

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

Spain



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 EAH/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: www.milieu.be

This study presents the legal and regulatory framework for residential prosumers in Spain has been prepared by Ana Gomez as the author and reviewed by the managers of the project Marta Ballesteros (Marta.Ballesteros@milieu.be). The study has been completed in February 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: Spain

This study uses certain specific terms in the Spanish legislation which, for the purposes of enhancing the understanding of the situation in Spain, have been listed and defined in the Table in [Annex I](#).

General overview: description of the national legal and regulatory framework

General

According to the 2016 report of the European Consumer Organisation (BEUC), as a consequence of the recession between 2009 and 2013, the electricity market in Spain accumulated important overcapacities. Decreasing wholesale market prices and high public burdens resulting from regulated prices for vulnerable households and from renewable electricity support schemes caused a tariff deficit peaking at 29 billion Euro at the end of 2013 for the public purse. The Parliament tried to tackle the deficit with the fundamental changes endorsed within the new electricity law in December 2013¹.

Furthermore, the 2016 report describes the situation as a result of the changes in the Spanish legislative framework: ‘Based on a combination of feed-in tariffs (FiT) and a market premium scheme, Spain succeeded in building one of the most important renewable power generation portfolios until the beginning of the financial crisis. At the beginning of 2012, a moratorium was put on any support for new installations. Existing power plants were charged with a 7% tax on every kilowatt-hour generated to recover partially the tariff deficit. Another retroactive change affected renewable power plants under the FiT scheme who saw the number of remunerated production hours reduced. In March 2013, the FiT for existing installations was further reduced by skipping the tariffs’ annual adaptation to the inflation rate so that the value of the paid FiT diminished with rising operational costs and taxes. The market premium also phased out in 2013 without any substitution. In June 2014, the remaining reduced FiTs for existing renewable power plants finally were all stopped’².

As the renewable electricity producers increased prior to 2012 due to the legislation and incentives, “concentration of the wholesale markets has been reduced but is stagnating now. The retail electricity market tends to become less concentrated but remains on a high level with the most important single supplier covering 37% of the liberalised market in 2012”³.

Law 24/2013, of 26 December, on the Electric Sector⁴ (hereinafter, Law 24/2013) sets the Spanish legal framework for the self-consumption of electric energy under Article 9. Law 24/2013 replaces Law 54/1997, of 27 November⁵, also regulating the electric sector, which is still in force for certain aspects, such as the 2013 amendment establishing the Administrative Register on Self-consumption of electric energy (*Registro Administrativo de autoconsumo de energía eléctrica*)⁶.

The first step towards the regulation of self-consumption in Spain was Royal Decree 1699/2011, of 18 November, regulating the connexion to the grid of low-power electric energy production

¹ BEUC, 2016, ‘Current practices in voluntary and consumer-driven renewable electricity markets’, available at http://www.beuc.eu/publications/beuc-x-2016-003_jmu_current_practices_in_consumer_driven_renewable_electricity_markets.pdf.

² *Ibidem*.

³ *Ibidem*.

⁴ Law 24/2013, of 26 December, on the Electric Sector (*Ley 24/2013, de 26 de diciembre, del Sector Eléctrico*), State Gazette BOE-A-2013-13645 available at <https://www.boe.es/buscar/act.php?id=BOE-A-2013-13645>. Hereinafter, Law 24/2013.

⁵ Law 54/1997, of 27 November, on the Electric Sector (*Ley 54/1997, de 27 de noviembre, del Sector Eléctrico*) State Gazette BOE-A-1997-25340, available at <https://www.boe.es/buscar/act.php?id=BOE-A-1997-25340>.

⁶ 27th Additional Provision (*Disposición adicional vigésima séptima*) Law 54/1997.

installations⁷. It set a term of four months for the Government to issue a regulation on the administrative, technical and economic conditions on the consumption of electric energy produced in the inside of a consumer's network for their own consumption⁸. Following this, on 2012, Royal Decree-Law 13/2012⁹ amended Law 54/1997 and introduced certain modalities of supply. It aimed at encouraging the individual production of electric energy for consumption in the same location. Law 54/1997 was again amended in 2013, where the Administrative Register on Self-consumption was created¹⁰. However, self-consumption was not regulated expressly in a stand-alone legal instrument until Law 24/2013.

Law 24/2013 refers the development of the administrative, technical and economic conditions to a regulation to be developed by the Government¹¹. These conditions were set through Royal Decree 900/2015 (hereinafter, RD 900/2015)¹², which is considered of regulatory character and of lower rank than the laws in the legislative hierarchy as it develops Law 24/2013.

From 2014, all installations can only rely on a capacity-based retribution which is paid to all power plants, regardless if renewable or not. Regarding the RES in general, the main source in Spain is solar thermic and PV and, to a minor extent, hydraulic and eolic¹³. However, solar PV energy is the main RES source for prosumers. Solar PV self-generation was subject to new regulation since 2013 with high network fees ('back-up toll') for self-consumed electricity. The government's new decree on self-consumption continues the prohibitive approach against grid-connected small-scale solar PV units. Against this backdrop, virtually no new solar PV units were installed in Spain in 2014.¹⁴

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:

Article 9(1) Law 24/2013 distinguishes four kinds of self-consumption; however, these are not based on the RES nor on the size of the installation. Instead, Article 9(1) reads:

(a) Modalities of supply with self-consumption (*Modalidades de suministro con autoconsumo*):

⁷ Royal Decree 1699/2011, of 18 November, regulating the connexion to the grid of low-power electric energy production installations (*Real Decreto 1699/2011, de 18 de noviembre, por el que se regula la conexión a red de instalaciones de producción de energía eléctrica de pequeña potencia*), State Gazette BOE-A-2011-19242, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2011-19242>. Hereinafter RD 1699/2011.

⁸ RD 1699/2011, Second Additional Provision.

⁹ Royal Decree-Law 13/2012, of 30 March, transposing the Directives on internal electricity and gas markets and on electronic communications and adopting measures for the corrections on deviations due to disadjustments between the expenses and income of the electric and gas sectors (*Real Decreto-ley 13/2012, de 30 de marzo, por el que se transponen directivas en materia de mercados interiores de electricidad y gas y en materia de comunicaciones electrónicas, y por el que se adoptan medidas para la corrección de las desviaciones por desajustes entre los costes e ingresos de los sectores eléctrico y gasista*), State Gazette BOE-A-2012-4442, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2012-4442>.

¹⁰ Royal Decree-Law 9/2013, of 12 July, adopting urgent measures to guarantee the financial stability of the electric system (*Real Decreto-ley 9/2013, de 12 de julio, por el que se adoptan medidas urgentes para garantizar la estabilidad financiera del sistema eléctrico*), State Gazette BOE-A-2013-7705, available at https://www.boe.es/diario_boe/txt.php?id=BOE-A-2013-7705.

¹¹ Article 9 Law 24/2013.

¹² Royal Decree 900/2015, of 9 October, regulating the administrative, technical and economic conditions of the modalities of electric energy supply with self-consumption and of the production of self-consumption (*Real Decreto 900/2015, de 9 de octubre, por el que se regulan las condiciones administrativas, técnicas y económicas de las modalidades de suministro de energía eléctrica con autoconsumo y de producción con autoconsumo*), State Gazette BOE-A-2015-10927, available at https://www.boe.es/diario_boe/txt.php?id=BOE-A-2015-10927. Hereinafter, RD 900/2015.

¹³ Red Eléctrica España (Spanish Electricity Network, REE), 2015, 'The Spanish electric system. 2015 Preview' (*El sistema eléctrico español, Avance 2015*), available at http://ree.es/sites/default/files/downloadable/avance_informe_sistema_electrico_2015_v2.pdf.

¹⁴ Current practices in voluntary and consumer-driven renewable electricity markets, BEUC, January 2016 at: http://www.beuc.eu/publications/beuc-x-2016-003_jmu_current_practices_in_consumer_driven_renewable_electricity_markets.pdf

consumers with a generator destined to their self-consumption, connected to their own internal network (*red interior*)¹⁵. The people who ascribe to this modality are not registered as production installation. In this case, the subject will be considered only as a consumer.

(b) Modalities of production with self-consumption (*Modalidades de producción con autoconsumo*): consumers associated to a production installation duly registered in the administrative register of installations producing electric energy, connected to its internal network. In this case, the subject is considered both a consumer and a producer.

(c) Modalities of production with self-consumption of a consumer connected to the grid through a direct line with a production installation (*Modalidades de producción con autoconsumo de un consumidor conectado a través de una línea directa con una instalación de producción*): consumers associated to a production installation duly registered in the administrative register of installations producing electric energy to which they are connected through a direct line. In this case, the subject is both a consumer and a producer.

(d) Any other modality of consumption of electric energy coming from an installation of electric energy associated to a consumer.

When further defining these modalities, RD 900/2015 groups these modalities in two types:¹⁶

(1) Type 1 self-consumption modality: it corresponds to the supply with self-consumption modality defined in letter (a).

(2) Type 2 self-consumption modality: it corresponds to the self-consumption modalities defined in letters (b) and (c).

A further analysis of these modalities¹⁷ allows to distinguish two kinds of installations: low-power installations (under 100kW) and installations with a power of over 100kW. The first ones would fall under Type 1, whilst Type 2 would cover both kinds of installations.

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

Answer:

Article 149(1)(25) of the Spanish Constitution¹⁸ provides that it is the exclusive competence of the State to establish the legal bases regulating the energy activities. Furthermore, the State also has the exclusive competence to establish the legal bases for the general planning of economic activity and its coordination under Article 149(1)(13). This means that the State (the central government) has the competence to establish the general framework on the aforementioned matters and the Autonomous Communities may, if they want to assume these competences in their Statutes of Autonomy (*Estatutos de Autonomía*), further develop the framework set by the central government. In fact, Article 148(1)(13) of the Spanish Constitution sets that the Autonomous Communities may assume competences in the promotion of the economic development of the region within the objectives set by national economic policy.

At State level, the competent authority regarding electric energy is the Ministry of Energy,

¹⁵ Under Article 3(1)(ñ) RD 900/2015, an internal network is an electrical installation formed by the necessary conductors and electric equipment to provide service to a receiver installation which does not belong to the distribution network. This would mean that the generation and consumption installation would be independent from the distribution network. The distribution network transports electricity from the station establishing the appropriate levels of voltage (*subestación eléctrica o subestación de distribución*) to the final client.

¹⁶ Article 4(1) RD 900/2015.

¹⁷ González Ríos, I., 2014, 'The incipient regulation of the self-consumption of the electric energy: energy, environmental and urban implications' (*La incipiente regulación del autoconsumo de energía eléctrica: implicaciones energéticas, ambientales y urbanísticas*), R.V.A.P, Special issue 99-100, p. 1630; Andreu, F., 2015, '10 keys to understand the Royal Decree on Self-consumption' (*10 claves para entender el Real Decreto de Autoconsumo*), available at <http://solartradex.com/blog/10-claves-para-entender-el-real-decreto-de-autoconsumo/>; Energías Renovables, 'The legal coverage of self-consumption in Spain' (*La cobertura legal del autoconsumo en España*), 21 April 2016, available at <http://www.energias-renovables.com/fotovoltaica/la-cobertura-legal-del-autoconsumo-en-espana-20160421>.

¹⁸ Spanish Constitution, available in English at <https://www.boe.es/legislacion/documentos/ConstitucionINGLES.pdf>.

Tourism and Digital Agenda (*Ministerio de Energía, Turismo y Agenda Digital*, hereinafter, MINETAD)¹⁹. In particular, the State Secretariat of Energy (*Secretaría de Estado de Energía*) is in charge of developing the energy policy, proposing new legislation, including the transposition of EU Directives, and the management and coordination on energy matters at regional, national and international level²⁰. Under Law 24/2013, the MINETUR also has inspection and sanctioning competences²¹. Nevertheless, RD 900/2015 provides that ‘prosumers’ making use of the self-consumption modalities regulated in the RD, have to communicate this option to the distribution company²². These companies have the obligation to inform the National Commission on Markets and Competence (*Comisión Nacional de los Mercados y la Competencia*, CNMC) on the number of access contracts in each modality of self-consumption concluded in the previous year. Such information will be made publicly available via the website of the CNMV, broken down by distribution company, Autonomous Community and, where applicable, technology used. Based on this information, the MINETUR elaborates, at least every three years, a report on the evolution of self-consumption in Spain²³.

The General Directorate on Energy and Mines policy of MINETUR, attached to the State Secretariat of Energy, is responsible for running the Administrative Register on Self-consumption of Electric Energy (*Registro administrativo de autoconsumo de energía eléctrica*)²⁴.

Specific Questions on the regulatory framework for residential prosumers

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

General

As mentioned in the General Overview section, the current legal framework for residential prosumers is mainly based on Law 24/2013.

From the regulatory perspective, Law 24/2013 provides that the Government can approve plans related to the energy usage of renewable sources and their efficiency in the electric sector. These plans shall have an indicative character and shall aim at encouraging the fulfilment of the objectives set for Spain in this area as a Member State of the EU²⁵. In 2010, the MINETUR, as commissioned by Law 24/2013 adopted the National Action Plan on Renewable Energy 2011-2020 (PANER) to transpose the objectives set by Directive 2009/28/EC on the promotion of the use of energy from renewable sources. Furthermore, the Institute for the Diversification and the Saving of Energy (*Instituto para la Diversificación y el Ahorro de la Energía*, IDAE), attached to the MINETAD²⁶, also issued a Plan on Renewable Energy covering the same period as the PANER

¹⁹ Article 3 Law 24/2013. The MINETAD was previously the Ministry of Industry, Energy and Tourism (*Ministerio de Industria, Energía y Turismo*, MINETUR), which was restructured and renamed after the new Spanish government came into power in November 2016. Royal Decree 415/2016, of 3 November, restructuring the ministerial departments (*Real Decreto 415/2016, de 3 de noviembre, por el que se reestructuran los departamentos ministeriales*), State Gazette BOE-A-2016-10167, available at <http://www.boe.es/buscar/act.php?id=BOE-A-2016-10167>. However, Law 24/2013 still refers to the MINETUR. For coherence reasons, this document will refer to the old nomenclature of MINETUR instead of the recently adopted MINETAD. The Fifth Final Provision of Law 24/2013 provides that the development of the corresponding legislation on the electric sector corresponds to MINETUR.

²⁰ Article 2(1) Royal Decree 344/2012, 10 February, developing the basic organic structure of the Ministry of Industry, Energy and Tourism (*Real Decreto 344/2012, de 10 de febrero, por el que se desarrolla la estructura orgánica básica del Ministerio de Industria, Energía y Turismo*), State Gazette BOE-A-2012-2080, available at <http://www.boe.es/buscar/act.php?id=BOE-A-2012-2080>.

²¹ Article 61 and 73 Law 24/2013, respectively.

²² Questions 4 and 5 below further examine the requirements that the different kinds of self-consumption modalities have to comply with.

²³ Ninth Additional Provision RD 900/2015.

²⁴ Article 19 RD 900/2015.

²⁵ Article 4(5) Law 24/2013.

²⁶ IDAE, ‘Who we are’ (*Quiénes somos*), website available at <http://www.idae.es/index.php/reلمenu.30/reلcategoria.101/idpag.11/mod.pags/mem.detalle> (last accessed 6 December 2016).

(2011-2020).

The table below provides an overview of the existing legal and policy measures relevant to the scope of this study:

Legal tools	
Law 24/2013, of 26 December, on the Electric Sector²⁷	Regulates, for the first time, self-consumption establishing the different modalities that exist (Article 9).
Law 54/1997, of 27 November, on the Electric Sector²⁸	Creates the Administrative Register on self-consumption of electric energy (<i>Registro Administrativo de autoconsumo de energía eléctrica</i>) (27 th Additional Provision).
Royal Decree 900/2015, of 9 October, regulating the administrative, technical and economic conditions of the modalities of electric energy supply with self-consumption and of the production of self-consumption²⁹	This is the key piece of legislation regulating self-consumption in Spain. It provides the whole applicable framework to self-consumption schemes, including, <i>inter alia</i> : ▪ Definition of the two modalities of self-consumption (Type 1 and Type 2). ▪ General requirements and specific requirements to adhere to one of these modalities. ▪ Economic regime: fees and taxes to be paid.
Royal Decree 1699/2011, of 18 November, regulating the connexion to the grid of low-power electric energy production installations³⁰	Sets the procedure to establish self-consumption installations of less than 100kW (Type 1 and Type 2 self-consumption modalities)
Royal Decree 1955/2000 of 1 December, regulating the transport, distribution, trade, supply activities and licensing procedures of electric energy installations³¹	Sets the procedure to establish Type 2 self-consumption installations with a power > 100 kW.
Royal Decree 661/2007, of 25 May, regulating the activity of electric energy production under the special regime³²	This Royal Decree regulates the production of electric energy for installations under the special regime established in Article 27 Law 54/1997.
Royal Decree 1110/2007, of 24 August, approving the Unified Regulation on measuring points of the electric system³³	Determines the technical requirements applicable to the measuring points and the rules for the people in charge of such measurements.
Royal Decree 413/2014, of 6 June,	Regulates the production of electricity from renewable

²⁷ Law 24/2013, of 26 December, on the Electric Sector (*Ley 24/2013, de 26 de diciembre, del Sector Eléctrico*), State Gazette BOE-A-2013-13645 available at <https://www.boe.es/buscar/act.php?id=BOE-A-2013-13645>. Hereinafter, Law 24/2013.

²⁸ Law 54/1997, of 27 November, on the Electric Sector (*Ley 54/1997, de 27 de noviembre, del Sector Eléctrico*) State Gazette BOE-A-1997-25340, available at <https://www.boe.es/buscar/act.php?id=BOE-A-1997-25340>.

²⁹ Royal Decree 900/2015, of 9 October, regulating the administrative, technical and economic conditions of the modalities of electric energy supply with self-consumption and of the production of self-consumption (*Real Decreto 900/2015, de 9 de octubre, por el que se regulan las condiciones administrativas, técnicas y económicas de las modalidades de suministro de energía eléctrica con autoconsumo y de producción con autoconsumo*), State Gazette BOE-A-2015-10927, available at https://www.boe.es/diario_boe/txt.php?id=BOE-A-2015-10927. Hereinafter, RD 900/2015.

³⁰ Royal Decree 1699/2011, of 18 November, regulating the connexion to the grid of low-power electric energy production installations (*Real Decreto 1699/2011, de 18 de noviembre, por el que se regula la conexión a red de instalaciones de producción de energía eléctrica de pequeña potencia*), State Gazette BOE-A-2011-19242, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2011-19242>. Hereinafter RD 1699/2011.

³¹ Royal Decree 1955/2000, of 1 December, regulating the transport, distribution, trade, supply activities and licensing procedures of electric energy installations (*Real Decreto 1955/2000, de 1 de diciembre, por el que se regulan las actividades de transporte, distribución, comercialización, suministro y procedimientos de autorización de instalaciones de energía eléctrica*) State Gazette BOE-A-2000-24019, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2000-24019>.

³² Royal Decree 661/2007, of 25 May, regulating the activity of electric energy production under the special regime (*Real Decreto 661/2007, de 25 de mayo, por el que se regula la actividad de producción de energía eléctrica en régimen especial*), State Gazette BOE-A-2007-10556, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2007-10556>.

³³ Royal Decree 1110/2007, of 24 August, approving the Unified Regulation on measuring points of the electric system (*Real Decreto 1110/2007, de 24 de agosto, por el que se aprueba el Reglamento unificado de puntos de medida del sistema eléctrico*), State Gazette BOE-A-2007-16478, available at by <https://www.boe.es/buscar/act.php?id=BOE-A-2007-16478> (last accessed 7 December 2016). Hereinafter, RD 1110/2007.

regulating the activity of producing electric energy from renewable energy sources, cogeneration and waste ³⁴	sources.
Law 27/1999, of 16 July, on Cooperatives ³⁵	This law is relevant to understand the requirements applicable to constitute an electric energy cooperative.
Measures regarding the economic regime	
Law 15/2012, of 27 December, of financial measures for the sustainability of energy ³⁶	Provides the tax applicable to generation installations.
Royal Decree 1164/2001, of 26 October, establishing access tariffs to the transport and distribution networks ³⁷	This Royal Decree establishes the rules applicable to set the tolls to access the transport and distribution network.
Royal Decree 1544/2011, of 31 October, establishing the access tolls to transport and distribution networks to be satisfied by the producers of electric energy ³⁸	This Royal Decree establishes the rules to set the tolls to access the transport and distribution network to be satisfied by the producers of electric energy.
Order of the MINETUR IET/107/2014 ³⁹	Provides the amounts of the access tolls to the transport and distribution network.
Policy tools	
National Action Plan on Renewable Energy 2011-2020 (PANER) ⁴⁰	Implements the objectives set by Directive 2009/28/EC on the promotion of the use of energy from renewable sources ⁴¹ . However, the Plan barely refers to self-consumption, probably due to the fact that it was adopted in 2010.
Plan on Renewable Energy 2011-2020 (PER) ⁴²	Issued by the Institute for the Diversification and the Saving of Energy (<i>Instituto para la Diversificación y el Ahorro de la Energía</i> , IDAE), attached to the MINETAD ⁴³ . Differently from the PANER, it specifically refers to the objectives to be attained by self-consumption using RES, as well as the foreseeable evolution of these systems.

³⁴ Royal Decree 413/2014, of 6 June, regulating the activity of producing electric energy from renewable energy sources, cogeneration and waste (*Real Decreto 413/2014, de 6 de junio, por el que se regula la actividad de producción de energía eléctrica a partir de fuentes de energía renovables, cogeneración y residuos*), State Gazette BOE-A-2014-6123, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2014-6123>.

³⁵ Law 27/1999, of 16 July, on Cooperatives (*Ley 27/1999, de 16 de julio, de Cooperativas*), State Gazette BOE-A-1999-15681, available at <https://www.boe.es/buscar/act.php?id=BOE-A-1999-15681> (last accessed 8 December 2016).

³⁶ Law 15/2012, of 27 December, of financial measures for the sustainability of energy (*Ley 15/2012, de 27 de diciembre, de medidas fiscales para la sostenibilidad energética*) State Gazette BOE-A-2012-15649, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2012-15649>.

³⁷ Royal Decree 1164/2001, of 26 October, establishing access tariffs to the transport and distribution networks (*Real Decreto 1164/2001, de 26 de octubre, por el que se establecen tarifas de acceso a las redes de transporte y distribución de energía eléctrica*), State Gazette BOE-A-2001-20850, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2001-20850> (last accessed 7 December 2016).

³⁸ Royal Decree 1544/2011, of 31 October, establishing the access tolls to transport and distribution networks to be satisfied by the producers of electric energy (*Real Decreto 1544/2011, de 31 de octubre, por el que se establecen los peajes de acceso a las redes de transporte y distribución que deben satisfacer los productores de energía eléctrica*), State Gazette BOE-A-2011-17891 available at <https://www.boe.es/buscar/act.php?id=BOE-A-2011-17891>.

³⁹ Order IET/107/2014, of 31 January, reviewing the access tolls of electric energy for 2014 (*Orden IET/107/2014, de 31 de enero, por la que se revisan los peajes de acceso de energía eléctrica para 2014*) State Gazette BOE-A-2014-1052, available at https://www.boe.es/diario_boe/txt.php?id=BOE-A-2014-1052 (last accessed 1 December 2016).

⁴⁰ MINETAD, National Action Plan on Renewable Energy 2011-2020 (*Plan de Acción de Energías Renovables de España*, PANER), 30 June 2010 available at <http://www.minetad.gob.es/energia/desarrollo/EnergiaRenovable/Paginas/paner.aspx>. Hereinafter, PANER.

⁴¹ Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (Text with EEA relevance), available at <http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32009L0028>.

⁴² IDAE, 'Plan on Renewable Energy 2011-2020' (*Plan de Energías Renovables 2011-2020*, PER), adopted by Council of Ministers on 11 November 2011, available at http://www.idae.es/uploads/documentos/documentos_11227_PER_2011-2020_def_93c624ab.pdf (last accessed 3 February 2016). Hereinafter, PER.

⁴³ IDAE, 'Who we are' (*Quiénes somos*), website available at <http://www.idae.es/index.php/reImenu.30/reIcategoria.101/idpag.11/mod.pags/mem.detalle> (last accessed 6 December 2016).

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

Answer:

Law 24/2013 regulating the electricity sector repeals the previous Law 54/1997.

This law provides that the Government can approve plans related to the energy use of renewable sources and their efficiency in the electric sector. These plans shall have an indicative character and aim at encouraging the fulfilment of the objectives set for Spain in this area as an EU Member State⁴⁴.

Initially, the regulation of renewable sources of energy through Law 82/1980⁴⁵ aimed at fostering the use of mini-hydraulic energy to face the petroleum crisis and improve the national energy efficiency making Spain less dependent on external sources. The concept of a special regime for these kind of energy sources was first established by Law 40/1994⁴⁶ and further developed by Royal Decree 2366/1994 on the production of energy by hydraulic installations, cogeneration installations and others supplied by renewable sources⁴⁷ of a power equal or lower to 100 MW. This special regime for renewable energy sources (*régimen especial*) was consolidated in Law 54/1997⁴⁸ regulating the electricity sector including a system of incentives. However, Royal Decree-law 1/2012⁴⁹ suspended the economic incentives for the installation of new plants producing electric energy via renewable energy sources.

Currently, installations using renewable sources in general and not limited to hydropower, are regulated by Royal Decree 661/2007⁵⁰ which regulates the production of electric energy for installations under the special regime set for those installations with a power below 50 MW and using non-consumable renewable energies (Article 27(b)⁵¹). The activity of producing electric energy from renewable sources is currently regulated by Royal Decree 413/2014⁵².

The current legislative framework on renewable energy is focused on the financial viability of

⁴⁴ Article 4(5) Law 24/2013.

⁴⁵ Law 82/1980, of 30 December, on the preservation of energy (*Ley 82/1980, de 30 de diciembre, sobre conservación de energía*) State Gazette BOE-A-1981-1898, available at https://boe.es/diario_boe/txt.php?id=BOE-A-1981-1898 (last accessed 6 December 2016).

⁴⁶ Law 40/1994, of 30 December, organising the National Electric System (*Ley 40/1994, de 30 de diciembre, de ordenación del Sistema Eléctrico Nacional*), State Gazette BOE-A-1994-28966, available at http://www.boe.es/diario_boe/txt.php?id=BOE-A-1994-28966.

⁴⁷ Royal Decree 2366/1994, of 9 December, on the production of energy by hydraulic installations, cogeneration installations and others supplied by renewable sources (*Real Decreto 2366/1994, de 9 de diciembre, sobre producción de energía eléctrica por instalaciones hidráulicas, de cogeneración y otras abastecidas por recursos o fuentes de energía renovables*) State Gazette BOE-A-1994-28980, available at <https://www.boe.es/buscar/doc.php?id=BOE-A-1994-28980>.

⁴⁸ Chapter II, Title I Law 54/1997.

⁴⁹ Royal Decree-law 1/2012, of 27 January, suspending the retribution pre-allocation procedures and the economic incentives for new installations producing electric energy from cogeneration, renewable energy sources and waste (*Real Decreto-ley 1/2012, de 27 de enero, por el que se procede a la suspensión de los procedimientos de preasignación de retribución y a la supresión de los incentivos económicos para nuevas instalaciones de producción de energía eléctrica a partir de cogeneración, fuentes de energía renovables y residuos*) State Gazette BOE-A-2012-1310 available at <https://www.boe.es/buscar/act.php?id=BOE-A-2012-1310>.

⁵⁰ Royal Decree 661/2007, of 25 May, regulating the activity of electric energy production under the special regime (*Real Decreto 661/2007, de 25 de mayo, por el que se regula la actividad de producción de energía eléctrica en régimen especial*), State Gazette BOE-A-2007-10556, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2007-10556>.

⁵¹ Article 27 Law 54/1997

⁵² Royal Decree 413/2014, of 6 June, regulating the activity of producing electric energy from renewable energy sources, cogeneration and waste (*Real Decreto 413/2014, de 6 de junio, por el que se regula la actividad de producción de energía eléctrica a partir de fuentes de energía renovables, cogeneración y residuos*), State Gazette BOE-A-2014-6123, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2014-6123>.

these technologies reducing the incentive measures. Law 15/2012⁵³ created new taxes in the electric sector aiming at reducing the tariff deficit therein. It establishes a 7% tax rate for the generation of electric energy and its access to the grid. In addition, it creates a canon for the use of continental waters for the production of electric energy with a 22% tax rate. Further urgent measures for the stabilisation of the electric sector were adopted by Royal Decree-law 9/2013⁵⁴, abandoning the incentives system set by Law 54/1997.

From a policy perspective, the MINETUR, as commissioned by Law 24/2013 (see above), adopted the National Action Plan on Renewable Energy 2011-2020 (PANER)⁵⁵ in order to transpose the objectives set by Directive 2009/28/EC on the promotion of the use of energy from renewable sources⁵⁶. The first Spanish policy plan on renewable energy was approved in 1999 (*Plan de Fomento de las Energías Renovables*, PFER) and set the growth objectives of each renewable technology aiming at 12% of the Spanish consumption be from renewable sources by 2010⁵⁷. This Plan was replaced by the 2005-2010 Plan on Renewable Energy (*Plan de Energías Renovables*, PER). The PER kept the same objective as the PFER and added that 29.4% of the electric energy be produced by renewable energy. The 2011-2020 PANER is further explained under Section 3.2 below.

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

Answer:

The PANER does not establish specific objectives for residential prosumers. This could be due to the fact that in 2010, when the Plan was drafted, the concept of prosumers was not very developed⁵⁸. Chapter 5 of the PANER provides a forecast of the total contribution of each type of renewable energy to the fulfilment of the objectives set for 2020⁵⁹. Within this forecast, regarding the evolution of the solar PV energy, the PANER predicts an increase in the use of this energy for self-consumption purposes in systems connected to the grid and associated to existing supply systems⁶⁰.

The Institute for the Diversification and the Saving of Energy (*Instituto para la Diversificación y el Ahorro de la Energía*, IDAE), attached to the MINETAD⁶¹, also issued a Plan on Renewable

⁵³ Law 15/2012, of 27 December, of financial measures for the sustainability of energy (*Ley 15/2012, de 27 de diciembre, de medidas fiscales para la sostenibilidad energética*) State Gazette BOE-A-2012-15649, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2012-15649>.

⁵⁴ Royal Decree-law 9/2013, of 12 July, adopting urgent measures to guarantee the financial stability of the electric system (*Real Decreto-ley 9/2013, de 12 de julio, por el que se adoptan medidas urgentes para garantizar la estabilidad financiera del sistema eléctrico*), State Gazette BOE-A-2013-7705, available at https://www.boe.es/diario_boe/txt.php?id=BOE-A-2013-7705.

⁵⁵ MINETAD, National Action Plan on Renewable Energy 2011-2020 (*Plan de Acción de Energías Renovables de España*, PANER), available at <http://www.minetad.gob.es/energia/desarrollo/EnergiaRenovable/Paginas/paner.aspx>. Hereinafter, PANER.

⁵⁶ Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (Text with EEA relevance), available at <http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32009L0028>.

⁵⁷ Energía y Sociedad, 'Energy Manual. 3.5. Spanish regulation of renewable energy' (*Manual de Energía, 3.5 Regulación española de las energías renovables*), available at <http://www.energiaysociedad.es/manenergia/3-5-regulacion-espanola-de-las-energias-renovables/>.

⁵⁸ See General Description on the legal framework on self-consumption (question 1, above). Self-consumption was not mentioned in the Spanish legislation until 2011.

⁵⁹ PANER, Chapter 5, Section 5.1.

⁶⁰ PANER, Chapter 5, Section 5.1, p. 151.

⁶¹ IDAE, 'Who we are' (*Quiénes somos*), website available at <http://www.idae.es/index.php/reلمenu.30/reلcategoria.101/idpag.11/mod.pags/mem.detalle> (last accessed 6 December 2016).

Energy covering the same period as the PANER (2011-2020)⁶². IDAE's Plan, PER (2011-2020), considers consumers as the leading party in the electricity sector. It foresees an increase of the production of the electricity from renewable energy sources by consumers for their own use due to the trend of decreasing costs of renewable energy technologies. It proposes encouraging the role of residential prosumers indicating that the technologies best suited for this are the 'non-manageable' (*no gestionables*) ones⁶³, such as the PV or mini-eolic. Smart Grids enhancing the communication between consumers and operators of the electric networks will be essential to ensure the establishment of consumers as an effective actor in the electric sector⁶⁴.

The PER proposes a programme of direct subsidies for low-power eolic energy technologies (power equal or lower than 10kW) destined to self-consumption and a similar one for low power PV projects for self-consumption (see question 6 below). The purpose is the establishment of annual programmes granting public subsidies up to a maximum amount depending on the ratio €/kW. It also foresees a compensation mechanism. The periods where the demand surpasses the offer are compensated with the excess stored energy from periods where the offer surpasses the demand. This mechanism receives the name of net balance (*balance neto*). This system circumvents the need to add accumulation systems in the installations, avoiding the extra costs that such systems entail and increasing their efficiency of distribution and transport networks⁶⁵.

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:

Unlike Law 54/1997, Law 24/2013 does not include the concepts of 'self-consumer' (*autoconsumidor*) and 'self-producer' (*autoproducer*). Instead, Article 9(1) Law 24/2013 defines 'self-consumption' as the consumption of electric energy from generation installations of a consumer or from generation installations which are connected to the consumer through a direct line of electric energy.

The Supreme Court has considered generation installations to be 'electric plants' (*centrales eléctricas*). This definition covers all the installations capable of producing electricity⁶⁶. Therefore, the generic definition of Article 9(1) Law 24/2013 does not distinguish whether the energy produced is totally consumed by the prosumer and no energy is discharged into the grid or whether energy is partially consumed thereby with the possibility of discharging energy into the grid, nor whether the consumer requires or not assisted supply from the public distribution grid. However, these elements are relevant when establishing the applicable legal conditions since, as explained above in Section 1, there are different modalities of self-consumption based on whether the

⁶² IDAE, 'Plan on Renewable Energy 2011-2020' (*Plan de Energías Renovables 2011-2020*, PER), available at http://www.idae.es/uploads/documentos/documentos_11227_PER_2011-2020_def_93c624ab.pdf (last accessed 6 December 2016). Hereinafter, PER.

⁶³ Non-manageable technologies are those which are highly aleatory and have a high level of unpredictability in their production. Energía y Sociedad, 'Energy Manual. 3.2 Renewable Energy: technology, economy, evolution and integration in the electric system' (*Manual de Energía. 3.2 Energías renovables: tecnología, economía, evolución e integración en el sistema eléctrico*), available at <http://www.energiaysociedad.es/manenergia/3-2-energias-renovables-tecnologia-economia-evolucion-e-integracion-en-el-sistema-electrico/> (last accessed 6 December 2016).

⁶⁴ IDAE, PER 2011-2020, 'Executive Summary' (*Resumen Ejecutivo*), p. XLII and p. 385.

⁶⁵ IDAE, PER 2011-2020, 'Executive Summary' (*Resumen Ejecutivo*), p. XLII, and pp. 537-39.

⁶⁶ Supreme Court (*Tribunal Supremo*), Judgment STS 385/2004, ECLI:ES:TS:2004:3851, available at <http://www.poderjudicial.es/search/doAction?action=contentpdf&databasematch=TS&reference=2122138&links=central%20el%C3%A9ctrica&optimize=20040821&publicinterface=true> (last accessed 6 December 2016); and Judgment STS 5333/2008, ECLI:ES:TS:2008:5333, available at <http://www.poderjudicial.es/search/doAction?action=contentpdf&databasematch=TS&reference=3330035&links=central%20el%C3%A9ctrica&optimize=20081030&publicinterface=true> (last accessed 6 December 2016).

installation is connected or not to the grid⁶⁷.

According to Article 6(1)(g) Law 24/2013, consumers are the natural or legal persons who acquire energy for their own consumption. Those consumers who acquire energy directly in the production market shall be called direct consumers in the market (*consumidores directos de mercado*). Under letter (a) of the same provision, producers are the natural or legal persons with the task to generate electric energy, as well as in charge of building, operating and maintaining the production installations.

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

General

RD 900/2015 develops Law 24/2013 establishing the administrative, technical and economic conditions on self-consumption and differentiating two kinds of self-consumption: Type 1 and Type 2. This RD provides the permitting requirements for each type of residential prosumer:

- **Article 5** sets the **general requirements** to adhere to one of these types (see below).
- **Article 7(1)** foresees that, to adhere to any of the self-consumption modalities, consumers must **request a new connexion** from or modify the pre-existing one with the distribution company of the area or, if applicable, the transport company.
- **Article 8(1)** provides that for both self-consumption modalities, the consumer has to conclude an **access contract** with the distribution company, directly or through a trading company, or modify the pre-existing one in accordance with the relevant legislation to reflect such circumstance – that the consumer is adhering to a self-consumption modality.
- **Article 9** requires that owners of production installations in Type 2 pay the **access tolls** to the transport and distribution networks set in **Royal Decree 1544/2011**⁶⁸ for the discharge of energy to the grid.

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:

As explained above in Section 1, RD 900/2015 develops Law 24/2013 establishing the administrative, technical and economic conditions on self-consumption for both types of self-consumption: Type 1 and Type 2.

Article 5 RD 900/2015 sets the general requirements to adhere to one of these types. The table below summarises these requirements (which have been presented above):

⁶⁷ González Ríos, I., 2014, 'The incipient regulation of the self-consumption of the electric energy: energy, environmental and urban implications' (*La incipiente regulación del autoconsumo de energía eléctrica: implicaciones energéticas, ambientales y urbanísticas*), R.V.A.P, Special issue 99-100, p. 1628.

⁶⁸ Royal Decree 1544/2011, of 31 October, establishing the Access tolls to transport and distribution networks to be satisfied by the producers of electric energy (*Real Decreto 1544/2011, de 31 de octubre, por el que se establecen los peajes de acceso a las redes de transporte y distribución que deben satisfacer los productores de energía eléctrica*), State Gazette BOE-A-2011-17891 available at <https://www.boe.es/buscar/act.php?id=BOE-A-2011-17891>.

Type 1 self-consumption (Article 5(1) RD 900/2015)	Type 2 self-consumption (Article 5(2) RD 900/2015)
The power hired by the consumer will not be over 100 kW.	
The sum of the power of the generation installations shall be equal to or lower than that hired by the consumer (100 kW).	The sum of the installed power of the production installation shall be equal to or lower than the power hired by the consumer.
The owner of the supply point will be the same as the one of the consumption equipment and the generation installations connected to his grid.	Where there are several production installations , the owner of all and each of them shall be the same natural or legal person.
The generation installations and the supply point shall fulfil the technical requirements set by the electric sector legislation and the regulation on the industrial quality and safety which is applicable to these installations and supply points. In particular, they shall fulfil the requirements of Royal Decree 1699/2011, of 18 November, regulating the connexion to the grid of low-power installations of electric energy production ⁶⁹ .	The production installations shall fulfil the technical requirements set by the electric sector legislation and the regulation on the industrial quality and safety which is applicable to these installations. In particular, they shall fulfil the requirements of: - Royal Decree 1955/2000, of 1 December (installations with a power > 100 kW) ⁷⁰ , - Royal Decree 1699/2011, of 18 November, for the production installations included in its scope of application (installations with a power < 100 kW); and - Royal Decree 413/2014, of 6 June, regulating the activity of producing electric energy from renewable energy sources, cogeneration and waste ⁷¹

- RD 1699/2011 sets a **common procedure** for requesting the establishment of both Type 1 and Type 2 self-consumption schemes, as far as the installation does not surpass 100kW of power. This procedure is also defined in RD 900/2015. This procedure is formed by the following steps:
 1. **Request of a connexion point:** First, the owners of generation installations have to request a connexion point to the grid from the electricity company, even if no excess from the energy production is going to be discharged to the grid⁷². Article 7(1) RD 900/2015 foresees that to adhere to any of the self-consumption modalities, consumers must request a new connexion from or modify the pre-existing one with the distribution company of the area or, if applicable, the transport company even when no energy is going to be discharged in the distribution and transport networks from the generation installations, whether these are installed or share a connexion infrastructure to the grid.
 2. **Decision of the electricity company:** Electricity companies will decide in **a month** from the receipt of the request whether to grant or not this connexion point⁷³. They can deny the request if the maximum available nominal power is lower than the installation power⁷⁴. The request can also be refused on the basis of security reasons and continuity of the

⁶⁹ Royal Decree 1699/2011, of 18 November, regulating the connexion to the grid of low-power electric energy production installations (*Real Decreto 1699/2011, de 18 de noviembre, por el que se regula la conexión a red de instalaciones de producción de energía eléctrica de pequeña potencia*), State Gazette BOE-A-2011-19242, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2011-19242>. Hereinafter RD 1699/2011.

⁷⁰ Royal Decree 1955/2000, of 1 December, regulating the transport, distribution, trade, supply activities and licensing procedures of electric energy installations (*Real Decreto 1955/2000, de 1 de diciembre, por el que se regulan las actividades de transporte, distribución, comercialización, suministro y procedimientos de autorización de instalaciones de energía eléctrica*) State Gazette BOE-A-2000-24019, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2000-24019>.

⁷¹ Royal Decree 413/2013, of 6 June, regulating the activity of producing electric energy from renewable energy sources, cogeneration and waste (*Real Decreto 413/2014, de 6 de junio, por el que se regula la actividad de producción de energía eléctrica a partir de fuentes de energía renovables, cogeneración y residuos*), State Gazette BOE-A-2014-6123, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2014-6123>.

⁷² Article 4 RD 1699/2011.

⁷³ Article 5(1) RD 1699/2011.

⁷⁴ Article 5(2) RD 1699/2011.

supply⁷⁵. In the first case, however, the defect can be rectified. In addition, if the owner of the installation making the request disagrees with the company, he or she can file a claim before the competent public authority, who will solve the issue and notify the decision in a maximum of two months⁷⁶. If the disagreement persists it can be raised to the National Energy Commission (*Comisión Nacional de Energía, CNE*)⁷⁷.

3. **Registration:** Once the request has been accepted, the owner of the installation has to register it with the retributions pre-allocation register (*registro de preasignación de retribución*) or with the administrative register of production installations (*registro administrativo de instalaciones de producción*).
4. **Payment:** The person requesting access to the grid has **to pay the cost of the new installations** necessary to connect the installation to the supply connection point, the repowering of the electricity lines of the distribution company to the same level as that of the supply point and, if necessary, the repowering of the affected transformer of the distribution company to the same level as the power of the connection point⁷⁸. Furthermore, Article 9 RD 900/2015 requires that owners of production installations in Type 2 pay the access tolls to the transport and distribution networks set in Royal Decree 1544/2011⁷⁹ for the discharge of energy to the grid.
5. **Installation technical tests and issuance of technical certificate:** An authorised technician will carry out the necessary installation tests which, if passed, will issue the corresponding certificate with the features of the installation, the results and pass of the test; this certificate shall be made official by the corresponding competent public authority.
6. **Conclusion of the technical contract of access to the grid:** The technical certificate will be necessary to conclude the technical contract of access to the grid from the distribution company⁸⁰. Article 8(1) RD 900/2015 provides that for both self-consumption modalities, the consumer has to conclude an access contract with the distribution company, directly or through a trading company, or modify the pre-existing one in accordance with the relevant legislation to reflect such circumstance – that the consumer is adhering to a self-consumption modality. In the Type 2 self-consumption modality, apart from the consumer, the owner of a production installation must also conclude an access contract⁸¹. However, this is because the consumer and the owner of the production installation are usually the same person.
7. **Verification:** Once the contract has been concluded, the distribution company may, at any time, carry out a first verification of the elements that may affect the regularity and the safety of the supply. The person requiring access to the grid has to pay the company for such verification⁸². However, this verification and the payment will not be necessary for consumers adhered to the Type 1 self-consumption who have hired a power under or equal to 10 kW and who prove that they have a device which impedes the instant discharge of energy to the grid⁸³.

⁷⁵ Article 5(3) RD 1699/2011.

⁷⁶ Article 5(2)-(6) RD 1699/2011.

⁷⁷ Article 5(7) RD 1699/2011.

⁷⁸ Article 6 RD 1699/2011.

⁷⁹ Royal Decree 1544/2011, of 31 October, establishing the Access tolls to transport and distribution networks to be satisfied by the producers of electric energy (*Real Decreto 1544/2011, de 31 de octubre, por el que se establecen los peajes de acceso a las redes de transporte y distribución que deben satisfacer los productores de energía eléctrica*), State Gazette BOE-A-2011-17891 available at <https://www.boe.es/buscar/act.php?id=BOE-A-2011-17891>.

⁸⁰ Article 7 RD 1699/2011.

⁸¹ Article 8(2) RD 900/2015.

⁸² Article 8 (1) and (2) RD 1699/2011.

⁸³ Article 8(2) second paragraph and Article 10 RD 1699/2011 and Article 7(2) RD 900/2015.

For installations of over 100kW (only Type 2 self-consumption), the procedure to follow is that set in 1955/2000. This RD establishes three different procedures, one for access to the transport network, one of access to the distribution network and a third one regarding the establishment of a direct line between a production centre and a consumption centre. These three procedures are described below:

1) Access to the transport network:

1. Request access to the operator of the system and manager of the network. The operator has 2 months to consider whether there is enough capacity in the transport network, deciding whether to grant or not access. Conflicts will be solved by the National Energy Commission. (Article 53).
2. Presentation by the petitioner of the project for the installation and the execution programme to the transport company (Article 57.1).
3. Report by the company owning the connexion point on the fulfilment of the technical requirements. (Article 57.2).
4. Conclusion of the contract of access to the grid (Articles 58 and 59).

2) Access to the distribution network:

1. Request of access to the manager of the distribution network.
2. The manager has 15 days to decide whether there is enough capacity in the distribution network. Conflicts will be solved by the National Energy Commission. (Article 62).
3. Once the manager has issued a positive report on the capacity of the network, the petitioner shall request from the distribution company owning the network the project of the installation and its execution plan.
4. The distribution company shall issue a report on the installation within a month on the basis of which the manager of the network shall issue another report within another month (Article 66).

3) Establishment of a direct line between a production centre and a consumption centre (same owner or qualified consumer):

1. Request an administrative authorisation to build the direct line from the Industry and Energy Governmental Delegations or Sub-delegations (Articles 68 and 122) and present to the Directorate General of Energy and Mine Policy an analysis of costs and benefits when the installation is a thermic one with a total power of over 20MW or when the project is to renew substantially a thermic installation of that power (Article 121bis).
2. An environmental impact assessment of the installation will be carried out when it is required by the applicable legislation (Article 124).
3. Public information phase: publication of the request in the State Gazette or the Official Journal of the Autonomous Community. 20 days for the interested parties to make allegations (Article 125).
4. 15 days for the petitioner to present replies to the allegations before the corresponding Industry and Energy Department (Article 126).
5. Information to other public authorities so that in 20 days they present their agreement or opposition to the request. (Article 127(1) and (2))
6. 15 days for the petitioner to reply to the position of the concerned public authorities. (Article 127(3))
7. 15 days for the Industry and Energy department to hear the parties (Article 127(4)).
8. Referral of the report and the observations of the parties to the Directorate General of Energy and Mine Policy (Article 127 (5)). If any conflict between the parties persists, it will be solved by the National Energy Commission (Article 127(6)).
9. Within 3 months of filing the request, the Directorate General of Energy and Mine Policy will grant it or reject it (Article 128).
10. Once the authorisation of the authority has been granted to build the direct line, the execution program will also have to be approved. For this, the petitioner has to present the project to the competent Industry and Energy department of the province where the installation is to be established. If the installation affects several provinces, the request shall be filed with all

of the corresponding authorities. The project with the execution program also has to be presented before the Directorate General of Energy and Mine Policy (Article 130).

11. Within 20 days, the interested public authorities and parties shall be informed so they can present their views within 20 days. The petitioner will have another 15 days to reply to these observations. The competent authority will examine the observations of the parties in 15 days. Any disputes shall be solved by the Directorate General of Energy and Mine Policy or, if it persists, by the Ministry of Economy. A decision shall be issued in 3 months (Article 131).
12. Once the project and the execution program have been approved, the competent Industry and Energy department may carry out a field-visit to study the terrain and the conditions of the installation to refer a technical report to the Directorate General of Energy and Mine Policy. (Article 131(5)).
13. Once the project has been executed (the direct line has been built) the petitioner shall file with the competent Industry and Energy department the request to put the installation into operation (operational order). The request shall be accompanied by the certificate of a qualified technician certifying that the installation has been built in accordance with the technical specifications of the project (Article 132(1)).
14. Within a month of the request, the competent Industry and Energy department will issue the operational order (Article 132(2)).

- 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:

Under RD 900/2015, only consumers adhered to Type 2 can receive an economic retribution (*compensación económica*) for feeding energy into the grid⁸⁴. They will receive a retribution for the excess of energy (not consumed) and that shall be retributed at the market price at the time (hour) that it is discharged to the grid. Type 1 self-consumption subjects can discharge energy back to the grid but will not receive any kind of economic retribution for it⁸⁵.

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

General

RD 900/2015 establishes the rules applicable to the access to the grid. For the purposes of this section, the following are the relevant provisions:

- **Article 4:** explains the types of self-consumption that are observed under Spanish legislation (Type 1 and Type 2).
- **Articles 7-10:** set the general requirements of access to the grid. To this effect, RD 1699/2011 (installations of < 100kW) and RD 1955/2000 (installations of > 100 kW) are also relevant.
- **Articles 11-13:** establish the requirements of the measuring equipment.
- **Articles 14-18:** provide the economic rules applicable to each type of self-consumption. The First Transitional Provision also has to be considered as it establishes a transitory economic regime.

⁸⁴ Article 14(3) RD 900/2015.

⁸⁵ Mendoza Losana, A.I., 2015, 'The royal decree on electricity self-consumption or the paradox of having to pay to generate energy' (*El real decreto de autoconsumo eléctrico o la paradoja de pagar por generar energía*), Gomez-Acebo&Pombo, available at <http://www.gomezacebo-pombo.com/media/k2/attachments/el-real-decreto-de-autoconsumo-electrico-o-la-paradoja-de-pagar-por-generar-energia.pdf> (last accessed 6 December 2016).

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

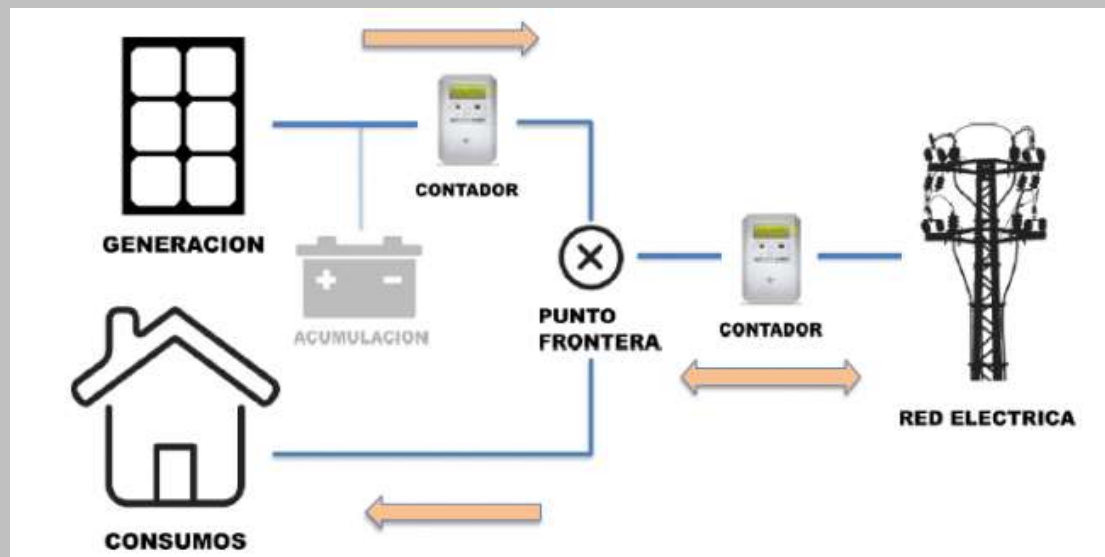
Answer:

Wholesale markets are closely integrated with Portugal while interconnectors with France are to be extended⁸⁶.

As it has been explained above in Section 1, under RD 900/2015 there are two types of self-consumption. Type 1 covers consumers with a generator destined to their self-consumption, connected to the grid and not registered in the corresponding register as production installation. They are only considered as consumers under RD 900/2015, not as producers.

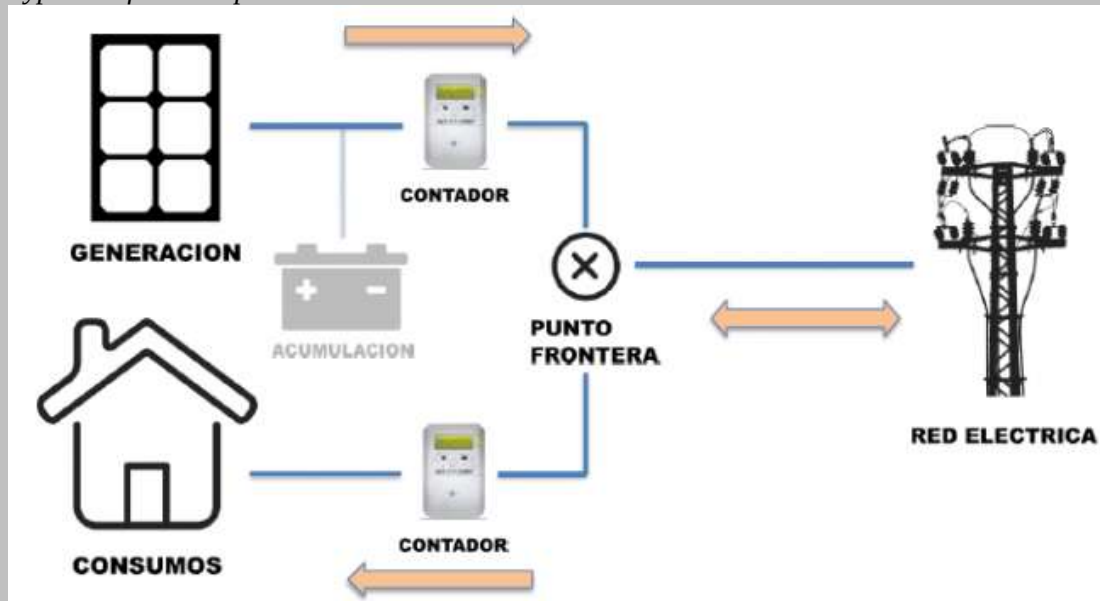
Type 2 encompasses consumers associated to a production installation duly registered in the administrative register of installations producing electric energy connected either in the inside of the grid or through a direct line. Type 2 self-consumption subjects are considered both consumers and producers under RD 900/2015.

The figure below shows the functioning of these two types of self-consumption:

Type 1 self-consumption

⁸⁶ BEUC, 2016, 'Current practices in voluntary and consumer-driven renewable electricity markets', available at http://www.beuc.eu/publications/beuc-x-2016-003_jmu_current_practices_in_consumer_driven_renewable_electricity_markets.pdf.

Type 2 self-consumption



Translation of the terms used in the schemes

- Generación: Generation: it is the electricity source, where it is produced.
- Contador: Metering point (see [Annex I](#))
- Punto de frontera: Frontier point (see [Annex I](#))
- Red eléctrica: Electricity network (see [Annex I](#))
- Consumos: Consumption: it refers to the final consumer of the electric energy_

Question 4.1 presents the requirements that both types of self-consumption have to meet to get a permit including the access to the grid, or the inter-connection. The table below summarises those relevant for the ensuring the interconnection⁸⁷:

Type 1 self-consumption	Type 2 self-consumption
Request from the distribution electricity company access to the grid even if they do not discharge energy back to it.	Request from the distribution company access to the grid.
Follow the procedure set in Chapter II RD 1699/2011 ⁸⁸ :(see above Question 4.1) Article 9 RD 1699/2011 sets an abbreviated procedure for installations with a power lower than 10 kW : simplified model of the request to connect (Annex II RD 1699/2011), shorter periods for the company to reply to the connection request, for the competent authority to resolve any dispute between the company and the petitioner and to conclude the agreement (10 days vs. 1 month) and non-payment of the costs to carry out the technical installation study.	▪ For installations with a power equal or less than 100 kW: procedure described in Chapter II RD 1699/2011 (see Type 1). ▪ For installations with a power over 100 kW: comply the requirements for transport and distribution set in RD 1955/2000.
For installations with a power lower than 10 kW, no need to pay the costs on access and connexion studies.	Payment of the costs to carry out the studies on access and connexion foreseen in Article 30 RD 1048/2013. These costs are established by the MINETUR ⁸⁹ .
(No reference to such payments for this modality)	Payment of the tolls of access to the network for the discharges to the grid as foreseen in Royal Decree 1544/2011 ⁹⁰ .

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

Answer:

As explained in the table above, although the regulation setting the procedure of access to the grid comes from the State (being the MINETAD the competent body within the State), the requests have to be filed:

- In the case of installations with a power equal or lower than 100kW: with the distribution company. Any disagreements between the parties will be solved by the National Energy Commission. (RD 1699/2011)
- In the case of installations with a power over 100 kW: (RD 1955/2000).
 - Access to transport network: the request will be filed with the owner of the transport network. Any disagreements between the parties will be solved by the National Energy Commission.
 - Access to the distribution network: the request will be filed with the manager of the distribution network. Any disagreements between the parties will be solved by the National Energy Commission.
 - Establishment of a direct line: at regional level⁹¹ with the corresponding Industry and Energy department.

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

Answer:

As explained above in Section 1, all prosumers, whether Type 1 or Type 2, are connected to the grid. Whereas in Type 1, the consumer is directly connected to the grid (the generation installation is within the grid), under Type 2 the consumer has access to the grid through a generation installation (*instalación de generación*) which is connected to the grid either because it is within it or directly connected to it. In Type 1 the consumer is the owner of the generation installation while in Type 2 the consumer is merely associated to the generation installation⁹².

⁸⁷ Biobale, 'Approved the new Royal Decree on Self-consumption' (*Aprobado el nuevo Real Decreto de Autoconsumo*), 27 October 2015, available at <https://biobale.com/2015/10/27/aprobado-el-nuevo-real-decreto-de-autoconsumo/>.

⁸⁸ For more details, see question 4.1 above.

⁸⁹ Article 30 Royal Decree 1048/2013, of 27 December, establishing the methodology to calculate the compensation of the electric energy distribution activity (*Real Decreto 1048/2013, de 27 de diciembre, por el que se establece la metodología para el cálculo de la retribución de la actividad de distribución de energía eléctrica*) State Gazette BOE-A-2013-13767, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2013-13767&p=20161103&tm=1#a30> (last accessed 7 December 2016).

⁹⁰ Royal Decree 1544/2011, of 31 October, establishing the Access tolls to transport and distribution networks to be satisfied by the producers of electric energy (*Real Decreto 1544/2011, de 31 de octubre, por el que se establecen los peajes de acceso a las redes de transporte y distribución que deben satisfacer los productores de energía eléctrica*), State Gazette BOE-A-2011-17891 available at <https://www.boe.es/buscar/act.php?id=BOE-A-2011-17891>.

⁹¹ The applicable legislation sets that the request has to be filed with the Industry and Energy department of the delegation or sub-delegation of the Government (*delegaciones o sub-delegaciones de gobierno*), as appropriate. The delegations of the Government are representatives of the State in the Autonomous Communities while the sub-delegations represent the State in the provinces. Where an Industry and Energy department exists at province level, this will be the authority with which the request to establish the direct line shall be filed; if not, it will be with the department existing at Autonomous Community level in the delegation of government. Where neither of these exist, the competent authority is the Directorate General of Energy and Mine Policy.

⁹² Article 9(1) Law 24/2013 and Article 4 RD 900/2015; Iberdrola Distribución Eléctrica, 'Electric Distribution', 'Connexion of Producers' (*Distribución eléctrica, Conexión de productores a la red*), website available at <https://www.iberdroladistribucion.es/distribucion-electrica/conexion-productores> (last accessed 7 December 2016).

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

Answer:

The grid access requirements have been explained in Question 5.1 (see table above).

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

Answer:

Regarding the costs, Article 14 sets the economic framework applicable to the consumed energy and the excess of energy.

Regardless of the modality of self-consumption, prosumers may acquire additional energy directly from the production market in accordance with the norms on settlement of the market. **Consumers who acquire their energy through a trading company shall settle their energy in accordance with the agreement between the parties on a monthly basis and in accordance with the real hourly readings.** The discharge of the excess of energy generated by Type 1 prosumers will be passed to the electric system without economic compensation while for the settlement of the hourly discharge of producers adhered to type 2 self-consumption, the general regulation on production activities is applicable⁹³.

The table below provides an overview of this framework:

Costs applicable to both types of self-consumption	
▪ The tolls of access to the transport and distribution networks; ▪ The fees associated to the costs of the system; ▪ Fees for other services of the system.	
Type 1	Type 2
The energy acquired by the consumer will be the energy corresponding to the hourly demand.	The energy acquired shall be that of the hourly demand of the associated consumer and the energy corresponding to the hourly consumption of the auxiliary services shall also be acquired.
No compensation for energy discharged to the grid.	Economic compensation for the energy discharged to the grid in accordance with the enforceable legislation. Where the specific compensation regime is applicable, this shall be implemented on the hourly discharge. The power factor shall be regulated using the measuring equipment of the production installation.

Article 16 RD 900/2015 establishes specific rules to determine the **tolls to access the transport and distribution networks** which are applicable to both types of self-consumption schemes. The amounts of these tolls are specified in Royal Decree 1164/2001⁹⁴ lastly updated in October 2015.

The table below shows the criteria applicable to determine the tolls in each modality of self-consumption:

⁹⁴ Royal Decree 1164/2001, of 26 October, establishing access tariffs to the transport and distribution networks (*Real Decreto 1164/2001, de 26 de octubre, por el que se establecen tarifas de acceso a las redes de transporte y distribución de energía eléctrica*), State Gazette BOE-A-2001-20850, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2001-20850> (last accessed 7 December 2016).

	Type 1 self-consumption	Type 2 self-consumption with measuring points of Art. 13 RD 900/2015
To determine the billing term of the power of the access tolls to be paid to the transport and distribution networks	The control of the hired power shall be carried out in the frontier point with the distribution networks.	When there is consumption of additional energy and auxiliary services: ▪ The control of the power demanded by the associated consumer shall be carried out on the basis of the power consumed using the measuring equipment registering the hourly consumed energy. ▪ The control of the power demanded of the consumed auxiliary services shall be carried out on the basis of the power of such services using the equipment that measures the net generated energy. When there is generated energy by the prosumer, the control shall be carried out: ▪ In the frontier point if there is a measuring point in the frontier point registering the necessary power measurements for the correct billing in accordance with the applicable legislation; ▪ Based on the power of the associated consumer using the equipment registering the hourly consumed energy.
To determine the billing term of the active power ⁹⁵	The energy corresponding to the hourly demand shall be considered.	For billing the associated consumer: the energy corresponding to the hourly demand of the associated consumer. For billing the auxiliary generation services: the energy corresponding to the hourly consumption of the auxiliary services.
To determine the billing of reactive power ⁹⁶	The meter (measuring point) in the frontier point of the installation shall be used.	For billing the associated consumer: the equipment registering the hourly consumed energy shall be used. For billing the auxiliary generation services: the equipment registering the net generated energy shall be used.

The **tolls** to be paid by the consumer are⁹⁷:

- The component of the variable fees associated to the system costs;
- The component of payments for capacity to compensate the back-up plants;
- Compensation for the market operator;
- Compensation for the system operator (Spanish Electricity Network);
- Interruptibility service⁹⁸;

⁹⁵ Active power is the energy which is transformed into mechanic work and heat. The receivers formed by pure resistances (*resistencias puras*, such as heating equipment, incandescent lamps, etc.) consume exclusively this kind of energy. Iberdrola, 'FAQ: What is the active and reactive power and the power factor?' (*¿Qué es la energía activa, la energía reactiva y el factor de potencia?*), available at <http://ayuda.clientes.iberdrola.es/pregunta-frecuente/que-es-la-energia-activa-la-energia-reactiva-y-el-factor-de-potencia/> (last accessed 7 December 2016).

⁹⁶ Reactive power is the one which is transformed into magnetic fields and do not produce useful work. Some receivers need this energy for their functioning, such as engines, transformers, AC machines, fridges, etc. Iberdrola, 'FAQ: What is the active and reactive power and the power factor?' (*¿Qué es la energía activa, la energía reactiva y el factor de potencia?*), available at <http://ayuda.clientes.iberdrola.es/pregunta-frecuente/que-es-la-energia-activa-la-energia-reactiva-y-el-factor-de-potencia/> (last accessed 7 December 2016).

⁹⁷ Efinética Blog, 'Economic analysis of self-consumption after RD 900/2015: where are the benefits for the consumer?' (*Análisis económico del autoconsumo tras el RD 900/2015: ¿y los beneficios para el consumidor?*), 4 November 2015, available at <https://efinetika.wordpress.com/2015/11/04/analisis-economico-del-autoconsumo-tras-el-rd-9002015-y-los-beneficios-para-el-consumidor/> (last accessed 30 November 2016).

⁹⁸ Service guaranteeing the continuity of the supply. Source: Efinética Blog, 'New raise in the electricity costs: the interruptibility system' (*Nueva subida de los costes eléctricos: el sistema de interrumpibilidad*), 16 December 2014, available

▪ Adjustment service.

Article 17 RD 900/2015 establishes that consumers adhering to any of the two modalities of self-consumption shall satisfy the **fees associated to the costs of the electric system** corresponding to the supply point considering the provisions set in Article 16 Law 24/2013. Such fees shall be considered as income of the system in accordance with Article 13 of the same law. In addition, Article 17 RD 900/2015 sets specific rules for the determination of the billing components in each of the self-consumption schemes as foreseen in the table below:

	Type 1 self-consumption	Type 2 self-consumption with measuring points set in Article 13 RD 900/2015
Fixed fees: applied considering the difference between the billed power and the maximum measurement taken in each period. It is a deterring fee to avoid that the hired power is lowered when installing the self-consumption system ⁹⁹	Shall be applied on the power required by the installation of the consumer during a pricing period (<i>potencia de aplicación de cargos</i>).	For the billing of the associated consumer, the power to which the fixed fees shall be applied on the <i>potencia de aplicación de cargos</i> based on the hourly consumed energy according to the metering equipment. For the billing of the auxiliary generation services, the fees shall be applied to the power of these services when the hourly consumption of these is over zero, using for such purposes the equipment that registers the net generated energy.
Variable fees: applied taking into account the produced energy and dependant from the access to the grid tolls and costs of the system ¹⁰⁰	Shall be applied on the energy corresponding to the sum of the hourly demand and the hourly self-consumption.	For the billing of the associated consumer, the fees shall be applied to the energy corresponding to the hourly demand of the associated consumer and the hourly self-consumption. The amount for the loss in the level of power of the access toll to the supply networks shall be deducted from the variable fees in the case of the hourly self-consumption energy. For the billing of the auxiliary generation services, the variable fees shall be applied to the hourly consumed energy of these services.

Non-peninsular electricity systems and low-power prosumers can benefit from the deductions established in RD 216/2014 and RD 413/2014¹⁰¹.

Article 18 RD 900/2015 provides the rules regarding **fees for other services of the system** which are payments for the back-up provided by the system to make self-consumption possible. These fees will be calculated taking into account, for each pricing period, the estimated price for other services of the electric system corresponding to the demand in the whole Peninsula. The income received from these fees shall cover the costs of the adjustment services of the system. All consumers, regardless of the self-consumption modality, shall satisfy these fees, as well as their

at <https://efinetika.wordpress.com/2014/12/16/nueva-subida-de-los-costes-electricos-el-sistema-de-interrumpibilidad/> (last accessed 30 November 2016).

⁹⁹ Efinética Blog, 'Economic analysis of self-consumption after RD 900/2015: where are the benefits for the consumer?' (*Análisis económico del autoconsumo tras el RD 900/2015: ¿y los beneficios para el consumidor?*), 4 November 2015, available at <https://efinetika.wordpress.com/2015/11/04/analisis-economico-del-autoconsumo-tras-el-rd-9002015-y-los-beneficios-para-el-consumidor/> (last accessed 30 November 2016).

¹⁰⁰ Efinética Blog, 'Economic analysis of self-consumption after RD 900/2015: where are the benefits for the consumer?' (*Análisis económico del autoconsumo tras el RD 900/2015: ¿y los beneficios para el consumidor?*), 4 November 2015, available at <https://efinetika.wordpress.com/2015/11/04/analisis-economico-del-autoconsumo-tras-el-rd-9002015-y-los-beneficios-para-el-consumidor/> (last accessed 30 November 2016).

¹⁰¹ Article 17(6) and Article 18(5) RD 900/2015.

modifications and updates, in accordance with hourly self-consumed energy.

It is worth noting that the First Transitory Provision RD 900/2015 (DT1) also establishes a **transitory economic regime** relevant to this study which apply until the fees associated to the system are approved¹⁰². The distribution company is responsible for the billing of the tolls and fees hereinunder explained. Under this transitory regime, the following rules apply¹⁰³:

- **Billing of the access tolls to the transport and distribution network and costs associated to the system costs:** are established in Annex I of Order of the MINETUR IET/107/2014¹⁰⁴.
- The table below shows **the elements to be considered in establishing the billing** for the power of the access points, the active and the reactive power for each kind of self-consumption type:

	Type 1 self-consumption	Type 2 self-consumption with the measuring points of Article 13 RD 900/2015	
		Billing of the associated consumer	Billing of the auxiliary generation services
Billing of the power at the access point	It will take into account in the frontier point: ▪ The power factor (<i>factor de potencia</i> – cosφ): which is the relation between the consumption of active power and apparent energy of an installation¹⁰⁵. ▪ The hourly demand. ▪ If applicable, the reactive power.	▪ Hourly consumption of auxiliary services > 0: use equipment registering the hourly consumed energy ▪ Hourly net generated energy > 0: control power demanded (a) In the frontier point of the installation and, if available, use the measuring equipment registering the power measurements necessary for the correct billing in accordance with applicable legislation; or (b) over all the power of the associated consumer using the equipment registering the hourly consumed energy.	▪ Hourly consumption of auxiliary services > 0: take into account the power of the auxiliary services using the equipment registering the net generated energy.
Billing of the active power		The billing energy will be the energy corresponding to the hourly demand of the associated consumer.	The billing energy will be the energy of the hourly consumed auxiliary services.
Billing of the reactive power		The equipment to be used will be the one registering the hourly consumed energy.	The equipment to be used will be the one registering the net generated energy.

¹⁰² Article 16(3) Law 24/2013 provides that the Government, further to the report of the National Commission of Markets and Competition (*Comisión Nacional de los Mercados y la Competencia*, CNMV), shall establish the methodology to calculate the fees to be satisfied by consumers and, if applicable, producers of electric energy and which shall cover the system costs that are determined.

¹⁰³ First Transitory Provision RD 900/2015 and Biobale, ‘Approved the new Royal Decree on Self-consumption’ (*Aprobado el nuevo Real Decreto de Autoconsumo*), 27 October 2015, available at <https://biobale.com/2015/10/27/aprobado-el-nuevo-real-decreto-de-autoconsumo/>.

¹⁰⁴ Order IET/107/2014, of 31 January, reviewing the access tolls of electric energy for 2014 (*Orden IET/107/2014, de 31 de enero, por la que se revisan los peajes de acceso de energía eléctrica para 2014*) State Gazette BOE-A-2014-1052, available at https://www.boe.es/diario_boe/txt.php?id=BOE-A-2014-1052 (last accessed 1 December 2016).

¹⁰⁵ The apparent energy of an installation depends of the active and reactive power. For the same consumption of active power, the higher the reactive power is, the lower the power factor is and higher is the economic sanction (when the power factor is lower than a certain value). Source: Iberdrola, ‘FAQ: What is the active and reactive power and the power factor?’ (*¿Qué es la energía activa, la energía reactiva y el factor de potencia?*), available at <http://ayuda.clientes.iberdrola.es/pregunta-frecuente/que-es-la-energia-activa-la-energia-reactiva-y-el-factor-de-potencia/> (last accessed 7 December 2016).

▪ **Associated fees to the system costs and fees for other services of the system:**

- **Fixed fees:** Shall be applied considering the power (€/kW). Such fees shall be applied on the difference between the power of fee application¹⁰⁶ and the power to be billed to apply the access tolls¹⁰⁷. RD 900/2015 sets a table of the prices for each category of access tolls:

NT	Peaje de acceso	Cargo fijo (€/kW)					
		Periodo 1	Periodo 2	Periodo 3	Periodo 4	Periodo 5	Periodo 6
BT	2.0 A (Pc ≤ 10 kW)	8,989169					
	2.0 DHA (Pc ≤ 10 kW)	8,989169					
	2.0 DHS (Pc ≤ 10 kW)	8,989169					
	2.1 A (10 < Pc ≤ 15 kW)	15,390453					
	2.1 DHA (10 < Pc ≤ 15 kW)	15,390453					
	2.1 DHS (10 < Pc ≤ 15 kW)	15,390453					
	3.0 A (Pc > 15 kW)	32,174358	6,403250	14,266872			
AT	3.1 A (1 kV a 36 kV)	36,608828	7,559262	5,081433	0,000000	0,000000	0,000000
	6.1A (1 kV a 30 kV)	22,648982	8,176720	9,919358	11,994595	14,279706	4,929022
	6.1B (30 kV a 36 kV)	16,747077	5,223211	7,757881	9,833118	12,118229	3,942819
	6.2 (36 kV a 72.5 kV)	9,451587	1,683097	4,477931	6,402663	8,074908	2,477812
	6.3 (72.5 kV a 145 kV)	9,551883	2,731715	3,994851	5,520499	6,894902	1,946805
	6.4 (Mayor o igual a 145 kV)	3,123313	0,000000	1,811664	3,511473	4,991205	1,007911

- **Variable fee** (called ‘transitory fee for self-consumed energy’, expressed in €/kWh): Shall be applied to the hourly self-consumption during the transitory period (until the fees associated to the system are approved by the Government). Consumers adhered to type 1 self-consumption with a hired power inferior or equal to 10 kW are exempted from paying this fee.

DT1(3)(b) foresees the amount of such fees for each category of access toll applicable from January 2016:

Peaje de acceso	Cargo transitorio por energía autoconsumida (€/kWh)					
	Periodo 1	Periodo 2	Periodo 3	Periodo 4	Periodo 5	Periodo 6
2.0 A (Pc ≤ 10 kW)	0,049033					
2.0 DHA (Pc ≤ 10 kW)	0,063141	0,008907				
2.0 DHS (Pc ≤ 10 kW)	0,063913	0,009405	0,008767			
2.1 A (10 < Pc ≤ 15 kW)	0,060728					
2.1 DHA (10 < Pc ≤ 15 kW)	0,074079	0,018282				
2.1 DHS (10 < Pc ≤ 15 kW)	0,074851	0,021301	0,014025			
3.0 A (Pc > 15 kW)	0,029399	0,019334	0,011155			
3.1A (1 kV a 36 kV)	0,022656	0,015100	0,014197			
6.1A (1 kV a 30 kV)	0,018849	0,016196	0,011534	0,012518	0,013267	0,008879
6.1B (30 kV a 36 kV)	0,018849	0,013890	0,010981	0,011905	0,012871	0,008627
6.2 (36 kV a 72.5 kV)	0,020138	0,016194	0,011691	0,011696	0,011996	0,008395
6.3 (72.5 kV a 145 kV)	0,022498	0,017414	0,012319	0,011824	0,011953	0,008426
6.4 (Mayor o igual a 145 kV)	0,018849	0,013138	0,010981	0,011104	0,011537	0,008252

- The following are the **components** of this variable fee:
 1. The variable fees associated to the system costs minus the corresponding losses;
 2. The payments by capacity; and
 3. Other system services, making a distinction between:
 - a) those associated to adjustment services, except for the diversion costs;
 - b) fees associated to the management service of interruptibility;
 - c) fees associated to the compensations to the market and system operators.
- The **value** of each of these components are set in Annex IV of RD 900/2015.

¹⁰⁶ This power (*potencia de aplicación de cargos*) is the power required by the consumer’s installation in a pricing period. (Article 3(1)(m) RD 900/2015).

¹⁰⁷ When the value of this difference is negative, it shall be considered null. (DT1(3)(a) RD 900/2015).

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

General

In general terms, and as mentioned above under Section 3.1, RD 900/2015 has been criticised for imposing economic barriers to self-consumption rather than promoting it.¹⁰⁸ Under this legislation, prosumers have to pay fees both for the generated energy and the self-consumed energy. Furthermore, only consumers adhering to a type 2 self-consumption scheme are economically compensated for the energy they feed back to the grid. Type 1 self-consumption which, under the present study would be the genuine prosumer scheme (consumer that produces and consumes energy without an intermediary), does not benefit from any economic compensation even if they feed energy back to the grid. This could be due to the fact that under RD 900/2015 type 1 is considered only as a consumer defined as a natural or legal person who acquires energy for their own consumption¹⁰⁹. Meanwhile, type 2 self-consumers are considered both as consumers and producers¹¹⁰.

Royal Decree-law 1/2012¹¹¹ suspended the economic incentives for the installation of new plants producing electric energy via renewable energy sources created by Law 40/1994 (see above Question 3.1). Further urgent measures for the stabilisation of the electric sector were adopted by Royal Decree-law 9/2013¹¹², abandoning the incentives system set by Law 54/1997 (retribution regime and the registry).

The PER proposes a programme of direct subsidies for low-power eolic energy technologies (power equal or lower than 10kW) destined to self-consumption. For such purpose, annual programmes granting public subsidies up to a maximum amount per installation depending on the ratio €/kW should be launched¹¹³. The same kind of subsidies programmes are foreseen for low-power self-consumption PV projects¹¹⁴. These programmes aim at achieving the technical-economic feasibility and the commercial take-off of these typologies of projects.

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?

¹⁰⁸ González-Quintana, M., 2016, 'Analysis of the electrical self-consumption from the perspective of the final consumer' (*Análisis del autoconsumo eléctrico desde la perspectiva del consumidor final*), University of Cantabria, available at <http://repositorio.unican.es:8080/xmlui/bitstream/handle/10902/9417/387968.pdf?sequence=1&isAllowed=y> (last accessed 8 December 2016); El Economista, 'Solar electrical self-consumption: a way to bring savings with excess of bureaucracy' (*Autoconsumo solar eléctrico: una vía de ahorro con exceso de burocracia*), 4 June 2016, available at <http://www.eleconomista.es/economia/noticias/7613348/06/16/Autoconsumo-solar-electrico-una-via-de-ahorro-con-exceso-de-burocracia.html> (last accessed 8 December 2016); ABC.es, 'The Government regulates the electrical self-consumption and sanctions its access to the grid' (*El Gobierno regula el autoconsumo eléctrico y penaliza su conexión a la red*), 11 October 2015, available at <http://www.abc.es/economia/20151010/abci-gobierno-regulacion-autoconsumo-201510092150.html> (last accessed 8 December 2016).

¹⁰⁹ Article 4(1)(a) RD 900/2015 in relation with Article 6(1)(g) Law 24/2013.

¹¹⁰ Article 4(1)(b) RD 900/2015.

¹¹¹ Royal Decree-law 1/2012, of 27 January, suspending the retribution pre-allocation procedures and the economic incentives for new installations producing electric energy from cogeneration, renewable energy sources and waste (*Real Decreto-ley 1/2012, de 27 de enero, por el que se procede a la suspensión de los procedimientos de preasignación de retribución y a la supresión de los incentivos económicos para nuevas instalaciones de producción de energía eléctrica a partir de cogeneración, fuentes de energía renovables y residuos*) State Gazette BOE-A-2012-1310 available at <https://www.boe.es/buscar/act.php?id=BOE-A-2012-1310>.

¹¹² Royal Decree-law 9/2013, of 12 July, adopting urgent measures to guarantee the financial stability of the electric system (*Real Decreto-ley 9/2013, de 12 de julio, por el que se adoptan medidas urgentes para garantizar la estabilidad financiera del sistema eléctrico*), State Gazette BOE-A-2013-7705, available at https://www.boe.es/diario_boe/txt.php?id=BOE-A-2013-7705.

¹¹³ IDAE, PER 2011-2020, p. 260 and pp. 557-558.

¹¹⁴ IDAE, PER 2011-2020, pp. 388-389.

Answer:

As analysed in Section 5.5 above, both modalities of self-consumption have to pay the so-called 'tax to the sun' (*impuesto al sol*) and the 'back-up toll' (*peaje de respaldo*) for the fact of generating and consuming electricity, even if this does never access the grid. This toll is the result of an aggregation of two kinds of charges¹¹⁵:

- **Fees associated to the costs of the electric system** (regulated in Article 17 RD 900/2015): These fees are conceived to compensate the costs of the electricity system which are not due to transport and distribution. These costs include, among others, the additional costs for the production of energy in the non-peninsular territories (Balearic Islands and Canary Islands), the compensation for renewable energy, the payment to electricity plants that support the electricity system when there are peaks of demand, the fee that has to be paid to the CNMC, etc.¹¹⁶
- **Fees for other services of the system** (regulated in Article 18 RD 900/2015): This is the payment for the back-up function that the electricity system has in case that the self-consumption systems do not work.

Therefore, in Spain, whether the self-consumption scheme has access to the grid or not, these fees have to be paid.

In addition, Royal Decree 1164/2001¹¹⁷ establishes the rules regarding **tolls to access the transport and distribution networks** which are applicable to both types of self-consumption schemes. The specific amounts of these tolls are established in Annex I of Order of the MINETUR IET/107/2014¹¹⁸.

Regarding the retribution or compensation that prosumers may receive from feeding back into the grid, only consumers adhering to type 2 self-consumption will receive such compensation¹¹⁹. Under RD 900/2015, only consumers adhered to Type 2 can receive an economic retribution (*compensación económica*) for discharging energy back to the grid¹²⁰. They will receive a retribution for the excess of energy which shall be retributed at the market price at the time (hour) that it is discharged to the grid. Type 1 self-consumers can discharge energy back to the grid but will not receive any kind of economic retribution for it¹²¹.

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?

¹¹⁵ Andreu, F., 2015, '10 keys to understand the Royal Decree on Self-consumption' (*10 claves para entender el Real Decreto de Autoconsumo*), available at <http://solartradex.com/blog/10-claves-para-entender-el-real-decreto-de-autoconsumo/> (last accessed 21 December 2016).

¹¹⁶ These costs are defined in Article 13 of Law 24/2013.

¹¹⁷ Royal Decree 1164/2001, of 26 October, establishing access tariffs to the transport and distribution networks (*Real Decreto 1164/2001, de 26 de octubre, por el que se establecen tarifas de acceso a las redes de transporte y distribución de energía eléctrica*), State Gazette BOE-A-2001-20850, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2001-20850> (last accessed 7 December 2016).

¹¹⁸ Order IET/107/2014, of 31 January, reviewing the access tolls of electric energy for 2014 (*Orden IET/107/2014, de 31 de enero, por la que se revisan los peajes de acceso de energía eléctrica para 2014*) State Gazette BOE-A-2014-1052, available at https://www.boe.es/diario_boe/txt.php?id=BOE-A-2014-1052 (last accessed 1 December 2016).

¹¹⁹ Article 14 (3) RD 900/2015.

¹²⁰ Article 14(3) RD 900/2015.

¹²¹ Mendoza Losana, A.I., 2015, 'The royal decree on electricity self-consumption or the paradox of having to pay to generate energy' (*El real decreto de autoconsumo eléctrico o la paradoja de pagar por generar energía*), Gomez-Acebo&Pombo, available at <http://www.gomezacebo-pombo.com/media/k2/attachments/el-real-decreto-de-autoconsumo-electrico-o-la-paradoja-de-pagar-por-generar-energia.pdf> (last accessed 6 December 2016).

Answer:

Spain succeeded in developing renewable power generation through a combination of feed-in tariffs (FiT) and a market premium scheme applied until the beginning of the financial crisis. At the beginning of 2012, a moratorium was put on any support for new installations. In March 2013, the tariffs' annual adaptation to the inflation rate for existing installations was abandoned increasing the operational costs and taxes. The market premium was phased out in 2013 without any substitution. In June 2014, the remaining reduced FiTs for existing renewable power plants finally were all stopped¹²².

Question 5.5 analyses in detail the currently fees imposed to the different modalities of self-consumption. In summary, all self-consumption installations have to pay the **fees for the generated energy and the self-consumed energy. This has been called in the Spanish literature and newspapers as 'tax to the sun' (*impuesto al sol*)**¹²³. As explained in Question 6.1, this tax is formed by two kinds of charges: fees associated to the costs of the electric system and fees for other services of the system which, at the same time, encompass different kinds of charges that have to be paid by the consumer.

In addition, Law 15/2012, of 27 December, on financial measures for the sustainability of electricity¹²⁴ sets a **tax common to all installations producing electricity**¹²⁵, whether they are run by a natural or a legal person¹²⁶. The taxable base is the total amount that the taxpayer gets for producing electricity and feeding it to the grid in the tax period¹²⁷, which is the natural year¹²⁸. The tax is set at seven per cent¹²⁹. The amount that the installation will have to pay will be the result of applying this tax to the taxable base and would only be payable when the produced electricity is fed to the grid. This amount receives the name of total quota (*cuota íntegra*)¹³⁰. In addition, it creates a canon for the use of continental waters for the production of electric energy with a 22% tax rate.

The Spanish RD 900/2015 only recognises Type 2 prosumers to benefit from a special reduced tariff related to the cost to upgrade the grid to compensate for the extra energy generation they feed into the grid (see Section 6.1).

In addition, the PER proposes a programme of **direct subsidies** for low-power eolic energy technologies (power equal or lower than 10kW) destined to self-consumption. For such purpose, annual programmes granting public subsidies up to a maximum amount per installation depending

¹²² *Ibidem*.

¹²³ For example: Andreu, F., 2015, '10 keys to understand the Royal Decree on Self-consumption' (*10 claves para entender el Real Decreto de Autoconsumo*), available at <http://solartradex.com/blog/10-claves-para-entender-el-real-decreto-de-autoconsumo/>; Energías Renovables, 'The legal coverage of self-consumption in Spain' (*La cobertura legal del autoconsumo en España*), 21 April 2016, available at <http://www.energias-renovables.com/fotovoltaica/la-cobertura-legal-del-autoconsumo-en-espana-20160421>; González Navarro, J., for ABC, 'The Government regulates the electric self-consumption and sanctions its connexion to the grid' (*El Gobierno regula el autoconsumo eléctrico y penaliza su conexión a la red*), available at <http://www.abc.es/economia/20151010/abci-gobierno-regulacion-autoconsumo-201510092150.html> (last accessed 8 December 2016); Mendoza Losana, A.I., 2015, 'The royal decree on electricity self-consumption or the paradox of having to pay to generate energy' (*El real decreto de autoconsumo eléctrico o la paradoja de pagar por generar energía*), Gomez-Acebo&Pombo, available at <http://www.gomezacebo-pombo.com/media/k2/attachments/el-real-decreto-de-autoconsumo-electrico-o-la-paradoja-de-pagar-por-generar-energia.pdf> (last accessed 6 December 2016); Dólera, L., 2015, 'Analysis of RD 900/2015 on self-consumption' (*Análisis del RD 900/2015 de autoconsumo*), available at http://www.f2e.es/uploads/doc/20151204091955.01_unef_autoconsumo_in_out.pdf (last accessed 8 December 2016).

¹²⁴ Law 15/2012, of 27 December, on financial measures for the sustainability of electricity (Ley 15/2012, de 27 de diciembre, de medidas fiscales para la sostenibilidad energética), State Gazette BOE-A-2012-15649, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2012-15649&p=20131227&tn=1> (last accessed 21 December 2016).

¹²⁵ Article 4 Law 15/2012.

¹²⁶ Article 5 Law 15/2012.

¹²⁷ Article 6 Law 15/2012.

¹²⁸ Article 7 Law 15/2012.

¹²⁹ Article 8 Law 15/2012.

¹³⁰ Articles 8 and 9 Law 15/2012.

on the ratio €/kW should be launched¹³¹. The same kind of subsidies programmes are foreseen for low-power self-consumption PV projects¹³². However, Royal Decree-law 1/2012¹³³ suspended all economic incentives for new electricity production installations using, among others, renewable energy sources (see Question 3.1).

Furthermore, the PER foresees a **compensation mechanism**. The periods where the demand surpasses the offer are compensated with the excess stored energy from periods where the offer surpasses the demand. This mechanism receives the name of net balance (*balance neto*). This system circumvents the need to add accumulation systems in the installations, avoiding the extra costs that such systems entail and increasing their efficiency of distribution and transport networks¹³⁴.

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

General

As analysed in the previous sections of this study, although Law 24/2013 regulated for the first time the legal framework applicable to residential prosumers, there seems to be no real measures encouraging the formation of energy communities. Instead, the current legislation seems to have been conceived more as a contention regime than a favourable one¹³⁵.

Electricity cooperatives would be ruled by the general law on cooperatives (27/1999)¹³⁶, which does not refer specifically to prosumers and sets a general procedure for the constitution of cooperatives.

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

General

RD 900/2015 has been severely criticised for creating more barriers than encouraging the self-consumption of electric energy. Instead, the current legislation seems to have been conceived more

¹³¹ IDAE, PER 2011-2020, p. 260 and pp. 557-558.

¹³² IDAE, PER 2011-2020, pp. 388-389.

¹³³ Royal Decree-law 1/2012, of 27 January, suspending the retribution pre-allocation procedures and the economic incentives for new installations producing electric energy from cogeneration, renewable energy sources and waste (*Real Decreto-ley 1/2012, de 27 de enero, por el que se procede a la suspensión de los procedimientos de preasignación de retribución y a la supresión de los incentivos económicos para nuevas instalaciones de producción de energía eléctrica a partir de cogeneración, fuentes de energía renovables y residuos*) State Gazette BOE-A-2012-1310 available at <https://www.boe.es/buscar/act.php?id=BOE-A-2012-1310>.

¹³⁴ IDAE, PER 2011-2020, 'Executive Summary' (*Resumen Ejecutivo*), p. XLII, and pp. 537-39.

¹³⁵ For example: Andreu, F., 2015, '10 keys to understand the Royal Decree on Self-consumption' (*10 claves para entender el Real Decreto de Autoconsumo*), available at <http://solartradex.com/blog/10-claves-para-entender-el-real-decreto-de-autoconsumo/>; Energías Renovables, 'The legal coverage of self-consumption in Spain' (*La cobertura legal del autoconsumo en España*), 21 April 2016, available at <http://www.energias-renovables.com/fotovoltaica/la-cobertura-legal-del-autoconsumo-en-espana-20160421>; González Navarro, J., for ABC, 'The Government regulates the electric self-consumption and sanctions its connexion to the grid' (*El Gobierno regula el autoconsumo eléctrico y penaliza su conexión a la red*), available at <http://www.abc.es/economia/20151010/abci-gobierno-regulacion-autoconsumo-201510092150.html> (last accessed 8 December 2016); Mendoza Losana, A.I., 2015, 'The royal decree on electricity self-consumption or the paradox of having to pay to generate energy' (*El real decreto de autoconsumo eléctrico o la paradoja de pagar por generar energía*), Gomez-Acebo&Pombo, available at <http://www.gomezacebo-pombo.com/media/k2/attachments/el-real-decreto-de-autoconsumo-electrico-o-la-paradoja-de-pagar-por-generar-energia.pdf> (last accessed 6 December 2016); Dólera, L., 2015, 'Analysis of RD 900/2015 on self-consumption' (*Análisis del RD 900/2015 de autoconsumo*), available at http://www.f2e.es/uploads/doc/20151204091955.01_unef_autoconsumo_in_out.pdf (last accessed 8 December 2016).

¹³⁶ Law 27/1999, of 16 July, on Cooperatives (*Ley 27/1999, de 16 de julio, de Cooperativas*), State Gazette BOE-A-1999-15681, available at <https://www.boe.es/buscar/act.php?id=BOE-A-1999-15681> (last accessed 8 December 2016).

as a contention regime than a favourable one¹³⁷. As explained in Question 6.1, both modalities of self-consumption have to pay the so-called ‘tax to the sun’ (*impuesto al sol*) and the ‘back-up toll’ (*peaje de respaldo*) for generating and consuming electricity, even if this does never access the grid. This would act as a considerable barrier for residential prosumers who may not be capable to afford not only the setting up of a self-consumption scheme, but overall the costs of maintaining it.

Furthermore, the abolishment of economic incentives for production facilities using renewable energy sources by Royal Decree-law 1/2012 could also act as a significant hurdle to the proliferation of self-consumption schemes among residential prosumers.

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:

Article 11 RD 900/2015 sets the general requirements regarding the measurement of the energy produced in self-consumption systems, including the requirement to have metering systems enabling the correct measurement and invoicing for the circulating energy. The system ensures the full integration of the different types of self-consumers in the market as follows:

- The total net generated energy shall be the total energy produced by a generator measured at the terminal minus the consumed energy by the auxiliary services taking into account the energy loss to increase the energy bars of the generator¹³⁸. If need be, due to the possible energy loss, the measurements of the equipment shall be increased to the power level of the frontier point¹³⁹.
- The measuring points (*puntos de medida*) shall comply with the requirements and conditions set in the Unified Regulation on measuring points of the electric system approved by Royal Decree 1110/2007¹⁴⁰. It is worth noting that Article 7 of this RD establishes three types of measuring points for 5 types of installations according to their generation power or the nominal apparent power at the point¹⁴¹.

Measuring points	Type 1	Type 2	Type 3	Type 4	Type 5
Points situated in the frontiers of clients with a hired power in any period is	equal to or higher than 10 MW	equal to or higher than 450 kW	–	Lower than 50kW Higher than 15 kW	equal to or lower than 15 kW
Points situated in the	Equal to or	Equal to or	–	-	Equal to or

¹³⁷ For example: Andreu, F., 2015, ‘10 keys to understand the Royal Decree on Self-consumption’ (*10 claves para entender el Real Decreto de Autoconsumo*), available at <http://solartradex.com/blog/10-claves-para-entender-el-real-decreto-de-autoconsumo/>; Energías Renovables, ‘The legal coverage of self-consumption in Spain’ (*La cobertura legal del autoconsumo en España*), 21 April 2016, available at <http://www.enerbias-renovables.com/fotovoltaica/la-cobertura-legal-del-autoconsumo-en-espana-20160421>; González Navarro, J., for ABC, ‘The Government regulates the electric self-consumption and sanctions its connexion to the grid’ (*El Gobierno regula el autoconsumo eléctrico y penaliza su conexión a la red*), available at <http://www.abc.es/economia/20151010/abci-gobierno-regulacion-autoconsumo-201510092150.html> (last accessed 8 December 2016); Mendoza Losana, A.I., 2015, ‘The royal decree on electricity self-consumption or the paradox of having to pay to generate energy’ (*El real decreto de autoconsumo eléctrico o la paradoja de pagar por generar energía*), Gomez-Acebo&Pombo, available at <http://www.gomezacebo-pombo.com/media/k2/attachments/el-real-decreto-de-autoconsumo-electrico-o-la-paradoja-de-pagar-por-generar-energia.pdf> (last accessed 6 December 2016); Dólera, L., 2015, ‘Analysis of RD 900/2015 on self-consumption’ (*Análisis del RD 900/2015 de autoconsumo*), available at http://www.f2e.es/uploads/doc/20151204091955.01_unef_autoconsumo_in_out.pdf (last accessed 8 December 2016).

¹³⁸ Article 3 (30), (31) and (32) RD 1110/2007.

¹³⁹ Article 11(2) RD 900/2015.

¹⁴⁰ Royal Decree 1110/2007, of 24 August, approving the Unified Regulation on measuring points of the electric system (*Real Decreto 1110/2007, de 24 de agosto, por el que se aprueba el Reglamento unificado de puntos de medida del sistema eléctrico*), State Gazette BOE-A-2007-16478, available at by <https://www.boe.es/buscar/act.php?id=BOE-A-2007-16478> (last accessed 7 December 2016). Hereinafter, RD 1110/2007.

¹⁴¹ Article 7 RD 1110/2007.

generation frontiers with an apparent nominal power	higher than 12 MVA	higher than 450 kVA			lower than 15 kVA
Points situated in any other frontier with an annual exchange energy equal to or higher than:	5 GWh	750 MWh	–	–	–

* Type 3's measuring points meet none of the other requirements.

- The measuring equipment shall be installed in the network, in the closest possible point to the frontier point and shall have the capacity to take measurements, at least, every hour.
- Under RD 1110/2007, the person in charge to read the measurements shall be the owner of the measuring point and of the electricity installations where such point is. The consumer and the producer are both responsible in equal parts for the measuring equipment and the installation of connection to the grid¹⁴².
 - In Type 1 systems, this person shall be the distributor¹⁴³.
- The person in charge of reading the measurements shall also control the power and the excess of energy and determine the hourly net availability of energy (*saldo neto horario*) and distribute it among the participants of the system. For such purpose, this person may make use of all of the measuring data from all the necessary equipment. If no reliable measurement in the measuring point exists, such measurements shall be obtained from redundant or verification equipment. If these are also missing, the person in charge of reading the measurements will make an estimate of the active and reactive energy, the power to allocate and shall make them available for the participants in the network¹⁴⁴.

The specific measuring equipment requirements for each modality of self-consumption are shown in the table below:

Type 1 self-consumption (Art. 12 RD 900/2015)	Type 2 self-consumption (Art. 13 RD 900/2015)
The consumers adhered to Type 1 self-consumption schemes shall have at their availability the measuring equipment necessary for the billing of the price, tariffs, fees, tolls and other applicable costs and services of the system. For such purpose, they will have a measuring point registering the net generated energy of the generation installation and another independent measuring equipment installed in the frontier point (see figure above in question 5.1).	The consumers adhered to Type 2 self-consumption schemes shall have at their availability the measuring equipment necessary for the billing of the price, tariffs, fees and tolls which are applicable in accordance to the following criteria: 1) General measuring equipment • A bidirectional equipment measuring the net generated energy. • A measuring equipment registering the total consumed energy by the associated consumer. • Optionally, a bidirectional measuring equipment in the frontier point. 2) If the sum of the installed power of the production installations connected to the internal network of the consumer is not higher than 100 kW and the consumer and the owners of the production installation are the same legal or natural person, alternatively to the equipment in number 1, they must have: • A bidirectional equipment measuring the net

¹⁴² Article 3(4) RD 1110/2007.

¹⁴³ Article 11(3) RD 900/2015.

¹⁴⁴ Article 31 RD 1110/2007.

	generated energy. • A bidirectional measuring equipment in the frontier point. • Optionally, a measuring equipment registering the total consumed energy by the associated consumer. 3) Consumers adhered to Type 2 self-consumption linked to the grid through a direct line shall have the measuring equipment necessary for the billing of price, tariffs, fees or tolls which enable the implementation of the access toll of the transport and distribution networks on the power and energy required by the grid, the fees associated to the costs of the electric system applied to all the consumption independently of where it comes from and the fee for other services of the system applicable on the self-consumed energy.
--	---

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

Answer:

Article 15 RD 900/2015 sets the following **payment/settlement and billing rules**:

- Consumers who, regardless of the modality of self-consumption, acquire their energy directly from the production market shall settle their energy in accordance with the general rules on settlement of the production market.
- Consumers who acquire their energy through a trading company shall settle their energy in accordance with the agreement between the parties on a monthly basis and in accordance with the real hourly readings or at the tariff corresponding to the hourly demand in accordance with Royal Decree 216/2014¹⁴⁵.
- The distribution company shall bill the access tolls, the fees associated to the costs of the electric system and the fees for other services of the system. If the consumer has hired access to the grid through a trader, this will carry the billing for the access toll to the grid and fees, the fee for other services of the system, breaking down these concepts in the invoice. Direct consumers in the market shall assume the fees which are applicable in accordance to the enforceable legislation.

For the settlement of discharge of the excess of energy generated by the non-direct consumer in the market (type 1), the discharge will be passed to the electric system without any economic compensation. For the settlement of the hourly discharge of producers adhered to type 2 self-consumption, the general regulation on production activities shall be applicable¹⁴⁶.

¹⁴⁵ Royal Decree 216/2014, of 28 March, establishing the methodology for the calculation of the voluntary prices for the small electricity consumer and their contracts legal framework (*Real Decreto 216/2014, de 28 de marzo, por el que se establece la metodología de cálculo de los precios voluntarios para el pequeño consumidor de energía eléctrica y su régimen jurídico de contratación*), State Gazette BOE-A-2014-3376, available at https://www.boe.es/diario_boe/txt.php?id=BOE-A-2014-3376 (last accessed 7 December 2016).

¹⁴⁶ These are Royal Decree 413/2014, of 6 June, regulating the activity of producing electric energy from renewable energy sources, cogeneration and waste (*Real Decreto 413/2014, de 6 de junio, por el que se regula la actividad de producción de energía eléctrica a partir de fuentes de energía renovables, cogeneración y residuos*), State Gazette BOE-A-2014-6123, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2014-6123> and Royal Decree 738/2015, of 31 July, regulating the activity of electric energy production and the dispatch procedure in the electric systems of non-peninsular territories (*Real Decreto 738/2015, de 31 de julio, por el que se regula la actividad de producción de energía eléctrica y el procedimiento de despacho en los sistemas eléctricos de los territorios no peninsulares*), State Gazette BOE-A-2015-8646, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2015-8646> (last accessed 7 December 2016).

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:

Although RD 900/2015 establishes that the owner of the supply point will have to be the same of the consumption equipment and the generation installations connected to the internal network (*red interior*)¹⁴⁷, this can be either a natural person or a legal person¹⁴⁸. This means that, when the owner is a legal person, a neighbours' community (*comunidad de vecinos*), for example, can be the owner of the self-consumption scheme¹⁴⁹. These communities are normally constituted under the legal form of 'common property' (*comunidad de bienes*) which allows them to carry out any activity, including selling electricity, as far as this is mentioned in their statutes¹⁵⁰.

However, there are no real incentives for the creation of energy communities at municipal level or other schemes to encourage inclusive development of the market. In fact, RD 900/2015 has been criticised for introducing more barriers than encouraging self-consumption systems. Article 4(3) RD 900/2015 provides that a generator can never be connected to the internal network of several consumers. This would result in a tacit prohibition of the consumers' associations¹⁵¹, although a generator could supply electricity for the common facilities of a community, for example, lifts, light in the common areas, general heater, etc.¹⁵²

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?

As mentioned above in Section 7.3, under the current legislation there seems to be no scheme to provide legal entity to energy communities. However, these can adhere to the Law on Cooperatives (analysed in Section 7.5 below).

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

Law 27/1999¹⁵³ establishes the legal framework for cooperatives. Under this law, electrical cooperatives for prosumers could be established under the form of 'consumers and users' cooperatives'. Article 88 of the Law describes these as those which aim to supply goods and services acquired from third parties or produced by themselves, for the use and consumption of the cooperative members and of those who live with them. Electrical cooperatives also have as an

¹⁴⁷ Article 5(1)(c) and (2)(b) RD 900/2015.

¹⁴⁸ Article 6(1)(a) and (g) Law 24/2013.

¹⁴⁹ Soleco, 'Self-consumption approves of the neighbours' communities' (*El autoconsumo dice sí a las comunidades de vecinos*), 11 November 2015, available at <http://www.soleco.es/index.php/es/novedades/247-el-autoconsumo-dice-si-a-las-comunidades-de-vecinos> (last accessed 8 December 2015); Krannich, 'Remove your doubts on the self-consumption RD' (*Resuleve tus dudas sobre el RD de autoconsumo*), available at <http://es.krannich-solar.com/es/autoconsumo/que-es-la-energia-solar/dudas-rd-autoconsumo.html> (last accessed 8 December 2016).

¹⁵⁰ Krannich, 'Remove your doubts on the self-consumption RD' (*Resuleve tus dudas sobre el RD de autoconsumo*), available at <http://es.krannich-solar.com/es/autoconsumo/que-es-la-energia-solar/dudas-rd-autoconsumo.html> (last accessed 8 December 2016).

¹⁵¹ González-Quintana, M., 2016, 'Analysis of the electrical self-consumption from the perspective of the final consumer' (*Análisis del autoconsumo eléctrico desde la perspectiva del consumidor final*), University of Cantabria, p. 68, available at <http://repositorio.unican.es:8080/xmlui/bitstream/handle/10902/9417/387968.pdf?sequence=1&isAllowed=y> (last accessed 8 December 2016).

¹⁵² Krannich, 'Remove your doubts on the self-consumption RD' (*Resuleve tus dudas sobre el RD de autoconsumo*), available at <http://es.krannich-solar.com/es/autoconsumo/que-es-la-energia-solar/dudas-rd-autoconsumo.html> (last accessed 8 December 2016).

¹⁵³ Law 27/1999, of 16 July, on Cooperatives (*Ley 27/1999, de 16 de julio, de Cooperativas*), State Gazette BOE-A-1999-15681, available at <https://www.boe.es/buscar/act.php?id=BOE-A-1999-15681> (last accessed 8 December 2016).

objective the training and defence of the interests of the members as well as those of all consumers and users in general. All natural persons or organisations who are the final recipients of the goods or services may be members of the cooperative.

Law 27/1999 provides a general procedure for the constitution of all types of cooperatives, without making any distinctions in regard of the kind of cooperative. The following are the requirements to constitute a cooperative:

- To acquire legal entity the constitution of the cooperative shall be formalised through public deed filed within a month of its formation with the Register of Cooperatives (Article 7). Until it is not registered, the cooperative shall signal in its name that it is in the process of being established (*cooperativa en constitución*) (Article 9 and 10(2)).
- Content of the public deed of constitution (Article 10)
 - Identity of the persons promoting the constitution of the cooperative (*promotores*);
 - Expression by these promoters that they meet the necessary requirements to be members of the cooperative;
 - Expression of their will to constitute a cooperative and the class of cooperative it is;
 - Certification by the promoters that they have provided the compulsory minimum capital to be members and the amount disbursed;
 - If applicable, value of the non-monetary contributions with their register information, indicating which have been made by each promoter;
 - Certification by the promoters that the total amount of the disbursed contributions is not lower to the minimum social capital established in the statutes.
 - Identity of the persons who, once the cooperative has been registered, will occupy the management positions (*consejo rector, interventor*) and expression that no disability cause or prohibition to carry out these positions concurs.
 - Declaration that no other entity with the same name exists. For such purpose, a certificate proving this issued by the Register of Cooperatives shall be filed with the notary.
 - The Statutes (the mandatory content of these is established in Article 11).
- Minimum number of members: three (Article 8)¹⁵⁴.

The costs of constituting a cooperative are, thus, those related to formalising the constitution in public deed, the notary costs and the costs of registration.

While there is not a specific procedure for cooperatives of prosumers, the easy procedure for their constitution might be an incentive to provide communities with a legal entity which would enable them to avoid some existing barriers such as the prohibition to link a generator to the internal network of several consumers (Article 4(3) RD 900/2015 - see question 7.3).

8. Other questions on the regulatory framework

8.1. What are the procedures/provisions for establishing what are the complaint handling procedures for each type of residential prosumer?

As it has been explained in Section 4.1, Article 5 RD 900/2015 sets the general requirements to adhere to the Type 1 or Type 2 self-consumption schemes. In both schemes, installations with a power lower or equal to 100 kW (low-power installations) shall fulfil the requirements of Royal Decree 1699/2011¹⁵⁵. Under RD 1699/2011 the owners of generation installations whose request

¹⁵⁴ When the cooperative is a group of cooperatives, the minimum number to constitute it shall be of at least 2 cooperatives.

¹⁵⁵ Royal Decree 1699/2011, of 18 November, regulating the connexion to the grid of low-power electric energy production installations (*Real Decreto 1699/2011, de 18 de noviembre, por el que se regula la conexión a red de instalaciones de producción de energía eléctrica de pequeña potencia*), State Gazette BOE-A-2011-19242, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2011-19242>. Hereinafter RD 1699/2011.

of access to the grid has been rejected by the electricity company can resort to the competent authority¹⁵⁶. If the disagreement persists it can be raised to the National Energy Commission (*Comisión Nacional de Energía*, CNE – now the National Commission for Markets and Competition)¹⁵⁷.

In the case of installations with a power over 100 kW, the applicable legislation is RD 1955/2000. Under this RD, the National Energy Commission (now the National Commission for Markets and Competition¹⁵⁸) is the competent authority to resolve conflicts in relation to the access to the transport network or the access to the distribution network¹⁵⁹ with the support of the Ministry of Energy¹⁶⁰. In relation to the establishment of a direct line at regional level¹⁶¹ the competent authority to deal with the complaint is the corresponding Industry and Energy department.

Regarding the competent authority referred to above, Law 24/2013 provides that the State (through the MINETAD) shall issue the authorisation for electrical installations of over 50 MW and those that involve the territory of several Autonomous Communities¹⁶². Hence, the MINETAD would be in charge of solving the claims regarding these authorisations. For installations with a power lower than 50MW or when the concerned territory by the installation is the Autonomous Community, the Industry and Energy department at that level will be the competent authority. This sharing of competences results from the distribution established in the Spanish Constitution¹⁶³.

In relation to the consumer rights, the supplier of electricity is required to provide consumers with information on how to file a complaint including filing with the electricity supplier itself. The complaint can also be sent to an independent body for an out-of-court dispute such as the Consumer Arbitration System (*Sistema Arbitral de Consumo*) or a consumer association.

The procedure to file complaints is not described in the legislation applicable to the electrical sector. Therefore, there is no specific procedure for the handling of prosumers' claims.

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

There are not any specific redress procedures for residential prosumers. The Consumer redress procedures in Spain is mainly channelled through the public Consumer Arbitration Boards and some sector specific schemes like the one for commercial activities carried out by Auto-control¹⁶⁴.

¹⁵⁶ Article 5(2)-(6) RD 1699/2011.

¹⁵⁷ Article 5(7) RD 1699/2011.

¹⁵⁸ https://ec.europa.eu/energy/sites/ener/files/documents/2014_countryreports_spain.pdf

¹⁵⁹ Article 53, 62 RD 1955/2000 and Article 12 of Law 3/2013

¹⁶⁰ 8th Additional provision of Law 3/2013

¹⁶¹ Article 68 RD 1955/2000. The applicable legislation sets that the request has to be filed with the Industry and Energy department of the delegation or sub-delegation of the Government (*delegaciones o sub-delegaciones de gobierno*), as appropriate. The delegations of the Government are representatives of the State in the Autonomous Communities while the sub-delegations represent the State in the provinces. Where an Industry and Energy department exists at province level, this will be the authority with which the request to establish the direct line shall be filed; if not, it will be with the department existing at Autonomous Community level in the delegation of government. Where neither of these exist, the competent authority is the Directorate General of Energy and Mine Policy.

¹⁶² Article 3 Law 24/2013.

¹⁶³ Articles 149(1)(25) and 148(1)(13) of the Spanish Constitution.

¹⁶⁴ European Commission, Country Fiches – Consumer redress. Spain, available at http://ec.europa.eu/consumers/solving_consumer_disputes/docs/ms_fiches_spain.pdf.

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 impact of the measures is considered quite favourable for the take up of residential prosumers in Spain and there is a specific regulatory framework and it clearly defines the modalities of self-consumption. The institutional framework is also clear with a distribution of competences between the State and the Autonomous Communities. • Applicable legislation, plans and objectives The Spanish legal and regulatory framework is fairly complete and includes a specific provision to regulate self-consumption (Article 9 of Law 24/2013) and the establishment of the Register on Self-consumption. Royal Decree 413/2014 regulates energy generation from renewable energy sources, cogeneration and waste. • Definition of residential prosumers The Spanish legislation includes a definition of ‘self-consumption’ under Article 9(1) Law 24/2013 as consumption of electric energy from generation installations connected to the grid. The Supreme Court considers generation installations are all ‘electric plants’ or installations capable of producing electricity¹⁶⁵. However, the definition does not distinguish whether energy is consumed in whole or in part, or whether the consumer requires additional supply from the public distribution grid¹⁶⁶. The Spanish Law distinguish two types of residential prosumers. • Institutional framework The competence on energy issues in Spain is clearly defined. It is shared competence between the State and the Autonomous Communities (Spanish Constitution) with a leading role for the State as the competent authority.¹⁶⁷	High
Specific Questions on the regulatory framework for residential prosumers	
Permitting requirements for each type of residential prosumer RD 900/2015 clearly establishes the permitting requirements for each type of residential prosumer. This has a favourable impact for the take up of residential prosumers in Spain. While a connection has to be requested, an access contract has to be concluded and an access toll has to be paid which may be acting in detriment of establishing self-consumption schemes, the permitting procedure is rather fast, it takes no more than one month. The general requirements are:	High

¹⁶⁵ Supreme Court (*Tribunal Supremo*), Judgment STS 385/2004, ECLI:ES:TS:2004:3851,

¹⁶⁶ González Ríos, I., 2014, ‘The incipient regulation of the self-consumption of the electric energy: energy, environmental and urban implications’ Special issue 99-100, p. 1628.

¹⁶⁷ Article 3 Law 24/2013.

For type 1 self-consumption: • The power hired by the consumer will not be over 100 kW. • The sum of the power of the generation installations shall be equal to or lower than that hired by the consumer (100 kW). • The owner of the supply point will be the same as the one of the consumption equipment and the generation installations connected to his grid. For type 2 self-consumption • The sum of the installed power of the production installation shall be equal to or lower than the power hired by the consumer. • Where there are several production installations, the owner of all and each of them shall be the same natural or legal person. In both cases, the installations and supply points shall fulfil the technical requirements set by the electric sector legislation and the consumers must request a new connexion from or modify the pre-existing one with the distribution company and has to conclude an access contract with the distribution company. Owners of production installations in Type 2 shall pay the access tolls to the transport and distribution networks set in law¹⁶⁸ for the discharge of energy to the grid.	
Rules applicable to the access to the grid The rules applicable to the access to the grid are clearly defined which has a positive impact as prosumers clearly know the conditions to be met; although they might find cumbersome the process of concluding an access contract and having to pay access tolls ▪ General and technical requirements¹⁶⁹ ▪ Conclusion of the access contract with the distribution company.¹⁷⁰ ▪ Type 2 self-consumption owners of production installations to pay the access tolls to the transport and distribution networks.¹⁷¹	High
Incentives (e.g taxes and tariffs) for each type of residential prosumers The taxes and tariffs applicable to self-consumption are considerable and have to be paid regardless of whether power is being fed or not back to the grid. This may have a significant negative impact and be considered as a barrier for self-consumption schemes. The costs applicable to both types of self-consumption are: • The tolls of access to the transport and distribution networks; • The fees associated to the costs of the system; • The fees for other services of the system In addition, type 1 installations do not have the possibility to compensate for the energy discharged to the grid. For type 2 installations a system of economic compensation for the energy discharged to the grid is set up which is measured through the metering system of the production installation.	Low

¹⁶⁸ Royal Decree 1544/2011.¹⁶⁹ Article 5 RD 900/2015.¹⁷⁰ Article 8 RD 900/2015.¹⁷¹ Article 9 RD 900/2015 in relation to Royal Decree 1544/2011.

Conditions encouraging or acting as barriers for residential prosumers. The rules setting the metering conditions are quite specific, however, prosumers might find them difficult to meet. The billing requirements could also be considered a hurdle for prosumers to set up self-consumption schemes. There are no measures encouraging the creation of energy communities or cooperatives. Metering systems for each type of residential prosumer RD 900/2015 sets the general requirements regarding the measurement of the energy produced in self-consumption systems as follows: ▪ The measuring points shall comply with the requirements set in the Unified Regulation on measuring points of the electric system.¹⁷² ▪ The measuring equipment shall be installed in the internal network of the consumer, in the closest possible point to the frontier point and shall have the capacity to take measurements, at least, every hour. There are specific requirements for each modality of self-consumption. In general, prosumers are provided with the measuring equipment necessary for the billing. Billing conditions for each type of residential prosumer The Spanish law sets specific set of rules: ▪ Consumers who acquire their energy directly from the production market settle their price in accordance with the general rules on settlement of the production market. ▪ Consumers who acquire their energy through a trading company settle their energy price according to the agreement between the parties on a monthly basis and real hourly readings or at the tariff corresponding to the hourly demand¹⁷³. ▪ The distribution company shall bill the access tolls, the fees associated to the costs of the electric system and the fees for other services of the system. ▪ For the settlement of the hourly discharge of producers adhered to type 2 self-consumption, the general regulation is applicable.¹⁷⁴	Medium
Other questions on the regulatory framework There are not specific complaint procedures nor redress procedures for residential prosumers. Any complaints are solved through the procedure set in the general one foreseen in the Law on the Common Administrative Procedure.¹⁷⁵	Low

¹⁷² Royal Decree 1110/2007

¹⁷³ Royal Decree 216/2014

¹⁷⁴ This are RD 413/2014 and Royal Decree 738/2015.

¹⁷⁵ Law 39/2015, of 1 October, on the Common Administrative Procedure of the Public Authorities.

Executive Summary

The development of residential prosumers has been quite expeditious in Spain since it was first envisioned in 2011¹⁷⁶. In 2013, Spain further developed the legal framework regulating self-consumption, distinguishing four modalities regardless of the RES or the size of the installation¹⁷⁷, and finalised delineating it in 2015¹⁷⁸. A further analysis of these modalities, however, allows to distinguish two kinds of installations: small or low-power installations (under 100kW) assimilated to the concept of residential prosumers and installations with a power of over 100kW.

Despite the fact that at policy level consumers are regarded as the leading party in the electric sector¹⁷⁹, the Spanish legal framework has adopted a rather restrictive approach, slowing down the development of self-consumption schemes in Spain¹⁸⁰. For instance, in 2014, the feed-in tariffs (FiT) envisioned for renewable power generation were stopped¹⁸¹ and since that same year, all installations can only rely on a capacity-based retribution which is paid to all power plants, regardless if renewable or not. In particular, solar PV energy – the main RES source for prosumers – was subject to new high network fees (‘back-up toll’) for self-consumed electricity. Against this backdrop, virtually no new solar PV units were installed in Spain in 2014. Under the Spanish legal system, there are general accession requirements common to all modalities of self-consumption, requiring individuals to request a new connexion, conclude an access contract¹⁸² and pay tolls to access the transport and distribution networks¹⁸³, in addition to the so-called ‘tax to the sun’ and ‘back-up tolls’¹⁸⁴. Furthermore, only modalities of production with self-consumption (Type 2) can receive an economic retribution for the excess of energy (not consumed)¹⁸⁵. In addition, under the current legislation there seems to be no scheme to provide with some kind of legal entity to energy communities (these can adhere to the Law on Cooperatives¹⁸⁶) and there are no specific redress procedures for residential prosumers¹⁸⁷. In conclusion, it could be argued that the current Spanish legal framework prevents more than incentivises self-consumption.

¹⁷⁶ Royal Decree 1699/2011, of 18 November, regulating the connexion to the grid of low-power electric energy production installations (*Real Decreto 1699/2011, de 18 de noviembre, por el que se regula la conexión a red de instalaciones de producción de energía eléctrica de pequeña potencia*), State Gazette BOE-A-2011-19242, available at <https://www.boe.es/buscar/act.php?id=BOE-A-2011-19242>. Hereinafter RD 1699/2011.

¹⁷⁷ Article 9 of Law 24/2013, of 26 December, on the Electric Sector (*Ley 24/2013, de 26 de diciembre, del Sector Eléctrico*), State Gazette BOE-A-2013-13645 available at <https://www.boe.es/buscar/act.php?id=BOE-A-2013-13645>. Hereinafter, Law 24/2013.

¹⁷⁸ Royal Decree 900/2015, of 9 October, regulating the administrative, technical and economic conditions of the modalities of electric energy supply with self-consumption and of the production of self-consumption (*Real Decreto 900/2015, de 9 de octubre, por el que se regulan las condiciones administrativas, técnicas y económicas de las modalidades de suministro de energía eléctrica con autoconsumo y de producción con autoconsumo*), State Gazette BOE-A-2015-10927, available at https://www.boe.es/diario_boe/txt.php?id=BOE-A-2015-10927. Hereinafter, RD 900/2015.

¹⁷⁹ IDAE, ‘Plan on Renewable Energy 2011-2020’ (*Plan de Energías Renovables 2011-2020*, PER), available at http://www.idae.es/uploads/documentos/documentos_11227_PER_2011-2020_def_93c624ab.pdf (last accessed 6 December 2016). Hereinafter, PER.

¹⁸⁰ BEUC, 2016, ‘Current practices in voluntary and consumer-driven renewable electricity markets’, available at http://www.beuc.eu/publications/beuc-x-2016-003_jmu_current_practices_in_consumer_driven_renewable_electricity_markets.pdf.

¹⁸¹ BEUC, 2016, ‘Current practices in voluntary and consumer-driven renewable electricity markets’, available at http://www.beuc.eu/publications/beuc-x-2016-003_jmu_current_practices_in_consumer_driven_renewable_electricity_markets.pdf.

¹⁸² See Section 4 of this report.

¹⁸³ See 5.5 of this report.

¹⁸⁴ See 6.1 of this report.

¹⁸⁵ Article 14(3) RD 900/2015.

¹⁸⁶ Law 27/1999, of 16 July, on Cooperatives (*Ley 27/1999, de 16 de julio, de Cooperativas*), State Gazette BOE-A-1999-15681, available at <https://www.boe.es/buscar/act.php?id=BOE-A-1999-15681> (last accessed 8 December 2016).

¹⁸⁷ See Sections 8.1 and 8.2 of this report.

Annex – Table of useful terms

The table below provides an overview of useful terms used throughout this study. While some of these definitions can be found in the legislation; others have been withdrawn from literature of relevant stakeholders, such as companies of the electricity sector (Iberdrola) or competent authorities (CNMC, Spanish Electricity Network).

Term	Description
Electricity network (<i>red eléctrica</i>) ¹⁸⁸	Connects all the electricity generation centres with all the consumption points.
Consumer (<i>consumidor</i>) ¹⁸⁹	Natural or legal persons who acquire energy for their own consumption. Those consumers who acquire energy directly in the production market shall be called ‘direct consumers in the market’ (<i>consumidores directos de mercado</i>).
Producer (<i>productor</i>) ¹⁹⁰	Natural or legal persons with the task to generate electric energy, as well as in charge of building, operating and maintaining the production installations.
Associated consumer (<i>consumidor asociado</i>) ¹⁹¹	Consumer in a supply point or installation who shares with the producer connection installations to the transport or distribution network or who is connected to this producer through a direct line or who has in his/her internal network an installation registered in the Administrative Register of production installations, irrespective of whether he/she consumes or not energy from such production installation.
Connection point (<i>punto de conexión</i>) ¹⁹²	Point of the grid where installations shared between the consumer and the producer are connected to the transport or distribution networks.
Frontier point (<i>punto frontera</i>) ¹⁹³	This expression can mean either: a) Connection point of a producer with the transport or distribution network. b) Connection point of the consumer to the transport or distribution network. c) Connection point of the transport network to the distribution one. d) Point where the transport networks belonging to different owners connect. e) Point where the distribution networks belonging to different owners connect.
Supply point (<i>punto de suministro</i>) ¹⁹⁴	Point where the energy is supplied.
Measuring point (<i>punto de medida</i>) ¹⁹⁵	Point of the network where the measuring equipment is placed.
Hourly demand (<i>demanda horaria</i>) ¹⁹⁶	Net hourly balance of the electricity received from the transport or distribution network.
Hourly self-consumption	Net hourly consumption of the electricity from generation installations connected to the network of a consumer or a producer

¹⁸⁸ Endesa, ‘The electricity network’ (*La red eléctrica*), available at http://www.endesaeduca.com/Endesa_educa/recursos-interactivos/el-transporte-de-electricidad/xv.-la-red-electrica (last accessed 21 December 2016).

¹⁸⁹ Article 6(1)(a) Law 24/2013.

¹⁹⁰ Article 6(1)(g) Law 24/2013.

¹⁹¹ Article 3(1)(b) RD 900/2015.

¹⁹² Article 3(1) RD 1110/2007.

¹⁹³ Article 3(2) RD 1110/2007.

¹⁹⁴ CNMC, ‘Hiring a supply point’ (*Contratación de un punto de suministro*), available at https://www.cnmc.es/Portals/0/Ficheros/Energia/Consumidores/Documentos_guias/Contrataci%C3%B3n%20del%20alta%20de%20un%20punto%20de%20suministro.pdf (last accessed 21 December 2016).

¹⁹⁵ Article 3(3) RD 1110/2007.

¹⁹⁶ Article 3(1)(e) RD 900/2015.

(<i>autoconsumo horario</i>) ¹⁹⁷	sharing installations to connect to the network or which are connected through a direct line.
Active power (<i>energía activa</i>) ¹⁹⁸	Energy which is transformed into mechanic work and heat. The receivers formed by pure resistances (<i>resistencias puras</i>), such as heating equipment, incandescent lamps, etc., consume exclusively this kind of energy.
Reactive power (<i>energía reactiva</i>) ¹⁹⁹	Reactive power is the one which is transformed into magnetic fields and do not produce useful work. Some receivers need this energy for their functioning, such as engines, transformers, AC machines, fridges, etc.
Power factor (<i>factor de potencia</i>) ²⁰⁰	Is the relation between the consumption of active power and apparent energy of an installation. The apparent energy of an installation depends of the active and reactive power. For the same consumption of active power, the higher the reactive power is, the lower the power factor is and higher is the economic sanction (when the power factor is lower than a certain value).
Power of fee application (<i>potencia de aplicación de cargos</i>) ²⁰¹	Power required by the installation of the consumer during a pricing period.
Internal network (<i>red interior</i>) ²⁰²	An electrical installation formed by the necessary conductors and electric equipment to provide service to a receiver installation which does not belong to the distribution network. This would mean that the generation and consumption installation would be independent from the distribution network. The distribution network transports electricity from the station establishing the appropriate levels of voltage (<i>subestación eléctrica o subestación de distribución</i>) to the final client.
Direct line (<i>línea directa</i>) ²⁰³	Line (electricity line) which directly joins a production installation with a consumer and which complies the legal requirements.
Adjustment service (<i>servicio de ajuste</i>) ²⁰⁴	Services adjusting the voltage of the network.
Interruptibility service (<i>servicio de interrumpibilidad</i>) ²⁰⁵	Services ensuring the continuity of the supply.

¹⁹⁷ Article 9(1) Law 24/2013 and 3(1)(a) RD 900/2015.

¹⁹⁸ Iberdrola, 'FAQ: What is the active and reactive power and the power factor?' (*¿Qué es la energía activa, la energía reactiva y el factor de potencia?*), available at <http://ayuda.clientes.iberdrola.es/pregunta-frecuente/que-es-la-energia-activa-la-energia-reactiva-y-el-factor-de-potencia/> (last accessed 7 December 2016).

¹⁹⁹ *Ibidem*.

²⁰⁰ *Ibidem*.

²⁰¹ Article 3(1)(m) RD 900/2015.

²⁰² Article 3(1)(ñ) RD 900/2015.

²⁰³ Article 3(1)(l) RD 900/2015.

²⁰⁴ Spanish Electricity Network (REE), 'Glosary' (*Glosario*), available at <http://www.ree.es/es/sala-de-prensa/glosario> (last accessed 21 December 2016).

²⁰⁵ Spanish Electricity Network (REE), 'Interruptibility service' (*Servicio de interrumpibilidad*), available at <http://www.ree.es/es/actividades/operacion-del-sistema-electrico/servicio-de-interrumpibilidad> (last accessed 21 December 2016).

Annex II List of relevant information sources specific to the Spanish report

Literature
Websites
Red Eléctrica España (<i>Spanish Electricity Network</i>, REE), 2015, ‘The Spanish electric system. 2015 Preview’ (<i>El sistema eléctrico español, Avance 2015</i>), available at: http://ree.es/sites/default/files/downloadable/avance_informe_sistema_electrico_2015_v2.pdf. Iberdrola, ‘FAQ: What is the active and reactive power and the power factor?’ (<i>¿Qué es la energía activa, la energía reactiva y el factor de potencia?</i>), available at http://ayuda.clientes.iberdrola.es/pregunta-frecuente/que-es-la-energia-activa-la-energia-reactiva-y-el-factor-de-potencia/ (last accessed 7 December 2016). Energías Renovables, ‘The legal coverage of self-consumption in Spain’ (<i>La cobertura legal del autoconsumo en España</i>), 21 April 2016, available at http://www.energias-renovables.com/fotovoltaica/la-cobertura-legal-del-autoconsumo-en-espana-20160421. Energía y Sociedad, ‘Energy Manual. 3.5. Spanish regulation of renewable energy’ (<i>Manual de Energía, 3.5 Regulación española de las energías renovables</i>), available at http://www.energiaysociedad.es/manenergia/3-5-regulacion-espanola-de-las-energias-renovables/. Energía y Sociedad, ‘Energy Manual. 3.2 Renewable Energy: technology, economy, evolution and integration in the electric system’ (<i>Manual de Energía. 3.2 Energías renovables: tecnología, economía, evolución e integración en el sistema eléctrico</i>), available at http://www.energiaysociedad.es/manenergia/3-2-energias-renovables-tecnologia-economia-evolucion-e-integracion-en-el-sistema-electrico/ (last accessed 6 December 2016).
Blogs
Andreu, F., 2015, ‘10 keys to understand the Royal Decree on Self-consumption’ (<i>10 claves para entender el Real Decreto de Autoconsumo</i>), available at http://solartradex.com/blog/10-claves-para-entender-el-real-decreto-de-autoconsumo/; Efinética Blog, ‘Economic analysis of self-consumption after RD 900/2015: where are the benefits for the consumer?’ (<i>Análisis económico del autoconsumo tras el RD 900/2015: ¿y los beneficios para el consumidor?</i>), available at https://efinetika.wordpress.com/2015/11/04/analisis-economico-del-autoconsumo-tras-el-rd-9002015-y-los-beneficios-para-el-consumidor/ (last accessed 30 November 2016). Efinética Blog, ‘New raise in the electricity costs: the interruptibility system’ (<i>Nueva subida de los costes eléctricos: el sistema de interrumpibilidad</i>), 16 December 2014, available at https://efinetika.wordpress.com/2014/12/16/nueva-subida-de-los-costes-electricos-el-sistema-de-interrumpibilidad/ (last accessed 30 November 2016). Soleco, ‘Self-consumption approves of the neighbours’ communities’ (<i>El autoconsumo dice sí a las comunidades de vecinos</i>), 11 November 2015, available at http://www.soleco.es/index.php/es/novedades/247-el-autoconsumo-dice-si-a-las-comunidades-de-vecinos (last accessed 8 December 2015); Krannich, ‘Remove your doubts on the self-consumption RD’ (<i>Resuelve tus dudas sobre el RD de autoconsumo</i>), at http://es.krannich-solar.com/es/autoconsumo/que-es-la-energia-solar/dudas-rd-autoconsumo.html (accessed 8 Dec 2016).
Academic articles
González-Quintana, M., 2016, ‘Analysis of the electrical self-consumption from the perspective of the final consumer’ (<i>Análisis del autoconsumo eléctrico desde la perspectiva del consumidor final</i>), University of Cantabria, available at http://repositorio.unican.es:8080/xmlui/bitstream/handle/10902/9417/387968.pdf?sequence=1&isAllowed=y (last accessed 8 December 2016); González Ríos, I., 2014, ‘The incipient regulation of the self-consumption of the electric energy: energy, environmental and urban implications’ (<i>La incipiente regulación del autoconsumo de energía eléctrica: implicaciones energéticas, ambientales y urbanísticas</i>), R.V.A.P, Special issue 99-100. Mendoza Losana, A.I., 2015, ‘The royal decree on electricity self-consumption or the paradox of having to pay to generate energy’ (<i>El real decreto de autoconsumo eléctrico o la paradoja de pagar por generar energía</i>), Gomez-Acebo&Pombo, available at http://www.gomezacebo-

pombo.com/media/k2/attachments/el-real-decreto-de-autoconsumo-electrico-o-la-paradoja-de-pagar-por-generar-energia.pdf (last accessed 6 December 2016). Gomez-Acebo&Pombo, available at http://www.gomezacebo-pombo.com/media/k2/attachments/el-real-decreto-de-autoconsumo-electrico-o-la-paradoja-de-pagar-por-generar-energia.pdf (last accessed 6 December 2016); Dólera, L., 2015, 'Analysis of RD 900/2015 on self-consumption' (<i>Análisis del RD 900/2015 de autoconsumo</i>), available at http://www.f2e.es/uploads/doc/20151204091955.01_unef_autoconsumo_in_out.pdf (last accessed 8 December 2016).
Newspaper articles El Economista, 'Solar electrical self-consumption: a way to bring savings with excess of bureaucracy' (<i>Autoconsumo solar eléctrico: una vía de ahorro con exceso de burocracia</i>), 4 June 2016; ABC.es, 'The Government regulates the electrical self-consumption and sanctions its access to the grid' (<i>El Gobierno regula el autoconsumo eléctrico y penaliza su conexión a la red</i>), 11 October 2015.