

# 2014/15 Margin Peak and Margin Off-Peak Values – no carbon price

Final Report to IMO

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## 1. Introduction

The Wholesale Electricity Market Rules (Market Rules) require the Independent Market Operator (IMO) to submit proposed values for Margin\_Peak and Margin\_Off-Peak (margin values) to the Economic Regulation Authority (ERA) for every financial year, in accordance with clause 3.13.3A of the Market Rules. Clause 3.13.3A requires the ERA to determine the margin values proposed by the IMO, subject to a public consultation process which must include publishing an issues paper and issuing an invitation for public submissions.

In July 2013, the IMO engaged Sinclair Knight Merz (SKM) to assist in reviewing the appropriate margin values to be applied for the financial year commencing 1 July 2014. Given the uncertainty surrounding the timing of any carbon price repeal, the current legislated carbon price was assumed in this 2014/15 financial year review.

On request from the ERA, the IMO subsequently asked SKM to assess the impact of any carbon price repeal on margin values for the 2014/15 review period. This report presents the results of this additional modelling, using the same input assumptions that were applied for the 2014/15 financial year review, except with no carbon price included.

All prices and costs in this report are given in June 2013 dollars.

## 2. Results

In each half-hour Trading Interval, the availability cost was calculated and a margin value was determined by rearranging the formula specified in clause 9.9.2 (f).

The margin values, availability cost and system marginal prices are presented in Table 2-1 averaged over 12 random outage samples. The table also provides a comparison with the 2013/14 parameter estimates and the 2014/15 parameters including carbon price.

Table 2-1 Parameter estimates

Parameter	Average (2014/15)	Standard error (2014/15)	Average (2013/14) with carbon price	Average (2014/15) with carbon price
Margin_Off-Peak	14%	2.7%	27%	27%
Margin_Peak	15%	1.0%	17%	14%
SR_Capacity_Off-Peak (MW)	201.29	0.40	197.18	200.03
SR_Capacity_Peak (MW)	220.48	0.06	220.16	221.01
Availability cost (\$M)	5.11	0.30	7.22	8.93
Off-peak price (\$/MWh)	31.10	0.13	47.01	48.89
Peak price (\$/MWh)	45.83	0.22	50.81	60.78

On average, a Margin\_Off-Peak value of 14% is estimated, based on time-weighted average system marginal off-peak prices of \$31.10/MWh. For Margin\_Peak, an average value of 15% has been estimated, based on time-weighted average system marginal peak prices of \$45.83/MWh.

These values are lower than the parameter estimates recommended for the 2013/14 financial year. Most notably, the Margin\_Off-Peak value has reduced from 27% to 14%. One reason for the reduction is that the projected marginal off-peak price has reduced (from \$50.81/MWh to \$45.83/MWh). This reduction in price, driven by removal of carbon price, is proportionally greater in the off-peak periods when less efficient coal units are generally the marginal plant. This has reduced the profit foregone by Verve Energy due to provision of spinning reserve. Additionally, there is less of an increase in Verve Energy's production cost, largely due to an observed reduction in start-up costs for Verve Energy units in the simulations when spinning reserve is modelled. Consequently, the total availability cost in the off-peak periods is only \$1.5 million and it is this cost that drives the calculation of the Margin\_Off-Peak value.

The differences in start-up costs reflect differences in unit commitment which are largely driven by the removal of the carbon price, and the associated merit order changes and increases in SRMC differential between coal and gas-fired units.

Table 2-2 shows how the Margin\_Peak and Margin\_Off-Peak values vary between Monte Carlo samples. This variation is largely due to differences in forced outages and wind availability between samples. In sample 12,

the negative Margin\_Off-Peak value arises due to the reduction in start-up costs more than offsetting the profit foregone and increase in generation costs. The variability between samples reflects the binary, high cost nature of start-up costs. With results being heavily influenced by these start-up costs, subtle variations in unit commitment can have large impacts on the assessment of the Margin\_Off-Peak values.

Table 2-2 Parameter estimates by sample

Sample	S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	S11	S12	Average <sup>1</sup>
Margin_Off-Peak	17%	12%	26%	25%	3%	20%	13%	12%	18%	6%	26%	-4%	14%
Margin_Peak	17%	13%	11%	11%	14%	20%	15%	20%	12%	12%	11%	19%	15%
Availability cost (\$M)	6.05	4.64	5.43	5.30	3.77	7.03	4.94	6.27	4.69	3.43	5.43	4.29	5.11
OP availability cost (\$M)	\$1.74	\$1.22	\$2.67	\$2.45	\$0.26	\$2.00	\$1.32	\$1.17	\$1.78	\$0.60	\$2.67	-\$0.39	\$1.46
P availability cost (\$M)	\$4.31	\$3.42	\$2.76	\$2.84	\$3.51	\$5.02	\$3.62	\$5.10	\$2.91	\$2.83	\$2.76	\$4.67	\$3.65
Off-peak price (\$/MWh)	\$31.50	\$31.26	\$31.23	\$31.14	\$31.31	\$31.69	\$30.83	\$31.28	\$31.00	\$29.90	\$31.23	\$30.76	\$31.10
Peak price (\$/MWh)	\$46.79	\$46.49	\$45.57	\$45.85	\$45.78	\$47.11	\$45.59	\$46.06	\$45.31	\$44.15	\$45.57	\$45.70	\$45.83
SR_Capacity_Peak (MW)	220.42	220.55	220.58	220.35	220.96	220.36	220.50	220.10	220.50	220.63	220.58	220.20	220.48
SR_Capacity_Off-Peak (MW)	203.89	199.56	202.54	200.79	203.02	200.27	200.85	199.84	199.99	200.99	202.54	201.20	201.29

<sup>1</sup> Note that taking the average of the sample values as displayed yields slightly different average values due to rounding.

### 3. Conclusions

Based on the market modelling, and assuming the legislated carbon price is repealed on or before 1 July 2014, SKM has calculated the following margin values for the financial year commencing July 2014:

- Margin\_Off-Peak 14%
- Margin\_Peak 15%.

These values are sensitive to a number of factors including:

- the price and volume assumptions relating to existing and new gas contracts
- the unit commitment decisions, which are based on start-up costs, minimum generation assumptions and the maximum reserve provision for each unit
- the extent of IPP participation in the Load Following Ancillary Service market

Moreover, these margin values have been developed assuming that no Ancillary Service Contracts for spinning reserve (apart from the existing contracts for Interruptible Load) are negotiated for the 2014/15 financial year.

If any of these assumptions were to change, the margin values may need to be reviewed.