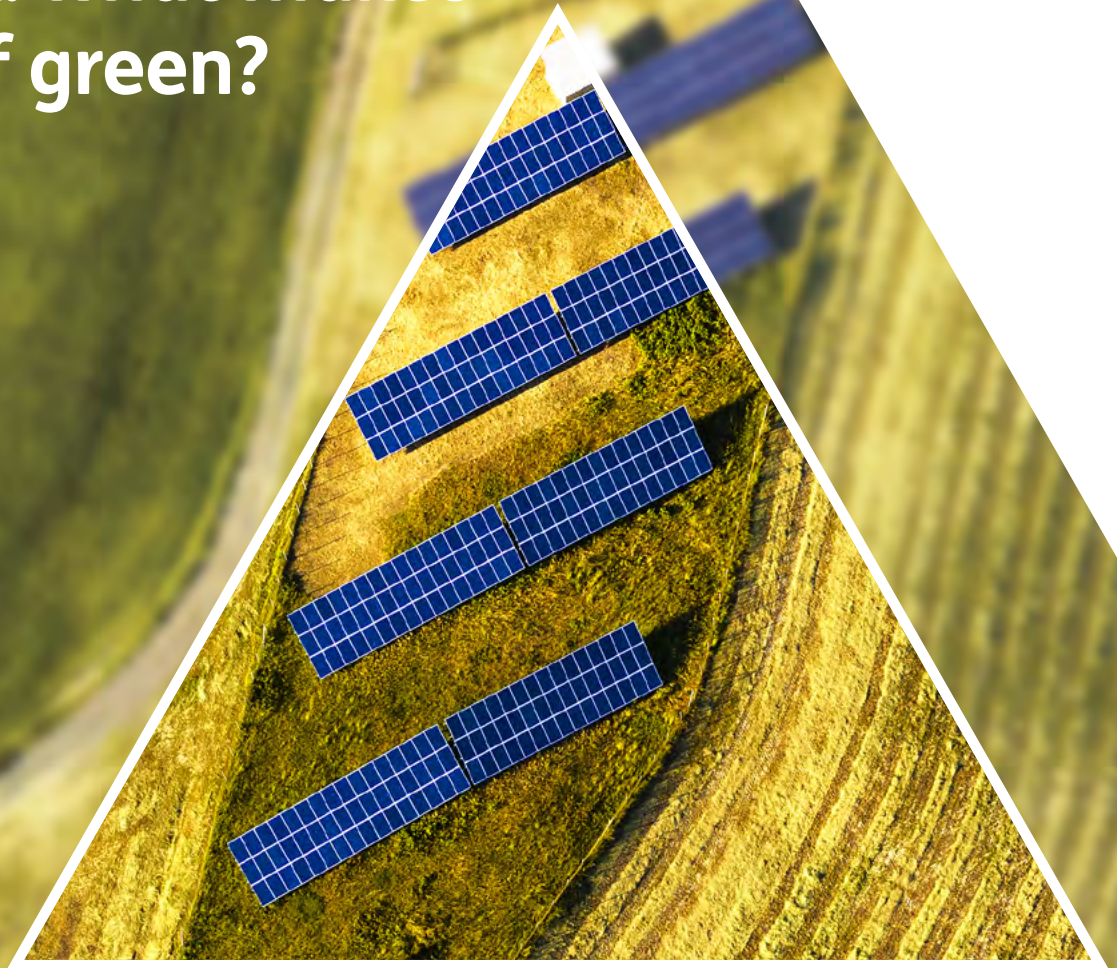


Renewable tariffs in the UK: what makes a tariff green?



Background to green tariffs

Renewable tariffs have become more popular, but there is low awareness among consumers of what makes them 'green'.

Renewable tariffs have increased in popularity as households and businesses seek to limit their carbon footprint. Baringa research suggests that over a third of British households could be on electricity tariffs marketed as green. Between 2016 and 2019, the number of renewable tariffs on the UK market grew from approximately 9% to more than 50% of the total¹.

The uptake of renewable tariffs has been supported by their price competitiveness with non-renewable tariffs. Many renewable tariffs are cheaper than others with a low renewables or standard fuel mix. This is an important factor given that around 90% of people who switch tariffs say that their main motivation is to get a cheaper deal.²

Consumer awareness is low

Many consumers do not know what makes a 'green' tariff green³. Some consumers believe that being on a green tariff means their homes are being directly supplied with renewable energy. This cannot be true without a direct and exclusive household connection to renewable generation⁴.

Consumers also hold different views around the legitimacy of schemes used to label a tariff as renewable. For example, some consumers believe that suppliers should generate their own green electricity, and 'buying in' green electricity from other producers is not seen as equivalent⁵. However, consumers expect that if they are paying a premium to be on a green tariff, the 'extra' element they pay should be spent on investing in renewables⁶. This means additional benefits for renewables that would have not otherwise have been delivered.



¹ <https://www.which.co.uk/news/2019/09/how-green-is-your-energy-tariff/>

² https://www.ofgem.gov.uk/system/files/docs/2018/10/consumer_engagement_survey_2018_report_0.pdf

³ https://www.ofgem.gov.uk/sites/default/files/docs/2013/12/consultation_on_improving_consumer_protection_in_the_green_and_renewable_energy_offers_market.pdf

⁴ https://www.ofgem.gov.uk/sites/default/files/docs/2013/12/perceptions_of_green_tariffs_0.pdf

⁵ In addition, 8% of customers surveyed believed that a 100% renewable tariff meant that suppliers generate all their renewable energy.

⁶ And that the investment must be in addition to what is already mandated by the Renewables Obligations. https://www.ofgem.gov.uk/sites/default/files/docs/2013/12/consultation_on_improving_consumer_protection_in_the_green_and_renewable_energy_offers_market.pdf

Schemes to justify ‘renewable’ label

All suppliers use one of two schemes (and some use both) to claim that the power they supply is ‘green’: they purchase power directly (PPAs) and also purchase the corresponding ‘Certificates’. However, certificates of origin and the renewable electricity that they are associated with are not always purchased together.

Certificates of origin

Certificates of origin are issued to generators of renewable electricity, and may be on-sold to parties seeking to verify the origin of their energy. The intention behind certificates was to introduce an element of traceability to the origins of renewable power, since the actual electrons cannot be physically traced through the electricity grid.

In the UK, the certificate of origin scheme is managed by the Office of Gas and Electricity Markets (OFGEM) and it issues ‘Renewable Energy Guarantees of Origin’ (REGOs). OFGEM issues one REGO certificate per megawatt hour (MWh) of eligible renewable output to generators of renewable electricity. When the party holding the REGO wishes to use the certificate, it is marked as ‘redeemed’ in the register. A REGO must be redeemed within 16 months of the electricity being generated, after which time it cannot be used⁷.

A number of other countries also have their own certificate of origin scheme. In the EU, this is a legislated requirement, and are referred to as Guarantees of Origins (GoOs). GoOs can be

traded between different countries, and are also recognised in the UK. For example, certificates granted for renewable energy in France could be redeemed by energy suppliers in the UK. Similarly, REGOs that are granted for renewable electricity generated in the UK may be redeemed by companies in France. Although the UK has left the European Union, the UK Government has indicated that Great Britain and Northern Ireland will continue to issue REGOs and accept Guarantees of Origin (GoOs) from EU member states⁸.

Certificates of origin offer flexibility of scale to suppliers. This means they can be purchased in small increments, which makes them accessible to smaller suppliers. In the UK, REGOs can be issued for different technologies, including: biomass, wind, hydro and solar.

Power purchase agreements

Power purchase agreements (PPAs) represent contracts to purchase energy directly from generators, usually for periods of 5 to 10 years. Depending on the ownership of the generator, PPAs will either be internal or external. An internal PPA is one where an energy retailer and a generator are under common ownership, whereas an external PPA is one where an energy retailer contracts with a third party generator. The function of internal and external PPAs are essentially the same. They provide the supplier with electricity for its customer, and the generator with a route to market.



⁷ A supplier redeems a REGO to contribute to the fuel mix disclosure in the UK. REGO can also be retired, which is done when a supplier wishes to use a REGO to contribute to their ‘all island’ fuel mix disclosure (to include Northern Ireland). https://www.legislation.gov.uk/nisr/2010/374/pdfs/nisrem_20100374_en.pdf

⁸ <https://www.ofgem.gov.uk/environmental-programmes/rego/about-rego-scheme>

New renewable projects require stable revenues

The two key commercial challenges to the development of new renewable capacity are high upfront costs and uncertain revenue streams. In the face of high upfront capital costs and long operating lifetimes, ensuring a stable source of revenue is key to securing debt financing and enabling investment in renewable generation.

There are a number of existing government policies and support schemes that can reduce these barriers. In the UK, the Contracts for Difference (CfD) scheme is government's main mechanism for supporting low-carbon electricity generation⁹. CfDs are allocated through a competitive auction process. For developers that are successful in a CfD auction, the contract awarded protects the renewable generator against revenue uncertainty. In addition, the UK's Renewables Obligation (RO) has historically been an important mechanism for supporting large scale renewable projects by ensuring that renewable generation can secure a premium above the wholesale price on the electricity that it generates, but has been closed to new generators since 2017.

PPAs and renewable generation

Outside of CfDs, renewable developers can also stabilise future revenues through long-term PPAs. PPAs are agreed directly between a generator and a supplier and are typically multi-year contracts. For this reason, PPAs can provide a guaranteed revenue stream and thus also certainty of returns for investors. This is much less important for renewable projects that are backed by a CfD since the CfD protects the generator from wholesale price volatility.

However, even with a CfD in place, PPAs still play the role of providing a route to market for renewable generators, saving them the cost of wholesale market participation, including factors such as setting up a trading function, obtaining the required licences, and paying the cost of market-making services. They also provide insurance against the price risk associated with last-minute fluctuations in their output, and the risk of securing the market benchmark price in the wholesale market. Together with a CfD, PPAs are generally a requirement for renewable generation developers to secure debt financing.

Renewable electricity sold through power purchase agreements is accompanied by a certificate of origin. However, sometimes the certificate of origin is sold separately, which may happen if the buyer of electricity, such as a large business user, does not require it to be certified as renewable. This creates the potential for double counting if suppliers buying the power and certificates separately both claim that the electricity they supply is renewable.

The role of certificates of origin

Certificates of origin can be sold by renewable generators to suppliers, and depending on the price achieved, they can contribute to the revenue derived by renewable generators. The extent to which certificates of origin can support the financing of renewable investment is limited by the ability of generators to sell the certificates in advance of project commissioning.

Certificate prices are currently very low. However, the prices of REGOs fluctuate. In the UK, one REGO could be purchased for approximately £0.5 in 2020¹⁰. This means that for suppliers who exclusively use REGOs or GoOs, the '100% green electricity label' currently costs approximately £1.45 per customer¹¹.

For some smaller generators producing energy under the feed-in-tariff scheme, the financial reward of REGOs may not be enough to outweigh the administrative burden. A significant number of GoOs have expired without having been cancelled (used) over the past few years, which suggests that there is an oversupply of certificates relative to current demand.

Some GoOs afford suppliers exemptions from Low Carbon Levies in the UK, such as the Contract for Difference (CfD) levy and Feed in Tariff (FIT) levy. This is a potential attraction for some suppliers to use GoOs over REGOs.

Finally, GoOs redeemed by UK energy suppliers can only make a contribution to renewable capacity developed elsewhere in the EU.

⁹ <https://www.gov.uk/government/publications/contracts-for-difference/contract-for-difference#:~:text=CfDs%20incentivise%20investment%20in%20renewable,when%20electricity%20prices%20are%20high>.

¹⁰ <https://www.icis.com/explore/resources/news/2020/03/03/10477053/icis-power-perspective-british-gos-price-rise-expected-to-continue-on-healthy-demand-outlook>.

¹¹ The typical household uses 2.9 MWh of electricity annually, source: <https://www.ofgem.gov.uk/gas/retail-market/monitoring-data-and-statistics/typical-domestic-consumption-values>.

Analysis of green certification used by British suppliers



Baringa contacted all suppliers with over 250,000 residential customers or suppliers that claimed to supply renewable energy. This represented 32 suppliers in total. Ultimately, data on 11 suppliers was used in this study, which covers the majority (60%) of the domestic retail electricity supply market in the UK.¹² Only those suppliers that explicitly consented to this are named in our study.¹³

Data was collected both on green electricity purchases (PPA volumes and certificates redeemed by suppliers to justify tariffs as renewable) and supplied electricity volumes. For certificates, Renewable Energy Guarantees of Origin include certificates marked by the appropriate entry in the Renewables and CHP registers. EU Guarantees of Origin are cancelled in the relevant country's register.

The supplied electricity volumes were separated into tariffs that are marketed as green (or marketed as backed by 100% renewables) and those that are not marketed as green or not marketed as backed by 100% renewables.

Figure 1: Volume of electricity supplied through tariffs that are marketed as green vs. % electricity supplied on tariffs that are marketed as green

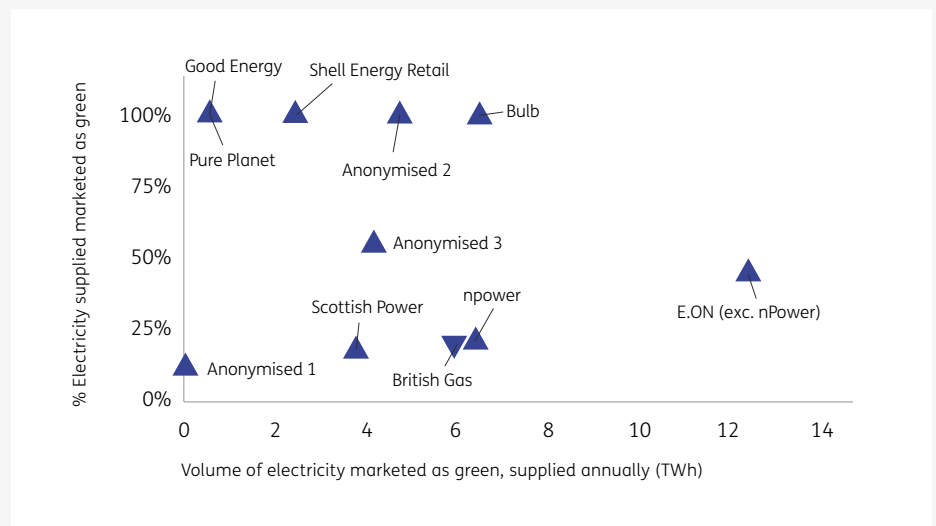


Figure 1 shows differences between suppliers in the volume and proportion of electricity supplied on tariffs marketed as green.

Two broad groups of suppliers emerge from this data. The first group markets all the energy it supplies as green and includes Good Energy, Pure Planet, Shell

Energy Retail, Bulb, and Anonymised Supplier 2. The average volume of electricity supplied on tariffs marketed as green by this group is around 2.6 TWh. Relative to the rest of this group, Bulb and Anonymised Supplier 2 have high supply volumes, having grown rapidly over the past four years.

¹² Data on domestic market shares is representative as of Q2 2020, and was taken from: <https://www.ofgem.gov.uk/data-portal/electricity-supply-market-shares-company-domestic-gb>

¹³ 10 of these 11 suppliers provided data to Baringa. Of these 10, two chose to remain anonymous. Data for the 11th supplier was sourced from publicly available data.

The second group supplies significantly higher volumes of electricity overall, including high amounts of electricity on tariffs marketed as green, but with the majority of power being supplied on tariffs that are not marketed as green. This group includes British Gas, E.ON, npower, and Scottish Power. In 2019, these four suppliers accounted for nearly half of the volume of the total UK domestic retail electricity market.

Figure 2 shows the extent to which different suppliers chose to use both PPAs and certificates to underpin tariffs marketed as green. As is required under current regulations, all suppliers in this study backed 100% of their electricity supplied on tariffs marketed as green with certificates of origin. As a result, differences between suppliers in Figure 2 arise from differences in levels of PPAs used to underpin tariffs marketed as green.

The differences in approaches between different suppliers are stark, with the majority of suppliers making full use or very little use of PPAs in backing their green tariffs.

Larger and more established energy suppliers have tended to use both PPAs and certificates to back their green energy more than newer and smaller participants, which correlates with development of renewable generation within the same parent company. When ranked by proportion backed by both PPAs and certificates, Scottish Power, British Gas, npower and E.ON make up four of the top six places. In contrast, most newer and smaller suppliers in our study that offered only green electricity tariffs tended not to use PPAs. Good Energy (100% PPAs and certificates) is the only exception to this trend in our study¹⁴.

Figure 3 shows proportion of electricity supplied on all tariffs (rather than just tariffs marketed as green as in Figure 2) that is renewable and backed by PPAs and certificates.

Figure 2: Proportion of electricity marketed as green backed by both PPAs and certificates

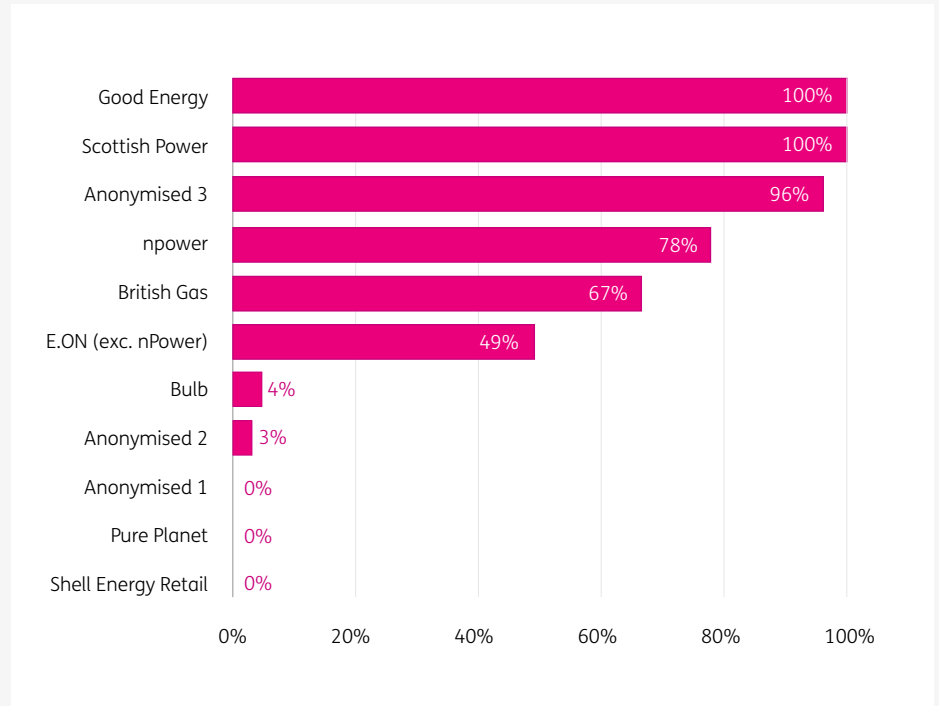
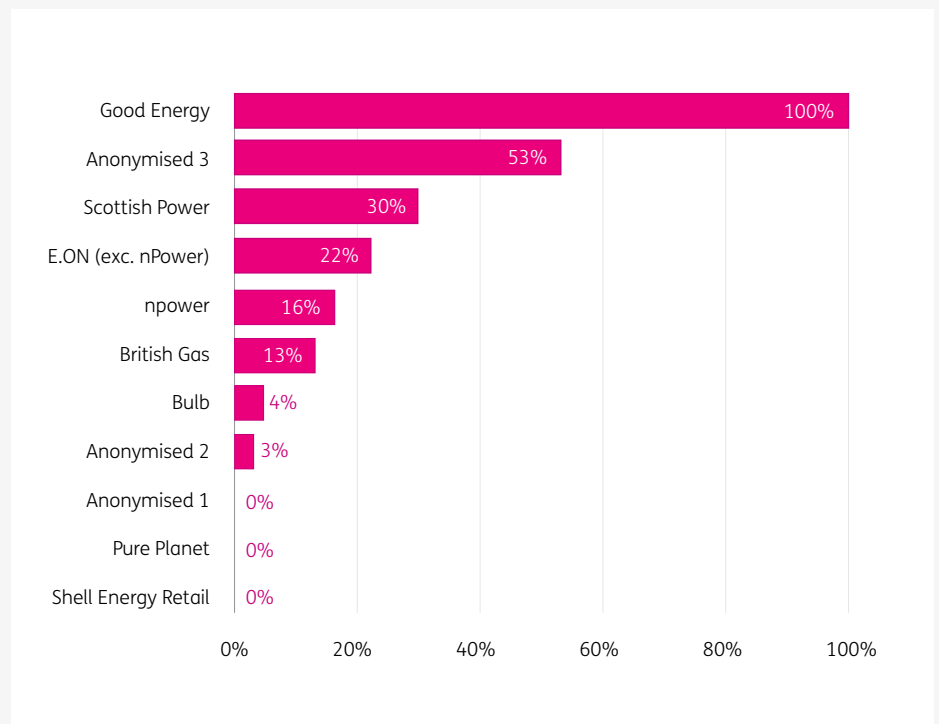
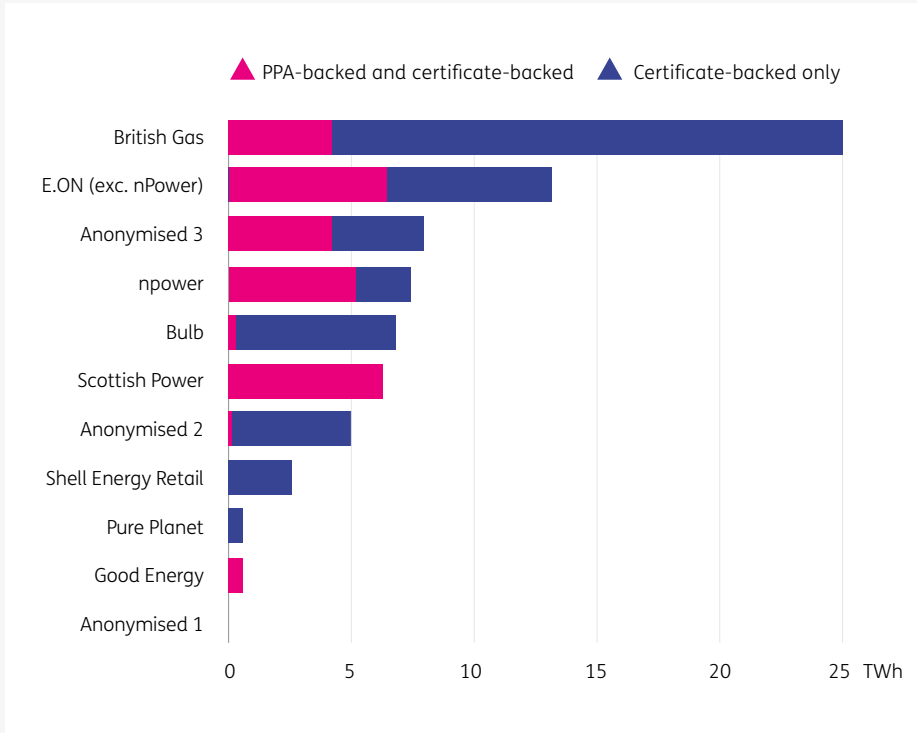


Figure 3: Proportion of electricity supplied on all tariffs that is backed by renewable PPAs and certificates



¹⁴ While Shell Energy Retail did not use any PPAs, the broader Shell entity holds many PPAs throughout the UK through affiliated companies.

Figure 4: Volume of electricity supplied on all tariffs that is backed by certificates and PPAs, or certificates only (TWh)

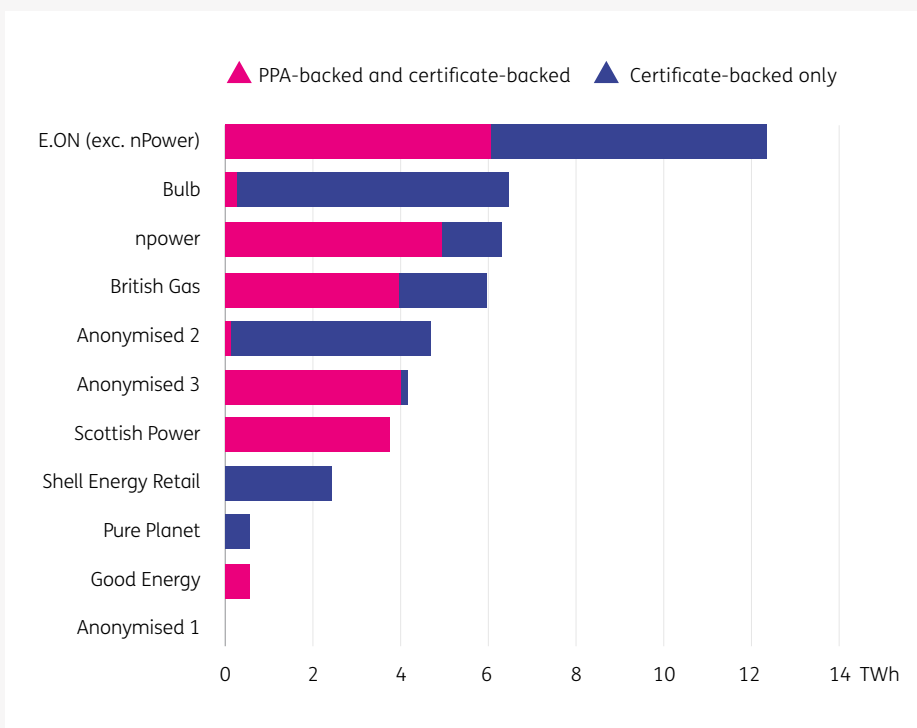


Good Energy was the only supplier that backs 100% of all electricity they supply with PPAs and certificates, followed by Anonymised Supplier 3 at 53% and Scottish Power at 30%.

Figure 4 focuses on the volume of electricity supplied on all tariffs (whether marketed as green or not), that is either backed by PPAs and certificates or backed by certificates alone (ranking suppliers by the total of these two categories). The pink bars show the extent to which different suppliers underpin the green power supplied with PPAs in addition to certificates.

According to the data compiled by Baringa, British Gas had the highest volume of electricity supplied that was backed by either PPAs or certificates. British Gas' certificate volumes were 85% driven by GoO purchases, which was distinct from most other suppliers¹⁵. The only other supplier to have more GoO purchases than REGOs was Anonymised Supplier 3 (80% of certificates were GoOs).

Figure 5: Volume of electricity supplied on tariffs marketed as green that is backed by certificates and PPAs, or certificates only (TWh)



The most noticeable difference between the remaining suppliers in Figure 4 lies in the extent of use of PPAs. Scottish Power and Good Energy underpinned their green power fully with both PPAs and certificates. Bulb, Pure Planet, Shell Energy Retail, and Anonymised Supplier 2 provided less volumes through PPAs.

Figure 5 focusses only on electricity supplied through tariffs marketed as green.

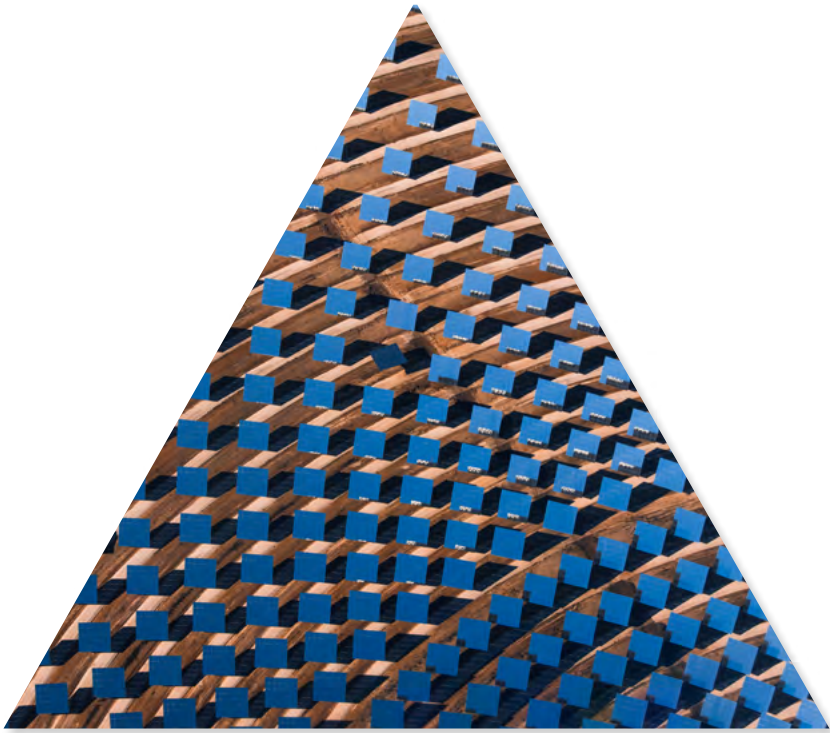
¹⁵ A majority of the suppliers had certificate volumes that exceeded the volume of electricity supplied under tariffs marketed as green. This means that some electricity not marketed as green was also covered by certificates. This was particularly true for British Gas, who had triple the number of certificates as the volume of electricity supplied on tariffs marketed as green.

In the period covered by our study, E.ON supplied the highest volume of electricity on tariffs marketed as green, with Bulb second. Good Energy and ScottishPower backed all of the electricity supplied under such tariffs with both PPAs and certificates.

The way in which suppliers certify the power provided under green tariffs has come under increasing scrutiny and is an area of active industry debate. This debate is set to intensify as the electricity sector evolves, with renewable generation reaching greater levels of maturity, reducing reliance on government support, and increasingly relying on commercial instruments to underpin investment. In this report, we have sought to bring together data provided by suppliers that has never been published before, and we hope that it helps to inform the debate as the industry continues to evolve.

As we move forward, standards around disclosure of the way in which suppliers back green tariffs will need to increase to ensure that legitimacy of such deals with consumers is not lost. Voluntary disclosure by suppliers can play a key role, and some suppliers have made significant strides in this direction already. However, to ensure progress across the industry, government will need to play a leading role in ensuring that clear disclosure standards that are understandable to consumers are maintained across the industry.





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