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# Third Flemish Energy Efficiency Action Plan

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ABBREVIATIONS

| | | |
|---|---|---|
| nZEB | = | nearly Zero-Energy Building |
| BU | = | bottom-up |
| EPC | = | Energy Performance Certificate; Energy Performance Contract |
| ESCO | = | Energy Services Company |
| ESD | = | Energy Services Directive (Directive 2006/32/EC) |
| (F)(N)EEAP | = | (Flemish) National Energy Efficiency Action Plan |
| EED | = | Energy Efficiency Directive (Directive 2012/27/EU) |
| EU | = | European Union |
| HVAC | = | Heating, Ventilation and Air Conditioning |
| IEE | = | Intelligent Energy Europe |
| CBA | = | Cost Benefit Analysis |
| KEEP | = | KMO (*SME*) Energy Efficiency Plan |
| SME | = | Small- and Medium-size Enterprise |
| NFEE | = | National Fund for Energy Efficiency |
| PV | = | Photovoltaic |
| EPBD | = | Energy Performance of Buildings Directive (Directive 2010/31/EU) |
| SHM | = | Sociale huisvestingsmaatschappij (*Social Housing Company*) |
| TD | = | top-down |
| VEA | = | Vlaams Energieagentschap (*Flemish Energy Agency*) |
| VEB | = | Vlaams Energiebedrijf (*Flemish Energy Company*) |
| TEP | = | Tradeable Emissions Permit |
| VITO | = | Vlaamse Instelling voor Technologisch Onderzoek (*Flemish Institute for Technological Research*) |
| VMSW | = | Vlaamse Maatschappij voor Sociaal Wonen (*Flemish Association for Social Housing*) |
| VREG | = | Vlaamse Regulator van the Elektriciteits- and Gasmarkt (*Flemish Regulator for the Electricity and Gas Market*) |
| WKK | = | CHP (*Combined Heat and Power*), cogeneration |
| WTCB | = | Wetenschappelijk and Technisch Centrum voor the Bouwbedrijf (*Scientific and Technical Centre for the Building Industry*) |

# 1. GENERAL BACKGROUND TO THE THIRD FLEMISH ENERGY EFFICIENCY ACTION PLAN

## 1.1 INTRODUCTION

The Third Flemish Energy Efficiency Action Plan was drawn up in implementation of the EED. It is part of the national action plan to be submitted to the European Commission by 30 April 2014.

This action plan describes the progress of the policy measures from the Second Flemish Action Plan (June 2011) and estimates the savings achieved at the end of 2012. It includes new forecasts for the savings to be expected by the end of 2016. The total estimated saving is compared with the ESD target of an absolute energy saving of 9% of the average end-use in the non-TEP sectors in 2001-2005, which must be achieved by the end of 2016. It also includes the forecast primary and final energy savings for 2020.

The action plan also reports on progress with the implementation of the various articles of the EED and gives a sectoral overview of the policy measures following the template provided by the European Commission.

## 1.2. Flemish policy context and overview of energy saving targets and forecasts within the framework of the Energy Efficiency Directive

As in the first and second Energy Efficiency Action Plans, the EED indicative target for 2016 is 16 959 GWh final saving to be achieved in the non-TEP sectors.

Forecasts were prepared for the savings from the policy measures in the non-TEP sectors up to 2016 for assessment against the EED final target. The forecast final and primary savings were also calculated for 2020.

There are no other additional Flemish energy efficiency targets as specified in Annex IV, part 2.1 to the EED.

The savings achieved in the TEP industry through an energy policy agreement with the Flemish Government will be monitored and forecasts will be produced up to the end of 2020.

Table 1 gives an overview of the total final and primary savings for 2012, 2016 and 2020 in the non-TEP sectors and in TEP industry.

Table 1. Overview of the total and expected final and primary savings achieved (2012) and expected (2016, 2020) in the non-TEP sectors and the TEP industry.

| | **Energy saving achieved in 2012** | **Energy saving expected in 2016** | **Energy saving expected in 2020** |
|---|---|---|---|
| **Non-TEP**<br><br>**ESD target 2016 = 16 959 GWh final** | 16 499 GWh final<br>23 660 GWh primary | 27 416 GWh final<br>35 361 GWh primary | 36 044 GWh final<br>44 736 GWh primary |
| **TEP industry (incl. refineries and coke production): energy policy agreements** | 4 548 GWh final<br>5 093 GWh primary | 8 186 GWh final<br>9 167 GWh primary | 11 825 GWh final<br>13 241 GWh primary |
| **Total energy savings** | 21 047 GWh final<br>18 567 GWh primary | 35 062 GWh final<br>44 528 GWh primary | 47 869 GWh final<br>57 977 GWh primary |

Further details of the savings for policy measures in the non-TEP sectors are given in Table 3.

The Flemish targets for new nearly Zero-Energy buildings (nZEB) according to the EPBD (Article 9(1), Article 9(3)b) are given in the table below. The definition of existing nZEBs and the target/objective for 2015 (EPBD Article 9(2)) will be determined by the end of 2014.

**Table 2. Flemish targets for nearly Zero-Energy Buildings**

| | *Existing buildings - target as a percentage of total renovated buildings* | *New buildings - target as a percentage of all new buildings* |
|---|---|---|
| 2015 | - | 10% |
| 2020 | - | 75% |

**Other existing Flemish action plans in energy and climate policy:**

- **In 2007 the Flemish government began to develop the 2020 Energy Renovation Programme to limit energy consumption in existing dwellings. The Flemish Government Policy Accord of 13 July 2009 expressly states that the 2020 Flemish Energy Renovation Programme will be continued and expanded to include tailor-made measures. The objective of this programme is that, by 2020, each Flemish person will have an energy-efficient home, which has at least improved double**

**glazing, an insulated roof and an energy-efficient central heating system.**

- **On 29 May 2009 the Flemish Government was notified of the first interim report '2006-2010 Action Plan for Energy Management in Flemish Government Buildings' with the results of the action plan for the period 2006-2008.**

- **On 29 April 2011 the Flemish Government approved the second Flemish Strategy for Sustainable Development with its vision and long-term objectives for 2050.**

- **On 30 March 2012 the Flemish Government approved the air quality plan for $NO_2$.**

- **On 21 June 2012 the Flemish Government was notified of the Flemish Action Plan for nearly Zero-Energy Buildings. The national coordinated action plan was submitted to the European Commission on 28 September 2012. This action plan supports an increase in the number of nearly Zero-Energy Buildings, both newly built and in the existing building stock. The final aim is for all new buildings to be nearly Zero-Energy Buildings (nZEB) from 2021. As part of the leading role of the government, this will be obligatory for government buildings from 2019 (particularly for new buildings occupied and owned by public bodies).**

- **On 21 December 2012 the Flemish Government approved the (second) Flemish Action Plan for Sustainable Public Contracts 2012-2014. This contains an evaluation of the first action plan and actions and measures to be carried out by the Flemish government to increase the sustainability of its public contracts in the period 2012-2014.**

- **On 28 June 2013 the Flemish Government gave its final approval to the (third) Flemish Climate Policy Plan 2013-2020. The plan comprises a coordinating section and two subsidiary plans: the Flemish Mitigation Plan (*Vlaams Mitigatieplan* - VMP), to reduce greenhouse gas emissions (which focuses on non-TEP sectors), and the Flemish Adaptation Plan (*Vlaams Adaptatieplan* - VAP) to manage the effects of climate change in Flanders.**

- **At the end of 2013, the Flemish Government gave its approval in principle to a new Mobility Plan. The public enquiry was completed at the beginning of 2014.**

## 2. OVERVIEW OF FINAL ENERGY SAVINGS

1. For the purposes of Directive 2006/32/EC (in the first and second NEEAP), information on the final achieved energy savings and forecast savings in energy end-use by 2016 as defined in Directive 2006/32/EC (*EED, Article 27(1), Annex XIV, Part 2.2.(b), second sub-paragraph*) is given below.

**Table 3. Overview of the final energy savings in 2012 (achieved), 2016 and 2020 (forecast) in the non-TEP sectors, final and primary**

| Sector | Name of the energy-saving measure | Energy saving achieved in 2012 | Energy saving expected in 2016 | Energy saving expected in 2020 |
|---|---|---|---|---|
| Buildings | Introduction of insulation standards and energy performance and indoor climate requirements (EPB) | 1 932 GWh final<br>2 143 GWh primary | 3 171 GWh final<br>3 465 GWh primary | 4 288 GWh final<br>4 581 GWh primary |
| Industry | Auditing and benchmarking agreement with energy-intensive non-TEP companies | 1 705 GWh final<br>2 714 GWh primary | 2 680 GWh final<br>4 265 GWh primary | 3 654 GWh final<br>5 816 GWh primary |
| Energy sector | Imposition of Efficient Energy Use (*Rationeel Energiegebruik – REG*) public service obligations on the electricity distribution system operators | 7 983 GWh final<br>9 806 GWh primary | 11 405 GWh final<br>13 627 GWh primary | 14 630 GWh final<br>16 947 GWh |
| Energy sector | Promotion of high-efficiency cogeneration (CHP) by a system of cogeneration certificates | 475 GWh final<br>2 892 GWh primary | 508 GWh final<br>2 125 GWh primary | 540 GWh final<br>1 358 GWh primary (*) |
| Energy sector | Promotion of photovoltaic solar panels by means of a system of renewable energy certificates, | 1 710 GWh final<br>4 275 GWh primary | 2 049 GWh final<br>5 123 GWh primary | 2 648 GWh final<br>6 619 GWh primary |

| | | | | |
|---|---|---|---|---|
| | preceded by subsidies | | | |
| Mobility | Policy measures which manage mobility and improve the environmental performance of transport | 1 863 GWh final<br>999 GWh primary | 6 558 GWh final<br>5 711 GWh primary | 9 239 GWh final<br>8 370 GWh primary |
| Agriculture and horticulture | Subsidies for energy-saving measures in greenhouse cultivation | 831 GWh final<br>831 GWh primary | 1 045 GWh final<br>1 045 GWh primary | 1 045 GWh final<br>1 045 GWh primary |
| **Total energy savings** | | **16 499 GWh final**<br>**23 660 GWh primary** | **27 416 GWh final**<br>**35 361 GWh primary** | **36 044 GWh final**<br>**44 736 GWh primary** |
| **ESD target** | | | **16 959 GWh final** | |

(*) As stated in 3.6.1, the most recent study of potential dates from 2009, so a number of parameters are now out of date. The primary saving in 2020 is therefore lower than in 2012. A thorough, new study of potential will be carried out by the end of 2015 in accordance with the requirements of Article 14.

**Savings of 16 499 GWh final were achieved in the non-TEP sectors in 2012, an increase of 52% on the savings achieved in 2010, as reported in the previous action plan.**

**The new calculations show that the final savings expected at the end of 2016 are 162% of the final target. The estimated savings in 2016 given in the first action plan (2007) were only 107% of the target and the expected savings in the second action plan (2011) were 148% of the target.**

**At the end of 2016 the final savings should be 2 323 GWh higher than in the previous action plan. The increase can be attributed to the policy measures in transport (+1 548 GWh), photovoltaic solar panels (+1 478 GWh), the energy policy agreements with non-TEP industry (+920 GWh) and the REG public service obligations on the electricity distribution system operators (+905 GWh).**

**The REG public service obligations on the system operators in the form of action obligations deliver the most savings by the end of 2016 (11 405 GWh or 42% of the total saving). Table 4 gives a breakdown of the**

**final savings for each action.**

**Table 4. Overview of the final savings in 2012 (achieved), 2016 and 2020 (forecast) from the REG public service obligations on the system operators**

| | **Energy saving achieved in 2012 [GWH final]** | **Energy saving expected in 2016 [GWh final]** | **Energy saving expected in 2020 [GWh final]** |
|---|---|---|---|
| Roof insulation grant | 2 698 | 4 630 | 6 524 |
| Boiler replacement grant (from 2012 for protected customers only) | 2 773 | 2 807 | 2 843 |
| Glass replacement grant | 800 | 1 218 | 1 668 |
| Wall insulation grant | 343 | 877 | 1 486 |
| Floor and cellar insulation grant | 18 | 86 | 151 |
| Solar boiler and heat pump grant (incl. obligatory minimum proportion of renewable energy in new dwellings from 2014) | 251 | 472 | 676 |
| Grant for buildings with a below-standard E-rating | 93 | 190 | 257 |
| Energy-efficient lighting grant, non-residential | 193 | 322 | 403 |
| Frequency transformer grant (until the end of 2011) | 639 | 589 | 415 |
| Grant for ventilation with heat recovery (until the end of 2011) | 125 | 125 | 125 |
| Energy scans of dwellings (saving from fitting energy saving light bulbs/shower heads) | 50 | 88 | 81 |
| Discount vouchers for energy-efficient refrigerators | 0.4 | 0.6 | 0.9 |

| | | | |
|---|---|---|---|
| and washing machines for protected customers | | | |
| **Total** | **7 983** | **11 405** | **14 630** |

2. For the purposes of Directive 2006/32/EC, in the first and second NEEAP, a description of the measurement and/or calculation methodology used for calculating final energy savings is given below.

   **The savings from the policy in the transport sector are calculated on a top-down basis in accordance with the recommended harmonised EC methodology ('Recommendations on measurement and verification methods in the framework of Directive 2006/32/EC on energy end-use efficiency and energy services (ESD)').**

   **The savings from all other energy-saving measures (in the sectors buildings, industry, energy, agriculture and horticulture) are calculated on a bottom-up basis. The recommended harmonised calculation methodology, lifetimes and default values are used. If there is no harmonised methodology or if the Flemish data are not available for the application of the harmonised methodology, we have used our own calculation methods, described in an annex to the 2011 energy efficiency action plan.**

   **Table 5. Overview of the methodology used to calculate the savings for the purposes of Directive 2006/32/EC (ESD)**

| **Sector** | **Bottom-up (BU) or top-down (TD)** | **Calculation methodology** |
|---|---|---|
| Buildings | BU | Harmonised methodology: BU formula 2.3. |
| Industry | BU | Own methodology: see annex to 2011 action plan. |
| Energy sector | BU | - Harmonised methodology: BU-formulae 2.2, 2.4, 2.7<br>- European default values<br>- Own methodology: see annex to 2011 action plan. |
| Mobility | TD | Harmonised methodology: TD indicators P8, P9, P12, P13, M6 and M7. |
| Horticulture | BU | Own methodology: see annex to 2011 action plan. |

   **The final saving from electricity-saving measures is translated into a primary saving with a conversion factor of 2.5.**

# 3. POLICY MEASURES IMPLEMENTING EED

## 3.1. Horizontal measures

### *3.1.1. Energy efficiency obligation scheme and alternative policy measures (Article 7)*

1. Information on the overall amount of energy savings that will be required over the obligation period in order to meet the target set in accordance with Article 7(1), and, if applicable, on how the possibilities listed in Article 7(2) and (3) are used (EED Article 7, Annex XIV, Part 2.2.(a)).

   **On 22 November 2013 the Flemish Government formally acknowledged the communication notifying the European community of the alternative approach, which was notified on 10 December 2013. The full notification can be found at: http://ec.europa.eu/energy/efficiency/eed/doc/article7/2013_be_eed_article7.nl.pdf.**

   **Flanders inserted detailed information sheets into the notification demonstrating compliance with the criteria for each policy measure.**

   **The target to be achieved during the obligatory period is calculated on energy sales to final customers. The non-energy consumption and consumption for refineries, coke and car production can therefore be deducted from the Flemish energy balances. We have also opted to exclude transport consumption from the calculation. The average final energy sales for the years 2010 to 2012 are thus 156 653 GWh.**

   **Applying a target of 1.5% a year produces a target of 65 794 GWh to be achieved over the whole period. Use of the options described in Article 7.2 of the Directive could reduce this target by up to 25%. The actual minimum target imposed on Flanders under the Directive is 49 346 GWh.**

   **The Flemish Region is opting to use a combination of the reduced pathway and exclusion of part of the ETS sector from the calculation of the target, until the full 25% reduction of the target is achieved. In other words it is aiming to achieve a target of 49 346 GWh.**

2. Information about any energy efficiency obligation scheme as referred to in Article 7(1) (*EED Article 7, Annex XIV, Part 2.3.2*).

   **There is no existing or planned energy efficiency obligation scheme.**

3. Alternative policy measures of the Flemish Region in accordance with Article 7(9) and Article 20(6), including information on how their equivalence is ensured (EED Article 7, Annex XIV, Part 2.3.2.).

   **To meet the targets of Article 7, the Flemish Region has opted not to introduce an obligatory scheme for suppliers or distribution system**

**operators, but to opt to notify the European Commission of the following alternative measures:**

- **Energy policy agreement with the TEP companies;**
- **Energy policy agreement with the non-TEP companies;**
- **Single REG action obligations on the electricity system operators for existing buildings (both residential and non-residential):**
  - **grant for roof and loft insulation;**
  - **grant for wall insulation (external wall and cavity wall insulation);**
  - **grant for cellar and floor insulation;**
  - **grant for high-efficiency glazing.**

**Follow the link in point 1 to see detailed information sheets for each policy measure demonstrating compliance with the criteria. This overview is also used for annual reporting with the list of alternative measures (EED Article 7, Annex XIV, Part 1(e)).**

**The tables below show how much energy the proposed measures are expected to save.**

**The two tables below show retail savings over the whole period.**

**Table 6. Expected savings from the REG public service obligations of the system operators, which are counted towards the target in Article 7 as an alternative measure**

| **Grants for REG public service obligations** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **CUM. GWh** | **CUM. TWh** |
|---|---|---|---|---|---|---|---|---|---|
| Roof insulation, GWh cum. | 497 | 991 | 1480 | 1966 | 2447 | 2924 | 3397 | 13 702 | 13 702 |
| Glazing, GWh cum. | 107 | 215 | 321 | 426 | 530 | 634 | 737 | 2 970 | 2 970 |
| Wall insulation, GWh cum. | 55 | 110 | 164 | 218 | 271 | 325 | 377 | 1 520 | 1 520 |
| Floor and cellar insulation, GWh cum. | 8 | 16 | 25 | 33 | 41 | 50 | 57 | 230 | 0 230 |

**Table 7. Expected savings from the agreements with industry, which are counted towards the target in Article 7 as an alternative measure**

| **Energy policy agreements** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **CUM. TWh** |
|---|---|---|---|---|---|---|---|---|
| TEP, TWh cum. | 0.95 | 1.90 | 2.85 | 3.80 | 4.75 | 5.70 | 6.65 | 26 615 |
| non-TEP, TWh cum. | 0.24 | 0.48 | 0.72 | 0.96 | 1.20 | 1.44 | 1.68 | 6 730 |

**4. Methodological aspects as defined in EED Article 7, Annex V; Annex XIV, Part 3.2; Annex V 2.(e).**

**Follow the link in point 1 (notification to the European Commission) to see the detailed information sheets for each policy measure describing, for example, the methodologies used to calculate the expected energy savings.**

5. Published savings as defined in EED Article 7(6), (8) and (10), Annex XIV, Part 2.2.(a)).

   **The VEA will publish a report on its website www.energiesparen.be every year evaluating the progress of compliance with Article 7.**

6. Update of all of the principal legislative measures implemented in 2013 for the REG public service obligations.

   **The action obligations notified in point 3 are some of the current action obligations on the electricity system operators. The package of action obligations will be extended. In 2013 new regulatory measures will be taken for the whole package, which will also be used for annual reporting under EED Annex XIV, Part 1(b).**

   **The following changes to the REG public service obligations were made in 2013:**
   - **Expansion of the applicants eligible for a grant to include ESCOs.**
   - **Abolition of maximum grants for all insulation actions (including glazing) (for both residential and non-residential buildings).**
   - **Dwellings connected to the distribution system after 1 January 2006 are also eligible for solar boilers and heat pumps. However, for both residential and non-residential buildings, this is limited to connections before 1 January 2014 (subject to the inclusion of buildings connected after this date with an urban development licence application dated before 1 January 2014), as the obligatory minimum amount of renewable energy will be introduced from 2014.**
   - **For aid after auditing, the amount of the grant no longer differs on the basis of the IRR. The restrictive condition that the audit must be carried out by an approved energy expert has also been abolished.**
   - **Applications for a grant for the same type of investment can now be submitted more than once a year.**
   - **The target group for the energy scans has been expanded.**
   - **The target group for the social roof insulation projects has been expanded.**
   - **Additional control provisions have been included in the Energy Decree. These provisions allow the VEA to exercise control, independently of the system operators, over the execution of the action obligations.**

### *3.1.2. Energy audits and management systems (Article 8)*

Overview of the measures planned or already undertaken to promote energy audits and energy management systems, including information on the numbers

of energy audits carried out, specifying those carried out in large enterprises, with an indication of the total number of large enterprises in the Member State territory and the number of enterprises to which EED Article 8(5) is applicable (EED Annex XIV, Part 2.3.3.).

## A. THE IMPORTANCE OF ENERGY AUDITS FOR HOUSEHOLDS

**Article 8(3) of the EED states that households must also be made aware of the benefits of energy audits.**

**Under the EPBD, dwellings sold or let must have an energy performance certificate (EPC - see also 3.1.4 and 3.1.5). The EPC provides the owners, buyers and tenants of the dwelling with basic information about its energy performance. In addition to an energy score, the EPC mainly contains standard measures to improve the energy performance of the dwelling.**

**The energy advice procedure (EAP – see also 3.1.5) is currently used to prepare a thorough energy audit for single-family houses. The energy audit determines where, how and how much energy can be saved in the house. This procedure is entirely separate from the current certification method for existing residential buildings. The disadvantage of this is that the information from the EPC cannot be re-used and the results of the audit and the certificate are not comparable. We are therefore currently investigating the possibility of expanding the certification software to include a section on advice, which encourages people to take the pathway required for the house to comply with the definition of an 'existing' nZEB, which will be adopted in 2014.**

**The system operators are also subject to a public service obligation under which they must offer a free domestic energy scan to well-defined vulnerable target groups on request. This involves recording the energy consumption of the dwelling, taking small energy-saving measures free of charge and giving families free energy-saving tips, information about grants and assistance with investments. The system operators enter into agreements with scan companies who will carry out the energy scans, the 'energy trimmers'. See also 3.1.6.**

**In the Flemish Region it is also obligatory to carry out a heating audit for heating appliances with an output of 20 to 100 kW. This audit must be carried out on the first service after the appliance is five years old, and every five years thereafter, either by a liquid fuel or a gaseous fuel engineer. The heating audit for heating appliances with an output of more than 100 kW must be carried out every two years (liquid fuels) or every four years (gaseous fuels) by a heating audit engineer. These three types of engineer are accredited for a period of five years, after which they must undergo further training to renew the accreditation.**

## B. OBLIGATORY ENERGY AUDITS (LARGE ENTERPRISES) AND PROMOTION PROGRAMMES (SMEs)

**Energy Planning Decision**

**Since 2004 the environmental regulations (VLAREM – Flemish environmental permit rules) have set energy efficiency requirements for installations with a total annual primary energy consumption of a least 0.1 PJ. This is done through the Energy Planning Decision which was integrated into the Energy Decision in 2010. The important aspect of this decision is the distinction it makes between (the procedure for and handling of) the energy plans and energy studies:**

- **An energy study must be attached to the environmental licence application (for new installations with an annual energy consumption of at least 0.1 PJ and modifications to installations with an annual energy consumption of at least 0.1 PJ). The energy study must demonstrate that the installation in question will be operated energy-efficiently. The VEA assesses the energy studies submitted for the licensing procedure.**
- **An existing installation with an annual energy consumption of at least 0.1 PJ must attach an energy plan to the application for renewal of its environmental licence. The VEA assesses these plans as part of the licensing procedure. Economically viable energy-saving measures included in the energy plan (and defined here as measures with an IRR of more than 15%), must be carried out within three years.**
- **Until now, an (existing) installation with an annual energy consumption of more than 0.5 PJ (this is being reduced to 0.1 PJ as part of the updated 2013 environmental regulations 'VLAREM-trein', see below) must have had an approved energy plan since 1 July 2005 (independently of the environmental licensing procedure). These energy plans are approved by the VEA. Economically viable energy-saving measures included in the energy plan must be carried out within three years. These plans must be updated every four years.**

**Energy policy agreements with energy-intensive companies**

**Energy-intensive companies with an annual primary energy consumption of at least 0.1 PJ, are encouraged to reduce their energy use by entering into an energy policy agreement.**

**175 companies, representing about 82% of the industrial energy consumption, entered into the benchmarking agreement (for companies with an annual primary energy consumption > 0.5 PJ, plus TEP companies). 215 companies, representing about 6% of the industrial energy consumption in Flanders entered into the audit agreement (for companies with an annual primary energy consumption of 0.1 PJ to 0.5 PJ, excluding the TEP companies).**

**In 2012 the Flemish government, in consultation with the sectors, drew up an energy policy agreement for both the TEP and non-TEP companies for**

**the period 2014-2020 to succeed the benchmarking and auditing agreement. In the autumn of 2012 a draft of the new energy policy agreements was approved in principle by the Flemish Government. On 2 May 2013 these energy policy agreements were discussed by the Flemish Parliament's Energy Committee. The federal government submitted the energy policy agreements file to the European Commission under the state aid rules. The agreements are due to come into effect on 1 January 2015. Companies who enter into the energy policy agreement undertake to prepare an energy plan and to make all viable investments from it. These measures also form part of the alternative policy measures under point 3.1.1.**

**<u>Further development of the energy audit measures for large enterprises</u>**

**According to the European Commission's definition, there are 2 636 large enterprises in the Flemish Region. These large enterprises have 11 872 branches in Flanders. We do not know how many of these branches comply with the European definition of a large enterprise and would therefore be subject to an obligatory audit under Article 8 of the EED.**

**The EED obliges Member States to ensure that all enterprises that are not SMEs undergo an energy audit carried out independently and cost-effectively by qualified and/or accredited experts, or under the supervision of independent authorities on the basis of national legislation, by 5 December 2015 and at least every four years after the date of the previous energy audit. The Flemish Government is amending the environmental licensing regulations (VLAREM-trein 2013 – first approved in principal on 20 December 2013) to provide for the transposition of this provision. Large enterprises which already prepare an energy plan under the Energy Planning Decision, or under the energy policy agreements for energy-intensive industry, are exempted from the obligation to prepare an energy audit. Large enterprises which have an EN 16001 European energy standard or an ISO 50001 international standard for energy management systems, are also exempted from the obligation to prepare an energy audit. The information from the preparation of an energy plan or an energy audit will be entered into a web application. The results of the energy audit under the EN 16001 or ISO 50001 procedure will be entered into a web application. This application contains the use profiles of the buildings and processes, and the suggestions for improvement with an estimate of the energy saving and costs. Categorising the suggested improvements in the web application in advance will allow them to be analysed statistically to determine the most frequent suggestions, the estimated energy saving and the cost of achieving it. This will allow budgeting for any support (e.g. through grants etc). The web application will be developed and managed by the VEA. The VEA supervises the energy audits and auditors through its management of the web application. The web application is expected to be available on 1 January 2015.**

**The companies participating in the energy policy agreements with**

**energy-intensive industry, undertake to carry out studies of the potential for high-efficiency CHP and heating and cooling networks by the middle of 2015. See also 3.4.1 and 3.6.1., point 4.**

**ERDF project 'Efficient Energy Use in SMEs'**

**Over the period 1 November 2008 - 31 October 2013 the Flemish government body Enterprise Flanders carried out the ERDF project 'Efficient Energy Use in SMEs'. As part of the project SMEs were offered a free basic energy scan, followed by thematic recommendations, formulated by an independent research agency. The advice was not free, but 50% of the cost (2/3 during the first two years of the project) was subsidised.**

**A total of 520 basic energy scans were carried out. The scans comprise 1 715 recommended and qualified measures, 1 276 of which were accompanied by an estimate of the investment required. On average, the scan resulted in a suggested saving of 10% on the electricity bill and 15% on the fuel bill. An overall saving of € 3.6 million a year on the collective energy bill of the companies concerned was suggested. This equates to a primary energy saving of 0.271 PJ a year ($CO_2$ emissions of 12.8 ktonnes a year). The estimated investment to achieve all or part of this saving is € 16.8 million, with a payback time of around four-and-a-half years.**

**259 recommendations were also made for new buildings.**

**As a follow-up to both the basic scans and the recommendations for new buildings, 106 thematic studies were carried out for 78 companies by external and independent consultants or research agencies. These highlighted 250 quantified measures which could produce a saving of 0.129 PJ primary energy a year, or around € 2.35 million a year ($CO_2$ emissions of 6 343 tonnes a year). The investment required is around € 9.5 million. The evaluation of the thematic recommendations shows that about 80% of the suggested measures will actually be carried out, or are already being carried out. This represents an investment of about € 7.6 million. N.B.: the figures from the thematic recommendations cannot simply be added to those from the basic scans, as some subjects that were dealt with and quantified in the latter came up again in the studies carried out by the external consultants.**

**SME energy efficiency plan (KEEP)**

**On 19 July 2013 the Flemish Government approved a draft memorandum 'SME energy efficiency plan (KEEP)' which contains an action plan to promote energy efficiency in SMEs and offices. Energy management is not a core activity for many SMEs as the cost of energy only accounts for a small part of the cost structure of the enterprise. As a result they do not make any viable energy investments. Awareness and knowledge are therefore essential for this target group. During the development of this action plan, ways of promoting access for SMEs to affordable energy**

**audits, carried out independently by qualified or accredited experts, were investigated. The action plan included the following concrete actions to support the preparation of energy audits:**

- **The companies can make use of the SME portfolio when preparing *thematic energy recommendations*. The SME portfolio provides subsidies for training, advice, strategic advice, international advice, coaching and technological investigation procured from recognised service providers. Companies who wish to receive training or advice on their energy consumption can obtain a subsidy to cover 50% of the cost of advice (with a minimum of € 2 500) through the SME portfolio. The advice comprises an analysis of the problem, an advice section and an implementation plan. A subsidy of 50% of the cost of strategic energy advice up to a maximum of € 25 000, can also be obtained through the SME portfolio. Since 21 November 2013, in implementation of the action plan, SMEs have been able to obtain a subsidy of 75% (up to a maximum of € 10 000) for one year to assist with the implementation process, if they call in external assistance for the implementation of energy saving measures. For the first year these measures consist of finding and repairing compressed air leaks, cooling, and optimising the sanitary hot water supply (e.g. solar boilers). The regulatory framework for the SME portfolio was amended in 2013 by a specific regulation for energy service providers (Ministerial decision of 21 June 2013 amending various provisions of the ministerial decision of 14 February 2013 implementing the decision of the Flemish Government of 19 December 2008 to grant aid to small and medium-size enterprises for services promoting entrepreneurship, for the appointment and operation of firm of auditors).**
- **The SMEs will certainly be able to apply to Enterprise Flanders for a free basic energy scan until the end of 2014. In compliance with the KEEP draft memorandum, Enterprise Flanders has outsourced 400 of these scans to five energy consultancy firms.**

**To assist with the development of the KEEP action plan, the Flemish government awarded a study contract in 2013 for an investigation of the measures in force in the surrounding countries, their effectiveness and an analysis of how the existing measures in Flanders can be adapted to utilise the potential and increase the response of SMEs to energy saving. The final report of this study can be found on the VEA website (http://www.energiesparen.be/node/3687). The main conclusions and recommendations were:**

- **Flanders is not falling behind its neighbours on measures to promote energy efficiency among SMEs. The majority of these countries have only recently introduced targeted actions for SMEs as they have focused their efforts mainly on energy-intensive industry in the past.**
- **For many SMEs energy saving remains an abstract concept. Efforts to encourage SMEs must be grounded in their actual daily experience. The best way of doing this is to provide concrete examples and practical experience of energy saving, for example by**

**publishing actual cases on the website, setting up seminars...**

- **The best way of broaching the subject of energy efficiency with SMEs is to use existing relationships of trust (sector federations, UNIZO (*organisation for the self-employed and SMEs*), Chambers of Commerce,...) rather than creating new channels.**
- **It would also be appropriate to provide back-up support to help SMEs with specific questions on a particular subject. This could focus on specific subjects each year. To improve access to this advice, financial assistance would also have to be provided.**
- **Experience abroad has shown that giving ESCOs or third party financing bodies access to SMEs is not the obvious thing to do as they operate in a competitive environment and are susceptible to financial ups and downs, making it more difficult to include them in a clear long-term contract.**
- **Existing energy management systems are generally too onerous for many SMEs. Experience from abroad shows that these systems are only introduced into SMEs on a voluntary basis. Energy management systems should therefore be developed that are more suitable for SMEs and for which there is also a financial incentive.**

**As already stated, targeted awareness and information campaigns are an important aspect of the KEEP action plan. Many SMEs and offices need to be able to benchmark their energy consumption against other companies in their sector. The energy scans carried out (e.g. by Enterprise Flanders) already contain a lot of data that may be useful for this kind of benchmarking. It should be possible to supplement these data with energy consumption data provided by the companies themselves in an open platform. The action plan specifies that the VEA must investigate which concept and action plan that should be used to establish such an open benchmarking platform for a number of sectors and subsectors such as offices, supermarkets etc. At the end of 2013 the VEA awarded a study contract for the development of a draft and further plan for the establishment of a benchmarking platform for the energy consumption of SMEs and offices. More specifically it would like to investigate ways of collecting and processing the energy consumption information held by the government itself, service providers or SMEs and making it available in anonymous form. On the basis of the data provided, a non-expert must soon see the energy saving potential and be encouraged to take action. The study will produce a final report which:**

- **formulates a requirements analysis (What is necessary to achieve the objective? What are the wishes and needs of SMEs? What type of energy data can be benchmarked? What is the best way to make the data available? What about the privacy and confidentiality of data?...);**
- **contains a functional analysis with a clear description of the functionalities of the system (How can the requirements be met? What useful data is readily available? What are the characteristics of the useful data? What processing is still required to make the data available? How can parties be encouraged to make useful data available? How should a data platform look with a view to making**

**energy data available for general use? What interfaces should be provided to allow companies to process data themselves? What Open Data licence models should govern the operation of these interfaces?);**

- **describes a further action plan indicating the best way for the Flemish government to develop this platform, (including rough estimates of development time, investment and operational costs).**

**The contract was awarded at the end of 2013. The final report will be delivered half way through 2014.**

**Support from the system operators**

**Each electricity distribution system operator will provide a grant for investment in an existing non-residential building which delivers an energy saving demonstrated by an energy study or audit. The grant will be given per kWh primary energy saved. This grant is part of the REG public service obligations which the Flemish government has imposed on the electricity system operators.**

**Quality control of service providers**

**The energy studies and energy plans drawn up for companies within the framework of the energy policy agreements and the environmental licence regulations will be evaluated by the Verification Agency (*Verificatiebureau*). This is an independent and impartial organisation appointed by the Flemish Government to monitor, issue advice, and report on the proper implementation of the energy policy agreements. It is the only body which makes decisions in individual cases on the acceptance of the energy expert, the energy plan and the reporting. The Verification Agency operates according to strict guidelines and with a certified quality assurance system.**

**Enterprise Flanders issued an invitation to tender for the development of an audit method with the aim of aligning the recognition of the service providers more closely with the needs of the SME portfolio. The service providers are screened by an independent firm of auditors. If the quality of the service provider is good, it is recognised as a 'service provider of the SME portfolio'. If the service provider applies for recognition for the specific domain 'energy' of the pillar 'strategic advice', the firm of auditors also examines whether the service provider has the necessary knowledge and experience in that specific domain.**

### *3.1.3. Metering and billing (Articles 9-11)*

Information on measures adopted or planned in metering and billing (EED Article 9, Article 10, Article 11, Annex XIV, Part 2.2.).

**Progress of the roll-out of smart meters**

**A decision has not yet been made on the roll-out of smart meters in the**

**Flemish Region. After an initial technological test in 2011, large-scale pilot projects for new smart electricity and natural gas meters have been running since October 2012. A total of 41 000 meters have been installed in various places in Flanders, distributed over rural and urban areas, both in individual houses and apartment building. At the beginning of 2014 a final report will be drawn up on this pilot project outlining the experience gained both with the installation of the smart meters and with the acquisition and processing of metering information. As part of this process, the existing cost-benefit analysis for the introduction of smart meters will be updated on the basis of the results of the pilot project. The intention is that the Flemish Government will use this information to make an informed decision, from 2014, on whether or not to roll out smart meters in the Flemish Region.**

**The pilot project is accompanied by a specific study of the REG effects of the smart meters. The participants in the pilot projects are given the opportunity to monitor their consumption via a website or by letter. The researchers also investigate ways of maximising the energy-saving effect of the information supplied to customers.**

**On 26 February 2014 the Flemish Parliament approved a decree that can be used as a basis for the wider introduction of smart meters if the decision is made to do so. This decree states that the Flemish Government will determine the situations in which a system operator and an operator of a closed distribution system must install a smart meter. It also states that, if a smart meter is installed, the system operator and the operator of a closed distribution system must ensure that customers are given sufficient information and advice about their rights and obligations and the full potential of the meter, including the use of the smart meter data and the possibilities for customers to control their energy consumption. It then states that the Flemish Government will determine the conditions to be met by these smart meters and which parties are given access to which smart meter data and for which purposes. The parties who are given access to the data from these smart meters will have to guarantee the security of the data and compliance with privacy legislation at all times.**

**The table below gives figures for smart meters in Flanders.**

**Table 8. Number of AMRs (automatic meter readings) in the Flemish Region**

| **Situation on 1 January** | **2010** | **2011** | **2012** |
|---|---|---|---|
| - *number of medium-voltage points measured by AMR* | 13 042 | 14 353 | 15 934 |
| - *percentage of medium voltage access points measured by AMR* | 64.5% | 69.1% | 73.6% |
| - *number of low-voltage points measured by AMR* | 7 589 | 9 315 | 11 347 |

| | | | |
|---|---|---|---|
| - *percentage of low voltage access point measured by AMR* | 0.2% | 0.3% | 0.3% |

**Measures adopted for metering and billing electricity and gas consumption**

**The technical regulations for the distribution of electricity and natural gas already include the obligation to provide for separate metering/counting at each access point on the distribution system (Article V.I.2.1. of the technical regulation on the distribution of electricity and Article V.I.2.1. of the technical regulation on the distribution of natural gas). These provisions have applied to new buildings since 1 July 2002.**

**The metering codes of the technical regulations on the distribution of electricity and natural gas specify that this metering must take place at least once a year, alternating between a physical reading of the meter by the system operator in one year and reporting of the meter reading by the customer (after a meter card has been sent) the following year and/or, failing this, by an estimated reading by the system operator.**

**Article 5.6.1(1) and (2) of the Energy Decision of 19 November 2010 provides that the supplier must send domestic customers a settlement bill at least once a year.**

**Articles 6.4.23. and 6.4.25. of the Energy Decision of 19 November 2010 oblige the supplier to inform customers on the settlement bill of their consumption over the past three 3 years.**

**Article V.3.10.2 of the technical regulations on the distribution of electricity and natural gas also provides the possibility to request detailed consumption information from the distribution system operator.**

**Planned measures in the metering and billing of the heating, cooling and hot water supply of a building by a district heating network or by a central source that serves various buildings.**

**On 26 February 2014 the Flemish Parliament approved a decree which states the following:**

***'Article 7.8.1. §1. If the heating, cooling or hot water supply of a building is provided by a district heating network or by a central source which serves various buildings, a heat meter or hot water meter shall be installed on the heat exchanger or the point of supply. The Flemish Government may specify conditions and further rules for the heating, cooling or hot water supply of a building by a district heating network or by a central source which serves various buildings.***

***§2. The Flemish Government may determine the conditions to be met by the operator of a district heating network or central source to be***

***able to operate such a network or source.***

***§3. The operator of a district heating network or of a central source which serves various buildings or consumers, shall ensure that, by 31 December 2016 at the latest, individual consumption meters are installed in apartment buildings and multifunctional buildings which have a central source of heating/cooling or are supplied from its district heating network or its central source, in order to measure the consumption of heat or cooling for each unit.***

***The Flemish Government may specify exceptions for those cases in which it is not technically feasible or cost-effective to install such a meter. The Flemish government shall specify the conditions to be met by these meters. The parties who gain access to the information from these meters through this decree and its implementing decisions shall guarantee the security of the data and compliance with privacy legislation at all times.***

***The Flemish Government may specify further rules for the transparent and accurate calculation of individual consumption and for the distribution of the costs of thermal or hot water consumption for:***

***1 hot water for domestic use;***

***2 heat from the building's installation for the heating of the common areas;***

***3 the heating of apartments.'***

**Specific situation for social housing**

**About 23 000 social apartments, distributed over around 350 residential blocks, are heated collectively. In some places there is one collective heating installation for several buildings; some are combined with CHP.**

**Recently built or renovated projects with collective heating have an efficient cost-management system. However in many older buildings evaporation meters are still used or the cost is settled on a flat-rate basis.**

**Depending on the conditions of use and the requirements set for new metering systems, their introduction may have significant technical and financial consequences for the social housing companies concerned. The economic viability must therefore be evaluated thoroughly.**

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

1. Information on measures adopted or planned to promote or facilitate efficient use of energy by SMEs and domestic customers (*EED Article 12 and 17, Annex XIV, Part 2.2.*).

## General

**The general policy on promoting efficient use of energy and environmentally friendly energy production is implemented down to citizen level, as citizens will only take significant action themselves if they have a clear idea of how decisions to invest in energy saving measures and the use of renewable energy will benefit them personally. Local bodies and intermediary organisations may also be very well placed in this respect as they are close to citizens and can therefore provide them with information suited to their needs.**

**The VEA has developed a number of instruments which can provide citizens with customised advice on a number of energy saving investments, such as roof insulation, wall insulation, replacement of single glazing, replacement of old central heating boilers, installation of a solar boiler or photovoltaic solar panels(called 'energy profit calculators', see www.energiesparen.be/energiewinst). This includes both the umbrella grants at Flemish or federal level, and any municipal or provincial grants. There is regular contact between the VEA and the local councils to ensure that all energy saving grants are kept up to date. These instruments are also promoted actively by many local councils on their websites. Many contractors also use the energy profit calculators to give their customers advice. Another instrument is the tool 'test your EPC', which allows citizens to compare the EPC of a particular house (terrace, semi-detached or detached) or apartment with the average EPC reference value in a certain municipality or province or with Flanders as a whole. The citizens can thus verify whether the EPC has a (much) better or (much) worse score than the market average. The VEA also regularly issues new publications on energy grants, the EPC and the energy performance regulations for new buildings (EPB regulations). It is also standard practice for the local councils to distribute these brochures or folders. The local councils have information points, for example in town halls and libraries, to distribute these publications. Many of the VEA's publications are distributed directly by the local councils, who can order additional copies free of charge. An important channel of communication between the Flemish government and the local councils is Dito. The Dito newsletter is distributed regularly through the 'General Government Policy Services' department (*Diensten voor het Algemeen Regeringsbeleid* (DAR)). This newsletter often reports new information campaigns or brochures. The local councils are also offered standard texts and images through Dito so that they can distribute this information easily via the local communication channels. Dito announces all VEA information campaigns. The VEA also supports many initiatives which provide citizens with information about energy-saving investments, such as the events 'My house my architect', the renovation day and open house days held by eco-builders, as making the energy-saving investments tangible is still the most effective way of motivating citizens.**

## Energy consultancy projects

**Energy consultancy projects for the target groups companies, building professionals and households have been running since the beginning of 2011 within a regulated subsidy scheme. Each energy consultancy project is monitored by a supervisory committee established by the Flemish Energy Agency. The monitoring and reporting agreements included in the subsidy agreements allow regular and adequately detailed monitoring of the achievement of the targets. On the basis of an evaluation of the current projects a new call for proposals for energy consultants for households and building professionals for the period 2014 to 2016 was launched in the autumn of 2013. To encourage the SMEs actually to take energy saving measures, the Flemish Government's SME energy efficiency plan (KEEP) provides for them to be supported by specialised energy experts or energy service companies. SMEs will be able to obtain a 75%subsidy for one year for any external support they call in for the implementation of energy saving measures such as reorganising compressed air production, cooling and optimising the supply of sanitary hot water (e.g. solar boilers).**

**For the target group agricultural companies, the energy consultancy project will be extended until the end of 2016 (Flemish Government decision of 20 September 2013).**

**<u>The provision of information about cost-effective and easily achievable changes in energy consumption</u>**

- **Website www.energiesparen.be. The website of the Flemish Energy Agency (which has around 1.2 million visitors a year) provides a lot of information about energy efficiency, e.g. through the energy profit calculators, the grant search module and the frequently asked questions module. Specific organisations are also involved in this to ensure that the process for providing information and handling questions runs as smoothly as possible. These include ODE Vlaanderen (*organisation for sustainable energy in Flanders* ), Cogen Vlaanderen (*Flanders cogeneration organisation*), Groenlicht Vlaanderen (*network for energy saving in Flanders*), Biogas-E and Quest (*energy-saving quality mark*). The Flemish government's aim is for the website to remain the reference site for energy saving in Flanders.**
- **Energy profit calculators. The website www.energiesparen.be/energiewinst offers six energy profit calculators: roof insulation, cavity wall insulation, replacement of an old central heating boiler, replacement of single glazing, solar boilers and photovoltaic solar panels. The calculators can easily be accessed by the general public and provide a quick overview of the main options for saving energy.**
- **Brochures. Information is given to the target groups through a general range of brochures about energy efficiency (for example grants and financial instruments, EPC, EPB,...). All information campaigns mention the website www.energiesparen.be and the Flemish government's freephone number 1700. Energy saving tips are also given**

**continuously through the website, the media and brochures. In 2013, the Flemish Energy Agency and Enterprise Flanders jointly produced a brochure for companies on energy efficient lighting in SMEs.**

- **Large-scale campaigns such as the VEA's campaign 'New energy grants 2014 – Make your nest 100% warm' to re-publicise and provide further information about the energy grants; this takes a direct approach to spurring the population to action: 'Grants are available, so use them'. The campaign started on 7 January 2014. The focus is on raising awareness and calling on people to invest more in energy saving. General information can be found at: http://energiesparen.be/campagnes. Instruments are a TV advertisement, a print advertisement, online banners and the 4-point insulation test which can be found at http://www.energiesparen.be/doedetest.php#vraag1.**
- **The website www.klimaattips.be. This website focuses on suggestions for a wide range of things Flemish people can do to help improve the climate. Most of the suggested actions, hints and tips relate to energy efficiency and cover aspects which require investment and also behavioural aspects (good use). For each (sub)topic, users are referred to relevant sites and brochures (which can be found on the internet) with more in-depth information, including the above sites and brochures.**
- **The SME energy efficiency plan (KEEP) includes a specific targeted awareness and information action. Enterprise Flanders and the VEA will prepare communication actions for this. Companies which have had a basic scan carried out in the past four years will be approached by Enterprise Flanders to ensure that the measures suggested in the scan are carried out. Very specific information campaigns will also be launched by providing concrete examples and practical experience of energy saving in particular sectors. During 2013 Enterprise Flanders, the Flemish Energy Agency and the relevant sector federations jointly developed sector-specific campaigns for the hotel and catering industry and carpenters and joiners. The involvement of the sector federations in this is essential to make full use of the relationship of trust between the federations and the SMEs.**
- **Benchmarking platform for the energy consumption of companies (see 3.1.2).**

**Communication and information measures facilitating the commitment of consumers during the roll-out of smart metering systems.**

**VREG will launch a study of how this can be organised as part of the large-scale pilot projects on smart electricity and gas meters which have been running since October 2012 (see 3.1.3.).**

**Information provided to banks about the possibilities for participating in the financing of measures to improve energy efficiency**

**At the end of 2012 the Flemish Government approved the proposal to enter into an energy policy agreement with banks. Financial institutions**

**which enter into an energy policy agreement with the Flemish government, undertake to offer advantageous loan conditions to builders of energy efficient dwellings. In return for this the banks will be given a quality mark and will be mentioned in the government communication about energy efficient building and renovation. Belfius and Triodos Bank were the first two banks to enter into this energy policy agreement with the Flemish government to make energy efficiency a priority, at the Batibouw 2013 building fair. From April 2014 ING will provide a similar offer.**

**Demonstration projects**

**See the nZEB leaders strategy of chapter 3.3.2. which includes a section on demonstration projects. See the relevant chapters for industry, transport and the buildings owned and occupied by public bodies.**

**Supporting surveys**

**In 2013 the VEA repeated the biennial REG survey. This survey of 1 004 Flemish households, which was carried out by TNS Dimarso, shows that 93% of Flemish people believe that energy saving is important or very important. 70% of Flemish people believe that they use energy efficiently or very efficiently, an increase of 4% in comparison with the 2011 survey. With regard to electricity use, there has been a particular increase in the use of LED light bulbs (used in 31% of homes, as opposed to 22% in 2011). 82% (as opposed to 71% in 2011) of Flemish families say that they always or usually look at electricity consumption when buying an appliance. 69 % of dwellings with a natural gas central heating boiler have a high-efficiency or condensing boiler. This figure is 32% for heating oil users. About one in five dwellings overheats during the summer, but the proportion of energy-intensive air conditioning units (6%) and the interest in installing such units in dwellings within five years (2%) remains low. 80% of the dwellings surveyed have roof or loft insulation, 31% have floor insulation, and 45% wall insulation. 13% of the dwellings still have single glazing. As regards future plans for the next five years, investments in roof insulation and an efficient central heating boiler are the most popular, followed by high-efficiency glazing, cavity-wall insulation, solar boilers, external wall insulation and PV panels.**

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

Information about existing or planned accreditation or certification schemes or equivalent qualification schemes (including, if applicable, training programmes) for providers of energy services, energy audits, energy managers and installers of energy-related building elements as defined in Article 2(9) of Directive 2010/31/EU (*EED Article 16, Annex XIV, Part 2.3.7.*).

**Recognition scheme for energy experts for buildings**

**The EPBD states that energy performance certificates must be drafted by independent and/or recognised experts.**

**Different recognition schemes have been developed for the drafting of the energy performance certificate in the Flemish Region depending on the type of building. The certificate for existing residential buildings can be drafted only by a recognised type A energy expert. To be recognised an expert must have taken a training course for a type A energy expert recognised by the VEA and have passed the central examination.**

**The certificate for public buildings can be drafted by a type C energy expert or by an internal energy expert. As with type A, to be recognised as a type C energy expert for public buildings, an expert must take a training course for a type C energy expert recognised by the VEA and pass the central examination. An internal energy expert for public buildings is an employee of the public organisation who has at least two years' energy management experience within the organisation.**

**The Flemish government is also promoting the drafting of energy audits for single-family houses by recognising type B energy experts. To become a type B energy expert an expert must successfully complete a training course at a training establishment recognised by the VEA.**

**These recognitions are all individual and are thus not granted at company level. The energy experts are either self-employed as a main or secondary job or are employees of a legal person. If the energy expert is found to be incompetent the recognition can be withdrawn.**

**Recognition as a liquid fuels, gaseous fuels and heating audit engineer**

**Engineers who are responsible for servicing and inspecting central heating must have the necessary certification and recognition. There are three different types of recognition as an engineer:**

- **recognition as a 'liquid fuels engineer'**
- **recognition as a 'gaseous fuels engineer'**
- **recognition as a 'heating audit engineer'.**

**Qualification scheme for cavity wall insulation**

**In the Flemish Region, the grant for retrofitted cavity wall insulation is linked to a Declaration of Conformity. This document includes site-specific information on the work carried out, and is used by the installer to declare that the work was carried out in accordance with the requirements, which cite Technical Specifications (STS)[1]. For retrofitted cavity wall insulation, they cite STS 71-1. The manufacturer must declare that the products used comply with all relevant regulations.**

[1] http://economie.fgov.be/nl/ondernemingen/specifieke_domeinen/kwaliteit_bouw/Goedkeuring_voorschriften/#.UfkGKm3-aRE

**Qualification scheme for installers of small-scale renewable energy systems – personal certificate**

**The European Renewable Energy Directive (2009/28/EC) obliges the European Member States to implement a certification scheme for installers of small-scale biomass boilers and stoves, photovoltaic and solar thermal systems, shallow geothermal systems and heat pumps.**

**The certification scheme for renewable energy installers will grant a personal, rather than a company, certificate of competence. A certificate of competence will be granted to installers who have followed a recognised training course, passed an examination, entered the occupation and have relevant occupational experience. If the conditions for certification are not met, the certificate is not issued or renewed, or is withdrawn. Installers who do not have the required occupational experience are given a 'trainee certificate of competence'. If sufficient relevant experience is acquired this is converted to a certificate of competence. This opens up the market to school-leavers. To extend the five-year period of validity, the installers must undergo further training. The certificate of competence will be recognised throughout Belgium. This system will be operational from March 2014 and training and examination establishments can apply to the VEA for recognition.**

**Although the implementation of the Directive is a Regional responsibility, the Regional governments have decided, at the express request of the sector federations, to work towards a harmonised national approach. The three Regions have developed a common training programme for installers in consultation with the knowledge and training centres and sector associations.**

**Qualification scheme for enterprises**

***Quest quality mark***

**The non-profit-making organisation Quest was set up by knowledge centres and sector federations and, with financial aid from the Flemish government, has developed a quality system for renewable energy applications by means of quality reference criteria for both installation companies and producers.**

**This Quest quality system is currently operational for the recognition of heat pumps and companies which install photovoltaic systems, solar boilers and heat pumps. Enterprises receive a quality mark on the basis of a neutral and independent audit procedure.**

***Construction Quality mark***

**Construction Quality is an initiative of the Building Confederation (*Confederatie Bouw*), its three Regional Building Confederations, BCCA**

**(Belgian Construction Certification Association), BCQS (Belgian Construction Quality Society) and Federal Assurance. Construction Quality organises, develops and ensures the promotion of a voluntary quality mark system that conforms to the appropriate quality and competence criteria in accordance with a coherent and impartial reference framework. The marking of specialised activities, such as the installation of small-scale renewable energy systems, is provided under CQSkill. The procedure is organised by BCCA, as accredited and independent operator, with expert support from Quest, as the recognised technical institute.**

***Energy-Conscious Contractor mark***

**The building sector federation Bouwunie offers contractors the opportunity to obtain the Energy-Conscious Contractor mark. With this mark, Bouwunie aims to offer companies which consciously use sustainable and energy-conscious building practices the opportunity to distinguish themselves more clearly from other building companies. To obtain this mark companies must complete training modules and pass a test, train workers and carry out an energy-efficient building project.**

**Recognition scheme for energy experts within the framework of the SME portfolio**

**SMEs are not under the obligation imposed on larger enterprises to undergo a regular energy audit. However the Flemish government has already developed programmes to encourage SMEs to carry out energy audits and to implement the recommendations of these audits, for example by making use of the SME portfolio.**

**Natural persons are recognised as energy service providers if they are certified by a firm of auditors. The service provider must be recognised in the field for which the subsidy application is submitted. The ministerial decisions of 14 February 2013 and 21 June 2013 specify the conditions for the appointment and operation of firms of auditors.**

**Recognition scheme for energy experts within the framework of energy policy agreements with energy-intensive companies**

**The energy expert, either internal or external, who will draw up the energy plan within the framework of the energy policy agreements, must be accepted by an established procedure. The VEA is assisted in the assessment of the candidate energy expert by the independent Verification Agency (VBBV). This acceptance procedure is a recognition scheme within the energy policy agreements.**

**Recognition scheme for energy experts within the framework of the Energy Planning Decision (*Besluit Energieplanning (BEP)*)**

**Within the framework of the BEP, energy plans and energy studies must**

**be drafted by energy experts accepted by the VEA. The VEA is assisted in the assessment of the candidate energy expert by the Independent Verification Agency (VBBV). The candidate energy expert is assessed on the following two criteria:**

- **he/she may not be a member of the personnel of the establishment for which the energy study/plan is being drawn up,**
- **he/she must have thorough technical and commercial knowledge of the establishment to be studied. The candidate energy expert must therefore have enough experience and expertise in the installations to be tested. He/she must be able to satisfy the Verification Agency that he/she is able to draw up such a plan or study.**

**The VEA provides a form on its website which can be used by the operators required to have an energy plan or study drawn up, to apply for the acceptance of an energy expert.**

**The Flemish Institute for Technological Research (VITO) provides a list of potential energy experts on its website. This list of potential energy experts is of course not limitative and is regularly extended. Nor does inclusion in this list guarantee that the energy expert concerned will be accepted by the competent authority under the existing regulations. Conversely, the government can also accept energy experts who are not included on this list. Companies, consultants, etc who wish to be included on this list can apply to VITO.**

**<u>Build Up Skills Belgium</u>**

**For the European IEE-Build Up Skills project the Building Industry Professional Training Fund (*Fonds voor Vakopleiding in de Bouwnijverheid* (Fvb-ffc Constructiv)), the Scientific and Technical Centre for the Building industry (*Wetenschappelijk and Technisch Centrum voor the Bouwbedrijf* (WTCB)) and the Flemish and Walloon Regions, submitted and approved the Build Up Skills Belgium project.**

**Various constraints which make it more difficult to improve the competence of technical employees in the field were recorded. To respond to these challenges, a plan of action was developed for nine different subjects, seven of which are technological and two inter-occupational:**

- **retrofitting of wall insulation;**
- **ventilation;**
- **PV and solar installations;**
- **sun shading;**
- **roof insulation;**
- **replacement of joinery work;**
- **heat pumps;**
- **air-tightness;**
- **interaction between occupations.**

**The results were combined into a general roadmap with five strands for energy efficiency (EE) and renewable energy (RE):**

- **Strand 1: instruments to manage and audit quality**
- **Strand 2: spreading knowledge and raising awareness**
- **Strand 3: re-orientating training**
- **Strand 4: contribution of the manufacturers**
- **Strand 5: redefining occupational competence profiles**

**After delivery, these strands will be taken up by the various partners in the Build Up Skills platform.**

### *3.1.6. Energy services (Article 18)*

1. Measures adopted or planned for the promotion of energy services. See also the hyperlinks to the list of available energy service providers and their qualifications (*EED Annex XIV, Part 2.3.8*).

   **The expansion of the grant schemes for energy-saving investments has given a strong boost to the energy-saving investments market as can be seen from the evolution of grants paid by the system operators for the period 2008-2012 shown below.**

   **Table 9. Total number of system operator grants (residential + non-residential, excl. discount vouchers, scans and social roof insulation projects)**

| | ***2008*** | ***2009*** | ***2010*** | ***2011*** | ***2012*** |
|---|---|---|---|---|---|
| ***Total number of system operator grants paid (residential + non-residential, excl. discount vouchers, scans and social roof insulation projects):*** | ***155 011*** | ***214 383*** | ***213 663*** | ***242 688*** | ***216 260*** |
| - roof insulation | 19 842 | 52 984 | 59 297 | 70 648 | 72 482 |
| - wall insulation | 4 151 | 7 347 | 9 352 | 13 441 | 14 696 |
| - floor/cellar insulation | 477 | 924 | 1 226 | 1 407 | 4 435 |
| - replacement of single glazing | 41 361 | 55 438 | 56 848 | 59 463 | 55 695 |
| - replacement of existing installation by condensing boiler | 35 547 | 45 223 | 48 846 | 55 605 | 39 130 |
| - solar boiler | 3 295 | 3 620 | 3 455 | 3 544 | 4 932 |
| - heat pump | 527 | 666 | 379 | 473 | 1 135 |

| | | | | | |
|---|---|---|---|---|---|
| - E-rating grant (res. only) | 236 | 1 648 | 3 911 | 5 001 | 4 457 |
| - other | 49 575 | 46 533 | 30 349 | 33 106 | 19 298 |

**Quality requirements are attached to the award of a number of grants including cavity wall insulation (see 3.1.5). A list of cavity wall insulation contractors who meet the quality requirements can be found at:**
**http://www2.vlaanderen.be/economie/energiesparen/reg/installateurs-spouwmuurisolatie.pdf**

**Lists of type A (authorised to draw up EPCs for residential buildings), B (authorised to draw up thorough audit EAPs) and C (authorised to draw up EPCs for public buildings) energy experts can be found at:**
**www.energiesparen.be**

**The list of energy experts who can draw up energy audits for companies is published by VITO at:**
**http://www.emis.vito.be/adresboek?field_organisation_products_tid%5B%5D=586**

**The energy consultants of the building sector have developed tools to simplify searches for contractors carrying out energy saving measures:**
**www.ikzoekeenvakman.be**
**www.vinduwaannemer.be**

**List of recognised certified engineers for gaseous fuels:**
**http://www.lne.be/themas/erkenningen/bestand/erkende_technici_stookto estellen_gasvormige_brandstof.pdf**

**List of recognised certified engineers for liquid fuels:**
**http://www.lne.be/themas/erkenningen/bestand/erkende_technici_stookto estellen_vloeibare_brandstof.pdf**

**List of recognised certified engineers for heating audits:**
**http://www.lne.be/themas/erkenningen/bestand/erkende_technici_verwar mingsaudit.pdf**

**List of project promoters for social roof insulation projects:**
**http://www.energiesparen.be/socialedakisolatie**

**List of 'energy trimmers':**
**www.energiesnoeiers.net**

**List of parties recognised by Enterprise Flanders to carry out energy scans which entitle the holder to a bonus when applying for an ecology grant:**
**http://www.agentschapondernemen.be/artikel/energiescan-met-recht-op-bonus-bij-de-ecologiepremie**

**List of accepted energy experts for the system operator grant after an**

**energy study:**
**http://www.energiesparen.be/netbeheerder/aanvaarde_energiedeskundigen**

2. Qualitative review of the market for energy services describing the current status and outlining future market developments (*EED Article 18(1e)*).

**Energy services for companies.**

**See also 3.1.2. for ESCO aspects for SMEs.**

**One way for SMEs to achieve energy efficient investments easily could be to use 'Energy Service Companies' (ESCO's). This would mean that the company would not need to spend any time looking for potential savings and the best technology to achieve them. It would not notice anything at first, because the ESCO would be paid from the profit from the energy saving. The company would own the installations (depending on the contract between the company and the ESCO) and save on energy bills. However, at present it is very difficult for ESCOs to gain access to the SMEs, which makes it difficult to develop this market sector any further. For the smaller companies particularly, there is probably too much legal uncertainty. It would be difficult to include ESCOs in the legal framework for the ecology grant, for example, without significant changes to this aid measure.**

**In 2013, Enterprise Flanders developed an ESCO initiative specifically to promote both the supply and demand side of the ESCO market. This initiative will concentrate on the following five elements:**

- **Organisation of a stakeholders' platform to highlight the constraints on the ESCO market, and gather ideas for possible solutions.**
- **Study and amendment of existing legislation applying to ESCOs and aid measures for their activities.**
- **Call to carry out a number of pilot projects (three to five) focusing on the development of workable ESCO-SME models.**
- **Benchmarking with other countries.**
- **Formulation of recommendations to promote the ESCO market in Flanders.**

**We will wait for the outcome of pilot projects to investigate whether a new customised aid measure for ESCOs will be developed (see also point 4 of Annex B).**

**The global action plan for the promotion of energy efficiency in SMEs and offices (KEEP) (see 3.1.2) also states that the Flemish government will further investigate the constraints on the aid instruments when using ESCOs.**

**Energy services for local councils**

**As many local councils do not have the in-house expertise to carry out major energy-saving measures in the buildings they own, or even to outsource energy services, the Flemish electricity system operators Eandis and Infrax have offered a service to facilitate these processes since 2010, giving local councils the opportunity to reduce their own energy consumption. This service is similar to the obligatory support under Article 6.4.1/7 of the Energy Decision of 19 November 2010, which lays down that, at the request of a local council, each distribution system operator will offer support with the planning and implementation of the council's policy for efficient energy use. This additional service is not a regulated activity and does not affect the distribution system tariffs. The personnel costs are covered by a supplement, which is included in the offer and the bill to the local council. This cost-effective way of facilitating a global approach for different buildings and installations, in cooperation with a recognised partner, is of great benefit to the local councils. Working with large-scale framework agreements also helps to reduce the costs.**

**In addition to the usual energy services offered to local councils, Eandis has also started a pilot project for energy performance contracts. These can be drawn up for the building envelope, HVAC, lighting, maintenance of heating and lighting, eco-friendly energy and work connected with these measures (e.g. demolition, maintenance). The energy performance contracts provide an overall saving guarantee rather than a guarantee for each measure. They use a credit/debit system compared with the established baseline. Metering and verification form an integral part of this offer; finance is optional. Eandis acts as an intermediary (through commissioning or transfer of management by the local council or a group of local councils ('pooling')) and finds an energy performance contractor for each contract awarded (to carry out the measures and provide the saving guarantee). Several pilot projects were started in 2014, which will then be evaluated.**

**<u>Energy services for public buildings</u>**

**The decree on the overhaul of school infrastructure was approved on 7 July 2006. This decree specifies the key elements of the investment programme for (new) school infrastructure through alternative financing. In 2009 a private investment company (Design, Build, Finance, Maintenance) was selected to speed up the process of achieving an investment volume of around € 1 billion. The private company will carry out selected building and renovation projects for the organising authorities and will then make them available to the organising authorities for 30 years in exchange for a performance-related availability fee. The programme consists of 165 projects, equivalent to more than 200 new or renovated school buildings. A licence application will be submitted for all projects by the summer of 2014. The last school will be built in 2016.**

**In February 2012 the Flemish Government set up a private external independent agency, the Flemish Energy Company (*Vlaams***

***Energiebedrijf*** **(VEB)). With a startup capital of € 200 million, the VEB will help the Flemish government bodies to reduce their energy consumption and to buy 100 % renewable energy in the future through the 'energy efficiency/energy supply/energy production' departments and investments in achieving the following objectives:**

- **For energy efficiency, the VEB will provide the government with advice and support, based on direct metering, scans, correct specifications and project follow-up. As the contract centre, the VEB will be responsible for energy performance contracts and ESA-neutral third-party financing. Three pilot projects have now started.**
- **Several business cases for investments in renewable energy production and energy innovation and the marketing of these innovations have been presented to the Board of Directors.**
- **The energy supply department will operate as a purchasing centre, and the VEB will thus ensure that the associated Flemish government bodies will no longer need an individual tendering procedure from 1 January 2015 to comply with the legislation for public contracts. The VEB's customers will also receive favourable prices with a transparent fee to cover costs. The bodies can obtain customised information on budgeting and approval procedures through a portal. The Road and Transport Agency (*Agentschap Wegen en Verkeer*) and the Facilities Management Agency (*Agentschap voor Facilitair Management*) are the first bodies considering taking this step.**

**Energy services for vulnerable families**

**For rental dwellings occupied by vulnerable tenants, the Flemish government and the system operators provide a higher grant of € 23 per $m^2$ as an additional incentive. The government also imposes a public service obligation on the system operators under which they must bring in project promoters who will assist both the landlords and the tenants with preparing and carrying out the work. The system operators will also be subject to a public service obligation on the basis of which they must offer a free domestic energy scan to well-defined vulnerable target groups. This involves recording the energy consumption of the dwelling, taking small energy-saving measures free of charge and giving the families tips on behaviour, information about grants and assistance with investments. To carry out the energy scans the system operators enter into agreements with scan companies, generally the 'energy trimmers'.**

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

1. Other energy efficiency measures undertaken or planned to implement Article 19. List of measures taken to remove regulatory and non-regulatory barriers to increased energy efficiency (e.g. split incentives in multi-owner properties and public purchasing and annual budgeting and accounting of public bodies) (*EED Annex XIV, Part 2.3.9.*).

**Energy performance requirements in the Flemish Housing Code from 2015**

**With the decree of 29 April 2011 the principle of minimum energy performance was added to the list of elementary safety, health and housing quality requirements to be met by a dwelling under the Flemish Housing Code. The addition to the Flemish Housing Code of minimum energy performance requirements to be met by a dwelling must be coupled with accompanying and supporting measures to provide an effective, enforceable and practicable scheme. Firstly, it must have straightforward assessment criteria on the basis of which the minimum requirements can be specified. A gradual, phased and transparent time frame is then required for the minimum energy performance to be achieved by (rental) dwellings, to ensure as far as possible that they are in line with the Flemish housing stock as a whole. In the proposed scheme, the minimum energy quality standard focuses on adequate roof insulation. The matter was first presented to the stakeholder consultation a part of the discussion on the desirability of structural measures within the framework of the 2020 Energy Renovation Programme. The consultation led to a concrete proposal which was included in a Flemish Government decision to amend the Housing Code in 2011. This opted for phased introduction of the roof insulation standard. The penalties for inadequate roof insulation will gradually be increased from 2015 to 2020.**

**The Flemish government has commissioned various studies in the past few years with the aim of removing three main barriers:**

**a) Encouraging new building instead of renovation of buildings with very poor energy-efficiency**

**In general, the energy performance of older buildings in particular is poor or very poor. Every year only 0.5 to 1% of dwellings are renovated in Flanders, which means that the average lifetime of a dwelling is around a century. Within a long-term strategy to improve the energy efficiency of existing dwellings significantly, even extensive renovation is not enough to bring the energy performance of (very) old dwellings up to an acceptable level. It may be better to encourage demolition of some of these dwellings so that an energy-efficient new dwelling can be built on the land. When developing measures to encourage such projects, speculative building must of course be discouraged. Equally, the aim must not be to demolish dwellings for which effective energy renovation is still achievable. Under the leadership of the University College Limburg Faculty of Architecture and Arts, Research Domain for Adaptive Re-Use, architecture, a study was developed to support the level of renovation of the old housing stock with poor energy efficiency in consultation with those directly affected (including the Flemish Building Confederation (*Vlaams Confederatie Bouw*), the Association of Small Builders (*Bouwunie*), owners' and residents' associations, the demolition sector, the Flemish Social Housing Society (*Vlaams***

***Maatschappij voor Sociaal Wonen*), the Flanders Housing Agency (*Agentschap Wonen-Vlaanderen*), the Housing Inspectorate (*de Wooninspectie*)). This study concluded that energy saving is not in itself an adequate reason to demolish and rebuild a dwelling. Demolition and rebuilding is only an attractive option for dwellings which perform very badly in terms of housing quality and which require very deep and expensive renovation to bring them up to an acceptable standard. On 23 September 2011 the Flemish Government gave its final approval to the proposal to reform the energy grants. Under this proposal, poor-quality dwellings which are demolished and rebuilt, are eligible for the new building grant. This grant is linked to the E-rating of the dwelling. The grant is doubled for demolition and rebuilding.**

**b) <u>Action Plan for energy renovation of multi-owner apartments</u>**

**Multi-owner apartment buildings present many legal, administrative, technical and practical problems. Most of the investment decisions must be taken jointly by the owners' association. Not everyone benefits to the same extent from the savings to be made from energy renovation of the building, and the subsidy schemes are not always the same for every occupant. Nor are the costs for the same kind of work always the same for all apartments and bills cannot always be split among the individual occupants. In 2009 the research agency BECO carried out a study of this problem for the VEA. In the study, BECO developed a tool that can be used throughout the process by the syndicate and owners' association to gather information, make decisions and apply for subsidies. Owners' syndicates or associations appear to know very little about the necessary and possible energy efficiency investments. They often have to seek external advice for this. According to BECO it is also useful to ensure that the owners' association as a whole can apply for a single grant from a single contact point for investments in communal parts of the building. This grant replaces the existing grants and tax relief for apartments. On 23 September 2011 the Flemish Government decided to reform energy grants, expressly providing that, for investments related to the communal parts of a building, the owners' association can apply for the energy grant and individual owners or tenants need apply for a grant only for strictly private parts of the building.**

**c) <u>Action Plan to remedy the tenant-landlord problem</u>**

**One of the recommendations of the stakeholder consultation within the framework of the 2020 Energy Renovation Programme was that the landlord-tenant problem should be investigated further. As a result, the VEA awarded a research contract to the research consultants BECO in 2009. A survey of stakeholders was carried out as part of this research contract. The stakeholders came up with the following recommendations:**

- **in the approach make a distinction between:**
  - **the private rental market without housing quality problems;**

    - **the private rental market with housing quality problems;**
    - **the social rental market.**
- **ensure that:**
    - **the renovation costs for rental dwellings are tax deductible;**
    - **special renovation grants are provided specifically for rental dwellings;**
    - **housing energy bodies are set up (one-stop-shop principle);**
    - **the tenant and landlord are able to enter into voluntary agreements (energy surcharge on the rent);**
    - **energy is not seen separately from a general improvement in quality for dwellings with housing quality problems.**
- **the stakeholders believe that this will require :**
    - **more flexibility in tenancy law to facilitate voluntary agreements between the tenant and landlord within the framework of energy saving investments and energy subsidy;**
    - **an effective future obligation for roof insulation of rental dwellings. The policy should provide an incentive, with clearly diminishing contributions and future obligations (N.B: this is already the case in implementation of the Flemish Housing Code, see 3.1.7, point 1.);**
    - **an integrated policy for energy quality and housing quality.**

**<u>Specific measures in the social housing sector</u>**

**In the social housing sector, following a stock survey carried out by the VMSW in 2010 and updated every two years, an action plan is also being developed to improve the energy performance of the social (rental) housing stock. The action plan will be amended on the basis of a two-yearly update of the information. See also: 3.2.2.**

**Both Infrax, working with the non-profit-making organisation Stebo, and Eandis, organised pilot projects for social roof insulation projects by making a collective approach mainly to social housing companies, but also to the private rental market, offering support and suitable subsidies. Since 2012, these social roof insulation projects have been officially included in the public service obligations of the system operators and will receive a higher payment than the 'normal' projects without a project supervisor.**

**<u>Public awareness</u>**

**With regard to the tenant-landlord problem, it is important to give citizens concrete information about the opportunities (subsidies and work) available to the tenant and the owner to make a dwelling more energy efficient. A study of the 'ideal' local point of contact for energy, carried out by the Sustainable Building Centre (*Centrum Duurzaam Bouwen*) on behalf of the VEA, was completed at the end of 2010. The regulations to support local housing policy include an (optional) activity for energy-aware living as part of the activities of the existing and new housing contact point.**

2. National Fund for Energy Efficiency (NFEE) (*optional info under EED-Article 20*).

**Contribution to the costs of the REG public service obligations**

**The general principle is that the costs of REG public service obligations imposed on the electricity system operators and the operator of the local transport network via the network tariffs are passed on in the electricity tariffs. In contrast to the general principle of passing on costs in the tariffs, the Flemish government contributes a certain amount to the costs incurred by the system operators for some specific obligations (more particularly for the domestic grants referred to in Article 6.4.1/1 to 6.4.1/4, for the energy scan obligation referred to in Article 6.4.1/8, and for the social roof insulation obligation referred to in Article 6.4.1/9 of the Energy Decree).**

**The Energy Fund**

**The Flemish government has set up the Energy Fund, which is a budgetary fund as defined in Article 12 of the Accounting Decree of 8 July 2011. The Energy Fund was established by the Energy Decree of 8 May 2009. The Flemish Government holds the Energy Fund's credits for the implementation of its energy policy, in particular for the financing of public service obligations for energy, for its social energy policy, its policy on efficient energy use, its policy on cogeneration and its policy on renewable energy sources. The Flemish Energy Agency manages the financial resources of the Energy Fund.**

**Apart from charges for the establishment of the central examination for energy experts, the Energy Fund's income comes mainly from administrative fines issued under the enforcement policy of:**

- **the energy performance certificate systems (public buildings, existing residential buildings and existing non-residential buildings);**
- **the energy performance regulations;**
- **the REG and social public service obligations;**
- **the renewable energy and cogeneration certificate systems;**
- **the other enforcement elements of energy market operation.**

**The Climate Fund**

**The Flemish government has set up the Climate Fund, which is a budgetary fund as defined in Article 12 of the Accounting Decree of 8 July 2011. The Climate Fund was established by the Decree of 13 July 2012 containing provisions to accompany the second amendment of the 2012 budget. The Climate Fund's income comes mainly from auctioning emission permits. The decree provides four possible types of expenditure:**

1. **The co-financing of Flemish reduction measures.**
2. **International climate aid for developing countries.**

3. **The remedying of indirect carbon leakage.**
4. **The use of flexible mechanisms.**

**On approving the Flemish Climate Policy Plan, the Flemish Government decided on the allocation of the first tranche of income of € 36.4 million. € 20 million of this is reserved for internal measures. On the basis of an evaluation (based on the criteria cost-effectiveness, additionality and sustainability) 14 priority Flemish reduction measures in different policy areas were selected for co-financing by the Flemish Climate Fund. The two measures that received the largest budget are both energy efficiency measures which will start at the beginning of 2014: a deep renovation grant for social housing companies (of € 7.9 million) for improvements in the building envelope and the energy installations and a combined grant for wall insulation and glazing (of € 3.7 million).**

**The Flemish Climate Policy Plan provides for the use of financial resources from the Flemish Climate Fund to co-finance measures to reduce greenhouse gas emissions in the future as well. The co-finance from the Flemish Climate Fund will thus provide leverage for initiatives of the Flemish government's various policy areas, and for the expansion of the local authorities, companies and associations.**

## 3.2. Energy efficiency measures in buildings

### *3.2.1. Addressing the requirements of the recast EPBD (Directive 2010/31/EU)*

1. Calculation of the cost optimal levels of minimum energy performance (*EPBD Article 5(2)*).

**On 20 September 2012 Belgium submitted an action plan for nearly Zero-Energy Buildings to the European Commission. The nZEB action plan can be found:**

- **for Flanders, at:**
  **http://www2.vlaanderen.be/economie/energiesparen/epb/BEN/Actieplan_BEN_versie_juni2012.pdf**

- **for Belgium, at:**
  **http://ec.europa.eu/energy/efficiency/buildings/implementation_en.htm**

**On 31 May 2013 the Flemish Region provided the European Commission with the studies of cost optimal levels of minimum energy performance via the energy consultancy body ENOVER. The studies can be found at:**
**http://www.energiesparen.be/epb/prof/evaluatie2013**
**and also at:**
**http://ec.europa.eu/energy/efficiency/buildings/implementation_en.htm**

2. In accordance with the requirements of Article 10(2) of the EPBD a list of the measures and instruments to support the EPBD objectives (*EPBD Article 10(2)*).

   **On 20 September 2012 Belgium submitted a nearly Zero-Energy Buildings action plan to the European Commission which includes relevant measures and instruments. See point 1.**

3. Alternative measures for heating and air conditioning systems *(EPBD Article 14(4) and Article 15(4)*).

   **This does not apply within the provisions of the EED as Belgium opted for an inspection obligation rather than alternative measures in 2011.**

4. Regulations implemented in 2013

   **The regulations below are also useful for annual reporting within the framework of EED Annex XIV, part 1(b).**

   **For the implementation of the EPBD several studies were carried out on:**
   - **a) the requirements for technical installations for renovations of existing buildings (completed in 2012);**
   - **b) the cost optimal levels of energy performance (implementation of a specific obligation of the Directive the results of which were reported to the European Commission at the end of May). See point 1.**

   **The results of the extensive studies were included in the two-yearly evaluation of the EPB regulations carried out by the VEA in June 2013.**

   **In 2013, partly on the basis of the EPB evaluation and intensive consultation with the building sector, the Flemish Government established the process for tightening the EPB requirements in the following years (2016-2021). It also provided for the introduction of additional requirements for the technical installations of buildings to be renovated (system requirements) from 2015.**

   **An energy performance requirement of E70 applies for the licence applications for new buildings, offices and schools in 2013. From 2014 this will be increased to E60. Each newly built dwelling will have to achieve an E-rating of E50 from 2016. The studies referred to above show that all E-ratings up to E30 cost the same or less if the building cost and energy cost or the savings on the energy bill are combined. E50 is currently the cost optimal energy performance level for a new building, with the cheapest combined building cost and energy cost. The more often the component materials and techniques are used the cheaper they will become, so the cost optimal E-rating will fall further over the next few years. The Flemish government has therefore decided to select the E30 rating as the objective to be attained by nearly Zero-Energy Buildings in**

**2021. The obligatory E-rating can therefore be increased further between now and 2021. This will give the building sector a clear perspective, and allow it to adapt gradually to the new standards. Builders who want to build future-orientated building will also know the direction in which Flemish new building will evolve. A concrete new step will be taken towards E50 in 2016, towards E40 in 2018 and towards E35 in 2020.**

**To guarantee that the standards are viable and affordable, a new study of cost optimal E-ratings will be conducted every two years and the chosen pathway can be altered if necessary. In future, those who exceed the standards will be able to obtain a grant and a fixed discount on the property tax.**

**For office and school buildings the nearly zero-energy target for 2021 is E40. The target will be tightened to E55 in 2016, E50 in 2018 and E45 in 2020. For buildings of public authorities the bar is set slightly higher, with a target of E40 by 2019 and an obligatory E-rating of E50 from 2016 and E45 from 2018.**

### *3.2.2. Building renovation strategy (Article 4)*

A brief overview of the building renovation strategy (*EED Article 4*).

**An important objective of Flemish energy policy is to improve the energy performance of the existing building stock systematically by means of an active promotion and public awareness policy, innovations in the building sector and the gradual introduction of obligations.**

**To optimise the overall energy consumption of existing buildings, the following must be considered:**

- **The level of renovation must rise: at the moment only 1% of dwellings undergo a deep energy or other renovation each year.**
- **The number of renovations that are energetically completed must increase. After the decision has been made to renovate a building, there is a risk of a 'lock-in-effect' which means that, once a renovation has been carried out, there will be no further deep renovation for the next 30 years because a suitable moment does not arise.**

**To fulfil the Flemish policy target for the energy consumption of existing buildings, two strategies are being followed: a basic strategy and a leaders' strategy.**

**1. Basic strategy: The 2020 Energy Renovation Programme**

**In 2006 the Flemish government set up a high-priority programme to have all roofs insulated by 2020, replace all single glazing with insulating glass and to ban antiquated central heating boilers from Flemish homes - the 2020 Energy Renovation Programme (Flemish Climate Policy Plan 2006-2012, approved by the Flemish Government on 20 July 2006). The Flemish**

**government's ambitious aim is that every Flemish person will have an energy efficient home in 2020.**

**A short-term action plan for 2006-2010, containing actions which could be implemented quickly, has already been carried out. This was important to mobilise efforts and demonstrate that real work was being done. Firstly, during this period, an agreement was reached between the Flemish government and the sectors involved to support the 2020 Energy Renovation Programme, communication campaigns were carried out for roof insulation, an online energy profit calculator was provided, a grant for non-tax payers was developed and a smart energy renovation credit was launched with the cooperation of the banks and contractors.**

**A medium-term action plan with a time horizon of 2015 is being carried out to develop and implement more fundamental supporting measures aimed at various target-groups (landlords, older owners, those on lower incomes).**

**A long-term action plan is also necessary with a time horizon of 2020 to develop the structural measures required to make the objectives enforceable. Large information campaigns, attractive financing formulae and grants do not appear to be sufficient to achieve all of the objectives of the 2020 Energy Renovation Programme. The significant increase in the number of energy grants given (see 3.1.6) in comparison with 2009 suggests that an important step has been taken towards the 'sense of urgency' required to achieve the objectives of the 2020 Energy Renovation Programme. Since 2012, stakeholder consultations have been held regularly about the viability of more structural and compulsory measures. Imposing obligations on existing buildings is a particularly complex task. Not all target groups are able to make the necessary investments, and in some cases the investments are not even technically possible. All of the consequences of these obligations must be considered with the interest groups. The challenge here is primarily to create sufficient social support in the target group.**

**The challenges for social housing are very specific. The social housing stock comprises around 145 000 dwellings (52% houses, 48% apartments). In 2010 all social housing companies were surveyed about the energy characteristics of their dwellings. The results showed that 23% of the dwellings have no double glazing, 28% have no roof insulation and 20% have an outdated heating system. There are various aid measures (Flemish REG budget, Climate Fund, system operators) to encourage social housing companies to improve the performance of their buildings. Information about the stock is regularly updated. According to the (incomplete) information from January 2014, the number of dwellings without roof insulation has fallen by 5%, single glazing by 7% and outdated heating by 1%. All of the social housing companies have prepared a plan to remove a considerable proportion of these defects by 2020. The building companies invest and the social tenants benefit from the reduction in energy costs. To achieve the ERP2020 objectives it is**

**important both to provide sufficient support, for example through grants, and to adapt the implementation programme to energy renovation to a greater extent.**

## 2. Pioneers' strategy: Towards nearly Zero-Energy Buildings (nZEB)

### A. General

**From 2021 new buildings must comply with the requirements for nZEBs. The Flemish Government has defined this concrete requirement for new buildings in 2013. A pioneers' policy has also been formulated both for the newbuild and the renovation market (see action plan on nearly Zero-Energy Buildings - 3.2.1.2.).**

**To achieve the nZEB renovation objective, we must concentrate our efforts on innovation. Innovative systems and technologies with improved energy characteristics have to find their way onto the Flemish building market. Pioneers must be helped to apply these techniques, so that the 'early adaptors' follow. These techniques will then be adopted by the wider public. The objective of a pioneers' policy is thus to encourage a gradual transition from demonstration projects to a volume market. A leaders' policy will create social support for nZEBs. In parallel to this, a general vision will be developed for quality in building and technical specifications (cavity wall insulation, external and internal wall insulation, roof insulation, air-tightness of the building envelope, ...).**

### B. Demonstration projects and inventorising deep renovations

**As part of the reinforcement of the pioneers' policy for nearly zero-energy renovation, the VEA commissioned a study of ways of increasing the number of energy renovations completed on dwellings. The intention was to gain an idea of the available, tried and tested instruments, methods and strategies for completed energy renovation and ways of increasing the use and impact of these solutions in Flanders. The study started by making an inventory of existing European and Belgian demonstration and research projects on 'completed energy renovations' and then analysed 180 promising solutions. On the basis of this analysis, four strands were developed for collective action on completed energy renovation of dwellings: 'innovation on finance', 'supporting technical innovation for housing renovation', 'embedding high-quality renovation processes' and 'knowledge acquisition and communication'. These strands were translated into desirable actions for different target groups such as interest groups, training centres, financial bodies, building material producers, etc.**

### C. 'Housing renovation: innovation for energy-efficient conversion' pilot project

**On 22 November 2013, the Flemish Government took the decision to set up the housing renovation pilot project. This initiative is part of the**

**leaders' strategy and aims to encourage reproducible renovation techniques that can be scaled up to produce affordable solutions for significant parts of the building stock. Extensive coordination of the actors in the building chain should lead to high-quality, integrated, but primarily also reproducible and affordable solutions that can be applied on a large scale. As part of the pilot project, research, development and demonstration activities were carried out on the basis of actual renovation processes.**

**A pilot project is a structured test environment in which companies or organisations can test innovative technologies, products, services and concepts, using a representative group of individuals (or organisations), the test population, who are used as testers in their own living and working environment.**

**The pilot project 'Housing renovation: innovation for energy efficient conversion' aims to contribute to better market conditions for deep renovation of dwellings by:**

- **developing renovation concepts that can be used on a large scale and are reproducible.**
- **encouraging cooperation between suppliers, designers and installers.**
- **strengthening the demand side by means of a group approach and alternative forms of finance.**
- **demonstrating the viability of cost optimal energy performance levels.**

**The housing renovation pilot project consists of an infrastructure of (groups) of housing units, representative of the Flemish residential building stock: e.g. an estate (housing development, social housing...), apartment building, street of terraced houses, occasional self-build homes.... Concrete renovation projects form the platforms on this infrastructure (with the close involvement of owners and/or residents as a test population) for the pilot projects to be carried out. The pilot project will comprise an overarching coordination and knowledge platform as well as the various pilot projects. This central coordination and knowledge platform will be responsible for coordinating and following up the project, quality assurance (incl. performance monitoring analysis) and knowledge management (collecting, compiling, disseminating). The final aim of the pilot project is economic and/or social. On a social level, it focuses both on the cost-effectiveness of energy-efficient renovations for owners and/or occupants (retaining a comfortable living environment and the prospect of long-term residence) and on taking the steps required by climate policy (level of renovation of the housing stock).**

**On 22 November 2012, the Flemish Government took the decision to set up the pilot project Housing renovation: innovation for energy efficient conversion'. On 7 February 2014 the Flemish Government decided to reserve an additional € 2 million from the SALK funds (Intensive Strategic Action Programme Limburg 2013-2019), bringing the budget available for**

**the pilot projects to € 5 million. Aid is granted to the consortia for a maximum of four years for establishing pilot project platforms and carrying out the projects. The coordination and knowledge platform is supported in principle for a maximum of five years. On 7 February 2014 the Flemish Government granted a subsidy for this to the IWT to subsidise projects for the pilot project.**

**An aid budget of € 5 million is available to support the pilot projects, of which € 2 million (Flemish Government decision of 7 February 2014) and € 1 million for the supporting platform from the SALK funds (SALK: Strategisch Actieplan Limburg in het Kwadraat (Intensive Strategic Action Plan Limburg)). The aid is granted to the consortia for a maximum of four years to establish the pilot project platforms and carry out the projects. The coordination and knowledge platform is supported in principle for a maximum of five years.**

**See also Annex B for the building renovation roadmaps.**

### *3.2.3. Additional measures addressing energy efficiency in buildings and appliances*

Further details of additional measures addressing energy efficiency in residential and non-residential buildings, as well as those that promote the use of energy efficient appliances and equipment in buildings (*EED Article 24(2), Annex XIV, Part 2.2.(a)*).

**System operator discount vouchers**

**Since 2008 the system operators have issued € 150 discount vouchers to protected customers. These discount vouchers can be exchanged in normal shops for an energy-efficient washing machine or refrigerator. Nearly 8 400 discount vouchers were exchanged between their introduction and 2012.**

**System requirements**

**A preparatory policy study was carried for the introduction of system requirements in Flanders. The study was completed in May 2012.**

**As part of the evaluation of the 2013 energy performance regulations the VEA formulated a proposal containing requirements and an enforcement framework. This proposal was reviewed with the sector in May 2013 to ensure that it would have market support.**

**On 29 November 2013 the regulatory framework was finally approved by the Flemish Government. This Flemish Government decision establishes, for example, that system requirements will apply from 1 January 2015 for renovations and changes of use with an application for an urban development licence or registration (VR 2013 2911 DOC.1281/4BIS,**

**DOC.1281/5 and .DOC.1281/6). The details of the system requirements are set out in detail in an Annex to the Energy Decision, which contains minimum requirements for new installations or installations updated during renovations and changes of use.**

**There are requirements for:**

- **Heating.**
- **Sanitary hot water.**
- **Cooling.**
- **Ventilation systems.**
- **Lighting.**

**For more details of the requirements see:**
**http://www2.vlaanderen.be/economie/energiesparen/epb/doc/EPB%20wijzigingsbesluit%20bijlage%202%20Systeemeisen%202013%2011%2029.pdf**

**Maintenance obligation for heating appliances/heating audit**

**Under the heating decision of 8 December 2006 it is obligatory in the Flemish Region to have heating systems serviced regularly to guarantee the safety of the system and promote energy efficiency. Services must be carried out once a year for liquid fuel systems and every two years for gas fuel systems. It is also obligatory to have a heating audit carried out to calculate the energy efficiency and general efficiency of the whole heating boiler. This heating audit must be carried out every five years on systems between 20 and 100 kW, every 2 years on larger liquid-fuelled systems and every 4 years on larger gas-fuelled systems.**

**On 1 June 2013 the minimum efficiency of a liquid-fuelled central heating appliance was increased to 90% (from the previous 85% or 88%, depending on the age) and the Flemish Government's draft decision 'VLAREM-trein 2013', approved in principle on 20 December 2013 and due to receive final approval in May 2014, provides for the minimum efficiency of a gas-fuelled central heating appliance to be increased to 88% or 90% depending on the type of appliance (from the previous 82%, 84% or 85%, depending on the age) with effect from 1 January 2018. When combined with stricter emission requirements, this makes a very significant contribution to the replacement of older appliances by new energy-efficient central heating systems in the Flemish Region.**

**More information on regular servicing can be found at:**
**http://www.lne.be/campagnes/stook-zuinig/stook-zuinig/de-nieuwe-onderhoudsregels/stooktoestel-in-gebruik-periodiek-onderhoud**

**More information about the regular heating audit can be found at:**
**http://www.lne.be/campagnes/stook-zuinig/stook-zuinig/de-nieuwe-onderhoudsregels/toestel-in-gebruik-periodieke-verwarmingsaudit**

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

### 3.3.1, *Central government buildings (Article 5)*

1. Information on the published inventory of heated and/or cooled central government buildings *(EED Article 5(5))*.

   **On 13 December 2013 the Flemish Government approved a memorandum on the scope and notification of an alternative approach (VR 2013 1312 DOC.1439/1 and DOC.1439/2). The European Commission was notified on 23 December 2013. The full text of the notification can be found at: http://ec.europa.eu/energy/efficiency/eed/doc/article5/2013_be_article5-en.pdf**

   **Definition of the scope**

   **The scope of the Directive covers central government buildings. The Directive defines central government as 'all administrative departments whose competence extends over the whole territory of a Member State'. Given their exclusive powers and the fact that they do not fall under the hierarchical supervision of the federal government, the regions and communities in Belgium are regarded as central government bodies. To define the scope, the Flemish government (Flemish Region and Flemish Community) opted to use the scope of its property policy, and the scope of the 'European System of Accounts (ESA)', using public accounts data collected within the framework of Regulation 479/2009/EC.**

   **The definition of the Flemish government according to the scope of the ESA is based on legal and financial criteria taken from EUROSTAT. Every year the Nationale Bank van Belgium (NBB) applies these criteria to the Belgian administrative bodies and produces a list of bodies which are considered to form part of the Flemish regional government. This covers buildings located in the Flemish Region and also in other regions (primarily the Brussels Capital Region). The bodies included in this list can change slightly from year to year. The concrete scope of the ESA is formed by the bodies belonging to the 'Flemish Community' region which were given ESA code S.1312, with the exception of the services of the Flemish Parliament and the university and college associations (as they do not belong to the executive authority). The following are also excluded from the reporting: subsidiaries which fall within the scope of the ESA, but whose parent body does not.**

   **The Flemish Property Database provides an overview of the property of the Flemish government, both buildings and land. All public bodies covered by the scope of the property policy, which corresponds to the scope of Article 5 of the Energy Efficiency Directive, report on their property via this database.**

   **The Flemish government has selected the following buildings from this database:**

   - **Buildings which are owned by the bodies falling within the scope.**

- **Buildings currently actually used by bodies falling within the scope.**
- **Buildings with a surface area of at least 500m$^2$ and buildings for which no surface area information is currently available;**
- **Buildings that are heated and/or cooled.**

**The following buildings are therefore excluded:**

- **Buildings with protected status.**
- **Buildings owned by the Flemish government which are listed in the architectural heritage list. These buildings do not have officially protected status but are excluded because they have heritage value. The energy performance regulations also provide derogations for these buildings.**
- **Religious buildings.**
- **Buildings which can mainly be regarded as un-heated and/or cooled. These are mainly public infrastructure and agricultural buildings.**

**The remaining buildings which fall within the scope of the Directive have an administrative, cultural, sporting, scientific or social function. There are currently 150 buildings overall with an estimated total usable floor area of nearly 900 000 m$^2$. This floor area is also used for the annual reporting within the framework of EED Article 7, Annex XIV, Part 1c).**

**<u>Inventory</u>**

**The Flemish Government decided on 13 December 2013 that all bodies that fall within the scope of the Directive must supply the missing information for the preparation of an inventory as described in Article 5(5) by 30 September. Although the Flemish government is opting for the alternative approach for the transposition of Article 5, it still believes that the equivalence between the alternative approach and the standard approach should be demonstrated by an inventory.**

**Article 12.3.1. of the Energy Decree specifies that the Flemish Government must ensure that an inventory accessible to the public is prepared for the relevant buildings owned and used by the Flemish government, which contains at least the following information:**

- **the floor area in m$^2$;**
- **the energy performance of each building;**
- **other useful energy information.**

**The inventories will be made public in accordance with Article 12.3.1 of the Energy Decree.**

2. Further details of the calculation of the renovation obligation (*EED Article 5(1-4)*).

**The target is set on the basis of the consumption and surface area information of the buildings falling within the scope of the Directive, as specified by Articles 5(1-4). As the Flemish government is opting for the alternative approach, the target is not calculated as 3% of the total useful**

**floor area of these buildings. However the equivalence of the saving that will be achieved must be demonstrated.**

**Although the information available in the Property Database and the EPC database for public buildings located in the Flemish Region provides the Flemish government with a detailed inventory of buildings owned (or obtained by means of other proprietary rights) neither database seems yet to hold all of the required data on all buildings to allow the total floor area of the buildings within the scope of Article 5 to be calculated. For the buildings in the Brussels-Capital Region, any missing details will be requested from the bodies concerned and entered in the Property Database.**

**Where the floor area of a building is not known either from the EPC public buildings database or from the Property Database, it is estimated on the basis of the average surface area of the various reference buildings available from the energy performance database for public buildings.**

**An energy saving of 14 kWh/$m^2$ is used for buildings owned and used by the Flemish government and located in its territory, in accordance with the requirements and calculations of the EPBD cost optimal methodology (and already submitted to the European Commission).**

**An energy saving of 14 kWh/$m^2$ is also used for buildings owned and used by the Flemish government, but located in the territory of the Brussels-Capital Region, in accordance with the requirements and calculations of the Brussels-Capital Region.**

**Table 10. Annual energy saving to be achieved for the period 2014-2020**

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|
| Total floor area to be renovated ($m^2$) | 898 597 | 871 639 | 845 489 | 820 125 | 795 521 | 771 655 | 748 506 |
| Floor area to be renovated a year (3%)($m^2$) | 26 958 | 26 149 | 25 365 | 24 604 | 23 865 | 23 150 | 22 455 |
| Saving/$m^2$ (kWh/$m^2$) | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Saving (MWh) | 377 | 366 | 355 | 344 | 334 | 324 | 314 |

**The total energy saving to be achieved over the period 2014-2020 according to the standard approach is 2 416 GWh.**

3. Information about the alternative approach to achieving savings equivalent to the renovation obligation, as allowed for in Article 5(6).

**Equivalence is demonstrated by comparing the standard approach, i.e.**

**renovation of 3% a year of the useful floor area and the associated energy saving, with the energy saving to be achieved under the alternative approach.**

**The 2014-2020 target for the alternative approach is calculated on the basis of information available via the EPC regulations, in particular:**

- **Types of reference building according to the EPC for public buildings.**
- **Reference values for the energy consumption of each type of reference building renovated on the basis of the EPC for public buildings.**
- **Reference values for the energy consumption of each type of reference building after specific energy efficiency measures have been applied.**

**On the basis of the available data from the EPCs for public buildings the buildings from the inventory are divided up into reference buildings which correspond to the categories within the scope for the EPC for public buildings. An average energy consumption/$m^2$ before renovation is derived from the data in the EPC database for public buildings for each type of reference building. On the basis of this average energy consumption a total energy consumption of all buildings before renovation is then calculated. Where information on the floor area is not available, the average floor area for each type of reference building, also derived from the EPC database, is used for the calculations.**

**To calculate the energy consumption after the measures, an average energy use after renovation is determined for each reference building. It is assumed here that all buildings must be in the middle of the yellow zone of the EPC colour band at least after the measures have been carried out. These buildings consume an average of 10% less energy than the reference building for a particular category. This approach makes it possible to calculate the energy consumption after renovation of all buildings.**

**The first estimates indicate that a saving of around 28 GWh will be achieved. These calculations will be repeated when the bodies have supplied the required additional information to the Property Database. The energy saving will then be calculated more precisely.**

**As notified to the European Commission on 23 December 2013, the alternative approach thus makes it possible to achieve a greater energy saving than the standard approach.**

**The overview of measures in the notification (primarily on the EPC) is used for annual reporting together with the list of alternative measures (EED Article 7, Annex XIV, Part 1(d)).**

**See also point 3.3.3 for additional measures such as:**

- **the action plan for sustainable public contracts;**

- **the guide to sustainability considerations for public contracts;**
- **the energy management action plan for Flemish government buildings;**
- **the guide for office buildings;**
- **the instrument for sustainable school building.**

*3.3.2. Buildings of other public bodies (Article 5)*

1. In accordance with Article 5(7), information is given below on measures undertaken/planned demonstrating the exemplary role of public bodies that are not part of the central government (*optional info cf. Annex XIV, Part 2.2., first paragraph*).

   **BENELUX Urbiscoop Project**

   **The Flemish government co-financed the study 'Energy efficiency in the built environment within Benelux and in North Rhine-Westphalia' as part of the Benelux cooperation. The study of energy efficiency was carried out under the leadership of the Secretariat General of Benelux by the 'European Urban Knowledge Network' (EUKN) with the involvement of the Flemish Cities Knowledge Centre and the urban policy team of the Internal Administration Agency (*Agentschap voor Binnenlands Bestuur*). The final report provides an overview of good practice and learning points in cities in Belgium, the Netherlands, Luxembourg, North Rhine-Westphalia and at supra-local level. It then describes the obstacles to improving energy efficiency in the built environment. The Flemish minister for urban policy was also involved in preparing the memorandum of understanding on the improvement of energy efficiency in the built environment in the cities of Benelux and bordering regions. This memorandum was signed on 8 October 2013 by the various partners. The cities are involved as partners in identifying problems and challenges, and providing solutions and good practice. The effect of the memorandum of understanding is that cities will find partners more easily for European calls from DG Energy/Research and that the Secretariat General of Benelux will provide more support for this by developing the course of action to be followed subsequently. The Flemish cities were chosen on the basis of their commitment to the Covenant of Mayors and their leading role in climate neutrality.**

   **Information about the study and the webtool is given both on the website www.thuisindestad.be and in the October 2013 newsletter of the Flemish Cities Knowledge Centre. The study results were also distributed via social media. The Secretariat General of Benelux is currently developing a programme which also encourages cities to seek cooperation for registration for European projects or subsidies.**

   **Covenant of Mayors – roll-out in Flanders**

   **Many cities and municipalities, provinces and regions in Flanders are drawing up energy and climate plans to reduce their dependency on**

**fossil fuels and their contribution to greenhouse gas emissions. Local authorities are approaching the production, implementation and follow-up of these plans in very different ways. In recent years we have noticed a tendency for local authorities in Flanders to use the framework and guidelines of the European Covenant of Mayors and its Sustainable Energy Action Plans (SEAPs). The experience with cities that have already joined the Covenant of Mayors is that they often set up a broad consultation and information process with citizens and important actors, both to create support and of course to take action together. Although the Covenant of Mayors provides a framework and guidelines, we have noticed that the interpretation is not always clear to local authorities within Flanders. The scope can also differ widely (ETS or non-ETS, $CO^2$ only /all greenhouse gases). The cities and municipalities in Flanders have also mentioned that it is difficult to collect reliable and/or city-specific data to produce a $CO_2$ inventory and that there is a lack of knowledge/reference figures with which to estimate the impact of actions. The Environment Energy and Nature (LNE) department therefore commissioned VITO to carry out the study 'Supporting the Covenant of Mayors' which aims to help the cities and municipalities in Flanders to prepare a 'baseline inventory' (BEI) and 'sustainable energy action plan' (SEAP) as defined by the Covenant of Mayors. The study report was delivered at the end of 2013. In concrete terms this means that a practical tool will be developed to suit the Flemish context.**

**<u>Guiding the exemplary role by means of the public service obligation</u>**

**For the actions to support the local energy policy within the framework of the REG public service obligations, see the description in 3.1.6., point 2.**

**<u>Guiding the exemplary role with other instruments</u>**

**We refer to the guide Evaluating Office Buildings – Creating Sustainable Accommodation for the Flemish government (*Waardering van kantoorgebouwen - op weg naar een sustainable huisvesting voor het Vlaams overheid*) (see also 3.3.3.). Although the guide was originally intended mainly for internal use by the Flemish government, it has also become a reference document for other authorities and the building sector.**

**For schools that are not under Flemish government control, we refer to the instrument for sustainable school building in point 3.3.3.**

2. List of public bodies which have developed an energy efficiency action plan (freestanding or as part of broader climate or environmental plans) (*EED Annex XIV, Part 2.3.1*.).

**<u>Flemish government</u>:**

**Flanders in Action - Strong government – sustainable action by the Flemish government**

(http://www.vlaandereninactie.be/projecten/duurzaam-optreden-vlaamse-overheid)

**Provincial authorities:**

**Province of Antwerp:**
http://www.provant.be/binaries/ActieplanKlimaatPlanProvinciebestuurAntwerpenMetOverzicht_tg__tcm7-142672.pdf

**Province of Limburg:**
http://www.limburgklimaatneutraal.be/limburg/provincieinformatie/Limburg-werkt-klimaatneutraal/Interne-Milieuzorg.html

**Province of East Flanders**
http://www.oost-vlaanderen.be/public/wonen_milieu/energie/energie_besparen/wat_zelf/index.cfm

**Municipal authorities:**

**As part of the Cooperation Agreement many municipalities have drawn up an environmental plan, which includes sections on energy and energy efficiency.**

**Various municipalities have also already signed up to the Covenant of Mayors, undertaking to reduce greenhouse gas emissions in their territory by 2020. The Climate Action Plan (SEAP) developed for this focuses strongly on energy efficiency measures.**

**Municipalities with an environmental policy plan with sections on energy efficiency:**

| Municipality | Duration of plan |
|---|---|
| **Aalter** | **2011-2015** |
| **Bierbeek** | **2011-2016** |
| **Bocholt** | **2010-2014** |
| **Boortmeerbeek** | **2011-2015** |
| **Bornem** | **2010-2014** |
| **Boutersem** | **2007-2011 until new plan** |
| **Brasschaat** | **2011-2015** |
| **Bree** | **2005-2009 until new pla** |
| **Diepenbeek** | **2011-2015** |
| **Essen** | **2012-2017** |
| **Halen** | **2005-2009 until new plan** |
| **Hamont-Achel** | **2010-2014** |

| | |
|---|---|
| **Hasselt** | **2005-2009 until new plan** |
| **Hechtel-Eksel** | **2005-2009 until new plan** |
| **Heers** | **2011-2015** |
| **Holsbeek** | **2010-2014** |
| **Kapellen** | **2010-2014** |
| **Kinrooi** | **2005-2009 until new plan** |
| **Kortemark** | **2006-2010 to 2015** |
| **Kollenberg** | **2011-2015** |
| **Lennik** | **2010-2014** |
| **Nieuwerkerken** | **2002-2006 until new plan** |
| **Overijse** | **2010-2015** |
| **Schoten** | **2010-2014** |
| **Sint-Katelijne-Waver** | **2010-2014** |
| **Tongeren** | **2010-2014** |
| **Tremelo** | **2011-2015** |
| **Turnhout** | **2010-2014** |
| **Voeren** | **2005-2009 until new plan** |
| **Wellen** | **2005-2009 until new plan** |
| **Willebroek** | **2010-2014** |
| **Wuustwezel** | **2012-2016** |
| **Zoersel** | **2011-2016** |
| **Zutendaal** | **2007-2011 until new plan** |
| **Zwevegem** | **2010-2015** |

**Municipalities with an SEAP and $CO_2$ target approved by the European Commission:**
**http://www.burgemeestersconvenant.eu/actions/sustainable-energy-action-plans_nl.html?city=Zoek+een+Actieplan+voor+Duurzame+Energie...&country_seap=be&co2=&date_of_approval=&accepted)**

| | | | |
|---|---|---|---|
| Alken | 21% | Kinrooi | 20% |
| Antwerpen | 20% | Kortessem | 21% |
| Beringen | 0% | Leopoldsburg | 21% |
| Bilzen | 20% | Lommel | 21% |
| Bocholt | 21% | Lummen | 33% |

| | | | |
|---|---|---|---|
| Borgloon | 21% | Maaseik | 20% |
| Diepenbeek | 20% | Maasmechelen | 20% |
| Dilsen-Stokkem | 35% | Meeuwen-Gruitrode | 21% |
| Genk | 20% | Neerpelt | 22% |
| Gent | 20% | Nieuwerkerken | 21% |
| Gingelom | 21% | Opglabbeek | 20% |
| Halen | 25% | Overpelt | 20% |
| Ham | 20% | Peer | 30% |
| Hamont-Achel | 20% | Riemst | 21% |
| Hasselt | 21% | Sint-Truiden | 21% |
| Hechtel-Eksel | 21% | Tessenderlo | 21% |
| Heers | 21% | Tongeren | 20% |
| Heusden-Zolder | 20% | Wellen | 20% |
| Houthalen-Helchteren | 20% | Zonhoven | 20% |

**Some municipalities also have an action plan which is in the process of being approved:**

| | |
|---|---|
| Ostend | 20% |
| As | 21% |
| Herk-de-Stad | 22% |

**As an example of cooperation between a group of municipalities, we refer to the Leiedal Intercommunal group which published its local energy strategy in July 2012: 'Energy Neutral South-West Flanders. Creating a Regional Energy Strategy' (*Zuid-West-Viaanderen energieneutraal. Naar een regionale energiestrategie*)**

### *3.3.3. Purchasing by public bodies (Article 6)*

Information on steps taken to ensure that central government purchases products, services and buildings with high efficiency performance (*optional info cf. EED Article 6(1)*), and on measures taken or planned to encourage other public bodies to do likewise (*optional info cf EED Article 6(3)*).

**The Flemish government wishes to set a good example in its endeavours towards sustainability**

**Flemish action plan for sustainable public contracts**

**The second Flemish action plan for sustainable public contracts contains an evaluation of the first action plan and actions and measures which the Flemish government will carry out to make its public contracts more sustainable in the period 2012-2014. The aim is for public procurement to be 100% sustainable by 2020. Energy efficiency is part of sustainability.**

**Some strands from the 2012-2014 action plan:**

- **Cooperation with the other policy levels.**
- **Monitoring of sustainable public contracts.**
- **Focus on framework agreements and contract centres.**
- **Sustainable public contracts as leverage for sustainable materials management.**
- **Use of lifecycle cost in sustainable public contracts.**
- **Sustainable innovative outsourcing.**
- **Sustainability in public-private partnerships.**
- **Increase in the status of sustainable public contracts.**
- **Social considerations: an integral part of sustainable public contracts.**
- **Sustainability criteria and targets for each product group – focusing always on energy efficiency of products and services.**
- **Central point of contact for sustainable public contracts for communication and public awareness and to assist bodies with integrating sustainability criteria into public contracts.**

**In 2012 the Flemish government published the guide to sustainability for public contracts.**

**Flemish government action plan for energy management in buildings**

**The first Flemish government action plan for energy management in Flemish government buildings ran from 2006 to 2020. The outstanding actions were included in the Multiannual Plan for Strong Government, particularly in the Key Project 'Sustainable action by the Flemish government'. The actions focused on the leasing/purchase of energy-efficient office buildings, the maintenance of buildings to achieve more energy efficiency and the purchase and energy-efficient use of appliances. This resulted, for example, into two circulars:**

- **FM/2008/1: Recommendations on reducing energy consumption**
- **FM/2008/2: Recommendations on reducing the energy use of the technical installations in Flemish government buildings**

**In December 2013 the Internal Environmental Management Team of the Environment, Nature and Energy department began the first exploratory discussions on the drafting of a new action plan for energy management in Flemish government buildings. When the action plan is drafted further actions will be developed where necessary to implement the provisions of the EED (both Article 5 and 6).**

**Guide for office buildings**

**The second edition of the guide Evaluating office buildings – creating sustainable accommodation for the Flemish government was published at the beginning of 2011. The Facilities Management Agency (*Agentschap voor Facilitair Management* (AFM)) uses the guide when selecting large office buildings. It forms part of every specification for construction, renovation or leasing and is one of the determining factors for the award of the contract. It is used every day and evaluated regularly. The results of a review against various outstandingly sustainable buildings in Belgium and abroad have now been included in the publication.**

**An office building can score from 0 to 4 for three categories of performance (amenities and welfare; environment and sustainability; energy). The individual score for each performance group results in a final score which is translated into a number of stars: from 0 for office buildings which meet only the minimum requirements to 4 for office buildings which integrate highly innovative, sustainable technologies.**

**Instrument for sustainable school building**

**The Agency for Infrastructure in Education (*Agentschap voor Infrastructuur in het Onderwijs*) (AGIOn) and the Flemish Community education institution GO! undertake to provide high-quality, sustainable and functional school buildings.**

**The instrument for sustainable school building was therefore developed to offer the building team the support it needs to measure the sustainability aspects of a school, making it possible to assess whether the project complies with the minimum requirements. The sustainability meter can be used both for newbuild and renovation projects. It is designed to ensure that the school of the future manages energy, water, raw materials, space and financial resources more efficiently.**

**A project is currently running to incorporate the European Commission's green public procurement criteria into the Flemish sustainable building instruments. For the sustainable school building instrument, this integration project was completed January 2014.**

**Service vehicles**

**The level of ambition in the circular for the acquisition of service vehicles is systematically being increased. The Flemish government is also taking a leading role in this. For energy efficiency this means a reduction in fuel consumption by its own vehicle fleet. Considering fuel efficiency when purchasing tyres is another element of this.**

**The action plan 'environmental management in the Flemish government's vehicle fleet' ran from 2007 to 2010. At the end of 2013 the IMZ (*Interne Milieuzorg – Internal Environmental Management*) Team started the process of setting up a new mobility action plan.**

**Communication action 'Green ICT'**

**In the autumn of 2012 and the spring of 2013 the IMZ Team organised the communication campaign 'Green ICT'. 42 Flemish government bodies, together accounting for about 17 933 members of staff, 188 heads of department and 170 ICT buyers, took part in the action. The communication to heads of department and ICT buyers focused on sustainable purchasing, while the 'ordinary' members of staff received tips on using their ICT equipment more sustainably (including energy efficiently).**

## 3.4 Energy efficiency measures in industry

Further details of all measures addressing energy efficiency in industry (*EED Article 24(2), Annex XIV, part 2.2.)*

**See chapters 3.1.2, 3.2.2 and 3.1.6 for:**

- **Energy Planning Decision.**
- **Energy policy agreement with energy-intensive industry.**
- **SME energy efficiency plan (KEEP).**
- **Energy audits, qualification and energy services.**
- **Information**

**New industrial policy**

**The 'New Industrial Policy' is a joint policy framework of the Flemish ministers of Economy, Innovation and Employment for the renewal of the economic fabric of Flanders. The objective is to complete the transition to an innovative, competitive economy, which creates high-quality jobs, finding smart solutions for major social challenges in mobility, the use of energy and materials, health and housing. It takes a new approach through value chains, clusters and large projects which accelerate transformations.**

**This new policy is based on the analysis that a new productivity offensive is required for sustainable growth, using smart specialists in strong clusters in domains where Flanders has significant advantages and can develop further.**

**The features of the New Industrial Policy are: a strong dependence on 'new industrial entrepreneurship'; development of cooperation among enterprises and between enterprises and education and training institutions in value chains and clusters to utilise unused productivity advantages.**

**Enterprise Flanders facilitates this new industrial entrepreneurship with various project calls launched in 2011 and 2012. 52 aided projects are now being carried out (with aid amounts ranging from € 150 000 to € 500 000); Ten of these projects are expressly related to the subject of**

**energy and contribute to the development of new approaches to increased energy efficiency.**

**Commercial development sites**

**a) The decision of the Flemish Government of 24 May 2013 on the subsidising of commercial development sites requires commercial development sites which are developed or redeveloped with subsidy to have carbon neutral electricity consumption. This has been the case since 2007. As fewer areas are likely to be subsidised where new parcels of land come onto the market which are effectively new and which have to comply with this requirement (as more resources will go to renovating old commercial development sites), developers who apply for subsidy for the management of commercial development sites will now also have to be carbon neutral. The first step in this process (for which a guide is provided) is to encourage companies to be energy efficient. To implement this in practice, the developers are given the opportunity to agree with Enterprise Flanders that they will encourage companies to have a (free) new building energy efficiency scan carried out and Enterprise Flanders will also plan for these new building scans to be carried out in practice.**

**b) In the past, commercial development site management projects have been set up on many commercial development sites either by associations of companies or project promoters acting as intermediaries, such as Provincial Development Companies, intercommunal groups or the VOKA business network. Some commercial development sites focus on energy efficiency. The subsidies given for commercial site management were evaluated in 2014. One point to be considered in this is the contribution that such initiatives can make to Flemish objectives such as energy efficiency and renewable energy. A possible idea to be explored is to focus the new subsidy rules expressly on certain subjects and outputs, including energy efficiency.**

**Ecology aid**

**With the decision of the Flemish Government of 17 December 2010 to grant aid to enterprises for ecology investments in the Flemish Region and the decision of the Flemish Government of 16 November 2012 to grant aid to enterprises for strategic ecology investments in the Flemish Region, the Flemish government is encouraging companies to invest in technology to promote energy efficiency through the Ecology Grant Plus and Strategic Ecology Aid. The Flemish government aims to use this ecology aid to encourage enterprises to organise their production process more energy efficiently by paying part of the additional cost of such an investment.**

**a) Ecology grant plus**

**Only investments that appear in the exhaustive technology list are eligible. These are the best performing technologies on the market which will therefore also achieve the greatest improvements in energy saving. This list is regularly updated. The amount of the ecology grant is determined on the basis of the size of the enterprise, the performance of the technology, the type of investment and any subsidy bonus. A company can receive a bonus of 3% on the ecology grant, if the investment is preceded by a basic energy scan of the company. Since December 2012 the maximum percentage of aid has been 70% of the cost of essential investment components up to a maximum of € 1 million every three years for each enterprise.**

**b) Strategic ecology aid**

**There are technologies which, in view of their exceptional and unique character, are difficult to standardise and are not eligible for inclusion in the exhaustive technology list of the ecology grant. The strategic ecology aid contributes to these on condition that the investment projects cost at least € 3 million and are strategically important. In other words, the ecology investments offer a global energy solution with closed energy and material circuits, fit in with the enterprise's global vision for sustainable energy use and aim to achieve general energy policy targets. The maximum amount of strategic ecology aid is 70%, or € 1 million per enterprise every three years. Aid can be granted above this ceiling if the ecology investments have a special impact on the Flemish economy.**

**<u>Grants for system operators</u>**

**a) Efficient energy use in industry is encouraged by the public service obligations for the electricity distribution system operators, who have a number of action obligations to encourage their final customers to save energy. The conditions and amounts of the grant have been the same throughout Flanders since 2012 (see also 3.1.1. - alternative policy measures).**

**b) The electricity distribution system operators also give SMEs a grant if an energy study or energy audit shows that an investment in a commercial building with no residential function delivers a significant energy saving in comparison with the existing situation and this investment is actually carried out. The grant amounts to € 0.035 for each kWh primary energy saved with a maximum of € 25 000 a year if the payback time of the investment is longer than two years. The TNS Dimarso survey of 2013, carried out on behalf of the VEA, showed that around 15% of companies have already applied for a system operator's grant for an energy saving investment. See also 3.1.2.**

**Increased investment allowance for energy saving investments by companies**

**Article 69 of the Income Tax Code offers companies the opportunity to reduce their taxable profit with an increased investment allowance for energy saving investments. The allowance is deducted from the profit during the tax period in which the assets are received or created. An increased allowance of 14.5% applies for energy saving investments during the tax period linked to the 2014 assessment year (income in 2013). The percentage of the increased investment allowance and the categories of eligible investments are determined by the federal government. Each region issues the certificate for the energy saving investments made in the region which must be attached to the tax return. The VEA issues this certificate for Flanders. The number of applications for an increased investment allowance for energy saving investments has grown significantly in the past few years. In 2013 the VEA processed about 2 500 applications for an increased investment allowance certificate. A survey carried out by TNS Dimarso in 2013 of 1 000 energy managers of companies with 5 to 200 employees showed that these supporting measures are well known to companies. Nearly 24% of the companies have already used one of these measures.**

**Green guarantee**

**The Green Guarantee was launched in April 2012 as an extension to the general Guarantee Scheme. Entrepreneurs can use it to finance energy saving investments in Flanders with a maximum payback time of 10 years. These investments are not usually part of the company's core business. They require an additional financial commitment. The Green Guarantee does not consider a company's other lines of credit and provides a lower grant than the general Guarantee Scheme. This gives enterprises every opportunity to save energy. The maximum percentage covered by the Green Guarantee is 75% of the total credit or leasing amount granted by a financial institution acting as guarantor. Only energy saving technologies that appear in the limitative technologies list for the Green Guarantee are eligible.**

**Promoting CHP and heating networks and encouraging the use of residual heat (see also particularly 3.6.1.)**

**a) Cogeneration certificates and guarantees of a stable investment climate for CHP, see 3.6.1.: Electricity suppliers are obliged to submit CHP certificates for a growing percentage of their supplies every year. A CHP certificate is submitted for the primary energy saving achieved in a high-efficiency CHP installation in comparison with separate generation of the same amount of electricity and heat. This aid measure can be applied together with other aid mechanisms, in particular renewable energy certificates and the increased investment allowance.**

**b) Aid scheme for the use of residual heat, see 3.6.1.**

**c) Ecology aid for the use of residual heat and heating networks for enterprises, see above.**

**d) The decision of the Flemish Government of 24 May 2013 on subsidies for commercial development sites (see above), provides for subsidies for constructing or expanding a heating network on sites subject to constraints or outdated commercial development sites.**

**e) The companies that participate in the energy policy agreements (see also 3.1.2) with energy-intensive industry, undertake to carry out studies of the potential of high-efficiency CHP and heating and cooling networks by the middle of 2015. The results of these studies will provide input for the assessment.**

## 3.5. Energy efficiency measures in transport

An overview of policy measures aiming to improve energy efficiency in passenger and freight transport, and the promotion of a modal shift to more sustainable modes of transport *(EED Article 24(2), Annex XIV Part 2.2.)*.

**At the end of 2013, the Flemish Government gave its approval in principle to a new Mobility Plan. The public enquiry was concluded at the beginning of 2014. Various measures are also included in the Air Quality Plan and the Flemish Climate Policy Plan.**

**The following policy lines are being pursued to reduce the energy consumption and emissions in the transport sector:**

- **management of the number of vehicle kilometres by road;**
- **change in the environmental characteristics of the transport fleet;**
- **encouragement of energy-efficient driving.**

**The energy consumption and $CO_2$ emissions of the transport sector are determined by the proportions of the different modes of transport, the energy efficiency of the means of transport, the energy carriers used and behaviour.**

**The greening of the vehicle fleet is being achieved partly through European regulations: new passenger cars sold in the EU must comply with average $CO_2$ emissions of 130 g/km by 2015 and 95 g/km by 2020 for each manufacturer. New delivery vehicles must comply with average emissions of 175 g/km by 2017 and 147 g/km by 2020. As the standards are based on the number of cars sold, the achievement of the European targets may also depend partly on the Flemish mobility policy for the various target groups (private individuals, companies, government fleet, public transport).**

**The longer-term objective under the European White Paper on Transport**

**is a low-carbon vehicle fleet. A low-carbon vehicle fleet requires more extensive technological measures such as switching to electric cars.**

## A. Managing the number of vehicle kilometres by road

### *Measure A.1. Pricing to influence vehicle kilometres by road*

**On 21 January 2011 the three regions entered into a political agreement on the reformation of the road tax system.**

**They will work to introduce a differentiated charge by kilometre for goods vehicles by 2016. In the next period of government (2014-2019) they will use the results of pilot projects to evaluate the advisability of introducing a differentiated charge by kilometre for passenger cars or a different system that allows better allocation of the usage costs and external costs of the transport infrastructure to the users.**

**At the end of May 2013 the three regions launched the joint website www.viapass.be which collects all of the information on the planned road pricing projects.**

### *Measure A.2 Supplementary measures for the management of the number of car kilometres by road (personal mobility)*

**To reduce the number of kilometres by car, alternatives to car use and car ownership are being considered. The Mobility Plan currently being drafted promotes the STOP (*Stappen, Trappen, Openbaar vervoer individueel gemotoriseerd vervoer (Privé)*): walking, cycling, public transport and individual motorised (private) transport only as the last resort, as a means of ranking desirable means of transport**

**Cycle facilities and public buses will be increased in consultation with local councils.**

**The Flemish government is encouraging car sharing, car pools and combinations of modes of transport (co-modality) as well as bicycle sharing systems as means of getting to and from public transport.**

**The Federal government has been requested to develop a suitable fiscal and financial framework for electric bicycles and scooters. On the basis of the Flemish Rail Strategy of February 2013, the Flemish government would like to enter into a constructive discussion with the federal government about its rail strategy and investment plans for passenger transport.**

**Commuting is an important matter.**

**Teleworking is being encouraged in cooperation with the social partners. The Flemish government is taking an exemplary role in this by giving its own employees the opportunity to work at home or in a satellite office.**

**By 2020 Flanders aims for 40% of total commuter kilometres to be travelled by collective transport, on foot or by bicycle.**

**The Flemish government is working with the Commuting Fund (*Pendelfonds*) to encourage company-run projects to reduce commuting by car.**

***Measure A.3 Supplementary measures for managing the growth in the number of goods vehicle kilometres by road (goods mobility)***

**The Flemish government aims to develop a strong logistics sector with the project 'Flanders Land Logistics'. Promoting initiatives for green logistics/return logistics and optimising the logistical chain and distribution will help to save energy and reduce emissions. Logistics consultants will help the companies to look for sustainable alternatives. The necessary supporting tools such as a roadmap and best practice on renewable logistics, a simulation model to optimise the timing of goods flows by road etc will be developed.**

**To increase the proportion of inland navigation in the modal shift, an Infrastructure Master Plan for Flemish Waterways will be drawn up.**

**The Flemish government also plans to enter into a constructive discussion with the federal government, on the basis of the Flemish Rail Strategy of February 2013, about its rail strategy and investment plan for goods transport.**

**B. Improving the environmental information of the transport fleet**

***Measure B.1 Using fiscal instruments to guide behaviour***

**Buying behaviour will be guided towards low-carbon vehicles. The reformed First Registration Vehicle Tax came into effect on 1 March 2012, which means that the environmental features of the vehicle - $CO_2$ emissions, particulate emissions, fuel type and European standard - are taken into account when determining the basic taxable amount.**

**By 2016 the reformed annual road tax system will provide an additional means of guiding behaviour. As part of this reformation the possibility of an exemption/discount for owners of (plug-in) electric cars or natural gas vehicles is also being investigated.**

***Measure B.2 Communication***

**To encourage consumers and companies to choose an energy-efficient and eco-friendly car, it is extremely important to provide information and raise awareness. Objective information about the energy efficiency and environmental features of cars is provided accessibly (see e.g. www.ecoscore.be). In future communication will focus more on the**

**possibilities and market for new vehicle technologies (hybrid, plug-in hybrid, electric and fuel cell (hydrogen) vehicles, but also vehicles fuelled by (compressed) natural gas).**

***Measure B.3 Encouraging the use of alternative energy carriers and technologies***

**The draft 2020 Flemish renewable energy action plan works on the assumption that the Flemish Government will draw up a biofuels plan to support the production and distribution of the latest generation of biofuels in Flanders. Preparatory policy studies will be carried out for this in 2014.**

**There will also be a focus on the electrification of transport.**

**Vehicles run on electricity are more energy efficient, eco-friendly and quieter than conventional vehicles.**

**A Master Plan for Electric Driving is being prepared, which includes the following actions:**

- **Communication is important to convince potential users of electric vehicles that they are reliable and that the charging and operating range need not be a real obstacle. Potential users need accurate information about the vehicles available on the market.**
- **Research into possible financial incentives.**
- **The Flemish government sets a good example with its own vehicles.**
- **In 2011 the open innovation platform 'Flemish Pilot Project for Electric Vehicles' was set up to speed up the introduction of electric vehicles in Flanders. Within this project, the Flemish Government approved five pilot project platforms. When these pilot projects have been completed (2014), the knowledge gained from them can be used for large-scale projects.**
- **Taking account of the results of the planned European standardisation process, a coordinated network of charging points is being constructed to ensure the supply of energy to electric cars. The federal measures for the development of this network will be strengthened by the Flemish government.**

**The Flemish government is investing in the development of additional shore-side infrastructure.[2] The Flemish Ecology Grant has been providing financial support for investments by private companies in shore-side facilities for many years. A shore-side electricity coordinator for inland navigation, appointed jointly with the 'Shore-side platform consultation', must provide, for example:**

- **a coordinated vision on the design, management and maintenance of**

[2] Shore-side electricity is the term for the power connection on the harbour wall used by a ship for its on-board electricity supply. This means that the ship does not need to run its diesel engines in harbours.

**shore-side infrastructure;**
- **solutions for constraints;**
- **gathering of information, production of maps, development of a website www.wallstroom.com;**
- **harmonisation of the payment system;**
- **research into an aid measure for masters of inland navigation vessels;**
- **coordination of actions with the federal government.**

**Natural gas also offers potential, particularly for goods transport for which electric vehicles are not yet available, and for shipping and inland navigation.**

**Companies are encouraged to buy lorries that run on compressed natural gas (CNG) and liquefied natural gas (LNG). Both technologies are subsidised by the Flemish Ecology Grant. The conversion to a natural gas engine is also subsidised, as is the provision of a natural gas fuelling installation. An investigation will be carried out in cooperation with the transport sector to determine whether the ecology grant provides an adequate incentive for natural gas vehicles.**

**The possibilities will be investigated of carrying out a demonstration project on LNG in lorries and/or buses which will determine the feasibility, effectiveness and economic aspects.**

**The licence for the installation of natural gas filling stations will be made more attractive and simpler. Sectoral provisions for natural gas filling stations were included in the VLAREM legislation and the safety provisions are therefore known in advance. There is thus no obligation to carry out a safety study.**

**For shipping and inland navigation, the studies resulted in around 40 recommendations on the use of LNG, the feasibility of which will be studied further.**

***Measure B.4 Exemplary role of the Flemish government***

**The Flemish government is taking a leading role by raising the level of ambition of the circular on the acquisition of service vehicles. For energy efficiency, this means reducing the fuel consumption of its own vehicle fleet and also considering fuel efficiency when buying tyres.**

**It is focusing particularly on the introduction of electric vehicles within its own fleet. Means of providing quick charging facilities in or near to the large administrative buildings are being investigated, both for service vehicles and private vehicles.**

***Measure B.5 Green public transport and green taxis***

**In the action plan 'Green Public Transport in 2015' attached to the 2011-2015 operating contract of public transport operator De Lijn, De Lijn confirms its intention to purchase buses which comply with the EEV standard (Environmental Enhanced Vehicles) or hybrid buses. This policy will continue after 2015.**

**De Lijn is taking part in the drive electric pilot project and is setting up experiments to investigate the possibility of using hydrogen (fuel cells) in the longer term. A pilot project is also being set up in a community bus area to run buses on biogas. Only vehicles that can run on B30 will be purchased in the future, making it easier to switch to second-generation biofuels in due course.**

**De Lijn owns around half of the buses used, the other half belongs to licensees. When granting operating contracts, the eco-friendliness of the operator's bus fleet will be taken into account.**

**All Flemish provinces are working on tram projects, with a focus on places with large transport potential.**

**The measures necessary to improve the eco-friendliness of the taxi sector will also be investigated. In Flanders the local authorities are authorised to grant taxi licences and the municipal council sets the conditions for operating a taxi service within limits laid down by the Flemish Government. Local authorities are encouraged to include conditions about the emissions and/or technology of the vehicle. The Flemish Government Agreement states that the Flemish government will encourage taxi companies to use hybrid cars. One possible option is to earmark a number of licences specifically for hybrid and/or electric cars.**

***Measure B.6 Greening of the logistics sector***

**In contrast to passenger cars and delivery vehicles there are no European $CO_2$ standards for lorries. Logistical consultants will be used to guide companies towards using efficient vehicles by raising awareness and other instruments.**

**The potential savings to be made by using longer heavier vehicles (LHVs) and by improving aerodynamics will be investigated. Research shows that longer heavier vehicles of 60 tonnes can deliver up to a 12.5% reduction in energy use and $CO_2$ emissions per tonnne per km. A pilot project will be started to investigate further the feasibility and potential of using these goods vehicles and improved aerodynamics while ensuring road safety.**

**The Flanders Inland Shipping Network (FISN) developed the 3E Inland Navigation Agreement in which the parties (representatives of the inland navigation sector, the carriers, the employers' organisations, the trades unions, the ports and the waterway operators) undertake to improve the sustainability of inland navigation by working on an action plan with**

**short- medium- and long-term objectives. Actions relate to knowledge acquisition, investments in infrastructure, investments in energy saving and emission-restricting technologies, fuel-efficient driving,...**

**A ship's engine has a relatively long lifetime, so the engines of the fleet will be replaced only very gradually. After research and consultation with the sector, the possibility of financing the development of a grant system for emission-reducing technologies for inland navigation was investigated, which included:**

- **the replacement of old engines by more efficient and eco-friendly engines;**
- **the installation of a tempomat which gives masters the most economic route and speed and allows them to monitor energy consumption and the distance travelled. In operational circumstances this delivers a 6% fuel saving.**

**An Environmental Ship Index (ESI) is an instrument for assessing the environmental performance ($NO_x$, $SO_2$, PM and $CO_2$ emissions) of seagoing ships. This index can then be used to reduce the port charges paid by ships with emission reduction technologies on board or ships which use a more eco-friendly fuel. This index has been used at the port of Antwerp since 1 July 2011 and at the port of Zeebrugge since 1 January 2012. In view of the international character of seagoing ships, the Flemish government would like to support this cross-port index. However, the collection of port charges is the responsibility of the municipal port operators. The Flemish government will therefore encourage the other Flemish sea ports to implement the Environmental Ship Index (ESI) and to differentiate port charges.**

**C. Energy-efficient driving**

**Energy-efficient driving has the potential to the reduce fuel consumption of passenger cars and light commercial vehicles by 3% and lorries and buses by 1.5% by 2020.**

***Measure C. 1. Reforming driver training and examinations***

**Learner drivers already have to learn about energy-efficient driving during their driving lessons as, once they have got into particular driving habits, it is always more difficult to change them. Agreements must be reached with the federal government and the other regions on driver training and the conditions to be set for obtaining a driving licence.**

**The Flemish government has now extended its range of training courses for driving instructors and examiners to include training on energy-efficient driving. The bus company De Lijn introduced the 'ecodriving for instructors and drivers' course at the end of 2010. The buses are also fitted with driving style monitors.**

**Traffic education projects financed by the Flemish government, partly on**

**the initiative of, or developed by, the Flemish Traffic Foundation (*Vlaamse Stichting Verkeerskunde*), will pay the required attention to the principles of energy-efficient driving.**

**In implementation of European Directive 2003/59/EC, professional drivers are obliged to take a training course, pass an examination and have 35 hours of further training every five years. The minimum requirements for the basic training and further training relate partly to the development of defensive driving techniques combined with efficient fuel consumption. Most recognised training centres in this country now offer courses in efficient fuel consumption or ecodriving.**

**Together with the sector we are looking at ways of encouraging people to take the driver training course and put the principles into practice. This will include an evaluation of the possible role of driving style monitors.**

**The government can influence driving behaviour by conducting awareness campaigns for vehicle parameters which affect emissions (loading, tyres,...) and by encouraging ecodriving.**

***Measure C.2 Enforcement policy for speed limits***

**At speeds above 100 km/h a car consumes far more fuel and also emits far more harmful substances.**

**Speed checks will ensure that the speed limits are also enforced. In addition to the existing mobile units and unmanned cameras, the use of average speed checks will also be extended on the motorway network. On the lower level road network automatic number plate recognition, including the functionality of average speed checks, will increasingly be used. Average speed checks ensure a more even flow of traffic and quieter roads.**

**The possibilities for promoting the implementation of systems for intelligent speed changes will be investigated, taking account of the Flemish Parliament's resolution and European policy on the matter.**

***Measure C.3 Improved traffic flow***

**Accelerating and braking consume more energy. A modified road design will make it easier for motorists to drive at a steady speed.**

**Dynamic road signs are already in use around Antwerp and Ghent to improve road safety and the flow of traffic. They display the maximum speed at a given time, for example. Dynamic road signs will also be used on the rest of the highway network to improve traffic flow. Another measure is the optimisation of traffic light phasing in urban areas.**

**A study has been started to formulate further recommendations and guidelines for eco-friendly road design.**

## 3.6 Promotion of efficient heating and cooling (Article 14)

*3.6.1 Comprehensive assessment*

1. Further information about the process, participants and the methodology used for preparing the comprehensive assessment, including a short description of how the country-level cost-benefit analysis is carried out in accordance with Part 1 of Annex IX *(EED Article 14(1) and (3), Annex IX.1, Annex XIV Part 2.3.4)*.

   **The comprehensive assessment in Article 14(1) of the potential for developing high-quality CHP and efficient district heating and cooling, will be carried out as a study for the territory of Flanders. This study will include both the global cost-benefit analysis and the heat map.**

   **The methodology used will be as consistent as possible with the general principles of Annex IX to the Directive and the heat map will be in line with the requirements of Annex VIII to the Directive.**

   **The cost-benefit analysis will be carried out for each region, in other words the comprehensive assessment will consist of a collection of regional plans. Details of the cost-benefit analysis (methodology) are not yet known.**

   **The competent body responsible for carrying out the global cost-benefit analysis in Flanders is the VEA.**

   **This assessment will be updated every five years and will include:**
   - **a description of the supply and demand now and for the next 10 years;**
   - **a map of heating and cooling supply and demand points (including planned and potential supply points for electricity generation installations, waste incineration plants, CHP installations and heating networks);**
   - **the potential of CHP and residual heat recovery and the energy efficiency of heating networks;**
   - **a strategy and instruments for achieving the potential; and**
   - **an estimate of the possible energy saving.**

2. An assessment of the progress achieved in implementing the comprehensive assessment of the potential for the application of high-efficiency cogeneration and efficient district heating and cooling referred to in Article 14(1) and the role of heat market developments in this progress (EED Article 14(2), *EED Article 14(1), Annex XIV Part 2.3.4)*.

   **In implementation of the Directive the first report is expected to be delivered in 2017.**

3. In the 2014-NEEAP: the identified economic potential for:
   i. High-efficiency cogeneration *(EED Article 14(1), Article 14(3))*;

ii. The efficient district heating and cooling *(EED Article 14(1), Article 14(3))*;

iii. Other efficient heating and cooling systems (optional, *EED Article 14(2), Article 14(3))*.

**A new estimate of the economic potential must still be carried out as part of the comprehensive assessment under Article 14(1) of the Directive (with a deadline of 31 December 2015). This is not available at present.**

***High-efficiency CHP***

**The potential for high-efficiency cogeneration (CHP) in Flanders up to 2020 was estimated in 2009 by VITO [Briffaerts et al.. (*Forecasts for renewable energy and cogeneration up to 2020*), October 2009, Prognoses voor hernieuwbare energy en warmte-krachtkoppeling tot 2020 ]. This potential was updated by VITO in 2011 [Meynaerts et al., Doorrekeningen ter ondersteuning van evaluatie GSC and WKC-systeem (*Calculations to support an evaluation of renewable energy and cogeneration certificate systems*), July 2011]. The revised PRO scenario produces the distribution of installed electrical cogeneration capacity shown in the table below.**

**Table 11. Distribution of installed electrical cogeneration capacity according to the PRO (proactive policy) scenario.**

| | **[MWe]** |
|---|---|
| **CHP engines** | **381** |
| **Green CHP engines** | **188** |
| **CHP turbines** | **1 485** |
| **Green CHP turbines** | **12** |
| **Green ORC CHP** | **80** |
| **Steam turbines** | **135** |
| **Not high-quality** | **133** |
| **TOTAL** | **2 414** |

***Efficient district heating and cooling***

**The potential for efficient district heating and cooling in Flanders has not yet been calculated.**

4. Description of measures, strategies and policies, including programmes and plans, at regional and local levels to develop the economic potential of high-efficiency cogeneration and efficient district heating and cooling and other

efficient heating and cooling systems as well as the use of heating and cooling from waste heat and renewable energy sources, including measures to develop the heat markets *(EED Article 14(2), Article 14(4), Annex VIII 1(g))*.

***A. Promoting cogeneration in a stable investment climate***

**To realise the potential of high-quality cogeneration, Flanders has introduced an aid mechanism for high-quality CHP, called the cogeneration certificate system. Electricity suppliers are obliged to present CHP certificates every year for a growing percentage of their supplies. A CHP certificate is issued for primary energy saving achieved in a high-efficiency CHP installation as compared with separate generation of the same amount of electricity and heat. This aid measure can be applied cumulatively with other aid mechanisms, in particular renewable energy certificates (for green CHPs) and the increased investment allowance.**

**At present, heating systems with a thermal input of at least 50 MW in Flanders must be designed as high-efficiency CHPs to obtain an environmental licence, unless a study demonstrates that this is not technically or economically feasible.**

**For buildings larger than 1 000 $m^2$ an obligatory feasibility study for CHP must be carried out (ministerial decision MB 11/01/2008 establishing a framework for further rules on the introduction of the feasibility study for alternative energy systems).**

***B. Promoting heating networks***

**a) Heating networks resolution**

**On 18 December 2013 the Flemish Parliament approved a resolution on the development of heating networks. With this resolution, the Flemish Parliament calls on the Flemish Government to undertake the following actions:**

1. **To work to produce a Heat Atlas, similar to the atlas produced by NL Agency in the Netherlands, which shows the supply and demand of heat in Flanders on a digital geographical map; to use this map to show potentially suitable locations for deep geothermal systems, thermal energy storage, biomass and residual heat on the supply side, while giving an overview of the heat demand of households, industry, glasshouse cultivation, manure processing, intensive livestock farming and non-residential building on the demand side;**

2. **On the basis of this, and in consultation with the sectors concerned, to make a comprehensive assessment of the potential for cogeneration and district heating and cooling by 31 December 2015, as laid down in the Energy Efficiency Directive, carrying out cost-benefit analyses to assess the economic feasibility and technical suitability of the**

**installations over the whole territory;**

3 **To take suitable measures (as described below) for the effective development of viable projects for district heating and cooling and high-efficiency cogeneration, by means of a 'Heating Networks Action Plan';**

4 **To invest in further developing, accumulating and opening up knowledge on heating and cooling techniques;**

5 **On the basis of the results of pilot and demonstration projects within various spatial planning categories (new housing developments, apartment buildings, industrial estates, greenhouse cultivation zones etc) to develop instruments such as assessment frameworks or calculation tools, which will enable policy-makers, urban developers, town planners, distribution system operators and project developers to make a considered choice between different heating and cooling facilities taking account of the environmental benefits and environmental and economic feasibility and respecting the freedom of choice of the parties concerned;**

6 **To provide aid for research and development of sustainable heating technologies;**

7 **To provide a stable and transparent support mechanism – building on that of the Green Heating Action Plan, the Flemish Climate Fund and the Economic Support Policy – as well as support for additional demonstration projects in potential sectors which currently have less practical experience, so that the economic potential for green heat and the valorisation of residual heat can be utilised more effectively;**

8 **To investigate the role the Flemish Regulator for the Electricity and Gas Market (VREG) can play in ensuring correct pricing of the supply of heat and other regulatory initiatives such as technical regulations and responsibilities;**

9 **To encourage local councils to use instruments for urban development and spatial planning, such as:**
   **a) the submission of reservation forms for the laying of heat transmission and district heating lines in spatial development plans in the districts/part of cities where heating networks are planned or may be constructed in the future;**
   **b) urban development regulations which include an obligatory connection for new or converted buildings in the districts where heating and cooling networks exist or are planned (this is not the same thing as obligatory purchase);**
   **c) urban development regulations which require a single central 'heating facility' to be planned for new apartment buildings, shops etc, to facilitate subsequent connection to a district heating network;**

**10 To remove the barriers for system operators so that they can also be fully active in the distribution of heat/cooling;**

**11 To adapt the energy performance regulations to the reality of heating and cooling networks, taking account in the calculation modules for the E-rating of the correct energy losses for heat exchangers and the correct pipeline losses for shared heating systems in multi-occupancy residential buildings; to extend the system limits in the calculations for the E-rating to include the primary energy saving from the use of heat supplied by cogeneration or the use of residual heat;**

**12 To fulfil its exemplary role fully by speeding up the connection of its own buildings and those dealt with by the Flemish Energy Company (Vlaams Energiebedrijf) to existing heating and cooling networks and those being developed;**

**13 To involve the stakeholder sectors consistently in all of this.**

**Following the approval of this resolution, the Flemish government launched a policy platform to follow up the implementation and monitoring of this resolution.**

**b) The companies which participate in the energy policy agreements with energy-intensive industry undertake by the middle of 2015 to carry out studies of the potential for high efficiency CHP and heating and cooling networks. The results of these studies will be used as input for the assessment. See 3.4.1.**

**c) Obligatory feasibility study on connection to the heating network for buildings larger than 1 000 $m^2$ within zones around the heating network: This obligation was imposed by the Ministerial decision of 11 January 2008, establishing further rules for the introduction of the feasibility study for alternative energy systems.**

**d) Energy performance regulations: In 2013-2014 the VEA commissioned a study of the external supply of heat. This is a calculation method within the EPB to take better account of heating networks.**

**e) Subsidy for the construction or expansion of a heating network on sites subject to constraints or outdated commercial development sites via the decision of the Flemish Government of 24 May 2013 establishing subsidies for commercial development sites. See 3.4.1.**

**C. *Promoting the use of residual heat***

**Aid scheme for the use of residual heat: In 2013 an aid scheme for residual heat was introduced for installations which use residual heat, fulfil a demonstrable economic demand, are located in the Flemish Region and for which renewable energy certificates or cogeneration certificates cannot be granted. The aid is granted in the form of an**

**investment subsidy (maximum € 1 million per investment project) and allocated by means of a call system.**

**The first call was open from 5 December 2013 to 5 February 2014. Two more calls will be organised in 2014. The project applications submitted are ranked on the basis of the requested percentage of aid. The applications with the lowest percentage are ranked higher. The most cost-effective projects are therefore financed first.**

***D. Other measures for cogeneration and heating networks***

**For ecology aid, increased investment allowance and REG grants, see 3.4.1.**

*3.6.2, Costs of installation for the user: cost-benefit analysis and results*

List of the competent authorities and actors and explanation of the process and methodology for the installation level cost-benefit analysis including district-heating companies and other stakeholders involved *(EED Annex IX Part 1)*.

**The competent authorities are the Environment Nature and Energy department (LNE) and the VEA.**

**The methodology of the cost-benefit analysis will be established by the energy minister. The VEA will also assist the LNE department with the licence applications and the cost-benefit analyses for them.**

**No cost-benefit analyses have yet been carried out in accordance with the methodology from Annex IX, Part 1 of the EED. Installations with a thermal input greater than 50 MW are currently still obliged to be operated as CHP installations, unless a study demonstrates that this is not technically or economically feasible.**

**A brief overview of the results with some more detailed information (such as the number of cost-benefit analyses drawn up) will also be included in the 2017 report.**

*3.6.3. Individual installations: exemptions and exempting decisions*

Further details of the exemptions from the CBA allowed on the basis of Article 14(6) and the ad-hoc exemptions based on Article 14(8), *(EED Article 14(6) and (8))*.

**Belgium will not give exemptions from the cost-benefit analysis in accordance with Article 14( 6). The European Commission was notified of this position on 3 December 2013.**

**After determining the potential of high efficiency cogeneration and efficient district heating and cooling in accordance with Article 14(1) (by 31 December 2015), we will assess whether certain types of installation**

**can be exempted in accordance with Article 14(4), if the costs outweigh the benefits of any potential they have. Specifically, the comprehensive assessment of potential will investigate whether it is advisable to introduce thresholds.**

**As a result of the plan to phase out the current nuclear power stations in Belgium, formulated in the Act of 31 January 2003 on the gradual withdrawal from nuclear energy for industrial electricity production, there will be no new investments for which the cost-benefit analysis could be carried out, as the construction of new nuclear power stations is expressly excluded by Article 3 of the Act of 2003 and given the high costs of new nuclear power stations, major renovation of existing nuclear power stations, which would cost more than 50% of the cost of investing in a comparable new unit, also seems highly unlikely.**

**As there will be no new investments for which the cost-benefit analysis would be carried out, Belgium will not change the existing regulations and will thus not include a cost-benefit analysis in the licences.**

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

### *3.7.1. Energy efficiency criteria in network tariffs and regulations*

1. Planned or adopted measures to ensure that incentives in tariffs that are detrimental to the overall efficiency (including energy efficiency) of the generation, transmission, distribution and supply of energy, or might hamper participation of demand response in balancing markets and ancillary services procurement, are removed *(EED Article 15(4), Annex XIV Part 2.2 first sentence).*

   **The authority to determine distribution system tariffs currently lies at federal level.**

2. Planned or adopted measures to incentivise network operators to improve efficiency through infrastructure design and operation *(EED Article 15(4), Annex XIV Part 2.2. first sentence)*.

   **Article 3.1.4/1, 4° of the Energy Decree cites energy efficiency as one of the objectives to be promoted by VREG within the development of the system. In practice this will be done by approving the investment plans of the system operators.**

   **Under Article 4.1.19 of the Energy Decree distribution system operators must submit an investment plan for their systems to VREG every year, containing a list of the main investments and their timing.**

   **On 26 February 2014 the Flemish Parliament approved a decree including an article providing a basis for incorporating into the technical regulations an obligation for the system operator to provide the Flemish**

**energy regulator VREG with information about the system operator's assessment of the potential for energy efficiency of its gas and electricity infrastructure.**

3. Planned or adopted measures to ensure that tariffs allow suppliers to improve consumer participation in system efficiency including demand response *(EED Article 15(4), Annex XIV Part 2.2., first sentence).*

   **The authority to determine distribution system tariffs currently lies at federal level.**

4. Support for the development of demand response services by network tariffs (optional info cf. EED-Annex XI, Point 3.).

   **The authority to determine distribution system tariffs currently at federal level.**

### *3.7.2. Facilitate and promote demand response*

Information on measures adopted or planned to enable and develop demand response, including those addressing tariffs to support dynamic pricing *(EED Annex XI 3., Annex XIV Part 2.3.6., EED Article 15(4), Article 15(8)).*

**On 26 February 2014 the Flemish Parliament approved a decree including an article which expressly requires VREG to provide incentives for participation of demand-side resources in the supply on the Flemish electricity and gas market.**

**This decree also includes the following article:**

> ***'Art. 4.1.18/1. The system operators shall cooperate closely with tenderers of energy services, including aggregators and customers, to draw up technical specifications for access to and involvement of demand-side management in the markets for balancing and other support services in the distribution system. These technical specifications shall be based on the technical requirements of these markets and the possibilities offered by demand-side management'.***

**The various governments of Belgium have asked the Belgian energy regulators (CREG, VREG, CWaPE and Brugel) to report on possible measures that can be taken at the various competence levels to use demand management to support system balancing and strengthen supply security. This report was published on 20 February 2014. It is available at http://www.vreg.be/rapo-2014-01.**

### *3.7.3. Energy efficiency in network design and operation*

1. Report on progress achieved in the assessment of the energy efficiency

potential of national gas and electricity infrastructure, as well as adopted and planned measures and investments for the introduction of cost effective energy efficiency improvements in network infrastructure and a timetable for their introduction *(EED Article 15(2), Annex XIV Part 2.3.5.)*.

**No actions have yet been carried out on this.**

2. In the 2017 NEEAP please include information from the assessment of the energy efficiency potential of gas and electricity infrastructure, in particular relating to transmission and distribution, load management and interoperability, and connection to generating installations including access possibilities for micro generators. The NEEAP needs to describe the measures and investments identified to utilise the energy efficiency potentials of gas and electricity infrastructure *(EED Article 15(2), Annex XIV Part 2.3.5.)*.

   **No actions have yet been carried out on this.**

## Annex A Energy Efficiency Directive Annual Report

**The report on progress made towards energy efficiency targets and data that will help the Commission to assess overall progress towards the EU's 2020 energy efficiency goals, which is to be submitted annually under Article 24(1), is included in the preceding sections.**

## Annex B Building Renovation Roadmaps

1. Overview of the building stock (*EED Article 4(a)*).

### *1.1. INTRODUCTION*

**Until recently there was no full energy inventory of the building stock in Flanders.**

**One source of information that can be used is the energy performance certificates database (EPC database) for new dwellings and for existing dwellings rented out or sold since the end of 2008. Both sources of information will gradually be developed. There is no point in formulating measures for new dwellings (EPC information included for dwellings with an urban planning licence from 2006) within the framework of this Directive, so they have been excluded. For existing residential buildings the information gathered since the end of 2008 will be extrapolated for all residential buildings, whether offered for rent or sale. However, caution is needed. Dwellings offered for sale or rent may not be representative of the whole building stock when it comes to estimating the nature and amount of work carried out on them before or after a performance inspection. A limited analysis of the information in the EPC database is available. A comprehensive analysis is currently being prepared by Steunpunt Wonen[3]. The results are expected some time in 2014. Steunpunt Wonen will also continue to investigate the representativeness of the EPC database for existing residential buildings in 2014.**

**Another source of information is the EPC database of public buildings. This database contains the energy performance certificates of buildings located in the Flemish Region which house public organisations providing public services for a large number of people and which are often visited by the public. The EPC for public buildings was phased in for buildings as follows in accordance with the European Directive:**

- **For buildings with a usable floor area of more than 1 000 $m^2$ the EPC has been compulsory since 1 January 2009.**
- **For buildings with a usable floor area of more than 500 $m^2$ the EPC has been compulsory since 1 January 2013.**
- **For buildings with a usable floor area of more than 250 $m^2$ the EPC will be compulsory from 1 January 2015.**

**The EPC database for public buildings was analysed by VITO in 2014.[4]**

[3] Steunpunt Wonen is financed by the Flemish government as part of the 'Steunpunten voor Beleidsrelevant Onderzoek 2012-2015' (*Focal points for policy research 2012-2015*) programme and is a joint venture between the University of Leuven, the LUCA School of Arts, the University of Hasselt, the University of Antwerp and the Delft University of Technology Department for Research on the Built Environment (Onderzoeksinstituut OTB) (the Netherlands)

[4] The full study can be found at: http://www2.vlaanderen.be/economie/energiesparen/beleid/Analyse_EPCpubliekegebouwen.pdf

**A research contract was awarded to enable us to implement Article 4 of the Directive for private non-residential buildings.**

**On the basis of these three sources of information the following categories of existing building were investigated:**

- **Residential buildings (single-family houses, apartments and multi-occupancy residential buildings).**
- **Public buildings (buildings of the following public organisations: the federal government, the Flemish government, provincial and municipal authorities, public companies, education, welfare and health).**
- **Private buildings (an admittedly limited random sample of offices, commercial buildings including shops, wholesale buildings and warehouses and utility buildings).**

**As far as possible a distinction was made between buildings occupied by the owner or used by a tenant and the buildings were also classified according to age. No distinction was made on the basis of location, except that all of the buildings had to be located in the Flemish Region. As far as possible, the heating technology and energy carrier used were also included in the inventory. The same applies for the partition walls or partition elements between warm (internal) and cold (external) zones of the building.**

## *1.2. RESIDENTIAL BUILDINGS*

### *1.2.1. Energy performance of existing Flemish dwellings*

**At the end of 2013, 650 932 valid energy performance certificates had been produced for existing residential buildings.**

**The average reference figure for the number of EPCs submitted for an apartment up to the end of 2013 is 295 kWh/m$^2$ a year. For a single-family house the average reference figure is 495 kWh/m$^2$ a year.**

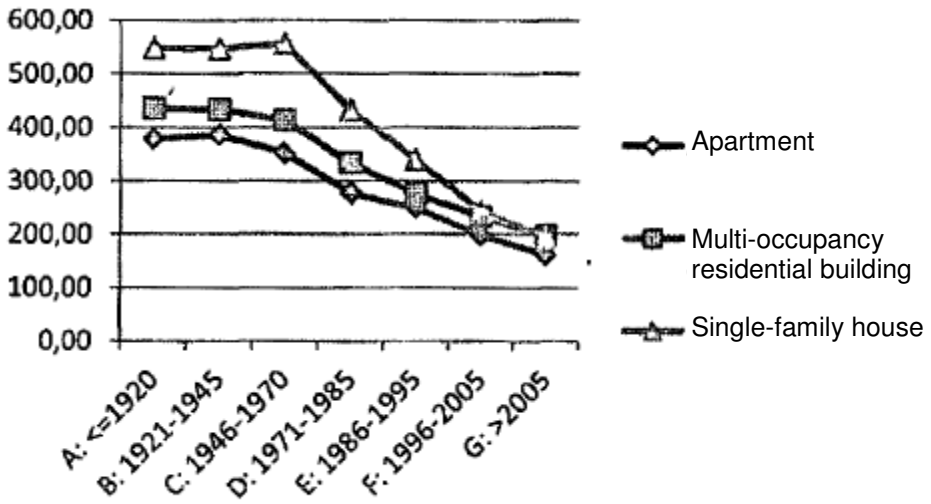
**Table 12. Average reference figures of the EPCs (energy score) for residential buildings based on the year of construction and type of dwelling**

| | Apartment | | Multi-Occupancy Residential Building | | Single-Family house | |
|---|---|---|---|---|---|---|
| | Number | Ref. figure | Number | Ref. figure | Number | Ref. figure |
| *A:<=1920* | *53 979* | *379* | *1 469* | *435* | *95 762* | *548* |
| *B: 1921-1945* | *13 927* | *386* | *534* | *433* | *47 408* | *545* |
| *C: 1946-1970* | *73 079* | *352* | *825* | *413* | *111 078* | *556* |

| | | | | | | |
|---|---|---|---|---|---|---|
| *D:1971-1985* | *49 648* | *277* | *190* | *334* | *48 072* | *433* |
| *E: 1986-1995* | *34 812* | *248* | *149* | *275* | *23 678* | *340* |
| *F: 1996-2005* | *45 297* | *198* | *124* | *233* | *22 975* | *243* |
| *G: >2005* | *22 231* | *162* | *85* | *198* | *5835* | *194* |
| Total(years) | 292 973 | 295 | 3 376 | 402 | 354 808 | 495 |

**An analysis of the reference values on the basis of the year of construction shows that the newer the building, the better its energy score. Dwellings built after the introduction of insulation regulations (1993) already score significantly better, while those built after the introduction of the energy performance regulations (2006) are more likely to lie in the green zone of the EPC colour band.**

**Figure 1: Evolution of the energy score for residential buildings based on year of construction and type of residential building**




**Apartments thus have consistently better energy scores. Apartments often lose less energy through walls, roofs and floors which may largely explain the better score. That is also why terraced houses are generally more energy efficient than semi-detached buildings, which in turn are more energy efficient than detached buildings. A detached building requires an average of 20% more energy per $m^2$ for heating than a terraced building.**

**Table 13. Average energy score based on year of construction and type of single-family house**

| | Terraced building | Semi-detached building | Detached building |
|---|---|---|---|
| **A- <=1920** | ***461*** | ***593*** | ***682*** |
| ***B: 1921-1945*** | ***464*** | ***599*** | ***689*** |
| ***C: 1946-1970*** | ***455*** | ***561*** | ***633*** |
| ***D: 1971-1985*** | ***345*** | ***416*** | ***467*** |
| ***B: 1986-1995*** | ***276*** | ***321*** | ***357*** |
| ***F: 1996-2005*** | ***206*** | ***233*** | ***264*** |
| **G: >2005** | ***171*** | ***188*** | ***225*** |
| | ***340*** | ***416*** | ***474*** |

**The average energy score of a recently built new house is thus nearly three times better than that of a house built before 1970 and twice as good as that of a house built between 1971 and 1985. Houses built after 1996 also have a significantly lower energy score (only half) than those built before 1970.**

**As mentioned above, Steunpunt Wonen is currently carrying out a detailed analysis of the EPC database. The classification by construction year will be refined and more attention will also be paid to the relationship between the energy performance and the sale and rental of existing dwellings. It will also investigate the relationship between the size of the dwellings (protected volume and usable floor area) and the area of heat loss, and their overall energy performance.**

**The various parts of the envelope (façade, roofs, internal walls, floors, windows) and the installations (heating, sanitary hot water including solar boilers, ventilation and photovoltaic panels) will also be investigated individually and in relation to the reference figure.**

### *1.2.2. Features of the rental market in Flanders – supply and quality of rental dwellings*[5]

[5] Sources: 1. Naar een aanbodbeleid voor de Vlaamse private huurmarkt (*Towards a supply policy for the Flemish private rental market*) (Pieter Vandenbroucke et al, March 2007); 2. De evolutie van de woonsituatie in Flanders. SILC-gegevens voor de periode 2004-2009 (*The evoluation of the housing situation in Flanders. SILC data for the period 2004-2009*) (Kristof Heylen - March 2012); 3. SERV-advies aangaande REG-subsidies SVK van 10 september 2008 (*SERV advice of 10 September 2008 on REG subsidies for the Social Housing Office*).

**Flanders has an exceptionally high proportion of home ownership (72%).**

**The 'social' rental housing market is relatively small in Flanders/Belgium, certainly in comparison with neighbouring countries: 6.3% of the Belgian population and 5.4% of the Flemish population live in a home rented from a public body such as the social housing companies. The European average is 17.3% (the Netherlands 34%, the United Kingdom 20%, Denmark 19%, France 17%).**

**On average, the dwellings on the private rental market are of lower quality than privately owned dwellings. The proportion of 'good' dwellings (which the owners do not believe need refurbishment) is 71.2% for private dwellings and 45.9% for the rental dwellings.**

**In Flanders there are 300 000 poor quality dwellings, 135 000 of which are rented. Roughly one in four properties in the renal market is of poor quality, and one in ten in the private market.**

**State of the dwelling: 16.1% of the private rental dwellings are poor quality, 2.7% are very poor quality. The Flemish averages for the total housing stock are 8.4% and 0.8%.**

**The rent for dwellings of 'poor' or 'very poor' quality is no lower than that for dwellings of 'average' quality. This suggests a high demand in the lowest sector of the housing market.**

**The landlords on the Flemish private rental market are primarily private individuals. According to the Housing Survey, a private landlord lets an average of 2.2 dwellings. 60% of them let one dwelling and nearly 85% let up to three dwellings. We can thus conclude that the private sector of the rental market is very fragmented. Many of the houses or apartments are inherited.**

**Owners of rented houses also tend to be older, retired people who often no longer wish to invest in improving them. Older people are also the least inclined to make REG investments.**

**A higher proportion of private landlords also seem to be self-employed and to have an above average family income. For many self-employed people, the rent received supplements their earnings and particularly their pension.**

**Rented homes are often poorly insulated, have old windows and an old central heating system. 68.7% of the private rented homes have double glazing, 74.2% have central heating. The Flemish averages are 83.6% and 80.0%.**

**Tenants have at least three times as high a poverty risk as owners, i.e. 28.4% as opposed to 10.2%.**

**On average, private tenants have to spend a larger share of their income on housing costs: housing accounts for more than 20% of their income for 71.3% of them, more than 30% for 39.2% of them and more than 40% for 17.3%. The Flemish averages are 30%, 12.7% and 5.2%.**

**42.7% of private tenants are single, 25.8% are couples without children, 18.2% are couples with children and 11.2% are single-parent families. Single people and single-parent families are therefore highly over-represented in comparison with the total Flemish population (25.8% and 7.2% respectively).**

**Private tenants have a lower income: 21.7% are in the lowest income bracket, 23.7% in the next-to-lowest income bracket. 14.3% are in the highest income bracket.**

**On the private rental market 4% pay monthly rent of less than € 200 excluding costs, 11% pay € 200 to € 299, 26% pay € 300 to € 399, 29% pay € 400 to € 499, 17% pay € 500 to € 599 and 13% pay more than € 600.**

### *1.3. PUBLIC BUILDINGS*

**The following were identified as the most suitable age categories: built before 1945, between 1946 and 1970, between 1971 and 1995, between 1996 and 2006, and after 2006. Most of the public buildings seem to be educational buildings from the period 1945 to 1970 and sports buildings from the period 1971 to 1995. In 70% or more of cases the building is occupied by the owner, except for older educational and sports buildings and buildings accommodating public services. 80 to 90% of the public buildings are heated with natural gas. The consumption of natural gas, expressed in amounts of energy, seems to be highest in sports buildings dating from before 1945. The consumption of heating oil is most common in welfare buildings from the period 1945 to1970. Electricity consumption is most common in welfare buildings from 1946 to1970, but also in the periods before and after. The (relatively lower) consumption of propane is noticeable in cultural buildings from the period 1971 to 1995. The number of heat pumps is very small. Heat pumps are used mainly in administrative buildings and sports buildings, all of them in buildings dating from after 2007. Highly-insulating glass is found in 85-90 % of the public buildings dating from after 2007 and in around 75% of the buildings from the period 1996-2006, except in the public services where it is below 40%, even for the construction period 1996-2006. Insulated external walls ($U<0.6$ W/m$^2$.K) are found in 80-90% of buildings built since 1996 but only in 20% of the buildings built before. The same applies for roof insulation ($U<0.4$ W/m$^2$.K). For older buildings average U values of around 1.8 W/m$^2$.K for façades have been measured for the construction period 1946 to 1970 and around 2.4 W/m$^2$.K for buildings from before 1946. For roofs, depending on the source, that is around 1.8 or even**

**5 W/m$^2$.K for buildings built before 1970.**

## *1.4. PRIVATE OFFICE BUILDINGS, COMMERCIAL BUILDINGS AND PRIVATE UTILITY BUILDINGS*

**The following age categories were studied: built before 1900, from 1901 to 1960, from 1961 to 1980, from 1981 to 2000, from 2001 to 2006, after 2006[6]. Some caution is required when evaluating these results. As the data were collected on the basis of a single survey of just over 6 000 companies, which was not obligatory and was extremely time-consuming, only 6.71% of companies responded. In the end, after screening out the unreliable results, a sample of only 311 buildings remained for proper analysis. The sample, which included some overlapping categories, was therefore too small to provide any reliable conclusions. Incomplete data may also have been used for some overlapping categories.**

**The land register contains nearly 268 000 records of privately operated non-residential buildings, subdivided as follows: 108 829 warehouses, 88 122 retail buildings, 26 313 production buildings or workshops, 5 466 offices, 3 047 department stores, 1 843 service buildings, 1 185 bars and restaurants, 961 hotels and 32 195 'other buildings'.**

**In contrast to the above numbers of buildings taken from the land register, the numbers of responses to the survey were as follows: 104 production buildings or workshops, 96 offices, 94 retail buildings, 48 warehouses, 7 bars and restaurants, 6 service buildings, 4 sports buildings, 3 department stores, 7 hotels and 14 others. It is therefore obviously only worth studying production buildings or workshops, offices, retail buildings and warehouses in any further detail.**

**80% of the types of building studied were built between 1900 and 2000, which also corresponds to the information from the land register. However, the buildings built after 1980 represent 57% of the sample, which does not correspond at all to the data from the land register, which shows that only 25% of the buildings were built after 1980.**

### *1.4.1. Findings for the building envelope*

#### *a. Insulation*

**The results for roof, wall and floor insulation are similar for the different types of building. For retail buildings, for which we received very few responses, we see similar results. For the different types of building we can state in general that those built in the period after 2000 generally score better.**

**Roof insulation seems to be the most up to standard for the various types**

[6] The full study can be found at: http://www2.vlaanderen.be/economie/energiesparen/beleid/Inventaris_bedrijfsgebouwen.pdf

**of building. There were few differences between the construction periods except for the general fact that buildings from 2000 score better.**

**Extrapolation on the basis of the surface area information from the land register suggests that 438 436 $m^2$ office area, 8 511 894 $m^2$ production building area and 9 843 629 $m^2$ warehousing area has no roof insulation.**

**A slightly smaller proportion of the building stock surveyed seems to have full wall insulation. Around 60% of the offices, 40% of the production buildings and 43% of the warehouses stated that they had full wall insulation.**

**However, 23% of the offices, 40% of the production buildings and 35% of the warehouses did not have wall insulation. After extrapolation this is equivalent to 737 614 $m^2$ office area, 23 684 228 $m^2$ production building area and 18 412 886 $m^2$ warehouse area without wall insulation. Office buildings from the construction period 1901 to1960 account for the largest proportion without wall insulation - 61% of the office area without wall insulation or 302 573 $m^2$.**

**For production buildings this is the construction period 1961 to 1980, i.e. 58% or 13 736.852$m^2$, while warehouses built between 1981 and 2000 account for the largest warehouse area without wall insulation (45% of 8 285 799 $m^2$).**

**Finally, only a small number of the buildings has floor insulation. The results show that more than 50% of the offices, 95% of the production buildings and 73% of the warehouses do not have floor insulation. When extrapolated this corresponds to 1 946 962 $m^2$ office area, 43 688 306 $m^2$ production building area and 35 252 726 $m^2$ warehouse area.**

**Table 14. Overview per type of building of the building areas <u>without</u> insulation (extrapolated from floor area data from the land register) ($m^2$).**

| | No roof insulation | *% of total area** | No wall insulation | % of total area* | No floor insulation | % of total area* |
|---|---|---|---|---|---|---|
| Offices | 438 436 | 0.37% | 737 614 | 0.62% | 1 946 962 | 1.63% |
| Production buildings | 8 511 984 | 7.13% | 23 684 228 | 19.84% | 43 688 306 | 36.60% |
| Warehouses | 9 843 629 | 8.25% | 18 412 886 | 15.42% | 35 252 726 | 29.53% |
| Total | 18 794 049 | 15.74% | 42 834 728 | 35.88% | 80 887 994 | 67.76% |

****The total area is the total area of the non-residential buildings in Flanders, as found in the dataset queried in the land register.***

**The highest potential savings on insulation are to be made by focusing on wall and floor insulation. Although promoting floor insulation in these**

**types of buildings affects twice the area, wall insulation is also important as wall insulation delivers twice the energy saving per $m^2$ heat loss area (Hoes & Martens, 2001).**

***b. Glazing***

**The results for glazing are similar for the different types of building. A few still have single glazing, the majority of the buildings have double glazing and we found that a quarter to a third already have high-efficiency glazing.**

**Both in office buildings and warehouses we notice a higher percentage of buildings with high-efficiency glazing in the construction period after 2007. We do not find this trend in production buildings.**

### *1.4.2. Findings for technical installations*

***a. Heating boilers and supply of sanitary hot water***

**Around half of the buildings have a heating boiler that dates from before 2001. Looking at the results for offices, production buildings and warehouses, slightly less than half of the buildings are heated with a normal boiler. If we include the results for retail buildings, that percentage rises to 58%.**

**Production buildings have the worst score for boiler age: 53.5% are heated with a boiler manufactured before 2001. Retail buildings score badly on boiler efficiency: 94.5% are heated with a normal boiler.**

**The results for the supply of sanitary hot water are similar for offices and production buildings: slightly less than 30% of the buildings use an electric boiler. This percentage is slightly higher in warehouses at 41.5%.**

***b. CHP and heat pump***

**The results show that none of the building types studied commonly use a cogeneration or heat pump system to heat the building.**

***c. Cooling***

**Around half of the buildings where we expect to see cooling, such as office buildings, have an active cooling system. Initially, it would be best to aim to restrict the cooling required as far as possible. This can be done by setting clear requirements for the building envelope and sun shading, which is a very effective measure against overheating.**

***d. Lighting***

**Fluorescent lighting is mainly used in the different types of building. The type of fluorescent bulb, and thus the difference between conventional**

**and energy-efficient electronic ballasts, was therefore not investigated in the survey as it already contained a high level of detail. The number of hours of use was not investigated for the same reason, so it is difficult to draw conclusions about the energy efficiency of lighting in the building stock studied.**

**A European study published a market share of 31% for electronic ballasts in 2004. For 2010 the market share of electronic ballasts was expected to be 70% (CELMA, 2005).**

**If we include this figure in our results and extrapolate using area data from the land register we arrive at the figures shown in the table below.**

**Table 15. Extrapolation of the results for lighting on the basis of area data from the land register.**

| Building type | Results for Fluorescent lighting | Extrapolation from the land register on the basis of area | 30% market share for conventional ballasts |
|---|---|---|---|
| Offices | 86% | 2 751 437 $m^2$ | 825 431 $m^2$ |
| Production buildings | 81% | 39 454 169 $m^2$ | 11 836 251 $m^2$ |
| Warehouses | 80% | 37 144 984 $m^2$ | 11 143 495 $m^2$ |

**The absence of motion detectors and daylight control in the various types of building is striking. More than three quarters of old buildings do not have daylight control and the results for the various types are similar. Around 75% of all offices and production buildings do not use motion detectors. For warehouses this percentage is slightly lower at 63%.**

**Daylight control and motion detectors are found in more office buildings built after 2007 than in older buildings. However this trend was not found in the other types of building.**

### *1.4.3. Findings for energy reference figures*

**The calculated energy reference figures correspond to the range of published reference figures for the various types of building. Reference figures vary widely and are influenced by various parameters. In production buildings in particular it is important to take account of the effect of the enterprise's activity on electricity, natural gas and heating oil consumption.**

**The table below gives the calculated reference figures for the various types of building. The estimated building consumption of production buildings were used for this. A correction was made to the electricity reference figure for offices to produce a better picture of the actual building consumption. For the correction, only 64% of the reference figure was included in the building consumption. According to a study of**

**potential in office buildings by VITO, 26% of the electricity consumption is accounted for by equipment and 10% by 'other' uses. Heating, cooling and lighting account for 64% of the total consumption and were included here as building consumption.**

**Table 16. Overview of the calculated building reference figures for electricity per type of building**

| Type of building | Elec/area |
|---|---|
| Hotel | 1.15 GJ/m$^2$ |
| Retail | 0.75 GJ/m$^2$ |
| Office | 0.53 GJ/m$^2$ |
| Warehouse | 0.50 GJ/m$^2$ |
| Production building/ workplace | 0.12 GJ/m$^2$ |

**Table 17 Overview of the calculated building reference figures for fuel per type of building**

| Type of building | Fuel/area |
|---|---|
| Office | 0.62 GJ/m$^2$ |
| Hotel | 0.46 GJ/m$^2$ |
| Warehouse | 0.32 GJ/m$^2$ |
| Retail | 0.29 GJ/m$^2$ |
| Production building/ workplace | 0.24 GJ/m$^2$ |

2. Cost-effective approaches relevant to building type and climatic zone *(EED Article 4(b))*.

**In 2012/2013 the Flemish government commissioned a number of studies of cost-optimal levels of minimum requirements for the energy performance of 'residential' and 'office and school' buildings, see 3.2.1, point 1. The study reports are divided into three different parts: 1) residential new building, 2) residential renovation, and 3) non-residential new building and renovation. The calculated cost-optimal levels for new building will be introduced from 1 January 2016. The studies show that, unlike new buildings, it is difficult to speak of an optimum energy performance for renovations. The cost-optimal energy performance level**

**is highly dependent on the initial situation and the possibilities for renovating the building. The dwellings that have the highest primary consumption in the reference condition, achieve the lowest cost-optimal levels and are among the lowest consumers after renovation.**

**Dwellings**

**In general, the insulation measures quickly become cost-optimal if there are low-cost options such as loft insulation, pitched roof insulation (provided there is roofing felt and there are no recessed frames), cavity wall insulation, flat roof insulation and cellar insulation. However, if existing structures, such as the cavity wall and the roof, already contain a minimum thickness of insulation, it is difficult to weigh up the energy saving of the (more expensive) insulation measures against the investment costs. If renovation work is still carried out, for example to replace the roof covering, the cost-optimal insulation level will achieve, or even exceed, the cost-optimal level that will be required for a new building in the future. So it is more beneficial to fully insulate straight away than to insulate in stages and thus only partially. The cost of the new finishing layer is a serious consideration in this decision. Major renovations which combine various measures can also be attractive because they can offer better solutions for cold bridges and increased air-tightness. If a dwelling is already well-insulated, the heating system can also be smaller. These conclusions apply to the systems themselves as well. If a new heating boiler is installed, it is best to install a condensing boiler, although heat pumps or (in multi-occupancy buildings) micro-CHPs could also be an attractive option. If existing elements of expenditure can be recovered, a homogeneous package of insulation measures will allow a systematic reduction.**

**The dwellings studied showed considerable potential for savings[7]. By carrying out the cost-optimal measures, the primary energy consumption of the dwellings can be reduced on average from an initial 354 kWh/m$^2$ to 146 kWh/m$^2$. Major renovation, defined as renovation of at least 75% of the façade and the roof, with the renewal of the heating system and the installation of a ventilation system, reduces the primary energy consumption to below 100 kWh/m$^2$.**

**Given the significant influence of the initial situation and basic conditions, we clearly have to promote an adequate number of variants when analysing the possibilities for renovation. A number of assumptions must nevertheless be examined. One of the most important of these is the effect of user behaviour on the estimated energy saving. Sufficient care must also be taken to ensure that the complex interactions between the user, the building and the installations is not forgotten. The correct positioning and setting of the systems are very important for achieving high efficiency. This is not obvious in a well-insulated dwelling as the demand profile is very variable.**

[7] Source: Studies which calculate cost-optimal levels, discussed under 3.2.1

**As part of the European ICT-PSP project ICE-WISH 30 dwellings at 10 locations will be monitored for a year at a time. The occupants can follow their consumption in real time on their television. The aim of the project is to investigate how occupants' behaviour can be modified but also how the structural elements of the building can be adapted to reduce energy costs. The VMSW is a partner in this project. The results are expected in the second half of 2014.**

**Offices**

**For old office buildings with little or no insulation, the main conclusion of the study was that total renovation of the building should be chosen above (phased) renovation of various parts of the building envelope. It is mainly floor insulation and the possibility of achieving far better air-tightness with a total renovation that makes the difference.**

3. Information on policies and measures to stimulate cost-effective deep renovations of buildings, including staged deep renovations *(EED Article 4(c))*.

**Tax allowance for families**

**Tax allowance for roof insulation. Article 14524 of the Income Tax Code provides for a tax allowance for the installation of roof insulation in dwellings which have been in use for at least 5 years. The work must be carried out by a contractor. This will allow a private individual to recover 30% of the investment cost through personal income tax up to a maximum of € 3 010 for the 2013 income year.**

**Grants and subsidies**

**System operator grants. Efficient energy use (Rationeel Energie Gebruik - REG) for domestic and non-domestic customers (for industry, see also 3.4.1), is promoted via the public service obligations of the electricity distribution system operators. They have a number of action obligations to encourage their final customers to save energy. The amounts and conditions of the grants have been the same throughout Flanders since 2012 (see also 3.1.1.- alternative policy measures).**

**Under the new financing system (FS3) for social housing the maximum amount of the loan will be increased for improved energy performance. The social housing companies will thus be given a little more scope to prepare for and anticipate the tightening of the EPB requirements for new building and major renovations.**

**To support the 2020 Energy Renovation Programme the Flemish government provided an overall budget of € 28 525 000 for the period 2012-2019 for the application of REG-measures and green heating. The Social Housing Companies receive grants via the VMSW for the replacement of single glazing with high-thermal-efficiency window**

**systems, the replacement of old heating appliances with high-efficiency appliances, roof insulation, retrofitting of façade and floor insulation, the installation of solar boilers and heat pumps.**

**The Flemish Climate Fund provides VMSW with a budget of € 7.8 million for the higher grants to Social Housing Companies for energy renovations of multi-occupancy residential buildings. The condition for awarding these grants is simultaneous application of the actions listed above so that the building meets all of the targets of the 2020 Energy Renovation Programme. See also Annex B, Point 3.**

**Social housing**

**A Flemish Government decision of 10 January 2014 on the grant of subsidies under the Flemish Climate Fund to the Flemish Social Housing Association, which in turn can thus grant subsidies to social housing companies, expressly states that these grants can be awarded only for deep energy renovations. The following are regarded as deep renovations: renovations in which at least two of the measures referred to in the 2020 Energy Renovation Programme are carried out thus already meeting the targets of the 2020 Energy Renovation Programme. A phased implementation in terms of a commitment to undertake additional measures at a later date is not accepted. Existing earlier intervention can be taken into account for compliance with the definition of deep energy renovation, on condition that (at least) two new interventions are carried out.**

**Energy performance regulations**

**From 2015 major energy renovations of houses, apartments, offices and schools must comply with a global energy performance standard E90 (Decision of the Flemish Government of 29 November 2013). A major energy renovation is defined as a renovation which replaces the heating and/or cooling installation completely and insulates at least 75% of the existing and new partitioning structures which surround the protected volume and form the boundary with the outside environment, but which is not stripping out.**

**An E-rating has applied since 2006 to the stripping out of existing buildings with a protected volume greater than 3000 $m^3$. Stripping out is a type of renovation which retains the load-bearing structure of the building but replaces the installations and at least 75% of the façade to obtain a specific indoor climate. The 'major renovation' is similar to stripping out but without the associated volume limit and with less major work on the elements of the building envelope.**

**The major renovations must comply not only with the global energy performance standard, but also with the requirements for (retrofitted) thermal insulation of structural components and the same ventilation**

**requirements as new buildings. The energy performance requirement for major energy renovations is less stringent than for new buildings. The cost-optimal level of energy performance for major energy renovations is highly dependent on the energy performance and the measures in the building before renovation.**

**Combined grant**

**From 2014 the system operators will pay a combined grant for simultaneous investment in wall insulation and the replacement of existing windows in dwellings (Decision of the Flemish Government of 29 November 2013). To be regarded as simultaneous, the final invoices for both types of work must be issued within 12 months. To be eligible for the grant all existing windows with single glazing or ordinary double glazing in the façade or parts of the façade fitted with wall insulation must be replaced by new windows which contain glass with a maximum U value of 1.1 or 0.8 W/m2K and which have a maximum U value (for the window frame and glass together) of 1.7 W/m2K. For cavity walls, the wall insulation must fill the entire cavity and for external walls, insulation material with a heat resistance of at least 2 $m^2K/W$ must be applied. The grant for the wall insulation work is identical to the separate grant; the grant for replacement of windows will be four times that of the separate glazing grants.**

**Renovation grant**

**No changes on energy efficiency from 2014.**

4. A forward-looking perspective to guide investment decisions of individuals, the construction industry and financial institutions*(EED Article 4(d))*.

**The success of an energy strategy depends largely on the involvement of the stakeholders in the creation of the strategy. The stakeholders must be involved at an early stage in formulating a vision for the future, as they may otherwise take issue with some aspects of government policy, often after it has been adopted. Belated discussions about existing or future policy, which may result in a need for corrections, must be avoided. A lack of transparency in the formulation of a policy almost always leads to dissatisfaction in one or more groups of stakeholders, so it is also useful for the various stakeholders to be aware of the matters of interest to the others, as the interests of all stakeholders are not necessarily always the same. It is thus essential to seek or listen to the opinions of stakeholders on a multilateral, rather than a bilateral, basis.**

**Housing**

**The 2020 Energy Renovation Programme has applied to the housing sector in the Flemish Region since 2006. The 2020 Energy Renovation Programme aims to ensure that there will no longer be any energy-intensive dwellings in 2020. The strategy of the 2020 Energy Renovation**

**Programme is to work on three levels - a management, a support and a deterrent level, defined as:**

1. **Ensuring that a number of operational objectives are fully achieved.**
2. **Providing financial support for this and other desired renovation measures.**
3. **Reducing the likelihood of, counteracting, or weakening undesirable developments in primary energy consumption.**

**This strategy is formulated as follows in the 2020 Energy Renovation Programme:**

- **The programme will 'ensure' that in 2020:**
  - **each dwelling has roof or loft insulation**
  - **existing single glazing is replaced by improved double glazing**
  - **central heating is more than 90% efficient**
  - **natural gas stoves are also more than 90% efficient.**
- **In the meantime, the programme will 'support':**
  - **external insulation of exterior walls.**
  - **cavity wall and floor insulation.**
  - **replacement of electric heating.**
- **Conversely, the programme will 'discourage':**
  - **air conditioning and electric resistance heating.**

**Since its inception in 2006, the 2020 Energy Renovation Programme has been supported by a multi-disciplinary stakeholder committee. In 2013 the stakeholders of the 2020 Energy Renovation Programme were invited to give their view of the possibilities of integrating the 2020 Energy Renovation Programme into Article 4 of the EED.**

**The objective formulated for housing policy was that all dwellings should be nearly Zero-Energy by 2050. However, the term 'nearly Zero-Energy' has yet to be defined for existing buildings. This will be done in 2014. A micro-approach could be adopted for this, in which not every dwelling is nearly Zero-Energy, but the Flemish building stock is nearly Zero-Energy on a macro scale. However there is little likelihood that the energy performance of each existing, but otherwise quite recent, dwelling or other building, can be addressed thoroughly. This is not obvious, for example, for dwellings and buildings of high architectural value, whether or not they are recognised as having heritage value. The limited financial support among home owners may be a significant barrier to compliance with the n-ZEB standard. To comply with the n-ZEB standard on a macro-scale, a number of dwellings must be, or must become, positive energy dwellings. This compensating role can be taken on by newbuild projects or planned major renovations.**

**For the existing building stock the target-group orientated selective aid measures will initially remain in place. A clear time frame for the reduction of aid measures may also speed up the transition to energy efficiency. Obligations must also be imposed gradually. Such an obligation already exists for roof insulation.**

**The following target groups have priority for financial aid:**

- **New owners buying a home with the emphasis on avoiding lock-in effects.**
- **Owners of old dwellings, which have poorer energy performance on average.**
- **Owners of dwellings with a high cadastral income. These owners have an exemplary role.**
- **The dwellings of social housing companies.**

**The focus is primarily on deep renovations to avoid lock-in effects. The feasibility of a comprehensive EPC or 'home passport' for every dwelling, will be investigated. This home passport should contain the EPC reference figures of the dwelling and a schedule of cost-effective measures to be carried out to improve the energy performance to n-ZEB level in due course. The collective results of all home passports will be stored in a database and will then be the criterion against which we assess whether the overall housing stock can be called n-ZEB.**

**The following measures will be taken as a 'soft' means of guiding investment perspectives in housing:**

- **Cheap or interest-free loans (FRGE).**
- **Government-subsidised energy consultants.**
- **Information and communication via websites, campaigns, brochures...**
- **Heating audits.**

**<u>Offices</u>**

**At the end of 2012, a stakeholder consultation was organised for the office building sector, which drew the following conclusions:**

- **Voluntary agreements are preferred over legal obligations.**
- **Where lighting is concerned, obligations are more easily enforceable than agreements.**
- **A voluntary agreement can also contain legal obligations. Voluntary agreements offer companies more options.**
- **It is best to work with a staged level of obligations to challenge those who wish to go beyond the minimum requirements (particularly the leaders).**
- **The EPC can be used as an instrument to evolve towards more energy-efficient office buildings.**
- **A clear distinction must be made between multi-tenant and single-tenant use.**
- **'BREEAM In-Use' can be a good option for improving the performance of a building, but obligatory standards are difficult to implement for existing buildings. An energy management standard should be voluntary for the building owners who wish to go beyond the statutory obligations.**
- **Incentives must be given for an ESCO market and Energy Performance Contracting for energy efficient office buildings.**

**In 2013 Enterprise Flanders developed an initiative to promote both the supply and the demand side of the ESCO market. See also 3.1.6., Point 2.**

5. An evidence-based estimate of expected energy savings and wider benefits (EED Article 4(e)).

   **The available estimates of savings are included in Table 2.**

**ANNEX C NOTIFICATION TO THE EUROPEAN COMMISSION WITHIN THE FRAMEWORK OF ARTICLE 7**

**The Article 7 notification completed after the bilateral meeting with the European Commission on 17 March is reproduced below. For each policy measure compliance with the criteria is demonstrated in a detailed information sheet together with the methods used to calculate the expected energy savings.**

1. Calculation of the objective as specified in Article 7(1) and (2) of Directive 2012/27/EU on energy efficiency, for the Flemish Region

**The objective is calculated on energy sales to final customers. This means that the non-energy consumption and consumption for refineries, coke and car production may be deducted from the Flemish Energy Balances. Flanders has also opted to exclude transport consumption from the calculation.**

**The table below details the Flemish figures used to arrive at energy sales from energy consumption for the sectors concerned (residential, tertiary, agriculture and industry):**

| Residential + tertiary + agriculture | 2010 | 2011 | 2012 | Average 2010-2012 |
|---|---|---|---|---|
| TWh energy consumed (incl. PV) | 113 111 | 94 250 | 102 111 | 103 157 |
| *Input from self-production of electricity (excl PV)* | *4 861* | *5 000* | *5 361* | *5 074* |
| *Heat* | *0 778* | *0 806* | *0 889* | *0 824* |
| *Biomass (excl self-production of electricity)* | *4 528* | *3 222* | *4 000* | *3 917* |
| TWh energy sold | 102 944 | 85 222 | 91 861 | 93 343 |
| **Industry** | | | | |
| TWh energy consumed (for energy, incl. PV) | 110 972 | 107 750 | 105 083 | 107 935 |
| *Own coke and coke oven gas* | *9 444* | *7 861* | *7 333* | *8 213* |
| *Input from self-production of electricity (excl PV)* | *7 833* | *7 583* | *8 278* | *7 898* |
| *Recovered energy (excl input self-prod. of electr.)* | *22 250* | *22 000* | *19 222* | *21 157* |
| *Heat* | *5 389* | *5 333* | *5 361* | *5 361* |
| *Biomass (excl. input self-prod. of electr.)* | *1 000* | *0 944* | *0 944* | *0 963* |
| TWh energy sold | 65 056 | 64 028 | 63 944 | 64 343 |
| **TWh total energy sold (incl. PV)** | **168 000** | **149 250** | **155 806** | **157 685** |
| **Electricity production by PV** | **0 489** | **0 992** | **1 617** | **1 032** |
| **TWh total energy sold** | **167 511** | **148 258** | **154 189** | **156 653** |

**The average final energy sales for 2010 to 2012 are therefore 156 653 GWh.**

**An annual target of 1.5% delivers a target of 65 794 GWh to be achieved. By applying the options described in Article 7.2 of the Directive, this target can be reduced by a maximum of 25%. In concrete terms this means a target of 49 346 GWh to be achieved.**

| **Energy sales to final consumers** | **Average 2010-2012** | **Target** | **Apply maximum 25% reduction** |
|---|---|---|---|
| Total final sales excluding transport (a) | 156 653 TWh | 65 794 TWh | 49 346 TWh |
| Final sales of full ETS sector (b) | 37 898 TWh | | |
| (a) - (b) final sales excluding transport and ETS | 118 755 TWh | 49 877 TWh | |
| Apply reduced pathway to (a) instead of 1.5% | | 52 087 TWh | |

**Applying only the reduced pathway (Article 7.2 a)) reduces the Flemish objective to 52 087 GWh.**

**Applying option 7.2 b), i.e. excluding the ETS sector (with total final energy sales of 37 898 TWh averaged over the period 2010-2012) from the calculation of the target, produces a Flemish target of 49 877 GWh. The savings in this sector may be counted towards the target, as expressly stated in the Guidance note on page 14, Point 30 '*Article 7 aims to trigger energy savings at energy "end-use"(paragraph 1, second sentence) and there are no limitations as to which final energy use sectors can be targeted with the national policy measures put in place to implement this Article. Savings from policy measures in the transport sector and ETS industries may be counted, even if these sectors' energy use has been excluded from the calculation of the overall amount of energy savings as described in section BI of this note*.'**

**Flanders is opting to use the exclusion of part of the ETS sector (amounting to 8 2436 TWh) from the calculation of the final energy sales, in combination with the reduced pathway, until the full 25% reduction of the target is achieved. In other words, it aims to achieve a target of 49 346 GWh.**

| **Option taken by the Flemish Region:** | |
|---|---|
| Total final sales excluding transport (c) | 156 653 TWh |
| Exclusion of part of the final sales of the ETS sector from the target (d) | 8 2436 TWh |

| | |
|---|---|
| (c) - (d) final sales excluding transport and excluding part of the ETS sector | 148 409 TWh |
| Apply reduced pathway to (c) - (d) | 49 346 TWh |

2. Alternative measures establishing an obligatory scheme for energy efficiency, as specified in Article 7(9) of Directive 2012/27/EU on energy efficiency, within the Flemish Region

| **Criteria to be met** | |
|---|---|

**The policy measures provide for at least two intermediate periods by 31/12/2020, and lead to the achievement of the level of ambition set out in Article 7(1)** (Article 7(10)(a))

Flanders has opted to work with the following intermediate periods for all alternative measures: 2014-2017 and 2018-2020. The texts of the energy policy agreements provide expressly for energy audits every four years, an energy plan for the first three years after the agreement comes into effect, and a second energy plan for the remaining term, i.e. an energy plan during 2014 and a new energy plan in 2018. The action obligations for the system operators' grants will be evaluated annually on the basis of the annual REG reports, for example.

**The responsibility of each party concerned is defined** (Article 7(10)(b))

Each detailed information sheet states which parties are involved in each measure and des

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Compliance with Article 7 will be overseen by the Flemish Energy Agency. The Flemish Energy Agency will report on this to the Flemish Government, which can take any action required if the expected energy saving results are not achieved.

| | |
|---|---|
| **The energy savings that are to be achieved are determined in a transparent manner** (Article 7(10)(c))<br>The energy saving for all proposed alternative measures is determined in a transparent manner. More details of how this is done can be found in the description of the calculation method for each measure and the applicable audit mechanisms given in each information sheet.<br><br>The savings for all measures can be catalogued under 'deemed savings' and for the energy policy agreements also partly under 'metered savings' | |
| **The amount of energy savings required or to be achieved by the policy measure is expressed in either final or primary energy consumption, using the conversion** | For all proposed alternative measures the energy savings are expressed in final energy. |

| | |
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| **factors set out in Annex IV**;(Article 7(10)(d)) | |
| **Monitoring of the results is ensured and appropriate measures are envisaged if the progress is not satisfactory** (Article 7(10)(h)) | Each detailed information sheet states how each measure is monitored and how it can be adjusted. The Flemish Energy Agency will oversee compliance with Article 7. The Flemish Energy Agency will report on this to the Flemish Government, which can take any action required if the expected energy saving results are not achieved. |
| **Data on the annual trend of energy savings are published annually** (Article 7(10)(j)) | The Flemish Energy Agency will publish a report on its website www.energiesparen.be which follows up the progress of compliance with Article 7 of the Directive |

### *2.1. Regulations or voluntary agreements that lead to the application of energy-efficient technology or techniques and have the effect of reducing end-use energy consumption(Article 7(9) second subparagraph, point (c)*

**The Flemish Region wishes to notify the new energy policy agreements with energy-intensive industry as an alternative measure for Article 7.**

| **Criteria to be met** | |
|---|---|
| **Energy savings are calculated using the methods and principles provided in points (1) and (2) of Annex V** (Article 7(10)(e)) | The energy savings from the energy policy agreements are calculated by the methodology used in the 2011 Flemish action plan submitted within the framework of the ESD. As the Flemish Region is small, the option described in Annex V 2b to take account of climatological differences within the Region has not been used. The choice of the notified action obligations avoids duplication with the energy policy agreements. The detailed information sheet for each type of energy policy agreement shows that signing the agreement provides the impetus for carrying out the energy saving measures and making the energy savings arising from them. The period in which the measures deliver net energy savings is taken into account for the lifetime of the measures |
| **An annual report of the energy savings achieved is provided by participating parties unless not feasible and made publicly available**(Article 7(10)(g)) | The participating parties report every year to the Verification Office on the progress of the measures implemented in the preceding years, including the energy savings achieved with them. After they have been verified by the Verification Office, the Commission will draw up an overall summary report (aggregated by sector) of these energy savings by 31 December, which will be communicated to the Flemish Government and published. |
| **A control system is put in place that also includes independent verification of a** | The Verification Office is charged with monitoring the proper implementation of the energy policy agreements. The Verification Office is an independent, natural organisation appointed by the ministers of Energy and of |

| | |
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| **statistically significant proportion of the energy efficiency improvement measures**(Article 7(10)(i)) | the Economy of the Flemish Region and must comply with a number of criteria, as described in Annex 3 of the energy policy agreements. For example, it must operate according to strict guidelines on the basis of a certified quality assurance system, and must have experts in the process technologies to be dealt with.<br><br>The Verification Office has responsibilities in the following areas:<br>• Acceptance of the energy experts appointed by the participating companies :<br>o on the basis of an action plan which describes, for example, how they will audit the enterprise concerned and its processes, what actual data can be used (incl. information on measurement campaigns and permanent measurement) and gives an overview of the employees (incl. their demonstrable experience) who will be involved in drawing up the Energy Plan;<br>o the energy experts must meet a number of criteria (technical knowledge, experience as an energy manager/officer or in energy management/energy audits, work in accordance with requirements imposed by the Verification Office, they must be neutral and work independently, they must use professional standards (e.g.. ISO 9000), respect confidentiality obligations...);<br>• Acceptance of the Energy Plans:<br>o Requesting additional information;<br>o Making decisions about the Energy Plan within 70 calendar days of receipt;<br>o If it does not accept the plan, making recommendations and requesting amendments (to be evaluated within 30 days);<br>o If it does not accept the plan a second time, the administrative body, known as the Commission, intervenes to mediate;<br>• Monitoring the commitments entered into, including:<br>o Verification of the annual reports on the implementation of the Energy Plan by the enterprises, for example by carrying out on-site checks;<br>o Verification of the implementation of the energy management measures;<br>• Reporting to the administrative body, the Commission, about:<br>o Failure to submit Energy Plans on time;<br>o Failure to submit annual monitoring reports:<br>o Failure to comply with the obligations imposed;<br>o The implementation of the Energy Policy |

| | |
|---|---|
| | Agreement (annually);<br>• Deciding on the application of 'economic excusability'. |
| | The Flemish Region may cancel the enterprises' participation in the energy policy agreement, with the cancellation of all acquired benefits (retroactively on the date on which they are first found to be in default ). |

| **Measure** | **Energy Policy Agreement with TEP companies** |
|---|---|
| **Alternative measure** (Article 7(9), second subparagraph) | Voluntary agreement for the implementation of energy efficient technology or techniques which reduce the final consumer's consumption. |
| **Description of the measure** | The Flemish Government, in consultation with the sectors, has developed a new energy policy agreement to succeed the benchmarking agreement for the period 2014-2020 for companies subject to the TEP system which have an energy consumption of at least 0.1 PJ. The companies undertake the following:<br>• To have their energy use audited every four years by energy experts accepted by the Verification Office.<br>• On the basis of this audit, to draw up a periodic Energy Plan and implement it in phases. The first plan covers the first three years after the Energy Policy Agreement comes into effect, the second plan covers the remaining period. An Energy Plan contains at least the following elements (and must be accepted by the Verification Office):<br>o Technical description of the establishment with a breakdown of the main sub-processes and measuring instruments.<br>o Measured total annual energy consumption of the establishment.<br>o Measured annual energy consumption of the processing and secondary installations relevant for energy.<br>o Results of the analysis of the specific energy consumption of the establishment and its processing installations and identification of viable and potentially viable measures for reducing specific energy consumption.<br>o List and plans for the energy management measures.<br>o List of the viable measures (description, expected investment cost, expected operational cost, expected energy saving and annual financial income from the energy |

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|---|---|
| | saving, estimated IRR).<br>o Chronological roadmap with timetable. |

| | |
|---|---|
| | o Overview of the development of the specific energy consumption in the last 5 years (or years for which data are available).<br>Investments with an IRR after tax of at least 14% ('viable measures') must be implemented during the period of the Energy Plan. For measures with an IRR after tax of more than 10% ('potentially viable measures') the IRR must be recalculated every year.<br><br>• To report annually to the Verification Office about energy consumption, the viable measures carried out in the previous year, studies and recalculations of potentially cost-effective measures.<br>• To develop and implement a number of energy management measures, including an energy policy declaration drawn up by the management, appointment of an energy coordinator, strengthening of public awareness, provision of information and employee involvement.<br><br>As a guide, the target for the results of the new energy policy agreements is a 1% energy efficiency improvement a year.<br><br>In exchange for the commitments undertaken (and honoured) by the enterprises, the Flemish Region will not impose any additional obligations for energy efficiency or $CO_2$ reduction (unless imposed by Europe) and will confirm that these enterprises automatically comply with the provisions of Chapter V, Title VI of the Energy Decision.<br><br>The participating enterprises will bear the costs of implementing the Energy Policy Agreement for their installations and the drafting and implementation of their Energy Plans. Each party bears the costs associated with its own activities and obligations under the Energy Policy Agreement. The costs of the audit and management body will be borne by the Flemish Region. |
| **Participating parties** (Annex V.4, first subparagraph, (a)) | The Flemish Region.<br><br>Participating companies for their energy-intensive |

| | | | |
|---|---|---|---|
| | establishments (primary energy consumption of at least 0.1 Petajoules a year) with industrial activity. | | |
| | Participating sector organisations.<br><br>The management body for the energy policy agreement: the 'Commission'.<br>The audit body for the energy policy agreement: the 'Verification Office' | | |
| **Target sectors**<br>(Annex V.4, first subparagraph, (b)) | Energy-intensive industry. | | |
| **Expected energy saving**<br>(Annex V.4, first subparagraph, (c))<br>**Duration of the obligation period and intermediate period**<br>(Annex V.4, first subparagraph, (d)) | 2009-2013 early actions | n/a | GWh |
| | 2014 - 2017 | 9 505 | GWh |
| | 2018 - 2020 | 17 110 | GWh |
| | The draft energy policy agreement has been notified to the European Commission and will come into effect when the European Commission has approved it. The intended duration is 2014-2020. | | |
| **Eligible measure categories**<br>(Annex V.4, first subparagraph, (e)) | All measures capable of reducing the specific energy consumption of the establishment and its processing installations are eligible. | | |
| **Calculation methodology**<br>(Annex V.4, first subparagraph, (f)) | The same methodology and assumptions are used to calculate the energy savings from the energy policy agreements as were used in the 2011 Flemish action plan submitted within the framework of the ESD.<br><br>As the low price of emission permits does not give companies under the TEP Directive a sufficient incentive to take measures to improve energy efficiency, the savings arising from the energy policy agreements cannot at all be seen as a result of the roll-out of European regulations. The enterprises participating in the energy policy agreement are obliged to take all measures with an IRR after tax of at least 14% and to audit the potentially cost-effective measures year by year. In other words, this agreement provides enough of an incentive to make effective energy efficiency improvements. If these companies do not enter into an energy policy agreement, they are obliged to take action (produce an energy plan or energy study) only when renewing an environmental licence for existing facilities or an | | |

| | |
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| | application for a new environmental licence for new facilities or modifications to existing installations from a specific (additional) primary consumption. |
| **Lifetimes of measures** (Annex V.4, first subparagraph, (g)) | The calculation of the IRR after tax for each measure takes account of its technical lifetime, which is the time during which the measure delivers a net saving. |
| **Quality standards, monitoring and verification protocols, audit protocols** (Annex V.4, first subparagraph, (i), (j) and (k)) | See the above description of the audit mechanism for the energy policy agreements. |
| **How the need to fulfil the requirement to meet the objective is taken into account** (Annex V.4, first subparagraph, (l)) | The Verification Office calculates the final energy savings from the measures implemented on the basis of the annual report of the participating companies which it has verified. |

| **Measure** | **Energy Policy Agreement with non-TEP companies** |
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| **Type of alternative measure** (Article 7(9), second subparagraph) | Voluntary agreement for the application of energy efficient technology or techniques which reduce the final consumer's energy consumption. |
| **Description of the measure** | The Flemish Government, in consultation with the sectors, has developed a new energy policy agreement to succeed the voluntary audit agreement for the period 2014-2020 for companies not subject to the TEP system which have an energy consumption of at least 0.1 PJ. Companies which were participants in the earlier audit or benchmarking agreements can also take part. The companies undertake the following:<br>• To have their energy use audited every four years by energy experts accepted by the Verification Office.<br>• To draw up a periodic Energy Plan on the basis of the audit and to implement it in phases. The first plan covers the first three years after the Energy Policy Agreement comes into effect, the second plan covers the remaining period. An Energy Plan contains at least the following elements (and must be accepted by the |

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| | Verification Office):<br>o Technical description of the establishment with a breakdown of the main sub-processes and measuring instruments.<br>o Measured total annual energy consumption of the establishment.<br>o Measured annual energy consumption of the processing and secondary installations relevant for energy.<br>o Results of the analysis of the specific energy consumption of the establishment and its processing installations and identification of viable and potentially viable measures for reducing specific energy consumption.<br>o List and plan for the energy management measures.<br>o List of the viable measures (description, expected investment cost, expected operational cost, expected energy saving, annual financial income from the energy saving and estimated IRR).<br>o Chronological roadmap with timetable.<br>o Overview of the development of specific energy consumption in the last 5 years (or years for which data are available).<br>Investments with an IRR after tax of at least 12.5% ('viable measures') must be implemented during the period of the Energy Plan. For measures with an IRR after tax of more than 10% ('potentially viable measures') the IRR must be recalculated every year.<br>• To report annually to the Verification Office on the energy consumption, the viable measures carried out in the previous year, studies and recalculations of potentially viable measures.<br>• To develop and implement a number of energy management measures, including the drafting of an energy policy declaration drawn up by the management, appointment of an energy coordinator, the strengthening of public awareness, the provision of information and employee involvement.<br>As a guide, the target for the results of the new energy policy agreements is a 1% energy efficiency improvement each year.<br>In exchange for the commitments undertaken (and honoured) by the enterprises the Flemish Region will |

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| | not impose any additional obligations for energy efficiency or $CO_2$ reduction (unless imposed by Europe) and will confirm that these enterprises automatically comply with the provisions of Chapter V, Title VI of the Energy Decision. The participating enterprises will bear the costs of implementing the Energy Policy Agreement for their installations, the drafting and implementation of their Energy Plans. Each party bears the costs associated with its own activities and obligations under the Energy Policy Agreement. The costs of the audit and management body will be borne by the Flemish Region. | | |
| **Participating parties**<br><br>(Annex V.4, first subsubparagraph, (a)) | The Flemish Region<br><br>Participating companies for their energy-intensive establishments (energy consumption of at least 0.1 Petajoules primary a year) with industrial activity.<br><br>Participating sector organisations.<br><br>The management body for the energy policy agreement: the 'Commission'.<br><br>The audit body for the energy policy agreement: the 'Verification Office' | | |
| **Target sectors**<br><br>(Annex V.4, first subparagraph, (b)) | Energy-intensive industry. | | |
| **Expected energy saving**<br>(Annex V.4, first subparagraph, (c))<br>**Duration of the obligation period and intermediate periods**<br>(Annex V.4, first subparagraph, (d)) | 2009-2013 early actions | n/a | GWh |
| | 2014 - 2017 | 2 405 | GWh |
| | 2018 - 2020 | 4 325 | GWh |
| | The draft energy policy agreement has been notified to the European Commission and will come into effect when the European Commission has approved it. The intended duration is 2014-2020. | | |
| **Eligible measure categories**<br>(Annex V.4, first subparagraph, (e)) | All measures capable of reducing the specific energy consumption of the establishment and its processing installations are eligible. | | |

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| **Calculation methodology**<br>(Annex V.4, first subparagraph, (f)) | The same methodology and assumptions are used to calculate the energy savings from the energy policy agreements as were used in the 2011 Flemish action plan submitted within the framework of the ESD.<br><br>The enterprises participating in the energy policy agreement are obliged to take all measures with an IRR after tax of at least 12.5% and to audit the potentially viable measures year by year. In other words, this agreement provides enough of an incentive to make effective energy efficiency improvements. If these companies do not enter into an energy policy agreement, they are obliged to take action (produce an energy plan or energy study) only when renewing an environmental licence for existing facilities or an application for a new environmental licence for new facilities or modifications to existing installations from a specific (additional) primary consumption. |
| **Lifetimes of measures**<br>(Annex V.4, first subparagraph, (g)) | The calculation of the IRR after tax for each measure takes account of its technical lifetime, which is the time during which the measure delivers a net saving. |
| **Quality standards, monitoring and verification protocols, audit protocols**<br>(Annex V.4, first subparagraph, (i), (j) and (k)) | See the above description of the audit mechanism for the energy policy agreements. |
| **How the need to fulfil the requirement to meet the objective is taken into account**<br>(Annex V.4, first subparagraph, (l)) | The Verification Office calculates the final energy savings from the measures implemented on the basis of the annual report of the participating companies which it has verified. |

## *2.2. National Fund for Energy Efficiency (Article 20) and other measures from the second subparagraph of Article 7(9)*

**The Flemish Region does not wish to notify an Energy Efficiency National Fund as defined in Article 20 of the Directive to comply with Article 7. The Flemish Region wishes to notify a number of REG action obligations imposed on the electricity distribution system operators as alternative measures for compliance with Article 7.**

**<u>General description of the REG public service obligations</u>**

**Efficient energy use (Rationaal Energiegebruik - REG) in domestic and non-domestic customers is mainly encouraged through the public service obligations on the electricity distribution system operators and the operator of the local electricity transport system. Obligations were introduced from 2003 and have been adjusted a number of times over the years. A number of action obligations are currently imposed on the system operators with the aim of encouraging their final customers to save energy.**

**Article 7.5.1 of the Energy Decree of 8 May 2009 contains the legal basis for the imposition of public service obligations on the system operators for the promotion of efficient energy use and renewable energy sources, minimum standards for efficient energy consumption by their customers and investments in high-efficiency cogeneration installations and installations for the production of renewable electricity. Title VIII of the Energy Decree of 8 May 2009 contains the legal basis for the adoption of various supporting regulations for these obligations. The REG-public service obligations are also laid down in Title VI, Chapter IV of the Energy Decision of 19 November 2010.**

**The main action obligation imposed on the electricity distribution system operators is the obligatory payment of grants for certain energy saving measures in existing buildings (residential and non-residential) specified in the regulations: roof or loft insulation, cavity wall insulation, façade insulation, super-insulating glazing, floor or cellar insulation, thermal collectors ('solar boilers'), heat pumps and also, for non-residential buildings, energy-efficient modification of the lighting. For new dwellings a grant is awarded if the E-rating in the energy performance certificate is substantially lower than that required. Non-residential buildings connected to the electricity distribution system are also eligible for REG aid after an audit and buildings connected to the local transport network for investment aid. All grant conditions and amounts have been the same throughout Flanders since 2012, which was not the case in the previous system of results-based obligations.**

**The electricity distribution system operators must also pay specific attention to the socially disadvantaged (protected customers and other categories of the most needy), by:**

- **increasing the grants for existing dwellings by 50% and for new dwellings by 20%.**

- **giving a discount voucher worth € 150 for the purchase of an energy-efficient refrigerator or washing machine.**
- **giving a grant of € 800 for the installation of a condensing boiler.**
- **carrying out a free energy scan in the dwelling.**
- **taking responsibility for supporting the entire process and installing roof insulation in private rental dwellings (social roof insulation projects).**
- **organising specific information sessions on REG.**

**Finally, the electricity distribution system operators have the obligation to assist local councils with their local energy policy, for example with energy accounts, energy audits, energy management systems and by offering formulae for third-party finance or other financing mechanisms for energy saving investments.**

**As a general principle, the costs of REG public service obligations imposed on the electricity distribution system operators and the operators of the local transport network by means of network tariffs are charged on in the electricity tariffs. Contrary this general principle, the Flemish government contributes up to a certain amount to the costs incurred by the system operators for some specific obligations (in particular for the domestic grants referred to in Article 6.4.1/1 to 6.4.1/4, for the energy scan obligation referred to in Article 6.4.1/8, and for the social roof insulation obligation referred to in Article 6.4.1/9).**

**<u>Measures notified under Article 7</u>**

- **Grant for roof or loft insulation in existing buildings (connected to the network before 1 January 2006)**
- **Grant for wall insulation in existing buildings (connected to the network before 1 January 2006)**
- **Grant for replacement super-insulating glazing in existing buildings (connected to the network before 1 January 2006)**
- **Grant for floor or cellar insulation in existing buildings (connected to the network before 1 January 2006)**

| **Criteria to be met** | |
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| **Energy savings are calculated using the methods and principles provided in points (1) and (2) of Annex V**<br><br>(Article 7(10)(e)) | The harmonised methods proposed by the European Commission within the framework of the ESD (and described in detail in the 2011 action plan for Flanders) are used to calculate the energy savings arising from the various action obligations. As the Flemish Region is small, the option described in Annex V, 2b to take account of climatological differences within the Region has not been used. The choice of the notified action obligations avoids duplication with other measures (for example the energy policy agreements). For each specific measure the grant paid by the system operator is shown to contribute to the energy saving achieved. The lifetime of the measures takes account of the lifetimes proposed by the European |

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| | Commission in the ESD. The enforcement of quality standards is described for each measure |
| **A control system is put in place that also includes independent verification of a statistically significant proportion of the energy efficiency improvement measures**(Article 7(10)(i)) | The REG-public service obligations are monitored and verified in several ways.<br><br>• To obtain a grant the customer must present a number of documents. For the grants for existing buildings the standard documents required are the invoices giving specific details of the materials installed. Additional documents may also be requested depending on the measure. An independent quality system, STS 71-1, has been developed for cavity wall insulation, which must be complied with. This quality system was notified to the European Commission in April 2012. In this case, the declaration of compliance with the STS is also requested.<br>• The electricity distribution system operators check the files for all documents submitted for each grant application before paying the grant. If a file is incomplete or unclear, the operator contacts the applicant or party carrying out the energy saving measure.<br>• The system operators also carry out random on-site checks of the submitter of the grant application. About 700 checks are carried out each year.<br>• The system operators submit a comprehensive report to the Flemish Energy Agency every year, supplying a number of pieces of information for each approved grant file (Article 6.4.15 of the Energy Decision). The Flemish Energy Agency carries out administrative checks on these and can request any additional information it considers necessary from the system operators. The Energy Decree provides for the imposition of fines on the system operators if they do not comply with the reporting obligations. |

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| | • Finally, the Flemish Energy Agency also has the option, subject to the prior written consent of the occupant/user of a building, to investigate on site whether all conditions for obtaining a grant, discount voucher or energy scan have been met. The Flemish Energy Agency can also consult other official documents and sources of information, such as the energy performance database and the energy performance certificates themselves, to find out whether the information provided in the grant files is correct (Article 11.1.4 of the Energy Decision).<br>• In addition to the existing penalty options for failure to comply with the reporting obligations, the Energy Decree also provides for a penalty for failure to comply with an action obligation. An administrative fine can be imposed which may not be less than € 1 000 or more than 1 % of the turnover realised by the party in default on the Flemish energy market in the past financial year. |

| **Measure** | **Roof insulation grant** |
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| **Type of alternative measure**<br>(Article 7(9), second subparagraph) | Financing instrument that leads to the application of energy efficient technology or techniques and has the effect of reducing end-use energy consumption |
| Description of the measure | Grant of € 6, € 7 or € 8 per square metre of installed roof insulation if the work is carried out by a contractor.<br>Grant of € 3, € 3.5 or € 4 per square metre of installed roof insulation if the work is carried out on a DIY basis.<br>The amount of the grant varies depending on the thermal resistance of the insulation (around 3.5 or 4 or 4.5$m^2K/W$ at least). |
| **Participating parties**<br>(Annex V.4, first subparagraph, (a)) | The Flemish Government<br>The Flemish minister with responsibility for energy policy.<br>Electricity distribution system operators in the Flemish Region (Gaselwest, Imea, Imewo, Intergem, Intermosane, Iveka, Iverlek, Sibelgas, Inter- Energa, |

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| | Infrax-West, IVEG, PBE).<br>The Flemish Energy Agency. |

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| **Target sectors**<br>(Annex V.4, first subparagraph, (b)) | Both residential and non-residential existing buildings connected to the electricity distribution system before 1 January 2006. | | |
| **Expected energy saving**<br>(Annex V.4, first subparagraph, (c))<br>**Duration of the obligation period and intermediate periods**<br>(Annex V.4, first subparagraph, (d)) | 2009-2013 early actions | n/a | GWh |
| | 2014-2017 | 4 934 | GWh |
| | 2018-2020 | 8 768 | GWh |
| **Eligible measure categories**<br>(Annex V.4, first subparagraph, (e)) | Installation of roof or loft insulation in an existing building. | | |
| **Calculation methodology**<br>(Annex V.4, first subparagraph, (f)) | Savings arising from the grant for roof insulation are calculated on the basis of the methodology proposed by the European Commission in the document 'Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on Energy End-Use Efficiency and Energy Services', more specifically the bottom-up formula 2.2. The calculation formula is provided in Chapter 3 for information. On behalf of the Flemish Energy Agency, the Flemish Institute for Technological Research (VITO) has developed an annual energy profiling model for the Flemish building stock. This model was used to calculate the savings from investments in buildings on the basis of the harmonised methods. The assumptions included in the 2011 Flemish Action Plan for the ESD remain unchanged.<br><br>The roof insulation grant given by system operators is reserved for existing roofs of existing buildings. Grants are not given for extensions to existing buildings or for new buildings, in other words the savings achieved are not the result of the roll-out of European regulations (more specifically within the framework of the energy performance regulations).<br>The roof insulation grant given by the system operators reduces the simple payback time by around 1 year as compared with the same investment without a | | |

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| | contribution. The grant can therefore also be regarded as high enough to prompt energy saving. |

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| **Lifetimes of measures** (Annex V.4, first subparagraph, (g)) | In line with the recommended lifetimes cited in the document 'Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on Energy End-Use Efficiency and Energy Services'. The 'straightforward method' as described on page 19 of the Guidance note is used to calculate all measures. The lifetimes used (all longer than the obligatory period of seven years) are attached in Chapter 3 for information. |
| **Quality standards** (Annex V.4, first subparagraph, (i)) | To be eligible for a roof insulation grant a number of quality standards must be met (for example minimum thermal resistance). The quality standards are established in the Ministerial decision of 10 December 2013 laying down further rules, technical requirements and amounts of the grants referred to in Article 6.4.1/1, Article 6.4.1/1/1, Article 6.4.1/1/2, Article 6.4.1/3, Article 6.4.1/4 and Article 6.4.1/5 of the Energy Decision of 19 November 2010. We are currently working on a new ministerial decision which is due to come into effect in 2014. |
| **Independent monitoring and verification protocols, audit protocols** (Annex V.4, first subparagraph, (j) and (k)) | See above description of the audit mechanism for REG public service obligations |
| **How the need to monitor the achievement of targets is taken into account** (Annex V.4, first subparagraph, (l)) | The system operators report to the Flemish Energy Agency in detail every year on the grants paid. The Flemish Energy Agency calculates the energy saving achieved on the basis of this information. |

| **Measure** | **Wall insulation grant** | | |
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| **Type of alternative measure** (Article 7(9), second subparagraph) | Financing instrument that leads to the application of energy efficient technology or techniques and has the effect of reducing end-use energy consumption. | | |
| **Description of the measure** | Grant of € 6 per square metre of installed cavity wall insulation if the work is carried out by a contractor.<br>Grant of € 15 per square metre of installed external wall insulation if the work is carried out by a contractor. | | |
| **Participating parties**<br>(Annex V.4, first subparagraph, (a)) | The Flemish Government.<br>The Flemish minister with responsibility for energy policy.<br>Electricity distribution system operators in the Flemish Region (Gaselwest, Imea, Imewo, Intergem, Intermosane, Iveka, Iverlek, Sibelgas, Inter- Energa, Infrax-West, IVEG, PBE).<br>The Flemish Energy Agency. | | |
| **Target sectors**<br>Annex V.4, first subparagraph, (b)) | Both residential and non-residential existing buildings, connected to the electricity distribution system before 1 January 2006 | | |
| **Expected energy saving**<br>(Annex V.4, first subparagraph, (c))<br>**Duration of the obligation period and intermediate period**<br>(Annex V.4, first subparagraph, (d)) | 2009-2013 early actions | n/a | GWh |
| | 2014-2017 | 547 | GWh |
| | 2018-2020 | 973 | GWh |
| Eligible measure categories<br>(Annex V.4, first subparagraph, (e)) | Installing cavity wall or external wall insulation in existing buildings | | |
| **Calculation methodology**<br>(Annex V.4, first subparagraph, (f)) | Savings arising from the grant for wall insulation are calculated on the basis of the methodology proposed by the European Commission in the document 'Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on Energy End-Use Efficiency and Energy Services', more specifically the bottom-up formula 2.2. The calculation formula is attached in Chapter 3 for information. The Flemish Institute for Technological Research (VITO) has developed an annual energy profiling model for the Flemish building stock on behalf of the Flemish | | |

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| | Energy Agency. This model was used to calculate the savings from investments in buildings on the basis of the harmonised methods. The assumptions included in the 2011 Flemish Action Plan for the ESD remain unchanged.<br>The wall insulation grant given by the system operators is reserved for existing walls of existing buildings. No grants are given for extensions to existing buildings or for new buildings, in other words the savings achieved are not the result of the roll-out of European regulations (more specifically within the framework of the energy performance regulations).<br>The wall insulation grant given by the system operators reduces the simple payback time by around two years as compared with the same investment without a contribution. The grant can thus also be seen as high enough to prompt energy saving. |
| **Lifetimes of measures** (Annex V.4, first subparagraph, (g)) | In line with the recommended lifetimes given in the document 'Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on Energy End-Use Efficiency and Energy Services'. All measures are calculated by the 'straightforward method' described on page 19 of the Guidance note. The lifetimes used (all longer than the obligatory period of 7 years) are attached in Chapter 3 for information. |
| **Quality standards** (Annex V.4, first subparagraph, (i)) | To be eligible for a grant for cavity wall insulation or external wall insulation a number of quality standards must be met. The quality standards are established in the Ministerial decision of 10 December 2013 laying down further rules, technical requirements and amounts of the grants referred to in Article 6.4.1/1, Article 6.4.1/1/1, Article 6.4.1/1/2, Article 6.4.1/3, Article 6.4.1/4 and Article 6.4.1/5 of the Energy Decision of 19 November 2010. A new ministerial decision is currently being prepared which is due to come into effect in 2014. |
| **Independent monitoring and verification protocols, audit protocols** (Annex V.4, first subparagraph, (j) and (k)) | In general: see above description of the audit mechanism for REG-public service obligations.<br>The technical specification STS 71-1 is also followed specifically for cavity wall insulation. For work in the Flemish Region, contractors are obliged to work according to this technical specification so that their customers are eligible for the system operator's grant. STS 71-1 was notified to the European Commission in April 2012. Follow this link for the precise content of STS 71-1: http://economie.fgov.be/nl/ondernemingen/specifieke_domeinen/kwaliteit_bouw/Goedkeuring_voorschriften |
| **How the need to monitor the** | The system operators report annually in detail to the Flemish Energy Agency on the grants paid. The Flemish Energy |

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| **achievement of the objective is taken into account**<br>(Annex V.4, first subparagraph, (l)) | Agency calculates the energy saving achieved on the basis of this information. |

| **Measure** | **Cellar or floor insulation grant** | | |
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| **Type of alternative measure**<br>(Article 7(9), second subparagraph) | Financing instrument that leads to the application of energy efficient technology or techniques and has the effect of reducing end-use energy consumption. | | |
| **Description of the measure** | Grant of € 6 per square metre of installed floor or cellar insulation if the work is carried out by a contractor. | | |
| **Participating parties**<br>(Annex V.4, first subparagraph, (a)) | The Flemish Government.<br>The Flemish minister with responsibility for energy policy.<br>Electricity distribution system operators in the Flemish Region (Gaselwest, Imea, Imewo, Intergem, Intermosane, Iveka, Iverlek, Sibelgas, Inter- Energa, Infrax-West, IVEG, PBE).<br>The Flemish Energy Agency. | | |
| **Target sectors**<br>(Annex V.4, first subparagraph, (b)) | Both residential and non-residential existing buildings, connected to the electricity distribution system before 1 January 2006. | | |
| **Expected energy saving**<br>(Annex V.4, first subparagraph, (c))<br>**Duration of the obligation period and intermediate period**<br>(Annex V.4, first subparagraph, (d)) | 2009-2013 early actions | n/a | GWh |
| | 2014-2017 | 82 | GWh |
| | 2018-2020 | 148 | GWh |
| **Eligible measure categories**<br>(Annex V.4, first subparagraph, (e)) | Installing floor and cellar insulation in an existing building. | | |
| **Calculation methodology**<br>(Annex V.4, first subparagraph, (f)) | Savings arising from the grant for floor or cellar insulation are calculated on the basis of the method proposed by the European Commission in the document 'Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on Energy End-Use Efficiency and Energy Services', more specifically the bottom-up formula 2.2. The calculation | | |

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| | formula is attached in Chapter 3 for information. The Flemish Institute for Technological Research (VITO) has developed an energy profiling model for the Flemish building stock on behalf of the Flemish Energy Agency. This model was used to calculate the savings from investments in buildings on the basis of the harmonised methods. The assumptions included in the 2011 Flemish Action Plan for the ESD remain unchanged.<br>The floor and cellar insulation grant given by the system operators is reserved for existing floors or cellars of existing buildings. No grants are given for extensions to existing buildings or for new buildings, in other words the savings achieved are not the result of the roll-out of European regulations (more specifically within the framework of the energy performance regulations).<br>The floor and cellar insulation grant given by the system operators reduces the simple payback time by around two years as compared with the same investment without a contribution. The grant can thus also be seen as high enough to prompt energy saving. |
| **Lifetimes of measures** (Annex V.4, first subparagraph, (g)) | In line with the recommended lifetimes cited in the document 'Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on Energy End-Use Efficiency and Energy Services'. The 'straightforward method' as described on page 19 of the Guidance note is used to calculate all measures. The lifetimes used (all longer than the obligatory period of seven years) are attached in Chapter 3 for information. |
| **Quality standards** (Annex V.4, first subparagraph, (i)) | To be eligible for a floor and cellar insulation grant a number of quality standards must be met. The quality standards are laid down in the Ministerial decision of 10 December 2013 laying down further rules, technical requirements and amounts of the grants referred to in Article 6.4.1/1, Article 6.4.1/1/1, Article 6.4.1/1/2, Article 6.4.1/3, Article 6.4.1/4 and Article 6.4.1/5 of the Energy Decision of 19 November 2010. A new ministerial decision is currently being prepared which is due to come into effect in 2014. |
| **Independent monitoring and verification protocols, audit protocols** (Annex V.4, first subparagraph, (j) and (k)) | See the above description of the audit mechanism for REG- public service obligations |
| **How the need to monitor the achievement of the** | The system operators report annually in detail to the Flemish Energy Agency on the grants paid. The Flemish Energy Agency calculates the energy saving achieved on |

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| **objective is taken into account**<br>(Annex V.4, first subparagraph, (l)) | the basis of this information | | |
| **Measure** | **High-efficiency glazing grant** | | |
| **Type of alternative measure**<br>(Article 7(9), second subparagraph) | Financing instrument that leads to the application of energy efficient technology or techniques and has the effect of reducing end-use energy consumption. | | |
| **Description of the measure** | Grant of € 12 per square metre of new glass installed ($U_{max}$ 1.1 W/m$^2$K) to replace single glazing, work carried out by a contractor.<br>Grant of € 15 per square meter of new glass installed ($U_{max}$ 0.8 W/m$^2$K) to replace single or double glazing, work carried out by a contractor. | | |
| **Participating parties**<br>(Annex V.4, first subparagraph, (a)) | The Flemish Government.<br>The Flemish minister with responsibility for energy policy.<br>Electricity distribution system operators in the Flemish Region (Gaselwest, Imea, Imewo, Intergem, Intermosane, Iveka, Iverlek, Sibelgas, Inter- Energa, Infrax-West, IVEG, PBE).<br>The Flemish Energy Agency. | | |
| **Target sectors**<br>(Annex V.4, first subparagraph, (b)) | Both residential and non-residential existing buildings, connected to the electricity distribution system before 1 January 2006. | | |
| **Expected energy saving**<br>(Annex V.4, first subparagraph, (c))<br>**Duration of the obligation period and intermediate period**<br>(Annex V.4, first subparagraph, (d)) | 2009-2013 early actions | n/a | GWh |
| | 2014-2017 | 1 069 | GWh |
| | 2018-2020 | 1 901 | GWh |
| **Eligible measure categories**<br>(Annex V.4, first subparagraph, (e)) | Replacement of glazing by high-efficiency glazing in an existing building. | | |
| **Calculation methodology**<br>(Annex V.4, first subparagraph, (f)) | Savings arising from the high-efficiency glazing grant are calculated on the basis of the method proposed by the European Commission in the document 'Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on | | |

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| | Energy End-Use Efficiency and Energy Services', more specifically the bottom-up formula 2.2. The calculation formula is attached in Chapter 3 for information. The Flemish Institute for Technological Research (VITO) has developed an annual energy profiling model for the Flemish building stock on behalf of the Flemish Energy Agency. This model was used to calculate the savings from investments in buildings on the basis of the harmonised methods. The assumptions included in the 2011 Flemish Action Plan for the ESD remain unchanged.<br>The grant for replacement of glazing given by the system operators is reserved for existing windows of existing buildings. No grants are given for extensions to existing buildings or for new buildings, in other words the savings achieved are not the result of the roll-out of European regulations (more specifically within the framework of the energy performance regulations).<br>The grant for the replacement of glazing given by the system operators reduces the simple payback time by around one year as compared with the same investment without a contribution. The grant can thus also be seen as high enough to prompt energy saving. |
| **Lifetimes of measures** (Annex V.4, first subparagraph, (g)) | In line with the recommended lifetimes cited in the document 'Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on Energy End-Use Efficiency and Energy Services'. The 'straightforward method' as described on page 19 of the Guidance note is used to calculate all measures. The lifetimes used (all longer than the obligatory period of seven years) are attached in Chapter 3 for information. |
| **Quality standards** (Annex V.4, first subparagraph, (i)) | To be eligible for a high-efficiency glazing grant a number of quality standards must be met. The quality standards are laid down in the ministerial decision of 10 December 2013 laying down further rules, technical requirements and amounts of the grants referred to in Article 6.4.1/1, Article 6.4.1/1/1, Article 6.4.1/1/2, Article 6.4.1/3, Article 6.4.1/4 and Article 6.4.1/5 of the Energy Decision of 19 November 2010. A new ministerial decision is currently being prepared which is due to come into effect in 2014. |
| **Independent monitoring and verification protocols, audit protocols** (Annex V.4, first subparagraph, (j) and (k)) | See the above description of the audit mechanism for REG- public service obligations |

| | |
|---|---|
| **How the need to monitor the achievement of the objective is taken into account** (Annex V.4, first subparagraph, (l)) | The system operators report annually in detail to the Flemish Energy Agency on the grants paid. The Flemish Energy Agency calculates the energy saving achieved on the basis of this information |

## 3. Calculation methodology and lifetimes used

**The methodology proposed by the European Commission in the document 'Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on Energy End-Use Efficiency and Energy Services', more specifically bottom-up formula 2.2, is used to calculate the savings from the roof insulation, wall insulation, cellar and floor insulation and super-insulating glazing actions. An extract from this document concerning this methodology is reproduced below.**

**'The formula provides for the evaluation of the annual energy savings resulting from building shell insulation measures and from window replacement, without heating equipment replacement. The annual unitary final energy savings (in kWh/m2/year) are based on the difference between the specific component U-values before and after the implementation of the refurbishment measure. The before situation should be based on the component U-value of each component refurbished in a specific building (individual "before") or should reflect the U-value of each refurbished component in period of construction of the building undergoing refurbishment or in the year of last refurbishment before 1995 (1991). The U-values should be corrected with the relevant heating degree days and, as far as practicable, with the efficiency and the intermittency of the heating system. The annual energy savings in kWh per m2 component [kWh/m2 component/year] are calculated by multiplying the annual unitary final energy savings per $m^2$ of component installed by the total component installed area (m2) of the refurbished building shell (walls, roofs or windows). This means that the annual unitary final energy savings from window replacements should be multiplied by the total area (m2) of windows replaced. Subsequently, the total annual energy savings in kWh per building are calculated by summing the annual energy savings per component. The total final energy savings are calculated by summing up the savings of each building where insulation has been installed or where windows have been replaced.**

| Bottom-up formula for calculating the unitary final energy savings (UFES) | Definition | Baseline |
|---|---|---|
| $UFES_{wall} = [(Uvalue_{init\_wall} - Uvalue_{new\_wall}) * HDD * 24h * a * (1/b) * c] / 1000$ [$kWh/m^2$ of insulated wall area/year] | $Uvalue_{init}$, $Uvalue_{new}$ t=the U-values of the building elements (i.e. walls, windows, roofs) before | U-value of each refurbished component or average U-value of each component in |

| | | |
|---|---|---|
| UFES windows = [(Uvalue $_{init\_windows}$-Uvalue $_{new\_windows}$)*HDD*24h*a* (l/b)*c] /1000<br><br>[kWh/m$^2$ of window replaced/year]<br><br>UFES $_{roof}$ = [(Uvalue $_{init\_roof}$ - Uvalue $_{new\_roof}$)*HDD*24h*a* (1/b) *c] / 1000<br><br>[kWh/m$^2$ of insulated roof area/year] | (init) and after (new) the refurbishment W/(m2*K)], use the values for thermal transmittance of the insulation materials<br>a = correction factor depending on the climatic zone of the building, with a=1, if no national correction value is available<br>b = Correction factor depending on the heating system efficiency and energy source. This correction factor is the average efficiency of the stock of heating systems, With b= 0.95 for direct electric heating and 0.6 for fossil fuel boilers, if no national correction value is available.<br>c = Intermittency coefficient depending on not continuous operation of the heating system. With c= 0.5 if no national correction value is available.<br>HDD = Heating degree-days [K*day/year] | the period of construction of the building undergoing refurbishment or in the year of last refurbishment before 1995 (1991) |

**Lifetimes are also in line with the lifetimes recommended in the document 'Recommendations on Measurement and Verification Methods in the Framework of Directive 2006/32/EC on Energy End-Use Efficiency and Energy Services'. The lifetimes below are therefore used:**

**<u>For the domestic sector:</u>**

**Roof or loft insulation: 25 years**
**Floor insulation: 25 years**
**Wall insulation: 30 years**
**Super-insulating glazing: 30 years**

**<u>For the non-domestic sector:</u>**

**Roof or loft insulation: 25 years**

**Floor insulation: 25 years**
**Wall insulation: 25 years**
**Super-insulating glazing: 30 years**

4. Table summarising the expected final energy savings as a result of the implementation of the alternative measures within the Flemish Region

| | **Total 2014-2020** |
|---|---|
| New energy policy agreements with the TEP companies | 26 615 GWh |
| New energy policy agreements with the non-TEP companies | 6 730 GWh |
| REG action obligations of the electricity distribution system operators | 18 422 GWh |
| Roof and loft insulation | 13 702 GWh |
| Wall insulation | 1 520 GWh |
| Cellar and floor insulation | 230 GWh |
| High-efficiency glazing | 2 970 GWh |
| **TOTAL 2014 - 2020** | **51 767 GWh** |

**Detailed savings for the whole period:**

| **REG-ODV GRANTS** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **Total GWh** | **Total TWh** |
|---|---|---|---|---|---|---|---|---|---|
| Roof insulation GWh total | 497 | 991 | 1480 | 1966 | 2447 | 2924 | 3397 | 13 702 | 13 702 |
| Glazing GWh total | 107 | 215 | 321 | 426 | 530 | 634 | 737 | 2 970 | 2 970 |
| Wall insulation GWh total | **55** | 110 | 164 | 218 | 271 | 325 | 377 | 1 520 | 1 520 |
| Floor and cellar insulation GWh total | 8 | 16 | 25 | 33 | 41 | 50 | 57 | 230 | 0 230 |

| **ENERGY POLICY AGREEMENTS** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **Total TWh** |
|---|---|---|---|---|---|---|---|---|
| TEP TWh total | 0.95 | 1.90 | 2.85 | 3.80 | 4.75 | 5.70 | 6.65 | 26.615 |
| non-TEP TWh total | 0.24 | 0.48 | 0.72 | 0.96 | 1.20 | 1.44 | **1.68** | 6.730 |

**Distribution over the intermediate periods:**

| | Interme-diate **2014-2017** | Interme-diate **2018-2020** | **2014-2020** |
|---|---|---|---|
| **Grants for REG public service obligations** | | | |
| Roof insulation | 4 934 | 8 768 | 13 702 |
| Glazing | 1 069 | 1 901 | 2 970 |
| Wall insulation | 547 | 973 | 1.520 |
| Floor and cellar insulation | 82 | 148 | 230 |
| **Energy policy agreements** | | | |
| Energy policy agreements with TEP companies | 9 505 | 17 110 | 26 615 |
| Energy policy agreements with non-TEP companies | 2 405 | 4 325 | 6 730 |
| **TOTAL ACHIEVED GWh total** | **18 542** | **33 225** | **51 767** |