CASE STUDY

CUSTOMER

FCC Environment

SECTOR

FCC Environment is one of the UK's leading waste and resource management companies and is part of a leading international infrastructure, environmental services and green energy group.

Connecting UK business customers with the wholesale energy market

THE DELICATE ART OF IMBALANCE MANAGEMENT

Companies with onsite electricity generation assets increasingly have to play a delicate balancing act. They need to maximize the value of their generated electricity whilst minimizing the commercial risks associated with any failure to deliver that power.

If they contract too much of their generation capacity back into the National Grid through longer term, guaranteed price or other such mechanisms, then they can risk punitive costs for any committed power they subsequently fail to generate. They will also probably have to pay a premium for any electricity they may have to import during periods when they cannot generate sufficient power to meet their own onsite demand.

If they fail to contract all of the electricity they actually export, then they are denying themselves the revenue opportunities that sit with their energy asset. They may not realise the level of returns they expected from their investment in onsite generation.

This creates what is known as 'imbalance risk', an unavoidable and inconvenient truth of the UK electricity market. Managing these costs requires the delicate art of Imbalance Management.

It is this expertise FCC Environment looked for when it appointed the specialist energy supplier, EnDCo. It asked the firm to purchase and trade what it calls the 'top end' capacity of its 43 Megawatt (MW) 'energy from waste' power plant at the Allington Quarry on the outskirts of Maidstone in Kent.

Since 2008, this £150 million facility has been taking non-hazardous waste from households and businesses in Kent and the surrounding area for recycling and energy recovery. Materials separated by householders are sent for recycling, with the remainder being used to generate electricity to power the facility and for the local supply network. The electricity its power plant can generate would normally require 200,000 tonnes of coal or a super tanker of oil a year. Around 8MW of the plant's power is needed by the recycling facility itself, whilst 21MW is exported under a long term NFFO Agreement [1].

Historically, this left the plant with up to 12MW of power that it was 'spilling' back into the electricity imbalance market. This approach being adopted because the availability of this 12MW of output can be extremely variable due to a number of factors including fluctuations in the heat content of

- The EnDCo-facilitated approach has delivered an average year-on-year increase in net revenue of 10%
- Imbalance costs for generation assets of this type generally exceed 5%, but for Allington these are below 1%
- As a result of the success of the Allington arrangements, in 2013 FCC Environment engaged EnDCo to provide its bespoke PPA service for their new 'waste to energy' facility in Lincolnshire.

[1] The Non-Fossil Fuel Obligation (NFFO) refers to a collection of Orders which required the Regional Electricity Companies in England and Wales to contract for certain amounts of electricity generating capacity from renewable sources.

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the input waste fuel, operational and maintenance issues, etc., hence making forecasting output for contract purposes a problem under standard Power Purchase Agreement (PPA) mechanisms.

As David Truelove, Financial Controller PFI of FCC Environment, explains: "The difficulty we faced was in contracting the 'top end' of our power capacity because the generation output is difficult for us to predict. It is this lack of 'forecastability' that made us go with EnDCo, rather than one of the more obvious major energy suppliers, because they can give us more value by offering us the ability to trade this extra capacity by different methods."

In October 2011, EnDCo commenced provision of its bespoke PPA service for the 'top end' or "residual load", leaving the 21MW baseload contract arrangements unaffected. EnDCo facilitates the sale of the residual electricity directly into the wholesale power market under contract prices, and so reduces the volumes of power sold in the imbalance market. These contract prices are typically somewhere between 10 and 15% above the imbalance market prices received for exported electricity.

For the 'top end', EnDCo places a 'Week Ahead' contract for the residual volume available for export based upon weekly forecasts provided by the Allington site staff. This weekly contract position is then adjusted as necessary during the course of the week, on both a 'Day Ahead' and 'Intra Day' basis, in response to forecast adjustments from the site staff coupled with real-time remote monitoring by EnDCo. This allows EnDCo to react to unplanned generation variations rapidly, meaning that power volumes exposed to the imbalance market are further reduced.

As FCC Environment's Operations Director, Steve Brown, explains. "If for any reason our process streams fail, we can ring EnDCo, even if it's in the middle of the night. They can then mitigate the risk for us. It comes down to the flexibility they offer. On the other hand, if trading conditions change, they react even before we call. We just have to notify EnDCo of what we require. They also arrange for us to import power if needed. I think that the way they sell power is unique to the utility market."

The key benefits delivered by EnDCo through this arrangement are:

- forecast adjustments can be accepted and actioned by the EnDCo trading desk 24/7 every week of the year - ensuring imbalance costs are minimised
- imbalance costs for generation assets of this type generally exceed 5%, but for Allington these are below 1%
- in comparison to the historic spilling of residual load into the imbalance market, the EnDCo-facilitated approach has delivered an average year-on-year increase in net revenue of 10%.

In addition, EnDCo provides FCC Environment with daily and weekly reports detailing the value of the generated output sales by half hour. It also provides a monthly report that compares the revenue secured by EnDCo to a mutually pre-agreed benchmark - in this case the corresponding imbalance market prices.

As a specialist provider of residual load contracting services designed to deal with volatile and less predictable export generation output, EnDCo is able to secure revenues for its customers which would otherwise be lost.

Andy Rice, managing director at EnDCo, says:

"Customers should know it is possible and practical to split the 'baseload' and 'residual load' between two different PPA providers and contracting mechanisms in order to maximise the value from both."

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