

SSE'S APPROACH TO HEDGING: MAY 2019 UPDATE

BACKGROUND

In November 2018, SSE published a [Statement on SSE's Approach to Hedging](#). This explained how SSE intends to reduce its exposure to variations in earnings from assets that are subject to volatility in commodity prices.

The Statement said that SSE will generally seek to hedge its broad exposure to commodity price variation in relation to electricity generation and gas production at least 12 months in advance of delivery.

It also said that SSE aims to have the new approach to hedging fully in place by April 2020 and committed to publishing details of hedge prices and volumes for each asset class with its interim and full year financial statements.

SSE is currently implementing its new hedging approach. This Statement:

- summarises the approach to hedging;
- summarises SSE's hedge position as at 31 March 2019; and
- sets out matters relating to uncertainties and market liquidity.

SUMMARY OF SSE'S HEDGING APPROACH

A summary of SSE's approach to each class of asset to be implemented by 2020/21 is below:

Asset	Proposed targets
Wind	Hedge 85% of forecast generation 12 months in advance of delivery
Hydro	Hedge 85% of forecast generation 12 months in advance of delivery
CCGT	Hedge 100% of expected output 12 months in advance of delivery
Gas Production	Hedge 90% of expected output at 12 months in advance of delivery
SSE Business Energy	On contract entry for fixed and flexi customers Rolling hedge for tariff customers
Gas Storage	Annual Contract dependent on results of annual auction

SSE'S HEDGING POSITION AT 31 MARCH 2019

At 31 March 2019, SSE's hedge position can be summarised as follows:

Wind Generation and Hydro Generation

Table 1		19/20	20/21	21/22
On and offshore wind (GB only)	Expected volume TWh	4.5	4.7	4.8
	Volume Hedged %	100%	100%	33%
	Contracted Hedge Price £/MWh	£39/MWh	£46/MWh	£47/MWh
Hydro (GB only)	Expected volume TWh	3.5	3.5	3.5
	Volume Hedged %	100%	100%	31%
	Contracted Hedge Price £/MWh	£43/MWh	£48/MWh	£49/MWh

Notes to Table1:

Rounded to the nearest £/MWh

Hedge volumes exclude output from all Ireland onshore wind, hydro pumped storage and Beatrice offshore windfarm as explained later in the document.

Including its share of Beatrice offshore windfarm, which is currently being commissioned, SSE's total renewable generation capacity is c. 4GW (gigawatts) with an expected average annual electricity output of around 11.5TWh based on normal weather.

In addition to the electricity output from the wind and hydro generation assets included in the table above, SSE owns:

- 708 MW Irish onshore wind generation with income either coming from REFIT contracts or long term PPAs with the Airtricity Supply business;
- 235 MW offshore wind generation at Beatrice which has a CFD contract priced at £155/MWh in 2018/19 (CPI linked); and
- 300 MW hydro pumped storage which is not hedged in advance and is dispatched against intra-day market prices.

The hedge prices in Table 1 reflect the contracted position based on an expected total volume and profile - or 'shape' - for each technology. Renewable sources of generation depend on the wind and the rain, so both the profile and volume are uncertain, and the hedge position requires to be adjusted to reflect this on delivery. This means that, while indicative of the outcome, the actual achieved volumes and prices will differ from those in the table.

The hedges shown in the above table were put in place over the last 3 years. For illustration purposes, if the same volume of hedges had been put in place on 31 March 2019, it is estimated that the prices would have been as outlined in the Table 2. Power prices have increased since SSE put these hedges in place, largely due to the increase in both carbon and gas prices and the SSE Renewable portfolio should be well placed to benefit from increased power prices in future. In addition to income associated with the forward hedge position, electricity generation assets also earn additional income which is outlined later in this paper.

Table 2	19/20		20/21		21/22	
	Contracted hedge price	If hedged in Mar 19*	Contracted hedge price	If hedged in Mar 19*	Contracted hedge price	If hedged in Mar 19*
Wind £/MWh	£39	£51	£46	£51	£47	£48
Hydro £/MWh	£43	£52	£48	£52	£49	£49

*For illustration purposes only

Flexible Thermal Generation

SSE's approach to hedging is to sell 100% of the expected output for the next 12 months with nothing hedged beyond 24 months.

In order to hedge CCGT output, power is simultaneously sold whilst buying the necessary volume of gas and carbon. Transacting these three commodities together is referred to as 'Spark'. The expected output for a CCGT is linked to:

- the current forward market prices (power, gas, carbon);
- the operating capability of the CCGT; and
- the expected level of market price movements (volatility) before delivery.

This process allows the CCGT's to earn more in the event of sparks increasing, for the proportion which has not already been sold, while partially limiting the reduction in forecast revenue if sparks fall. If sparks were to rise considerably in the forward market, both the volume hedged and the likely market revenue of its CCGTs would increase.

As described in the November 2018 Statement, income from forward hedged spark volumes is expected to be less than 50% of the total CCGT market revenue.

SSE's objective is to deliver a more transparent approach to reporting how it manages energy commodity price variations; but the fact that SSE's CCGT hedge position varies with market movements within year, and only reflects less than 50% of the CCGTs' market revenue, means there is no value in disclosure of the CCGT hedge position. The total earnings will only become known close to delivery.

It should, however, also be noted that (subject to plant performance) SSE's thermal generation business will at no point sell more spark than its CCGTs can deliver; nor buy back more spark than has previously been sold.

Subject to coal stock management, coal generation is hedged on a forward basis when market conditions allow profitable running.

The above hedging approach for thermal generation assets excludes:

- Irish thermal generation: (1,292 MW of CCGT and Oil Peaking plant) commodity exposure is limited through vertical integration in the Irish market.

"Spark" is defined as the difference between the Power price and the cost of Gas and Carbon assuming an efficiency and carbon intensity expressed in £/MWh. Carbon includes both the cost of EUA allowances and Carbon Tax.

Additional Income Streams

In addition to income associated with the forward hedge position outlined above, electricity generation assets can earn additional income from:

- Balancing Market activity
- ROC income
- Ancillary Services
- Capacity Mechanism payments
- Shape variations

In its 2018/19 [Preliminary Results Statement](#) SSE states it currently expects its Renewable adjusted operating profit in 2019/20 to be around £525m, including £26m of suspended Capacity Market payments relating to contracts for the period after suspension in 2018/19 and all of 2019/20. This is based on SSE's renewable capacity at c.4GW (including Beatrice) with an expected average annual electricity output of around 11.5TWh, based on normal weather.

For SSE's Thermal generation business, reflecting both contracted and uncontracted income, adjusted operating profit for 2019/20 is currently expected to be around £150m, including £122m of suspended Capacity Market payments relating to contracts for the period after suspension in 2018/19 and all of 2019/20.

Gas Production

SSE E&P Ltd has a diverse equity share in over 15 gas producing fields across 17 licences in three regions of the UK Continental Shelf. The information below relates to SSE's overall position in relation to all its Gas Production assets at Sean, Bacton and Greater Laggan and is based on expected production.

Table 3		2019/20	2020/21	2021/22
Gas	Hedge %	95%	20%	26%
	Price p/therm	46	53	53
Oil	Hedge %	83%	62%	66%
	Price \$/barrel	58	60	59

As outlined in the November 2018 Approach to Hedging Document, gas production in the North Sea is taxed on day ahead prices so whilst hedging might protect pre-tax profits, a higher spot price would have an adverse impact on post tax profits. SSE currently has tax allowances which protect it from this effect, and the approach to hedging will be reviewed once these have been used, with the view to moving towards a weighted spot price based hedging approach.

Other assets

SSE Business Energy: This business supplies electricity and gas to business and public sector customers. Sales to contract customers are 100% hedged at point of sale for fixed and flexi customers and on a rolling hedge for tariff customers.

Gas Storage: SSE Hornsea Ltd, in line with its normal practice, held an auction in April to offer contracts for storage capacity. The reserve price, though reflecting fair value, resulted on this occasion, in no contracts being secured. The capacity at both Hornsea and Aldbrough will now be commercially operated for the remainder of this year which means 2019/20 financial results for the Gas Storage business are subject to changes in the spread between summer and winter gas prices, market volatility and plant availability. SSE Hornsea Ltd will continue to make gas storage capacity available and will hold auctions for future years.

UNCERTAINTIES AND MARKET LIQUIDITY

In its November 2018 Statement, SSE highlighted three principal areas where significant variations in earnings cannot be fully mitigated through hedging and for completeness these are re-iterated below:

- The impact of the weather on the volume of electricity produced from renewable sources;
- the impact of operational matters such as unplanned outages; and
- the ability of flexible thermal power stations to earn extrinsic income by providing services to the electricity system and by responding to shorter-term electricity market conditions.

It is also worth noting that SSE's ability to execute its hedging approach is highly dependent on market liquidity. Power market liquidity remains the greatest challenge, with only sporadic liquidity available beyond 24 months; although electricity sales can also be contracted with SSE Business Energy. Liquidity in the gas market is greater, but the trend of major market participants now trading across European markets has reduced liquidity in the GB market in the longer term.

SSE plc

May 2019