

# Renewable energy in Europe:

## An analysis of how UK energy suppliers use Guarantees of Origin certificates

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**Research note**  
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An analysis of Guarantees of Origins certificates

## **Background**

Across Europe, renewable energy is now a mainstream technology. Over recent years, clean power plants have grown in number and capacity, leading to record levels of generation.

Analysis from think tanks Agora Energiewende and Sandbag found that, in 2019, 35% of electricity within the European Union came from renewable sources<sup>1</sup>. This is a doubling of market share since 2013, and, as the authors note, primarily came from wind and solar power.

As the market for renewable energy has grown, so has the number of energy tariffs promising "100% renewable electricity". A recent report from consumer group Which? found that tariffs labelled green in the UK had grown from 9% in 2016 to nearly 50% of the market three years later.

Energy suppliers have a number of options to support these renewable tariffs; from sourcing clean power direct from UK generators to buying renewable certificates, without the power attached, on a secondary market. The latter option is how the majority of suppliers justify these claims - bulk buying REGOs, or Renewable Energy Guarantees of Origin, for an average of £1.50 per household for the year.

The discussion around REGOs and 'greenwashed' energy tariffs has already gained publicity, led by the Which? report and in the national media.<sup>2</sup> The regulator, Ofgem, has responded to the issue stating in its recent Decarbonisation Action Plan:

*"We are aware of growing concerns about 'greenwashing', where the environmental impact of a particular tariff or supplier is overstated. We expect suppliers to be transparent about what constitutes a 'green tariff' and we will undertake work to ensure that consumers are not misled"*<sup>3</sup>

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<sup>1</sup> Agora Energiewende and Sandbag, The European Power Sector in 2019, [https://www.agora-energiewende.de/fileadmin2/Projekte/2019/Jahresauswertung\\_EU\\_2019/172\\_A-EW\\_EU-Annual-Report-2019\\_Web.pdf](https://www.agora-energiewende.de/fileadmin2/Projekte/2019/Jahresauswertung_EU_2019/172_A-EW_EU-Annual-Report-2019_Web.pdf)

<sup>2</sup> <https://www.independent.co.uk/news/business/news/renewable-energy-suppliers-green-electricity-which-research-a9123566.html> (September 2019)  
<https://www.telegraph.co.uk/bills-and-utilities/renewable-energy/renewable-energy-con-clean-power-buy-comes-fossil-fuels/> (August 2019)

<sup>3</sup> Ofgem, Decarbonisation Action Plan, (February 2020)  
[https://www.ofgem.gov.uk/system/files/docs/2020/02/ofg1190\\_decarbonisation\\_action\\_plan\\_web\\_0.pdf](https://www.ofgem.gov.uk/system/files/docs/2020/02/ofg1190_decarbonisation_action_plan_web_0.pdf)

While the issue of using secondary REGOs within Britain has gained attention, the use of European Guarantees of Origin has not been explored.

This research note provides a short analysis of how energy suppliers are increasingly looking to GoOs to evidence their renewable energy claims at low-cost. At the same time, these certificates allow suppliers to avoid financial contributions towards UK renewable energy schemes.

### **What are Guarantees of Origin certificates?**

The European Union passed its landmark Renewable Energy Directive in 2009, which set a legal target to source 20% of the bloc's energy from renewable sources by 2020.

One of the law's clauses included the creation of a scheme to identify where renewable energy was sourced. Each member state was required to create a Guarantees of Origin (GoOs) scheme to evidence the supply of clean power. In the UK, that scheme is covered by REGO certificates.

While UK suppliers are able to trade REGO certificates without the power, they are also permitted to purchase certificates from within EU member states which have their own schemes. These certificates can contribute towards a supplier's Fuel Mix Disclosure, a yearly report each energy company submits to Ofgem to show which energy sources were used across its tariffs. The number of European GoOs submitted to Ofgem by energy suppliers is made publicly available each year.

### **Analysis**

The following analysis is based on public data available on the Ofgem website.<sup>4</sup> This data was downloaded on 15<sup>th</sup> July 2020.

In 2019-2020, the number of European Guarantee of Origin certificates in the UK market reached 57.9 million. This is an increase of 41% from 40.9 million in 2018-2019.

The average cost of a European GoO for wind projects cost 0.40-0.50 euro cents per megawatt hour in 2019 and 0.75-0.85 euro cents in 2020.<sup>5</sup> This roughly matches the cost of equivalent REGO certificates in UK, which are between 10p-£1 each.<sup>6</sup>

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<sup>4</sup> Ofgem, Recognised Guarantees of Origin 2020, <https://www.ofgem.gov.uk/publications-and-updates/recognised-guarantees-origin-2020>

<sup>5</sup> ECOHZ, The European market for renewable energy reaches new heights (August 2019) <https://www.ecohz.com/press-releases/the-european-market-for-renewable-energy-reaches-new-heights/>

<sup>6</sup> Good Energy industry analysis (October 2020). Solar, biomass and hydro certificates are the cheapest at between 10p-30p, while offshore wind can reach prices between 90p-£1.

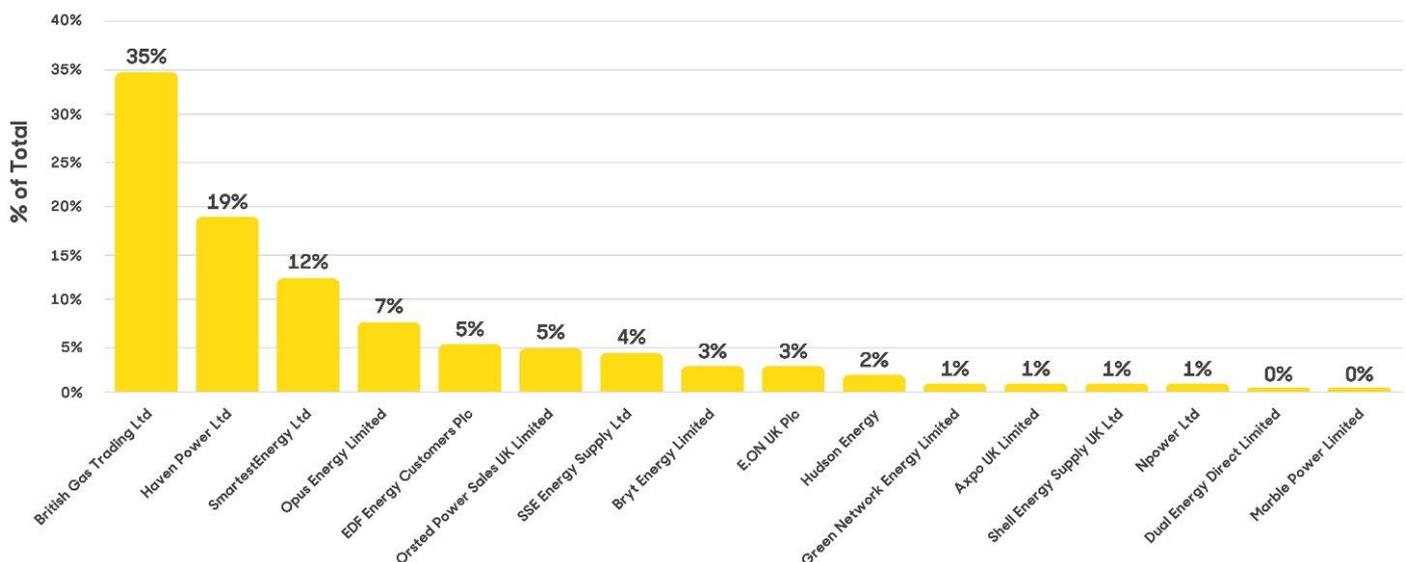
For the period 2019–2020, 16 energy suppliers in Britain purchased European GoOs. The following five energy suppliers were the biggest users of GoOs within their own fuel mix: British Gas, Smartest, Bryt Energy, Dual Energy and Marble Power. British Gas remains the largest user of these certificates, purchasing 20 million certificates, twice as many as its nearest competitor. GoOs made up 84% of British Gas’ total renewable certificates and the company redeemed 35% of the entire GB market for the past year.

The majority of suppliers which purchase GoOs have a presence in both the business and domestic markets, with a number which focus solely on selling energy to business customers. Shell Energy and Green Network Energy are the only suppliers which buy European GoOs and do not supply businesses.

Among the 16 suppliers which purchase these certificates, six compete within the domestic retail market and collectively they account for over 50% of all customers within this market.<sup>7</sup> These included some of the UK’s largest suppliers: British Gas, EDF, E.ON, Shell Energy, Npower (now owned by E.On), and Green Network Energy. SSE is also included but sold its domestic customers to OVO Energy in 2019.

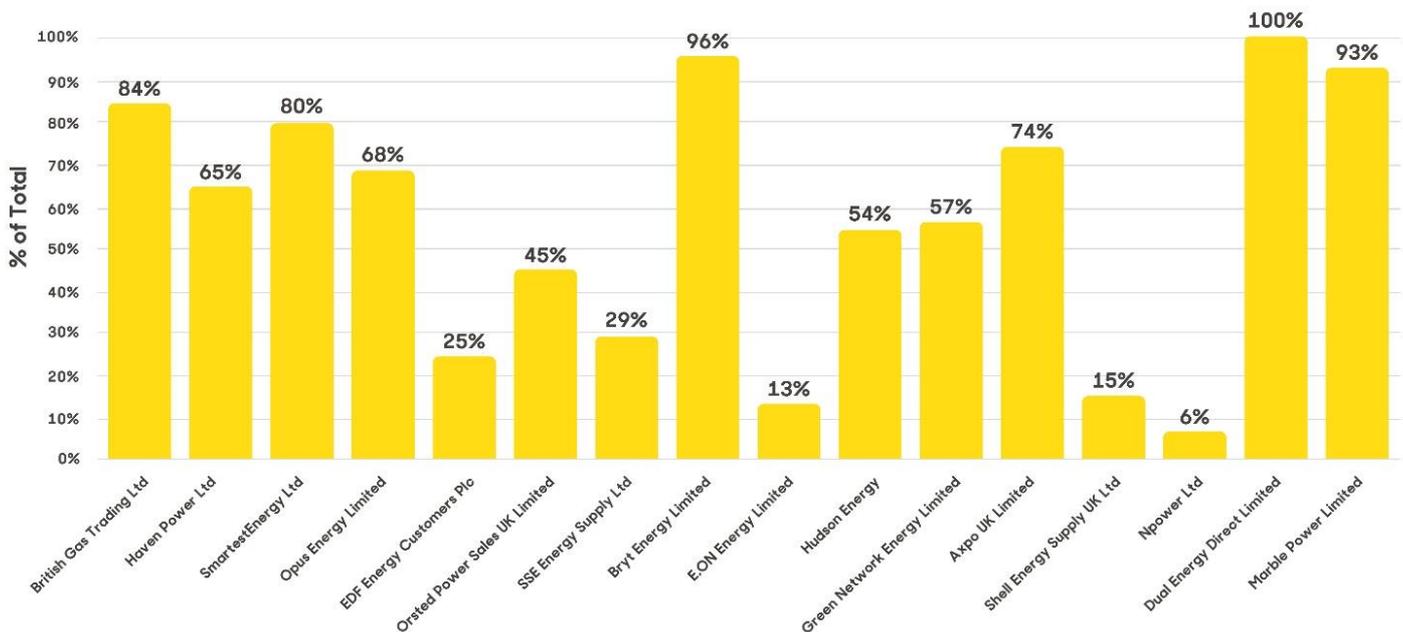
The following two graphs illustrate how GoOs are now in widespread use in Britain as a means of evidencing renewable energy claims.

**% of Total UK GoOs redeemed by Supplier (2019/20)**



<sup>7</sup> Ofgem, Retail Market Indicators, <https://www.ofgem.gov.uk/data-portal/retail-market-indicators> (Data is Q1 2020).

## % of Supplier Certificates that came from GoOs (2019/20)



### Impact on UK renewable energy schemes

The sharp increase in the number of European GoOs purchased by energy suppliers has an impact on the financing of renewable energy schemes within the UK. This is because buying these certificates allows suppliers to reduce the amount they are obliged to contribute towards renewable energy schemes. The knock-on effect is to increase the cost of these schemes for all suppliers in the market. In addition, the environmental benefit of green tariffs offered by UK suppliers which bulk-buy GoOs is also greatly reduced.

The impacted schemes are the Feed-in Tariff and Contracts for Difference. The Feed-in Tariff was created by the government in 2010 to support the uptake in small-scale renewable technologies among households and businesses. Although the scheme closed to new entrants in 2019, all generators receive financial support for 20 years. This is paid through a charge on energy companies.

The Contracts for Difference scheme is the government's ongoing financial support scheme for large-scale renewable generation. It provides a route to market for renewable projects where developers bid for government-backed contracts via an auction. To date, three auctions have led to over 11,000 megawatts of clean power

capacity winning support. A fourth auction round is planned for 2021 and the scheme is financed through the Supplier Obligation.<sup>8</sup>

Suppliers which purchase GoOs do not have to buy the renewable power alongside these certificates, but instead, they must present evidence that an equivalent amount of electricity is imported into Great Britain within the same month of generation.<sup>9</sup> This practice means the overall cost to supplier is potentially cheaper than a direct Power Purchase Agreement with renewable generators in Britain, and does little to grow the market for renewables in the country.

### Calculating avoided costs

One GoO certificate represents 1 megawatt hour (MWh) of energy. Using this, and the current £/MWh costs for both renewable energy schemes<sup>10</sup>, we can calculate how much suppliers are able to avoid in contributions to these schemes. These certificates can only be used to avoid these costs under certain criteria; namely, that the certificates are purchased from within an EU member state and originate from generating stations which match those covered by both renewable energy schemes.<sup>11</sup>

After calculating the amount of 'exempt' electricity each supplier used, we multiplied this amount by the £/MWh cost for both FiT and CfD schemes. This calculation reveals how much each supplier was able to avoid. Our analysis found that in the past year suppliers have avoided £126 million in costs towards renewable energy subsidy schemes. The amount avoided for 2018-2019 was £87 million.

Avoiding the costs of these schemes is currently within the rules and often justified on the basis of ensuring suppliers are not at a competitive disadvantage when operating within international markets. Despite this, Ofgem places a cap on the amount that can be avoided through purchasing the certificates. The total cap for 2019/2020 is 10.78 million certificates. However, our findings show that suppliers breached the cap, with 38.5 million in 2019-2020 and 27 million eligible GoOs in 2018-2019 used to avoid

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<sup>8</sup> More information on how the Feed in-Tariff and CfD levies are calculated can be found here: [https://www.ofgem.gov.uk/system/files/docs/2019/02/levelisation\\_process\\_2.pdf](https://www.ofgem.gov.uk/system/files/docs/2019/02/levelisation_process_2.pdf) and <https://www.lowcarboncontracts.uk/cfd-levy>.

<sup>9</sup> Ofgem, Guidance for Organisations on GoOs for use in GB Fuel Mix Disclosure (FMD) and Feed-in Tariff (FIT) annual Levelisation, [https://www.ofgem.gov.uk/system/files/docs/2018/05/guidance\\_for\\_organisations\\_on\\_presenting\\_guarantees\\_of\\_origin\\_goos\\_for\\_use\\_in\\_gb\\_fuel\\_mix\\_disclosure\\_fmd\\_and\\_feed-in\\_tariffs\\_fit\\_annual\\_levelisation.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/05/guidance_for_organisations_on_presenting_guarantees_of_origin_goos_for_use_in_gb_fuel_mix_disclosure_fmd_and_feed-in_tariffs_fit_annual_levelisation.pdf) (see p.5)

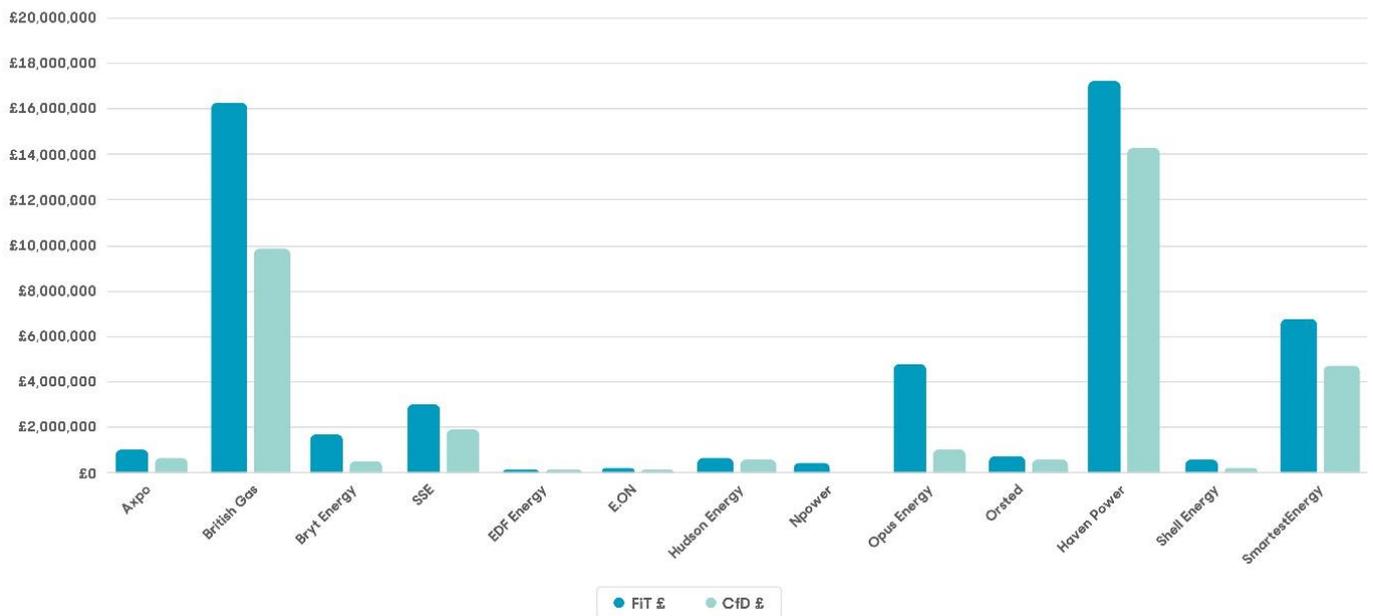
<sup>10</sup> Supplier payments for the Feed-in Tariff are calculated using the amount of electricity supplied to customers in the UK less the amount of electricity it sourced from renewable sources generated outside of the UK. Feed-in Tariff: Guidance for Licensed Electricity Suppliers (Version 8.1) [https://www.ofgem.gov.uk/system/files/docs/2016/05/fits\\_guidance\\_for\\_licensed\\_electricity\\_suppliers\\_v\\_8.1\\_0.pdf](https://www.ofgem.gov.uk/system/files/docs/2016/05/fits_guidance_for_licensed_electricity_suppliers_v_8.1_0.pdf) (see part 9.6)

<sup>11</sup> Ofgem, Guidance for Organisations on GoOs for use in GB Fuel Mix Disclosure (FMD) and Feed-in Tariff (FIT) annual Levelisation, (p.8)

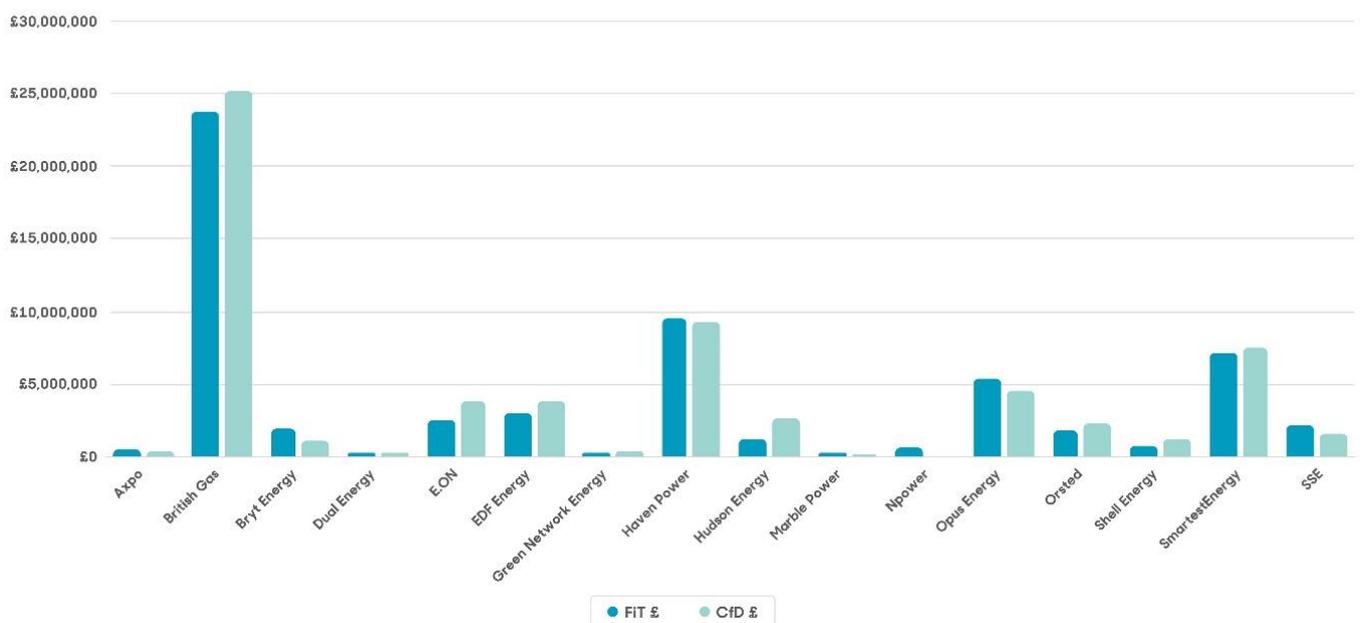
renewable subsidy costs. While breaching the cap does not mean more costs are avoided (total costs are prorated across all suppliers), it highlights the growing importance of European GoOs within the renewable market. In addition, as the cap increases each year, this option becomes more lucrative.

The below graphs illustrate the level of avoided costs from participating suppliers and the increase within the past two years.

### 2018/2019 - Avoided Costs by Supplier



### 2019/2020 - Avoided Costs by Supplier



## Conclusion

This analysis has provided a snapshot of the European GoO market over the past two years. The current data shows that purchasing low-cost GoOs has become a favoured option among a number of Britain's largest energy suppliers. This option takes place alongside the same method of purchasing low-cost REGOs.

While this practice remains within the rules, the knock-on impact is to allow participating suppliers to avoid investment in renewable projects in the UK, and reduces the environmental benefit of their green tariffs. In addition, the option to purchase these certificates is an important, yet largely ignored, part of the discussion around evidencing green claims. There already exists a lack of transparency around how suppliers evidence their renewable claims. And repeated polling shows customers want green tariffs to support a clean energy system.<sup>12</sup>

The growing use of GoOs within a suppliers' Fuel Mix Disclosure should be considered by Ofgem as it seeks to ensure consumers are not being misled by green tariffs.

## Appendix

Table 1: Avoided FiT and CfD Costs by Supplier

Company	2018/19 Avoided Cost	2019/20 Avoided Cost
Axpo	£1,646,869	£1,001,508
British Gas	£26,145,487	£48,959,818
Bryt Energy	£2,133,506	£3,021,818
Dual Energy	£0	£615,125
E.ON	£308,009	£6,425,505
EDF Energy	£178,744	£6,843,370
Green Network Energy	£0	£758,243
Haven Power	£31,527,077	£18,878,799
Hudson Energy	£1,229,371	£3,899,737
Marble Power	£0	£480,407
Npower	£450,148	£680,181
Opus Energy	£5,783,383	£9,943,488
Orsted	£1,247,699	£4,154,695
Shell Energy	£787,772	£1,991,238
SmartestEnergy	£11,462,200	£14,663,879
SSE	£4,907,316	£3,784,884
<b>Total</b>	<b>£87,807,580</b>	<b>£126,102,694</b>

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<sup>12</sup> Opinium (November 2019 for Good Energy). 65% of respondents agree that 'I would choose a green tariff if it supported our move to a new clean energy system'. 52% believe that a supplier offering 100% renewable tariffs will send 100% renewable electricity to the customer's home.



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