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# Assessment of climate change policies in the context of the European Semester

## Country Report: Luxembourg



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The report provides an overview of current emission trends and progress towards targets as well as policy developments that took place over the period from February 2013 to November 2013.

Please feel free to provide any comments or suggestions to the authors through the contacts listed above.

## Short summary

**Background:** Luxembourg introduced its first national climate action plan in 2006 and has taken measures on, e.g. energy efficiency, sustainable transport, or renewable energies. However, Luxembourg still has by far the highest per capita emissions in the EU and a slight decrease of total emissions since 2005 can be ascribed rather to the economic recession than to ambitious climate policies, as the Government itself acknowledges.

**Non-ETS emission reduction target:** The national target is -20% compared to 2005 emission. A change in non-ETS greenhouse gas emissions of -4% has been reported between 2005 and 2011, not on the target trajectory. According to the latest national projections submitted to the Commission and when existing measures are taken into account, the target is currently expected to be missed: +3 % in 2020 compared to 2005 (representing a projected gap of 23 percentage points compared to the target).

### Key indicators 2011:

GHG emissions	LU	EU
ESD EU 2020 GHG target (comp. 2005)	-20%	
ESD GHG emissions in 2011 (comp.2005)	-4%	-9%
Total GHG emissions 2012 (comp.2005)	-7%	-12%
GHG emissions/capita (tCO <sub>2</sub> eq)	23.6	9.0

→ **162% higher** per capita emissions than EU average.

GHG emissions per sector	LU	EU
Energy/power industry sector	9%	33%
Transport	57%	20%
Industry (incl. industrial processes)	16%	20%
Agriculture (incl. forestry & fishery)	6%	12%
Residential & Commercial	12%	12%
Waste & others	1%	3%

→ **Transport** is most important.

Energy	LU	EU
EU 2020 RES target	+11%	
Primary energy consumption/capita (toe)	9.0	3.4
Energy intensity (kgoe/1000 €)	138	144
Energy to trade balance (% of GDP)	-3.9%	-3.2%

→ **166% higher** per capita consumption, **5% lower** energy intensity, contribution of energy to trade balance above EU average.

Taxes	LU	EU
Share of environmental taxes (% of GDP)	2.4%	2.4%
Implicit tax rate on energy (€/toe)	176	184

→ **Same** share of environmental taxes and **4% lower** implicit tax rate on energy than EU average.

**Key policy development in 2013:** In 2013, Luxembourg published its second national climate action plan, which contains 51 measures targeting a variety of areas, including energy efficiency, the use of renewable energies, transport, environmental taxation, adaptation, and governance structures. An additional important step was a change in the feed-in tariff system that will come into effect in 2014.

**Key challenges:** More than half of Luxembourg's emissions stem from transport which is also the sector with the biggest potential for emission reductions. Around 70% of the transport related emissions are connected to fuel export, inter alia a result of very low excise duties on fuels. The recognition in the new national climate action plan of fuel export as a key challenge is a step forward, but the respective measures proposed are vague and only envisaged for the "midterm". Also action for targeting emissions from transport needs to be more ambitious to adequately address the emission increases in the last two years.

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## I Background on climate and energy policies

Climate change is well understood and discussed in Luxembourg's small but highly educated population, and several mitigation measures are being undertaken in the country. In 2010 and 2011, the government of Luxembourg initiated a round table on environment and climate, gathering stakeholders such as NGOs, trade unions, employer organisations, local authorities and government representatives. The aim of this "Environment Protection and Climate Partnership" was to establish a long-term strategy for sustainable development in Luxembourg. Based on the work of the partnership, the Minister of Environment Marco Schank officially presented the second national action plan for the reduction of CO<sub>2</sub> emissions in May 2013 (the first national action plan was published in 2006). The action plan contains 51 measures that are supposed to allow Luxembourg to fulfil its international commitments to reduce its GHG emissions. The priority measures focus on the improvement of public transport networks and the promotion of electric mobility. Further priorities involve the development of renewable energy and energy efficiency. A restructuring of the tax system and the introduction of more effective financial instruments are also envisaged. Finally, the action plan presents measures for the elaboration of a "climate change adaptation strategy" (GovLux 2013e).

The government of Luxembourg has designated sustainable mobility and biofuels as some of the priority areas to be developed in order to foster economic growth in the country (GovLux 2012a). Numerous developments were observed in the last months regarding the transport sector, involving the improvement of public transport and of cycle lanes as well as the introduction of car sharing services.

Renewable energy generation and energy efficiency are also considered priorities according to the Ministry of Economy (GovLux 2012a). Principal policy measures since February 2013 include the introduction of a quality label for professionals active in the field of energy consulting. More important is, however, the introduction of revised feed-in tariffs for electricity from renewable energy sources in Luxembourg, which will apply from January 2014. The objective of the new regulation is to boost the development of new projects and accelerate the achievement of national targets for renewable energy. As a reminder, the National Renewable Energy Action Plan of 2010 provides for a 11% share of renewables in final energy consumption by 2020 (GovLux 2013a). In 2011, the share of renewable energy in final energy consumption reached only 2.9% (Eurostat 2013a).

With respect to environmental taxation no additional policy measures were taken in the past six months. However, taxation measures are envisaged in the second national action plan for the reduction of CO<sub>2</sub> emissions. These include the revision of the vehicle tax in order to improve its effect on emissions reductions; the reform of company car taxation in order to incentivise the use of environmental-friendly vehicles; and the gradual adjustment of tax rates on transport fuels (GovLux 2013e).

Although the topic of "green growth" is not discussed much in Luxembourgish media, the government promotes it as a concept and takes it into consideration in policy-making. For example, it is fostering the development of green sectors through the establishment of special economic activity zones like one in Kockelscheuer that is dedicated to companies in the environmental technology sector. The First Green Business Summit was organized in Luxembourg in March 2011 (Wort.lu 2011). Moreover, Luxembourg and Switzerland aim to work together on the implementation of business networks in Luxembourg in order to improve energy efficiency (MECE 2012a).

## 2 GHG projections

### Background information

In 2011, Luxembourg emitted 12.1 Mt CO<sub>2</sub>eq (UNFCCC inventory 2011), 6% less than in 1990. More than half of total emissions come from transport - emissions in this sector have almost tripled between 1990 and 2011. This is due to an overall increase in road transport in Europe and “fuel tourism” from neighbouring countries driven by the country’s low fuel tax. The second most emitting sector is energy use: emissions were reduced significantly in the 1990s and were 64% lower in 2011 than in 1990. In contrast, emissions from energy supply were on the rise until 2010, accounting in 2011 for 8% of total emissions compared to only 0.3% in 1990. Luxembourg is highly dependent on oil, gas and electricity imports due to its small size – thus, renewable power generated in Luxembourg rather replaces imports of electricity than domestic fossil generation from other sources. Emissions from industrial processes dropped between 1990 and 2011 by more than 40% reflecting the closure of some companies and also some changed processes in the iron and steel industries (UNFCCC inventory 2011, EEA 2012, UNFCCC 2012). From 2011 to 2012, GHG emissions are expected to increase again due to slight increases of emissions coming from the transport sector and from energy use (EEA 2013c).

### Progress on GHG target

There are two sets of targets to evaluate: 1) the Kyoto Protocol targets for the period 2008-12 (which has just ended) and 2) the 2020 targets for emissions not covered by the EU ETS.

Under the Kyoto-Protocol the emission reduction target for Luxembourg for the period 2008-2012 has been set to minus 28% based on 1990 for CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O and on 1995 for F-gases. An evaluation of the latest complete set of greenhouse gas data (for the year 2011; there is only preliminary data for 2012) shows that Luxembourg’s emissions have decreased on average by 8.1% compared to the Kyoto base year (EEA 2013a). This shows that Luxembourg may not meet its Kyoto target through domestic emissions reductions directly.

By 2020, Luxembourg needs to reduce its emissions not covered by the EU ETS by 20% compared to 2005, as specified under the Effort Sharing Decision (ESD) <sup>(1)</sup>. According to the latest available data Luxembourg is not on track to meeting its target at present: the latest data for 2012 suggests that the country will miss the Annual Emissions Allocation <sup>(2)</sup> for the year 2013 by about 4 percentage points (from the 2005 base year). In addition, national projections (EEA 2013b) show that Luxembourg is likely to miss its 2020 target with existing measures by 23 percentage points, which is the largest difference among all

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<sup>1</sup> Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community’s greenhouse gas emission reduction commitments up to 2020.

<sup>2</sup> Commission decision of 26 March 2013 on determining Member States’ annual emission allocations for the period from 2013 to 2020 pursuant to Decision No 406/2009/EC of the European Parliament and of the Council. Online available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:090:0106:0110:EN:PDF>

MS. Under the scenario with additional measures, Luxembourg is expected to also fail to meet the target with a margin of 17.7 percentage points (see Table 1).

**Table I: GHG emission developments, ESD-targets and projections (in Mt CO<sub>2</sub>eq)**

	1990	2005	2010	2011	2012*	ESD target**		2020 Projections***	
						2013	2020	WEM	WAM
Total	12.9	13.1	12.3	12.1	12.2				
Non-ETS (% from 2005)		10.4	10.0	10.1	10.2 -2%	9.7 -6%	8.1 -20%	10 3%	10 -2%
Energy supply (% share of total)	0.036 0.28%	1.2 9%	1.2 10%	1.0 8%					
Energy use (w/o transport) (% share of total)	7.6 59%	3.3 25%	3.2 26%	2.8 23%					
Transport (% share of total)	2.7 21%	7.0 54%	6.4 52%	6.8 57%					
Industrial processes (% share of total)	1.6 13%	0.7 5%	0.7 5%	0.7 6%					
Agriculture (% share of total)	0.7 6%	0.7 5%	0.7 6%	0.7 5%					

Source: UNFCCC inventories; EEA (2013b); Calculations provided by the EEA and own calculations.

\* proxies for 2012

\*\* The ESD target for 2013 and for 2020 refer to different scopes of the ETS: the 2013 target is compared with 2012 data and is therefore consistent with the scope of the ETS from 2008-2012; the 2020 target is compared to 2020 projections and is therefore consistent with the adjusted scope of the ETS from 2013-2020. 2005 non-ETS emissions for the scope of the ETS from 2013-2020 amounted to 10 Mt CO<sub>2</sub>eq.

\*\*\* Projections with existing measures (WEM) or with additional measures (WAM).

Legend for colour coding: green = target is being (over)achieved; orange = not on track to meet the target

Total greenhouse gas emissions (GHG) and shares of GHG do not include emissions and removals from LULUCF (carbon sinks) and emissions from international aviation and international maritime transport.

National projections of GHG emissions up to 2020 need to be prepared by the Member States in accordance with the EU Monitoring Mechanism <sup>(3)</sup> every two years, and the latest submission was due in 2013. The projections need to be prepared reflecting a scenario that estimates total GHG emissions reductions in line with policies and measures that have already been implemented (with existing measures, WEM), and an additional scenario that reflects developments with measures and policies that are in the planning phase (with additional measures, WAM) may also be submitted.

In the following two tables, these measures have been summarised with a focus on national measures and those EU instruments expected to reduce emissions the most. Please note that the table includes also measures that address GHG emissions covered under the ETS such as measures reducing emissions from electricity generation (e.g. feed-in tariffs). An update on the status of the policies and measures is included in order to assess the validity of the scenarios.

<sup>3</sup> Decision No 280/2004/EC of the European Parliament and of the Council of 11 February 2004 concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol.



**Table 2: Existing and additional measures as stated in the 2013 GHG projections**

Existing Measures (only important national measures)	Status of policy in November 2013
Energy Support scheme for renewable electricity (feed-in tariff) offered for windmills, hydraulic installations, biomass or biogas	Ongoing. In July 2013, the government presented the new feed-in tariff for electricity from renewable energy sources in Luxembourg. The new regulation will apply from January 2014 and will increase the feed-in tariffs for hydro-power, wind energy, biogas and biomass by 11 to 31% compared to the existing regulations. Only the feed-in tariff for new PV installations will decrease by 9% from 2014 onwards. The new rates are currently awaiting the approval of the European Commission before being enforced (GovLux 2013a).
Extension of the program encouraging higher energy efficiency in existing residential buildings	Ongoing. Financial support is available for refurbishment works in order to improve the energy performance of residential buildings older than 10 years (PRIME House).
More restrictive energy efficiency standards for new or renovated residential buildings	Ongoing. The energy passport (passeport énergétique) is a quality label for the energy performance of new or renovated residential buildings. Its legal basis is the Grand-Ducal Regulation of 30 November 2007.
Energy Efficiency Extension of the program encouraging the construction of 'low energy' ('Niedrigenergiehaus') and 'passive' ('Passivhaus') new residential buildings	Ongoing. In December 2012, a Grand-Ducal regulation was published introducing an aid scheme to promote the rational use of energy and the increased use of renewable energy sources in the housing sector for the period 2013- 2016. <sup>4</sup> Pursuant to the regulation, the financial aid scheme called "PRIME House" was extended for the period 2013-2016. This scheme provides financial support for the construction of low-energy and passive residential buildings. Refurbishment works are also supported.
Update of energy efficiency standards for non-residential buildings: More restrictive energy efficiency standards for new or renovated non-residential buildings	Implemented. From 1 July 2012 onwards, new standards for energy performance of non-residential buildings require higher energy performance and higher thermal isolation. <sup>5</sup>

<sup>4</sup> Règlement grand-ducal du 12 décembre 2012 instituant un régime d'aides pour la promotion de l'utilisation rationnelle de l'énergie et la mise en valeur des énergies renouvelables dans le domaine du logement

<sup>5</sup> Règlement grand-ducal du 5 mai 2012 modifiant 1. le règlement grand-ducal modifié du 30 novembre 2007 concernant la performance énergétique des bâtiments d'habitation; 2. le règlement grand-ducal du 31 août 2010 concernant la performance énergétique des bâtiments fonctionnels.

	Vehicle tax reform	Ongoing. From 1 February 2013 onwards, modifications include the introduction of a minimum annual fee of €30. This minimum annual fee applies to certain vehicle categories powered exclusively by an electric motor or an engine powered by a fuel cell as well as to all other vehicles which were subject to a tax of less than € 30. Hybrid vehicles with a piston engine associated with an electric motor or a fuel cell are charged according to the fuel regime (petrol or diesel). This tax is calculated on the basis of the CO <sub>2</sub> emissions for all vehicles registered from 1 January 2001 and on the engine size of the car for all vehicles registered before 2001. <sup>6</sup>
Transport	Promotion of CO <sub>2</sub> efficient vehicles	Ongoing. From 1 January 2013 onwards, the financial reward "prime CAR-e" is only granted for electric cars as well as for hybrid vehicles emitting less than 60g/km CO <sub>2</sub> . <sup>7</sup>
	Raising excise duties on gasoline & diesel ("Kyoto Cent")	Excise duties on both gasoline and diesel were last increased in 2012. From then on, the duties for gasoline is at € 0.516/l for leaded gasoline and between € 0.462/l and € 0.464/l for unleaded gasoline depending on the amount of sulphur. The value for diesel is between € 0.335/l and € 0.338/l, depending on the amount of sulphur (ADA 2013).
	Use of biofuels in road transport (transposition of directive 2003/30/EC on biofuels)	Ongoing. The Law of 18 December 2009 introduces an obligation for oil companies releasing petrol and diesel for consumption to meet a specific quota of biofuels per year. From January 2013, the providers of petrol or diesel fuels have to ensure that biofuels make up at least 3.75% of the company's total annual sale of fuel. <sup>8</sup>

Source: Reporting of MS in accordance with Decision No 280/2004/EC about their GHG emission projections up to 2020, May 2013

Additional Measures		Status of policy in November 2013
Transport	Further use of biofuels in road transport	Planned. Increase the share of "second generation" biofuels in road fuel sales

Source: Reporting of MS in accordance with Decision No 280/2004/EC about their GHG emission projections up to 2020, May 2013

<sup>6</sup> Règlement grand-ducal du 21 décembre 2012 modifiant le règlement grand-ducal du 22 décembre 2006 portant exécution des mesures d'application de la loi du 22 décembre 2006 promouvant le maintien dans l'emploi et définissant des mesures spéciales en matière de sécurité sociale et de politique de l'environnement, modifié.

<sup>7</sup> Règlement grand-ducal du 18 février 2013

<sup>8</sup> Loi du 18 décembre 2009 concernant le budget des recettes et des dépenses de l'Etat pour l'exercice 2010

As of September 2013, Luxembourg has implemented the most relevant measures listed under the WEM scenario. The last changes to non-ETS measures were observed at the beginning of 2013 in the transport sector. More recent policy developments concerned measures in the ETS-sector, such as the update of the feed-in tariffs in July 2013. Given the current status of implementation, it can be expected that Luxembourg will achieve the non-ETS emission reductions listed under the WEM scenario, while those under the WAM scenario are still uncertain. The transport sector is also the target of the only measure that Luxembourg listed under the WAM scenario. Luxembourg is projecting considerable savings of GHG emissions resulting from the increased use of biofuels in road transport. However, this measure has not yet been implemented. Also, this measure would not suffice to bring Luxembourg on track to meet its 2020 target as the country is expected to fail to meet its 2020 target by far also under the WAM scenario. The second action plan for climate protection published in May 2013 presents a list of measures to be implemented in order to reduce CO<sub>2</sub> emissions by 20% until 2020. Only a timely and proper enforcement of these measures can ensure the reaching of the 2020 target for Luxembourg.

### 3 Evaluation of National Reform Programme 2013 (NRP)

In April of each year, Member States are required to prepare their National Reform Programmes (NRPs), which outline the country's progress regarding the targets of the EU 2020 Strategy. The NRPs describe the country's national targets under the Strategy and contain a description of how the country intends to meet these targets. For climate change and energy, three headline targets exist: 1) the reduction of GHG emissions, 2) the increase of renewable energy generation, and 3) an increase in energy efficiency (<sup>9</sup>).

The NRP focuses on policies fostering the development of sustainable mobility, renewable energy as well as energy efficiency. The second action plan for the reduction of CO<sub>2</sub> emissions has also been implemented, but measures on adaptation are not mentioned.

In the following table, the main policies and measures as outlined in the NRP of April 2013 (<sup>10</sup>) have been summarised, and their current status (implemented, amended, abolished, or expired) is given, with specifics on latest developments.

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<sup>9</sup> There are specific targets for all MS by 2020 for non-ETS GHG emission reductions (see section 2) as well as for the renewable energy share in the energy mix by 2020 (see section 4, renewable energies). Specific energy efficiency targets will be defined (or revised) by the MS until the end of April 2013 in line with the methodology laid out in Article 3 (3) of the Energy Efficiency Directive (Directive 2012/27/EU).

<sup>10</sup> All NRPs are available at: [http://ec.europa.eu/europe2020/making-it-happen/country-specific-recommendations/index\\_en.htm](http://ec.europa.eu/europe2020/making-it-happen/country-specific-recommendations/index_en.htm)

**Table 3: Main policies and measures as outlined in the NRP, April 2013**

<b>Aid scheme to promote the rational use of energy</b>	
Status as stated in the NRP	Entered into effect on January 2013
Status as per Nov 2013	Ongoing
Description of policy or measure	In December, 2012, a Grand-Ducal regulation was published introducing an aid scheme to promote the rational use of energy and encourage the use of renewable energy sources in the housing sector for the period 2013- 2016 <sup>(11)</sup> . Pursuant to the regulation, the financial aid scheme called "PRIME House" was extended for the period 2013-2016. This scheme provides financial for energy savings and the use of renewable energy in the area of housing.
<b>Transport: Extension of PRIME CAR-e aid</b>	
Status as stated in the NRP	A Grand-Ducal regulation on 18 February 2013 extended the aid for another year <sup>(12)</sup>
Status as per Nov 2013	Ongoing
Description of policy or measure	As part of the promotion of electric vehicles with low CO <sub>2</sub> emissions and other pollutants, the Luxembourg government offers financial support for the purchase of electric or hybrid cars amounting to €1,000-€5,000 according to the type of vehicle. The new vehicle must be registered in the Grand Duchy and be put into circulation between 1 January 2013 and 31 December 2013. Moreover the vehicle must emit less than or equal to 60g CO <sub>2</sub> /km.
<b>Finalise 2nd national action plan for CO<sub>2</sub> emissions reductions</b>	
Status as stated in the NRP	Draft expected to be adopted in the second quarter of 2013
Status as per Nov 2013	Published
Description of policy or measure	The group "Partnership for the Environment and the Climate," founded in 2010, brings together representatives of the government, unions, employers, and NGOs to plan climate policy and set objectives. Based on the work of the partnership, the second action plan was approved by the ministers during the governmental council of 17 March 2013 and officially presented by the Minister of Environment Marco Schank in May 2013. The action plan contains 51 measures allowing Luxembourg to fulfil its international commitments to reduce CO <sub>2</sub> emissions. The priority measures focus on the improvement of public transport networks and the promotion of electric mobility. Further priority measures involve the development of renewable energy and energy efficiency. Finally, a restructuring of the tax system and the introduction of more effective financial instruments are also envisaged (GovLux 2013e).

<sup>11</sup> Règlement grand-ducal du 12 décembre 2012 instituant un régime d'aides pour la promotion de l'utilisation rationnelle de l'énergie et la mise en valeur des énergies renouvelables dans le domaine du logement

<sup>12</sup> Règlement grand-ducal du 18 février 2013 1) portant introduction d'une aide financière aux personnes physiques et aux personnes morales de droit privé pour la promotion des véhicules électriques purs et des véhicules électriques hybrides rechargeables de l'extérieur à faibles émissions de CO<sub>2</sub>

### Provide an attractive public transportation offer that motivates users to choose it for carrying out a large number of their trips

Status as stated in the NRP Objective 3 of the *MoDu* strategy for sustainable mobility presented in April 2012

Status as per Nov 2013 Ongoing

Description of policy or measure

The *MoDu* strategy sets out the objective to increase the share of public transport in motorized transport trips to 25% by 2020. Several measures are being implemented in order to reach this objective. In February 2013, Enovos Luxembourg and the developer of mobility projects City Mov' announced together the launch of the first car sharing service in Luxembourg by the end of 2013 (Enovos 2013). Moreover, a draft law was presented in July 2013 aiming at developing an "effective and consistent cycle network for soft mobility"<sup>13</sup> (GovLux 2013d). Finally, the governmental council agreed in September 2013 on the draft financing bill for the first construction phase of a tramway line in the city of Luxembourg. The project is expected to begin in 2014 and will be supported with €230 million for a total amount of €345 million (MDDI 2013).

### Reform of feed-in tariffs in the form of a Grand Ducal regulation

Status as stated in the NRP Draft Grand-Ducal regulation to the Government to be presented for approval in 2013.

Status as per Nov 2013 Presented in July 2013

Description of policy or measure

In July 2013, Stephen Schneider, Minister of Economy and Foreign Trade, presented the new feed-in tariff for electricity from renewable energy sources in Luxembourg. The new regulation will apply from January 2014 and will increase the feed-in tariffs for hydro-power, wind energy, biogas and biomass by 11 to 31% compared to the existing regulations. Only the feed-in tariff for new PV installations will decrease by 9% from 2014 onwards. The new rates are currently awaiting the approval of the European Commission before being enforced (GovLux 2013a).

### Continuation of voluntary agreement for companies to improve energy efficiency from 2011-2016

Status as stated in the NRP Ongoing; interest group *myenergy* to take over coordination of this programme.

Status as per Nov 2013 Ongoing.

Description of policy or measure

In 2011 a voluntary agreement on energy efficiency in the industrial sector was set up between the Union of Luxembourg's Enterprises (FEDIL) and the Government, covering the period between 2011 and 2016. Signatory companies commit to implementing an energy management system and establishing an action programme to conserve energy. According to *myenergy*, 56 companies are now participating in the programme (*myenergy* 2013a).

<sup>13</sup> Avant-projet de loi relatif au réseau national de pistes cyclables et à la promotion de la mobilité douce et abrogeant la loi du 6 juillet 1999 portant création d'un réseau national de pistes cyclables

**Amend existing regulations concerning energy performance in residential buildings**

Status as stated in the NRP      Implemented in 2012

Status as per Nov 2013      A further draft Grand-Ducal regulation was approved by the governmental council in October 2013.

Description of policy or measure

A Grand-Ducal regulation was published in the Official Journal on 11 May 2012, amending a 2007 regulation on energy performance.<sup>14</sup> Moreover, the governmental council of 11 October 2013 approved a further draft Grand-Ducal regulation which modifies various existing legal acts regulating the energy performance of buildings. The main modification that would be introduced by the draft Grand-Ducal regulation concerns the deadline set to achieve the target of “nearly zero energy buildings”. The draft regulation namely provides for residential buildings to be built with “nearly zero energy” requirements from 2019 already. (GovLux 2013). By the time of writing, no information could be found regarding the date of passing of this regulation.

**Set a schedule for introducing smart meters in both electricity and gas distribution networks**

Status as stated in the NRP      Legislative amendments published in 2012. Start of the implementation scheduled for 2015

Status as per Nov 2013      Draft Grand-Ducal regulation approved by the governmental council in October 2013.

Description of policy or measure

The draft Grand-Ducal regulation on the implementing rules of intelligent meters in the electricity and gas networks was approved by the governmental council in October 2013. The draft Grand-Ducal regulation is based on the laws of August 2007 on the organization of electricity markets and natural gas. These laws were amended in 2012 with laws providing for the mandatory introduction of intelligent meters and setting the following key dates for the introduction of smart meters: From July 2015 onwards, households will be equipped with smart meters when a new power or gas contract is signed, such that by 2020, 95% of Luxembourg’s connections to the grid will be via smart meter (GovLux 2013). The implementation will be carried out by the seven grid operators serving the region (Creos, Sudgaz, Sudstrom, Electris, Ville de Diekirch, Ville d’Ettelbruck et Ville de Dudelange). The adoption of a draft Grand-Ducal regulation by the governmental council marks the beginning of the legislative or regulatory process. By the time of writing, no information could be found regarding the date of passing of this regulation.

<sup>14</sup> Règlement grand-ducal du 5 mai 2012 modifiant 1. le règlement grand-ducal modifié du 30 novembre 2007 concernant la performance énergétique des bâtiments d’habitation; 2. le règlement grand-ducal du 31 août 2010 concernant la performance énergétique des bâtiments fonctionnels.

## 4 Policy development

This section covers significant developments made in key policy areas between February 2013 and November 2013. It does not attempt to describe every instrument in the given thematic area.

### Horizontal measures

On 22 May 2013, the Luxembourgian Minister for Sustainable Development and Infrastructure, Marco Schank, presented the country's new national action plan for climate protection ("plan d'action national 'protection du climat'"). The plan contains 51 measures aiming at reducing greenhouse gas emissions in Luxembourg by 20% until 2020, which corresponds to the target set for Luxembourg in the Effort Sharing Decision (ESD). This action plan implements the national plan for sustainable development ("Plan National pour un Développement Durable"). It takes into account the cross-sectoral nature of climate protection and is based on the existing national action plans for energy efficiency and renewable energy (which are currently under revision), as well as on the overall strategy for sustainable mobility ("stratégie globale pour une mobilité durable") and the housing plan ("paquet logement"). The plan recognizes that fuel export is the main source of non-ETS emissions but does not propose specific measures to address these. Rather, priority is set on "domestic" emission reduction potentials such as domestic transport, buildings, industry and agrofuels. The measures listed in the plan focus on six priority areas, namely renewable energy, energy efficiency, electric mobility, restructuring of the tax system, financial instruments that from a social point of view are more efficient and fair, as well as improvements on information and communication (GovLux2013e). More detailed information regarding the targets set for these priority areas can be found in the different sections below.

### Environmental Taxation

In 2011, the share of Luxembourg's environmental tax revenues in total tax revenues was at 6.4% only slightly above EU average. The situation is similar when these revenues are compared with the GDP. In this case the share was at 2.4%, which is as high as the EU average. Luxembourg has no explicit carbon tax in place. Luxembourg's implicit tax rate on energy declined slightly from a peak in 2007 and amounted to €176 per tonne of oil equivalent (toe) in 2011, slightly below the EU average. The energy intensity of Luxembourg's economy is comparatively low. In 2010, it had the 7th least energy intensive economy of all EU MS. Although, the countries implicit tax rate on energy was somewhat below the EU average, the share of energy tax revenues in total tax revenues was relatively high (Eurostat 2013a).

No additional policy measures were taken in the past six months in the field of environmental taxation. However, taxation measures are envisaged in the second national action plan for the reduction of CO<sub>2</sub> emissions, which was presented by the Luxembourgian government in May 2013. These only refer to the transport sector and are therefore further described in the transport section below.

### Energy Efficiency

The energy intensity of Luxembourg's economy declined between 2005 and 2010 by 14% and puts the Member State at a position above the EU average. Final energy consumption also declined in the same time period by 4%. Between 2010 and 2011,

Luxembourg achieved only a reduction of 1%, which is below the EU average of 4% (Eurostat 2013a).

Structural changes in the iron and steel industry, which are Luxembourg's most important industrial branches, have caused an overall decrease of energy efficiency in the industrial sector. In the household sector, energy efficiency increased since 2000 mostly driven by the enhanced construction of new efficient buildings triggered by a population increase (Odyssee 2012).

In May 2013, the Minister of Environment officially presented the second national action plan for the reduction of CO<sub>2</sub> emissions. The Luxembourgish action plan states that if the refurbishment rate of existing buildings could be increased up to around 2.5% of the stock per year (4,200 buildings per year), a reduction of up to 0.2 million tons of CO<sub>2</sub> could be reached by 2020. However, the action plan considers these objectives to be quite unrealistic and rather expects a CO<sub>2</sub> emissions reduction of 40,000 tonnes by 2020 for the existing buildings sector. As far as new buildings are concerned, the action plan lays out that all new buildings should meet the requirements of the low-energy building standards "as soon as possible". In this regard, a Grand-Ducal regulation setting deadlines for the compliance of new buildings to "nearly zero energy" standards is currently in preparation (see the policy developments of this section below). Overall, the national action plan estimates the realizable savings potential in the buildings sector at 0.14 million tons of CO<sub>2</sub> eq by 2020.

In order to reach this objective, several existing and proposed measures are listed within the action plan. For the residential sector, the main measure regards the launch of a plan promoting the sustainable development of residential buildings within the timeframe 2013-2015 ("Plan sectorial Logement") and including the following objectives:

- Territorial coordination of housing at regional and municipal level.
- Introduction of requirements for ecologically sustainable land development.
- Increase of the production of residential buildings.

As far as state-owned buildings are concerned, the plan lays out the further enforcement of existing energy refurbishment measures and the enforcement of energy efficiency directive by 2020. Furthermore, monitoring of energy consumption will be improved by means of a database compiling information on the energy consumption of public buildings and connected to a smart-metering system. According to the action plan, this measure was supposed to be carried out from mid-2013; however, as of December 2013 no information could be found on its current state of progress. Moreover, measures are also planned for 2014 to improve energy efficiency of companies. These concern a closer monitoring of the voluntary agreements for the increase of energy efficiency in companies. For companies of the ETS sectors, the state revenues from the ETS mechanism shall be invested in energy efficiency measures by 2020 (GovLux 2013e). The timely and proper implementation of the envisaged measures is very important in order to achieve the targets of the national action plan.

Other policy developments in the field of energy efficiency recorded since February 2013 mainly regard the introduction of a new quality label for energy consulting companies as well as earlier deadlines set regarding "nearly zero energy" buildings.

Government efforts to promote energy efficiency focus mainly on buildings, with various initiatives to reduce energy use in the residential sector. In this regard, the governmental



council of 11 October 2013 approved the draft Grand-Ducal regulation which modifies various legal acts regulating the energy performance of buildings. The main modification concerns the deadline set to achieve the target of “nearly zero energy buildings”. The Directive 2010/31/EU namely provides for these requirements to apply from 1 January 2019 in public buildings and from 1 January 2021 for all other buildings. However, the draft Grand-Ducal regulation goes beyond the European requirements, since it provides for residential buildings to be built with “nearly zero energy” requirements from 2019 already (GovLux 2013). The adoption of a draft Grand-Ducal regulation by the governmental council marks the beginning of the legislative or regulatory process. By the time of writing, no information could be found regarding the date of passing of this regulation.

Moreover, another energy efficiency measure was introduced in April 2013, in form of a new quality label called “myenergy certified”. The quality label was presented to the Chamber of Commerce by the Luxembourgian information organisation myenergy, specialized in renewable energy and energy efficiency.<sup>15</sup> The label provides for professionals active in the field of energy consulting to have their competence certified on a voluntary basis, on condition that they meet certain predefined quality criteria. The list of certified consultants shall be published on the website of myenergy. Certified consultants also have the possibility to assign the “myenergy certified” label to their services. In return, participants are contractually committed to the quality program of myenergy, which ensures the compliance with various quality criteria and provides for an evaluation system for customers (myenergy 2013).

Finally, efficiency measures include the training programme of the Energy Agency and the Chamber of Trade of Luxembourg, launched in October 2012 and called “Energie fir d’Zukunft+”. The training programme aims at informing construction companies about building energy performance standard: in 2013, the programme will focus mainly on existing standards for passive houses (CML 2012b). The programme is proving successful since in May 2013, 85 persons from 56 companies had already received the certification label “Energie fir d’Zukunft+” for passive houses in Luxembourg, whereas the Chamber of Trade informs that a total of 300 people are certified with a passive house label around the world. By the spring of 2014, the Chamber of Trade expects to certify more than 150 companies specialised in the construction of passive houses in Luxembourg (CML 2013).

## **Renewable Energy**

Between 2005 and 2011, renewable energy consumption as a proportion of total consumption doubled in Luxembourg to 2.9%, which is still a long ways off the 11% target for 2020. The proportion of renewably generated electricity slightly increased from 3.8% to 4.1% between 2010 and 2011 (Eurostat 2013b).

Several measures are set out in the second national action plan for the reduction of CO<sub>2</sub> emissions regarding the renewable energy sector. All of them focus on the enhanced promotion of renewable energies. The envisaged measures include the adjustment of the feed-in tariff for the production of electricity from renewable energy sources as well as for

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<sup>15</sup> myenergy is an information organisation supported by the Luxembourgian Ministry of Economy and the Ministry of Sustainable Development

the feed-in of biogas in the natural gas networks. Finally the plan also envisages the targeted support of the use of biomass (GovLux 2013e).

In accordance with the national action plan, the Minister of Economy and Foreign Trade Stephen Schneider presented in July 2013 the new feed-in tariff for electricity from renewable energy sources in Luxembourg. The objective of the new regulation is to boost the development of new projects and accelerate the achievement of national targets for renewable energy. The National Renewable Energy Action Plan of 2010 provides for a 11% share of renewables in final energy consumption by 2020. The new regulation will apply from January 2014 and will increase the feed-in tariffs for hydro-power, wind energy, biogas and biomass by 11 to 31% compared to the existing regulations. Only the feed-in tariff for new PV installations will decrease by 9% from 2014 onwards. The new rates are currently awaiting the approval of the European Commission before being enforced (GovLux 2013a). A few days before, the Chamber of Trade had issued a notice stating the new regulation for feed-in tariffs should first and foremost "reduce administrative barriers" in order to support the development of renewable energies in the country. According to the Chamber of Trade, sites for renewable energy installations, especially for wind energy and biomass, should be identified for decentralized energy production. In addition, the Chamber of Trade recommended that authorization procedures for renewable energy installations should be reduced and the capacity of electricity grids should be improved (see also next section) (CML 2013a).

Further measures of the action plan on promoting the use of renewable energies include the information campaigns targeting small and medium size companies as well as for companies of the industrial sector. This campaign aims at providing adapted guidance on the existing support schemes available for such companies. According to the plan, it should be carried out in 2014. Additionally, the plan envisaged a more targeted support scheme for the use of biomass in the form of wood, green waste, agricultural waste and sewage sludge by the end of 2014.

### **Energy Networks**

In June 2013, the Luxembourgian Minister of Economy and Foreign Trade, Stephen Schneider, chaired the ministerial meeting of the Pentalateral Energy Forum which led to the signature of a joint political declaration. The declaration reaffirmed the political commitment of the participating ministers for greater market integration and for further discussions on the key issue of security of supply in the region. The Pentalateral Energy Forum is an enhanced cooperation in the electricity sector between the three Benelux countries, Germany, France, Austria and Switzerland, founded in 2005. It aims at creating a regional electricity market in Northwestern Europe. The Forum has already enabled the linking of wholesale markets. While recalling the many challenges the energy sector will need to face in the coming years (such as security of supply, production capacity, grid access for renewable energy, grid development, as well as high energy costs), Minister Schneider said he is convinced that the Pentalateral Energy Forum is the right opportunity to coordinate these issues (GovLux 2013c).

Moreover, the Luxembourgian grid operator Creos presented in December 2012 its investment programme providing for the expenditure of € 603 million for the reinforcement of electricity and natural gas grids for the period from 2013 to 2017 (Creos 2012).

## Transport

Emissions from transport almost tripled between 1990 and 2011. While some progress in reducing these emissions was achieved since 2005, there has been a slight upward trend in 2011. Their proportion among Luxembourg's total emissions has however steadily increased to 57% in 2011 (Table 1). This development indicates that efforts need to focus on these emissions in the future. Average emissions for newly registered cars are high in Luxembourg with a level of 137 CO<sub>2</sub>/km. The level is the 13th highest in the EU but has decreased at a higher rate than the EU average between 2005 and 2012 (Eurostat 2013a). In Luxembourg, no registration tax applies. The ownership tax is based on CO<sub>2</sub> emissions only, or engine capacity for older cars (ACEA 2012). Additionally, Luxembourg is levying a time-based road toll for HDVs with a weight over 12t (CE Delft 2012).

Given the importance of transport for overall emissions in Luxembourg, it is alarming that tax rates for diesel are the lowest in the EU, and tax rates for petrol are the lowest applied in the EU-15. Diesel is taxed at a rate €130/1000 litres lower than the petrol tax rate (European Commission 2013).

Among the 51 measures laid out in the above mentioned national action plan, priority is given to the improvement of public transport networks, the promotion of soft mobility and the promotion of electric mobility. Concrete measures for 2013-2015 are spelled out in the action plan, e.g. concerning the interconnection of public transport means or spatial planning. For electric mobility, the national action plan namely sets the target of approximately 10% of the Luxembourg fleet to be constituted of electric cars by 2020 (corresponding to about 40,000 cars). Additionally, about 850 charging stations for electric cars shall be installed by 2020.

The action plan also envisages restructuring the transportation tax system possibly including a revision of the vehicle tax, a reform of company cars taxation in order to incentivise the use of environmental-friendly vehicles, and the gradual adjustment of tax rates on transport fuels (GovLux 2013e). However, the national action plan does not formulate concrete implementing measures regarding the sustainable restructuring of the tax system. The government only commits to examine possible actions, and this only in the medium term.

The realisable potential of CO<sub>2</sub> emissions reduction in the transport sector is estimated at 0.15 million tons of CO<sub>2</sub> eq, provided the measures listed in the national action plan are appropriately implemented (GovLux 2013e). Additionally, the mandatory use of biofuels for transport as stipulated in the European RES is expected to contribute to the reduction of almost 0.5 ton CO<sub>2</sub> eq (GovLux 2013e). The importance of sustainable mobility in the Luxembourgian transport policy was highlighted also before the presentation of the national action plan. During the period between February 2013 and October 2013, several policy developments were observed which confirm the will of the government of Luxembourg to increase the sustainability of its transport sector, especially regarding the improvement of public transport networks and the development of car sharing services.

In February 2013 the Minister of Economy and Foreign Trade attended the Brussels Energy Council. One of the addressed topics regarded the quality of fuels, especially the first generation biofuels and the issue of indirect land use. In this context, the Minister Etienne Schneider has welcomed the initiative of the European Commission to review the criteria for determining the most efficient biofuels in terms of GHG emissions. He stressed the importance of finding adapted solutions in order to differentiate between biofuels

according to their nature and origin. Moreover, he pleaded for the inclusion of emissions due to the indirect land use change of biofuels (ILUC factor), in order not to impact food production. Finally, the Minister declared himself in favour of a rapid transition of biofuels to second and third generation biofuels, also allowing existing biofuels producers to adapt to this shift (MECE 2013a). In June 2012 during the conference on clean technologies held in the country, the government of Luxembourg had designated sustainable mobility and biofuels as some of the priority sectors to be developed in order to foster economic growth in the country (GovLux2012a).

As far as recent developments in sustainable mobility are concerned, Enovos Luxembourg and the developer of mobility projects City Mov' announced together in February 2013 the launch of the first car sharing service in Luxembourg. The two companies have teamed up to propose a new generation of car-sharing system for professionals and municipal customers. The car pool will be mainly composed of "clean" vehicles such as electric, hybrid or natural gas vehicles. After an initial test phase conducted in the past few months, several projects are currently underway in the Grand Duchy (Enovos 2013). In September 2013, the first loading stations along with electric cars were inaugurated in the urban area of Nordstad (Elektromobilität 2013).

Another sustainable mobility measure came in the form of a draft law aiming at developing an "effective and consistent cycle network for soft mobility."<sup>16</sup> The draft law was presented in 1 July 2013 by the Minister of Sustainable Development and Infrastructure. It provides for the construction of five additional cycle lanes amounting to 150 km in total, in order to supplement and connect the lanes of the national network. Upon completion, the Luxembourgian cycle network will have 1,100 km of national cycle lanes. The draft law is part of the Global Strategy for Sustainable Mobility ("MoDu") of the Grand Duchy of Luxembourg, which envisages a modal share of 25% of the country's daily commuting for soft mobility and 25% for public transport by 2020 (GovLux 2013d). As of today, the modal share for daily commuting consists of only 14.5% for public transport and 13% for soft mobility (Wort.lu 2013).

Finally, the governmental council agreed in September 2013 on the draft financing bill for the first construction phase of a tramway line in the city of Luxembourg. The project is co-financed by the State and the City of Luxembourg. It plans the construction of the line infrastructure and of the maintenance centre, as well as the acquisition of the trams and the conducting of studies. The project is expected to begin in 2014 and receive financial support of €230 million for a total amount of €345 million. The draft financing bill shall be presented to the Chamber of Deputies before being passed (MDDI 2013).

## **Waste**

The current national waste management plan was published in January 2010 and is regulated by the framework law of 17 June 1994.<sup>17</sup> In March 2012, a law regulating waste management in Luxembourg was published, thereby abolishing the framework law of June 1994<sup>18</sup>. According to the law, the Administration of Environment of the Ministry of

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<sup>16</sup> Avant-projet de loi relatif au réseau national de pistes cyclables et à la promotion de la mobilité douce et abrogeant la loi du 6 juillet 1999 portant création d'un réseau national de pistes cyclables

<sup>17</sup> Loi modifiée du 17 juin 1994 relative à la prévention et à la gestion des déchets

<sup>18</sup> Loi du 21 mars 2012 relative à la gestion des déchets

Sustainable Development shall establish a new national waste management plan. The law also provides for the introduction of municipal taxes to help cover the costs incurred by the municipalities for waste management. A tax on household waste shall also be introduced depending on the weight and volume of waste produced. However by the time of writing, no information was available regarding the elaboration of a new national waste management plan. The only implementing decrees of the law of 21 March 2012 existing so far were published in August 2013 and regard the management of electronic waste.

## 5 Policy progress on past CSRs

As part of the European Semester, Country Specific Recommendations (CSRs) for each MS are provided by the EU Commission in June of each year for consideration and endorsement by the European Council). The recommendations are designed to address the major challenges facing each country in relation to the targets outlined in the EU 2020 Strategy. In the following table, those CSRs that are relevant for climate change and energy that were adopted in 2013 are listed, and their progress towards their implementation is assessed.

Existing Country Specific Recommendations	Progress
<p>Step up measures to meet the target for reducing non-ETS greenhouse gas emissions, in particular by increasing taxation on energy products for transport.</p>	<p>Excise duties on gasoline and diesel were increased for the last time in 2012. Since then, no further measures increasing taxation on energy products were recorded in the transport sector.</p> <p>However, in May 2013, the Government of Luxembourg presented the second national action plan for the reduction of CO<sub>2</sub> emissions, which focuses on six priority areas, including the restructuring of the tax system. Among the 51 measures listed in the plan, the Government endeavours to examine possibilities of restructuring the vehicle tax in order to improve its effect on emissions reduction, to reforming company cars taxation in order to incentivise the use of environmental-friendly vehicles, and of gradually adjusting tax rates on transport fuels. However, the action plan does not set out specific actions or timelines for the revision of transport taxes. (GovLux 2013e).</p>

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