# Distributed Generation in Brazil & UK Comparison

Trinity Topics

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*This briefing note summarizes the contents of a webinar organized on December 02, 2020 by Trinity International LLP, Manucci Advogados and others jointly with the UK's Department for International Trade. The purpose of the webinar was to present legal, economic and investors' perspectives on the Brazilian distributed power generation market and its differences and similarities with the UK's own distributed generation market.*

Brazil is steadily climbing up the global ranks of solar PV power generation by installed capacity, with distributed generation (DG) outshining centralized projects. DG business models have proven particularly profitable, as they allow set-off of almost 100% of one's power bill in a country with exceedingly high electricity costs.

DG was structured in Brazil under a net metering system, pursuant to ANEEL regulation 482.

This means one cannot sell electricity, but rather produce one's own power and set it off against nearby consumption. Consumption from the grid, surpluses and offsite production are all accounted for by the local electricity distributor. Surplus credits are usable within 5 years.

In the UK, by comparison, electricity can be sold under power purchase agreements (PPAs) or traded directly into the wholesale market. The Smart Export Guarantee Scheme also allows renewable generators with capacity of up to 5MW to be paid by electricity suppliers for surplus electricity exported to the grid.

In Brazil, DG can be implemented using any renewable energy source (though 95% of it is solar PV) as well as traditional fossil fuels, if used in combined heat processes. Storage solutions are yet to be regulated locally (and at the moment they are quite expensive to be used at large in any case), unlike in the UK, where battery storage solutions are regulated, and are increasingly being used as part of DG systems to support the integration of low-carbon power, heat and transport technologies. Another emerging DG source in the UK is the Virtual Power Plant which comprises a cluster of DG installations controlled by a virtual lead party using an information communications platform.

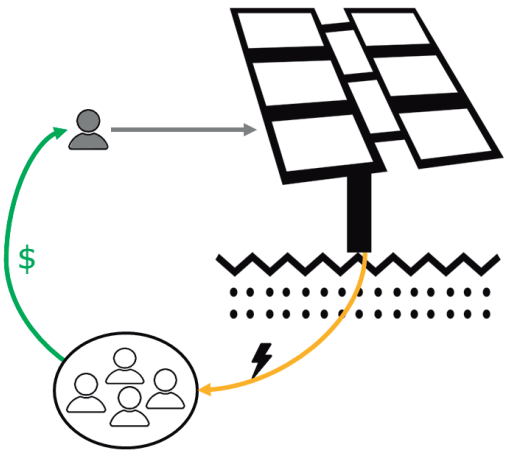
There are three features that make DG in Brazil stand out from the frameworks usually seen elsewhere. First, installed capacity of DG plants can go up to 5 MW, a limit applicable per plant, not per consumer. Larger plants allow for some cost scalability, especially solar PV.

Second, Brazilian DG regulation allows the same entity to generate power in one place and set-off the electricity bill elsewhere, as long as both locations are comprised within the concession area of the same local power distributor. This means one can lease real estate in a remote location, where land is usually cheaper, and use the energy wherever needed in the same concession area.

Third, one can pool together individuals into cooperatives and companies into consortia to produce/consume electricity, coupling the scalability of solar PV projects with the flexibility provided by remote plants.

This framework gave rise to several interesting business models. Since DG electricity cannot be bought nor sold under regular PPAs in the Brazilian net metering system, by far the most successful model has become the bespoke construction of remote plants leased to consumers.

By charging rent constituted of a fixed portion coupled with a variable portion based on plant maintenance and productivity, a well-designed lease agreement can achieve an economic outcome similar to what a corporate PPA would achieve. This framework has already been successfully tested against any allegations of fraud or simulation, with the regulatory agency itself reaffirming the rationale of fixed-plus-variable portions of lease payments.

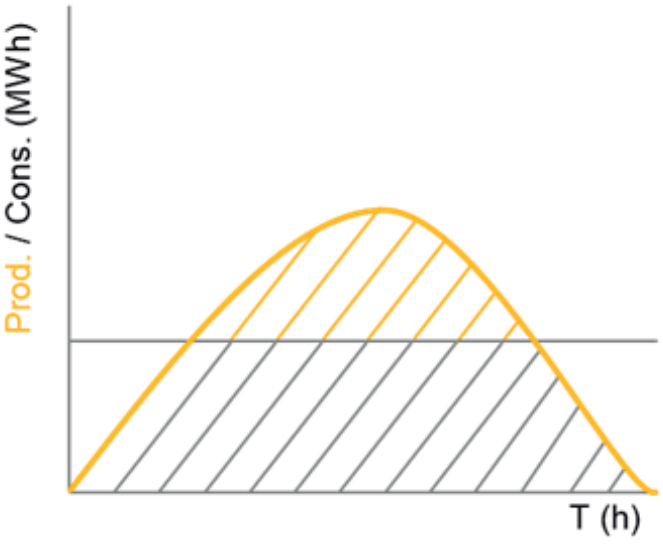



By way of comparison, UK DG market participants are increasingly active in the corporate PPA sector, particularly in light of the closure of the Feed-in Tariff scheme and Renewable Obligations Certificates scheme to new entrants.

UK Corporate PPAs broadly take three different forms: (1) private wire PPAs under which electricity is generated on the same site where is it used by the offtaker; (2) sleeved PPAs which take the form of a tripartite agreement between the distributed generator, offtaker and licenced electricity supplier; and (3) synthetic PPAs under which there is no physical delivery of power to the consumer but the generator and consumer instead enter into a financial hedging instrument in respect of the power price.

Other routes to market for distributed generators in the UK include optimisation agreements under which a provider of market access services is able to trade the generator's assets in the electricity forward or spot market as well as optimise the flexibility of any storage facilities.

In Brazil, all electricity consumed from the grid is taxed. Whereas onsite DG allows one to avoid grid consumption, all remote production becomes surplus credits which can then be used elsewhere by the same consumer. Surplus credits (onsite or off) are taxed upon use for groups of consumers (cooperatives & consortia) & any power plants exceeding 1MW (other than solar in MG and perhaps RJ). Taxes are levied on electricity value (regardless of lease payments) and range between 15% to 27% from state to state – careful tax and legal planning is critical to the success of most DG projects.



High electricity costs, burdensome taxes and being able to set-off almost 100% of the power bill creates an interesting business model in Brazil – but the last factor is now under political discussion and may change in the mid-term.
Grid costs are built into the electricity tariff for residential and small business consumers, so they can avoid paying for the grid altogether through sufficient DG. But the grid must be maintained nonetheless, meaning costs end up being reallocated to non-DG consumers leading many commentators to conclude there is an unfair reallocation of costs triggering a downward demand spiral. i.

There are regulatory reviews, multiple bills in Congress and yet other initiatives seeking to rebalance this issue. One of the possible outcomes is making surplus energy credits generated remotely be converted at less than a 1:1 conversion rate (right now, every MWh produced is set-off in full without any extra charges), possibly as low as 1:0.37. Whichever review prevails, existing lease contracts are expected to remain valid at 1:1 conversion rates for sufficient time to amortize associated investments.

In addition to regulatory (or even legislative) review of existing DG rules in Brazil, investors should also look out for at least three other key issues. First, some of the tax benefits are subject to sunset clauses, so financial models should be adapted accordingly.

Second, local distributors lose revenues for every new DG connection, even if losses are compensated for in the long term as a result of economic and financial rebalance of concession agreements. Despite being subject to a legal obligation to connect new projects, oftentimes local distributors are not as cooperative as would be normally expected of them. Due diligence of sites and licences is therefore critical to ensure smooth project development.

Third, larger plants may be required to fund grid upgrades and extensions, if required to accommodate the new power being generated, as is the case in the UK.

Choosing the location of remote sites carefully is crucial, as connecting to power with available capacity and located close by should help control connection costs. The Manucci and Trinity teams remain available to answer any other specific questions about distributed generation in Brazil and in the UK. In the meantime our view is that legal due diligence is recommended for any new projects on a case-by-case basis in order to ascertain the legal standing of projects in Brazil and the applicability of existing vs possible new DG rules, as the situation remains in flux. For existing projects and transactions however, we believe there should not be any major concerns – we are available for specific advice to confirm this view on any given transaction.

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# How can I find out more?

For further details on distributed generation, please feel free to contact your usual Trinity or Manucci lawyer – and in particular those professionals listed below.


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