed, and if there are deficiencies the undertakings are asked to make corrections. If it is suspected that undertakings have not complied with statutory requirements, the Monitoring Body must inform the competent authorities.

The Monitoring Body, which is independent of the obligated parties, was established within the Austrian Energy Agency (<https://www.monitoringstelle.at/>).

### 3.1 Energy efficiency obligation schemes and alternative policy measures (Article 7)

#### 3.1.1 Required final energy savings in the obligation period 2014–2020

As described in the NEEAP 2014, in implementation of Article 7 EED, evidence must therefore be provided of **cumulative savings of 217 728 TJ** in Austria from measures with effect from 1 January 2014. This means an **annual savings target, after early actions have been taken into account, of 7 776 TJ** for the years 2014 to 2020.

The cumulative overall target for Austria is 290 304 TJ.

Table 3: Calculation of the target for Austria

|  |                |           |
|--|----------------|-----------|
| Energy sales                             | 691 175        | TJ        |
| Annual savings target (1.5% p.a.)        | 10 368         | TJ/a      |
| Cumulative savings target 2014–2020      | 290 304        | TJ        |
| Max. amount (25%) early actions (EA)     | 72 576         | TJ        |
| Savings of EA 2014-2020, cumulative      | 149 735        | TJ        |
| Allowable contribution of EA, cumulative | 72 576         | TJ        |
| <b>Cumulative savings target</b>         | <b>217 728</b> | <b>TJ</b> |
| Annual savings target                    | 7 776          | TJ/a      |
| Savings target 2014                      | 3 888          | TJ/a      |
| Annual savings target 2015-2020          | 9 072          | TJ/a      |

The target achievement trajectory for the saving of 217 728 TJ is shown in Table 4. The annual savings in 2014 – 3 888 TJ – were reduced so as to be lower (50% of the annual savings target of 7 776 TJ) than in the subsequent years, since important decisions on the implementation of the EED in Austria were only taken during 2014. To ensure that the cumulative savings target of 217 728 TJ is nonetheless achieved in spite of the lower savings in 2014, the savings in the subsequent years were accordingly increased uniformly to **9 072 TJ**.

Table 4: Target achievement trajectory for Austria (TJ)

|  | 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 | <b>72 576</b>  |
|  | 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 policy measures 2014 to 2020   |        |                   | 9 072  | 9 072  | 9 072              | 9 072  | 9 072  | 45 360         |
|  |        |                   |        | 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             |        | 2014-2017: 69 984 |        |        | 2018-2020: 147 744 |        |        |                |
| Total savings for early actions and measures from 2014 | 14 256 | 23 328            | 32 400 | 41 472 | 50 544             | 59 616 | 68 688 | <b>290 304</b> |

A detailed description of the calculation of the savings target (data sources, early actions) pursuant to Article 7 EED can be found in the NEEAP 2014 in Section 3.1.1.1.

### 3.1.2 Consideration of lifetime and methodology

For the purposes of taking into account lifetimes, Austria has decided in favour of the 'straightforward' approach as per the European Commission's Guidance Note on Article 7 EED (European Commission, 2013).

On 1 January 2016, the Guidelines Ordinance for the work of the Energy Efficiency Monitoring Body pursuant to Section 27 of the Federal Energy Efficiency Act entered into force. In addition to details of the duties of the National Energy Efficiency Monitoring Body, the Ordinance also contains over 100 methods for evaluating energy efficiency measures. The Guidelines Ordinance specifies which requirements the National Energy Efficiency Monitoring Body, when executing the Federal Energy Efficiency Act (EEffG), has to comply with in relation to the documentation, reporting, evaluation and attribution of energy efficiency measures.

The requirements from the Guidelines Ordinance in relation to the evaluation of measures ensure conformity with the requirements of Article 7 of and Annex V to the EED (in particular additionality). Further information about the Guidelines Ordinance can be found on the website of the Monitoring Body: <https://www.monitoringstelle.at/index.php?id=589#c1347>

Annex 1 to the Guidelines Ordinance comprises the generalised evaluation methods that are currently available for the calculation of final energy savings pursuant to Article 7 EED: [https://www.ris.bka.gv.at/Dokumente/BgblAuth/BGBLA\\_2016\\_II\\_172/CO\\_O\\_2026\\_100\\_2\\_1241958.pdf](https://www.ris.bka.gv.at/Dokumente/BgblAuth/BGBLA_2016_II_172/CO_O_2026_100_2_1241958.pdf)

#### Prevention of double counting

The approach adopted for the calculation of the savings pursuant to Article 7 EED is analogous to that for the calculation of the savings pursuant to the ESD. In order to avoid double counting of measures by different introducers of measures (the Federal Government, the provinces, obligated energy suppliers), a restrictive approach is adopted. Within the registered bodies where there was a risk that measures would be reported in duplicate, a reconciliation was carried out and all potential instances of double counting were subtracted from the overall savings. Therefore, double counting is ruled out 100% in the reported savings amounts from energy efficiency measures.

### 3.1.3 Measures for achieving the savings target pursuant to Article 7 EED

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.

#### **New measure: Energy efficiency obligation scheme for energy suppliers**

The Federal Energy Efficiency Act, which entered into force in 2014, introduced an obligation scheme for energy suppliers that took effect from 1 January 2015.

Energy suppliers who supplied final energy consumers for payment in Austria in the previous year must, for the years 2015 to 2020, in each calendar year individually, provide evidence of the implementation of final energy efficiency measures concerning themselves, their own final customers or other final energy consumers amounting to 0.6% of their previous year's sales, and they must report this to the Monitoring Body.

An energy supplier is any natural or legal person or registered company which supplies energy to final consumers in Austria in return for payment, regardless of where it is domiciled. The obligation targets all emitted energy sources; the Austrian obligation scheme therefore covers all energy sources.

Each supplier must achieve 40% of annual savings in households; savings by measures in low-income households are weighted with a factor of 1.5, i.e. are given a higher value.

An online application has been programmed for the reporting of energy sales and of the measures conducted for the purposes of meeting the individual savings target. The entirety of the reporting

system relating to the Federal Energy Efficiency Act is managed by means of this online application.

The obligation scheme and those alternative policy measures which are used for the purposes of the implementation of Article 7 are described below. An overview of the measures can be found in Table 5. Potential double counting has already been taken into account in the reported savings. The savings shown in Table 5 are therefore be understood as being net savings.

Table 5: Overview of policy measures for Article 7

| Measures  | Target groups/sectors   | Annual savings achieved in TJ |               | Cumulative in TJ |
|---|---|-------------------------------|---------------|------------------|
|   |   | 2014                          | 2015          | 2014-2020        |
| Energy efficiency obligation scheme for energy suppliers                    | All sectors   | 2 487.0                       | 7 057.1       | 59 751.7         |
| Residential building, energy and environmental subsidies from the provinces | Residential buildings, private households                               | 1 906.4                       | 1 765.3       | 23 936.46        |
| Domestic environmental support (UFI)  | Industry and services, processes and non-residential buildings          | 1 431.1                       | 2 521.0       | 25 143.6         |
| Green electricity subsidies from the Federal Government                     | Distributed energy generation   | 31.7                          | 136.4         | 1 040.8          |
| Energy taxes  | All sectors<br>Total energy consumption                                 | 3 254.3                       | 3 796.7       | 45 560.0         |
| HGV toll  | Commercial transport  | 70.0                          | 81.7          | 980.0            |
| The Austrian Federal Government's Renovation Drive                          | Buildings   | 293.8                         | 319.2         | 3 972.2          |
| klimaaktiv mobile   | Transport   | 16.5                          | 8.1           | 164.3            |
| Climate and energy fund   | Services, industry, transport, Public bodies / municipalities / regions | 251.8                         | 730.5         | 6 145.8          |
| <b>Total</b>  |   | <b>9 743</b>                  | <b>16 416</b> | <b>166 695</b>   |

The measures previously reported for Article 7 EED make a cumulative contribution of 167 PJ to the savings target of 218 PJ.

Table 6: Overview of the achievement of targets for Article 7

| Measures | Annual energy savings effects [TJ/a] |        |        |        |        |        |        | Cumulative savings [TJ] |         |
|----------|--------------------------------------|--------|--------|--------|--------|--------|--------|-------------------------|---------|
|          | 2014                                 | 2015   | 2016   | 2017   | 2018   | 2019   | 2020   | Current                 | Target  |
| 2014     | 9.743                                | 9.743  | 9.743  | 9.743  | 9.743  | 9.743  | 9.743  | 68.198                  | 27.216  |
| 2015     |                                      | 16.416 | 16.416 | 16.416 | 16.416 | 16.416 | 16.416 | 98.497                  | 54.432  |
| 2016     |                                      |        | -      | -      | -      | -      | -      | -                       | 45.360  |
| 2017     |                                      |        |        | -      | -      | -      | -      | -                       | 36.288  |
| 2018     |                                      |        |        |        | -      | -      | -      | -                       | 27.216  |
| 2019     |                                      |        |        |        |        | -      | -      | -                       | 18.144  |
| 2020     |                                      |        |        |        |        |        | -      | -                       | 9.072   |
| Total    |                                      |        |        |        |        |        |        | 166.695                 | 217.728 |

*[full stops should be read as commas in this table]*

| <b>Energy efficiency obligation scheme for energy suppliers</b>  |   |                                     |        |
|--|---|-------------------------------------|--------|
| Category   | Obligation scheme   |                                     |        |
| Duration   | 2015-2020   | Adjustments: none currently planned |        |
| Target groups:   | All sectors   |                                     |        |
| <b>Description</b>   |   |                                     |        |
| <p>Energy suppliers who supplied final energy consumers for payment in Austria in the previous year must, for the years 2015 to 2020, in each calendar year individually, provide evidence of the implementation of final energy efficiency measures concerning themselves, their own final customers or other final energy consumers amounting to 0.6% of their previous year's sales.</p> <p>Each energy supplier must report the corresponding measures to the Monitoring Body via an online application by 14.2 of the following year. The Monitoring Body (1) carries out a plausibility check of all of the reports and (2) checks in detail a representative sample of the measures reported.</p> <p>Instead of reporting energy efficiency measures, an energy supplier may make a compensation payment to the extent of the missing final energy amounts. This compensation payment currently amounts to 20 cent/kWh.</p> |   |                                     |        |
| Further information  | Federal Energy Efficiency Act:<br><a href="https://www.monitoringstelle.at/fileadmin/i_m_at/pdf/Energieeffizienzpaket_des_Bundes.pdf">https://www.monitoringstelle.at/fileadmin/i_m_at/pdf/Energieeffizienzpaket_des_Bundes.pdf</a><br><br>Information on the energy efficiency obligation scheme:<br><a href="https://www.monitoringstelle.at/index.php?id=727">https://www.monitoringstelle.at/index.php?id=727</a> |                                     |        |
| <b>Calculation method</b>  |   |                                     |        |
| Method   | See Section 3.1.2   |                                     |        |
| Materiality  | With regard to the allowability of energy efficiency measures, the Federal Energy Efficiency Act refers to the provisions of the EED. Energy suppliers must state the incentive of the measure when reporting energy efficiency measures.   |                                     |        |
| Additionality  | The additionality is guaranteed by the provisions of the Guidelines Ordinance (Section 3.1.2). The default values of the generalised methods as per Annex 1 to the Guidelines Ordinance are continually updated in order to take account of changed market conditions.  |                                     |        |
| Double counting  | See Section 3.1.2   |                                     |        |
| <b>Final energy savings (TJ)</b>   |   |                                     |        |
| New per year   | 2014: 2 487<br>2015: 7 057  | 2020 cumulative                     | 59 752 |
| <b>Implementation</b>  |   |                                     |        |
| National/regional  | National.<br>The obligation applies to all energy suppliers which supply final customers in Austria and whose annual sales amount to more than 25 GWh.  |                                     |        |
| Budget and financial resources   | The financial resources are to be made available by the energy suppliers.   |                                     |        |

| <b>Residential building subsidies, energy subsidies and environmental subsidies from the provinces</b> |   |  |  |
|--|---|--|--|
| <b>Description</b>   |   |  |  |
| Category   | Subsidies   |  |  |
| Duration   | Start: 1982   | Adjustments: continuous adjustment of requirements |  |
| Target groups:   | Private households<br>Space heating and air conditioning  |  |  |
| Description  | <p>In the provinces, 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 thermal quality achieved or the efficiency of the heating system. In addition to requirements relating to usable energy and final energy, new construction subsidies are subject to increased requirements as regards primary energy demand and CO<sub>2</sub> emissions.</p> <p>The nature of the support differs from province to province and is provided in the form of loans, grants and/or subsidies.</p> |  |  |
| Further information  | <a href="https://www.help.gv.at/Portal.Node/hlpd/public/content/21/Seite.210301.html">https://www.help.gv.at/Portal.Node/hlpd/public/content/21/Seite.210301.html</a>   |  |  |
| <b>Calculation method</b>  |   |  |  |

|                                  |  |                 |        |
|----------------------------------|--|-----------------|--------|
| Method                           | Deemed savings (Annex V(1a))<br>The calculation is based on data in the annual reports by the provinces in the context of energy efficiency monitoring.  |                 |        |
| Materiality                      | The financial subsidies are considerable. See also the Budget below in this regard.  |                 |        |
| 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 province only provides subsidies for its own territory.                                      |                 |        |
| <b>Final energy savings (TJ)</b> |  |                 |        |
| New per year                     | 2014: 1 906<br>2015: 1 765   | 2020 cumulative | 23 396 |
| 2014–2020 (cumul.)               | 73 000   |                 |        |
| <b>Implementation</b>            |  |                 |        |
| National/regional                | Nationwide; implementation in the provinces  |                 |        |
| Budget and financial resources   | In 2015: €2 530 million, including around €710 million for renovation (IIBW, 2013).  |                 |        |

| <b>Domestic environmental support (UFI) and regional programmes</b> |  |                                    |        |
|---|--|------------------------------------|--------|
| <b>Description</b>  |  |                                    |        |
| Category  | Subsidies  |                                    |        |
| Duration  | 1986   | Adjustments: Last modified in 2009 |        |
| Target groups:  | Enterprises/industry   |                                    |        |
| Description   | <p>In addition to funding for initial consultations and implementation advice (see Section 3.2), companies can also apply via the operational Domestic Environmental Support Scheme for support with investments in energy efficiency measures. The subsidies consist 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.</p> <p>In addition to these national initiatives, all the provinces offer energy advice and support programmes for enterprises, in particular the regional programmes co-financed by the EU.</p> |                                    |        |
| Further information   | <p>Investment grants provided via the operational Domestic Environmental Support Scheme:</p> <p><a href="http://umweltfoerderung.at/betriebe.html">http://umweltfoerderung.at/betriebe.html</a></p> <p>Regional programmes of the provinces:</p> <p><a href="http://www.umweltfoerderung.at/regionalprogramme.html">http://www.umweltfoerderung.at/regionalprogramme.html</a></p> <p><a href="http://www.land-beroesterreich.gv.at/12846.htm">http://www.land-beroesterreich.gv.at/12846.htm</a></p>   |                                    |        |
| <b>Calculation method</b>   |  |                                    |        |
| Method  | <p>Scaled savings (Annex V(1)c)</p> <p>The calculation is based on data in the annual reports from KPC in the context of energy efficiency monitoring.</p>   |                                    |        |
| Materiality   | The financial subsidies represent up to 30% of the investment costs. See also the Budget item on the next page in this regard.   |                                    |        |
| 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.   |                                    |        |
| <b>Final energy savings (TJ)</b>                                    |  |                                    |        |
| New per year  | 2014: 1 431<br>2015: 2 521   | 2020 cumulative                    | 25 144 |
| <b>Implementation</b>   |  |                                    |        |
| National/regional   | National, regional   |                                    |        |
| Budget and financial resources                                      | €90 million/year (federal funds); provinces grant additional funds to varying degrees  |                                    |        |



| <b>Energy taxes</b>              |  |                      |        |
|----------------------------------|--|----------------------|--------|
| <b>Description</b>               |  |                      |        |
| Category                         | Taxes  |                      |        |
| Duration                         | Start: Mineral oil tax on fuels in the early 20 <sup>th</sup> 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                      | <p>The taxation of electricity, natural gas and various petroleum products is covered in Austria by the following three laws:</p> <ul style="list-style-type: none"> <li>- Electricity Taxation Act (Federal Law Gazette (BGBl.) No 201/1996)</li> <li>- Natural Gas Taxation Act (BGBl. No 201/1996)</li> <li>- Mineral Oil Taxation Act (BGBl. No 630/1994)</li> </ul> <p>All three laws provide for higher tax rates than the EU Energy Tax Directive (2003/96/EC).</p>   |                      |        |
| Further information              | <p>Electricity Taxation Act<br/> <a href="http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&amp;Gesetzesnummer=10005027">http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&amp;Gesetzesnummer=10005027</a></p> <p>Natural Gas Taxation Act<br/> <a href="http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&amp;Gesetzesnummer=10005028">http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&amp;Gesetzesnummer=10005028</a></p> <p>Mineral Oil Taxation Act<br/> <a href="http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&amp;Gesetzesnummer=10004908">http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&amp;Gesetzesnummer=10004908</a></p>                         |                      |        |
| <b>Calculation method</b>        |  |                      |        |
| Method                           | <p>Deemed savings (Annex V(1a))<br/> The estimated savings from energy taxes are calculated using energy price elasticities.<br/> The basis for the assessment of the savings from the energy taxes is a study by the Austrian Institute for Economic Research:</p> <p><a href="http://www.wifo.ac.at/jart/prj3/wifo/main.jart?rel=de&amp;content-id=1454619331110&amp;publikation_id=58593&amp;detail-view=yes&amp;sid=1">http://www.wifo.ac.at/jart/prj3/wifo/main.jart?rel=de&amp;content-id=1454619331110&amp;publikation_id=58593&amp;detail-view=yes&amp;sid=1</a>.</p> <p>The assessment of the savings is based exclusively on short-term elasticities, which primarily reflect consumers' short-term changes in behaviour in response to price changes.</p> |                      |        |
| Materiality                      | The materiality is guaranteed by the price elasticities.   |                      |        |
| Additionality                    | Only the difference between the national tax rate and the EU requirements is taken into account.   |                      |        |
| Double counting                  | 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.  |                      |        |
| <b>Final energy savings (TJ)</b> |  |                      |        |
| New per year                     | 2014: 3 254<br>2015: 3 797   | 2020 cumulatively    | 45 560 |
|                                  |  |                      |        |
| <b>Implementation</b>            |  |                      |        |
| National/regional                | National   |                      |        |
| Budget and financial resources   | In 2014, revenue from energy taxes was €4 985 million.   |                      |        |

| <b>HGV toll</b>                  |   |                      |     |
|----------------------------------|---|----------------------|-----|
| <b>Description</b>               |   |                      |     |
| Category                         | Taxes   |                      |     |
| Duration                         | Start: 2002   | Adjustments: ongoing |     |
| Target groups:                   | Transport   |                      |     |
| Description                      | The use of toll roads by multi-track motor vehicles whose maximum permissible total weight is 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 concerned 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:<br><a href="http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&amp;Gesetzesnummer=20002090">http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&amp;Gesetzesnummer=20002090</a>   |                      |     |
| <b>Calculation method</b>        |   |                      |     |
| Method                           | Deemed savings (Annex V(1a))<br>The estimated savings from the HGV toll are calculated using energy price elasticities. The basis for the assessment of the savings from the HGV toll is a study by the Austrian Institute for Economic Research:<br><br><a href="http://www.wifo.ac.at/jart/prj3/wifo/main.jart?rel=de&amp;content-id=1454619331110&amp;publikation_id=58593&amp;detail-view=yes&amp;sid=1">http://www.wifo.ac.at/jart/prj3/wifo/main.jart?rel=de&amp;content-id=1454619331110&amp;publikation_id=58593&amp;detail-view=yes&amp;sid=1</a> .<br><br>The assessment of the savings is based exclusively on short-term elasticities, which primarily reflect consumers' short-term changes in behaviour in response to price changes. |                      |     |
| Materiality                      | The materiality is guaranteed by the elasticities.  |                      |     |
| Additionality                    | Only the difference between national and 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.   |                      |     |
| <b>Final energy savings (TJ)</b> |   |                      |     |
| New per year                     | 2014: 70<br>2015: 82  | 2020 cumulative      | 980 |
| <b>Implementation</b>            |   |                      |     |
| National/regional                | National  |                      |     |
| Budget and financial resources   | In 2015, revenue from the HGV toll was €1 253 million.  |                      |     |

| <b>Green electricity subsidies from the Federal Government</b> |   |  |       |
|--|---|--|-------|
| <b>Description</b>   |   |  |       |
| Category   | Subsidies   |  |       |
| Duration   | Start: 2002   | Adjustments: continuously, most recently in 2012 |       |
| Target groups:   | Households, services, industry  |  |       |
| Description  | <p>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 8.24 cent/kWh is granted on application if the contract was signed by the end of 2016.</p> <p>Photovoltaic systems with an installed capacity of more than 200 kWp and systems installed in open spaces are not eligible for subsidies. For systems mounted on the side or on top of buildings, in addition to the feed-in tariff an investment costs subsidy of 40% of the investment costs is granted, up to a maximum of €375/kWp.</p> <p>Furthermore, subject to certain conditions, cogeneration plants are incentivised by means of investment costs subsidies pursuant to Section 25 of the Green Electricity Act.</p> |  |       |
| Further information  | Green Electricity Act:<br><a href="http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&amp;Gesetzesnummer=20007386">http://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&amp;Gesetzesnummer=20007386</a>   |  |       |
| <b>Calculation method</b>                                      |   |  |       |
| Method   | Deemed savings (Annex V(1a))<br><br>The current funding statistics constitute the data basis.   |  |       |
| 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  | <p>There are overlaps with the residential building subsidies from the provinces. For descriptions of subsidy schemes at province level, please see Section 3.2.2.</p> <p>There is no possibility of double counting, since only the green electricity subsidies from the Federal Government are used to implement Article 7.</p>   |  |       |
| <b>Final energy savings (TJ)</b>                               |   |  |       |
| New per year   | 2014: 32<br>2015: 36  | 2020 cumulative                                  | 1 041 |
| <b>Implementation</b>  |   |  |       |
| National/regional  | National  |  |       |
| Budget and financial resources                                 | 2016:<br>€122.9 million for photovoltaics,<br>€86.2 million for small hydropower  |  |       |

| <b>The Austrian Federal Government's Renovation Drive</b> |   |                        |       |
|---|---|------------------------|-------|
| <b>Description</b>  |   |                        |       |
| Category  | Subsidies   |                        |       |
| Duration  | Start: 2009   | Adjustments: continual |       |
| Target groups:  | Private households, enterprises   |                        |       |
| Description   | <p>The Austrian Federal Government's Renovation Drive has become established as an important and successful incentivising instrument for companies and private individuals for the purposes of reducing energy consumption. The subsidies are provided in the form of one-off, non-repayable grants.</p> <p>In 2016, around 10 400 renovation projects were supported, and sustainable investments of €370 million were thus initiated. Up to €8 000 was able to be claimed for the renovation of buildings and dwellings. The average subsidy amount per renovation project was €3 450.</p> <p><b>Thermal renovation, renovation cheque for private individuals 2016</b></p> <p>Subsidies are paid in respect of thermal renovations in private housing for buildings which are more than 20 years old (date of the building consent). The insulation of external walls and top-floor ceilings and the renewal of windows are eligible for subsidies. The renovation cheque 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 amounts to up to 30% of the costs eligible for subsidy, or at most €8 000 for the thermal renovation in the sphere of detached houses and up to €3 000 per apartment in multi-storey residential buildings. If insulation products made of renewable raw materials are used, a supplement of €1 000 can be claimed. One innovation in the 2016 renovation cheque in comparison with the federal support initiatives for thermal renovation over the last few years is that the model renovation in the sphere of detached houses has been added as a new type of renovation, i.e. more support is provided for renovation projects which are particularly ambitious from a thermal/energy perspective.</p> <p><b>Thermal building renovation for enterprises 2016</b></p> <p>Measures for improving the thermal protection of buildings used for business purposes which are more than 20 years old are supported. The level of the payments is based on the quality of the renovation and the decrease in heat energy demand and amounts to up to 30% of the costs eligible for subsidy. There is a supplement for the use of insulation products made of renewable raw materials and for EMAS-certified companies.</p> |                        |       |
| Further information                                       | <a href="http://www.sanierungsoffensive16.at">www.sanierungsoffensive16.at</a>  |                        |       |
| <b>Calculation method</b>                                 |   |                        |       |
| Method  | Deemed savings (Annex V(1a))<br>Estimates by Kommunalkredit Public Consulting based on the previous results of the incentives.  |                        |       |
| Materiality   | The financial incentives are considerable (see Budget).   |                        |       |
| 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   | There are overlaps with the residential building subsidies from the provinces. For the energy savings reported under Article 7 EED, double counting is 100% ruled out.  |                        |       |
| <b>Final energy savings (TJ)</b>                          |   |                        |       |
| New per year  | 2014: 294<br>2015: 319  | 2020 cumulative        | 3 972 |
| <b>Implementation</b>                                     |   |                        |       |
| National/regional   | National  |                        |       |
| Budget and financial resources                            | In 2016, funding of €43.5 million was earmarked for the Federal Government's Renovation Drive. €33.5 million of this is available for private dwellings and €10 million for enterprises.  |                        |       |

| <b>Klimaaktiv Energy Fund</b>    |   |                      |     |
|----------------------------------|---|----------------------|-----|
| <b>Description</b>               |   |                      |     |
| Category                         | Subsidies   |                      |     |
| Duration                         | Start: 2013   | Adjustments: ongoing |     |
| Target groups:                   | Enterprises, local authorities, associations, federations, tourism and leisure organisations etc.   |                      |     |
| Description                      | <p>The klimaaktiv 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 is being continued/expanded in the second phase of the programme (2013–2020). The klimaaktiv 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 klimaaktiv mobile subsidy programme is also supported by the Climate and Energy Fund.</p> |                      |     |
| Further information              | <p>Advice, awareness raising, training and certification, partnerships:<br/> <a href="http://www.klimaaktivmobil.at/">http://www.klimaaktivmobil.at/</a><br/>           Subsidies: <a href="http://umweltfoerderung.at/verkehr">http://umweltfoerderung.at/verkehr</a></p>  |                      |     |
| <b>Calculation method</b>        |   |                      |     |
| Method                           | Deemed savings (Annex V(1)a)<br>The current funding statistics constitute the data basis.   |                      |     |
| Materiality                      | Only measures which are implemented on the basis of financial subsidies are assessed.   |                      |     |
| Additionality                    | The only final energy amounts which are counted as savings are those which extend beyond national or EU regulations.  |                      |     |
| Double counting                  | There are potential overlaps with the energy efficiency obligation scheme for energy suppliers. For the energy savings reported under Article 7 EED, double counting is 100% ruled out.   |                      |     |
| <b>Final energy savings (TJ)</b> |   |                      |     |
| New per year                     | 2014: 17<br>2015: 8   | 2020 cumulative      | 164 |
| <b>Implementation</b>            |   |                      |     |
| National/regional                | National  |                      |     |
| Budget and financial resources   | <p>Subsidies: approximately €10 million per annum (including resources from the Climate and Energy Fund)</p> <p>Advice, awareness raising, training and certification, partnerships: approximately €2 million per annum</p>   |                      |     |

| <b>Description</b>               |   |                      |       |
|----------------------------------|---|----------------------|-------|
| Category                         | Subsidies   |                      |       |
| Duration                         | Start: 2007   | Adjustments: ongoing |       |
| Target groups:                   | Services, industry, transport, public bodies/municipalities/regions   |                      |       |
| Description                      | <p>The Climate and Energy Fund (KLI.EN), which was established by the Federal Government in 2007, supports the implementation of the targets of domestic climate policy with programmes supporting research, mobility, market penetration and awareness building. Support is given to concrete measures in seven areas: research and development, E-mobility, renewable energies, transport and mobility, energy efficiency, model regions, and building and renovation.</p> <p>The owner of the Climate and Energy Fund is the Republic of Austria, represented by the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) and the Federal Ministry of Transport, Innovation and Technology (bmvit). Since its establishment, the Fund has supported 89 600 projects in Austria. In the operational management of the granting of subsidies, the Fund is supported by Kommunalkredit Public Consulting GmbH, Österreichische Forschungsförderungsgesellschaft mbH, Schieneninfrastruktur Dienstleistungsgesellschaft mbH and Austria Wirtschaftsservice Gesellschaft mbH.</p> |                      |       |
| Further information              | <a href="https://www.klimafonds.gv.at/">https://www.klimafonds.gv.at/</a>   |                      |       |
| <b>Calculation method</b>        |   |                      |       |
| Method                           | Deemed savings (Annex V(1)a)<br>The current funding statistics constitute the data basis.   |                      |       |
| Materiality                      | Only measures which are implemented on the basis of financial subsidies are assessed.   |                      |       |
| Additionality                    | The only final energy amounts which are counted as savings are those which extend beyond national or EU regulations.  |                      |       |
| Double counting                  | There are potential overlaps with the energy efficiency obligation scheme for energy suppliers. For the energy savings reported under Article 7 EED, double counting is 100% ruled out.   |                      |       |
| <b>Final energy savings (TJ)</b> |   |                      |       |
| New per year                     | 2014: 252<br>2015: 731  | 2020 cumulative      | 6 146 |
| <b>Implementation</b>            |   |                      |       |
| National/regional                | National  |                      |       |
| Budget and financial resources   | In 2016, a budget of over €105 million was available for the purposes of supporting 23 programmes.  |                      |       |

## 3.2 Energy audits and management systems (Article 8)

### 3.2.1 Information on implementation of Article 8 EED

Article 8 EED has been implemented by the Federal Energy Efficiency Act which, entered into force in 2014. According to Section 9 of the Federal Energy Efficiency Act, for the years 2015-2020 large enterprises (non-CMEs) must either:

- implement a recognised management system which must also at the same time include an external or internal energy audit at least every four years, or
- have an external energy audit carried out every four years.

The first corresponding energy audit had to be carried out and reported to the Monitoring Body by 1.12.2015.

Annex III to the Federal Energy Efficiency Act lays down detailed minimum criteria for the performance of obligatory energy audits on the basis of Annex VI to the EED. Further information on the minimum criteria can be found on the Monitoring Body's website:

<https://www.monitoringstelle.at/index.php?id=701>

Small or medium-sized enterprises (SMEs) can, where possible, carry out an energy consultation and arrange for its content and the knowledge gained from it to be reported to the Monitoring Body.

The relevant figures for categorisation as a large enterprise (non-SME) are:

- number of employees
- turnover
- balance-sheet total.

Only the figures relating to those parts of an undertaking which are situated in Austria are taken into account. Undertakings which are over 50% owned by another undertaking are to be ascribed to the parent undertaking.

For the purposes of the group-wide aggregation, the parent undertaking must be taken as the starting point and all direct and indirect subsidiaries which have their registered office in Austria must be included for the purposes of the determination of the employees, turnover and balance-sheet figures. Excepted from this are parts of undertakings which are directly or indirectly owned by another undertaking only to the extent of 50% or less.

Foreign subsidiaries or a foreign parent company are not relevant for the purposes of ascertaining the number of employees or the balance-sheet or turnover total. However, if all of the parts of the group that are operating in Austria exceed the statutory thresholds (employees, turnover and balance-sheet total), then they are to be categorised as (one) large undertaking and fall under the obligation from Section 9 of the Federal Energy Efficiency Act.

The decision on whether an undertaking is deemed to be a large undertaking (non-SME) is taken in the following manner pursuant to Section 9 of the Federal Energy Efficiency Act:

If an undertaking or group has 250 (or more) employees, it is to be classified as a large undertaking in all cases. If the organisation has fewer than 250 employees, then it is to be classified as a large undertaking only if the other two threshold values (turnover and balance-sheet total) are exceeded.

Persons who perform mandatory external or internal energy audits must satisfy predetermined qualification standards and, in the case of external auditors, must also be listed in a public register. The public register is accessible via the following URL at the Monitoring Body:  
<https://www.monitoringstelle.at/index.php?id=708>.

Further information on the qualification standards for energy auditors can be found in Section 3.3.

### 3.2.2 Results of the audit obligation pursuant to Article 8

No figures are available with regard to the number of large undertakings in Austria.

In total, **1 276 energy audits** were reported to the Monitoring Body by large undertakings obliged to carry out energy audits. Of these, 59% were carried out by external energy auditors and 41% by internal energy auditors in the context of certified energy or environmental management

systems. It should be noted that this number also includes a substantial proportion of group-wide energy audits which cover more than one large undertaking.

Article 8(5) applies for all of these 1 276 audits, as the audits were carried out independently on the basis of minimum criteria (see Section 3.2.1) and the carrying out of the audits is subject to the control of the Monitoring Body.

| <b>Energy audits for households, municipalities and enterprises</b> |
|---|
| <b>Description</b>  |

### **3.2.3 Measures to promote energy audits**

There are programmes at both provincial and federal level to promote energy consultations and audits for households and enterprises.



|                                |   |                   |
|--------------------------------|---|-------------------|
| Category                       | Advice, subsidies   |                   |
| Duration                       | Start: regional differences, first initiatives in 1980, systematically and comprehensively since 1990   | Adjustments: n.a. |
| Target groups:                 | Private households, municipalities, enterprises   |                   |
| Description                    | <p>Energy consultations and audits are carried out in Austria by trained and independent auditors.</p> <p><u>Energy audits (energy consultations) for households:</u></p> <p>In Austria, the energy advice bodies of the provinces offer energy advice to households free of charge. 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).</p> <p><u>Energy audits (energy consultations) for municipalities:</u></p> <p>In Austria, various energy advice programmes are available to municipalities. The aim is to support municipalities at all stages, from the planning of measures through to their implementation. These include the e5 programme for energy-efficient municipalities, the energy saving municipalities programme, environmentally friendly municipalities, energy concepts for local authorities (EKKO), and energy and climate model regions.</p> <p><u>Energy audits for enterprises (SMEs):</u></p> <p>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 from the Ministry of Agriculture, Forestry, Environment and Water Management) in conjunction with the provinces. The province of Lower Austria provides additional support to enterprises and communities in relation to environmental and climate protection and energy efficiency via its Lower Austria eco-management (Ökömanagement NÖ) advice programme. The province of Carinthia supports the provision of advice to Carinthian enterprises and municipalities in relation to environmental and climate protection and energy efficiency via the eco-fit (Ököfit) programme.</p> |                   |
| Further information            | <p>Households:<br/> <a href="http://www.klimaaktiv.at/service/beratung.html">www.klimaaktiv.at/service/beratung.html</a><br/> <a href="http://www.energiesparverband.at/privathaushalte/energieberatung.html">www.energiesparverband.at/privathaushalte/energieberatung.html</a><br/> <a href="http://www.burgenland.at/wohnen-energie/energie/energie-beratung/allgemeines/">www.burgenland.at/wohnen-energie/energie/energie-beratung/allgemeines/</a></p> <p>Municipalities:<br/> <a href="http://www.klimaundenergiemodellregionen.at/">www.klimaundenergiemodellregionen.at/</a><br/> <a href="http://www.e5-gemeinden.at">www.e5-gemeinden.at</a><br/> <a href="http://www.umweltgemeinde.at">www.umweltgemeinde.at</a><br/> <a href="http://www.energiesparverband.at/gemeinden.html">www.energiesparverband.at/gemeinden.html</a><br/> <a href="http://www.oekomanagement.at">www.oekomanagement.at</a><br/> <a href="http://www.wien.gv.at/umweltschutz/oekobusiness/angebot.htm">www.wien.gv.at/umweltschutz/oekobusiness/angebot.htm</a><br/> <a href="http://www.eabgld.at">www.eabgld.at</a>; <a href="http://www.eubgld.at">http://www.eubgld.at</a><br/> <a href="http://www.energiesparverband.at/unternehmen/energieberatung.html">www.energiesparverband.at/unternehmen/energieberatung.html</a></p> <p>Enterprises:<br/> <a href="http://umweltfoerderung.at/kpc/de/home/umweltfoerderung/fr_betriebe/energiesparen/energieeffizienzcheck/">http://umweltfoerderung.at/kpc/de/home/umweltfoerderung/fr_betriebe/energiesparen/energieeffizienzcheck/</a></p>   |                   |
| <b>Implementation</b>          |   |                   |
| National/regional              | National and regional (audits for enterprises and municipalities),<br>Regional (advice for households, enterprises and municipalities)  |                   |
| Budget and financial resources | Total estimate for Austria €5 million to €10 million  |                   |

**Example – Energy advice in Burgenland**

The Residential Building Support scheme in Burgenland has set itself the goal of informing citizens about alternative energy systems in as unbureaucratic and targeted a manner as possible. For this, employees travel out to seven locations in Burgenland in order to provide, on the spot, brief energy consultations, information about subsidies for alternative energy systems, and technical advice.

Everyone who has taken the decision to build a house or to renovate an existing house should look into the energy-technology issues in advance because energy-related measures that have already been put in place can be corrected retrospectively only with great difficulty and at great expense. In this regard, the province of Burgenland offers assistance in the form of energy consultations, including ones on the spot. These energy consultations are carried out by Department 3 – Finances, main sub-department of residential building support. Energy consultancy is currently carried out free of charge.

**Example – Energy advice in the province of Salzburg**

The Salzburg Energy Advice (EBS) scheme was set up in 2004 as part of the province 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<sub>2</sub> emissions in the province of Salzburg. Based on the provincial 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<sub>2</sub> 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 province of Salzburg and the regional energy supplier, Salzburg AG. These two partners each provide 50% of the budget. In on-the-spot energy consultations (approx. 2 300 per year), the consultancy tool GEQ-EBS is used. This tool proposes cost-effective improvements and thus ensures a uniform standard of advice. The calculation method is compatible with that of the energy performance certificate, which means that a good forecast as to the ability of the measures proposed to be implemented under construction law and as to compliance with the subsidy guidelines can be given. As a consequence, the likelihood of the recommended measures being implemented is increased.

**Example – Energy advice in the province of Upper Austria for private households, municipalities and enterprises**

The increasing of energy efficiency and the dissemination of new energy technologies require assistance and advice in relation to many specific individual decisions. The Upper Austrian Energy Agency (OÖ Energiesparverband) provides product-independent advice on energy-related matters. The energy saving phonenumber (0800-205 206 at local call rates from all over Upper Austria), the homepage [www.energiesparverband.at](http://www.energiesparverband.at) and the email address ([office@esv.or.at](mailto:office@esv.or.at)) are initial contact points for the various target groups. Individual consultations are conducted by telephone, by email, at trade fairs, in advice centres or on the spot with advice clients. Particular emphasis was placed on the renovation of buildings, energy-saving construction methods, advice on heating systems and questions about the energy performance certificate, electrical appliances, green electricity technologies, saving electricity and renewable energy sources.

As energy costs increase, more and more companies of all sizes and from all sectors are becoming interested in how they can reduce this cost pressure and thus increase their competitiveness. The Upper Austrian Energy Agency offers product- and supplier-independent advice which is tailored to a company's individual needs.

The Upper Austrian Energy Agency also offers assistance to municipalities in relation to all matters concerning energy efficiency and renewable energy sources.

Overall, around 10 000 consultancy cases and energy reports are carried out each year. The Upper Austrian Energy Agency is thus one of the largest advisory bodies of this type in Europe.

### **Example – ÖKÖPROFIT (ECOPROFIT) Vorarlberg**

ÖKÖPROFIT (ECOPROFIT) Vorarlberg is a building block in the construction of a process-orientated environment management system. It offers individual advice to enterprises, working together in workshops and collaboration with political and administrative circles and public authorities. The fact that municipalities, enterprises and advisers work in partnership produces synergistic effects which provide benefits to the institutions involved with the programme. The main topics are waste, energy and material flows. ÖKÖPROFIT was introduced in Vorarlberg in 1996 and currently comprises 170 enterprises. It is a tool which illuminates all environment-related areas of an enterprise and in doing so reveals measures which offer the company ecological and economic benefits as well as optimisations of efficiency. Further information can be [accessed at http://oekoprofit-vorarlberg.at/](http://oekoprofit-vorarlberg.at/).

### **Example – ököfit Carinthia**

The ököfit Carinthia regional programme provides support for consultations on the subject of environmental and climate protection and of energy efficiency for Carinthian enterprises and municipalities. These consultations can help to optimise processes and reduce costs by means of analyses by specialists from the network of advisers. The period of advice supported varies depending on the advice module selected between at most one day and 20 days, with around 69% of the eligible consultancy costs (max. €650/day) being provided by way of subsidy. The consultancy modules go from simple energy checks via renovation consultations to consultations on various eco-labelling certifications or EMAS certifications.

### **Example – Energy advice for low-income households in the context of the Vienna energy support system**

In 2013, the city of Vienna resolved to offer an energy support system in order to respond in a sustainable and accurate way to the threat of energy poverty. Those drawing the minimum benefit income and pensioners on the minimum pension with a mobile pass can obtain financial assistance with arrears on energy costs and can take advantage of on-the-spot energy consultations combined with the carrying out and financing of tailored energy saving measures through the Vienna energy support system. In the course of on-the-spot energy consultations, concrete energy-saving measures which permanently decrease energy consumption are suggested. The city of Vienna then helps further down the line with the quick implementation and financing of these measures. This combined approach means that many questions relating to energy can be cleared up on site and the lives of those affected are improved in a concrete way. The “Vienna energy support” team in municipal department 40 is the coordination hub and is responsible for processing all requests, assists clients with implementing the recommended measures and takes care of follow-up support. The on-the-spot energy consultations are financed by municipality department 20 and are carried out by the Vienna “environmental consultancy service” (“die umweltberatung”).

[www.wien.gv.at/gesundheit/sozialabteilung/energieunterstuetzung.html](http://www.wien.gv.at/gesundheit/sozialabteilung/energieunterstuetzung.html)

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

Section 17 of the Federal Energy Efficiency Act stipulates that persons who provide energy services and energy advice for undertakings must be entered in a register and must satisfy certain minimum requirements.

A combination of authorisation, training and professional experience is required, depending on the nature and level of requirements of the energy service. Persons who are technically competent are listed in a publicly accessible register. This register is to contain, upon request, the name and contact details of the energy suppliers and of their employees who have the technical competence and authorisation. Documentation relating to one's technical competence as well as the personal details must be submitted with the application for registration.

The public register is accessible via the following URL at the Monitoring Body:  
<https://www.monitoringstelle.at/index.php?id=708>.

The register is based on the applications received from energy service providers - the content of which has to date been examined in its entirety - for registration pursuant to Section 17 of the Federal Energy Efficiency Act, for the purpose of carrying out mandatory energy audits at large enterprises. Registration for other energy service providers (e.g. energy advisers for SMEs) will be made possible in the coming years.

#### **ARGE-EBA**

The ARGE-EBA is an organisation of the Austrian provinces and their energy agencies. Of the 9 provinces, some are members themselves and the others are represented by the provincial energy agencies.

The ARGE-EBA considers its purpose to be to guarantee the quality and further development of Austria-wide, high-quality training for energy advisers. By virtue of the training examination carried out by the ARGE-EBA, Advisers have shown that they stand out from others on the market as a consequence of their particular knowledge and their particular advisory skills.

<http://www.arge-eba.or.at/>

#### **Example – Lower Austria**

The province of Lower Austria offers financial support for subject-specific training programmes in the sphere of energy efficiency and renewable energy sources. The following qualification systems are offered:

- Energy managers for municipalities
- Environmental managers for municipalities
- Training to become an energy manager
- Climate managers for Lower Austrian provincial buildings
- Process facilitator for sustainable procurement in the public sector

In addition, various cooperation initiatives exist with Lower Austrian universities of applied sciences for mostly postgraduate training courses in the sphere of energy efficiency and renewable energies.

#### **Example – Tyrol Energy Academy of Energie Tirol**

The Energy Academy provides a comprehensive offering of information and training for the various target groups. The offering of courses extends from professional further training such as, for example, training to become an energy adviser, via special training courses for municipalities and enterprises, through to owner-builders' evenings for members of the public.

The Energy Academy is an initiative by Energie Tirol and the province of Tyrol in collaboration with various partner organisations.

<http://www.energie-tirol.at/energie-akademie/>

### 3.4 Energy Services (Article 18)

#### 3.4.1. 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 the instrument of energy performance contracting better known in Austria, promoting quality assurance and contributing to market transparency. In 2013, building on this umbrella organisation, the association of '**Austrian Energy Efficiency and Performance Contractors – DECA**'<sup>2</sup> 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**<sup>3</sup> 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 the instrument of 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 providers of energy performance contracting services;
- Further information on the subject (links, studies, articles etc.).

**Model energy performance contracting agreements** are available on the website of the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMWFV).

Model agreement for plant contracting:

[https://www.bmwfv.gv.at/EnergieUndBergbau/Energieeffizienz/Documents/Anlagen-Contracting\\_Mustervertrag%20kommentiert\\_Ausdruck.pdf](https://www.bmwfv.gv.at/EnergieUndBergbau/Energieeffizienz/Documents/Anlagen-Contracting_Mustervertrag%20kommentiert_Ausdruck.pdf)

Model agreement for energy savings contracting:

[https://www.bmwfv.gv.at/EnergieUndBergbau/Energieeffizienz/Documents/Einsparcontracting\\_Mustervertrag-mit%20Kommentaren\\_final\\_Ausdruck.pdf](https://www.bmwfv.gv.at/EnergieUndBergbau/Energieeffizienz/Documents/Einsparcontracting_Mustervertrag-mit%20Kommentaren_final_Ausdruck.pdf)

For the quality assurance of contracting projects, the Ministry of Agriculture, Forestry, Environment and Water Management offers the **Energy Performance Contracting Eco-label** (Guideline UZ 50)<sup>4</sup> in Austria. This certificate formulates the requirements imposed on the contractor, the course of the project and the energy performance contract that are necessary for awarding of the 'Energy Performance Contracting' eco-label.

In the public sector, the market for energy services has since 2001 been supported by the comprehensive **Federal Property Contracting** programme for the renovation of more than 200 federal buildings<sup>5</sup>. 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 are saved. 40 000 tons of CO<sub>2</sub> are saved each year thanks to the programme.

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 introduction of the obligation scheme for energy suppliers (see Section 3.1)

#### Example – Energy performance contracting programme of the province of Upper

<sup>2</sup> [www.deca.at](http://www.deca.at)

<sup>3</sup> [www.contracting-portal.at](http://www.contracting-portal.at)

<sup>4</sup> <http://www.umweltzeichen.at/cms/home/produkte/gruene-energie/content.html?rl=33>

<sup>5</sup> <http://www.bmwfv.gv.at/Tourismus/energieeinsparungen/Seiten/Bundescontracting.aspx>

**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 refinanced 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 over €45 million.

[www.esv.or.at/foerderungen/unternehmen/contracting/](http://www.esv.or.at/foerderungen/unternehmen/contracting/)

In order to share with other European regions Upper Austria's experience in promoting energy services, the project Streetlight EPC was carried out with the support of the European Commission. In 9 regions, over 36 streetlighting projects financed by energy saving contracting were initiated and supported.

**3.4.2 National market for energy services**

By way of supplementation to the description of the energy services market in the NEEAP 2014, in 2016 the Monitoring Body carried out a detailed analysis focussing on experiences with the energy efficiency obligation scheme (see Section 3.1.3) and the audit obligation for non-SMEs (see Section 3.2.1). The most important results of this analysis are:

- Companies which have installed a recognised management system consider the internal audit to be more advantageous than the external audit.
- 76% of large companies state that they have implemented the recommended efficiency measures.
- The work of external auditors is for the most part evaluated as "very good" and "good" for the companies audited.
- The analysis suggests that low hanging fruits still exist with regard to energy efficiency measures.

The full report is available on the Monitoring Body's website:

[https://www.monitoringstelle.at/fileadmin/i\\_m\\_at/pdf/Markbeobachtung\\_Report\\_FINAL\\_20161013.pdf](https://www.monitoringstelle.at/fileadmin/i_m_at/pdf/Markbeobachtung_Report_FINAL_20161013.pdf)



### 3.5 Metering and billing (Articles 9 to 11)

#### 3.5.1 Legal framework

In principle, all information, promotional material and bills from energy suppliers must be transparent and customer-friendly (cf. Section 81(1) of the Electricity Act 2010 (EIWOG 2010), Federal Law Gazette I No 110/2010 in the version of Federal Law Gazette I No 174/2013, and Section 126(1) of the Natural Gas Act 2011 (GWG 2011, Federal Law Gazette I No 107/2011 in the version of Federal Law Gazette I No 174/2013). Pursuant to Subsection 3 of the respective aforesaid provisions, bills must also show the meter readings used for the bill, as well as information on how the meter was read. It should also 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 Section 83(1) EIWOG 2010 or Section 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. This information provided to the final consumers 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 Section 84(3) EIWOG 2010 or Section 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 Section 84(6) EIWOG 2010 or Section 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 Section 84(7) EIWOG 2010 or Section 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)

#### 3.5.2 Progress in the use of smart meters

In 2012, the starting signal was given for the introduction of smart meters in Austria with the 'Ordinance 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: it should cover 70% of all customers 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 December 2015, approximately 456 000 metering points were equipped with a smart meter (there are approximately 6 million metering points in total). This corresponds to a degree of coverage of approximately 7.4% (in 2014 it was 4.9%). The major roll-out projects tend to be 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.

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 2015 (as of December 2015) the majority of system operators concerned did commence activities by way of preparations for calls for tender, but these are only in their initial stages. The regulatory authority, E-Control Austria, is assuming that the projects – especially in the case of large companies – will be put out to tender in 2016 at the latest and should then be commenced soon afterwards (see monitoring report of E-Control: <https://www.e-control.at/marktteilnehmer/strom/smart-metering/monitoring>).

### 3.5.3 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 in the version of 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 Section 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 the 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 (Sections 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 or similar).

### 3.5.4 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 Section 83(2) ElWOG 2010 or Section 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 Section 84(1) ElWOG 2010, system operators must, no later than six months following the installation of a smart meter at the respective 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 (Section 81a), energy efficiency, energy statistics, and maintaining secure and efficient system operation.

Pursuant to Section 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 the respective final consumer's premises. If this 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 (Section 126a), energy efficiency, energy statistics, and maintaining secure and efficient system operation.

Pursuant to Section 81a(1) ElWOG 2010 and Section 126a(1) GWG 2011, final consumers whose consumption is measured via a smart meter must receive detailed, clear and understandable information about their total consumption and 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 measured 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 is not to be transmitted. Final consumers must have the option of also receiving this information in paper format, free of charge, upon request.

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

Pursuant to Section 84(2) ElWOG 2010 or Section 129(2) GWG 2011, system operators must make available to final consumers whose consumption is measured via a smart meter, 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 or consent, also quarter-hourly values, no later than twelve hours after they have been retrieved from the smart meter. As far as possible, final consumers with no access to the Internet, or who have access to the Internet only in such a way that it is unreasonable to expect them to do so, should be provided with a comparable level of information (see Point 7, Ordinance on the Data Format and Representation of Consumption Information (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 Section 57(4) EIWOG 2010 or Section 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 Section 81b EIWOG 2010 or Section 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, upon request. At the express request of the final consumer, this consumption and electricity cost information is not to be transmitted.

A bill must be issued at least once a year. Pursuant to Section 81(2) EIWOG or Section 126(2) GWG 2011, final consumers should, on request, also be billed during the year.

The requirements in relation to billing and billing information based on actual consumption are set out below.

Table 7: Minimum requirements in relation to billing and billing information based on actual consumption

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

### 3.5.5 Additional information on actual consumption

Pursuant to Section 82(7) EIWOG 2010 or Section 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 Section 83(2) ElWOG 2010 or Section 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 Section 84(2) ElWOG 2010 or Section 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 or consent, also quarter-hourly values, no later than twelve hours after they have been retrieved from the smart meter. As far as possible, final consumers with no access to the Internet, or who have access to the Internet only in such a way that it is unreasonable to expect them to do so, 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, and that the final consumer should be sent monthly consumption and electricity cost information free of charge, and what the content of this information should be.

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 if they have any questions about their electricity consumption or about 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.

### **3.5.6 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.

### **3.5.7 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)(1.1.), 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 Section 81a(1) ElWOG 2010 and Section 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 recorded 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 Section 81(6) ElWOG 2010 or Section 126(7) GWG, opt to receive either monthly or annual bills.

Moreover, pursuant to Section 81(2) ElWOG or Section 126(2) GWG 2011, final consumers may also request to be billed during the year.

#### **Example – Lower Austrian Energy Efficiency Act**

In 2012, the province 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 Section 16 (Providing information to final consumers) and Section 17 (Recording of energy consumption). The Act is available at [www.noe.gv.at/Umwelt/Energie/Energie-Gemeinden/EEG.html](http://www.noe.gv.at/Umwelt/Energie/Energie-Gemeinden/EEG.html).

In the municipalities of Lower Austria, a comprehensive system of energy accounting with specially trained energy managers was introduced, and the associated data was collected from all Lower Austrian municipalities. This data is regularly evaluated, monitored and used as a basis for recommendations for action.

### **3.6 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 generally offered by the Federal Government and the provinces.

At federal level, the klima**aktiv** (the Austrian Climate Initiative) programme 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/](http://www.klimaaktiv.at/).

The energy agencies of the provinces offer a comprehensive range of information and services. This includes educational programmes for members of the public on more efficient use of energy (evening events and excursions) as well as training opportunities 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 provinces is available at:

[www.eabgld.at/](http://www.eabgld.at/)

[www.energieberatung-noe.at](http://www.energieberatung-noe.at)

[www.energiebewusst.at/](http://www.energiebewusst.at/)

[www.energieinstitut.at](http://www.energieinstitut.at)

[www.energie-tirol.at/](http://www.energie-tirol.at/)

[www.energiesparverband.at](http://www.energiesparverband.at)

[www.ea-stmk.at](http://www.ea-stmk.at); [www.ich-tus.at](http://www.ich-tus.at)

[www.salzburg.gv.at/energieberatung](http://www.salzburg.gv.at/energieberatung)

[www.wien.gv.at/stadtentwicklung/energie/pdf/sep-programm.pdf](http://www.wien.gv.at/stadtentwicklung/energie/pdf/sep-programm.pdf)

[www.wienenergie.at/eportal/ep/channelView.do/pageTypeId/11889/channelId/-22149](http://www.wienenergie.at/eportal/ep/channelView.do/pageTypeId/11889/channelId/-22149)

#### **Example – Upper Austria Energy Academy**

For a number of years, the Upper Austria Energy Academy has been offering further training in the fields of energy efficiency and renewable energy. The main target groups are managers responsible for energy in enterprises, municipalities and institutions, energy consultants, building services engineers, building

contractors, construction site managers, planners and architects.  
Each year, the training programme includes about 40 training seminars, field trips and courses, including training to become an energy consultant. Around 1 000 people take part in them each year. Information is available at: [www.energyacademy.at](http://www.energyacademy.at)

**Example – Vienna City Energy Efficiency Programme (CEEP) – “energy driving licence”**

The City Energy Efficiency Programme (2006-2015) provides the measure of laying down an emphasis on energy saving and energy efficiency in the school curriculum. As part of this measure, the “energy driving licence” was developed in collaboration with the Vienna “environmental consultancy service” (“die umweltberatung”) and was established in the city council. The “energy driving licence” is an additional qualification which shows young people how they can substantially reduce energy consumption at work, at school or at home by making small changes. In connection with the “energy driving licence”, apprentices and school pupils are given the necessary knowledge about energy saving by way of interactive work in small groups, practical examples and calculation tasks.

[www.wien.gv.at/umweltschutz/nachhaltigkeit/energiefuehrerschein.html](http://www.wien.gv.at/umweltschutz/nachhaltigkeit/energiefuehrerschein.html)

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

With regard to measures required by Article 19(1)(a) EED, reference should be made – in addition to the measures already mentioned in the NEEAP 2014 – to the Non-Profit Housing Act (WGG), Federal Law Gazette No. 139/1979, most recently amended by Federal Law Gazette I No 157/2015<sup>6</sup>. This permits the use of energy saving contracting in the non-profit housing sector as an instrument for overcoming the investor/user dilemma. Pursuant to Section 14(5a) WGG, expenditure for reducing consumption (of the quantity accruing) can be covered from rent components whose level is dependent on consumption or on the amount accruing. The energy costs saved can be used for the financing of energy-saving measures. The (indexed) savings are permitted to be used for refinancing over a period of at most 15 years. After that, the savings must benefit the users (tenants).

In this context, it should be pointed out that the non-profit housing association has to maintain the building, the rented-out apartments or business premises and the communal facilities in accordance with the legal, economic and technical circumstances and possibilities. According to Section 14(2)(5) WGG, the maintenance includes – taking into account energy efficiency – the installation of facilities for reducing the energy consumption.

A legal provision relating to measures required by Article 19(1)(b) EED is standardised in Section 19(5) of the Federal Procurement Act<sup>7</sup>. 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, Section 14 of the Lower Austrian Energy Efficiency Act of 2012 provides for the establishment of a management fund to promote energy advice, the education and training of energy managers and energy efficiency measures.

[www.noe.gv.at/Umwelt/Energie/Energie-Gemeinden/EEG.htm](http://www.noe.gv.at/Umwelt/Energie/Energie-Gemeinden/EEG.htm)

#### Example – Subsidies for energy efficiency programmes in Vienna

The subject of these subsidies, which have been in place since 2016, is energy efficiency programmes that contain wide-reaching measures and approaches that directly entail or bring about energy savings or energy efficiency increases in Vienna and are highly relevant to Vienna. Only intangible work is subsidised. The subsidy initiative is based around the objectives of the Subsidy Guidelines 2015 for subsidising the generation of green electricity and energy efficiency programmes and is financed from the resources of the Vienna Green Electricity Fund.

[www.wien.gv.at/stadtentwicklung/energie/foerderungen/energieeffizienz.html](http://www.wien.gv.at/stadtentwicklung/energie/foerderungen/energieeffizienz.html)

#### Example – KEIWOG Fund in Carinthia

The subject of this support, which has been in place since 2004, is subsidies for investments in constructing pilot plants for generating green electricity (innovations – plants or parts of plants which are realised for the first time in this form in Austria) with decisive improvements over comparable plants (overall degree of effectiveness, sustainability, damage to the environment and implementation of research results or involvement of research or educational institutions).

Carrying out of studies and concepts where these make significant contributions to promoting new technologies for green electricity generation or entail significant increases in energy efficiency.

Support for programmes or measures for the efficient use of energy. Awareness-raising measures relating to the measures of the points.

### 3.8 Energy efficiency measures in buildings

Section 3.1.3 describes the following measures in the building sector:

<sup>6</sup> <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10011509>

<sup>7</sup> <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20004547>

- Residential building subsidies, energy subsidies and environmental subsidies from the provinces
- Domestic environmental support (UFI)
- Renovation drive – Renovation cheque

### **3.8.1 Building renovation strategy (Article 4)**

Residential building subsidies are the most important factor behind a significant volume of building renovation in the provinces. The strategies of the provinces in connection with residential building subsidies and other individual measures – e.g. initiatives 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 provinces, particularly in the context of residential building subsidies, and also of the Federal Government (see section 3.8.2). 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 per cent 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.

### **3.8.2 Additional energy efficiency measures in buildings**

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

#### **Establishment of a housing construction investment bank**

The Federal Act bringing about the establishment of a housing construction investment bank (WBIB-G) and amending the Federal Act on special fiscal measures for promoting housing construction and the Non-profit Housing Act entered into force on 1 January 2016.

The housing construction investment bank (WBIB) created thereby is intended to provide commercial and non-profit property developers with long-term and inexpensive loans to be used for financing affordable living space. The WBIB passes on the funds, on market terms, to non-profit and commercial property developers for the construction of housing. The funds allow rental and owner-occupied properties to be built. The main focus is on new-builds but the creation of new housing by way of renovations is also made possible.

| <b>The City Energy Efficiency Programme (CEEP) in the province of Vienna</b> |   |  |  |
|--|---|--|--|
| <b>Description</b>   |   |  |  |
| Category   | Framework conditions, information, advice, training, subsidies, exemplary role of the public sector   |  |  |
| Duration   | Start: 2006   | End: 2015                                | Adjustments:<br>ongoing evaluation; follow-up programme being prepared |
| Target groups:   | Households, public and commercial services, industry and manufacturing  |  |  |
| Description  | <p>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 province 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:</p> <ul style="list-style-type: none"> <li>- Households,</li> <li>- Commercial services,</li> <li>- Public services,</li> <li>- Industry and manufacturing,</li> <li>- Cross-sectoral measures.</li> </ul> <p>The main measures relate to buildings and equipment. CEEP was concluded in 2015 and the final report on the entire CEEP implementation period (from 2006 to 2015) is available. The final report comprises the documentation and evaluation of the programme results, a quantification of the energy savings achieved, an up-to-date statement of the development of energy consumption for Vienna and recommendations for the drafting of a successor programme ("CEEP 2030"). In the period under consideration, the documented, project-related energy savings were around 155 GWh per year. If one also takes into account the energy savings that were not able to be recorded (for example in federal buildings, Viennese enterprises and companies), it can be assumed that the level of the savings as a whole was significantly above the documented 155 GWh and in any event above the 180 GWh aimed for in the CEEP.</p> <p>Work on a successor programme to the CEEP (CEEP 2030) is currently just being concluded. This focuses on key energy consumption areas and includes a prioritisation of central activities. The CEEP successor programme creates a long-term framework for consumer-side energy policy and is expected to be in effect until 2030.</p> |  |  |
| Further information  | <p>CEEP in general:<br/><a href="http://www.wien.gv.at/stadtentwicklung/energie/pdf/sep-programm.pdf/">http://www.wien.gv.at/stadtentwicklung/energie/pdf/sep-programm.pdf/</a></p> <p>CEEP final report:<br/><a href="http://www.wien.gv.at/stadtentwicklung/energie/pdf/sep-endbericht.pdf">www.wien.gv.at/stadtentwicklung/energie/pdf/sep-endbericht.pdf</a></p>  |  |  |
| <b>Calculation method</b>  |   |  |  |
| Calculation method   | Estimates based on monitoring for the ESD   |  |  |
| <b>Final energy savings</b>  |   |  |  |
| Savings (TJ)   | Currently per year<br>around 560  | 2020 (anticipated)<br>not yet determined |  |
| <b>Implementation</b>  |   |  |  |
| 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.).   |  |  |

#### **Example – Subsidies for planning work for highly efficient buildings in Vienna**

The subject of the subsidies is the planning work involved with the construction of a zero- or plus-energy building or with the renovation of an existing building to a zero- or plus-energy level. This work includes essentially that planning work which is directly connected with a substantial increase in efficiency of the building, with its energy strategy or with its energy-related equipment. The subsidy initiative, which has existed since 2016, is based on

the objectives of the Subsidy Guidelines 2015 for subsidising the generation of green electricity and energy efficiency programmes and is financed from the resources of the Vienna Green Electricity Fund.  
[www.wien.gv.at/stadtentwicklung/energie/foerderungen/energieeffizienz.html](http://www.wien.gv.at/stadtentwicklung/energie/foerderungen/energieeffizienz.html)

| <b>Green electricity and photovoltaic subsidies in Vienna</b> |  |                         |
|---|--|-------------------------|
| <b>Description</b>  |  |                         |
| 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   | <a href="http://www.wien.gv.at/stadtentwicklung/energie/foerderungen/strom.html">www.wien.gv.at/stadtentwicklung/energie/foerderungen/strom.html</a>   |                         |
| <b>Calculation method</b>                                     |  |                         |
| Calculation method  | Values based on monitoring for the ESD.  |                         |
| <b>Final energy savings</b>                                   |  |                         |
| Savings (TJ)  | Currently per year around 5  | 2020 (anticipated)<br>- |
| <b>Implementation</b>   |  |                         |



|                                |   |
|--------------------------------|---|
| National/regional              | Regional  |
| Budget and financial resources | The budget for the subsidies is supplied from the resources of the Vienna Green Electricity Fund. |

| <b>The Lower Austrian Climate and Energy Programme 2020 (KEP)</b> |   |           |  |
|---|---|-----------|--|
| <b>Description</b>  |   |           |  |
| Category  | Implementation programme for the projects relating to climate and energy policy in the areas of buildings, mobility and spatial development, recycling management, agriculture and forestry, the province as an example, and energy supply.   |           |  |
| Duration  | Start: 2013   | End: 2020 | Adjustments:<br>Mid-term review 2016;<br>follow-up programme from 2021 |
| Target groups:  | Households, public and commercial services, industry and manufacturing, educational institutions, provincial administration   |           |  |
| Description   | <p>The Lower Austrian Climate and Energy Programme (KEP) that was passed by the provincial government and provincial parliament coordinates the province's activities in relation to climate and energy policy in accordance with the statutory provisions and agreements. Lower Austria has had such a programme since as far back as 2004 – the programme is periodically issued in revised form.</p> <p>On the basis of the EU Energy Efficiency Directive, the Federal Climate Protection Act, the Lower Austrian Energy Efficiency Act and the Lower Austrian Energy Strategy, 43 measures and 208 instruments have been defined and associated responsibilities have been determined.</p> <p>These instruments are broken down into 6 areas, which have the following focuses:</p> <p><u>Area of buildings</u></p> <ul style="list-style-type: none"> <li>• Targeting subsidies for residential and non-residential buildings more at energy efficiency and the use of renewable energy sources</li> <li>• Adapting the legal framework in a logical manner for the purposes of a building stock ready to face the future</li> <li>• Strengthening knowledge and awareness in respect of sustainable construction and living in Lower Austria</li> </ul> <p><u>Area of mobility and spatial development</u></p> <ul style="list-style-type: none"> <li>• Making housing structures attractive for high-quality facilities and multi-faceted mobility</li> <li>• Facilitating switch from cars to environmentally friendly alternatives by means of convenient footpath, cycle path and public transport networks</li> <li>• Promoting electromobility in Lower Austria as a valuable contribution to CO<sub>2</sub> reduction and energy efficiency</li> </ul> <p><u>Area of recycling management</u></p> <ul style="list-style-type: none"> <li>• Enhancing energy and resource efficiency in development and production</li> <li>• Promoting climate-friendly solutions for goods transport</li> <li>• Pushing ahead with the journey from waste management to resource management</li> </ul> <p><u>Area of agriculture and forestry</u></p> <ul style="list-style-type: none"> <li>• Agriculture and forestry guarantee security of supply</li> <li>• Sustainable safeguarding of resources taking account of the eco-system achievements of agriculture and forestry</li> </ul> <p><u>Area of the province as an example</u></p> <ul style="list-style-type: none"> <li>• Procuring in a sustainable manner and building in an exemplary manner</li> <li>• Taking into account global aspects of climate protection and climate change adaptation</li> <li>• Building climate and energy awareness</li> </ul> <p><u>Area of energy supply</u></p> <ul style="list-style-type: none"> <li>• Pushing ahead with the switch to renewable energy sources and the increase in energy efficiency</li> <li>• Orienting infrastructure and framework conditions around sustainable energy supply</li> </ul> <p>In 2016, the programme was evaluated and revised at the half-way point. A follow-up programme is once again being developed.</p> |           |  |
| Further information   | <a href="http://www.noel.gv.at/Umwelt/Klima/Klima-Energieprogramm.html">http://www.noel.gv.at/Umwelt/Klima/Klima-Energieprogramm.html</a>   |           |  |
| <b>Implementation</b>   |   |           |  |
| National/regional   | Regional  |           |  |
| Overlaps, multipliers, synergies                                  | The KEP includes and links together all provincial activities relating to energy efficiency, switching to renewable energy sources, climate protection and climate change adaptation. Thus, separate programmes of measures (e.g. Lower Austrian Electromobility Initiative 2020) also arise from the programme. Owing to this all-encompassing approach, overlaps are intended as this is how the corresponding synergies occur.   |           |  |

| <b>Promotion of biomass district heating in Lower Austria</b> |   |                                    |
|---|---|------------------------------------|
| <b>Description</b>  |   |                                    |
| Category  | Subsidies   |                                    |
| Duration  | Start: 1989   | Adjustments:<br>ongoing amendments |
| Target groups:  | Operators of biomass district heating stations and biomass district heating distribution networks   |                                    |
| Description   | <p>Since 1989, the province 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.</p> <p>Current subsidy programmes:</p> <ul style="list-style-type: none"> <li>- Domestic Environmental Support Scheme: co-financing by Federal Government/province</li> <li>- Rural development: co-financing by EU/Federal Government/province</li> <li>- Province subsidies: province funds alone</li> </ul> |                                    |
| Further information   | Lower Austrian provincial government office: <a href="http://www.noel.gv.at/energie">www.noel.gv.at/energie</a>   |                                    |
| <b>Calculation method</b>                                     |   |                                    |
| Calculation method  | Values based on monitoring for the ESD.   |                                    |
| <b>Final energy savings</b>                                   |   |                                    |
| Savings (TJ)  | Currently per year<br>0.36  | 2020 (anticipated)<br>-            |
| <b>Implementation</b>   |   |                                    |
| National/regional   | National, implementation by the Federal Government and the provinces  |                                    |
| Budget and financial resources                                | Currently €2 million of Lower Austrian 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 are complementary to each other, so that only one guideline is used for each project type (criteria such as subsidy applicant, fuel generation etc.).  |                                    |

| <b>Eco-fund of the province of Styria</b> |  |                         |
|---|--|-------------------------|
| <b>Description</b>                        |  |                         |
| Category                                  | Subsidies  |                         |
| Duration                                  | Start: 2014/2015   | Adjustments: ongoing    |
| Target groups:                            | SMEs, municipalities 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 this subsidy programme has since 2011 also been to subsidise energy efficiency programmes. The subsidies are awarded exclusively on the basis of calls for applications and assessments by a jury of experts |                         |
| Further information                       | <a href="http://www.technik.steiermark.at/cms/ziel/97564845/DE/">http://www.technik.steiermark.at/cms/ziel/97564845/DE/</a>  |                         |
| <b>Calculation method</b>                 |  |                         |
| 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)  |                         |
| <b>Final energy savings</b>               |  |                         |
| Savings (TJ)                              | Currently per year around 2.8  | 2020 (anticipated)<br>- |
| <b>Implementation</b>                     |  |                         |
| National/regional                         | Regional   |                         |
| Budget and financial resources            | Resources of the Styrian Eco-fund, in total approximately €1.1 million per annum; in total €2.2 million of resources were already agreed in 2015 and 2016 for energy efficiency projects to be implemented from 2017 onwards.  |                         |

| <b>Provincial environmental fund of the province of Styria</b> |  |                         |
|--|--|-------------------------|
| <b>Description</b>   |  |                         |
| Category   | Subsidies  |                         |
| Duration   | Start: 1985  | Adjustments: ongoing    |
| Target groups:   | Households   |                         |
| Description  | <p>A number of subsidy programmes are administered in the context of the Styrian provincial environmental fund:</p> <ul style="list-style-type: none"> <li>- Biomass heating systems</li> <li>- Solar thermal systems</li> <li>- PV systems, load management systems and electrical energy stores</li> <li>- PV public participation models</li> <li>- Heat pumps</li> <li>- Pump changeover</li> <li>- Switching of heating</li> </ul> <p>New funding category for electric vehicles since IV/2016 (see Section 3.5.1):</p> <ul style="list-style-type: none"> <li>- Cargo bikes and folding bikes</li> <li>- E-bikes and E-charging stations</li> </ul> <p>In addition, special subsidies for companies are also provided in individual cases.</p> |                         |
| Further information  | <a href="http://www.technik.steiermark.at/cms/ziel/97564845/DE/">http://www.technik.steiermark.at/cms/ziel/97564845/DE/</a>  |                         |
| <b>Calculation method</b>                                      |  |                         |
| Calculation method   | Estimates based on the methodology document EEMDB.   |                         |
| <b>Final energy savings</b>                                    |  |                         |
| Savings (TJ)   | Currently per year (excluding E-vehicles)<br>around 78 TJ  | 2020 (anticipated)<br>- |
| <b>Implementation</b>  |  |                         |
| National/regional  | Regional   |                         |
| Budget and financial resources                                 | Resources from the province of Styria, in total approximately €8.3 million per annum.  |                         |

#### **Example – Independent monitoring body for the inspection of heating systems in the province of Styria**

For the inspection of heating systems, in accordance with the provisions of provincial law adopted on the basis of EU Directive 2010/31/EU on the energy performance of buildings, an independent monitoring body has been established and, in 2016, a heating system database was brought into operation. The protocols of the inspections of heating systems – along with the periodic tests on combustion plants – are to be transferred into this database. In this context, recommendations for improving the energy efficiency of the supply of space heating and hot water are issued, and the appropriate dimensioning of the boiler and pumps and the correct setting of regulation and control are checked. The annual final energy savings achieved thereby cannot yet be estimated at present. In future, the surveys on the use of energy sources, including in particular those of auxiliary heating systems, will also be available in this database: this is of considerable importance for the purposes of improving the statistical foundation and for the design of future efficiency and clean-air programmes.

#### **Example – Energy Advice Network in the province of Styria**

The objects of the Energy Advice Network, which was established in 2011, are firstly to ensure quality assurance of the energy advice that is supported by the province of Styria and that is mandatory in certain subsidy categories, and also to produce energy performance certificates. In addition, the network provides support regarding complex questions in relation to advice and the production of energy performance certificates. To pursue the aforementioned objectives, ongoing further training opportunities and workshops are discounted or offered free of charge, and meetings for exchanging experiences with current, interesting subjects and the opportunity for discussion are organised several times a year; in addition, newsletters with up-to-date information are regularly sent out.

The advice protocols and energy performance certificate calculations are fed into the respective provincial databases by the members, and from there they are checked by the network's office for the purposes of compliance with a uniform quality standard. The members are listed on the homepage of the network

[www.net-eb.at](http://www.net-eb.at) and on the 'ich tu's' ('I do it') homepage of the province of Styria [www.ich-tus.at](http://www.ich-tus.at) with their contact details and the services they offer, and are recommended when queries are made to the service line of the province of Styria. In addition, the members are also assisted in connection with events or projects. Comprehensive training in accordance with the guidelines of the ARGE EBA (Working Group on Energy Adviser Training) of the Austrian provinces is a prerequisite for being accepted into the network.

#### **Example – Energy Advice Network in the province of Carinthia**

The Carinthian equivalent to the Styrian network of advisers is the Carinthian Energy Advice Network (netEB for short, and previously known as the Carinthian Energy Advisers' Network (KEN)), which was established in 2009. On-the-spot energy consultations that are subsidised for households in Carinthia are offered within the scope of this project. In the meantime, more than 7 000 households have already registered for a subsidised on-the-spot energy consultation. Comprehensive training in accordance with the guidelines of the ARGE EBA (Working Group on Energy Adviser Training) of the Austrian provinces is a prerequisite for being accepted into the network.

#### **Example – Impulse programme for environmentally friendly energy in the province of Carinthia**

The impulse programme for environmentally friendly energy in the province of Carinthia includes support for efficient wood-based heating systems, solar thermal systems, photovoltaic systems, electricity storage facilities and district heating connections in business premises and public buildings. The total budget is €5.5 million per year.

#### **Example – Energy subsidies in the province of Carinthia**

Energy subsidies in the province 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.

| <b>Promotion of alternative energy systems and energy saving equipment and other elementary resources in Burgenland</b> |   |                         |                     |
|---|---|-------------------------|---------------------|
| <b>Description</b>  |   |                         |                     |
| Category  | Subsidies   |                         |                     |
| Duration  | Start: 2008   | End:                    | Adjustments: annual |
| Target groups:  | Private households  |                         |                     |
| Description   | <p>Funding in the form of an outright grant is provided for the installation of alternative energy systems and energy saving equipment.</p> <p>The following alternative energy systems are subsidised:</p> <ul style="list-style-type: none"> <li>- Hot water heat pumps</li> <li>- Heat pump heating systems</li> <li>- Solar thermal systems</li> <li>- Biomass heating systems</li> <li>- District heating connections</li> <li>- Comfort ventilation systems</li> <li>- Measures for increasing the efficiency of existing biomass systems</li> <li>- Other systems for covering space-heating requirements based on renewable energy</li> <li>- Systems for using rainwater or well water</li> </ul> <p>In the interests of energy efficiency and of climate and environmental protection, special incentives and effective priorities are also put in place in relation to the saving of energy and other elementary resources and the most efficient use possible of energy in the field of mobility. The following are subsidised:</p> <ul style="list-style-type: none"> <li>- Cars – acquisition as new or conversion to fully electric operation</li> <li>- Cars powered with natural gas or biogas</li> <li>- Acquisition as new or conversion to natural gas or biogas operation</li> </ul> <p>To increase the energy efficiency and the climate and environmental protection, incentives for the generation and storage of electrical energy on a solar basis should be created in order in this way to increase the proportion of renewable and low-CO<sub>2</sub> or CO<sub>2</sub>-free energy sources in Burgenland.</p> <p>The following are subsidised:</p> <ul style="list-style-type: none"> <li>- The construction of grid-connected electricity generation plants on a solar basis</li> <li>- The construction of grid-connected electricity generation plants on a solar basis in conjunction with an electricity storage system</li> <li>- The retrofitting of existing PV systems with an electricity storage system</li> </ul> |                         |                     |
| Further information   | <a href="http://www.burgenland.at/wohnen-energie/">www.burgenland.at/wohnen-energie/</a>  |                         |                     |
| <b>Calculation method</b>   |   |                         |                     |
| Calculation method  | Values based on monitoring for the ESD.   |                         |                     |
| <b>Final energy savings</b>   |   |                         |                     |
| Savings (TJ)  | Currently per year<br>63  | 2020 (anticipated)<br>- |                     |
| <b>Implementation</b>   |   |                         |                     |
| National/regional   | Regional  |                         |                     |
| Budget and financial resources  | Resources from the province of Burgenland, in total around €3.3 million per year  |                         |                     |
| Responsible body  | Province of Burgenland (BOEF – Burgenland Green Energy Fund)  |                         |                     |
| Overlaps, multipliers, synergies  | The funding guidelines ensure that there can be no double funding of systems.   |                         |                     |

**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.burgenland.at/wohnen-energie/](http://www.burgenland.at/wohnen-energie/)

**Example – Upper Austria provincial subsidy programme “PV School and Kindergarten”**

The Upper Austrian provincial subsidy programme for photovoltaic systems in Upper Austria’s schools has enabled the installation of photovoltaic systems on Upper Austrian schools and has supported the topics of green electricity and saving electricity at school. Grid-connected photovoltaic systems with 3 kWp output which were newly constructed in Upper Austrian schools were subsidised in this initiative. In total, it involves over 360 Upper Austrian schools (around 40% of all Upper Austrian primary schools, lower secondary schools and ‘new middle schools’) with a total installed output of over 1 100 kWp.

Within the scope of the programme, there was a series of measures for teachers which were intended to help them to incorporate the subject in their lessons, such as for example the training seminar “PV for teachers”, conferences relating to the subject of photovoltaics, teaching materials, such as a “photovoltaic experiment box” for primary-level schools and a technology box produced by the Energy Agency (Energiesparverband) on the subject of “solar energy and energy saving” for primary schools. The subject of solar energy and photovoltaics was explained using simple experiments and an information brochure “Saving electricity at school – reducing costs – protecting the environment” with many tips on saving electricity was produced.

The website [www.pv.schule.at](http://www.pv.schule.at) provides information about the activities, offers a school check for an initial estimate of electricity consumption and also indicates the solar yields of PV systems on schools. On the basis of the results of the programme “PV goes to school” and of the great interest that existed, the programme “PV for Kindergartens” was initiated in 2015. As part of this subsidy programme, 200 Upper Austrian kindergartens are able to become solar kindergartens. The website [www.pv-kindergarten.at](http://www.pv-kindergarten.at) provides information about the various activities and offers a kindergarten check for an initial estimate of electricity consumption.

**Example – Supporting solar electricity storage in Upper Austria**

The province of Upper Austria has carried out a subsidies initiative relating to the use of stationary battery storage systems in connection with a photovoltaic system. The subsidies for private individuals, businesses and municipal institutions covered the purchase and installation of stationary solar storage cylinders based on lithium technology for their own consumption. Approximately 800 solar electricity storage cylinders were subsidised. Upper Austria is thus the region which currently has the highest density of lithium-technology-based solar electricity storage cylinders.

**Example – Carinthian solar thermal energy initiative**

Heating-supported solar thermal energy systems are intended firstly to provide hot water in households and secondly to perform/support space heating in the transitional months and also in the winter months. Like all technical systems, this requires maintenance in order to be able to maintain the original function to its full extent. However, this maintenance is frequently not carried out and therefore these systems can often find themselves in a sub-optimal state. In this pilot project, solar thermal energy systems are tested for their efficiency so as thereby to be able to reduce the use of fossil energy sources for the provision of hot water and for the heating of homes. In addition to a check of the system in which the components of the system are examined, the installation of a heat meter can also be selected. In this check, all possible parameters of a solar system are examined and documented. If the heat meter is additionally selected, then it is possible to ascertain, in addition to the yield, also the hydraulic function of this system, for example recirculations can be detected and rectified. Only if the yields are known can the efficiency of a solar system be ascertained and optimisations of the system realised. If fossil energy sources are replaced as a result, the CO<sub>2</sub> emissions saved can also be determined. This project thus supports the achievement of the objectives of the Carinthian energy masterplan.



**Example – Electricity-saving project for low-income households in the districts of Braunau, Freistadt & Linz-Land**

Many households are affected by energy poverty in Austria too. Energy costs are increasing and low-income households often have old and therefore inefficient heating appliances and electrical appliances, but do not have the financial resources for a switch to modern, energy-efficient appliances. Energy consumption and therefore also energy costs often bear no relation to the size of the living space or to the income situation: on the contrary, low-income households often have above-average electricity consumption. In Upper Austria, a project was conducted with the objective of distributing energy-efficient appliances and permanently reducing the electricity costs of low-income households. In addition, low-income households were given a free and individual energy consultation by an adviser from the Upper Austrian Energy Agency with tailored tips and hints about how energy costs can be reduced by way of organisational measures (i.e. without having to invest themselves). In this connection, there is also an individual, free-of-charge “emergency assistance package” (e.g. switchable multiway connector, LEDs etc.). If a corresponding need was identified in the context of the energy consultation, there was also a subsidy from the province of up to a maximum of €250 per household for the replacement of an electrical appliance with an efficient new appliance (fridge, freezer, washing machine). Several hundred households participated in this. <http://www.energiesparverband.at/foerderungen/sonstiges/energiearmut.html>

**Example – Salzburg: Central energy performance certificate environment “ZEUS”**

Salzburg’s energy performance certificates, advice protocols, energy consultations and subsidies are administered via process conducted by assistants in the ZEUS database. On the basis of these data sources considered together, proposals for optimising the overall energy efficiency of buildings are identified and the quality of the implementation is ensured.

**Example – Independent energy performance monitoring system in the province 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](http://www.energieausweise.net)). The annual final energy savings are estimated at 110 TJ.

**Example – Vorarlberg energy autonomy – package of measures for the area of buildings**

The energy autonomy plan adopted by Vorarlberg encompasses, by 2020, the following package of measures for the area of buildings:

1. Action programme with the aim of renovating all of the building stock in Vorarlberg within the next 25 to 35 years (raise renovation quota to 3% and stabilise it there). In addition, by 2020 25 to 30% of the building stock must be renovated with the objective of reducing primary energy needs in businesses by at least 20% on average.
2. Qualification and training offensive in respect of practice and studies in the area of efficient energy technology, sustainable construction and renovation.
3. Optimisation of subsidies in the area of buildings; prioritising deep renovations
  - Shifting of the focal point of subsidies in the area of buildings from new builds to renovation and replacement buildings
  - Strengthening the progression of the subsidies with increasing energy efficiency of the buildings
  - Possibility of renovation of individual construction components retained, but only in combination with subsidised renovation advice regarding agreed construction component qualities
  - Compulsory use of solar energy in subsidised new builds (except where exceptions are justified)
4. Support to the Federal Government for the strengthening and long-term safeguarding of subsidies for photovoltaic systems assigned to buildings and opening up for further investors
5. Continuation and strengthening of the subsidy programmes for efficient electricity consumers in all building categories
6. Creation by political circles of the preconditions for steering and support measures in the area of building to be assessed in future in accordance with the primary energy requirement for construction, operation and disposal
7. Work to adapt the statutory provisions (e.g. the Condominium Act, the Tenancy Law Act, the Building Regulations) for the purposes of improving the decision-making processes and for easier implementation of

decisions taken in the case of renovations

8. Adaptation of the framework construction-law conditions in the province of Vorarlberg for energy efficiency measures in the area of buildings, e.g. development guidelines, renewable energies
9. As a consequence of long-term continuity of the subsidy measures, creation of stable framework conditions and incentives for further development of know-how and capacities of regional industry
10. Accompanying measures for ensuring the affordability of investments in building energy efficiency:
  - Providing advice on the subject of costs and being economical.
  - Creating new financing instruments such as, for example, contracting models for efficiency measures.
  - Focussing guidelines on the agreed objectives.
  - Creation of tax incentives such as for example VAT reduction, write-offs, deductibility.
  - Compulsory examination of measures for their cost/benefit effects prior to being promulgated (as in the case of laws).
11. In addition to the energy used for operation of the building, the total energy used over the life cycle must be considered and assessed.

### **3.8.3 Financing of energy efficiency measures in buildings**

Information on the financing of building measures may be found directly in the descriptions of the measures in Sections 3.1.3 and 3.8.

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

#### 3.9.1 Central government buildings (EED, Article 5)

A survey of the planned measures and of those already carried out in relation to federal buildings showed that, by way of the energy efficiency measures and the associated final energy savings, the savings target of 48.2 GWh in federal buildings that is laid down in Article 5 EED and Section 16(1) EEffG is able to be achieved in the period from 2014 to 2020. In a corresponding report of December 2013, Austria therefore undertook to achieve savings pursuant to Article 5(6) EED; 2012/27/EU of 48.2 GWh in the period from 2014 to 2020 in public buildings (see also page 12 of the notification pursuant to Art. 5 of the Energy Efficiency Directive (EED; 2012/27/EU) to the European Commission

<https://www.bmwf.gv.at/EnergieUndBergbau/Energieeffizienz/Documents/Bericht%20gemäß%20Artikel%205%20EED.pdf>).

A concrete plan (plan of measures) for the purposes of reaching these targets which lays down energy efficiency measures in federal buildings has been produced and published on the website of the Federal Ministry of Agriculture, Forestry, Environment and Water Management (<https://www.bmwf.gv.at/EnergieUndBergbau/Energieeffizienz/Documents/Maßnahmenplan%20für%20Bundesgebäude%20barrierefreie%20Endfassung.pdf>).

The measures for achieving the necessary savings primarily concern the Federal Ministry of National Defence and Sport (BMLVS), the Federal Ministry of Justice (BMJ) and the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW), who own the majority of the buildings which belong to the Federal Government and are used by the latter. The meeting of the 2014/2015/2016 sub-targets is primarily attributable to energy performance contracting projects which were initiated in a timely manner. In 2016 there were further additional renovation measures.

Accordingly, the following savings were able to be achieved for these years (in GWh):

Table 8: Savings pursuant to Article 5 in the years 2014, 2015 and 2016 in GWh (cumulative)

| Article 5 savings [GWh]        |              |              |              |
|--------------------------------|--------------|--------------|--------------|
|                                | 2014         | 2015         | 2016         |
| Renovation measures            | -            | 0.425        | 2.419        |
| Energy performance contracting | 3.496        | 4.337        | 4.337        |
| Energy management              | 0.522        | 0.211        | 0.211        |
| Floor area reduction           | -            | 1.345        | 1.345        |
| <b>Total</b>                   | <b>4.018</b> | <b>6.318</b> | <b>8.312</b> |

See in this regard also the progress report 2016:

<https://www.bmwf.gv.at/EnergieUndBergbau/Energieeffizienz/Documents/Fortschrittsbericht%202016.pdf>

Table 9 shows that in 2016, given the energy savings resulting from additional renovation measures, the value targeted in the plan of measures of 7.463 GWh was able to be exceeded.

#### 3.9.2 Buildings of other public bodies (Article 5)

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

- 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 taking account of the exemplary role of buildings of public bodies;
- put in place an energy management system, including energy audits, as part of the implementation of their plan;
- 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.

The **province of Upper Austria** has kept precise energy accounts for its provincial public buildings for a number of years now. The energy consumption developments of the public

buildings and the effects of the energy efficiency measures put in place can be gathered from this accounting.

Table 9: Upper Austria: Example of energy indicators for heat according to building types, climate-corrected [kWh/m<sup>2</sup>a]

|             | Workshop | Vocational school | District commission | Young peoples home, children's home, youth hostel, guesthouse | Art, culture | Agricultural specialist and vocational school | Museum | Nursing home | Other building | Road maintenance depot | Administrative, office building | Total      |
|-------------|----------|-------------------|---------------------|---|--------------|---|--------|--------------|----------------|------------------------|---------------------------------|------------|
| <b>2005</b> | 141      | 85                | 86                  | 141   | 140          | 108   | 84     | 149          | 152            | 138                    | 83                              | <b>103</b> |
| <b>2006</b> | 112      | 85                | 86                  | 129   | 122          | 106   | 79     | 146          | 154            | 148                    | 82                              | <b>101</b> |
| <b>2007</b> | 118      | 82                | 84                  | 129   | 127          | 99  | 76     | 148          | 131            | 125                    | 81                              | <b>96</b>  |
| <b>2008</b> | 115      | 81                | 85                  | 124   | 119          | 98  | 77     | 145          | 138            | 120                    | 75                              | <b>94</b>  |
| <b>2009</b> | 110      | 79                | 78                  | 122   | 119          | 91  | 74     | 145          | 147            | 128                    | 75                              | <b>93</b>  |
| <b>2010</b> | 98       | 73                | 74                  | 118   | 104          | 87  | 76     | 146          | 130            | 123                    | 72                              | <b>87</b>  |
| <b>2011</b> | 97       | 73                | 73                  | 116   | 118          | 92  | 80     | 156          | 112            | 115                    | 71                              | <b>88</b>  |
| <b>2012</b> | 101      | 69                | 73                  | 110   | 104          | 82  | 76     | 151          | 110            | 111                    | 68                              | <b>83</b>  |
| <b>2013</b> | 89       | 68                | 71                  | 114   | 105          | 89  | 76     | 151          | 106            | 114                    | 67                              | <b>84</b>  |
| <b>2014</b> | 105      | 70                | 74                  | 132   | 103          | 82  | 75     | 166          | 110            | 105                    | 67                              | <b>85</b>  |
| <b>2015</b> | 97       | 67                | 70                  | 123   | 97           | 83  | 84     | 148          | 103            | 95                     | 69                              | <b>82</b>  |

#### Example – Article 5 implementation in Burgenland

In 2013, the 'Burgenland Energy Strategy 2020' was adopted by the provincial government of Burgenland. Section 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.

#### Example – Lower Austrian Climate and Energy Programme 2020

The Programme adopted by the province of Lower Austria in 2013 and revised in 2016 provides for the following measures and instruments for public buildings:

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

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

V2 Increasing energy efficiency in the public sector:

- Implementing a training programme for climate protection managers for provincial buildings
- Implementing a training programme for energy managers for municipalities
- Launching awareness-raising measures
- Advice on energy performance contracting

[www.noel.gv.at/Umwelt/Klima/Klima-Energieprogramm/KlimaEnergieprogramm.html](http://www.noel.gv.at/Umwelt/Klima/Klima-Energieprogramm/KlimaEnergieprogramm.html)

#### Example – Buildings working group in Vorarlberg

In Vorarlberg, the optimisation of the building stock in terms of energy technology is a central instrument of the energy autonomy that is sought. In 2013, the "Buildings working group" was established in Vorarlberg. It laid down the following primary targets:

- Renovation of 25 to 30% of the building stock by 2020
- Reduction of the primary energy requirements of the building stock as a whole by at least 20%
- Expansion of energy monitoring and of differentiated metering

- Application of the quality standards of the Municipal Building Certificate (KGA; from 2015; ongoing projects since 2012 in pilot phase)
- Process-optimised planning in accordance with the planning guidelines of the province of Vorarlberg (<https://www.vorarlberg.at/pdf/planungsleitfadenlandvora.pdf>)

On the basis of the existing facility management system and the energy monitoring of the province, in which all significant buildings of the province are included, all of the effects of the targets listed in the "Energy future of Vorarlberg" were examined and assessed, and recommended actions were derived therefrom. Since 2014, the targets laid down in this plan of measures for provincial buildings have been continuously implemented.

#### **Example – Building renovation strategy in the province of Tyrol**

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

- the energy performance certificates issued in 2009/2010 for all relevant provincial 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: provincial parliament buildings, district commission buildings, other official buildings, Tyrolean specialist vocational colleges, provincial agricultural colleges, special schools and student accommodation. Specifically, the planned renovation packages include the following energy efficiency measures:

- Continuation of the thermal renovations 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\* (full thermal protection, 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 7% 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 builds and major renovation projects for public buildings of the province of Tyrol are excluded from the package of measures, since these are already being carried out in each case 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 provincial government of Tyrol is working on drawing up a list of public buildings with associated energy indicators.

#### **Example – Public buildings in the Vienna City Energy Efficiency Programme**

The province of Vienna has implemented the following measures in the City Energy Efficiency Programme:

- Compulsory use of specifications in the case of new builds and renovations

As far as public buildings are concerned, the quality criteria for new builds are laid down in the room books. The room books are sets of rules and form the basis for the planning and calls for tenders for new buildings and renovations of buildings. They exist for official buildings, schools, kindergartens and for multifunctional educational institutions ("campus model").

In a manner similar to the requirements in the case of public new builds, specifications with energy standards for the individual building types have also been developed in the course of renovations.

- The school renovation package

The school renovation package provides inter alia for the reduction of heating consumption in the compulsory state schools of Vienna by thermal improvement of the building envelope before:

- Replacing windows and portals
- Applying a full thermal protection façade
- Insulating the top-floor ceiling

- Modernising the heating systems.

In the years 2008 to 2014, measures in relation to the building envelope and improvements to the building technology were undertaken at 189 compulsory schools in Vienna within the scope of the school renovation package.

#### **Example – Energy data collection for public buildings in the province of Carinthia**

The object of the Carinthian energy masterplan is to raise the renovation quota in relation to public buildings to 3% in order to take account as far as possible of the exemplary role of the buildings of public bodies. Based on consumption data from the Communal Facility Management system and additional surveys, in 2016, in a first step, 244 buildings with comparatively high energy consumption were identified. Now, the province is to offer to the municipalities of Carinthia assistance with the energy-related analysis of these buildings. With the aid of qualified energy advisers from the Carinthia Energy Advice Network (netEB), the intention is for those renovation measures to be identified which – from an economic perspective – permanently reduce the energy use of the buildings and replace fossil energy sources. The results of the energy check carried out on site are to be gathered together in an advice protocol and stored electronically in the province's EBS database.

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

[www.bev.gv.at/portal/page?pageid=713,1806671&dad=portal&schema=PORTAL](http://www.bev.gv.at/portal/page?pageid=713,1806671&dad=portal&schema=PORTAL)

[www.esv.or.at/unternehmen/contracting/](http://www.esv.or.at/unternehmen/contracting/)

[www.noel.gv.at/Umwelt/Energie/Landesgebaeude/pflichtenheft.html](http://www.noel.gv.at/Umwelt/Energie/Landesgebaeude/pflichtenheft.html)

[www.noel.gv.at/Umwelt/Energie/NOe-Energiebericht-Zahlen-Daten-und-](http://www.noel.gv.at/Umwelt/Energie/NOe-Energiebericht-Zahlen-Daten-und-)

[Wissenswertes/landesgebaude.html](http://Wissenswertes/landesgebaude.html)

[www.vorarlberg.at/vorarlberg/bauen\\_wohnen/bauen/hochbauundgebaeudewirtschaft/start.htm](http://www.vorarlberg.at/vorarlberg/bauen_wohnen/bauen/hochbauundgebaeudewirtschaft/start.htm)

[www.vorarlberg.at/vorarlberg/wasser\\_energie/energie/energie/weitereinformationen/kundmachungen/kundmachungen.htm](http://www.vorarlberg.at/vorarlberg/wasser_energie/energie/energie/weitereinformationen/kundmachungen/kundmachungen.htm)

#### **3.9.2.1 Public bodies which have produced an energy efficiency action plan**

The following list contains the names of the 373 municipalities which have produced an energy efficiency action plan. These plans were produced as part of the following municipality programmes:

- e5 – Programme for energy-efficient municipalities
- Energy saving municipality programme (EGEM)
- Convention of Mayors (CoM)



|                                  | e5 | EGEM | CoM |                             | e5 | EGEM | CoM |
|----------------------------------|----|------|-----|-----------------------------|----|------|-----|
| Adlwang                          |    | x    |     | Elixhausen                  | x  |      |     |
| Aichkirchen                      |    | x    |     | Eitendorf                   | x  |      |     |
| Alberndorf in der Riedmark       |    | x    |     | Engerwitzdorf               |    | x    |     |
| Alkoven                          |    | x    |     | Enns                        |    | x    |     |
| Allerheiligen im Mühlkreis       |    | x    |     | Eschenau im Hausruckkreis   |    | x    |     |
| Allhartsberg                     | x  |      |     | Feistritz ob Bleiburg       | x  |      |     |
| Altach                           | x  |      |     | Feld am See                 | x  |      |     |
| Altenberg bei Linz               |    | x    |     | Feldkirch                   | x  |      |     |
| Althofen                         | x  |      |     | Feldkirchen an der Donau    |    | x    |     |
| Altmünster                       |    | x    |     | Feldkirchen in Kärnten      | x  |      |     |
| Angerberg                        | x  |      |     | Fischlham                   |    | x    |     |
| Anif                             | x  |      |     | Frastanz                    | x  |      |     |
| Arbing                           |    | x    |     | Freistadt                   |    | x    |     |
| Arnoldstein                      | x  |      |     | Gabersdorf                  | x  |      |     |
| Arzl im Pitztal                  | x  |      |     | Gafenz                      |    | x    |     |
| Aschau im Zillertal              | x  |      |     | Gaißau                      | x  |      |     |
| Assling                          | x  |      |     | Gallizien                   | x  |      |     |
| Bad Häring                       | x  |      |     | Gallneukirchen              |    | x    |     |
| Bad Hofgastein                   | x  |      |     | Garsten                     |    | x    |     |
| Bad Kreuzen                      |    | x    |     | Gaschurn                    | x  |      |     |
| Bad Wimsbach-Neydharting         |    | x    |     | Gaspoltshofen               |    | x    |     |
| Bad Zell                         |    | x    |     | Gaweinstal                  | x  |      |     |
| Baden                            | x  |      |     | Geinberg                    |    | x    |     |
| Baldramsdorf                     | x  |      |     | Gitschtal                   | x  |      |     |
| Baumgartenberg                   |    | x    |     | Globasnitz                  | x  |      |     |
| Berg bei Rohrbach                |    | x    |     | Gmünd in Kärnten            | x  |      |     |
| Bergheim                         | x  |      |     | Gmunden                     |    | x    |     |
| Berndorf bei Salzburg            | x  |      |     | Göfis                       | x  |      |     |
| Bisamberg                        | x  |      |     | Goldegg                     | x  |      |     |
| Bischofshofen                    | x  |      |     | Gosau                       |    | x    |     |
| Bleiburg                         | x  |      |     | Götzis                      | x  |      |     |
| Bludesch                         | x  |      |     | Gramastetten                |    | x    |     |
| Bramberg am Wildkogel            | x  |      |     | Grein                       |    | x    |     |
| Brand                            | x  |      |     | Griffen                     | x  |      |     |
| Braunau am Inn                   |    | x    |     | Grödig                      | x  |      |     |
| Bregenz                          | x  |      | x   | Großes Walsertal            | x  |      |     |
| Breitenbach am Inn               | x  |      |     | Großraming                  |    | x    |     |
| Brixlegg                         | x  |      |     | Großschönau                 | x  |      |     |
| Bruck an der Großglocknerstrasse | x  |      |     | Grünbach                    |    | x    |     |
| Brückl                           | x  |      |     | Gunskirchen                 |    | x    |     |
| Bruck-Waasen                     |    | x    |     | Gutting                     | x  |      |     |
| Buchkirchen                      |    | x    |     | Hagenberg im Mühlkreis      |    | x    |     |
| Burgkirchen                      |    | x    |     | Haibach im Mühlkreis        |    | x    |     |
| Bürs                             | x  |      |     | Haibach ob der Donau        |    | x    |     |
| Dalaas                           | x  |      |     | Hallstatt                   |    | x    |     |
| Deutsch Kaltenbrunn              | x  |      |     | Hard                        | x  |      |     |
| Deutschfeistritz                 | x  |      |     | Hartkirchen                 |    | x    |     |
| Dietach                          |    | x    |     | Heiligenberg                |    | x    |     |
| Diex                             | x  |      |     | Heiligenkreuz im Lafnitztal | x  |      |     |
| Dimbach                          |    | x    |     | Hellmonsödt                 |    | x    |     |
| Dölsach                          | x  |      |     | Henndorf am Wallersee       | x  |      |     |
| Doren                            | x  |      |     | Hermagor-Pressegger See     | x  |      |     |
| Dorf an der Pram                 |    | x    |     | Hinterstoder                |    | x    |     |
| Dornbim                          | x  |      |     | Hirschbach im Mühlkreis     |    | x    |     |
| Eben am Achensee                 | x  |      |     | Hittisau                    | x  |      |     |
| Ebenthal in Kärnten              | x  |      |     | Höchst                      | x  |      |     |
| Eberndorf                        | x  |      |     | Hofkirchen im Mühlkreis     |    | x    |     |
| Eberstazell                      |    | x    |     | Hohenems                    | x  |      |     |
| Edlbach                          |    | x    |     | Hörbich im Mühlkreis        |    | x    |     |
| Eidenberg                        |    | x    |     | Hörbranz                    | x  |      |     |
| Eisenkappel-Vellach              | x  |      |     | Imst                        | x  |      |     |
| Eitzing                          |    | x    |     | Innsbruck                   | x  |      |     |

|                              | e5 | EGEM | CoM |                           | e5 | EGEM | CoM |
|------------------------------|----|------|-----|---------------------------|----|------|-----|
| Inzersdorf im Kremstal       |    | x    |     | Mining                    |    | x    |     |
| Jennersdorf                  | x  |      |     | Mittelberg                | x  |      |     |
| Judenburg                    | x  |      | x   | Mitterkirchen im Machland |    | x    |     |
| Kallham                      |    | x    |     | Mogersdorf                | x  |      |     |
| Kaltenberg                   |    | x    |     | Molln                     |    | x    |     |
| Kefermarkt                   |    | x    |     | Moosbach                  |    | x    |     |
| Kennelbach                   | x  |      |     | Moosburg                  | x  |      |     |
| Keutschach am See            | x  |      |     | Moosdorf                  |    | x    |     |
| Kircham                      |    | x    |     | Mötz                      | x  |      |     |
| Kirchbach                    | x  |      |     | Mühlbach am Hochkönig     | x  |      |     |
| Kirchberg in Tirol           | x  |      |     | Mühlgraben                | x  |      |     |
| Kirchbichl                   | x  |      |     | Munderfing                |    | x    |     |
| Kirchdorf an der Krems       |    | x    |     | Münzbach                  |    | x    |     |
| Klagenfurt am Wörthersee     | x  |      | x   | Mürzzuschlag              | x  |      |     |
| Klam                         |    | x    |     | Mutters                   | x  |      |     |
| Klaus an der Pyhrnbahn       |    | x    |     | Naarn im Machlande        |    | x    |     |
| Koblach                      | x  |      |     | Natternbach               |    | x    |     |
| Kollerschlag                 |    | x    |     | Natters                   | x  |      |     |
| Königsdorf                   | x  |      |     | Navis                     | x  |      |     |
| Königswiesen                 |    | x    |     | Nenzing                   | x  |      |     |
| Koppl                        | x  |      |     | Neuhaus                   | x  |      |     |
| Köstendorf                   | x  |      |     | Neuhofen im Innkreis      |    | x    |     |
| Kötschach-Mauthen            | x  |      |     | Neukirchen am Walde       |    | x    |     |
| Köttmannsdorf                | x  |      |     | Neumarkt am Wallersee     | x  |      |     |
| Krems in Kärnten             | x  |      |     | Neumarkt im Hausruckkreis |    | x    |     |
| Kremsmünster                 |    | x    |     | Neumarkt im Mühlkreis     |    | x    |     |
| Krenglbach                   |    | x    |     | Niederkappel              |    | x    |     |
| Kronstorf                    |    | x    |     | Nußbach                   |    | x    |     |
| Krumbach                     | x  |      |     | Nüziders                  | x  |      |     |
| Krummnußbaum                 | x  |      |     | Ober-Grafendorf           | x  |      |     |
| Krumpendorf am Wörthersee    | x  |      |     | Oberkappel                |    | x    |     |
| Kufstein                     | x  |      |     | Obereukirchen             |    | x    |     |
| Kundl                        | x  |      |     | Obertraun                 |    | x    |     |
| Laa an der Thaya             | x  |      |     | Oberwaltersdorf           | x  |      |     |
| Langenegg                    | x  |      |     | Ottenschlag im Mühlkreis  |    | x    |     |
| Lasberg                      |    | x    |     | Ottensheim                |    | x    |     |
| Lassees                      | x  |      |     | Pabneukirchen             |    | x    |     |
| Laussa                       |    | x    |     | Paternion                 | x  |      |     |
| Lauterach                    | x  |      |     | Pennawang                 |    | x    |     |
| Laxenburg                    |    |      | x   | Pettenbach                |    | x    |     |
| Lebring-St. Margarethen      | x  |      |     | Peuerbach                 |    | x    |     |
| Lembach im Mühlkreis         |    | x    |     | Pfaffing                  |    | x    |     |
| Leobersdorf                  | x  |      |     | Pfankirchen bei Bad Hall  |    | x    |     |
| Leonding                     |    | x    |     | Pfankirchen im Mühlkreis  |    | x    |     |
| Leopoldschlag                |    | x    |     | Pfanzerfen                | x  |      |     |
| Liebenau                     |    | x    |     | Pfunds                    | x  |      |     |
| Liezen                       | x  |      |     | Pierbach                  |    | x    |     |
| Linz                         |    | x    |     | Pitten                    | x  |      |     |
| Lochau                       | x  |      |     | Pollham                   |    | x    |     |
| Lochen                       |    | x    |     | Pörschach am Wörthersee   | x  |      |     |
| Losenstein                   |    | x    |     | Pötting                   |    | x    |     |
| Ludesch                      | x  |      |     | Prambachkirchen           |    | x    |     |
| Ludmannsdorf                 | x  |      |     | Pregarten                 |    | x    |     |
| Lustenau                     | x  |      |     | Pressbaum                 | x  |      |     |
| Mäder                        | x  |      |     | Puchenau                  |    | x    |     |
| Mallnitz                     | x  |      |     | Radstadt                  | x  |      |     |
| Malta                        | x  |      |     | Rainbach im Mühlkreis     |    | x    |     |
| Maria Neustift               |    | x    |     | Ramsau im Zillertal       | x  |      |     |
| Mattighofen                  |    | x    |     | Rankweil                  | x  |      |     |
| Micheldorf in Oberösterreich |    | x    |     | Rechberg                  |    | x    |     |
| Mieming                      | x  |      |     | Reichenau im Mühlkreis    |    | x    |     |
| Minihof-Liebau               | x  |      |     | Reichraming               |    | x    |     |



|                                  | e5 | EGEM | CoM |                          | e5 | EGEM | CoM |
|----------------------------------|----|------|-----|--------------------------|----|------|-----|
| Reißeck                          | x  |      |     | Strobl                   | x  |      |     |
| Rennweg am Katschberg            | x  |      |     | Stroheim                 |    | x    |     |
| Rohr im Kremstal                 |    | x    |     | Sulz                     | x  |      |     |
| Roppen                           | x  |      |     | Sulzberg                 | x  |      |     |
| Rosenu am Hengstpaß              |    | x    |     | Taiskirchen im Innkreis  |    | x    |     |
| Roßleithen                       |    | x    |     | Taxenbach                | x  |      |     |
| Rudersdorf                       | x  |      |     | Telfs                    | x  |      |     |
| Saalfelden am Steinernen Meer    | x  |      | x   | Temberg                  |    | x    |     |
| Salzburg                         | x  |      |     | Temitz                   | x  |      |     |
| Sandl                            |    | x    |     | Thal                     | x  |      |     |
| Sarleinsbach                     |    | x    |     | Thalgau                  | x  |      |     |
| Sattledt                         |    | x    |     | Thalheim bei Wels        |    | x    |     |
| Saxen                            |    | x    |     | Thomatal                 | x  |      |     |
| Scharnstein                      |    | x    |     | Thüringen                | x  |      |     |
| Scharten                         |    | x    |     | Tragwein                 |    | x    |     |
| Schenkenfelden                   |    | x    |     | Trebesing                | x  |      |     |
| Schiedlberg                      |    | x    |     | Trins                    | x  |      |     |
| Schiefling am Wörthersee         | x  |      |     | Tulln                    |    |      | x   |
| Schleedorf                       | x  |      |     | Tumeltsham               |    | x    |     |
| Schlierbach                      |    | x    |     | Unterweißenbach          |    | x    |     |
| Schönau im Mühlkreis             |    | x    |     | Unterweikersdorf         |    | x    |     |
| Schwanestadt                     |    | x    |     | Vandans                  | x  |      |     |
| Schwarzach                       | x  |      |     | Velden am Wörthersee     | x  |      |     |
| Schwaz                           | x  |      |     | Villach                  | x  |      |     |
| Schwendau                        | x  |      |     | Virgen                   | x  |      |     |
| Seckau                           | x  |      |     | Vöcklabruck              |    | x    |     |
| Seeboden am Millstätter See      | x  |      |     | Volders                  | x  |      |     |
| Seekirchen am Wallersee          | x  |      |     | Völkermarkt              | x  |      |     |
| Semriach                         | x  |      |     | Vomp                     | x  |      |     |
| Sierning                         |    | x    |     | Vorchdorf                |    | x    |     |
| Sittersdorf                      | x  |      |     | Vorderstoder             |    | x    |     |
| Sonnberg                         |    | x    |     | Vorderweißenbach         |    | x    |     |
| Spital am Pyhm                   |    | x    |     | Waizenkirchen            |    | x    |     |
| Spittal an der Drau              | x  |      |     | Waldburg                 |    | x    |     |
| St. Agatha                       |    | x    |     | Waldhausen im Strudengau |    | x    |     |
| St. Andrä                        | x  |      |     | Waldneukirchen           |    | x    |     |
| St. Florian                      |    | x    |     | Wals-Siezenheim          | x  |      |     |
| St. Georgen am Walde             |    | x    |     | Wartberg an der Krems    |    | x    |     |
| St. Georgen bei Oberberg am Inn  |    | x    |     | Wartberg ob der Aist     |    | x    |     |
| St. Georgen bei Salzburg         | x  |      |     | Weißbach bei Lofer       | x  |      |     |
| St. Gilgen                       | x  |      |     | Weißensee                | x  |      |     |
| St. Johann im Pongau             | x  |      |     | Weitersfelden            |    | x    |     |
| St. Koloman                      | x  |      |     | Weiz                     | x  |      |     |
| St. Leonhard bei Freistadt       |    | x    |     | Wels                     |    | x    |     |
| St. Marienkirchen an der Polsenz |    | x    |     | Werfenweng               | x  |      |     |
| St. Martin am Tennengebirge      | x  |      |     | Westendorf               | x  |      |     |
| St. Martin an der Raab           | x  |      |     | Weyer                    |    | x    |     |
| St. Martin im Mühlkreis          |    | x    |     | Wien                     |    |      | x   |
| St. Nikola an der Donau          |    | x    |     | Wieselburg               | x  |      |     |
| St. Oswald bei Freistadt         |    | x    |     | Wilhering                |    | x    |     |
| St. Pankraz                      |    | x    |     | Windhaag bei Freistadt   |    | x    |     |
| St. Thomas am Blasenstein        |    | x    |     | Windhaag bei Perg        |    | x    |     |
| St. Ulrich bei Steyr             |    | x    |     | Windischgarsten          |    | x    |     |
| St. Wolfgang im Salzkammergut    |    | x    |     | Wolfers                  |    | x    |     |
| Stams                            | x  |      |     | Wolfsberg                | x  |      |     |
| Stans                            | x  |      |     | Wolfurt                  | x  |      | x   |
| Stanz                            | x  |      |     | Wörgl                    | x  |      |     |
| Steegen                          |    | x    |     | Zell am Pettenfirst      |    | x    |     |
| Steinbach am Ziehberg            |    | x    |     | Zell am See              | x  |      |     |
| Steinbach an der Steyr           |    | x    |     | Zell am Ziller           | x  |      |     |
| Steinerkirchen an der Traun      |    | x    |     | Zirl                     | x  |      |     |
| Steyregg                         |    | x    |     | Zwettl an der Rodl       |    | x    |     |
| Stockenboi                       | x  |      |     | Zwischenwasser           | x  |      |     |

### 3.9.3 Purchasing by public bodies (Article 6)

As was already mentioned in the NEEAP 2014, 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 in Austria with Section 80a of the Federal Procurement Act (BVerG), Federal Law Gazette I No 128/2013. Further provisions regarding energy-efficiency-improving obligations of the Federal Government in relation to products and services in the field of procurement can additionally be found in the National Action Plan for Sustainable Public Procurement, which was adopted back in 2010<sup>8</sup>.

The further obligation likewise contained in Article 6 EED to purchase only energy-efficient buildings was transposed by way of Section 15 of the Federal Energy Efficiency Act (EEffG), Federal Law Gazette I No 72/2014<sup>9</sup>. This stipulates that the Federal Government, when purchasing or leasing immovable property, must pay increased attention to the potential impact on energy efficiency and must give preference to those properties which have lower energy consumption values or efficient energy production or conversion systems. Pursuant to Section 15(2), this obligation does not apply to the leasing or purchase of buildings or parts of buildings which are used for the purposes of national defence.

Examples of measures for the procurement by public bodies at a provincial level are described below.

#### 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 province 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](http://www.buy-smart.info)

#### Example – ÖkoKauf Wien (Ecological purchasing Vienna)

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 public bodies of the City of Vienna.

[www.wien.gv.at/umweltschutz/oekokauf/](http://www.wien.gv.at/umweltschutz/oekokauf/)

#### Example – Lower Austrian Road Map for Sustainable Procurement

In 2015, the Lower Austrian provincial government adopted the "Sustainable Development" road map and thereby laid down a framework and a proposal for engaged, responsible and public purchasing.

This road map contains a framework strategy, a catalogue of minimum criteria and a specification.

So that the procurers are provided with the best possible support when implementing the sustainable objectives, the **Sustainable Procurement Service** was subsequently created – this is overseen by the Lower Austrian Energy and Environment Agency. It is directed at the municipalities and public bodies of the province and provides support by way of advice, assistance services and an offering of support tools (online shop and N:CHECK tool for purchasing, events and planning).

<sup>8</sup> [http://www.nachhaltigebeschaffung.at/sites/default/files/naBe-Kurzfassung\\_0.pdf](http://www.nachhaltigebeschaffung.at/sites/default/files/naBe-Kurzfassung_0.pdf)

<sup>9</sup> <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20008914>

**Example – Public procurement in the province of Styria**

The province 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 responsible department. Energy accounting is conducted for the buildings used by the province of Styria; in addition, an energy saving competition takes place annually in Styria for the province's administrative departments. It is expected that final energy savings of 3.4 TJ will be achieved in 2020 thanks to this competition:  
<http://www.kommunikation.steiermark.at/cms/beitrag/12545598/29767960/>

In addition, on the subject of public procurement, an information platform, the 'Styrian Procurement Platform', has been installed which arranges periodic meetings for exchanging experiences and workshops on key issues such as, for example, public-sector building construction.

**Example – Vorarlberg**

The province of Vorarlberg has had in place a guideline on the consideration of energy efficiency and energy savings in relation to awarding public contracts since as far back as 2013. When government vehicles of the province of Vorarlberg are being procured, a life cycle cost assessment is carried out and the energy and environmental impacts are considered. In addition, the province's vehicle fleet includes 17 electric vehicles and 3 hybrid cars. Furthermore, municipalities and public institutions in Vorarlberg are supported by the Vorarlberg Eco-Procurement Service (ÖBS) of the environmental association (Umweltverband).

[http://www.vorarlberg.at/vorarlberg/wasser\\_energie/energie/energie/weitereinformationen/kundmachungen/kundmachungen.htm](http://www.vorarlberg.at/vorarlberg/wasser_energie/energie/energie/weitereinformationen/kundmachungen/kundmachungen.htm)

**Example – Switching the provincial vehicle fleet to E-mobility in Carinthia**

The province of Carinthia is gradually switching its provincial vehicle fleet to electric vehicles. In an initial analysis in which the journey logs were evaluated, it was ascertained that around 70 vehicles would be able to be switched to electrical operation without any major problems. The first 24 electric vehicles (Renault Zoe) are being added to the vehicle fleet in mid-April 2017 and are replacing diesel-powered VW Polos. In the long term, it is planned to make a third of the vehicles electrically powered, to have a third of journeys conducted by public transport and to continue to have the remaining third performed using fossil-fuel vehicles.

**Example – Tyrolian provincial buildings**

For the purposes of provincial buildings (provincial public buildings), with regard to the provision of energy to cover space-heating requirements, the objective is to replace the heating source of heating oil in its entirety and to switch the heating systems predominantly to biogenic district heating; this is, however, only possible by means of connection to regional suppliers. A call for tenders in this area is not expedient and, in addition, is not able to produce any results owing to an absence of competitors.

DVT Daten-Verarbeitung-Tirol GmbH is the central IT service provider for the province of Tyrol. Depending on the subject of the tender (PCs, notebooks, monitors, multifunctional devices, telephone systems, servers, etc.), DVT satisfies two different seals of quality:

- Blauer Engel (Blue Angel) (<https://www.blauer-engel.de/de>), including the environmental label RAL-ZU 171
- Energy Star 5.0 (<https://www.eu-energystar.org/>)

In addition, there is also the possibility of allowing the electricity consumption on the basis of the manufacturer's information to be included among the award criteria.

GemNova is an undertaking of the Tyrolean association of municipalities which provides innovative services for the municipalities of Tyrol, in particular in the field of tenders and procurement. Sustainability and energy efficiency represent a key aspect in this context.

#### **3.9.4 Savings arising from measures in central government and other public bodies**

Information about energy savings from measures in relation to public buildings are contained directly in the relevant measure descriptions.

#### **3.9.5 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.

### 3.10 Energy efficiency measures in industry

#### 3.10.1 Measures relating to 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 Section 3.1.3).

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

| <b>klimaaktiv energy-efficient enterprises</b> |   |
|--|---|
| <b>Description</b>                             |   |
| Category                                       | Information, advice, education  |
| Duration                                       | Start: 2004   Adjustments: ongoing  |
| Target groups:                                 | Enterprises   |
| Description                                    | The klimaaktiv energy-efficient enterprises programme, one of the klimaaktiv 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 provinces 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                            | klimaaktiv enterprises:<br><a href="http://www.klimaaktiv.at/unternehmen.html">http://www.klimaaktiv.at/unternehmen.html</a>  |
| <b>Implementation</b>                          |   |
| National/regional                              | National  |
| Responsible body                               | BMLFUW, Kommunalkredit Public Consulting  |

|                                |   |                   |
|--------------------------------|---|-------------------|
| <b>Cleantech Cluster – CTC</b> |   |                   |
| <b>Description</b>             |   |                   |
| Category                       | Information, advice, education  |                   |
| Duration                       | Start: 2000   | Adjustments: n.a. |
| Target groups:                 | Enterprises   |                   |
| Description                    | <p>The Cleantech Cluster Upper Austria (CTC) is the platform of energy and environmental technology companies in Upper Austria. Its over 250 partner companies come from the sectors of energy technologies and environmental technology. Since January 2017, the CTC has brought together the experiences of the green energy cluster and of the environmental technology cluster. The team of energy technology specialists is based within the Upper Austrian Energy Agency. The cluster constitutes the interface between companies, research and educational institutions, decision-makers and users. In the energy technology field, the objective of the CTC is to increase the innovative strength and competitiveness of the companies of the energy efficiency and renewables sector and thus also to make a contribution towards a positive development of the market in the field of sustainable energy generation and consumption.</p> |                   |
| Further information            | <a href="http://www.energiesparverband.at">www.energiesparverband.at</a>  |                   |
| <b>Implementation</b>          |   |                   |
| National/regional              | Regional  |                   |
| Responsible body               | Province of Upper Austria (OÖ Energiesparverband – Upper Austrian Energy Agency, biz-up)  |                   |

| <b>Green Tech Cluster Styria GmbH</b> |   |                   |
|---------------------------------------|---|-------------------|
| <b>Description</b>                    |   |                   |
| Category                              | Subsidies, qualifications, information  |                   |
| Duration                              | Start: 2005   | Adjustments: n.a. |
| Target groups:                        | Enterprises   |                   |
| Description                           | <p>The organisation supporting the province of Styria's economic-policy initiative in the sphere of energy and environmental technology. With its over 180 members in total, including predominantly companies in the strong areas of biomass, solar energy, substance flow and water/sewerage, but also research and educational institutions as well as public bodies, the Green Tech Cluster Styria aims to establish Styria as a top location for energy and environmental technology.</p> <p>To this end, the Green Tech Cluster Styria (previously ECO World Styria, renamed in 2016) provides assistance with projects and services in the fields of</p> <ul style="list-style-type: none"> <li>• Innovation</li> <li>• Know-how</li> <li>• Location development (clusters, networks, competence and impulse centres)</li> </ul> |                   |
| Further information                   | <a href="https://www.greentech.at/green-tech-valley/">https://www.greentech.at/green-tech-valley/</a><br><a href="https://www.sfg.at/cms/3272/Green_Tech_Cluster_Styria/">https://www.sfg.at/cms/3272/Green Tech Cluster Styria/</a>  |                   |
| <b>Implementation</b>                 |   |                   |
| National/regional                     | Regional  |                   |
| Responsible body                      | Province of Styria (Styrian economic support – SFG)   |                   |

| <b>OekoBusiness Wien (Eco-business Vienna)</b> |  |                   |
|--|--|-------------------|
| <b>Description</b>                             |  |                   |
| Category                                       | Information, advice, training  |                   |
| Duration                                       | Start: 1998  | Adjustments: n.a. |
| Target groups:                                 | Enterprises  |                   |
| Description                                    | OekoBusiness Wien is the City of Vienna's environmental services package for Viennese companies. It supports companies in implementing environment- and energy-related measures and makes a contribution to reducing the environmental impact and operating costs. It offers professional, supported advice and assistance with the practical implementation of measures, Oeko-Business Wien has a pool of advisers who use their professional know-how to help companies. |                   |
| Further information                            | <a href="https://www.wien.gv.at/umweltschutz/oekobusiness/">https://www.wien.gv.at/umweltschutz/oekobusiness/</a>  |                   |
| <b>Implementation</b>                          |  |                   |
| National/regional                              | Regional   |                   |
| Responsible body                               | Province of Vienna, municipal department 22 – environmental protection   |                   |



**Example – Vorarlberg energy autonomy: Measures for energy efficiency in industry**

The Vorarlberg energy autonomy programme covers, up until 2020, the following package of measures for the area of industry and commerce:

1. Creation of an exhaust heat registry, creation of favourable framework conditions and development of assistance for companies with the performance of exhaust heat projects
2. Creation of a programme for promoting renewable energy sources, in particular solar thermal energy and photovoltaics for industry and commerce
3. Expansion of advisory work (in particular greater involvement of electricity) for increasing energy efficiency within companies. Providing assistance to companies with the introduction of energy management systems and the creation of company energy projects. In this context, the existing systems such as Ökoprofit and EMAS are to be taken into account and further developed in this context.
4. Establishment of an exchange and best practice platform for business with information on the subjects of company energy efficiency, the use of renewable energies in business and information about energy-efficient equipment and systems for companies
5. Programme of business for raising awareness in and providing further training to employees in relation to energy and resource efficiency, e.g. in the context of the EUREM training course, WIFI
6. Creation of a provincial programme for operational mobility management. This also includes assistance for companies with planning, introduction and implementation, as well as the creation of financial incentives for resource-saving mobility.
7. Provincial research initiative for practical research in the field of sustainable industrial processes which is to be implemented in Vorarlberg's research centres and in the context of national and international collaborations.
8. Making visible companies' findings about energy efficiency and climate protection, e.g. by presentation of best practice examples as part of the communications strategy of the energy future
9. Programme for helping companies to systematically incorporate energy efficiency in investments systematically
10. The province and the chamber of commerce of Vorarlberg promote the innovation prize for innovative energy projects in companies (VERENA), which was introduced in 2011. They support introduction, provide information to enterprises and encourage participation.

### **3.10.2 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 3.1.3.

### **3.10.3 Financing of energy efficiency measures in industry**

Please see the relevant descriptions of measures in Sections 3.1.3 and 3.10.1.

### 3.11 Energy efficiency measures in the transport sector

#### 3.11.1 Main policy measures addressing energy efficiency in transport

| <b>Overall transport plan for Austria</b> |  |
|---|--|
| <b>Description</b>                        |  |
| Category                                  | Framework plan   |
| Duration                                  | Start: 2012<br>Adjustments: n.a.   |
| Target groups:                            | Transport  |
| Description                               | <p>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 &amp; innovation, removing of barriers, environmental protection &amp; 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 CO<sub>2</sub> 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:</p> <ul style="list-style-type: none"> <li>- electromobility</li> <li>- relocation of transport</li> <li>- true cost of transport</li> <li>- reduction of congestion</li> <li>- noise protection</li> <li>- spatial planning</li> <li>- motorised private transport</li> </ul> |
| Further information                       | Overall transport plan for Austria:<br><a href="http://www.bmvit.gv.at/verkehr/gesamtverkehr/gvp/index.html">http://www.bmvit.gv.at/verkehr/gesamtverkehr/gvp/index.html</a>   |
| <b>Implementation</b>                     |  |
| 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 provinces and the municipalities 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).

| <b>Subsidies for electromobility in Lower Austria</b> |   |                          |
|---|---|--------------------------|
| <b>Description</b>                                    |   |                          |
| Category  | Subsidies   |                          |
| Duration  | Start: 2014   | Adjustments: -           |
| Target groups:  | Private individuals, enterprises, municipalities, 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                                   | <a href="http://www.noel.gv.at/Umwelt/Energie/Elektromobilitaet.html">www.noel.gv.at/Umwelt/Energie/Elektromobilitaet.html</a>  |                          |
| <b>Final energy savings</b>                           |   |                          |
| Calculation method                                    | Estimated based on expected subsidies   |                          |
| Savings (TJ)  | Currently per year<br>22  | 2020 (expected)<br>1 080 |
| <b>Implementation</b>                                 |   |                          |
| National/regional                                     | Regional  |                          |
| Budget and financial resources                        | Currently €2.0 million per annum  |                          |
| Responsible body                                      | Province of Lower Austria   |                          |
| Overlaps, multipliers, synergies                      | Comprehensive promotion of alternative mobility in conjunction with federal initiatives   |                          |

| <b>klimaaktiv mobile - Promotion of energy efficiency measures in the transport sector</b> |   |  |                      |
|--|---|--|----------------------|
| <b>Description</b>   |   |  |                      |
| Category   | Support, advice, awareness raising, training and certification, partnerships  |  |                      |
| Duration   | Start:<br>2nd phase of klimaaktiv mobile launched in 2013   | End:<br>2nd phase of klimaaktiv mobile implemented by 2020 | Adjustments: ongoing |
| Target groups:   | Enterprises, municipalities, associations, tourism and leisure organisations, etc.  |  |                      |
| Description  | <p>The klimaaktiv 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).</p> <p>The klimaaktiv mobile programme focuses on supporting efficient, climate-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 klimaaktiv mobile subsidy programme is also supported by the Climate and Energy Fund.</p> |  |                      |
| Further information  | Advice, awareness raising, training and certification, partnerships:<br><a href="http://www.klimaaktivmobil.at/">http://www.klimaaktivmobil.at/</a><br>Subsidies: <a href="http://umweltfoerderung.at/verkehr">http://umweltfoerderung.at/verkehr</a>   |  |                      |
| <b>Implementation</b>  |   |  |                      |
| National/regional  | National  |  |                      |
| Budget and financial resources   | Subsidies: approximately €10 million per annum (including resources from the Climate and Energy Fund)<br><br>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.  |  |                      |

| <b>Lower Austrian Electromobility Strategy 2014–2020</b> |  |           |                            |
|--|--|-----------|----------------------------|
| <b>Description</b>                                       |  |           |                            |
| 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  | <p>With the Lower Austrian Electromobility Strategy 2014–2020, the province of Lower Austria has set three specific targets for electromobility in Lower Austria and defined the measures required to achieve these targets.</p> <ul style="list-style-type: none"> <li>• Target 1: electric vehicles to constitute 5% of the total fleet of passenger cars in Lower Austria.</li> <li>• Target 2: reduction of individual passenger car transport by 25 000 people thanks to electromobility.</li> <li>• Target 3: nationwide above-average rates of growth in added value and employment in the electromobility sector.</li> </ul> <p>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 provinces, on account of its structure as a non-city province with many rural areas. At the same time, however, Lower Austria possesses great potential in the field of renewable energy.</p> <p>The province'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.</p> |           |                            |
| Further information                                      | <a href="http://www.noel.gv.at/Umwelt/Energie/Elektromobilitaet/E-mobil_Strategie.html">http://www.noel.gv.at/Umwelt/Energie/Elektromobilitaet/E-mobil_Strategie.html</a>  |           |                            |
| <b>Implementation</b>                                    |  |           |                            |
| National/regional  | Regional   |           |                            |
| Budget and financial resources                           | Ongoing budget funds   |           |                            |
| Responsible body   | Office of the province of Lower Austria  |           |                            |

| <b>Subsidies for electromobility in Upper Austria</b> |   |                                 |
|---|---|---------------------------------|
| <b>Description</b>                                    |   |                                 |
| Category  | Subsidies   |                                 |
| Duration  | Start: 2014   | Adjustments/end: 2015; new 2017 |
| Target groups:  | Private individuals, municipalities   |                                 |
| Description   | <p>In 2014/2015, subsidies were provided for two-track vehicles powered solely by an electric power train.</p> <p>In 2014/2015, subsidies were provided for the "installation of charging stations for E-vehicles in Upper Austrian municipalities".</p> <p>Since 1 March 2017, the installation of a smart charging station by private individuals has been subsidised to the extent of 40%, to a maximum of €600.</p> |                                 |
| Further information                                   | <a href="http://www.land-oberoesterreich.gv.at/162399.htm">http://www.land-oberoesterreich.gv.at/162399.htm</a>   |                                 |
| <b>Implementation</b>                                 |   |                                 |
| National/regional                                     | Regional  |                                 |
| Budget and financial resources                        | €433 000 for E-vehicles and €450 000 for public charging stations (2014/2015), €300 000 for charging stations of private individuals (2017)   |                                 |
| Responsible body                                      | Province of Upper Austria   |                                 |
| Overlaps, multipliers, synergies                      | Comprehensive promotion of environmentally friendly mobility coordinated with existing federal initiatives  |                                 |

| <b>Provincial strategy for electromobility in Styria 2030</b> |  |           |                            |
|---|--|-----------|----------------------------|
| <b>Description</b>  |  |           |                            |
| Category  | Subsidies, information, standards, norms, metering, research and development, exemplary role of the public sector  |           |                            |
| Duration  | Start: 2016  | End: 2030 | Adjustments: when required |
| Target groups:  | General public, enterprises, public sector   |           |                            |
| Description   | <p>With the "Provincial strategy for electromobility in Styria 2030", the province of Styria is establishing the framework for the comprehensive introduction of electromobility into Styria. The provincial strategy sees electromobility as being part of the mobility system as a whole. It is intended to support public transport, cycling and walking and to replace conventionally powered vehicles. In addition, it is particularly important for the purposes of the positive environmental effect that the electricity required is provided by way of renewable energy sources such as solar power or hydropower.</p> <p>The targets set for the strategy are very ambitious: in 2030, charging facilities and new mobility offerings for electromobility should be available at around 200 Park&amp;Ride stations. By that time, around 200 000 charging points should then be available in Styria for the approximately 225 000 licensed electric vehicles (about 1/3 of all passenger cars) that there will then be.</p> <p>For the strategy, plans of measures each for 5 years are to be produced. The plan of measures for the period from 2016 to 2020 has already been produced. In it, in total 21 specific measures in the fields of "Exemplary role of the public sector", "Legal framework conditions", "Infrastructure and vehicles" and "Raising awareness and creation of networks" are formulated.</p> |           |                            |
| Further information   | <a href="http://www.energie.steiermark.at/cms/beitrag/12530147/132798639">http://www.energie.steiermark.at/cms/beitrag/12530147/132798639</a>  |           |                            |
| <b>Implementation</b>   |  |           |                            |
| National/regional   | Regional   |           |                            |
| Budget and financial resources                                | Ongoing budget funds   |           |                            |
| Responsible body  | Office of the Styrian provincial government  |           |                            |



| <b>Subsidies for electromobility in Styria</b> |  |                       |
|--|--|-----------------------|
| <b>Description</b>                             |  |                       |
| Category                                       | Subsidies  |                       |
| Duration                                       | Start: 2016  | Adjustments: -        |
| Target groups:                                 | Private individuals, driving schools   |                       |
| Description                                    | Subsidies are provided for one- and two-track--vehicles powered solely by an electric power train as well as private charging stations |                       |
| Further information                            | <a href="http://www.wohnbau.steiermark.at/cms/ziel/113383975/DE/">http://www.wohnbau.steiermark.at/cms/ziel/113383975/DE/</a>          |                       |
| <b>Final energy savings</b>                    |  |                       |
| Calculation method                             | Estimate on the basis of the expected subsidy cases  |                       |
| Savings (TJ)                                   | Currently per year<br>7.5  | 2020 (expected)<br>30 |
| <b>Implementation</b>                          |  |                       |
| National/regional                              | Regional   |                       |
| Budget and financial resources                 | €2.0 million   |                       |
| Responsible body                               | Office of the Styrian provincial government  |                       |
| Overlaps, multipliers, synergies               | Comprehensive promotion of alternative mobility conjointly with federal initiatives  |                       |

| <b>Tyrolean E-mobility strategy – So fährt Tirol 2050 (How Tyrol will drive in 2050)</b> |  |           |                            |
|--|--|-----------|----------------------------|
| <b>Description</b>   |  |           |                            |
| Category   | Raising awareness, subsidies, information, metering, research and development, exemplary role of the public sector   |           |                            |
| Duration   | Start: 2016  | End: 2018 | Adjustments: when required |
| Target groups:   | General public, companies, public sector   |           |                            |
| Description  | <p>“So fährt Tirol 2050” has set itself, as an important catalyst for action in Tyrol, the objective of promoting the use of electric vehicles as well as alternative mobility solutions. The initiative sees itself as a neutral contact partner in relation to all questions relating to the subject of electromobility in Tyrol. The subject areas and focal points are:</p> <ul style="list-style-type: none"> <li>• local public transport and multimodality (e.g. replacement of conventional drive technologies with electrical drives, e.g. hybrid buses, electric buses battery-powered and with fuel cell technology)</li> <li>• commercial applications of passenger transport (taxis, shuttle buses) as well as operational transport applications</li> <li>• bicycles</li> <li>• cars</li> <li>• new technologies</li> <li>• initiation of demonstration projects</li> <li>• charging infrastructure and power supply</li> <li>• communication and raising awareness</li> </ul> |           |                            |
| Further information  | <a href="http://www.tirol2050.at">www.tirol2050.at</a>   |           |                            |
| <b>Implementation</b>  |  |           |                            |
| National/regional  | Regional   |           |                            |
| Budget and financial resources   | €600 000   |           |                            |
| Responsible body   | Province of Tyrol, Energie Tirol, Standortagentur Tirol  |           |                            |

| <b>Tyrolean mobility programme 2013-2020</b> |   |           |                   |
|--|---|-----------|-------------------|
| <b>Description</b>                           |   |           |                   |
| Category                                     | Subsidies, advice, information, raising awareness   |           |                   |
| Duration                                     | Start: 2013   | End: 2020 | Adjustments: none |
| Target groups:                               | Municipalities, general public, enterprises, schools  |           |                   |
| Description                                  | <p>The Tyrolean mobility programme 2013-2020 builds on the successfully implemented predecessor project and once again concentrates on the strengthening of environmentally friendly mobility.</p> <p>In addition to improvements in transport by means of measures such as the expansion of the infrastructure or the adoption of restrictions, the main purpose of this is to achieve a change in the general public's mobility behaviour.</p> <p>The programme includes the following main objectives:</p> <ul style="list-style-type: none"> <li>• Nationwide increase in the share of pedestrian, cycling and public transport in the modal split by, in total, 7%, with a simultaneous reduction in the motor vehicle proportion (including passengers) to below 50%</li> <li>• Creation of a nationwide cycling strategy</li> <li>• Creation of a subsidy plan for needs-based public transport in rural areas to support the municipalities in its introduction and ongoing operation</li> </ul> <p>This is firstly intended to meet the national and Europe-wide environmental targets, but also to guarantee the mobility of the general public in the long term and to ensure that the economy has the necessary transport capacities.</p> |           |                   |
| Further information                          | <a href="http://www.tirol.gv.at/verkehr/mobilitaet/mobil">www.tirol.gv.at/verkehr/mobilitaet/mobil</a>  |           |                   |
| <b>Implementation</b>                        |   |           |                   |
| National/regional                            | Regional  |           |                   |
| Budget and financial resources               | €430-450 000 per annum  |           |                   |
| Responsible body                             | Office of the Tyrolean provincial government, subject area of traffic planning  |           |                   |

| <b>Carinthia Mobility Masterplan - MoMaK</b> |  |           |                   |
|--|--|-----------|-------------------|
| <b>Description</b>                           |  |           |                   |
| Category                                     | Subsidies, advice, information, raising awareness  |           |                   |
| Duration                                     | Start: 2015  | End: 2035 | Adjustments: none |
| Target groups:                               | Federal Government, provinces, municipalities, infrastructure operators, general public, enterprises, schools  |           |                   |
| Description                                  | <p><b>MoMaK 2035 Carinthia Mobility Masterplan 2035</b></p> <p>On 7 May 2015, the official green light was given for the development of MoMaK 2035. In a broadly based participatory process, the Carinthia Mobility Masterplan 2035 for the next 20 years was developed along with all relevant stakeholders and the general public. Over the whole duration of the project, four working groups worked together with the external and internal experts from the Carinthian provincial government on analysis, strategy, fields of activity and measures.</p> <p><b>Framework conditions</b></p> <p>With this masterplan, the province of Carinthia wishes not only to put forward an instruction manual for an intact ecological, social and economic structure for future generations, but also to offer short- and medium-term options for a new transport policy. This is against the background of a falling number of inhabitants and the objective of strengthening Carinthia as a location within Austria and Europe and of using the new technologies and innovations.</p> <p><b>The province of Carinthia's vision</b></p> <p>The province of Carinthia's vision is, over the long term, to increase the proportion of public passenger transport to 20% of total transport, to increase the proportion of cycle and pedestrian travel to 40% and to reduce individual motor transport to 40%. In any event, the intention is to double the proportion of public transport and of cycle transport by 2035. At the same time, the accessibility of the province of Carinthia is also intended to be improved and the environmental impacts reduced. The mobility requirements of the citizens of Carinthia are at the forefront of considerations in this connection.</p> <p><b>Fields of action and measures</b></p> <p>In the next step, 7 fields of action and over 140 associated measures for strategy implementation were then derived from the vision and the strategy. Fields of action bring together different measures in a cross-transport-mode manner and thus constitute a thematic structure for the individual measures.</p> |           |                   |
| Further information                          | <a href="https://www.ktn.gv.at/">https://www.ktn.gv.at/</a><br><a href="http://www.ktn.gv.at/306626_DE-ktn.gv.at-MoMaK">http://www.ktn.gv.at/306626_DE-ktn.gv.at-MoMaK</a>   |           |                   |
| <b>Implementation</b>                        |  |           |                   |
| National/regional                            | National, regional   |           |                   |
| Budget and financial resources               | Depending on the implementation of the individual measures   |           |                   |
| Responsible body                             | Office of the Carinthian provincial government, Department 7   |           |                   |

| <b>Vienna mobility technical strategy</b> |  |                |
|---|--|----------------|
| <b>Description</b>                        |  |                |
| Category                                  | Framework conditions, information, research and development  |                |
| Duration                                  | Start: 2014  | Adjustments: - |
| Target groups:                            | General public, enterprises, public sector   |                |
| Description                               | <p>The mobility technical strategy for the city development plan 2025 (STEP 2025) lays down the measures which state how the targets set out in the city development plan 2025 are to be achieved. By 2025, the intention is for 80% of all day-to-day journeys made in Vienna by the citizens of Vienna to be travelled by public transport, on foot or by bicycle. The proportion of individual transport by motorised means is to decrease from its current level of 28% to 20%. The city of Vienna has committed to prioritising public transport, pedestrians and cyclists as an environmental network. In this strategy, the environmental network is regarded as an integrated system – with optimised interfaces between the modes of transport and additional mobility offerings that are 'city-friendly' (for example a mobility card, bike-sharing and car-sharing). The mobility technical strategy comprises eight fields of activity, with a number of coordinated measures.</p> |                |
| Further information                       | <a href="http://www.wien.gv.at/stadtentwicklung/strategien/step/step2025/fachkonzepte/mobilitaet/">www.wien.gv.at/stadtentwicklung/strategien/step/step2025/fachkonzepte/mobilitaet/</a>   |                |
| <b>Implementation</b>                     |  |                |
| National/regional                         | Regional   |                |
| Budget and financial resources            | Ongoing budget funds   |                |
| Responsible body                          | Province of Vienna   |                |

| <b>Salzburg provincial mobility strategy 2016-2025</b> |  |                |
|--|--|----------------|
| <b>Description</b>                                     |  |                |
| Category   | Mobility: framework conditions, subsidies, raising awareness, modal split<br>Land-use planning: framework conditions   |                |
| Duration   | Start: 2016  | Adjustments: - |
| Target groups:   | Province of Salzburg (undertaking binding itself); all other local authorities in Salzburg and neighbouring regions, general public, enterprises, tourism  |                |
| Description  | The provincial mobility strategy salzburg.mobil 2025, which was passed by the provincial government as of 8.9.2016, contains a comprehensive programme of measures in eight fields of activity in relation to transport and mobility. It is the strategy for provincial mobility policy from 2016 to 2025. The points of emphasis are the expansion of public transport by rail and bus, the new cycling strategy, transport information, traffic management, the nationwide coordination of traffic planning and land-use planning and the creation of an expanded, broad awareness in the population that is conducive to sustainable and environmentally friendly mobility. |                |
| Further information                                    | <a href="http://www.salzburg.gv.at/salzburgmobil2025">www.salzburg.gv.at/salzburgmobil2025</a>   |                |
| <b>Implementation</b>                                  |  |                |
| National/regional                                      | Regional   |                |
| Responsible body                                       | Office of the Salzburg provincial government, Department 6 – Infrastructure and Transport<br><br>(Provincial Construction Directorate)   |                |

| <b>Vorarlberg electromobility strategy 2015-2020</b> |  |
|--|--|
| <b>Description</b>                                   |  |
| Category   | Raising awareness, subsidies, information, metering, research and development, exemplary role of the public sector   |
| Duration   | Start: 2015<br>Adjustments: -  |
| Target groups:                                       | General public, enterprises, public sector   |
| Description  | <p>In the context of the programme "Energy autonomy Vorarlberg", the Vorarlberg provincial government has developed an electromobility strategy of its own for Vorarlberg for the period from 2015 to 2020, in order to anchor the role of electromobility in the context of important transport-policy framework conditions and overarching policies. This strategy builds on different objectives documents and adopted strategies.</p> <p>The electromobility strategy is based on the objectives of existing provincial strategies such as energy autonomy, cycling strategy or traffic strategy Vorarlberg 2006. The key principles: avoiding transportation, relocating it, and subsequently managing it in an environmentally friendly manner. The particular objective is to reduce the proportion of journeys travelled by car on working days in favour of public transport and walking and cycling.</p> <p>The electromobility strategy has five key overarching objectives:</p> <ul style="list-style-type: none"> <li>- Reduction of energy consumption arising from transport by 20 per cent by 2020 in comparison with 2005</li> <li>- Reduction of CO<sub>2</sub> emissions arising from transport by 22 per cent by 2020 in comparison with 2005</li> <li>- Reduction of air pollutant emissions and noise emissions</li> <li>- Further interlinking of the public transport services offered</li> <li>- Enhancement of awareness of transport policy and preparedness to change behaviour</li> </ul> |
| Further information                                  | <a href="https://www.vorarlberg.at/vorarlberg/wasser_energie/energie/energie/neuigkeiten_mitbild_elektromobilitaetsstrateg.htm">https://www.vorarlberg.at/vorarlberg/wasser_energie/energie/energie/neuigkeiten_mitbild_elektromobilitaetsstrateg.htm</a>  |
| <b>Implementation</b>                                |  |
| National/regional                                    | Regional   |
| Budget and financial resources                       | Ongoing budget funds   |
| Responsible body                                     | Office of the Vorarlberg provincial government   |

**Example – Energy autonomy Vorarlberg: Prioritised measures for energy efficiency in the transport sector**

Energy autonomy Vorarlberg comprises, up to 2020, the following package of measures for the area of mobility and land-use planning:

1. The existing land-use planning targets will be supplemented with:
  - Sustainable management of energy.
  - Environmentally friendly mobility, e.g. walking and cycling, public transport.
  - Principle of short journeys.
  - High-quality densification of town and city centres.
  - Concentration of settlement at public transport hubs.
  - Cross-border exchanges and cooperation.
2. The province and the municipalities will take account of the objectives and requirements of environmental protection in strategic and operational planning in the area of mobility (by meeting climate protection targets, land usage targets).
3. The province and the municipalities will focus the development and densification of settlement areas on areas by efficient railway and bus hubs (residential and industrial areas).
4. The province and the municipalities will continue to seek to influence the Federal Government and the EU to ensure that the conditions for true-cost pricing in transport are satisfied on a large scale.
5. Carrying out of initiatives by the province and the municipalities to ensure acceptance and understanding for more true-cost pricing in transport, raising awareness of the personal and social advantages of more true-cost pricing in transport at the same time as easing of burdens in other areas.
6. The province and the municipalities will operate an active land policy in order to be able to steer settlement development in accordance with criteria such as sustainable settlement density, green spaces and open spaces, short journeys, public transport links, spatial quality, etc. In addition, the province of Vorarlberg will assist the municipalities and regions with active land-use development as regards short journeys, enhancement of travel on foot and by bicycle, the activation of building-land reserves within towns and cities and the remediation of contaminated land which has an effect on land use.
7. When configuring traffic environments within towns and cities, the province and the municipalities will work primarily on the basis of the needs of active transport (walking and cycling) and public transport. In this regard, particular attention is paid to the reduction of speed, the avoidance of motor vehicles carrying out rat runs or making noise in residential areas as well as the development of a dense, attractive network of footpaths and cycle paths.
8. Revision of the underlying legal provisions and the planning guidelines in order to make regional and municipal energy strategy planning and land-use development concepts binding.
9. Examination and revision of the legal provisions underlying land-use planning, with the objective that the supra-regional aspects are also taken into account. The province and the municipalities will use all opportunities to ensure that land-use planning also takes place on a regional level, and create the structures and/or committees necessary for that purpose.
10. The province and the municipalities will promote the expansion and interlinking of public transport and the improvement of its quality as a high priority. In this regard, particular attention will be paid to optimal service frequencies, short journey times, high levels of journey comfort, socially acceptable prices and ensuring the reliability of the services offered.
11. In terms of the railways, there will be a systematic expansion of the rail infrastructure as regards capacities in the province of Vorarlberg and of rail and bus links into neighbouring regions.
12. Comprehensive car-park management for traffic-intensive establishments where legally possible.
13. The province and the municipalities will actively secure lines for future projects on the basis of a transport route concept especially in the area of rail (trains, trams) but also for travel by bus, by cycle and on foot.
14. Revision of housing subsidies with the objective of a greater emphasis on the total energy requirement and higher weighting of mobility aspects.
15. Enhancement and expansion of the programmes for increasing active transport on foot and by bicycle (e.g. image campaign, bicycle maintenance courses, public tool stands, school programmes).
16. Systematic examination of the situation in terms of requirements and of the usefulness of large, planned transport infrastructure projects in relation to their compatibility with the objectives of energy autonomy.
17. Informing and raising awareness among the general public regarding the subjects of sustainable mobility and land-use development.
18. The province, the municipalities, parents and teachers will ensure that the raising of awareness regarding environmentally friendly, health-promoting mobility begins at kindergarten age and is further consolidated in subsequent age groups.
19. The province and the municipalities will position themselves as a model region for environmentally friendly mobility in tourism.
20. The province and the municipalities will examine the legal requirements for the establishment of car-free settlements.
21. Updating of the transport concept (development into a mobility concept) taking into account new technological developments and trends, e.g. electromobility.
22. Improvement of the tax reliefs for contributions made by companies to the sustainable mobility of employees, e.g. annual network tickets.
23. The Federal Government, the province and the municipalities will, in collaboration with businesses, develop and market attractive mobility offerings for employees and visitors (operational mobility management).
24. The province and the municipalities will actively promote the conversion of the vehicle fleet to efficient and environmentally friendly vehicles.
25. Expansion of the offering in respect of combined bicycle/public transport travel (taking bicycles on public transport, bicycle stands at railway and bus stations).
26. Ensuring that day-to-day requirements are catered for, with the objective of short routes, e.g. local provision.
27. Carrying out of demonstration and pilot projects in cooperation with the relevant stakeholders, which establish examples of overall strategies for sustainable mobility in conjunction with land-use aspects focussing on the long term. In this context, aspects of sustainable neighbourhoods and industrial zones are taken into account.

As a further step towards the envisaged implementation of energy autonomy 2050, on 20 October 2015 the



province of Vorarlberg adopted an electromobility package by means of which, by 2020, up to 10 000 electric cars, 20 electric buses and 500 electrical commercial vehicles are to be put on the road. In addition, the intention is to double the distances travelled by E-bike. The electromobility strategy contains 32 concrete measures.

### **3.11.2 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 3.11.1. The final energy savings from energy taxes and the HGV toll are reported in Section 3.1.3.

### **3.11.3 Financing of energy efficiency measures in the transport sector**

Please see the relevant descriptions of measures in Sections 3.1.2 and 3.11.1.

### **3.12 Promotion of efficient heating and cooling (Article 14)**

#### **3.12.1 Comprehensive assessment in accordance with Article 14(1)**

The comprehensive assessment was drawn up on the basis of a study by the Vienna University of Technology, Institute of Energy Systems and Electrical Drives. The results of the study can be accessed both in report form and in the form of an interactive map at [www.austrian-heatmap.gv.at](http://www.austrian-heatmap.gv.at). All relevant stakeholders were involved in its production. The interactive map, which is regularly updated, has been designed in such a way that further functionalities and content can be added to it. The instrument will be an objective data foundation for the future orientation of Austria's heating and cooling supply.

#### **3.12.2 Individual plants: cost-benefit analyses and results**

No new combined heat and power plants (CHP plants) have been built in recent years because at present they are not economically viable. Currently, the emphasis is being placed on maintaining the existing plants, in particular those that sustain the public district heating supply. Therefore, no data is available on this point. More detailed information about the general calculation method is contained in the report [www.austrian-heatmap.gv.at](http://www.austrian-heatmap.gv.at).

#### **3.12.3 Individual plants: exemptions and decisions in this regard**

No data about this is available.

### **3.13 Energy transformation, transmission, distribution, and demand response (Article 15)**

#### **3.13.1 Energy efficiency criteria in network tariffs and regulation**

The setting of tariffs for electricity and gas is overseen by the regulatory authority (E-Control). The legal basis is formed by Sections 48 ff of the EIWOG (Federal Law Gazette I No 110/2010, as last amended by Federal Law Gazette I No 174/2013) and Sections 69 ff of the Natural Gas Act (Federal Law Gazette I No 107/2011, as last amended by Federal Law Gazette I No 226/2015).

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 that may possibly exist for efficiency improvements in the electricity and gas transmission systems was currently being evaluated in a study that was produced by the Austrian Energy Agency on behalf of the Federal Ministry of Science, Research and Economy and was presented in February 2015. For the results, please see below under point 3.7.3.

#### **3.13.2 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 3.5).

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 imposed on these devices.

#### **3.13.3 Energy efficiency in network design and operation**

"Assessment of the energy efficiency potential of the Austrian gas and electricity infrastructure", produced by the "Austrian Energy Agency", final report (dated 25 February 2015), extract from the summary:

The purpose of this study was, pursuant to Art. 15(2) of the EU Energy Efficiency Directive (Directive 2012/27/EU), to undertake an assessment of the energy efficiency potentials of the gas and electricity infrastructure, and to identify concrete measures and investments for the introduction of cost-effective energy efficiency improvements. The main focus in relation to gas is on the efficiency potentials of the gas transmission systems and of the regional distribution systems, and, in relation to electricity, the main focus is on the transmission systems (voltage levels 380 kV/220 kV) as well as the high-voltage distribution systems (voltage level 110 kV). One-off analyses were likewise conducted in respect of medium- and low-voltage distribution systems.

Alongside a detailed search of the literature, relevant Austrian network operators concerned were consulted by means of a questionnaire. It was possible to gather the efficiency potentials in the

gas transmission and distribution systems and in the E-transmission system and the distribution systems in relation to electricity from the information obtained from the network operators.

Both the Austrian electricity network and the Austrian gas network operate subject to business-based considerations while at the same time complying with the applicable market rules and the statutory framework. In addition, the managers are influenced by exogenous factors. With regard to network losses, for the electricity transmission system by way of example, the main exogenous factors that can be named are participation in the European grid and cross-border electricity trading. These give rise to load flows, which may have an effect on efficient network operation.

In 2013, according to the regulatory authority E-Control Austria, network losses in the Austrian electricity network amounted to 3.388 GWh, which corresponds to 4.25% of all of the power transported on the network. The proportions of the network losses are attributable to the individual network levels to differing extents. In the transmission system on network level 1, the losses amounted to 595 GWh, constituting 1.4% of the electricity transported. This shows that the Austrian transmission system is already highly efficient.

The greatest potentials for a further reduction of losses in relation to the transmission system lie in the 380 kV network expansion and the use of efficient power transformers. In order to show the theoretical potential of a 380 kV network expansion, by way of example the replacement of a 220 kV line for 98.5 km long subsection in the St Peter – Salzach – Tauern network segment with a 380 kV line was investigated (information on the basis of APG). Assuming a constant load profile, the use of a 380 kV line results in a theoretical loss reduction of 10.359 MWh, or of 66%. Despite this large theoretical potential, an economic analysis shows that an early replacement of an existing 220 kV overhead line with a 380 kV overhead line with the sole purposes of reducing the transmission losses is not economically justifiable. The result of the dynamic amortisation calculation shows that the amortisation period is substantially longer than the average lifetime of 80 years for 380 kV overhead lines.

A further technical potential consists in the use of low-loss power transformers. In this context, it must be said that these items of electrical equipment, which have been developed over decades, have a correspondingly high degree of efficiency (minimum degree of efficiency for new power transformers > 100 MVA from 1.1.2015 according to ERP-RL more than 99.737%). Here too, in the transmission system an early replacement of existing transformers with the sole purposes of a reduction of losses is not economically justifiable. In the event of an age-related replacement of transformers or a new acquisition in the course of expansion of the network, the circumstances are different. Thus, an amortisation calculation was carried out on the basis of the example of a 300 MVA transformer. In that calculation, the additional costs for a theoretical reduction of losses by 20% were estimated on the basis of the information provided by the manufacturer. The calculations resulted in an amortisation period for the additional costs of a low-loss transformer in comparison with a standard transformer of 15 years. Given that the average lifetime of a transformer is approximately 30 to 40 years, it can be concluded on the basis of these results that the additional investment for a low-loss transformer is in general economically justifiable. However, as the costs can vary considerably depending on the circumstances of the case and are mainly dependent on the respective tender criteria of the network operators, it is not possible to derive any finding about a potential in Austria as a whole from the results of this individual investigation. In order to be able to arrive at a more concrete finding, more detailed investigations taking into account the respective specific framework conditions for each particular case are required.

In summary, it is evident that the statutory obligations for transmission or distribution system operators laid down in the ElWOG can be stated to be the main decision-making criterion for network operators in relation to the implementation of measures in the field of the network infrastructure. The obligations of the transmission system operator include, in addition to the maintenance of security of operation and supply, also the provision of the transmission capacities demanded by energy producers and energy consumers. Under the existing circumstances, investment decisions relating to networks with the sole purpose of reducing network losses are, as mentioned above, not economically justifiable. New items of electrical equipment are acquired on account of an age-related replacement, or in the context of an expansion of the network or an enhancement of the network. In the current decision-making process, loss-minimising effects which result from the acquisition of efficient items of equipment constitute a positive corollary. The current network development plan 2013 (NEP 2013) includes the necessary network expansion projects in the transmission system of APG in the ten-year planning period from 2014 to 2023 that is laid down in statute. The study showed that the implementation projects planned for the

purposes of maintaining security of supply will at the same time bring about the economically beneficial reduction of losses at the transmission system level.

The information from the survey of network operators demonstrated that approximately 94% (of 4.25% of total losses) of losses occur in the distribution system (NE3-7). The most up-to-date investigation in the field of distribution systems on this question is the report on the "Determination of shares of losses for each network level" that was commissioned by E-Control Austria and Oesterreichs Energie and was produced by the company Consentec GmbH. This report from 2013 describes, in one calculation variant, the theoretical maximum potential for saving on losses ("ideal network"). Here, a high degree of cabling with at the same time a cross-sectional increase and a total early replacement of all existing transformers with transformers corresponding to the current prior art on all network levels (NE3 – NE7) concerned is assumed. Under these theoretical assumptions, there results a potential for loss reduction in relation to the reference network on network level 7 of 16%, on network level 6 of 32% and on network level 5 of 44%. It can be assumed that over the long term some of this identified potential can be tapped by way of infrastructure measures (replacement in the event of failure or for age reasons, network expansion etc.). In the short term and medium term, however, an early replacement of existing transformers or lines, if it is technically possible in the first place, is not economically justifiable (see above).

Although natural gas is very often compared with electricity and similarities undoubtedly do exist, natural gas is different in terms of many critical criteria: firstly, the fossil energy source of natural gas is in competition with other energy sources and, secondly, natural gas has the ability to be stored. In theory, technical potentials to improve the efficiency further exist in the areas of natural gas compressor drives, an optimal mode of operation for the natural gas network in relation to the operating pressure, and the optimisation of network leaks and natural gas preheating systems.

A large part of the natural gas consumed in Austria is transported over large distances to Austria and then subsequently to the neighbouring countries, primarily Germany and Italy. The necessary building up of pressure in the pipeline – as a consequence of the drop in pressure brought about by the transportation – is undertaken by compressors. In principle, re-fitting the natural gas compressors of natural gas turbine drives that are in operation with E-motors would lead to an increase in efficiency, but this is not economically beneficial before the end of their lifetime under the currently existing framework conditions. At the point in time when it is necessary to replace the natural gas turbines (at the end of the technical lifetime of a natural gas turbine, every 40 000 – 60 000 hours of operation), the decision in favour of an E-motor compressor drive (instead of the natural gas turbine) may prove beneficial from an economic perspective also. For this, however, the necessary network access for a corresponding supply of electricity to the compressor stations must exist or be possible.

The operation of the natural gas network that is optimal in terms of pressure-loss optimisation has a key influence on energy efficiency because the compression energy requirement is minimised as a consequence thereof. Safe and high-performance operation is the responsibility of the relevant network operator, with the coordination of the network control and the use of the network buffer as well as the calling up of the physical balancing energy – in collaboration with the distribution area manager – being transferred to the market area manager. The control of gas flow in the distribution area is undertaken by the distribution area manager. The market area manager and the distribution area manager are obliged, in close cooperation, to coordinate the natural gas network in such a way that in particular the requirements of the balancing energy regime are satisfied. This must occur with the nomination and re-nomination rules being taken into account. This requirement means that a high usage of the network buffer – taking account of the network interconnection contracts and the operational balancing agreements – is paramount, of course subject to compliance with the criteria of safe and reliable network operation. It is necessary to ensure inter alia that control energy is used efficiently and that the calling up of physical balancing energy is minimised. These requirements mean that the system cannot always be managed in accordance with energy efficiency criteria, but rather that overarching, systemic requirements have to be met. However, this does not mean that energy-efficient operation is neglected, but rather that it is at times necessary, for system-related reasons, to subordinate the energy efficiency criteria.

When the natural gas is passed from upstream pipelines – that are operated at a higher pressure – into downstream pipelines with a lower operating pressure, the pressure is reduced. As a consequence of this pressure reduction, the temperature of the natural gas also decreases. In order not to fall below the pressure dew point temperature, and thus to prevent the precipitation of condensates from the natural gas, the natural gas is, if necessary, heated prior to the pressure

reduction. Both for reasons of self-interest and because of the restrictive approach of the energy regulation authority in costs assessment procedures, network operators are obliged to keep their own consumption low and consequently to operate their pressure reduction stations (preheating of natural gas) in an energy-efficient manner. Owing to the fact that in some cases the consumption of gas fluctuates significantly, it is relatively difficult to achieve a very good degree of efficiency – in particular of the heat supply apparatus – over the whole of the range of operation. To achieve a good degree of efficiency, most network operators concerned undertake a variable supply of heat and promote the use of condensing technology. Thus, no significant increase in energy efficiency can be expected in relation to the operation of the pressure reduction stations.

Natural gas which is lost as a consequence of network leaks, repair works and pigging must be compensated for – these network losses thus have an impact on the energy efficiency of the natural gas network. Likewise, the emission of greenhouse gases is prevented – this is an important side effect.

Although the network leaks and the losses resulting from repairs are dependent on the age of the network, the materials used and the purpose of the network (long-distance lines, regional distribution lines or distribution lines), owing – in particular – to the demands made by public authorities, even for relatively old networks it can be stated that the network leaks and the losses caused by repairs and pigging are minor. Measures for reducing these losses therefore do not provide the prospect of an increase in energy efficiency that is so significant that they would be economically justifiable.

In relation to distribution networks, it can be stated that an increase in energy efficiency – caused by the reduction in the network leaks and by the reduction in the natural gas losses caused by repair works – is likewise not economical. A further factor here is that expansion works by means of “hot tapping” can already be carried out during operation and natural gas losses are reduced as a consequence. It can be assumed that renovation programmes – which are (will be) necessary for safety reasons and for the avoidance of disruptive interruptions, in particular in old networks – will give rise to small increases in energy efficiency as a “side effect”.

#### **3.13.4 Savings arising from all energy supply measures**

The results that will be achieved in 2020 with the existing and future measures cannot reliably be estimated at this time.

#### **3.13.5 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.

## 4 Bibliography

- 3s research laboratory – Forschungsverein et al. (2013). *Masterplan zur Sicherstellung der Humanressourcen im Bereich „Erneuerbare Energie“* [Masterplan for guaranteeing human resources in the field of “Renewable Energy”].
- Adensam, H., Bogner, T., Geissler, S., Groß, M., Hofmann, M., Krawinkler, R., et al. (2013). *Methoden zur richtlinienkonformen Bewertung der Zielerreichung gemäß Energieeffizienz- und Energiedienstleistungsrichtlinie 2006/32/EG, Bottom up Methoden*. [Methods for assessing, in a manner compliant with the directive, the achievement of targets pursuant to the Energy Efficiency and Energy Services Directive 2006/32/EC, Bottom up methods.] Austrian Energy Agency.
- Austrian Energy Agency. (2009). *Empfohlene Umrechnungsfaktoren für Energieholzsortimente bei Holz- bzw. Energiebilanzrechnungen*. [Recommended conversion factors for wood fuel ranges in wood or energy balance calculations.] Vienna: BMLFUW.
- BMLFUW. (2013). *Holzeinschlagsmeldung über das Jahr 2012* [Logging report for 2012.] Vienna.
- BMWA. (2007). *1. Energieeffizienzaktionsplan der Republik Österreich gemäß EU-Richtlinie 2006/32/EG* [1st First National Energy Efficiency Action Plan of the Republic of Austria pursuant to EU Directive 2006/32/EC.]
- BMWFJ. (2010). *Nationaler Aktionsplan 2010 für erneuerbare Energie für Österreich (NREAP-AT) gemäß der Richtlinie 2009/28/EG des Europäischen Parlaments und des Rates* [National Renewable Energy Action Plan 2010 for Austria (NREAP-AT) under Directive 2009/28/EC of the European Parliament and of the Council.]
- BMWFJ. (2011) *Zweiter Nationaler Energieeffizienzaktionsplan der Republik Österreich 2011*. [Second National Energy Efficiency Action Plan of the Republic of Austria 2011.]
- BMWFJ. (2012). *Ordinance by the Federal Minister for the Economy, Family and Youth determining the introduction of smart meters (Ordinance on the Introduction of Smart Meters – IME-VO)*.
- BMWFJ. (2013). *Notification to the European Commission pursuant to Article 7 of the Energy Efficiency Directive (EED; 2012/27/EU)*.
- BMWFJ. (2013). *Austrian progress report on energy efficiency 2013*.
- BMWFW. (2014). *Energy Status for Austria – Developments 2012*. Vienna.
- E-Control. (2013). *Einführung von intelligenten Messgeräten in Österreich - Bericht der Energie-Control Austria gemäß § 2 Abs. 3 Intelligente Messgeräte-Einführungsverordnung - IME-VO* [Introduction of smart meters in Austria – Report by Energie-Control Austria pursuant to Section 2(3) of the Ordinance on the Introduction of Smart Meters – IME-VO.]
- European Commission. (2013). *Guidance note on Directive 2012/27/EU on energy efficiency, amending Directives 2009/125/EC and 2010/30/EC, and repealing Directives 2004/8/EC and 2006/32/EC - Article 7: Energy efficiency obligation schemes*. Brussels.
- IIBW. (2016). *Wohnbauförderung in Österreich 2015* [Residential building subsidies in Austria 2015.]
- KPC. (2013). *Performance Report 2012* by Kommunalkredit Public Consulting.
- Ministry of Agriculture, Forestry, Environment and Water Management. (2013). *Federal Government Environmental Subsidies 2012*.
- Austrian Federal Government. (2013). *Work Programme of the Austrian Federal Government 2013–2018*.
- Austrian Federal Government. (2017). *For Austria – Work Programme of the Austrian Federal Government 2017/2018*. Vienna.
- Ploiner, C., & Thenius, G. (2013). *Fortschrittsbericht über die Entwicklung der Energieeffizienz in Österreich im Hinblick auf die Richtlinie 2006/32/EG*. [Progress report on the development of energy efficiency in Austria in light of Directive 2006/32/EC] Austrian Energy Agency, Vienna.
- Statistics Austria. (2013). *Energiebilanzen Österreich 1970-2011* [Energy Balances for Austria 1970–2011.] Energy statistics, Vienna.
- Federal Environment Agency. (2013). *Energiewirtschaftliche Inputdaten und Szenarien, Grundlage für den Monitoring Mechanism 2013 und das Klimaschutzgesetz Synthesebericht*

2013 [Input data and scenarios relating to energy, basis for the monitoring mechanism 2013 and the Climate Protection Act summary report 2013].