

Commercial Business Models Module

This toolkit builds on the work completed for the Scottish Government's Community and Renewable Energy Scheme (CARES) by Local Energy Scotland and Ricardo Energy & Environment.

Module Structure

There are an increasing number of different ways that renewable energy projects, particularly small scale community projects, can be commercially structured and technically designed to be financially viable. In light of changes to Government supported financial incentives, increasing innovation in the sector is required to maximise project revenues.

In addition, there are large areas of the grid infrastructure that are constrained, increasing the cost of connecting a renewable technology and decreasing the amount of electricity that can be exported to the grid to sell to electricity suppliers.

This module provides guidance on different business models that might enable a project to enable a grid connection between generator and consumer, secure additional revenue from the sale of electricity and provide the greatest community benefit. This includes information on different commercial arrangements for selling the power generated, for example, through a traditional Power Purchase Agreement with an electricity supplier or the more innovative approach of selling directly to communities through a White Label agreement with a supplier.

This module is organised into the following sections:

- 1. Background: typical renewable energy business model**
- 2. Alternative commercial arrangements**
 - i. White Label;
 - ii. Licence Lite; and
 - iii. Supplier under a Licence Exemption.
- 3. Further Information**

Background: typical renewable energy business model

Electricity supply comprises two linked systems: transmission and distribution.

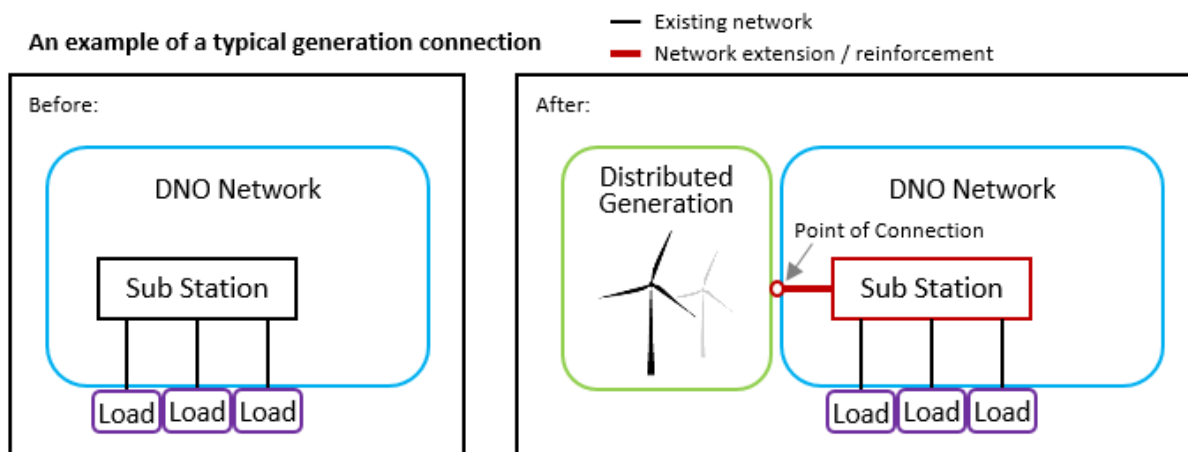
Electricity transmission transports electricity over long distances across the country at a high voltage to reduce losses. The transmission network includes network at 400kV, 275kV, and 132kV, and is owned and operated Transmission Owners (TOs).

Electricity distribution takes power from the transmission network and distributes it to consumers. The voltage is reduced to the correct supply voltage for the loads. In Wales, these networks operate at 132kV and lower. Most residential customers are supplied at 230V. These networks are owned and operated by licenced Distribution Network Operators (DNOs) who are each responsible for the network within a geographic area.

In a traditional power system, large power stations feed into the transmission network, and the electricity is then transported to the distribution networks. The distribution networks carry the electricity to loads, such as homes and businesses. The transmission and distribution networks are also called transmission and distribution systems.

Any community that is considering installing a renewable energy scheme is likely to connect to the distribution network, rather than the transmission network. Therefore the DNO will be the main point of contact for connection. In Figure 1, the generation is connected to the DNO network via a network extension, and the local substation also needs to be reinforced (for example with a larger transformer). Note that in some cases, equipment further up the network may also need to be reinforced.

Figure 1: A typical renewable generator grid connection



A number of technical standards are in place to govern the requirements for grid connection. These standards serve several purposes, including:

- to ensure that the generator will be able to operate safely on the network, and will not cause any issues with network protection or power quality (such as voltage level and frequency), and
- to protect the generator from any faults that may occur on the distribution network.

The processes used for connection of embedded generation depend on the size of electricity generator, and falls under two sets of Engineering Recommendations (EREC); G83 and

G59. For further details on this and further information on applying for a grid connection, please refer to the **Grid Connection Module**.

The grid connection allows the export of electricity. A Power Purchase Agreement (PPA), or offtake agreement, is required with a licenced electricity supplier to enable the sale of the electricity. This is an agreement between a generator and an electricity supplier (supplier to electricity consumers) to buy and sell the electricity being produced by the generator. It can insulate an independent generator from risks linked to energy availability, volume, liquidity, price, profile, imbalance and law changes. There are a range of PPA products can be broadly classified as shown in **Error! Reference source not found.** Table 1: Power Purchase Agreement (PPA) products available for electricity generators.

Table 1: Power Purchase Agreement (PPA) products available for electricity generators

Structure	Summary
Tolling Agreement	An agreed fee is paid for electricity
Fixed Price/Floor	An agreed electrical supply for a fixed or minimum price
Route to Market	All supplies are bought at the market price (less a trading fee)
Trading Style	The PPA provider manages and sells the power where prices are hedged by contracting futures

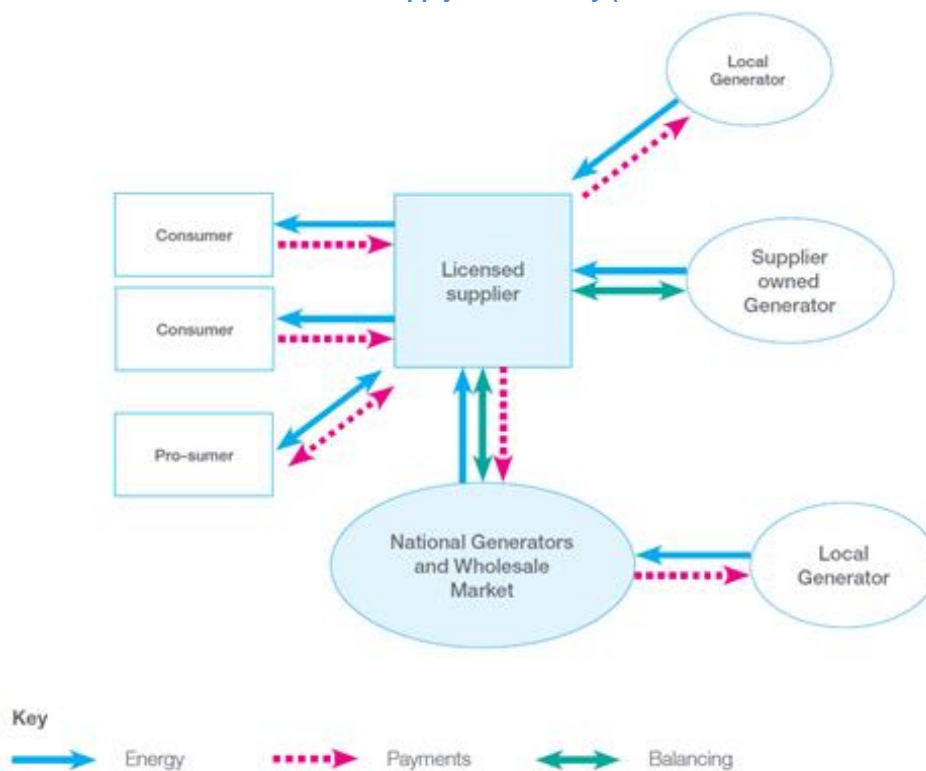
The PPA provides electricity generators with a source of income. This is a contractual agreement to buy and sell electricity, so the rates and terms of the contract will change from supplier to supplier. It is good practice to negotiate and call a number of different suppliers when looking to secure a PPA in order to obtain the best rates possible. Also note that a PPA is a requirement for lenders to lend against.

Further information on Power Purchase Agreements is available from the Department of Energy and Climate Change (DECC) and is also included in the **Feed in Tariff Module** available from Local Energy Scotland (see 'Further Information').

In the current UK electricity market, large utilities constitute the bulk of generation and supply and endeavour to match their generation profiles with their forecast demand. The system provides relatively cheap electricity to individual and business consumers and maintains a balanced system of reliable supply. Any shortfalls or excess generation is topped up or sold into the wholesale market to tune the supply position to match demand. The contribution of renewable generators to this market was 19% for the full year 2014¹.

¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/450298/DUKES_2015_Chapter_6.pdf

Figure 2: Traditional business model for the supply of electricity (Source: see 'Further Information')



If not selling to a licenced supplier through a PPA, a small scale generator could participate in the wholesale electricity market directly, however this brings with it a variety of charging and licencing fees that could make this commercially unattractive. An alternative arrangement would involve direct commercial arrangements between the generator and the consumer, thus bypassing some of the functions carried out by the supplier, so potentially enabling generators to sell electricity at a higher than market rate. Various options for this are given below.

Alternative commercial arrangements

One option for increasing the project revenue is to consider commercial arrangements that allow the project to sell electricity directly to consumers thereby benefiting from consumer electricity price income rather than wholesale electricity price income. These alternative arrangements include:

- White Label;
- Licence Lite; and
- Supplier under a Licence Exemption.

It is of note that Ofgem, the electricity and gas market regulator, are currently considering the various non-traditional business models (NTBMs)² that are arising as new generators are entering the energy market.

² <https://www.ofgem.gov.uk/publications-and-updates/non-traditional-business-models-supporting-transformative-change-energy-market>

Further information on technical solutions that may enable community generators to sell directly to consumers, such as private wire, is detailed in the **Local Energy Toolkit Grid Connection Module**.

White Label

A White Label supplier model is the most common option for communities to supply electricity to local consumers in order to fulfil their own objectives, such as reducing emissions, supporting local renewable generation or tackling fuel poverty.

The White Label supplier works in partnership with a Third Party Licence Supplier (TPLS) who provides back office services, metering and compliance with industry codes. Meanwhile, the White Label supplier acts under a different brand, offering their own tariffs and setting up their own marketing strategy and target customers.

There are many different kinds of local renewable generators such as local authorities, community benefit societies or housing associations who are engaging with TPLSs with a high renewable generation portfolio, such as OVO (Community Energy Hub, see ‘Further Information’) or Good Energy, to become a White Label supplier. These TPLSs would look at purchasing the electricity generated by the local renewable generators under fair power purchase agreements (PPAs). This can be seen illustrated in **Error! Reference source not found..**

Figure 3: White Label business model (Source: see ‘Further Information’)

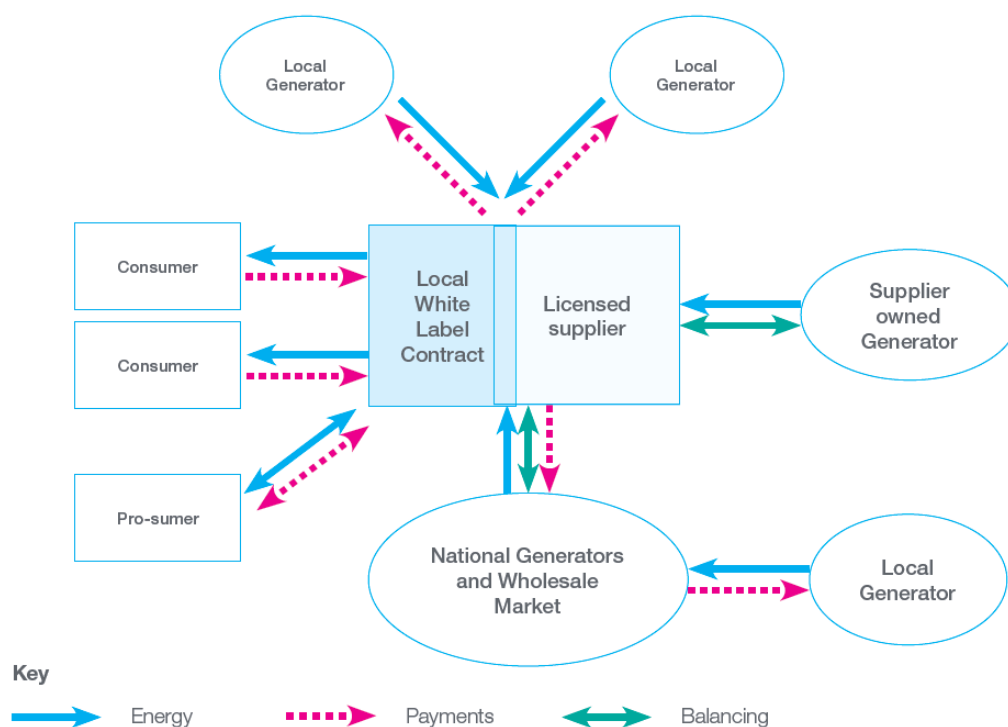


Table 2 provides a breakdown of the advantages and disadvantages of the White Label supplier model over the traditional business model.

Table 2: Advantages and disadvantages of the White Label supplier model

Advantages	Disadvantages
Supports locally owned generation helping communities to fulfil their local objectives	White Label suppliers are subject to charges from the TPLS so do not have full control of the price for their own generated electricity
Lower set up and running cost for generator rather than setting up as a Licenced Supplier as technical and regulatory barriers are outsourced to the TPLS	The value of the energy will not be fully realised for the community (as it will be shared with the licensed supplier) and there will be less opportunity for demand side management (DSM) than there would be with more direct supply models.
The White Label supplier acts under its own brand, setting up its own marketing strategy and targets, with their own tariffs	

Licence Lite

Licence Lite was created in 2009 by the UK Government in order to allow small generators and communities to become licenced suppliers without the need to comply with certain industry code obligations. Although the industry codes will still have to be met, the Licence Lite supplier will partner with an existing TPLS who will provide the services required to meet the codes. This arrangement is illustrated in Figure 4. This differs from the White Label arrangement in that the Licence Lite supplier will be required to comply with some of the industry code obligation.

This licence option is a government commitment to reduce the barriers for local communities who are constrained by disproportionate costs of becoming a licenced supplier and meeting the resulting industry codes, Standard Licence Condition 11.2.

Figure 4: Licence Lite scheme (Source: see 'Further Information')

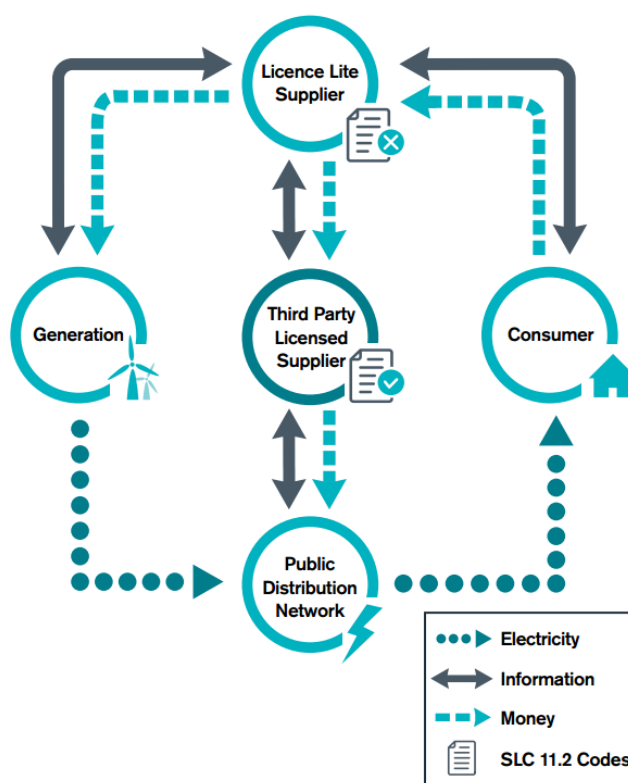


Table 3 provides a breakdown of the advantages and disadvantages of the Licence Lite model over the traditional business model.

Table 3: Advantages and disadvantages of the Licence Lite model

Advantages	Disadvantages
Reduction in regulatory cost for communities over setting up as a licenced supplier	Although created in 2009, there are still no examples of suppliers under this scheme
Communities and local authorities have the possibility to take control over generation and supply, selling electricity directly to consumers	The Licence Lite supplier must reach an agreement with a third party licence supplier (TPLS) and will be subject to charges for the balancing service which currently is not registered
	Although relieved from the main regulatory barriers, there are still costs associated with operating the licence and providing customer service

There are currently no case studies or examples of this model. The Greater London Authority was the first authority to apply for this scheme, but the process has suffered delays due to its complexity. This option will only be applicable for a very few specific renewable generators.

Supplier under a Licence Exemption

Licences are required for any generator, distributor or supplier who wants to enter into the electricity market. However, there are some circumstances where the Secretary of State can grant an exemption from the requirement to hold a generation, supply or distribution licence under the “Class Exemption Order” (The Electricity Order 2001 - Class Exemptions from the Requirement for a Licence).

Community generators must apply for the exemption to the Secretary of State. No exemption has been granted to date, as they require technical and regulatory analysis from both Ofgem and the DNO. The complexity of the regulatory and technical process has been a barrier to application. The complexity of the regulatory system will require specialist regulatory and legislative advice, which comes at a cost.

The Class Exemption Order was created to release generators, distributors and suppliers in those cases in which the cost and the complexity of regulations formed a barrier for the development of certain technologies and business:

- Small scale generators who want to sell their output to local suppliers;
- Industrial suppliers wishing to sell the excess electricity to local commercial or domestic consumers or public buildings, via a distribution network;
- Operators of low carbon technologies wishing to operate their own distribution network and supply electricity to local consumers.

This exemption provides an opportunity for distributed generators to sell the excess electricity to local consumers, without having to comply with the high technical and financially demanding requirements of a Licenced Supplier. The licence exemptions covered under the Class Exemption Order 2001 include:

- Under supplier exemption, supply of up to 5MW throughout the public distribution network(of which no more than 2.5MW to domestic consumers); and
- Under distribution exemption, distribution of electricity for supply that does not exceed 2.5MW, with a maximum of 1MW to domestic consumers.

Table 4 provides a breakdown of the advantages and disadvantages of the Supplier under a Licence Exemption model over the traditional business model.

Table 4: Advantages and disadvantages of the Supplier under a Licence Exemption model

Advantages	Disadvantages
Opportunity for community suppliers to sell directly to consumers	No example of exemption being offered
Lower costs for community suppliers	High complexity of regulatory and technical regime
Potential savings for consumers as lowers costs for community suppliers	Reluctance from some stakeholders to engage with licence exempted suppliers
	Uncertainty of DNO charges for network reinforcements or extensions
	Uncertainty on TPLS charges for some back office services
	Specialist regulatory advice required

Additional Information

For further information about typical network connections, see the **Grid Connection Module**.

Further information on PPA from DECC:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/263919/Baring_a_report_on_PPA_market_liquidity_July_2013.pdf

Further information on PPA from Local Energy Scotland:

<http://www.localenergyscotland.org/funding-resources/resources-advice/cares-toolkit/finance-matters/>

Further information on OVO community energy offer:

http://www.ovoenergy.com/uploadedFiles/Content/Different_Approach/Community_Energy/OVO%20Communities%20Brochure.pdf

Further information on Open Utility / Good Energy offer for White Label: <https://piclo.uk/how-it-works>

Figure 2 and Figure 3:

https://research.ncl.ac.uk/ibuild/outputs/local_electricity_supply_report_WEB.pdf

Figure 4:

https://www.ofgem.gov.uk/sites/default/files/docs/2015/04/482_an_introduction_to_licence_li te_factsheet_web_0.pdf

Commissioned by the Energy Saving Trust

Produced by Ricardo Energy & Environment building on work completed for the Scottish Government's Community and Renewable Energy Scheme

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This document was last updated February 2016.

