

Residential Prosumers in the European Energy Union

EAHC/2013/CP/04

**Mapping the legal and regulatory framework in the
28 Member States, Iceland and Norway**

Luxembourg



This study is part of the mapping of the legal and regulatory framework for residential prosumers in the 28 Member States, Iceland and Norway, within the project on Residential Prosumers in the European Energy Union EAHC/2013/CP/04, and carried out by Milieu Ltd (Belgium), Chaussée de Charleroi, 112, B-1060 Brussels, tel: +32 (0)2 506 1000; web address:

This study presents the legal and regulatory framework for residential prosumers in Luxembourg and has been prepared by Virginie Rouas as the author and reviewed by the managers of the project Marta Ballesteros (Marta.Ballesteros@milieu.be) and Marta Santos Silva (Marta.Santos.Silva@milieu.be). The study has been completed in June 2017.

Disclaimer: The information and views set out in this study are those of the authors and do not necessarily represent the official views of the Commission.

National report on the regulatory framework for residential prosumers: Luxembourg

General Description of the national legal and regulatory framework

General

1) The energy sector in Luxembourg

Generally, Luxembourg has a small electricity generation capacity and imports most of its electricity from other countries, mainly from Germany since the Luxembourg distribution system is interconnected with the German distribution system.¹

In 2015, Luxembourg produced 1,309 GWh of electricity (net production). It imported the rest of its electricity (5,557 GWh) from other countries as follows:

- Germany: 4,248 GWh;
- France: 1,054 GWh;
- Belgium: 256 GWh.²

During the same year, the total consumption of electricity in Luxembourg was of 6,371 GWh, slightly increasing in comparison with 2014 (6,326 GWh). The residential sector, representing 231,985 clients, consumed 914 GWh of electricity.³

In 2015, the electricity production of Luxembourg covered 20.5% of the national electricity consumption. **The production of renewable energy (hydropower; wind power; biogas; solar energy; biomass; waste incineration) covered 6.7% of the national electricity consumption.**⁴

Table 1 - Net electricity production by energy source in 2015

Energy source/Production technology	Net electricity production (in GWh)	Installed capacity (in MW)	Number of plants
Natural gas	838	480	134
Hydropower	91	34	33
Wind power	102	64	54
Biogas	62	12	34
Solar energy	104	116	5,979
Biomass	24	4	2
Waste incineration	89	17	1
TOTAL	1,309	728	6,237

Source: Institut Luxembourgeois de Régulation⁵

Since 2011, the production of renewable energy almost doubled (238 GWh produced in 2011 as opposed to 430 GWh produced in 2015).⁶ The quickening pace of renewable energy deployment is due, in large part, to the plunging cost of solar and wind energy harvesting technologies.⁷ However, on several occasions, the European Commission (hereinafter EC) has held that Luxembourg remains far from its 2020 target of 11% in renewable energy share.⁸

¹ IRL, 2016, *Chiffres clés du marché de l'électricité : Année 2015*, p. 3.

² *ibid.*

³ *ibid.*, p. 3-4.

⁴ *ibid.*, p. 6.

⁵ *ibid.*, p. 6.

⁶ *ibid.*, p. 7.

⁷ TIR Consulting Group LLC, 2016, *The Third Industrial Revolution in Luxembourg*, p. 15.

⁸ European Commission, DG Energy, 2014, Luxembourg. See also OECD, 2010, *Examens Environnementaux de l'OCDE: Luxembourg*, p. 137. In its 2017 Renewable Energy Progress Report, the European Commission estimated that Luxembourg will have to substantially increase its share in order to keep on track with its objective. European Commission, COM(2017)

Nonetheless, according to a recent national study,⁹ renewable energy sources in Luxembourg have the theoretical potential to generate about 250% of national current electricity and heat demand.

The potential for electricity generation per year for each source is as follows:

- Photovoltaic: 7.9 TWh;
- Wind power: 5.7 TWh;
- Biogas and bio liquids in CHP plants: 0.6 TWh;
- Small hydro power: 0.1 TWh.

The potential for heat generation per year is as follows:

- Solar thermal: 14.6 TWh;
- Solid biomass: 4.0 TWh;
- Heat pumps: 1.5 TWh;
- Biogas and bio liquids in CHP plants: 0.6 TWh.

Luxembourg households benefit from relatively low electricity prices as a result of reduced level of taxation on electricity. According to the OECD, the price of electricity for households in Luxembourg was slightly below the average for OECD Europe in 2007.¹⁰

2) General legal framework governing the electricity market in Luxembourg

Act/Regulation	Modifying Act/Regulation	Relevant topics
Act of 1st August 2007 pertaining to the organisation of the electricity market ¹¹ (hereinafter 2007 Act)	- Act of 7 August 2012 modifying the modified act of 1st August 2007 pertaining to the organisation of the electricity market.¹² - Act of 19 June 2015 modifying the modified act of 1st August 2007 pertaining to the organisation of the electricity market.¹³	- General legal framework governing the electricity market. - Repeals the Act of 24 July 2000 pertaining to the organisation of the electricity market¹⁴ - Definition of ‘self-production’
Grand-Ducal Regulation (GDR) of 31 March 2010 pertaining to the compensation mechanism in the context of the organisation of the electricity market ¹⁵ (hereinafter 2010 GDR)	- GDR of 1st August 2014 pertaining to the generation of electricity from renewable energy sources and modifying 1. GDR of 31 March 2010 pertaining to the compensation mechanism in the context of the organisation of the electricity market; 2. The GDR of 15 December 2011 pertaining to the production, the remuneration and the sale of biogas.¹⁶ - GDR of 23 July 2016 modifying 1. GDR of 1st August 2014 pertaining to the generation of electricity from renewable energy sources; 2. GDR of 31 March 2010	Implement the compensation mechanism foreseen by 2007 Act pertaining to the organization of the electricity market

57 final, Renewable Energy Progress Report, p. 17.

⁹ TIR Consulting Group LLC, 2016, p. 15

¹⁰ OECD, 2010, p. 138-139.

¹¹ Loi du 1^{er} août 2007 relative à l'organisation du marché de l'électricité.

¹² Loi du 7 août 2012 modifiant la loi modifiée du 1^{er} août 2007 relative à l'organisation du marché de l'électricité.

¹³ Loi du 19 juin 2015 modifiant la loi modifiée du 1^{er} août 2007 relative à l'organisation du marché de l'électricité.

¹⁴ Loi du 24 juillet 2000 relative à l'organisation du marché de l'électricité.

¹⁵ RGD du 31 mars 2010 relatif au mécanisme de compensation dans le cadre de l'organisation du marché de l'électricité.

¹⁶ RGD du 1^{er} août 2014 relatif à la production d'électricité basée sur les sources d'énergie renouvelables et modifiant: 1. le RGD du 31 mars 2010 relatif au mécanisme de compensation dans le cadre de l'organisation du marché de l'électricité; 2. le RGD du 15 décembre 2011 relatif à la production, la rémunération et la commercialisation de biogaz.

	pertaining to the compensation mechanism in the context of the organisation of the electricity market.¹⁷	
--	--	--

The Ministry of Economy recently commissioned a strategic study on the socio-economic development of Luxembourg for 2050. Presented in November 2016, this study, entitled ‘The Third Industrial Revolution’, proposes concrete actions in various areas, including energy, smart economy and prosumers.¹⁸ Some of the conclusions of this report are mentioned in this study. Although a non-legally binding document, the Third Industrial Revolution report is likely to have an impact on the adoption of future policies concerning energy prosumers. The government is expected to lead a broad national consultation whose results will be debated in the Luxembourg Chamber of Deputies in the coming years.

1. What types of residential prosumers are there in your country on the basis of type of RES used and size of the installation?

Answer:

There is no official data on residential prosumers in Luxembourg.

As of 2015, the number of plants for each renewable energy source was as follows:

- 5,979 solar plants;
- 134 natural gas plants;
- 54 wind power plants;
- 34 biogas plants;
- 33 hydropower plants;
- 2 biomass plants;
- 1 waste incineration plant;¹⁹
- 133 cogeneration plants, including 1 plant in self-production.²⁰

2. What is the institutional framework & division of competences regarding residential prosumers in your country?

Answer:

The institutional framework relevant to residential prosumers is fragmented in Luxembourg. The main institutional actors are:

- **Ministry of Economy:** The Luxembourg Ministry of the Economy has the overall responsibility for national energy policy, including renewable energy, and for permitting requirements for production facilities.²¹
- **Ministry of Environment:** The Luxembourg Ministry of Environment is responsible for the management of aid and subsidies schemes related to the promotion of renewable energy.
- **Ministry of Finance:** The Luxembourg Ministry of Finance is competent for the taxation of energy products.²²
- **Ministry of Sustainable Development and Infrastructure:** The Luxembourg Ministry

¹⁷ RGD du 23 juillet 2016 modifiant 1. le RGD du 1er août 2014 relatif à la production d'électricité basée sur les sources d'énergie renouvelables; 2. le RGD modifié du 31 mars 2010 relatif au mécanisme de compensation dans le cadre de l'organisation du marché de l'électricité.

¹⁸ TIR Consulting Group LLC, 2016.

¹⁹ ILR, 2016, p. 6.

²⁰ ILR – Secteur Electricité, 2016, *Centrales de Production au Luxembourg*.

²¹ IEA, 2014, *Energy Policies of IEA Countries Luxembourg: 2014 Review*, p. 107.

²² *ibid*, p. 22.

of Sustainable Development and Infrastructure is responsible for climate and environmental policies and for the administration of the investment aid policy concerning renewable energy in the residential and municipal sectors.²³

- **Luxembourg Regulatory Authority** (*Institut Luxembourgeois de Régulation*) (hereinafter ILR): The ILR is responsible for regulating and supervising various economic sectors, including the electricity and natural gas sectors.²⁴ Amongst its various missions, it approves tariffs to access the electricity and natural gas networks. The ILR also has for mission to protect consumers.
- **Myenergy**²⁵: A common agency of the Ministry of the Economy, the Ministry of Sustainable Development and Infrastructure and the Ministry of Housing. It manages the promotion of the use of renewable energy sources. Myenergy is tasked to support the uptake of renewable energies and to identify and remove existing barriers in respect to the development of renewable energies.²⁶
- **Creos Luxembourg** (Creos): Creos owns and operates the electricity and natural gas networks in Luxembourg.²⁷ With regard to electricity, Creos is the national transmission system operator (*gestionnaire de réseau de transport* (hereinafter TSO) and the main distribution system operator (*gestionnaire de réseau de distribution*) (hereinafter DSO) in Luxembourg. Creos is owned by Enovos International.
- **Other DSOs**: As of 2015, there were four other distribution system operators in Luxembourg alongside Creos (Town of Diekirch; Hoffmann Frères S.à.r.l. et Cie S.e.c.s.; Town of Ettelbruck; and Sudstrom S.à.r.l. & Co S.e.c.s.).²⁸
- **Electricity providers**: As of 2015, there were 7 electricity providers for the residential consumers market.²⁹ The most important provider is Enovos Luxembourg (Enovos), which had a share of 74.19% of the electricity market for residential consumers in 2015. Enovos is also a subsidiary of Enovos International.³⁰

Specific Questions on the regulatory framework for residential prosumers

3. What is the regulatory framework for residential prosumers in your country?

General

There is currently no legal framework governing specifically residential prosumers or self-consumption in Luxembourg. As a result, the 2007 Act and the legal framework governing renewable energy projects (see Question 3.1) provide the most relevant rules regulating residential prosumers.

However, it is worth mentioning that Luxembourg first mentioned ‘self-production’ (or ‘self-generation’) as early as 1994. The GDR of 30 May 1994 pertaining to the generation of electricity from renewable energy or cogeneration³¹ (hereinafter 1994 GDR) governed aspects such as the obligation of the State to take electricity from self-producers using renewable energy sources when they request it or the obligation of the network operator to let self-producers inject their electricity into the grid for free (Article 1). The 1994 GDR also set prices for the remuneration of electricity coming from renewable energy. Nonetheless, the 1994 GDR was modified by GDR of 14 October

²³ *ibid*, p. 107.

²⁴ The ILR is also competent to supervise the telecoms, postal, and transport sectors.

²⁵ IRL, 2016, p. 6.

²⁶ IEA, 2014, p. 107.

²⁷ IRL, 2016, p. 2.

²⁸ *ibid*.

²⁹ The IRL lists Eida; Electris; Enovos Luxembourg; LEO; Nordenergie; Steinerger; Sudstrom. See IRL, 2016, p. 1.

³⁰ IRL, 2016, *Rapport de l’Institut Luxembourgeois de Régulation sur ses Activités et sur l’Exécution de ses Missions dans les Secteurs de l’Electricité et du Gaz Naturel : Année 2015*, p. 5-6.

³¹ RGd du 30 mai 1994 concernant la production d’énergie électrique basée sur les énergies renouvelables ou sur la cogénération.

2005 (hereinafter 2005 GDR) (see Question 3.1) and references to self-production and renewable energy were deleted from the 1994 GDR. Ultimately both GDRs were repealed in 2008.

The Third Industrial Revolution report provides relevant information on the potential legal measures which may be adopted to govern energy prosumers in the future. This report articulates a strategic vision called 'Target Energy System 2050'. One of the keystones of this vision is to promote energy self-consumption through various initiatives, such as funding programmes, taxation schemes; the creation of autonomous regional energy clusters in which prosumers are interconnected; smart local micro-grids; etc.³²

3.1 What is the existing legislative framework regulating Renewable Energy Projects in your country?

Answer:

Luxembourg has for mandatory objective to increase the share of renewables in the final gross energy consumption to 11% in 2020.³³

In Luxembourg, the legal framework governing renewable energy projects contains the following acts and regulations relevant to self-production:³⁴

Act/Regulation	Modifying Act/Regulation	Relevance
Act of 5 August 1993 pertaining to the rational use of energy³⁵	- Act of 5 July 2016 modifying the modified Act of 5 August 1993 pertaining to the rational use of energy ³⁶	- Production, transformation, distribution and use of energy - Promotion of energy saving and rational use of energy - Promotion of renewable energy sources
GDR of 25 January 2002 fixing the amount and modalities of payment of taxes aiming to cover staff and operation costs of the regulator of the electricity market³⁷	-	- Creates a tax that electricity producers, including self-producers, must pay to cover the costs of the electricity market regulator
GDR of 20 April 2009 creating an aid scheme for the promotion of the rational use of energy and the development of renewable energy³⁸	- GDR of 12 December 2012 - GDR of 18 December 2015 modifying 1) the modified GRD of 20 April 2009 creating an aid scheme for the promotion of the rational use of energy and the development of renewable energy, 2) the GDR of 12 December 2012 creating an	- Creates an aid scheme for the development of renewable energy projects

³² TIR Consulting Group LLC, 2016, pp. 19-22.

³³ Luxembourg Action Plan for Renewable Energy, 2010, Ministère de l'économie et du commerce extérieur, 2010.

³⁴ Strikethrough acts and regulations in this table have been repealed.

³⁵ Loi du 5 août 1993 concernant l'utilisation rationnelle de l'énergie.

³⁶ Loi du 5 juillet 2016 modifiant la loi modifiée du 5 août 1993 concernant l'utilisation rationnelle de l'énergie.

³⁷ RGD du 25 janvier 2002 fixant le montant et les modalités de paiement des taxes destinées à couvrir les frais de personnel et de fonctionnement du régulateur du marché de l'électricité.

³⁸ RGD du 20 avril 2009 instituant un régime d'aides pour la promotion de l'utilisation rationnelle de l'énergie et la mise en valeur des énergies renouvelables.

	aid scheme for the promotion of the rational use of energy and the development of renewable energy in the field of housing ³⁹	
GDR of 31 March 2010 pertaining to the compensation mechanism in the context of the organisation of the electricity market⁴⁰	- GDR of 1 st August 2014 - GDR of 23 July 2016 modifying the GDR of 1 st August 2014 pertaining to the generation of electricity from renewable energy sources ⁴¹	- Implements the compensation mechanism foreseen by Article 7 of 2007 Act
GDR of 12 December 2012 creating an aid scheme for the promotion of the rational use of energy and the development of renewable energy in the field of housing⁴²	- GDR of 18 December 2015 - GDR of 23 July 2016	- Completes the GDR of 20 April 2009 by creating an aid scheme for renewable energy projects in housing - Applicable until 31 st December 2016 - Ministry of Environment can grant financial help (PRIME HOUSE) towards the investment costs of renewable energy installation
GDR of 1st August 2014 pertaining to the generation of electricity from renewable energy sources⁴³ (hereinafter GDR of 1st August 2014)	GDR of 23 July 2016	- Main regulation governing the promotion and the development of electricity from renewable energy sources - Guarantee of origin - Inter-connection to the grid and electricity supply - Power purchase agreements & market premium contracts - Remuneration of electricity injected into the grid (feed-in tariffs) - Specific remuneration for collective photovoltaic installations
GDR of 27 August 2014 concerning the metering of electricity and natural gas	-	- Implements the rules governing the use of smart metering and collected data

³⁹ RGD du 18 décembre 2015 modifiant 1) le RGD modifié du 20 avril 2009 instituant un régime d'aides pour la promotion de l'utilisation rationnelle de l'énergie et la mise en valeur des énergies renouvelables, 2) le RGD 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.

⁴⁰ RGD du 31 mars 2010 relatif au mécanisme de compensation dans le cadre de l'organisation du marché de l'électricité.

⁴¹ RGD du 23 juillet 2016 modifiant 1. le RGD du 1^{er} août 2014 relatif à la production d'électricité basée sur les sources d'énergie renouvelables; 2. le RGD modifié du 31 mars 2010 relatif au mécanisme de compensation dans le cadre de l'organisation du marché de l'électricité.

⁴² RGD 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.

⁴³ RGD du 1^{er} août 2014 relatif à la production d'électricité basée sur les sources d'énergie renouvelables.

consumption⁴⁴ (hereinafter GDR of 27 August 2014)		on electricity consumption and production foreseen by the 2007 Act
Act of 23 December 2016 creating an aid scheme for the promotion of durability, of the rational use of energy and of renewable energy in the field of housing⁴⁵	-	- Replaces the GDR of 12 December 2012 from 1 st January 2017 regarding the creation of an aid scheme for renewable energy production in housing
GDR of 23 December 2016 establishing measures to implement Act of 23 December 2016 creating an aid scheme for the promotion of durability, the rational use of energy and of renewable energy in the field of housing⁴⁶	-	- Implements the 2016 Act creating an aid scheme for renewable energy production in housing - Specifies the conditions to obtain financial support for each type of renewable energy sources

3.2 Does the Renewables National Action Plan include any objectives for residential prosumers (if so, please specify)

Answer:

In its National Renewable Action Plan,⁴⁷ **Luxembourg has for objective that renewable energy sources cover 11.8% of electricity demand by 2020.** However, the document does not contain specific objectives for residential prosumers *per se*.

3.3 Is there a definition (legal or regulatory) of residential prosumers (or self-consumption) in your country? If so, state it and describe the elements of this definition?

Answer:

The 2007 Act broadly defines a 'self-producer' ('autoproducteur') as 'any natural or legal person producing electricity for its own use'.⁴⁸

4. What are the permitting requirements for each type of residential prosumer?

General

The 1993 Act provides that any installation producing, transforming and distributing energy must be authorised in accordance with the law.⁴⁹

The 2007 Act determines the general rules governing the licensing of installations producing

⁴⁴ RGD du 27 août 2014 relatif aux modalités du comptage de l'énergie électrique et du gaz naturel.

⁴⁵ Loi du 23 décembre 2016 1. instituant un régime d'aides pour la promotion de la durabilité, de l'utilisation rationnelle de l'énergie et des énergies renouvelables dans le domaine du logement 2. modifiant la loi modifiée du 23 décembre 2004 établissant un système d'échange de quotas d'émission de gaz à effet de serre.

⁴⁶ RGD du 23 décembre 2016 fixant les mesures d'exécution de la loi du 23 décembre 2016 instituant un régime d'aides pour la promotion de la durabilité, de l'utilisation rationnelle de l'énergie et des énergies renouvelables dans le domaine du logement.

⁴⁷ Luxembourg Action Plan for Renewable Energy, 2010.

⁴⁸ Article 1(1) of the modified 2007 Act.

⁴⁹ Article 4 of the modified 1993 Act.

electricity.

Generally, the construction of new installations producing electricity is subject to a prior **individual authorisation** delivered by the minister in charge of energy matters.⁵⁰ The issuance of such an authorisation must take into account various criteria, including the contribution of the production capacity to the reduction of greenhouse gas emissions and to the achievement of at least 20% target for the overall share of energy from renewable sources.⁵¹

However, this authorisation **is not required for renewable energy installations (as well as installations producing both heat and electricity) with an installed capacity of 10 MW**.⁵²

Installation operators must also declare to the minister in charge of energy matters and the ILR the **first entry into service**, any substantial modification and the definitive deactivation of production installations, including self-production installations using renewable energy. This declaration must occur by the time of the event.⁵³

4.1 Does your country recognize certain forms of self-consumption and subject prosumers to certain

- requirements,
- application fees and
- one-off costs

in order to give them a **permit or licence to generate energy**?

Answer:

Pursuant to the 2007 Act, self-producers must inform the ILR of their production of electricity before the 1st February of every year. This information is used to calculate the amount of the electricity tax they must pay (See Question 6.2).⁵⁴ However, this obligation does not apply to self-producers whose electricity production of the past year was less than 2% of the total consumption of the relevant consumption site.

4.2 Does the national legal/regulatory framework determine the contractual conditions under which prosumers are allowed to feed or sell their surplus back into the grid or to other consumers?

Answer:

The GDR of 1st August 2014 determines the contractual conditions under which producers of renewable energy are allowed to sell their electricity. Furthermore, the GDR of 1st August 2014 determines feed-in tariffs. These tariffs vary according to the source of the produced renewable energy, the time of the first injection of electricity into the grid, and the generation capacity of the plant (see Question 6.1).

With regard to small-scale installations, a producer of renewable energy and the network operator can conclude a purchase contract (*contrat de rachat*)⁵⁵ governing the use of the network and an electricity supply contract (*contrat de fourniture d'électricité*). Through the purchase contract, the producer can enjoy regulated feed-in tariffs.

⁵⁰ Article 15(1) of the modified 2007 Act.

⁵¹ Article 15(2) of the modified 2007 Act.

⁵² Article 15(4) of the modified 2007 Act.

⁵³ Article 17(1) of the 2007 Act.

⁵⁴ Article 66(9) of the modified 2007 Act. See also ILR, *Formulaire de déclaration d'autoproduction d'énergie électrique*, viewed 1 March 2017 <https://assets.ilr.lu/energie/Documents/ILRLU-1685561960-251.pdf#search=autoproduction>.

⁵⁵ A purchase contract is defined as 'a supply contract concluded between an energy producer and a network operator to acquire electricity produced from renewable energy sources on the territory of [Luxembourg] and benefitting from a remuneration for the injected electricity pursuant to a legal or regulatory provision' (Article 2(g) of the GDR of 1st August 2014).

Once the purchase contract expires, the producer cannot enjoy **regulated feed-in tariffs** and has the obligation to conclude a **supply contract** with an electricity supplier to continue injecting electricity into the distribution network. Nonetheless, if the producer cannot find an appropriate offer on the market, a contract can be concluded with the network operator through which the network operator buys the producer's electricity on the basis of the wholesale market price for kWh.⁵⁶ This guarantees a minimal remuneration to the producer. It is important for the producer to obtain a supply contract, as he/she will not be able to inject electricity into the grid otherwise.⁵⁷ The network operator must create model contracts which respect the GDR of 1st August 2014 and are approved by the ILR.

5. What are the rules applicable to the access to the grid?

General

Generally, electricity suppliers, producers and customers have a right of access to the transmission, distribution and industrial networks on the basis of tariffs and conditions published for the use of these networks. Such an access must be implemented in an objective way and without discrimination between the network users.⁵⁸ The ILR publishes decisions regulating the conditions and tariffs to access and use the networks.

With respect to the electricity produced from renewable energy sources (and cogeneration), the network operator (either the TSO or the DSO) must guarantee the transportation and the distribution of this electricity and must guarantee the access to the network. However, this access is conditional upon the requirements relating to the maintenance of the reliability and safety of the grid system.⁵⁹

Until 2012, the network operator could refuse access to its network to all users, including producers of renewable energy, on the basis of its lack of the 'necessary capacity'.⁶⁰ Such a broad basis was questionable as it was unclear which situations would fall under the lack of necessary capacity, thus providing the network operator with a large room for manoeuvre. Furthermore, producers of renewable energy were not excluded from the application of this rule, therefore threatening the possibility for renewable energy generation. However, the 2012 Act modified this rule, which is not applicable to producers of renewable energy anymore. As a result, **the network operator must guarantee the transmission and the distribution of electricity produced from renewable energy sources as well as access to the network**. Furthermore, the refusal to let particular users access the network must be based on objective and technically and economically well-founded criteria. The ILR controls the homogenous application of such criteria.

5.1 What is the inter-connection configuration used for each type of residential prosumer?

Answer:

TSO and DSOs have the obligation to connect to their network any client and producer who requests it and which is located in their transmission or distribution zones.⁶¹

With respect to producers of electricity from renewable energy sources (and cogeneration), TSO and DSOs must provide producers wishing to be connected to the grid system specific information, including a full and detailed assessment of the connection cost, a reasonable and precise calendar

⁵⁶ Article 33(1) of the GDR of 1st August 2014.

⁵⁷ ILR, *Contrats*, viewed 1 March 2017 <https://web.ilr.lu/FR/Professionnels/Electricite/Acteurs/Energie-renouvelable-et-Cogeneration-a-haut-rendement/Contrats/Pages/default.aspx>.

⁵⁸ Article 19(2) of the modified 2007 Act.

⁵⁹ Article 19(2bis) of the 2007 Act.

⁶⁰ Article 19(3) of the 2007 Act.

⁶¹ Article 5(1) of the 2007 Act.

for the reception and the treatment of the request to be connected to the grid, and an indicative calendar for the connection to the grid.⁶²

5.2 Does the competence to determine the inter-connection configuration lie at State level or at a regional/lander level?

Answer:

The State is responsible for the inter-connection configuration.

5.3 Are there any rules to ensure that prosumers are inter-connected to the distribution network/the grid?

Answer:

In Luxembourg, every network operator has the obligation to inter-connect both electricity producers and consumers to the distribution network when they request it (see Question 5).

5.4 What are the grid access and grid use principles and rules for the energy generated by each type of residential prosumer?

Answer:

Pursuant to the 1993 Act, electricity generated by self-production installations using renewable energy sources or cogeneration and which is available can be transferred (*cédées*) to the public grid.⁶³

Injection of electricity into the grid is subject to the conclusion of the relevant contracts with the system operator and to the respect of the instructions provided by the system operator.⁶⁴ Whoever injects electricity into the grid in violation of the rules foreseen under Article 17 of the 2007 Act is punishable by imprisonment and/or a fine.⁶⁵

5.5 What are the network costs and charges for each type of residential prosumer?

Answer:

In general, the installation operator bears the **cost of the connection to the grid** and the **expansion of the grid**.⁶⁶ The cost of connection will depend on the zone in which the installation is located. Within a specific zone, the DSO requests a fee for the connection to its low-voltage grid. This fee varies according to the connection power. Outside that zone, the TSO requests the **fee for the connection to the low-voltage grid and the actual costs of connection covering the distance** which separates the installation from the zone. Finally, in both cases, whether the installation is located within a defined zone or outside such a zone, the civil engineering costs are always borne by the applicant.⁶⁷

For instance, as of 1st of January 2017, Creos applies these fees to producers wishing to be connected to its low-voltage grid:⁶⁸

⁶² Article 5(6bis) of the modified 2007 Act.

⁶³ Article 5 of the 1993 Act pertaining to the rational use of energy.

⁶⁴ Article 17(5) of the 2007 Act.

⁶⁵ Article 17(7) of the 2007 Act.

⁶⁶ Article 5(6) of the modified 2007 Act.

⁶⁷ Article 5(4) of the modified 2007 Act.

⁶⁸ Creos, 2016, *Tarifs d'utilisation du réseau et tarifs accessoires valables à partir du 1er janvier 2017*.

Within a specific zone	Fee
Connection to low-voltage grid for a power of 40A Single fee	862€
Connection to low-voltage grid for a power of 50A/63A Single fee	1,144€
Single fee for an increase of power of an existing connection between 40A and 50A/63A	282€
Connection to low-voltage grid for a power of 50A/63A Single fee	1,616€
Single fee for an increase of power of an existing connection between 40A and 80A/100A	754€
Single fee for an increase of power of an existing connection between 50A/63A and 80A/100A	472€
Outside the specific zone (in addition to the connection fee within a specific zone)	Fee
Connection outside the specific zone with a cable diameter of 70 mm² Per linear meter of cable	19.90€
Connection outside the specific zone with a cable diameter of 150 mm² Per linear meter of cable	27.50€
Connection outside the specific zone with a cable diameter of 240 mm² Per linear meter of cable	31.70€

Furthermore, electricity injected by the plant into the network is conceded (*cédée*) to the relevant system operator, which remunerates the producer of energy pursuant to the 2014 GDR. Regarding the injected electricity, producers of renewable energy benefitting from feed-in-tariffs in accordance with the 2014 GDR can use the network for free.⁶⁹

6. What are the incentives (e.g through taxes or tariffs) for each type of residential prosumers?

General

Luxembourg law provides for feed-in tariffs. These tariffs depend on the nature of the contract between the producer and the operator (purchase contract)⁷⁰ and they differ according to the type of renewable energy, the generation capacity of the plant, and the time of the first injection of electricity into the grid (See Question 6.1).

Moreover, **purchase contracts are guaranteed for a period of 15 years for all types of renewable installations** counting from the first injection of electricity into the grid by the installation.⁷¹

6.1 Does your country apply specific tariffs to prosumers

- to charge them for the electricity they draw from the grid for consumption?
- or to compensate them for the electricity they feed back into the grid?

Answer:

Luxembourg law foresees different methods to calculate remuneration (feed-in tariffs) for the electricity produced from various renewable energy sources (wind power; solar energy; hydropower; biogases; sewage treatment plant gas; biomass; waste wood materials).⁷² Three main

⁶⁹ Article 4(5) of the GDR of 1st August 2014.

⁷⁰ Article 4 of the GDR of 1st August 2014.

⁷¹ Article 32 of the GDR of 1st August 2014.

⁷² Articles 5 to 23 of the GDR of 1st August 2014.

criteria are taken into account when calculating the remuneration for renewable energy: 1) periods of first injection of electricity into the grid; 2) the type of renewable energy produced; and 3) the generation capacity of the plant.

With regard to **solar energy**, the modified GDR of 1st August 2014 foresees different remunerations, some of them being directly relevant to residential prosumers:

- For a first injection of electricity into the grid between 2008 and 2012, **Article 8** distinguishes between installations on the outside of a building whose peak power is lower than or equal to 30 kW (420€/MWh) and installations on the outside of a building whose peak power is more than 30 kW and lower than or equal to 1 MW (370€/MWh).
- For a first injection of electricity into the grid during 2013, installations on an impervious surface and whose peak power is lower than or equal to 30 kW are remunerated up to 264€/MWh (**Article 9**).
- For a first inject of electricity into the grid from 2014, **Article 17** foresees a specific remuneration for installations on an impervious surface and whose peak power is lower than or equal to 30 kW (264€/MWh).

Furthermore, as of 1st January 2016, solar energy cooperatives benefit from two types of tariffs for the remuneration of the electricity they produced according to the peak power of their solar energy plant:

- 1) 160 €/MWh for installations whose peak power is between 30 kW and 100 kW;
- 2) 153 €/MWh for installations whose peak power is between 100 kW and 200 kW.⁷³

The GDR of 1st August 2014 increased feed-in tariff levels for all technologies in comparison to tariffs offered by previous regulations. This increase has for objective to speed up renewable energy deployment and help Luxembourg to meet its 2020 EU target.⁷⁴

6.2 Does your country

- tax prosumers in a specific way?
- allocate to them a certain part of the cost to upgrade the grid to accommodate the extra generation they feed into the grid?

Answer:

1) All natural and legal persons who fall under the oversight of the ILR must pay an annual and **fixed tax** to cover the ILR's staff and operation costs.⁷⁵ Electricity producers and self-producers are normally liable to pay this tax (2,000€). However, they are not liable for this tax when their production installation has a capacity of less than 20,000 kW.⁷⁶

2) In Luxembourg, electricity customers must pay an 'electricity tax' (*taxe électricité*) for the electricity they consume. **The law explicitly provides that the electricity tax covers self-production as well.**⁷⁷ The rate of this tax varies according to the amount of electricity consumption observed at an electricity supply point.⁷⁸ For instance, as of 1st August 2016, the electricity tax was as follows:

- **Category A (consumption < 25,000 kWh/year):** 0.0010€/kWh;
- **Category A (consumption > 25,000 kWh/year):** 0.0005€/kWh.

Customers must communicate the volume of electricity produced through self-production during

⁷³ Article 17bis of the modified GDR of 1st August 2014.

⁷⁴ IEA, 2016, *Feed-in tariffs for renewable energy and cogeneration (Règlement du 1er août 2014)*, viewed 1 March 2017 <http://www.iea.org/policiesandmeasures/pams/luxembourg/name-153014-en.php>

⁷⁵ Article 1 of the 2002 GDR.

⁷⁶ Article 2(1) of the 2002 GDR.

⁷⁷ Article 66(1) of the modified 2007 Act.

⁷⁸ Article 66(1) of the modified 2007 Act.

the preceding year.⁷⁹ It is unclear whether self-producers that consume all their production are liable to pay this tax.

3) Furthermore, in 2001, Luxembourg set up a **compensation mechanism** to spread equitably among distributors the burden of the costs resulting from the obligation to acquire green electricity (feed-in tariffs).⁸⁰ The 2010 GDR is the most recent regulation currently implementing this compensation mechanism.⁸¹ The general rule is that distributors may collect a monthly contribution from their clients (either final customers, meaning customers who buy electricity for their own consumption, or electricity suppliers) towards the compensation mechanism.⁸² Such a contribution is proportional to a final customer's electricity consumption. Each year, the ILR publishes the rates of this contribution in a Regulation.⁸³ **Ultimately, electricity customers are the ones which pay for the costs of feed-in tariffs.**⁸⁴

7. A. What are the conditions that may encourage the take up of residential prosumers (to entry into activity or during functioning)?

General

As was previously mentioned, Luxembourg provides for feed-in tariffs, which encourages renewable energy producers to sell their electricity to distributors.

Luxembourg also provides for a system of guarantee of origin (*garantie d'origine*) for electricity produced from renewable energy sources.⁸⁵ This system aims to guarantee that renewable energy producers can prove the nature of the electricity they sell. A guarantee of origin is delivered by the regulator upon request of the renewable energy producer and is of the standard size of 1 MWh. It must be used within 12 months following the last injection of electricity and must be cancelled once it has been used. There is no restriction as to the power generation capacity of the installation to request a guarantee of origin. As a result, residential prosumers can benefit from this system.

Luxembourg has established various aid schemes, consisting of financials grants and tax credits, which have encouraged the residential production of renewable energy over the last years.⁸⁶ For instance, from 2001 to 2008, PV energy producers have benefited from 70 million euros in investment subsidies, which have encouraged the production capacity of solar energy.⁸⁷ State aid to support power generation from renewable energy sources is likely to continue. In 2015, Luxembourg planned to introduce premium payments to support operators of wind, solar, biogas, hydropower and biomass installations. The total budget of the measure will be approximately €150 million, allocated between 2016 and 2020.⁸⁸

⁷⁹ Article 66(9) of the modified 2007 Act.

⁸⁰ Loi du 24 juillet 2000 relative à l'organisation du marché de l'électricité; RGD du 22 mai 2001 concernant l'introduction d'un fonds de compensation dans le cadre de l'organisation du marché de l'électricité.

⁸¹ RGD du 31 mars 2010 relatif au mécanisme de compensation dans le cadre de l'organisation du marché de l'électricité. This GDR repealed a number of regulations that previously implemented the compensation mechanism.

⁸² Article 7(1) of the 2010 GDR.

⁸³ The most recent one is Règlement E16/62/ILR du 21 décembre 2016 fixant les contributions au mécanisme de compensation pour l'année 2017 - Secteur Electricité.

⁸⁴ It should be pointed out that, in 2009, the European Commission found that the creation and administration of this compensation fund from 2001 until 2008 constituted State aid under Article 87(1) of the Treaty establishing the European Community. However, such an aid was deemed compatible with the common market under Article 87(3) of the Treaty. See Commission Decision of 28 January 2009 on aid implemented by Luxembourg in the form of the creation of a compensation fund for the organisation of the electricity market (C 43/02 (ex NN 75/01)) OJEU L159/11.

⁸⁵ Article 18 of the 2007 Act and Article 3(1) of the GDR of 1st August 2014.

⁸⁶ OECD, 2010, p. 137.

⁸⁷ *ibid.*

⁸⁸ European Commission, 2016, *State aid: Commission approves support schemes for renewable energy in Luxembourg and Malta*, viewed 1 March 2017 http://europa.eu/rapid/press-release_IP-16-2906_en.htm.

Luxembourg has implemented a number of measures to reduce administrative burden for procedures related to renewable energy projects:

- Adoption of a one-stop shop for applications for renewable energy installations;
- Possibility for project developers to submit online applications;
- Establishment of maximum time limit for procedures;
- Indication of geographical location suitable for exploitation of energy from renewable sources.⁸⁹

B. What are the conditions that may act as barriers for residential prosumers (to entry into activity or during functioning)?

General

The existence of interesting feed-in tariffs for renewable energy producers to sell their electricity to distributors, coupled with relatively low electricity retail prices for households, is likely to discourage the potential development of residential prosumers in Luxembourg.

While Luxembourg has established various aid schemes, consisting of financial grants and tax credits, which have encouraged the residential production of renewable energy over the last years.⁹⁰ However, **the legal framework governing aid schemes in Luxembourg has changed rapidly over the recent years (See Question 3.1), resulting in various layers of regulation that may be difficult to navigate for prospective prosumers seeking to benefit from State aid.** The Ministry of Environment has sought to remedy this lack of clarity and certainty by providing, on its website, clear information on forms and applications to obtain financial support from the State. However, this website was not up-to-date on various aspects, including relevant current legislation, at the time of writing this study.

Luxembourg has adopted measures to reduce **administrative burden** for renewable energy projects, it has not facilitated administrative procedures for small-scale producers.⁹¹

7.1 What are the metering systems for each type of residential prosumer? Do these systems provide adequate conditions for prosumers integration in the market?

Answer:

As a general rule, electricity suppliers must provide to residential customers, or third parties acting on behalf of residential customers, data from the meter pertaining to their production or their consumption of electricity in a way which is easily understandable in order for residential customers to be able to compare available offers.⁹²

Generally, network operators are responsible for metering the electricity they transport or distribute throughout their networks.⁹³ However, **in the case of self-production, self-producers are responsible for metering the electricity they produce.**⁹⁴

Luxembourg recently introduced provisions on smart metering. Since 1st July 2016, network operators must set up a smart metering system (*système de comptage intelligent*)⁹⁵ for each new

⁸⁹ European Commission, COM(2017) 57 final, p. 10-11.

⁹⁰ OECD, 2010, p. 137.

⁹¹ *ibid.*

⁹² Article 2(5)(i) of the modified 2007 Act.

⁹³ Article 29(1) of the modified 2007 Act.

⁹⁴ Article 29(2) of the modified 2007 Act.

⁹⁵ A smart metering system is defined as ‘an electronic system that can record energy consumption by providing more information than a classical meter and that can transfer and receive data by using an electronic communication form.’ Article 1(49*bis*) of the modified 2007 Act.

inter-connection or when they replace existing metering systems. As of 31 December 2019, they must demonstrate that at least 95% of their final customers connected to their networks have a smart metering system. The costs for setting up smart metering systems are reflected in the tariffs to use the networks.⁹⁶ Nonetheless, it is unclear how smart metering will impact self-producers.

7.2 What are the billing conditions for each type of residential prosumer?

Answer:

Article 49 of the 2007 Act governs the billing of electricity consumption in Luxembourg. It regulates aspects of electricity bills, such as information that must appear on bills, regularity of the bills, etc. However, there is no reference to billing conditions for self-production.

Here are some of the billing conditions **imposed by the 2007 Act**:

- **A bill must be established at least once a year and it must present the real consumption** of the client;
- **Electricity suppliers must** be able to provide their clients with free information on billing and electricity consumption. Such information must be clear and understandable; etc.

7.3 Are there measures to encourage the creation of energy communities at municipal level, or other schemes to encourage inclusive development of the market?

Answer:

In 2012, Luxembourg enacted a law creating a climate pact (*pacte climat*) with towns.⁹⁷ From 2013 to 2020, towns can sign a climate pact with the State in which they commit to implement a programme of measures to reduce their greenhouse gas emissions and obtain the 'European Energy Award®' in return for financial and technical support from the State.⁹⁸ Towns must implement 79 measures in various sectors, such as land planning, energy, mobility, etc. In the energy sector, towns are encouraged to make a better use of the local opportunities to produce renewable energy.⁹⁹ They must also establish a system of energy accounting to quantify energy consumption in municipal buildings and amenities.

At municipal level, towns have also taken on various initiatives to promote the development of renewable energy installations. For instance, in 2015, a number of towns, in partnership with some NGOs, launched the initiative 'Eis Gemeng - beSONNeg gutt!'. This initiative mainly aimed to encourage the Luxembourg government to adopt feed-in tariffs for solar installations with a medium power generation. Participating towns also committed to promote the development of renewable energy generation together with local citizens.¹⁰⁰

7.4 Are there rules facilitating the creation of energy cooperatives to provide a legal entity to energy communities? Are there measures facilitating other type of schemes and if so which ones?

Answer:

The modified Act of 10 August 1915 pertaining to commercial societies¹⁰¹ recognizes cooperative

⁹⁶ Article 29(7) of the modified 2007 Act.

⁹⁷ Loi du 13 septembre 2012 portant 1. Création d'un pacte climat avec les communes, 2. Modification de la loi modifiée du 31 mai 1999 portant institution d'un fonds pour la protection de l'environnement. This Act was modified by Loi du 29 mars 2016 modifiant la loi du 13 septembre 2012 portant création d'un pacte climat avec les communes.

⁹⁸ PacteClimat – Ma commune s'engage pour le climat, viewed 1 March 2017 <http://www.pacteclimat.lu/fr>.

⁹⁹ PacteClimat, 2017, *Catalogue de mesures pour communes pacte climat*.

¹⁰⁰ Greenpeace, 2015, *Votum Klima et 13 communes luxembourgeoises lancent une action afin de soutenir les énergies renouvelables au niveau national Eis Gemeng - beSONNeg gutt!*, viewed 1 March 2017 <http://www.greenpeace.org/luxembourg/fr/news/Eis-Gemeng---beSONNeg-gutt/>.

¹⁰¹ Loi modifiée du 10 août 1915 concernant les sociétés commerciales. This study takes into account the modifications

societies (Article 4). A cooperative society is made up of associates whose number or contributions may vary and whose shares are non-transferrable to third parties. Its liability may be limited or unlimited (Article 113). A cooperative society must be made up of at least two persons and is administered by one or several representatives (Article 114).

A number of the Luxembourg energy cooperatives that were identified in the context of this study take the form of a cooperative society, including:

- EquiEnerCoop;¹⁰²
- Energy Revolt;¹⁰³
- Transition Minette EnerCoop.¹⁰⁴

7.5 What are the procedures/provisions for establishing cooperatives for prosumers? Are they more simple/less costly than those for other schemes?

Answer:

Luxembourg law does not provide for the specific creation of cooperatives for prosumers. Nonetheless, specific rules applying to renewable energy generation have an impact on the development of energy cooperatives for prosumers.

Until recently, feed-in tariffs for electricity produced from solar energy only existed for small solar installations (with a peak power equal to or less than 30 kW). This regulatory ceiling limited the development of bigger projects of renewable energy generation, in particular local energy cooperatives.¹⁰⁵ However, the GDR of 23 July 2016 introduced new provisions allowing energy cooperatives which have installations with higher peak power to benefit from specific remuneration tariffs.

As of 1st January 2016, solar energy cooperatives benefit from two types of tariffs for the remuneration of the electricity they produced according to the peak power of their solar energy installation. In 2016, the tariffs were as follows:

- 1) 160 €/MWh for installations whose peak power is between 30 kW and 100 kW;
- 2) 153 €/MWh for installations whose peak power is between 100 kW and 200 kW.¹⁰⁶

However, two requirements present obstacles to the development of cooperatives for prosumers. First, **the energy producer must be a cooperative society (*société coopérative*) made up of seven natural persons to benefit from these feed-in tariffs (whereas the general law on cooperatives requires a minimum of two persons to create a cooperative).** As a result, energy cooperatives made up of less than seven persons cannot benefit from feed-in tariffs. Second, **all of the electricity generated by the solar energy installation must be sold to the network operator through a purchase contract between the energy producer and the network operator.**¹⁰⁷ This provision limits the incentives for energy cooperatives to consume their own energy.

brought by Loi du 10 août 2016 portant modernisation de la loi modifiée du 10 août 1915 concernant les sociétés commerciales et modification du Code civil et de la loi modifiée du 19 décembre 2002 concernant le registre de commerce et des sociétés ainsi que la comptabilité et les comptes annuels des entreprises.

¹⁰² EquiEnerCoop – Société Coopérative, 2012, viewed 1 March 2017 http://www.equienenercoop.lu/wp-content/uploads/2012/08/20120808-statuten-equienenercoop_v4.pdf.

¹⁰³ Statuts de la Société Coopérative Energy revolt S.C., 2015, viewed 1 March 2017 http://www.eida.lu/files/STATUTS_Energy-Revolt-sc.pdf.

¹⁰⁴ Statuts de la coopérative énergétique de Transition Minett, 2013, viewed 1 March 2017 <http://www.transition-minett.lu/wp-content/uploads/2014/07/%E2%84%A2-EnerCoop-Statuts-RCSL.pdf>.

¹⁰⁵ For instance, see the impact of this rule on the project of renewable energy generation on the building ‘Boulodrome national’ in the town of Belvaux-Metzerlach. It was decided that the roof of this building would be partially covered with photovoltaic panels in order to benefit from feed-in tariffs. See Commune de Sanem, October 2015, *Gemeng Suessem aktiv*.

¹⁰⁶ Article 17bis of the modified GDR of 1st August 2014.

¹⁰⁷ Article 17bis (4) of the modified GDR of 1st August 2014.

8. Other questions on the regulatory framework

8.1 What are the provisions for establishing a complaint procedure? What are the complaint handling procedures for each type of residential prosumer?

Answer:

System operators (both TSO and DSO) must set up transparent, simple, fast and inexpensive proceedings to deal with complaints of final customers.¹⁰⁸ Furthermore, the ILR defines transparent, simple, fast and inexpensive mediation procedures to deal with complaints of residential customers.¹⁰⁹ Both final and residential customers are defined as customers who buy electricity for their own consumption.¹¹⁰ As a result, these proceedings may be applicable to residential prosumers who consume part of their production and buy the rest from suppliers.

Self-producers can potentially bring a complaint against a professional of the electricity sector to the National Consumer Ombudsman (*Service national du Médiateur de la Consommation*).¹¹¹ Created in 2016,¹¹² this Ombudsman has for mission to inform consumers and professionals on alternative dispute resolution mechanisms available to them, to hear disputes between consumers and professionals arising from purchase or service contracts, and to offer an amicable solution to such disputes. It is normally competent to hear disputes related to electricity contracts, since it can hear disputes related to contracts on economic services of general interest, even those provided by the State or other public territorial bodies. However, it is unclear whether it is competent to hear disputes related to all the contracts applicable to prosumers (purchase contract; electricity supply contract; market premium contract). One weakness of this mechanism is that parties can withdraw from the proceedings at any time.

8.2 Are there any specific redress procedures available only to residential prosumers?

Answer:

There is no specific redress procedure available only to residential prosumers in Luxembourg. Collective redress mechanisms for prosumers and consumers are not available in Luxembourg.

¹⁰⁸ Article 6(1) of the modified 2007 Act.

¹⁰⁹ Article 6(3) of the modified 2007 Act.

¹¹⁰ Article 1(4) and (7) of the modified 2007 Act.

¹¹¹ Médiateur de la Consommation, viewed 1 March 2017 <https://www.mediateurconsommation.lu/fr>.

¹¹² Loi du 17 février 2016 portant introduction du règlement extrajudiciaire des litiges de consommation dans le Code de la consommation et modifiant certaines autres dispositions du Code de la consommation.

Country fiche (Summary and ranking)

The **country fiche** below summarises the information from the report and ranks the **level of favourable impact** of measures in relation to its favourable impact to the take up of residential prosumers.

Country fiche	Ranking Low/Medium/High
General Description of the national regulatory framework - The 2007 Act pertaining to the organisation of the electricity market is the most relevant legal framework on electricity. There is no specific legal framework governing exclusively residential prosumers or self-consumption in Luxembourg. As a result, the 2007 Act and the legal framework governing renewable energy provide the most relevant rules to the regulation of residential prosumers. The 2007 Act broadly defines a 'self-producer' ('autoproducteur') as 'any natural or legal person producing electricity for its own use'. - The institutional framework governing residential prosumers is fragmented. The Ministry of Economy has the overall responsibility for renewable energy policies. Other actors also have competences relevant to residential prosumers: Ministry of Environment (aid schemes), Ministry of Finance (tax), Ministry of Sustainable Development & Infrastructure (aid schemes), ILR (regulation of tariffs to access the electricity network and protection of consumers). Private actors are also involved in the transmission, distribution, and supply of electricity. - Luxembourg has for mandatory objective to increase the share of renewables in the final gross energy consumption to 11% in 2020. Furthermore, it aims to have renewable energy sources covering 11.8% of electricity demand by 2020. However, the EC estimated that Luxembourg will have to substantially increase its share in order to keep on track with its objectives.	Low
Specific Questions on the regulatory framework for residential prosumers	
Permitting requirements for each type of residential prosumer - The construction of new installations producing electricity is subject to a prior individual authorisation delivered by the ministry in charge of energy matters. However, this authorisation is not required for renewable energy installations (as well as installations producing both heat and electricity) with an installed capacity of 10 MW. - Self-producers must declare to the ministry in charge of energy and to the ILR the first entry into service, any substantial modification and the definitive deactivation of production installation. - Self-producers must inform the ILR of their production of electricity before the 1st February of every year to calculate the amount of the electricity tax they must pay. However, this obligation does not apply to self-producers whose electricity production of the past year was less than 2% of the total consumption of the relevant consumption site. - The regulatory framework determines the contractual conditions under which producers of renewable energy are allowed to sell their electricity (a purchase contract and an electricity supply contract).	Medium
Rules applicable to the access to the grid	Medium

- Electricity producers have a right of access to the transmission, distribution and industrial networks on the basis of tariffs and conditions published for the use of these networks. Such an access must be implemented in an objective way and without discrimination. - The network operator must guarantee the transmission and the distribution of electricity produced from renewable energy sources as well as access to the network. - TSO and DSOs have the obligation to connect to their network any client and producer who requests it and which is located in their transmission or distribution zones - TSO and DSOs must provide renewable energy producers specific information. - Electricity generated by self-production installations using renewable energy sources or cogeneration and which is available can be transferred to the public grid. - Producers of renewable energy benefitting from feed-in-tariffs pursuant to the 2014 GDR can use the network for free regarding the electricity injected into the grid. - The installation operator bears the cost of the connection to the grid and the expansion of the grid. The cost of connection will depend on the zone in which the installation is located.	
Incentives (e.g.s taxes and tariffs) for each type of residential prosumers - Luxembourg law provides for feed-in tariffs. However, these tariffs are different depending on the nature of the contract (exist only for purchase contracts) as well as the type of renewable energy, the generation capacity of the plant, and the time of the first injection of electricity into the grid. - Purchase contracts are guaranteed for a period of 15 years for all types of renewable installations counting from the first injection of electricity into the grid by the installation. - Self-producers are liable to pay an annual tax of 2,000€ to cover the costs of the ILR. Nonetheless, they are not liable for this tax when their production installation has a capacity of less than 20,000 kW. - Self-producers are liable to pay an 'electricity tax' for the electricity they consume. This tax varies according to the amount of electricity consumption. It is unclear whether self-producers that consume all their production are liable to pay this tax. - A compensation mechanism exists to spread equitably among distributors the burden of the costs resulting from feed-in tariffs. Final customers of electricity pay a fee which feeds into this mechanism.	Medium
Conditions encouraging or acting as barriers for residential prosumers - Luxembourg provides for a system of guarantee of origin for electricity produced from renewable energy sources. In theory, residential prosumers can benefit from this system given there is no restriction as to the installed capacity of renewable energy installation. - Luxembourg has established various aid schemes, consisting of financials grants and tax credits, which have encouraged the residential production of renewable energy over the last years. However, the legal framework governing aid schemes has changed rapidly over the recent years, resulting in various layers of regulation that may be difficult to navigate for	Medium

prospective prosumers. • Luxembourg has implemented a number of measures to reduce administrative burden for procedures related to renewable energy projects. However, it does not have facilitated administrative procedures for small-scale producers. • Self-producers are responsible for metering the electricity they produce. • Luxembourg recently introduced provisions on smart metering. The costs for setting up smart metering systems are reflected in the tariffs to use the networks. Nonetheless, it is unclear how smart metering will impact self-producers. • No information was found on specific rules governing billing conditions for residential prosumers. • The State and towns can sign a climate pact in which the State commits to financially and technically support towns that implement measures in various sectors, including energy. Towns must commit to make a better use of local opportunities to produce renewable energy. • Luxembourg law provides for the creation of cooperatives. However, it does not provide for the specific creation of energy cooperatives or cooperatives for prosumers. • As of 1st January 2016, solar energy cooperatives benefit from two tariffs for the remuneration of the electricity they produced according to the peak power of their solar energy installation. However, the energy producer must be a cooperative society made up of seven natural persons to benefit from these feed-in tariffs (whereas the general law on cooperatives requires a minimum of two persons to create a cooperative). Furthermore, all of the electricity generated by the solar energy installation must be sold to the network operator through a purchase contract between the energy producer and the network operator.	
Other questions on the regulatory framework • System operators must set up transparent, simple, fast and inexpensive proceedings to deal with complaints of customers. Furthermore, since 2016, consumers can bring a complaint against electricity companies in the context of a purchase or service contract to a National Consumer Ombudsman. However, it is unclear whether residential prosumers can be parties to these procedures. • Luxembourg does not provide for specific redress procedures for prosumers. It does not provide for collective redress mechanisms either.	Low

Executive summary

Generally, Luxembourg has a small electricity generation capacity and imports most of its electricity from other countries, mainly from Germany since the Luxembourg distribution system is interconnected with the German distribution system.¹¹³

There is **no specific legal framework** governing exclusively residential prosumers or self-consumption in Luxembourg. As a result, the 2007 Act pertaining to the organisation of the electricity market and the legal framework governing renewable energy provide the most relevant rules on this topic. It defines a **‘self-producer’** (‘autoproducteur’) as ‘any natural or legal person producing electricity for its own use’.

Small renewable energy installations (with an installed capacity of up to 10 MW) are **exempted from some specific requirements** such as the prior individual authorisation delivered by the ministry in charge of energy matters, however they have to declare to the ministry and to the ILR the first entry into service. While self-producers must inform the ILR of their production of electricity before the 1st February of every year to calculate the amount of the electricity tax they must pay, this obligation does not apply to self-producers whose electricity production of the past year was less than 2% of the total consumption of the relevant consumption site.

Access to the public grid is guaranteed. The regulatory framework determines the contractual conditions under which producers of renewable energy are allowed to sell their electricity (a purchase contract and an electricity supply contract). Producers of renewable energy can use the network for free when they inject electricity into the grid. The installation operator bears the cost of the connection to the grid and the expansion of the grid.

Luxembourg law provides for **feed-in tariffs**, which will be different depending on the contract, type of energy or generation capacity. Self-producers are liable to pay an annual fix tax to cover the costs of the ILR. Nonetheless, they are not liable for this tax when their production installation has a capacity of less than 20,000 kW.

Final customers of electricity pay a fee which feeds into this mechanism. Self-producers are liable to pay an ‘electricity tax’ for the additional electricity they consume. This tax varies according to the amount of electricity consumption. It is unclear whether self-producers that consume all their production are liable to pay this tax. A compensation mechanism exists to spread equitably among distributors the burden of the costs resulting from feed-in tariffs. Luxembourg recently introduced provisions on smart metering. Self-producers are responsible for metering the electricity they produce which is the basis for the compensation. The costs for setting up smart metering systems are reflected in the tariffs to use the networks.

Luxembourg has established various aid schemes, consisting of financial grants and tax credits, which have encouraged the residential production of renewable energy over the last years, and has implemented a number of measures to reduce administrative burden.

There is no specific law in **energy cooperatives** and, therefore, the general regime applies. However, solar energy cooperatives benefit from two tariffs for the remuneration of the electricity they produced according to the peak power of their solar energy installation although conditions to benefit from this are restricting. Luxembourg does not provide for specific redress procedures for prosumers.

¹¹³ IRL, 2016, *Chiffres clés du marché de l’électricité : Année 2015*, p. 3.