UNMETERED SUPPLIES VOLUMES

This document outlines the methodology used to assess the Settlement Risk related to the calculation of UMS volumes. We are not seeking to exhaustively outline all aspects considered during this assessment; our aim is to draw out the main data items considered and any key assumptions when estimating a future impact range.

The risk that… Unmetered Supplies volumes are calculated incorrectly or not at all, **resulting in…** erroneous or missing data in Settlement.

Category: Data retrieval and processing

Sub category: Unmetered Supplies

Covers: Quality of data (e.g. Charge Codes and Switch Regimes) held and processed by UMSOs and MAs, Central Management Systems (CMS)

Estimated impact in 2019/20

Market	Lower	Middle	Upper
NHH	£5.6m	£10.9m	£20.2m
HH	£4.2m	£6.7m	£10.2m

Does not cover: UMS default EAC volumes from the NHH DA aggregation logs (L0038)

Please note: Unmetered Supplies are estimated volumes, although data received through Central Management Systems (CMS) can infer usage, so it is difficult to provide exact volumes. Settlement Data used in the scoring for this risk has been based on volumes associated with UMS related Consumption Component Class (CCC) IDs. Due to the nature of installation of unmetered equipment, there is no reasonable way to guarantee that what is being declared on a customer's inventory is reflective of what is actually connected to the Distribution Network.

At risk population

As part of this assessment, we seek to understand the population at risk in the upcoming period, i.e. how many times the underlying process will occur where the risk can manifest.

In order to assess the population ELEXON has utilised Data Transfer Network (DTN) data flows to extract information on the volumes associated with CCC Ids. The at-risk population for this risk is all energy volumes associated with the following UMS CCC IDs:

- 2 - Half-Hourly (HH) and;
- 19 – Non Half-Hourly (NHH)

Data point considered

We analysed all industry Import energy over the last three years, separating it based on CCC ID and assessed not only what proportion of the Import market was energy related to UMS, but what proportion of that UMS energy was HH and NHH.

At risk population				
	2015/16	2016/17	2017/18	2018/2019 (Forecast)
Energy (MWh)	3,683,154	3,491,011	3,286,809	3,272,762
UMS Energy (all)	1.28%	1.23%	1.17%	1.12%
NHH UMS Energy	1,088,403	882,687	718,165	682,256
HH UMS Energy	2,594,751	2,608,323	2,568,444	2,590,506

> ➢ Overall UMS energy volumes have decreased over recent years. This is likely due to the adoption of more power efficient LED lighting, which comprises a majority of UMS energy
>
> ➢ There has been a noticeable decrease in NHH UMS volumes, while HH doesn't indicate a notable trend

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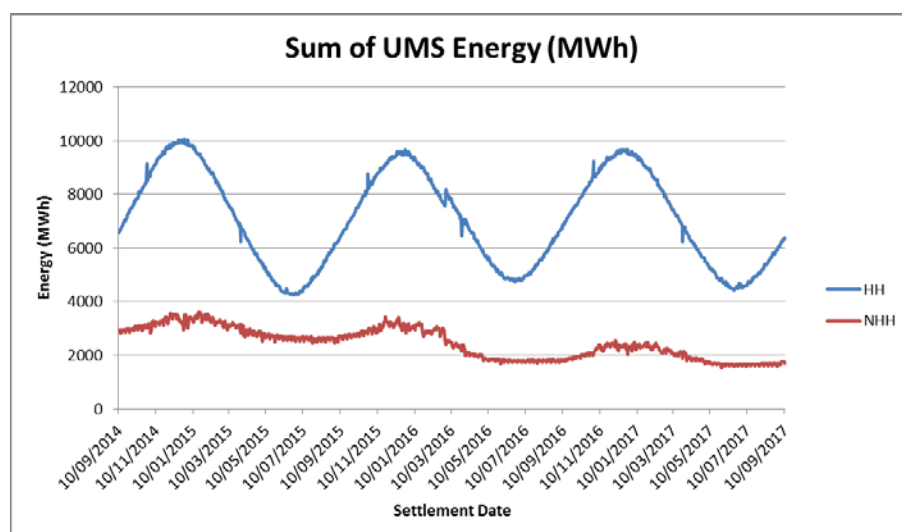
> ➤ While HH has been fairly consistent over recent years, NHH volumes are decreasing overall.
>
> ➤ This is possibly due to the increased adoption rates of CMS for controlling street lighting, which settles Half Hourly

Forecast

Below are the key considerations and assumptions when forecasting the at risk population in the 2019/20 period:

- Due to the increased power efficiency and popularity of LED street lighting, we are forecasting a decrease in overall UMS volumes, especially in the NHH market

- Volumes related to Electric Vehicle (EV) are currently very low (less than 0.1% of all UMS energy), but may increase over the next few years as EVs become more widely adopted.

- Because there has been an approximate 5% decrease over the last three years for UMS energy volumes, we have applied this reduction when forecasting NHH volumes for next year.

- We have forecasted HH energy based on an average of the last three years. There doesn't appear to be any notable trend, although it is unlikely HH volumes will decrease over the next year due to an increase in the use of CMS.

Failure rate

From the population at risk, we need to estimate the proportion where the risk will manifest, i.e. the failure rate. To do this, we assess historical performance in the area and consider any upcoming changes that have the potential to impact future performance.

Data points considered

When assessing historical performance in the area, we considered the gross error associated with UMS, which is reported in one of ELEXON's Performance Assurance Techniques (PATs), Material Error Monitoring (MEM).

ELEXON monitors the issue of erroneous values of UMS in the Non Half-Hourly (NHH) market. The monitoring involves comparing UMS data from Unmetered Supplies Operators (UMSOs) and Non Half-Hourly Data Aggregators (NHHDAs) on a particular Settlement Date following the SF run.

The following table provides a view of the total annual Gross Error each year:

	2015/16	2016/17	2017/18
Gross Error (MWh)	279,715	314,512	247,347
% error of all UMS Energy	7.59%	9.01%	7.51%
% error of NHH UMS Energy	25.70%	35.63%	34.44%

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While it is difficult to quantify errors in the HH market, an estimation of error should be applied to account for the possibility that some of the reported HH energy is incorrect. It has been reported that some UMS customers (e.g. County Councils) have outdated inventories and there is the possibility that CMS can be operated incorrectly by MAs, resulting in incorrect data for lamp activity, or, looking ahead, EV charging activity. With this considered, an estimate of 5% could be applied as 'error' for the HH market to account for this potential unseen error. The following table provides a view of this, as well as its relation to the overall UMS market.

	2015/16	2016/17	2017/18
HH Volumes	2,594,751	2,608,323	2,568,644
5% potential error Energy (MWh)	129,737	130,416	128,432
% error of all UMS Energy	3.52%	3.74%	3.91%

Forecast

Below are the key consideration and assumptions when forecasting failure rates in the 2019/20 period:

- The percentage of the UMS market affected by NHH UMS Gross Error has remained relatively low over recent years. A prediction of somewhere between 5%-10% for the future seems reasonable, although the proportion of error seems quite volatile within the NHH market specifically. We anticipate 2018/2019s Gross Error could be anywhere between 20% and 40% of all NHH UMS energy

- With the average 5% HH error estimate applied to overall UMS volumes, a forecast of an additional 3%-5% to overall UMS volumes seems reasonable

- With both HH and NHH markets combined, this leaves the overall potential failure rate somewhere between 8%-12% of all UMS volumes

Impact

To estimate the impact of a risk we need to understand the days impacted and error volume on average per instance.

Average days impacted

Due to the nature of UMS, it is difficult to quantify exactly which days would be impacted by any error. However, things such as incorrect inventories would be persistently misrepresenting equipment that has or has not been installed, or replaced. Therefore, considering the estimations and forecasts of data have been done at an annual level, we have stated all days of the year are impacted.

Average error per day

Because the average days impacted is 365 and the error has also been calculated annually, the calculation behind average error per day is annual materiality (MWh) divided by 365. The following table provides a view of this in relation to the overall UMS market forecasted for 2018/2019:

Market	Avg. error Annually (MWh)	Avg. error per day (MWh)
All UMS	410,053	1,123
HH	129,528	355
NHH	280,525	769

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