

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

UK



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

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

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

Residential Prosumers in the European Energy Union The UK

General Description of the national legal and regulatory framework

General

In the UK, following market liberalisation, electricity generation assets have been almost exclusively owned by corporate utilities. Following a series of mergers and entry of a small number of large international utilities, a 'Big Ten' of generation companies has emerged, which includes the 'Big Six' vertically-integrated energy utilities, alongside ESB, Drax, GDF Suez and AES. In 2012 these ten companies collectively owned 85.8% of UK generation assets. The remaining 14.2% is made up of 64 medium sized private companies and corporate entities. The 'Big Six' utilities own 47% of renewable capacity. Whilst renewable energies have a less concentrated ownership structure than thermal generation, beneficial ownership remains predominantly in private hands. The community energy sector owns only 0.3% of renewable capacity; approximately 60MW.

Considering transmission and distribution networks, the privatisation of the UK energy system moved these functions to a regulated approach. Following mergers, the 14 original regional distribution networks are now operated by seven groups. Whilst there has been recent interest from UK municipalities in distribution networks, ownership of distribution assets outside private hands in the UK is rare.

In relation to supply, the UK market is dominated by six suppliers who accounted for 95% of the electricity retail market in 2013.¹ There have been efforts to promote new entrants, resulting in 59 different tariff offers from 22 electricity suppliers being made available to household consumers in London in 2013.² However, whilst the market shares of the big six are falling, there are claims that the domestic supply market is uncompetitive and concerns have been raised by the regulator as to the poor outcomes being realised by householders and SMEs.

According to suppliers' estimations, in 2015 approximately 225,000 electricity customers had a 100% renewable energy tariff in the UK,³ with 'Green' tariffs accounting for roughly 0.5% of the retail market.⁴

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:

Various types of prosumers exist and are legally differentiated in the UK: residential prosumers who produce electricity at home, citizen-led energy cooperatives or housing associations, commercial prosumers whose main business activity is not electricity production, and public institutions like schools or hospitals.

This statistic below shows the total number of feed-in tariff installations in the UK in the second quarter of 2016, by installation type. Most installations were domestic in nature, with 741,647 installations.⁵

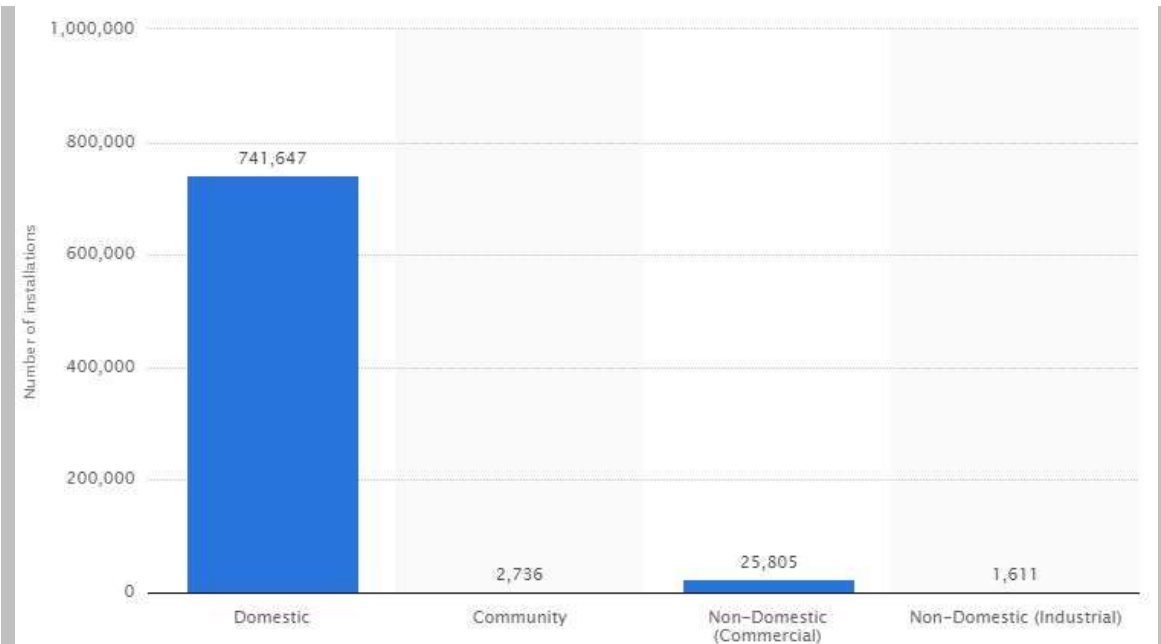
¹ European Commission: EU Energy markets in 2014, October 2014

² ACER/CEER annual report, p. 42. 66 different offers from 28 suppliers were available in September 2015, see <http://www.energylinx.co.uk>, 22 September 2015.

³ Good Energy: Energy regulator bans greenwashing. Press release, 31 March 2015

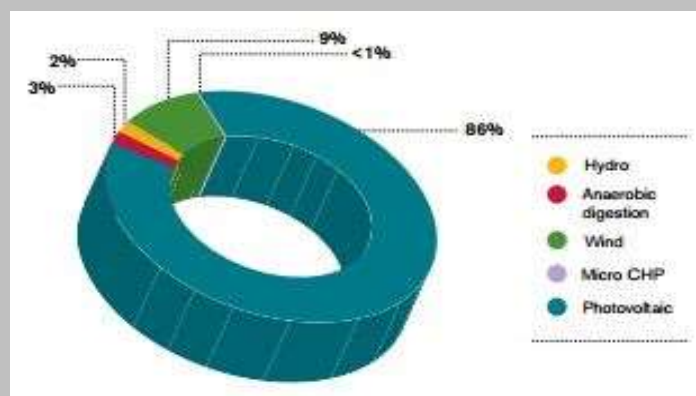
⁴ CEER: Advice on customer information on sources of electricity, March 2015, p. 9

⁵ <https://www.statista.com/statistics/418501/feed-in-tariff-installations-by-type-united-kingdom/>



Additionally, the chart below highlights the dominance of Solar PV installations in the UK, at 86% of Total Installed Capacity. Wind installations constitute 9% of the Total Installed Capacity, while Anaerobic Digestion and Hydro installations then make up 3% and 2% each of the total. The remaining capacity of less than 1% is made up of micro-CHP installations.

Total installed capacity by technology type for 1 April 2010 - 31 March 2014:⁶



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

Answer:

The area of energy policy is reserved to the United Kingdom (UK) Government. However, through devolution of powers, some areas are within the competence of the governments of Scotland, Wales, and Northern Ireland. Although it cannot officially legislate, the Scottish government has also set in place 'soft' policy measures to demonstrate stronger political commitment to renewables.

There are a number of regulatory authorities related to prosumers within the UK:

⁶ https://www.bre.co.uk/filelibrary/nsc/Documents%20Library/UK%20Gov/UK-GOV_Leg_FiT-Update_0614.pdf

Department of Energy and Climate Change (DECC) and the Department of Enterprise, Trade and Investment (DETI): The Secretary of State is responsible for making decisions, setting policy and implementing legislation affecting the sector and reports to Parliament on matters including security of supply and sustainability in the GB energy sector. DECC is a ministerial department, supported by and working closely with other agencies and public bodies, including Ofgem.

Gas and Electricity Markets Authority (GEMA)

GEMA has primary responsibility for regulation of the energy sector. It consists of a panel of individuals appointed by the Secretary of State for specified terms of not less than five years. Other than the Secretary of State's powers to remove members on the grounds of misbehaviour, determine the remuneration of members and give guidance, GEMA is independent and has no stakeholder participation.

Ofgem

GEMA delegates the day-to-day administration of its functions to Ofgem. Ofgem's primary duty is to protect the interests of existing and future consumers taken as a whole in relation to electricity and, wherever appropriate, achieve this by promoting effective competition (*Utilities Act 2000*). Also, in accordance with the Third Energy Package (IME3), it has an additional duty to promote the internal energy market and to remove restrictions to trade between EU member states. Ofgem has far reaching powers in regulating the industry.

Competition and Markets Authority (CMA)

In April 2014 the CMA became the UK's lead competition and consumer body. The CMA brought together the existing competition and certain consumer protection functions of the Office of Fair Trading and the responsibilities of the Competition Commission.

Health and Safety Executive (HSE)

The HSE is the national independent regulator responsible for the regulation and enforcement of workplace health and safety by producing guidance and carrying out research in relation to occupational risks.

Environment Agency.

The Environment Agency is responsible for protecting and improving the environment whilst promoting sustainable development.

Specific Questions on the regulatory framework for residential prosumers

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

General.

The main legislative framework is set out in the **Electricity Act 1989** (as amended and supplemented), which establishes a licensing regime and sets out the statutory duties of the regulator, the Gas and Electricity Markets Authority (GEMA), which operates through the Office of Gas and Electricity Markets (Ofgem) and the Secretary of State for Energy and Climate Change (Secretary of State).

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

Policy instruments that influence microgeneration are many and varied. In general, overarching laws and strategies and laws are as follows:

Promotion of the Use of Energy from Renewable Sources Regulations 2011 committed the UK to having 15% of its energy consumption derived from renewable sources by 2020.

The Climate Change Act 2008 put the UK's emissions reduction target into legislation and created five-yearly carbon budgets to help ensure a cost effective trajectory towards the long-term goal, and set up the independent Committee on Climate Change to advise the government on carbon targets and monitor progress in meeting them.

The Renewables Obligation (RO) 2002 has been the main financial mechanism supporting the uptake of large-scale renewable electricity generation projects in the UK. It is due to close to new generating stations after 31 March 2017. The RO places an obligation on electricity suppliers to source an increasing proportion of electricity from renewable sources.

The Energy Act 2008 which made provision for a Feed-In Tariff (FIT) and Renewable Heat Incentive (RHI) for microgeneration, amongst other measures.

The 2011 Energy Act tackles barriers to investment in energy efficiency (including via the Green Deal that provides upfront finance for investments in energy efficiency in the home; enhancing energy security; and enabling investment in low carbon energy.

The 2013 Energy Act, implements government plans for Electricity Market Reform (EMR).

Climate Change and Sustainable Energy Act 2006 amended the Electricity Act 1989 and the Town and Country Planning Act 1990, with a view to furthering the use of microgeneration equipment. The Act also contained provisions which modified the Gas Act 1986 and the Electricity Act 1989 and enabled the Secretary of State to impose obligations upon gas transporters and suppliers and electricity distributors and suppliers, to achieve carbon emissions reductions targets. The Act also made further provisions regarding the promotion of community energy projects; the provision of powers for parish and community councils to promote local energy saving measures; and the promotion of heat from renewable sources.

The Carbon Plan which maps out actions to achieve the 2030 target, including 29% decrease in emissions (from 2008 levels) from residential dwellings by 2020.

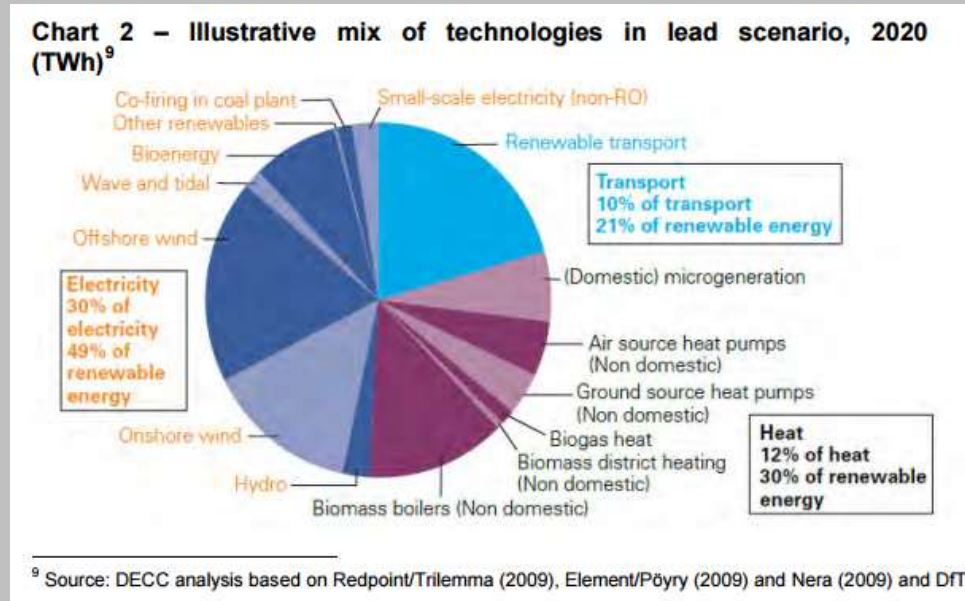
The Code for Sustainable Homes which sets out a standard for energy performance (and other measures of sustainability) over and above the building regulations. The building regulations conform to the levels of energy performance required in the Code, culminating in a "zero carbon" standard from 2016.

The Microgeneration Strategy was published in 2011 and suggests pathways for the microgeneration industry to reduce non-financial barriers including concerns about performance and durability and the availability of trustworthy information. The strategy detailed the task of the Microgeneration Certification Scheme (MCS) to ensure that technological and installation standards were met.

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

Although microgeneration is frequently mentioned in the Renewables National Action Plan, the country wide objectives tend to focus on RES rather than a particular percentage of renewable energy being supplied by prosumers. However, the diagram below gives an illustrative mix of

technologies based on the 'lead scenario' which includes a visual percentage of (domestic) microgeneration.



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:

In the UK, microgeneration is defined as the generation of electricity of up to 50 kW and/or heat of up to 45 kW from a low-carbon source and includes the following technologies⁷:

electricity: solar photovoltaics (PV), micro-wind, micro-hydro, micro-CHP and fuel cells;

heat: solar thermal, air source heat pumps, ground source heat pumps, water source heat pumps, biomass stoves and boilers.

This scale of generation is suitable for installation in domestic and non-domestic buildings, including offices, schools, shops, hotels and factories and the applicable legal framework appears to be dependent on the size of installation rather than type.

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

General

The specific processes by which energy generators connect to the grid are dependent upon the size of the installation and its configuration.

Smaller Systems : If the connection relates to PV, CHP, wind or hydro generation rated up to 3.68kW (16A) per phase at a single premises the prosumer does not need to contact the DNO prior to commissioning. The installer will complete an Installation Commissioning Confirmation Form on the prosumers behalf and send it to the DNO within 28 days of commissioning the installation.

⁷ HM Government. Energy Act; 2004. /<http://www.legislation.gov.uk/ukpga/2004/20/contentsS>.

Larger Systems : for bigger systems above 4kW the installer will need to get permission from the DNO in order to connect to the grid. There are two key tasks an installer must undertake to connect to the DN; the generator must inform the DNO about the installation any work is undertaken and then submit an installation commissioning confirmation within 28 days of commissioning the installation.

PV systems on domestic properties are generally considered 'Permitted Development', as are ground source heat pumps and water source heat pumps. Consequently, planning permission is not usually required as long as certain criteria are met. . Exceptions to this include listed buildings and highly visible installations in conservation areas or World Heritage sites.

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:

The Microgeneration Certification Scheme (MCS) requires the compliance with **standards** for microgeneration products and installers. The scheme is based on international and European standards.

In order to be eligible for support through the FIT scheme, wind, solar PV and hydro generators of 50kW or less as well as microCHP generators have to use MCS eligible products installed by MCS accredited installers or equivalent.

Similarly, the consultation on the RHI scheme proposed that technologies at the small and medium scale would need to be installed by an MCS-certified installer or equivalent where this applies.

Prosumers are faced with an upfront cost to install the energy generation micro plant. Examples of cost for solar panels and wind turbines are displayed below:

- The average family home needs a solar PV panel that provides about 3kW of electricity. This will cost between £4,000 and £6,000 and cover about 21 sq m of roof space.
- Domestic wind turbines (including installation and VAT) cost: Up to £3,000 for a roof-mounted 1kW micro wind turbine Between £9,900 and £19,000 for a 2.5kW pole-mounted wind turbine Between £21,000 and £30,000 for a 6kW pole-mounted wind turbine.⁸

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

Answer:

The FIT scheme requires certain Licensed Electricity Suppliers to pay fixed tariffs to micro and small renewable, and micro-CHP generators for the electricity generated and exported to the National Grid.

These suppliers have specific obligations under:

- Conditions 33 and 34 of the Standard Conditions of Electricity Supply Licences
- Feed-in Tariffs Order 2012

⁸ <http://www.which.co.uk/reviews/wind-turbines/article/installing-a-wind-turbine/home-wind-turbines>

All Licensed Electricity Suppliers are required to participate in some aspects of the FIT scheme, including declaring their FIT status annually and taking part in the periodic and annual levelisation processes.

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

General

The processes governing connection to and operation of electricity generators in Great Britain varies depending on which country the connection is located in.

National Grid owns and operates the National Electricity Transmission System in England and Wales and operates the system in Scotland. The ownership of the Transmission System in Scotland is shared between two companies or “Transmission Owners (TO’s)”; Scottish Hydro Electricity Transmission PLC (SHE Transmission) and Scottish Power Transmission (SPT). There are differences between the two regimes. For example, customer assets will be physically connected to National Grid owned assets in England and Wales; whereas in Scotland, the customer assets will be connected to the transmission assets owned by one of the Scottish TO companies. Another difference is the size of connections, measured in mega-watts. Connections to the NETS in England and Wales tend to be larger than those in Scotland.

Generators are required to be at least 100MW to be connected to the Transmission System in England and Wales, which is different to Scotland, where smaller generation is connected.⁹

Microgenerators are able to be physically connected to the National Grid in the UK, although they are not legally bound to do so.

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

Answer:

Smaller Systems: If the connection relates to PV, CHP, wind or hydro generation rated up to 3.68kW (16A) per phase at a single premises the prosumer does not need to contact the DNO prior to commissioning.

Larger Systems: for bigger systems above 4kW the installer will need to get permission from the DNO in order to connect to the grid.

⁹ <http://www2.nationalgrid.com/uk/services/electricity-connections/new-connection/>

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

Answer:

The competence to determine the inter-connection lies with the Distribution Network Operator (DNO). There are 14 licensed distribution network operators (DNOs) in Britain and each is responsible for a regional distribution services area. The 14 DNOs are owned by six different groups.

The DNO groups and individual DNOs are:

- Electricity North West Limited
- Northern Powergrid
 - Northern Powergrid (Northeast) Limited
 - Northern Powergrid (Yorkshire) plc
- Scottish and Southern Energy
 - Scottish Hydro Electric Power Distribution plc
 - Southern Electric Power Distribution plc
- ScottishPower Energy Networks
 - SP Distribution Ltd
 - SP Manweb plc
- UK Power Networks
 - London Power Networks plc
 - South Eastern Power Networks plc
 - Eastern Power Networks plc
- Western Power Distribution
 - Western Power Distribution (East Midlands) plc
 - Western Power Distribution (West Midlands) plc
 - Western Power Distribution (South West) plc
 - Western Power Distribution (South Wales) plc

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

Plant operators are contractually entitled to connection to the grid by the grid operator. The grid operator is not obliged to give priority to renewable energy when connecting plants to the grid. A given plant operator is contractually entitled against the grid operator to use the grid. The grid operator is obliged to enter into a bilateral connection agreement without discriminating against certain plant operators, but has no obligation to give priority to renewable energy.

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

Under the Energy Act 2008, to receive the FITs the prosumer must be registered in the "central FIT register" and have agreed terms for the payments of the FITs with a "FIT licensee". However, they will become eligible for the FITs on the date on which the installation is commissioned and either, depending on the size of the installation, application for FITs is made to a FIT licensee or to Ofgem.

Registration differs depending on the type of technology used by the installation and the generating capacity of the installation. If the installation uses solar PV or wind and its capacity does not exceed 50kW or it is micro-CHP with a net capacity of 2kW or less then the process that must be followed to receive the FITs is called "MCS-certified Registration". For this process both the installer and the products being installed must be certified by the Microgeneration Certification Scheme ("MCS") or equivalent. If this is applicable then, once the installation is complete, the installer will issue a certificate and send it to the FIT licensee who will arrange for registration. Although the FITs will not actually be payable until the registration is complete, the FITs accrue from the eligibility date.

If the installation uses AD or wind of any size or uses solar PV or hydro and is greater than 50kW then it must go through the Renewables Obligation Order Feed-In Tariff ("ROO-FIT") process. In this case, the application to be registered in the central FIT register is made directly to Ofgem and must be in a form approved by Ofgem. In many cases, the installer will make the application to Ofgem and deal with any queries from Ofgem. Technologies which are accredited using the ROO-FIT process can apply for preliminary accreditation. If granted and subject to the installation being completed within a prescribed timeframe, this effectively guarantees the rate of FITs that will be received and so gives certainty before any investment is made.

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

The Electricity Act 1989 sets standard conditions for an electricity supply license. Two costs/charges relate to residential prosumers. The first is a **one-off connection charge**, which covers the cost of work and equipment used to make the connection. DNOs have an obligation to publish a Statement of Methodology and Charges for Connection, these are published annually and describe the basis of DNO's connection charges and charging methodology. The principles underlying the statements must be approved by Ofgem. These documents follow a similar format across the DNOs and are available on each of the DNO's website. This document contains the DNO's connection charging methodology, including how it calculates its charges, its charging statement, an indication of the costs involved with providing a connection quotation, and any other relevant costs for connecting customers.

The second is **use of system charges**, and these are on-going charges which cover the cost of reinforcement and operations and maintenance costs. These costs are not uniform; they are location specific and vary depending upon capacity available on the network. These charges have been levied by DNOs since 2005 – prior to that point all costs other than connection charges were recovered through upfront capital contributions.

In addition to charges for reinforcing the network, the DNO's connection charge also incorporates the connection application, system feasibility and fault level studies, the provision of wayleaves, additional meetings with DNOs or site visits and administration costs during the process.

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

Incentives:

- The Feed-in Tariff (FIT¹⁰),
- Renewable Heat Incentive (RHI)¹¹ and more recently the
- Green Deal¹².

The Microgeneration Strategy¹³ also included several measures to remove non-financial barriers.

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?

Feed-in Tariffs (Energy Act 2008)

The FIT scheme was introduced in April 2010 and offers a fixed payment to households for every unit of energy they generate and feed into the grid by approved, electricity-generating microgeneration installations which is paid for by the household's electricity supplier. The tariffs were designed to give an annual return on investment of 5% with the payments guaranteed for 20–25 years, depending on the technology used.¹⁴ For community groups and schools, the rules on FITs differ from those applied to individual microgeneration. Organisations with solar PV projects up to 50kW in size are eligible to apply for feed-in tariffs.

Since the implementation of FITs, the global solar PV market has grown significantly, leading to a fall in UK installation costs by around 50% as of 2012¹⁵. Over the same period, there was a 15% increase in the UK electricity price which further reduced payback times. In October 2011, the UK Government launched an emergency tariff review and proposed reducing the tariff for small solar PV by half, to 21 p/kWh¹⁶. The short notice period given for the tariff change, approximately 6 weeks, resulted in alarm in the industry due to the expected rush to install before the deadline and the subsequent industry redundancies after this period¹⁷.

This change was contested at the Supreme Court by a group of microgeneration suppliers and the tariff change was temporarily rescinded until April 2012¹⁸. As predicted, there was a sharp increase in the number of installations before the change was brought into force, and a significant decrease in installations after. Additionally, the swiftness of the tariff change may have resulted in increased uncertainty amongst potential adopters, adding to the barriers to adoption. The Government has also adjusted the target rates of return for technologies – it is targeting a 4.8% rate of return for solar, 5.9% for wind, and 9.2% for hydro. All new installations applying for FITs after 15 January 2016 are subject to a new system of caps from 8 February 2016.

¹⁰ HM Government. The UK renewable energy strategy, DECC, Editor 2009. Crown Copyright: London; 2009.

¹¹ DECC. Renewable heat incentive, department of energy and climate change, Editor 2011. Crown Copyright: London; 2011.

¹² DECC. The green deal- a summary of the government's proposals, department of energy and climate change, Editor 2010, Crown Copyright: London; 2010. .

¹³ HM Government. Microgeneration strategy, DECC, Editor 2011. Crown Copyright: London; 2011.

¹⁴ DECC. Feed-in tariffs scheme: consultation on comprehensive review phase 1 – tariffs for solar PV, DECC, Editor 2011. Crown copyright 2011: London; 2011. .

¹⁵ Balcombe P, Rigby D, Azapagic A. Motivations and barriers associated with adopting microgeneration energy technologies in the UK. *Renew Sustain Energy Rev* 2013;22:655–66

¹⁶ DECC. Feed-in tariffs scheme: summary of responses to the fast-track consultation and government response, department of energy & climate change, Editor 2011. Crown Copyright 2011: London; 2011.

¹⁷ Debenham C. Legal battle over solar feed-in tariff ends in defeat for DECC. *YouGen Blog* 2013; 2013. [cited 14.09.13].

¹⁸ Ibid.

Ofgem monitors the deployment of technologies to ensure that deployment in a given quarter does not exceed the cap for that tariff band. Once this threshold is reached, any applications received are placed in a 'queue', freezing an installer's applications for FITs accreditation until the next cap opens with a new tariff rate.

Renewable Heat Incentive (Energy Act 2008)

The RHI is the world's first FIT for renewable heat, introduced in 2011 (non-domestic) and 2014 (domestic). In 2015, the government announced that the RHI scheme would be extended to 2020/21, with the budget set to increase from £430 million in 2015/16 to £1.15 billion in 2020/21. Additional changes reduce the amount of heat demand that can be claimed, effectively cutting the amount of RHI that can be claimed by larger properties, whilst solar thermal installations will no longer be eligible under the RHI from 2017.

Green Deal (Energy Act 2011)

The Green Deal, implemented in Jan 2013, facilitates loans for the capital cost of various energy efficiency measures for residences and businesses. The loans are paid back at a fixed rate with estimated fuel bill savings resulting from the improvements and are automatically added to the property's energy bill¹⁹. Energy improvements such as insulation, double glazing and some forms of microgeneration can be installed by accredited installers, paid for with a loan from an accredited private loan company. Loan interest rates are 7–9% and the repayment term is 10–25 years. The improvement work must be recommended by an accredited home energy assessor and the Green Deal stipulates that the loan is permitted only if the monthly repayments are lower than the predicted fuel bill savings²⁰.

Grants

Grants were provided for microgeneration under the Low Carbon Buildings Programme (LCBP), until the Renewable Heat Premium Payments (RHPP) replaced it in 2010. This programme has ceased to support electricity microgeneration when the feed-in tariffs were announced, and instead focused solely on low carbon heating technologies, by providing up to £2,300 per installation (note that the level of support provided under this mechanism changes frequently). The RHPP only support measures where the house is off the gas grid, except in the case of solar thermal where any house can be supported.

6.2. Does your country

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

Answer:

In the UK there are three primary tax incentives for microgeneration:

- VAT reduction on energy saving items. This is a reduction in the good and services tax from 17.5% to 5% for sale of certain measures, including microgeneration systems (The VAT Act 1994, section 29A (as inserted by the Finance Act 2001)).
- Exemption from income tax on revenue from electricity sale for residential consumers (Finance Act 2007, Section 20)

¹⁹ Dowson M et al. Domestic UK retrofit challenge: barriers, incentives and current performance leading into the green deal. Energy Policy 2012;50: 294–305

²⁰ DECC. The green deal- a summary of the government's proposals, department of energy and climate change, Editor 2010, Crown Copyright: London; 2010. .

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

General

Quality of offers and services: The UK consumer organisation Citizens Advice undertook research on consumers' experiences on the sales, installation and after care of solar PV panels under the FIT scheme. It concluded that most consumers were generally satisfied with their systems. A survey undertaken by BEUC's confirms the high satisfaction of consumers with their solar PV installation. 90% would recommend solar PV systems to a friend or family member and 97% said that their solar PV system met their expectation in terms of how much electricity they believed it would generate.²¹

Administrative barriers: For small self-generation units, grid connection issues and access to the support scheme is relatively hassle-free.

Information on self-generation options: Consumers' interest in self-generation technologies and their knowledge about potentials and risks was identified by the International Energy Agency (IEA) Renewable Energy Technology Deployment (RETD) as being one of the decisive factors impacting 'prosumer' development.²²

Offers and availability of support or simplicity of access to the grid can vary from place to place in the UK. However, since a simple one-stop shop is missing, getting the right information can be difficult as it tends to be quite fragmented. In addition, there are different consumer codes and installer codes that consumers should check.

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

General

Financial risks: Prosumers face high upfront costs; "as access to capital often proves to be difficult, consumers on their way to become 'prosumer's are dependent upon financial support from different mechanisms that can be subject to change".²³

Administrative barriers: In general, it appears that grid connection issues and access to the support scheme is relatively straight forward for prosumers. However, when compared with other Member States, the UK has an extremely high number of complaints relating to barriers to renewable electricity projects associated with national regulation.

Legal framework: The review of the FIT scheme results in uncertainty as to whether future support for small self-generation units will continue.

Information on self-generation options: The information available on self-generation options tends to be fragmented, leading to difficulties in attaining precise data..

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?

Generation meters would normally be required if the generator wished to claim a subsidy such as the Feed-in Tariff. However, following the 2008 and 2011 Energy Acts the Department of Energy and Climate Change (DECC) established a regulatory framework which places a regulatory

²¹ BEUC, Current practices in consumer-driven renewable electricity markets, 2016.

²² 8 IEA RETD: Residential prosumers – Drivers and policy options (RE-Prosumers), September 2014, p. 84.

²³ BEUC, Current practices in consumer-driven renewable electricity markets, 2016.

obligation on suppliers to take all reasonable steps to install smart meters and IHDs in all domestic and small non-domestic properties between 2015 and the end of 2020. This will ensure that the UK complies with the requirements of the 2012 EU Energy Efficiency Directive to supply at least 80% of consumers with smart electricity meters by 2020 and to perform a cost-benefit analysis for smart gas meters. The aim is to achieve close to 100% coverage for both electricity and gas meters and DECC estimates that 53 million smart meters will be installed.

Additionally, the Data Communications Company (DCC) has been established to provide the wireless network that will enable information from household smart meters to be transmitted to suppliers, network operators and other external parties such as energy advice companies. Organisations using the DCC will be subject to several rules including:

- Smart Metering Equipment Technical Specifications – the standards for all smart metering equipment installed as part of the roll-out. This includes the type of information displayed and stored by the IHD, the communications technology used and security measures to prevent unauthorised access.
- Smart Energy Code (SEC) – a contract between the DCC and its users establishing how smart metering data will be used and handled by suppliers and networks operators. For example, the SEC dictates how meter readings will be used to calculate bills. It also ensures customer access and control of their data.
- Smart Metering Installation Code of Practice – the rules dictating the standard of service that should be provided by installers. For example, the code requires clear guidance to be given on how to use the smart meter and IHD to save energy and sets out specific obligations in respect of vulnerable consumers

Smart metering will create large volumes of energy usage data. Access and use of these data are protected under the 1998 Data Protection Act (DPA). The Smart Energy Code ensures compliance with the DPA, giving consumers control over who can access their usage data, except for billing or regulated purposes such as detection of crime. Suppliers and network operators are only able to collect smart meter readings at daily or half-hourly intervals with the consumer's permission.

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

At present, UK prosumers sell their electricity directly into the national grid, collecting a fee set by the government's energy regulator Ofgem. People then buy the electricity at wholesale rates from power utilities.

Feed-in tariff rates for comparative purposes are provided below. Figures are per kWh of electricity generated for new installations.

Solar photovoltaic panels

Valid for installations on or after 1 October 2016 but before 31 December 2016:

- 10kW or less: 4.18 p / kWh
- 10 - 50kW: 4.39 p / kWh
- 50 - 250kW: 2.03 p / kWh
- 250kW - 1MW: 1.69 p / kWh
- 1MW: 0.57 p / kWh
- Stand alone: 0.57 p / kWh

Tariff paid for 20 years. Export rate: 4.91p/kWh

NB: buildings without an Energy Performance Certificate (EPC) of level D or above will get the stand alone tariff.

Hydro power

Hydro installations are eligible for the feed-in tariff. For the period 1 October 2016 - 31 December 2016, the tariffs for eligible new installations are below.

- 100kW - 500kW: 6.12 p/kWh
- >500kW - 2MW: 6.12 p/kWh
- >2MW: 4.43 p/kWh

Tariff paid for 20 years. Export rate is: 4.91 p/kWh

Wind power

The Feed-in tariff guarantees an income for electricity generated. For the period 1 October 2016 - 31 December 2016, the tariffs for new installations are below.

- 50kW or less: 8.33 p/kWh
- >50kW - 100kW: 6.75 p/kWh
- >100kW - 1.5MW: 4.35 p/kWh
- >1.5MW: 0.83 p/kWh

Tariff paid for 20 years. The export rate is: 4.91 p/kWh

MicroCHP pilot

Under the Feed-In Tariff scheme, the first 30,000 people to install eligible micro-CHP will qualify for feed-in tariffs. This feed-in tariff payment will continue for 10 years.

The FIT payments for micro-CHP are 13.61 p/kWh.

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?

In January 2014 the UK Government released the first ever UK Community Energy Strategy. Its ambition is that 'every community that wants to form an energy group or take forward an energy project should be able to do so, regardless of background or location'. The strategy defines Community Energy (CE) as "community projects or initiatives focused on reducing energy use, managing it better, generating energy or purchasing it".

DECC's definition of a community energy project for the purposes of feed-in tariffs is: a community interest company (CIC); a co-operative society; or a community benefit society with no more than 50 employees. Charities are not excluded, as DECC believes that "they should in most cases be able to set up specific purpose vehicles for the purposes of delivering community energy projects that could be classified under the new definition."

CE projects are characterised by community ownership, leadership or control, where the benefits of the project go back to the community such as reinvestment in the community. Currently, the vast majority of known initiatives are place-based. CE in the UK is a relatively small sector, which is comprised of a diverse range of organisations, with different needs and aspirations, operating with varying levels of 'energy' skills.

For community groups and schools, the rules on FITs differ from those applied to individual microgeneration. Organisations with solar PV projects up to 50kW in size are eligible to apply for feed-in tariffs. Community groups are also exempt from the energy efficiency requirements for solar PV on non-domestic buildings. They still need to get an energy performance certificate (EPC) for their building but the rating the building achieves will not affect the level of payments i.e. whatever the EPC rating of the building, community groups will still be eligible for the higher rate generation tariff.

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?

Currently there is no co-operative legal form in the UK, and so organisations wishing to become co-operatives have to choose one of the existing legal forms to begin operation:

Industrial and provident society (IPS)

The IPS contains statutory protection of the co-operative principles and is designed to enhance democracy and protect the rights of members. IPSs are registered with the Financial Services Authority (FSA). Before a co-operative is registered, the FSA checks to ensure that the Rules meet the requirements to register as a co-operative, and has the power to refuse any amendments to the Rules post registration if it believes that they are not in keeping with the original ethos of the society. IPSs are permitted to issue shares to the public.

Private company limited by guarantee/shares

The limited company legal form is widely used by co-operatives and is very familiar to the majority of advisers, professionals and funders. Company law does not offer any protection of the co-operative principles but it is flexible and its governing legislation is accessible and up to date. Private companies limited by shares are prohibited from offering shares to the public.

Community interest company (CIC) limited by guarantee/shares

The CIC is a limited company but is available for use by organisations that wish to conduct their business for community benefit. One of its key features is an asset lock, whereby assets of a CIC are protected and cannot be distributed for private benefit. It is not possible for a CIC limited by guarantee to pay dividends to members and a dividend would be subject to a cap in a CIC limited by shares. The asset lock would also prohibit distribution of assets to members at the point of winding up. Like limited companies, CICs don't offer any protection of the co-operative principles and, as with a company limited by shares, public share issues are prohibited. A number of co-operatives have registered as CICs and the legal form will accommodate the needs of most types of co-operatives.

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

The procedure for establishing cooperatives for prosumers appears to be the same as other schemes. However, community and local generation schemes encounter adverse conditions in the wholesale electricity market. Community energy schemes are able to access fixed FIT for the power they produce from schemes up to 5MW capacity. Above this threshold, in order to retail power in the first place, generators must either participate in the national BETTA market which requires significant overheads, often too large for community and small commercial schemes, or sell their output via a third party which is a BETTA participant (via PPAs). Given the upcoming phase out of the Renewables Obligation, schemes rated above 5MW will need to sell their electricity into the market via a PPA with a third party licensed supplier or market trader. Responses to a 2012 call for evidence by DECC demonstrated the terms of PPAs have been steadily declining, leading some to predict small, intermittent generators will be likely to achieve below-reference price for the power they produce.

8. Other questions on the regulatory framework

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

Details below.

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

Answer:

There are different procedures for presenting a complaint by a prosumer depending on its grounds as detailed by the Department of Energy and Climate Change²⁴:

Complaint about FIT Licensee

1. Complaints will be dealt with according to the FIT Licensee complaints process, which should be set out in the agreed upon contract and be available on their company website.
2. If the complaint involves a domestic or micro business FIT Generator and a mutually agreeable outcome has not been reached after 8 weeks from the complaint being lodged, the complaint may be referred to the Energy Ombudsman.
3. Once the Ombudsman has received a complaint it will consider whether the supplier has been given sufficient time to deal with the complaint and also assess whether the complaint falls within the remit of the Ombudsman. If the Ombudsman takes on the case it will investigate and make recommendations to rectify the situation. The FIT Licensee then has up to 28 days to action any recommendations by the Energy Ombudsman.

Complaint about FIT Licensee relating to information contained on the Central FIT Register

All FIT Generators are able to write to Ofgem's CFR Manager and request details held on the CFR about them.

Complaint about the Authority (Ofgem)

All disputes regarding the ROO-FIT accreditation process should be sent to the Senior Manager, Feed-in Tariff at Ofgem. Appeals for ineligible installations and those suspended or withdrawn from the CFR should be sent to the Central FIT Register Manager at Ofgem. If a mutually agreeable outcome is not reached, the complaint should be escalated by sending a complaint to Ofgem in writing:

- The complaint will be acknowledged within 2 working days
- Ofgem will reply with the outcome of the complaint within 10 working days.
- If it is not possible to reply in that time, Ofgem will write to update on progress within 10 working days.

If after this process the complaint has not been resolved satisfactorily, the complainant can write to the Senior Information Risk Officer at Ofgem for a further investigation, who will reply within 10 working days. If the issue is still not resolved, the complainant can take their complaint to the Parliamentary Ombudsman who carries out independent investigations into complaints about public bodies.

Complaint relating to the MCS

²⁴ DECC, Dispute Resolution Processes for Feed-In Tariff Complaints Raised By Generators, 2011. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48249/1_20100331154613_e____fitscomplaintsprocessleaflet.pdf

Complaints should be made to the MCS Administrator.²⁵ Any complaints about the policy requirement to use MCS accredited equipment/installers should be referred to DECC.

Complaint relating to an Installer

Initial complaints should be referred to the relevant installer. If the complaint is not resolved, there is an option to approach the MCS Administrator, who will advise how to make a complaint about the MCS installer. Alternatively, the complainant can approach the Renewable Energy Consumer Code (RECC) to escalate the complaint. RECC has a disciplinary process for noncompliant companies and a company's membership can be terminated in some cases and therefore stop them from trading under the Microgeneration Certification Scheme (MCS).²⁶ If the company is not a RECC member or MCS certificated, complaints should go to Citizens Advice, who can pass on common issues to the relevant Trading Standards.

Complaint relating to product/equipment quality

Complaints about the overall policy should be directed to the Secretary of State for Energy and Climate Change (DECC).

²⁵ MCS Complaint Guidelines, 2015. Available at:
http://www.microgenerationcertification.org/images/MCS_Complaint_Guidelines_v2_1.pdf

²⁶ Available at: <http://www.recc.org.uk/how-to-complain>

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 Various types of prosumers exist and are legally differentiated in the UK: residential prosumers who produce electricity at home – mainly through solar photovoltaic panels on their rooftops, citizen-led energy cooperatives or housing associations, commercial prosumers whose main business activity is not electricity production, and public institutions like schools or hospitals. The area of energy policy is reserved to the United Kingdom (UK) Government. However, through devolution some powers, some areas are within the competence of the governments of Scotland, Wales, and Northern Ireland. Although it cannot officially legislate, the Scottish government has also set in place ‘soft’ policy measures to demonstrate stronger political commitment to renewables. There are a number of regulatory authorities related to prosumers within the UK including: • Department of Energy and Climate Change • Department of Enterprise, Trade and Investment • Gas and Electricity Markets Authority • Ofgem • Competition and Markets Authority • Health and Safety Executive • Environment Agency The main legislative framework is set out in the Electricity Act 1989 (as amended and supplemented), which establishes a licensing regime and sets out the statutory duties of the regulator, the Gas and Electricity Markets Authority (GEMA), which operates through the Office of Gas and Electricity Markets (Ofgem) and the Secretary of State for Energy and Climate Change (Secretary of State). Policy instruments that influence microgeneration are many and varied. In the UK, microgeneration is defined as the generation of electricity of up to 50 kW and/or heat of up to 45 kW from a low-carbon source and includes the following technologies²⁷: <u>electricity</u>: solar photovoltaics (PV), micro-wind, micro-hydro, micro-CHP and fuel cells; <u>heat</u>: solar thermal, air source heat pumps, ground source heat pumps, water source heat pumps, biomass stoves and boilers.	High
Specific Questions on the regulatory framework for residential prosumers	
What are the permitting requirements for each type of residential prosumer? The specific processes by which energy generators connect to the grid are dependent upon the size of the installation and its configuration.	Medium

²⁷ HM Government. Energy Act; 2004. /<http://www.legislation.gov.uk/ukpga/2004/20/contentsS>.

What are the rules applicable to the access to the grid? The processes governing connection to and operation of electricity generators in Great Britain varies depending on which country the connection is located in. National Grid owns and operates the National Electricity Transmission System in England and Wales and operates the system in Scotland. The ownership of the Transmission System in Scotland is shared between two companies or “Transmission Owners (TO’s)”; Scottish Hydro Electricity Transmission PLC (SHE Transmission) and Scottish Power Transmission (SPT). There are differences between the two regimes. For example, customer assets will be physically connected to National Grid owned assets in England and Wales; whereas in Scotland, the customer assets will be connected to the transmission assets owned by one of the Scottish TO companies. Another difference is the size of connections, measured in mega-watts. Connections to the NETS in England and Wales tend to be larger than those in Scotland. Generators are required to be at least 100MW to be connected to the Transmission System in England and Wales, which is different to Scotland, where smaller generation is connected.²⁸ Microgenerators are able to be physically connected to the National Grid in the UK, although they are not legally bound to do so. The grid operator is not obliged to give priority to renewable energy when connecting plants to the grid. Under the Energy Act 2008, to receive the FITs the prosumer must be registered in the "central FIT register" and have agreed terms for the payments of the FITs with a "FIT licensee".	Medium
What are the incentives (e.g taxes and tariffs) for each type of residential prosumers? A number of policies have been implemented to remove financial barriers to microgeneration uptake: the Feed-in Tariff (FIT²⁹), Renewable Heat Incentive (RHI)³⁰ and more recently the Green Deal³¹. The Microgeneration Strategy³² also included several measures to remove non-financial barriers. In the UK there are three primary tax incentives for microgeneration: • VAT reduction on energy saving items. This is a reduction in the good and services tax from 17.5% to 5% for sale of certain measures, including microgeneration systems (The VAT Act 1994, section 29A (as inserted by the Finance Act 2001)). • Exemption from income tax on revenue from electricity sale for residential consumers (Finance Act 2007, Section 20)	High
What are the conditions encouraging or acting as barriers for residential prosumers? <u>Conditions Encouraging</u> Administrative barriers: For small self-generation units, grid connection issues and access to the support scheme is relatively hassle-free. Information on self-generation options: Consumers’ interest in self-generation technologies and their knowledge about potentials and risks was identified by the International Energy Agency (IEA) Renewable Energy Technology Deployment (RETD) as being one of the decisive factors impacting ‘prosumer’ development.³³	High Low

²⁸ Available at: <http://www2.nationalgrid.com/uk/services/electricity-connections/new-connection/>

²⁹ HM Government. The UK renewable energy strategy, DECC, Editor 2009. Crown Copyright: London; 2009.

³⁰ DECC. Renewable heat incentive, department of energy and climate change, Editor 2011. Crown Copyright: London; 2011.

³¹ DECC. The green deal- a summary of the government’s proposals, department of energy and climate change, Editor 2010, Crown Copyright: London; 2010. .

³² HM Government. Microgeneration strategy, DECC, Editor 2011. Crown Copyright: London; 2011.

³³ 8 IEA RETD: Residential prosumers – Drivers and policy options (RE-Prosumers), September 2014, p. 84.

<u>Barriers</u> <u>Financial risks:</u> Prosumers face high upfront costs; “as access to capital often proves to be difficult, consumers on their way to become ‘prosumer’s are dependent upon financial support from different mechanisms that can be subject to change”. <u>Administrative barriers:</u> In general, it appears that grid connection issues and access to the support scheme is relatively straight forward for prosumers. However, when compared with other Member States, the UK has an extremely high number of complaints relating to barriers to renewable electricity projects associated with national regulation. <u>Legal framework:</u> The review of the FIT scheme results in uncertainty as to whether future support for small self-generation units will continue. <u>Information on self-generation options:</u> The information available on self-generation options tends to be fragmented, leading to difficulties in attaining precise data. In January 2014 the UK Government released the first ever UK Community Energy Strategy. Its ambition is that ‘every community that wants to form an energy group or take forward an energy project should be able to do so, regardless of background or location’. The strategy defines Community Energy (CE) as “community projects or initiatives focused on reducing energy use, managing it better, generating energy or purchasing it”. Currently there is no co-operative legal form in the UK, and so organisations wishing to become co-operatives have to choose one of the existing legal forms to begin operation. The procedure for establishing cooperatives for prosumers appears to be the same as other schemes. However, community and local generation schemes encounter adverse conditions in the wholesale electricity market.	Medium
Other questions on the regulatory framework There are different procedures for presenting a complaint by a prosumer depending on its grounds including: • Complaint about FIT Licensee • Complaint about FIT Licensee relating to information contained on the Central FIT Register • Complaint about the Authority (Ofgem) • Complaint relating to an Installer	High

Executive Summary

The development of residential prosumers is gradually increasing in the UK, with the government encouraging the small-scale production of renewable energy. A number of policies have been implemented to **remove financial barriers** to microgeneration uptake, including the introduction of feed-in-tariffs and tax incentives.

In the UK, microgeneration is defined as the generation of electricity of up to 50 kW and/or heat of up to 45 kW from a low-carbon source. The specific processes by which energy generators connect to the grid are dependent upon the size of the installation and its configuration. Micro-generators are able to be physically connected to the National Grid in the UK, although they are not legally bound to do so. In general, for small self-generation units grid connection issues and access to the support scheme is relatively hassle-free. However, offers and availability of support or simplicity of **access to the grid can vary from place to place** in the UK. Consequently, attaining the correct information can be difficult due to fragmentation. Additionally, prosumers face high upfront costs, and when compared with other Member States, the UK has an extremely high number of complaints relating to **barriers to renewable electricity projects** associated with national regulation. Furthermore, the review of the FIT scheme results in uncertainty as to whether future support for small self-generation units will continue.

In terms of metering, following the 2008 and 2011 Energy Acts the Department of Energy and Climate Change (DECC) established a regulatory framework which places a regulatory obligation on suppliers to take all reasonable steps to install smart meters and IHDs in all domestic and small non-domestic properties between 2015 and the end of 2020. The procedure for establishing **cooperatives for prosumers** appears to be the same as other schemes. However, community and local generation schemes encounter adverse conditions in the wholesale electricity market. Finally, there are several well-established redress procedures available to residential prosumers.