



SEM Committee Paper

Trading and Settlement Code

Determination of Uplift Parameters

Consultation Paper

SEM-14-022

31 March 2014

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1. Introduction

The SEM Trading and Settlement Code (the Code) sets out a number of policy parameters which are determined by the Regulatory Authorities (RAs) on an annual basis.

Under paragraphs 4.70 and 4.71 of the current version of the Code, the RAs are required, on an annual basis, to determine three parameters used in the calculation of Uplift¹. These are:

- The Uplift Alpha value α , which governs the importance of the Uplift Cost Objective, such that $0 \leq \alpha \leq 1$;
- The Uplift Beta value β , which governs the importance of the Uplift Profile Objective, such that $0 \leq \beta \leq 1$ and such that $\alpha + \beta = 1$; and
- The Uplift Delta value δ , to constrain the overall impact on revenue in each Trading Day t arising from the Uplift calculation, such that $\delta \geq 0$.

In a final decision (SEM-13-089) published on 12 December 2013, the SEM Committee (SEMC) decided for the period from 1 January 2014 to 31 December 2014 that:

- α should be set to a value of zero;
- β should be set to a value of 1; and,
- δ should be set to a value of 5.

In previous consultations, the RAs stated their intention to monitor the effectiveness of the proposed Uplift methodology. In particular the SEMC was minded to change the Uplift parameters for 2014 based on an assessment of data provided by SEMO.

In the end the SEMC decision was not to amend the parameters for the period starting 1 January 2014. In making this decision the SEMC was guided by the fact that an issue was identified with respect to the derivation of the data submitted by SEMO.

In making the decision the SEMC stated the following:

The Regulatory Authorities will engage further with SEMO with the intention of receiving a revised set of data in early 2014, which will be published when it becomes available. Following analysis of the corrected data, the position of the SEM Committee will be reviewed. If a decision to change the parameters is made, the Regulatory Authorities would seek to do this at the earliest opportunity so as to benefit, or protect consumers. A four months' notice period will be provided prior to implementation.

¹ For more on the background to the methodology and objectives of Uplift in the SEM, See the following: Objectives of the Function to Include Start-Up and No-load Costs in SMP(AIP/SEM/92/06), SMP Uplift Objectives Decision Paper (AIP/SEM/142/06), SMP Uplift parameters Consultation Paper (AIP/SEM/230/06), and SMP Uplift Methodology and Parameters Decision Paper (AIP/SEM/51/07)

This paper presents analysis of the behaviour of SMP when the Uplift parameter values are changed to $\alpha = 0.1$, $\beta = 0.9$ for four months – January, April, July and October 2013. The paper also contains proposals for new Uplift parameters to apply from 1 January 2015.

In parallel, the RAs have raised a Modification to the Trading and Settlement Code² to allow the Uplift parameters to be changed from time to time as opposed to on an annual basis. Were this Modification Proposal to be approved, the SEMC would consider bringing forward the effective date of any change, provided there was benefit to consumers in doing so. Any bringing forward of the effective date, should it occur, would respect the requirement to give four months' notice of the change. The new parameters would be effective for at least 12 months.

² [Modification Proposal \(Mod\) 04_14 \(Change in Uplift Parameters Determination Timeline\)](#)

2. 2013 Data Analysis

SEMO submitted a data set to the RAs in early January 2014. SEMO reran the market engine using Uplift parameter values of $\alpha = 0.1$; $\beta = 0.9$; and, $\delta = 5$ for four individual months. These months were January, April, July and October 2013. The first month of each quarter was chosen so as to give a representative sample of months over the year. Analysis of the market results using the new Uplift parameters is presented in this section.

It should be noted that not all days in the study contain a comparison between the amended Uplift parameters and published outturn SMP i.e. Ex-Post 2 prices. For some trading dates SEMO reran the market with the current Uplift parameter values of $\alpha = 0$; $\beta = 1$; and, $\delta = 5$. This was necessary due to the fact that the MSP software found a different optimal solution when run in the test environment (as compared to the production environment) for these trading dates. Thus in order to ascertain the effect of changing the Uplift parameters for these trading dates, the results using $\alpha = 0.1$; $\beta = 0.9$; and, $\delta = 5$ had to be compared to the results of the rerun of the market using $\alpha = 0$; $\beta = 1$; and, $\delta = 5$. These trading dates are listed in the table below.

January 2013	02, 04, 15, 17, 21, 22, 26, 27
April 2013	07, 13, 14, 21, 22, 23, 25, 28
July 2013	04, 17, 19, 23, 26
October 2013	07, 17, 18, 20, 21

In the following sections the market outturn results represent the results from the reruns in the test environment for these trading dates.

The SEMC has published the dataset upon which the analysis in this consultation paper is based. The dataset is published in excel format but the original raw data files will be made available on request.

2.1 Changes in SMP

The tables below outline the changes in average SMP (both Time-Weighted and Load-Weighted) for each month, comparing the SMPs when the new Uplift parameters are used to compare with actual market outturns i.e. Ex-Post-2 prices. Average Shadow Price and Uplift are also included in the tables.

The SMP is reduced in each month when the new Uplift parameters are used. The Load-Weighted reduction in SMP ranges from 1.4% in January 2013 to 2.0% in April 2013.

Table 1: January 2013 Analysis

Time-Weighted Average	* Market	$\alpha = 0.1, \beta = 0.9$	Difference	% Difference
SMP	64.59	63.80	-0.79	-1.2 %
Shadow Price	48.27	48.27	0.00	0.0 %
Uplift	16.32	15.53	-0.79	-4.8 %
Load-Weighted Average	*Market	$\alpha = 0.1, \beta = 0.9$	Difference	% Difference
SMP	69.59	68.64	-0.95	-1.4 %
Shadow Price	50.35	50.35	0.00	0.0 %
Uplift	19.24	18.29	-0.95	-4.9 %

*For detail on the methodology used: [See Paragraph 2 above: 2013 Data Analysis](#)

Table 2: April 2013 Analysis

Time-Weighted Average	*Market	$\alpha = 0.1, \beta = 0.9$	Difference	% Difference
SMP	70.38	69.10	-1.28	-1.8 %
Shadow Price	48.01	48.01	0.0	0.0 %
Uplift	22.37	21.09	-1.28	-5.7 %
Load-Weighted Average	* Market	$\alpha = 0.1, \beta = 0.9$	Difference	% Difference
SMP	73.60	72.15	-1.45	-2.0 %
Shadow Price	49.70	49.70	0.0	0.0 %
Uplift	23.90	22.45	-1.45	-6.1 %

*For detail on the methodology used: [See Paragraph 2 above: 2013 Data Analysis](#)

Table 3: July 2013 Analysis

Time-Weighted Average	*Market	$\alpha = 0.1, \beta = 0.9$	Difference	% Difference
SMP	62.28	61.22	-1.06	-1.7 %
Shadow Price	44.01	44.01	0.00	0.0 %
Uplift	18.27	17.21	-1.06	-5.8 %
Load-Weighted Average	*Market	$\alpha = 0.1, \beta = 0.9$	Difference	% Difference
SMP	65.53	64.56	-0.97	-1.5 %
Shadow Price	45.54	45.54	0.00	0.0%
Uplift	19.99	19.02	-0.97	-4.9 %

*For detail on the methodology used: See Paragraph 2 above: *2013 Data Analysis*

Table 4: October 2013 Analysis

Time-Weighted Average	*Market	$\alpha = 0.1, \beta = 0.9$	Difference	% Difference
SMP	62.49	61.75	-0.74	-1.2 %
Shadow Price	42.66	42.66	0.00	0.0 %
Uplift	19.84	19.10	-0.74	-3.7 %
Load-Weighted Average	*Market	$\alpha = 0.1, \beta = 0.9$	Difference	% Difference
SMP	66.89	65.86	-1.03	-1.5 %
Shadow Price	44.69	44.69	0.00	0.0 %
Uplift	22.20	21.17	-1.03	-4.6 %

*For detail on the methodology used: [See Paragraph 2 above: 2013 Data Analysis](#)

2.2 Daily Average SMP

The charts below graph the daily average SMPs for each month, comparing the values when the new Uplift parameters are used to compare with actual market outturns³ i.e. generally EP2 prices with a number of exceptions (See Paragraph 2 above for further details). The average SMPs when the new Uplift parameters are used are graphed in blue and the actual market outturns are graphed in red.

The daily average SMPs when the new Uplift parameters are used are broadly similar to market outturns, with noticeable reductions on some days.

³ For methodology [See Paragraph 2: 2013 Data Analysis](#)

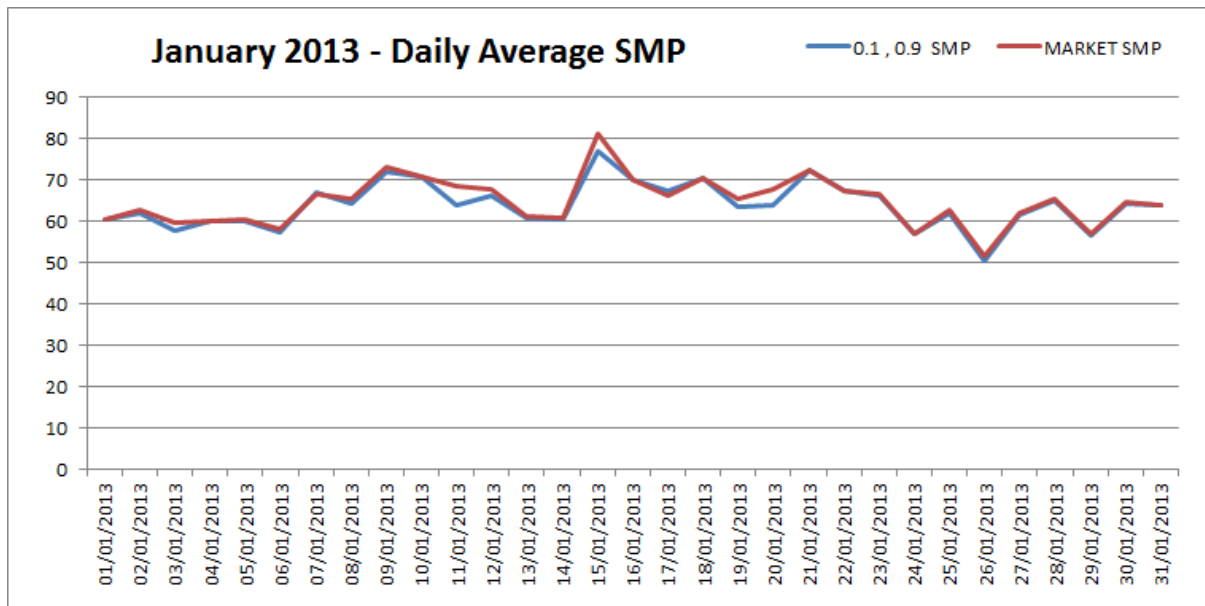


Figure 1: January 2013 Daily Average SMP

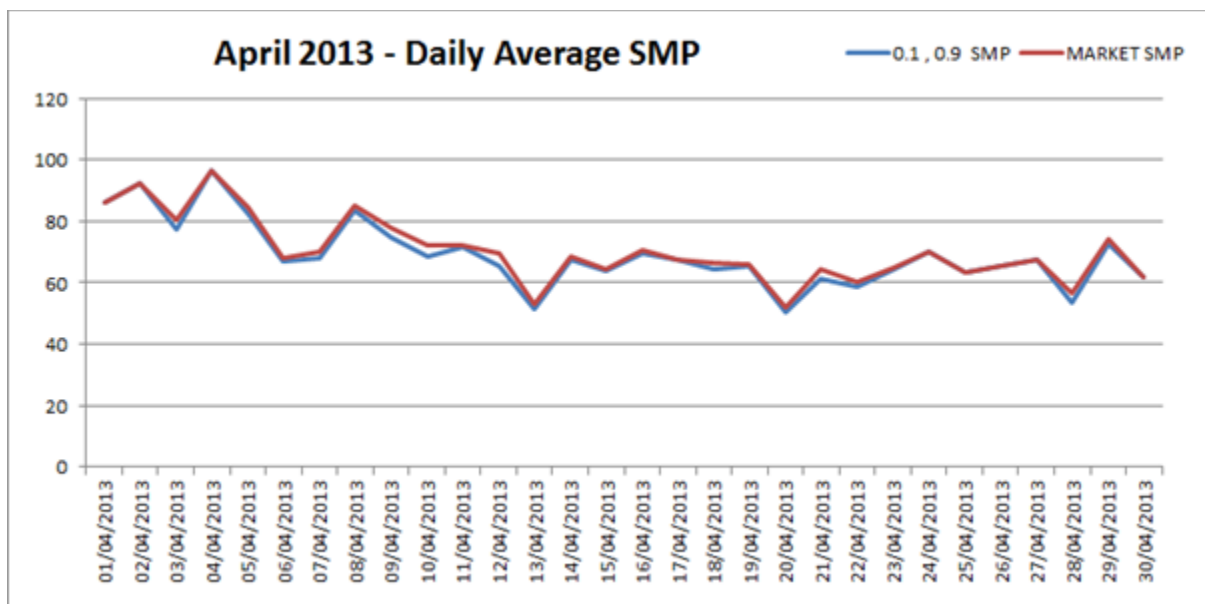


Figure 2: April 2013 Daily Average SMP

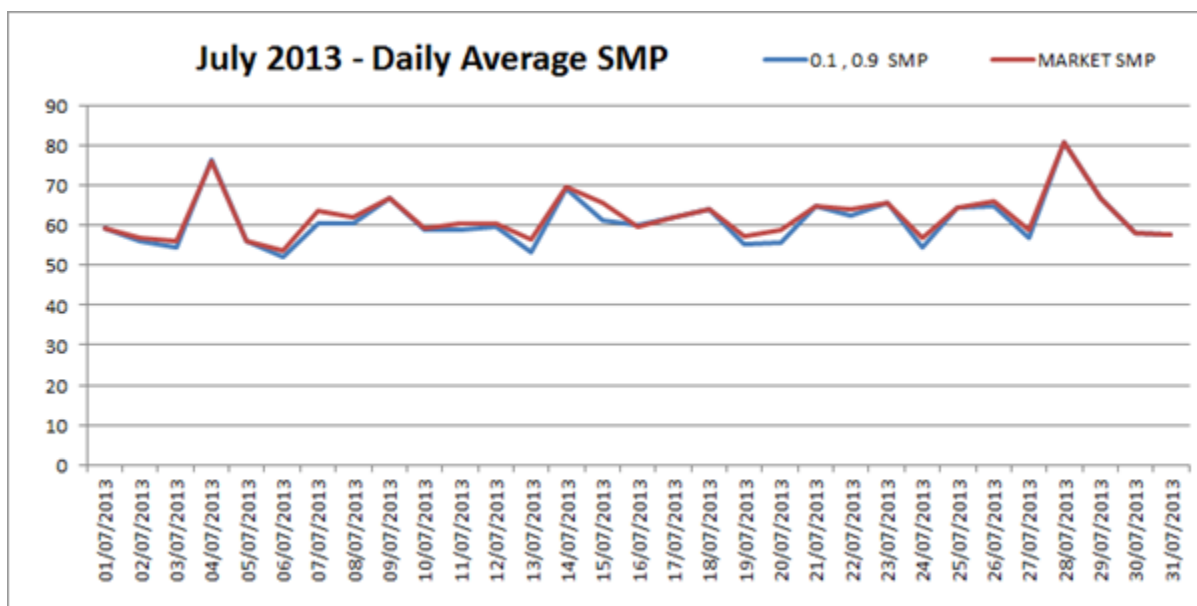


Figure 3: July 2013 Daily Average SMP

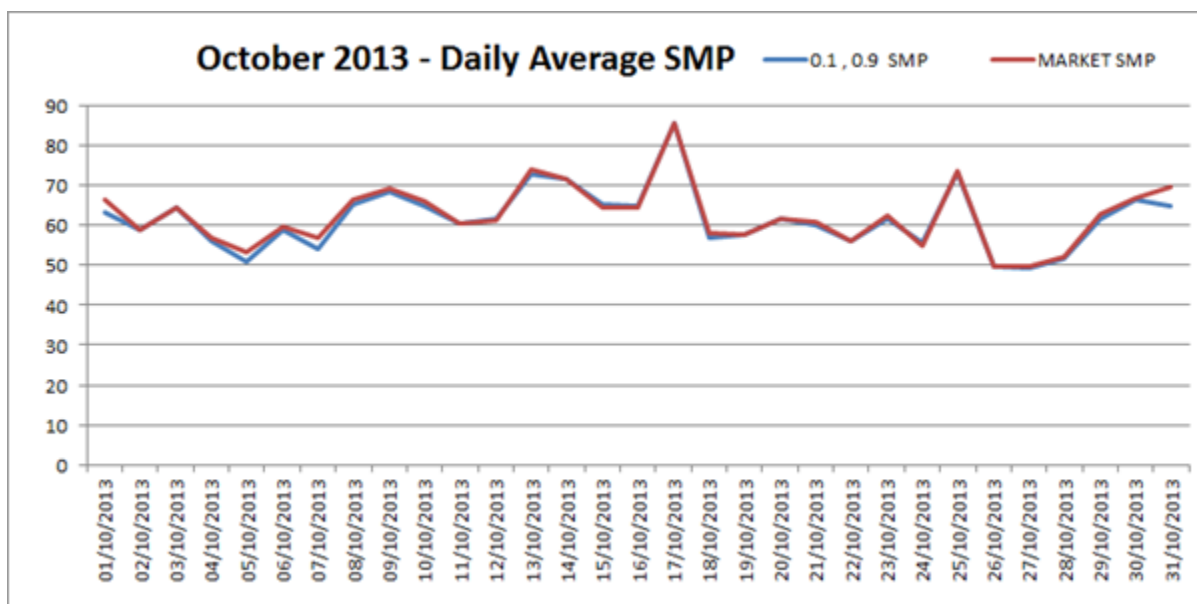


Figure 4: October 2013 Daily Average SMP

As can be seen from the above graphs the daily average SMP with the amended parameters was lower in all months in the study with notable reductions on some days.

2.3 SMP Profiles

The charts below in this section graph the SMP profile for each month, comparing the values of the amended Uplift parameters with actual market outturns. The SMP profiles determined using the amended Uplift parameters are graphed in blue and the actual market outturns are graphed in red.

The average profile over the month of January 2013 is almost identical, while the average profiles over April, July and October 2013 exhibit differences at certain times of the day when the new Uplift parameters are used. It is important to note that the change in Uplift parameters does not lead to any increased application of Market Price Cap, PCAP.

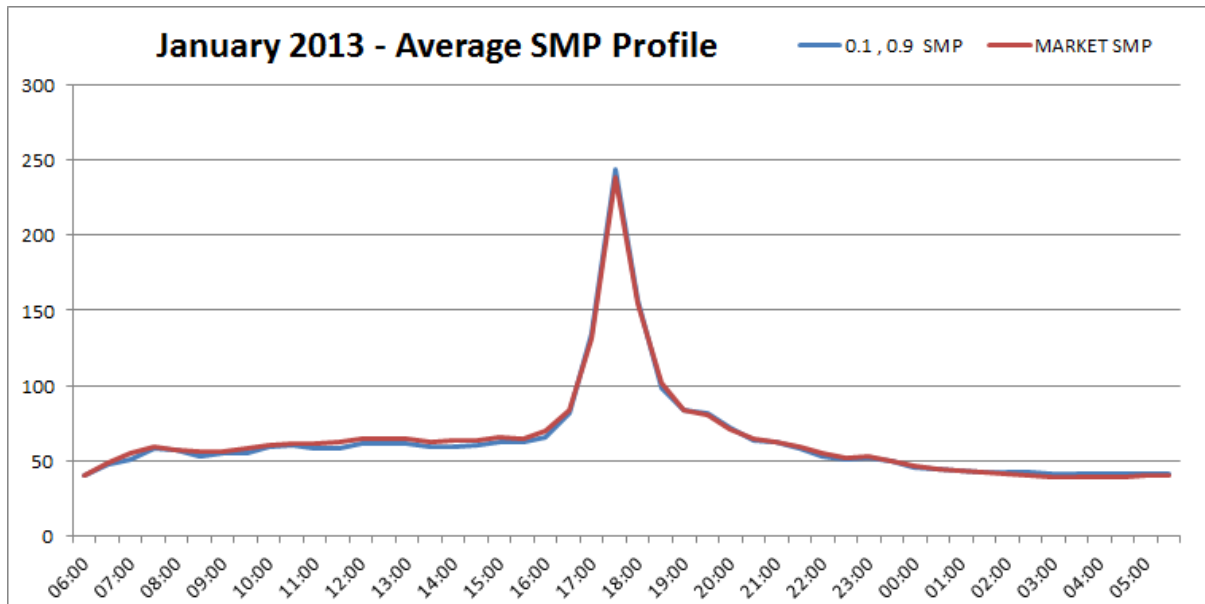


Figure 5: January 2013 Average SMP Profile

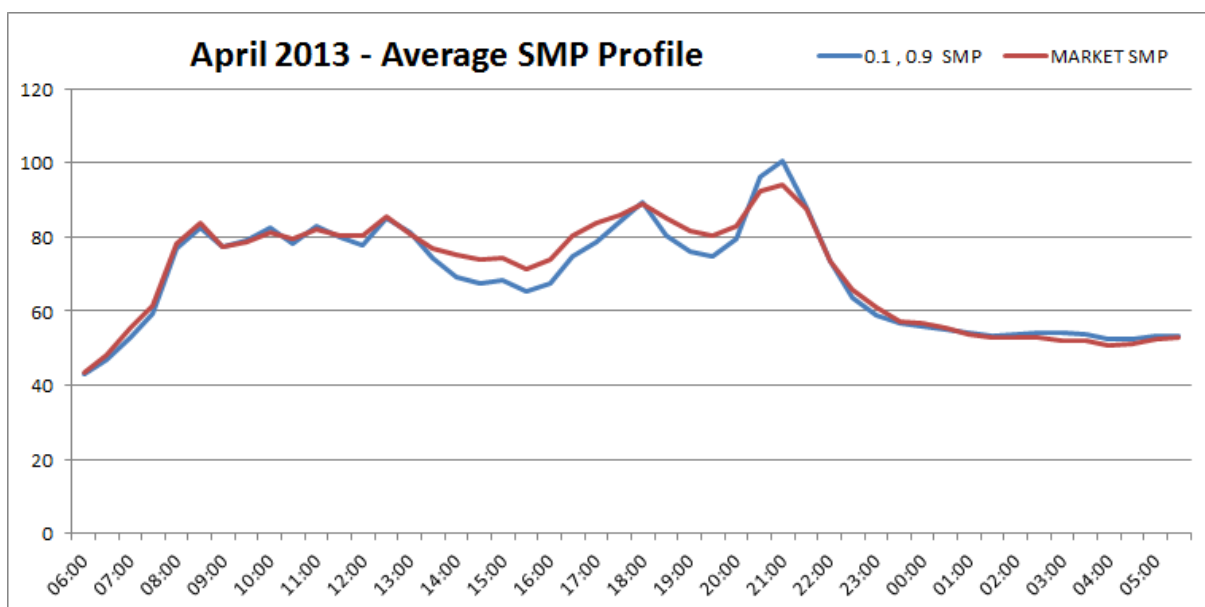


Figure 6: April 2013 Average SMP Profile

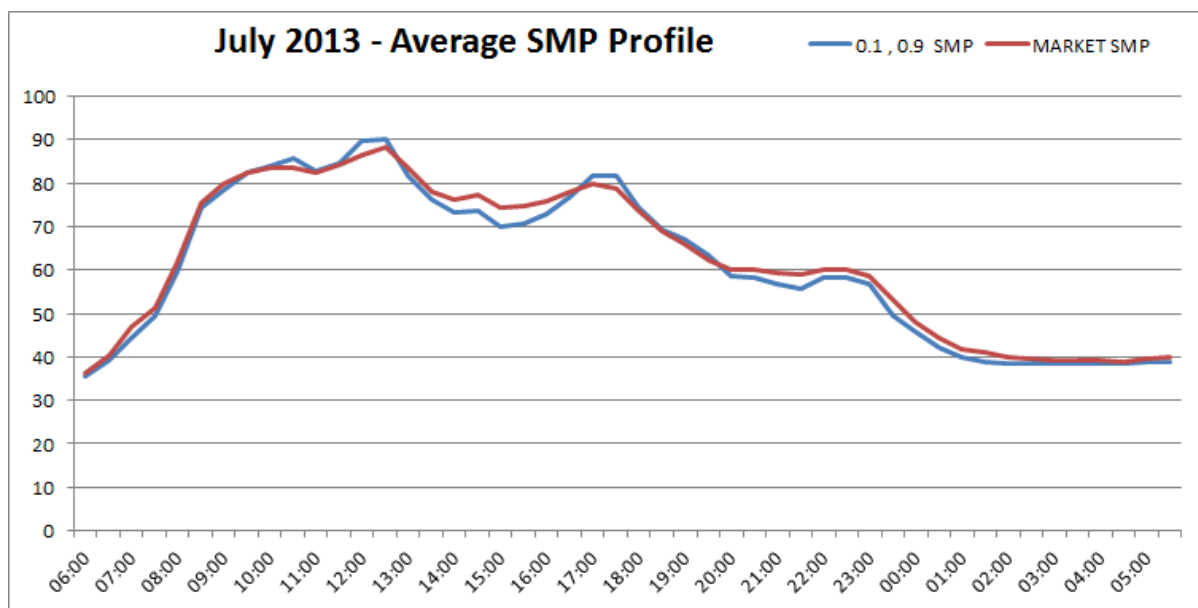


Figure 7: July 2013 Average SMP Profile

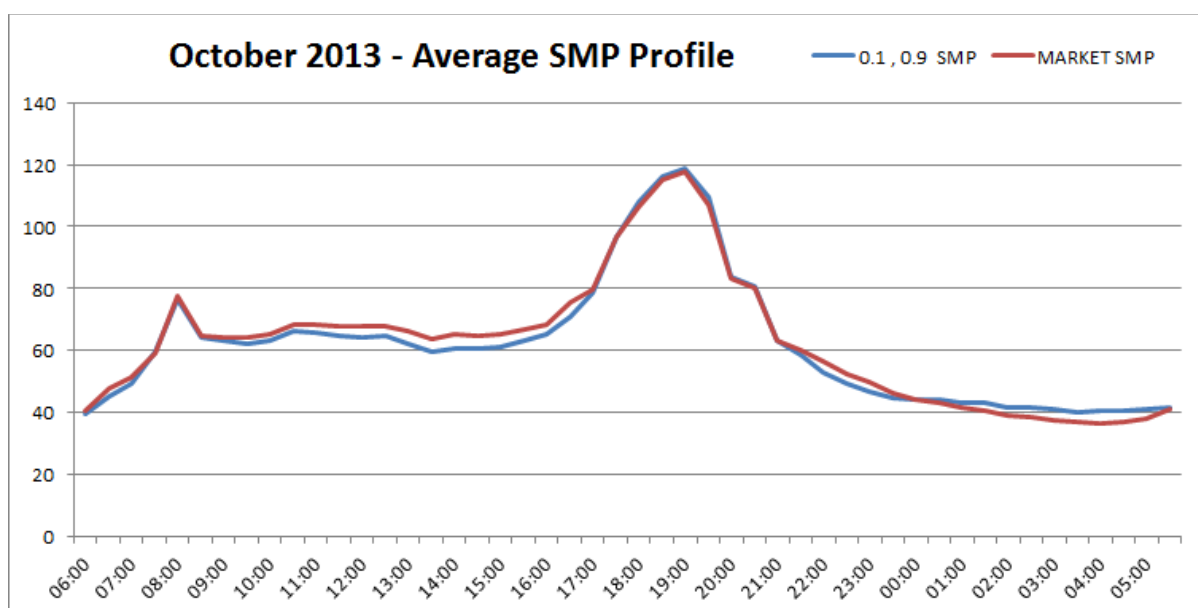


Figure 8: October 2013 Average SMP Profile

Within the dataset analysed, the month exhibiting the greatest change in the SMP profile is April 2013. When the Uplift parameters are changed to $\alpha = 0.1$; $\beta = 0.9$; the average SMP profile over the month is lower throughout most of the day from 13:00 to 20:30 and then higher for the trading periods from 20:30 to 21:30. This is shown below in Figure 9, which compares the average SMP profiles in April 2013 for 13:00 to 22:00 only.

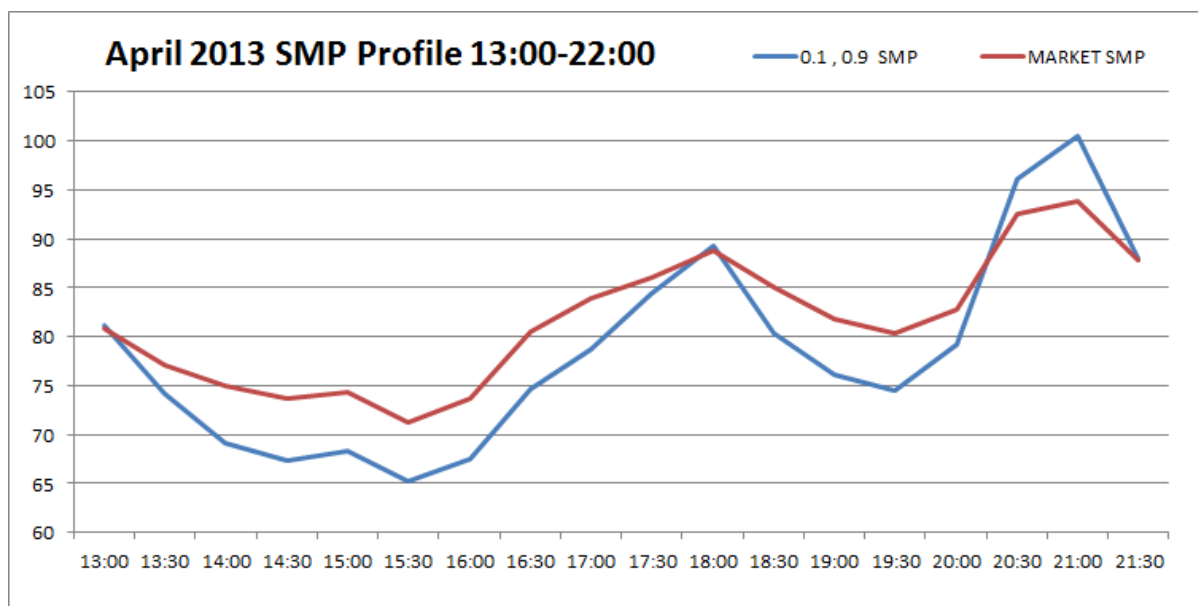


Figure 9: April 2013 Average SMP Profile 13:00-22:00

While the average SMP in the trading periods from 20:30 to 21:30 increases, the average SMP over Mid-Merit 1 CfD hours (07:00 to 23:00) decreases when the Uplift parameters are changed to $\alpha = 0.1$, $\beta = 0.9$.

Also, the three highest SMPs in the month remain relatively unchanged, as shown in Table 5 below. In fact, two of the three highest SMPs are lower when the Uplift parameters are changed to $\alpha = 0.1$, $\beta = 0.9$.

Table 5: April 2013 Highest SMPs

April 2013		
	Market	$\alpha = 0.1, \beta = 0.9$
Highest SMP	284.97	284.29
2 nd Highest SMP	278.87	279.55
3 rd Highest SMP	213.07	205.4

2.4 Correlation between SMP and Shadow Price

This section outlines the correlation between SMP and Shadow Price for the four months. Correlation can range between -1 and 1 and a higher number here shows that the SMP profile follows the Shadow Price profile more closely. The correlation between SMP and Shadow Price over the four months is detailed below both for when the amended Uplift parameters are used and for actual market outturns. In terms of analysing correlation figures, a value closer to 1 is preferred.

Table 6: Summary of Correlation between SMP and Shadow Price

Correlation (SMP vs Shadow)			
	Market	$\alpha = 0.1, \beta = 0.9$	Difference
January 2013	0.603	0.580	-4%
April 2013	0.559	0.491	-12%
July 2013	0.616	0.586	-5%
October 2013	0.689	0.639	-7%

As can be seen from the table above the correlation between SMP and Shadow Price reduces for all four months when the new Uplift parameters of $\alpha = 0.1, \beta = 0.9$ are used. The month to show the greatest reduction in correlation was April. (See Section 2.3 above)

2.5 Summary of Analysis

There is a notable reduction in SMP when the new Uplift parameters of $\alpha = 0.1, \beta = 0.9$ are used. The Load-Weighted reduction in SMP ranges from 1.4% in January 2013 to 2.0% in April 2013.

While the average SMP profiles over the four months exhibit differences at certain times of the day when the new Uplift parameters are used, the SMP profile does not change significantly and there is no increased application of PCAP. The correlation between SMP and Shadow Price decreases in all four months with the greatest decrease in April.

3. Arguments For and Against Change

The SEMC consulted in 2013 on the potential for making changes to the Uplift parameters. In particular the SEMC made the following arguments for making an intervention:

- The SEM Committee must balance its statutory duties related to the protection of consumers and the proper functioning of the market and is of the view that making the change is not a disproportionate response given the potential gains for consumers and the expected minimum change to the market outcomes.
- The SEM Committee was of the view that a reduction in SMP of over 1% represents a substantial benefit to consumers and if that saving could be made without undue distortion of the Profile Objective, then it is in the interests of the consumer that this option should be pursued.

However, counterarguments were made by interested parties against making any intervention to change the Uplift parameters:

- In particular some participants argued that Uplift has met and continues to meet its stated objectives from the beginning of the SEM in 2007 and that any change could hinder the balanced achievement of Uplift objectives and impact SMP stability.
- In general all participants asserted that any change should be made based on a robust data analysis and that an untimely intervention by the SEMC could damage the market.
- A number of participants set out their view that any changes must not impact on forward liquidity in the SEM given that amended parameters will feed into forward SMP forecasting.

4. SEM Committee Position

Having considered the data analysis carried out on data provided by SEMO and having considered its statutory duties the SEMC's view is that an amendment to the Uplift parameters should be made with the amended parameters to be as follows:

- α should be set to a value of 0.1;
- β should be set to a value of 0.9; and,
- δ should be set to a value of 5.

The SEMC believes that making this amendment to the Uplift parameters is a proportionate response given the data analysis and given the consideration of the issues. In particular:

- Making this decision should result in benefits to consumers, namely a reduction in wholesale electricity costs.

- The data analysis carried out is robust for the decision at hand and taking the first month of each quarter is representative of the whole year. Had the data analysis shown significant swings, dramatically higher peaks or the increased application of PCAP there may have been an argument for a further data set but this was not the case.
- There are impacts on the overall profile of SMP of amending the Uplift parameters. However, the impacts do not appear to be excessive with both profiles (existing and amended) generally following each other.
- The likely impacts of making this change are not excessive or overly significant for market participants and do not present a disproportionate impact for any set of stakeholders. However, while the impacts are not excessive for the functioning of the market as a whole, a reduction in SMP of over 1% is significant for consumers and therefore must be considered.
- The SEMC does not believe that making the change will negatively impact on forward liquidity in the SEM. The SEMC is only too aware of the importance of effective liquidity in the forwards timeframe and would not seek to negatively impact upon it. However, contracting is in general carried out on a more granular basis than previously with Directed Contracts now sold on a quarterly basis. Therefore the impacts of making changes to the Uplift parameters should not significantly impact on participants buying or selling contracts in the SEM.
- The SEMC does not believe that making this change is contrary to the stated objective of Uplift in 2007. In particular the SEMC has given the data set significant consideration to ensure that any change does not excessively impact the profile objective.

The SEMC will consider the responses to this consultation before making any changes to the Uplift parameters. If the decision is taken to proceed with a change then the SEMC will consider the timing of any change in the context of the proposed modification to the Trading and Settlement Code. Participants at the Modifications Committee forum have provided comments to the RAs on the potential impacts of moving away from an annual review period for Uplift parameters. These are under consideration by the RAs and will be discussed at the Modifications Committee meeting in April 2014.

5. Responding to this Paper

The SEM Committee welcomes the views of interested parties on these proposals. It is intended to publish all responses received. If any respondent wishes all or part of their submission to remain confidential, this should be clearly stated in their response. Comments on this paper should be sent to Elaine Gallagher, preferably electronically, to arrive by 5p.m. on **28 April 2014**.

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