

I-SEM Training
Instructor Led Training
Part 1: SEMO (CM & IMB) Credit Risk
Part 2: SEMO (CM & IMB) Fund Transfer

Version 2



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Duration & Timing

The full training day will run from 9AM to 5PM with the following breaks:

Break	10am-10:20am
Break	11:15am-11:25am
Lunch	12:30pm-1:15pm
Break	2:30pm-2:45pm

Training Guidelines

Please ensure that you allow yourself enough time to arrive at the training room both at the start of the day and after each break so that the training can finish on time.

Please limit use of mobile phones throughout the day so as not to distract other trainees and ensure that mobile phones are kept on silent mode throughout the day.

Please ensure you have left the training room before answering a phone call.

The instructor will stop at various points throughout this presentation to deal with any questions that arise.

Please feel free to ask questions during the training session or alternatively please contact the Query Management Team through the mailbox: I-SEMproject@sem-o.com.

Agenda

Part 1: SEMO (CM & IMB) Credit Risk

Learning Objectives

Topic 1: Recap on self-learning

Topic 2: The elements of Required Credit Cover

Topic 3: Actual Exposures

Topic 4: Undefined Exposure - New / Adjusted Participants

Topic 5: Undefined Exposure - The Statistical model

Topic 6: Undefined Exposure – Traded Not Delivered

Topic 7: Credit Cover Requirements for Capacity

Topic 8: Settlement Reallocation

Topic 9: Required Credit Cover

Topic 10: Daily credit checking processes

Topic 11: Forms of Collateral

Topic 12: Course Summary

Agenda

Part 2: SEMO (CM & IMB) Fund Transfer

Learning Objectives

Topic 1: Settlement Document

Topic 2: Settlement Reallocation

Topic 3: Settlement Timetable

Topic 4: Payments

Topic 5: VAT

Topic 6: Default

Topic 7: Course Summary

Part 1: SEMO (CM & IMB) Credit Risk



SEMO (CM & IMB) Credit Risk Agenda

Training Topic

Learning Objectives

Topic 1: Recap on self-learning

Topic 2: The elements of Required Credit Cover

Topic 3: Actual Exposures

Topic 4: Undefined Exposure - New / Adjusted Participants

Topic 5: Undefined Exposure - The Statistical model

Topic 6: Undefined Exposure – Traded Not Delivered

Topic 7: Credit Cover Requirements for Capacity

Topic 8: Settlement Reallocation

Topic 9: Required Credit Cover

Topic 10: Daily credit checking processes

Topic 11: Forms of Collateral

Topic 12: Course Summary

Learning Objectives

- By the end of this training session you should understand:
 - *What credit cover is and why we need it*
 - *The normal daily processes that will be followed for I-SEM*
 - *Obligations on Participants and the Market Operator*
 - *Settlement Reallocation Agreements and how they impact on Required Credit Cover*
 - *How Required Credit Cover is calculated for:*
 - *A New or Adjusted Participant*
 - *A Standard Participant's Supplier Units*
 - *A Standard Participant's Generator Units*
- ***Note – examples used in today's training session do not represent the settlement rules in the TSC but apply the Credit Risk rules to a simple settlement calculation***

Topic 1: Recap of Self Learning Material

Recap of Self Learning Material

- Self Learning Modules had the following learning objectives:
 - *What credit cover is and why we need it*
 - *How the current arrangements were put in place*
 - *How the current arrangements have been revised for the I-SEM*
 - *How the I-SEM's sub-markets can work to reduce collateral burdens*

What credit cover is and why we need it

- **Credit Cover** is the collateral required from participants in a trading arrangement to cover the risk of them failing to meet their financial **obligations**
- Obligations are for the **exposures** they have, i.e. any unpaid bills, unbilled settlement or future settlement
- Effective management of **Credit Risk** is essential to ensuring the financial integrity of any market and should prevent the occurrence of unsecured bad debt in the event of payment default
- **SEMO** will manage Credit Risk Requirements only in relation to settlement under the **Trading & Settlement Code** in the new market arrangements
- This covers **balancing** and **imbalance settlement** and **capacity market settlement**

How the current arrangements were put in place

- The SEMC policy, often described as “**full collateralisation**”, requires all exposures to be collateralised and a mechanism for socialisation of bad debt should it arise
- To cover the full requirement, the following elements are included:
 - **Billed not paid:** *These are exposures that relate to settlement calculations that have been included in a billing run and are still due for payment*
 - **Settled not Billed:** *These are exposures that relate to settlement calculations that have been determined but have not yet been included in a billing run*
 - **Undefined exposures:** *This relates to forward exposures, including amounts consumed and not yet settled. This is to cover the time between any potential default and when such a default is remedied*
 - **A Fixed Credit Requirement amount is also required for each unit registered to the Participant**

How these have been revised for the I-SEM

- The model of **Actual Exposures** and **Undefined Exposures** has been persisted for the I-SEM
- However, using imbalance settlement amounts to predict future patterns will not achieve full collateralisation as required by SEMC
- To ensure full Supplier risk is collateralised, gross metered volume is to be used over settlement amounts for **Trading Payments** and **Trading Charges**
- A further element is the risk / benefit that comes with ex-ante trading – ex-ante sales create **non-delivery risk** whereas ex-ante purchases shift **non-payment risk** from SEMO to a **SEM NEMO**
- This results in an additional element to the exposure calculation **Traded Not Delivered**

How the I-SEM's sub-markets work

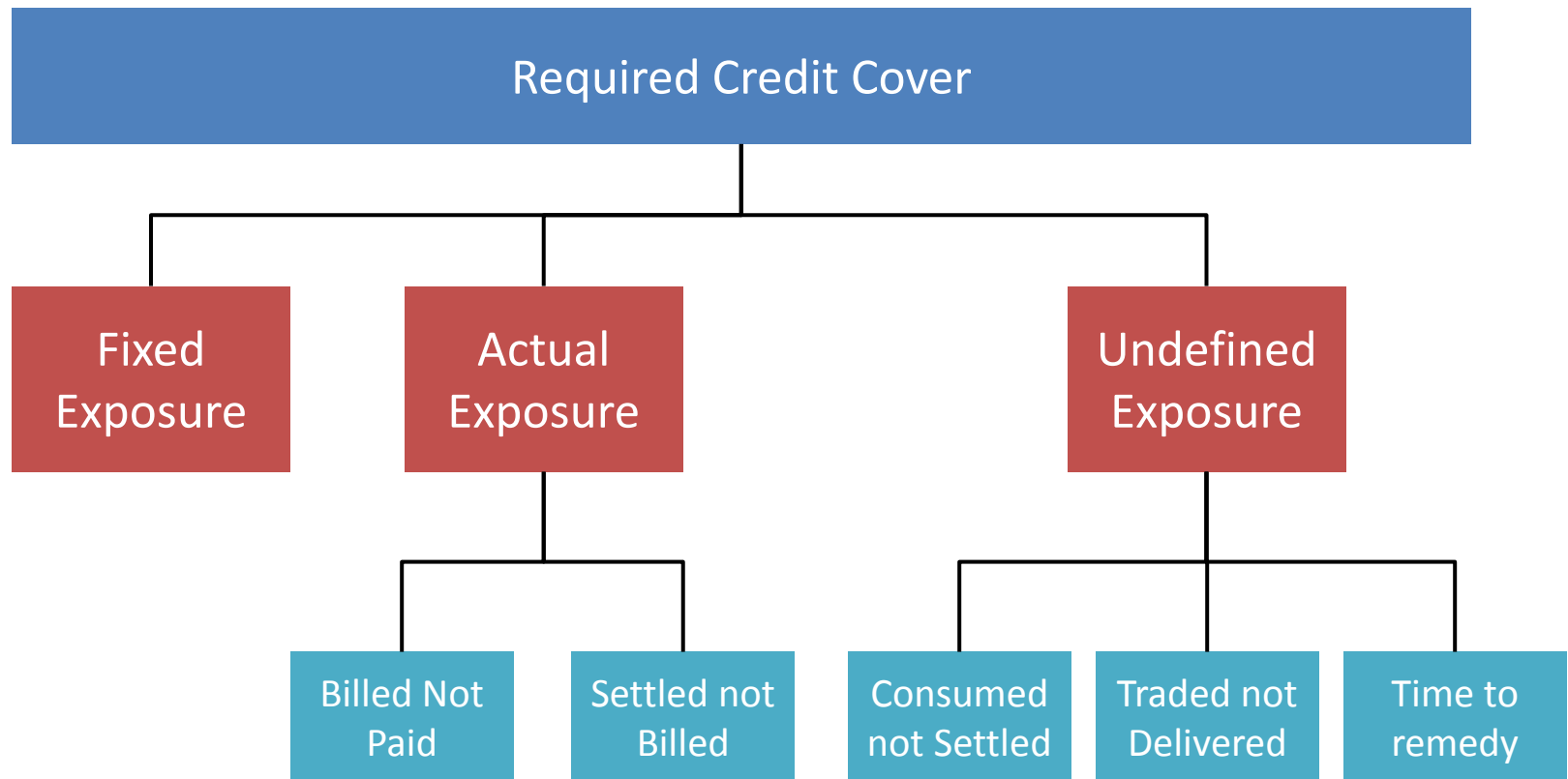
- Ex-ante trading with a SEM NEMO can shift risk between SEMO and a SEM NEMO
- For Suppliers, SEMO determines their exposure across the Undefined Exposure Period
- This includes from today (**Consumed Not Settled**) through to the end of the **Supplier Suspension Delay Period**
- Where a Supplier purchases its consumption in the day-ahead market, this volume is removed from the Undefined Exposure as the non-payment risk is now with the SEM NEMO
- Equally, Supplier trading in the ex-ante markets leads to a direct reduction of Actual Exposures as a significant portion of their historical settlement has already been financially cleared with its SEM NEMO

Topic 2: The elements of Required Credit Cover

The elements of Required Credit Cover

- Required Credit Cover is an estimate of the total financial obligations on which a participant could default
- This is calculated as the sum of
 - a Participant's Actual Exposure
 - and Undefined Exposure relating to future activity
- The methodology used to determine Undefined Exposure will differ depending upon whether the participant has a reliable historic profile of data or not
- There are also Fixed Credit Requirements that apply for each registered unit
- The following graphic sets out the individual elements that are included

The elements of Required Credit Cover



The elements of Required Credit Cover

- Fixed Credit Requirement – this is the minimum amount required and is calculated on a unit basis:
 - **For a Generator Unit** (definition includes Assetless Unit and Demand Side Units), this is set at €5,000
 - **For a Supplier Unit**, this is based on a rate of €8.77/MWh of average daily demand subject to a minimum value of €1,000 and a maximum of €15,000
- Actual Exposures – this relates to known elements of a Participant’s obligations:
 - **Billed Not Paid:** Relate to settlement calculations that have been included in a billing run and are still due for payment
 - **Settled Not Billed:** Relate to settlement calculations that have been determined but have not yet been included in a billing run. These can be either indicative (D+1) or initial settlement (D+4) amounts

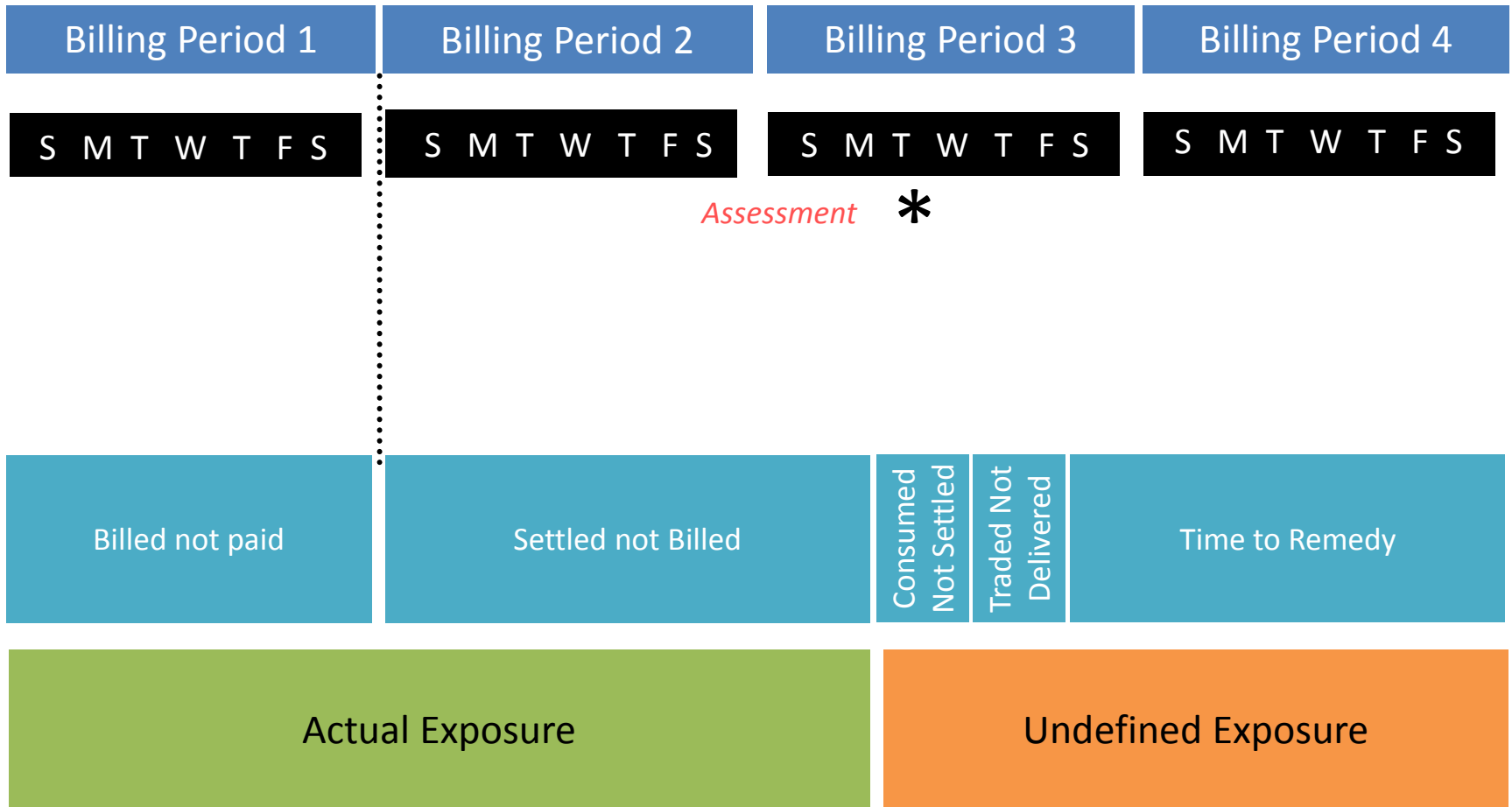
The elements of Required Credit Cover

- Undefined Exposures – these relate to the unknown elements of a Participant’s exposure and include the following:
 - **Consumed Not Settled:** this covers activity that has taken place but has not been included in any settlement, e.g., when a Credit Assessment is run at 15:30, the D+1 settlement for the previous day may not have taken place yet; therefore, consumption from midnight of the previous day up to 15:30 has not yet been accounted for and is included in the estimated exposure
 - **Traded Not Delivered:** this covers trading activity in the ex-ante markets which can either increase or decrease a Participant’s Required Credit Cover, e.g., a sale to a SEM NEMO creates a delivery risk in imbalance settlement while a purchase from a SEM NEMO shifts default risk away from imbalance settlement
 - **Contd.**

The elements of Required Credit Cover

- Undefined Exposures – these relate to the unknown elements of a Participant’s exposure and include the following:
 - **Time To Remedy:** this covers potential future exposures in the event of a default at the time of the Credit Assessment
- If a Participant defaults and does not remedy the default, the Time To Remedy element should cover exposures that will accrue to the Participant while the suspension
- This is because when a Participant (principally a Supplier Unit) defaults on its wholesale obligations, its retail customers will continue to consume while the suspension and SoLR (Supplier of Last Resort) processes are enacted

The elements of Required Credit Cover



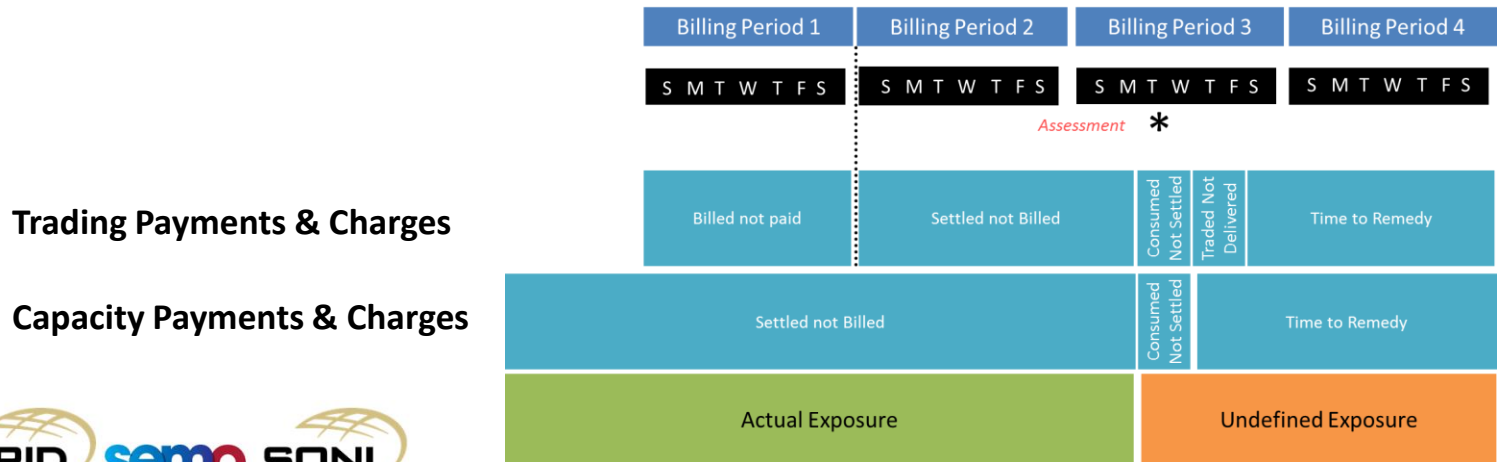
The elements of Required Credit Cover

- The previous slide demonstrates how these elements are build up
- With a credit assessment taking place at the point marked *, the following elements are included:
 - The invoices issued with respect to Billing Period 1: these would have issued the previous Friday and with a credit assessment taking place on a Tuesday, these amounts have not yet been paid
 - All settlement statements issued after Billing Period 1: both indicative and initial statements would have been completed and are available for inclusion
 - Undefined exposures calculated to cover dates for which settlement has not taken place: this includes current days where consumption has taken place but metering has not yet been provided ('Consumed not Settled'), forecast cast consumption across the undefined exposure period ('Time to Remedy') and takes account of activity in the ex-ante markets also ('Traded Not Delivered')
 - A Fixed Credit Requirement amount is also required for each unit registered to the Participant

Topic 3: Actual Exposures

Actual Exposures

- Actual Exposures are determined as the sum of outstanding billed amounts not yet paid, plus the sum of calculated but unbilled settlement amounts
- This calculation is performed across all markets and other payment streams. e.g. trading payments and charges and capacity market settlement
- Because of the different settlement timeframes between trading payments and charges (weekly) and the capacity market (monthly), this means that the period to which the Actual Exposures apply varies



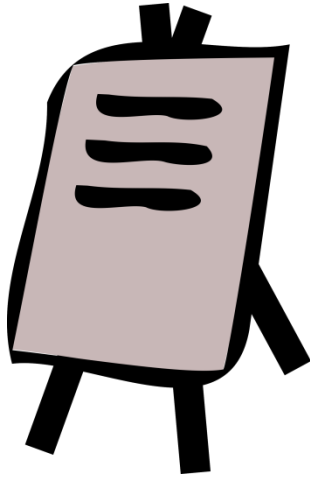
Actual Exposures

- Billed amounts not yet paid does not imply default
- This refers to bills where the payment due date has not yet passed
- Unbilled settlement amounts are the aggregation of any initial or indicative Settlement Statements issued to each Participant in respect of their units
- Settlement Statements will be issued daily after each settlement run
- Settlement Statements in relation to M+4 and M+13 are **not** included in this calculation
- This is because Settlement Statements are calculated gross and netted during the billing jobs
- The Fixed Credit Requirement is in place to account for amounts relating to settlement re-runs

Actual Exposures

$$EA_{pr} = SDA_{pbc} + \sum_{v \text{ in } p} \sum_{d \text{ in } r} CDAY_{vd} + \sum_{u \text{ in } p} \sum_{d \text{ in } r} CDAY_{ud} + \sum_{\Omega \text{ in } p} \sum_{d \text{ in } r} CDAY_{\Omega d} + \sum_{u \text{ in } p} \sum_{b \text{ in } r} CFC_{ub} \\ + \sum_{\Omega \text{ in } p} \sum_{\gamma \text{ in } r} CCP_{\Omega\gamma} + \sum_{v \text{ in } p} \sum_{\gamma \text{ in } r} CCC_{v\gamma}$$

- **Billed Not Paid** - SDA_{pbc} is the **Aggregate Settlement Document** amount for Participant
- **Settled Not Billed:**
 - $CDAY_{vd}$ is the total daily settlement of trading charges for each Supplier Unit
 - $CDAY_{ud}$ is the total daily settlement of trading payments for each Generator Unit
 - $CDAY_{\Omega d}$ is the total daily settlement of trading payments (difference payments) for Capacity Market Unit
 - CFC_{ub} is the Fixed Cost Payment or Charge for Generator Unit
 - $CCP_{\Omega\gamma}$ is the Capacity Payment for a Capacity Market Unit
 - $CCC_{v\gamma}$ is the Capacity Charge for a Supplier Unit



EXERCISE 1

ACTUAL EXPOSURE

Please download the following spreadsheet for this exercise:

https://learnerresources.s3.amazonaws.com/60968/learner_resource_uploads/c932548f9bc1cda0752e38a780/Exercise%2001%20-%20Actual%20Exposure.xlsx?AWSAccessKeyId=AKIAISYQK07XGWQY6LNQ&Expires=1666139113&Signature=Qyazov0UBz%2BP7u%2FSLyDwi8T%2FVxs%3D

Actual Exposures

- In the spreadsheet:
 - From the date of Credit Assessment
 - Determine what billed exposures are outstanding
 - Determine what unbilled exposures are outstanding
 - Aggregated the values and save in the Required Credit Cover Spreadsheet in the field for Actual Exposures

$$RCC_{pr} = FCR_{py} + EA_{pr} + ETND_{pd} + EUPES_{pg} + EUPEG_{pg} + EUPECC_{pg} + EUPECP_{pg} - FASRAS_{apr} + \sum_{a \text{ in } p} FASRAP_{apr}$$

Topic 4: Undefined Exposure - New / Adjusted Participants

Undefined Exposure - New / Adjusted Participants

Undefined Exposure

Standard Participant

When there is sufficient historical data

When the participant has been in the market for longer than the HAP (Historical Assessment Period)

Statistical Analysis based on Historical data

New/Adjusted Participant

When there is insufficient historical data

Either the participant has not been in the market for longer than the HAP (Historical Assessment Period) or their market volume has changed significantly

Calculated using forecast volume and estimated price

Undefined Exposure - New / Adjusted Participants

- The Undefined Exposure is generally calculated using a statistical analysis of historical consumption / production behaviour
- Statistical assessment is done over the Historical Assessment Period
- This is an annual parameter, set at 100 days for the I-SEM go-live
- **New / Adjusted Participants** are when there is insufficient historical data to carry out this statistical assessment
- Any Participant registering is classed as a **New Participant** for 100 days after their registration effective date
- After this point, they are re-classed as an **Standard Participant** and the statistical model is applied

Undefined Exposure - New / Adjusted Participants

- Where the New / Adjusted Participant applies, the Participant has to submit a forecast of their future usage patterns to the Market Operator
- For a Supplier Unit, this should be a forecast of their gross metered demand as they expect it to be while they are classed in this manner (100 days)
- For a Generator Unit, this should be a forecast of their imbalance volume as they expect it to be while they are classed in this manner (100 days)
- Generator Unit in this context includes Demand Side Unit, Assetless Unit and Trading Unit (which are all defined as Generator Units under the TSC)
- This forecast volume is then used to determine the Undefined Exposure for this unit

Undefined Exposure - New / Adjusted Participants

- The formula below (from G.14.3.2 of the TSC) calculates the Exposure for Trading Charges for the Undefined Exposure Period for a Participant's Supplier Unit(s) using their forecast
- The approach for Generator Units is similar – it just has a different variables;
- It uses **VCAG** in place of **VCAS** (Credit Assessment Volume for **Generation** in place of Credit Assessment Volume for **Supply**)
- It uses the **Credit Assessment Price** in place of the **Combined Credit Assessment Price**
- However, in both instances, the calculation is Volume by Price

$$EUPES_{pg} = CCAP_g \times \sum_{\gamma \text{ in } g} VCAS_{p\gamma}$$

- **CCAP_g** is the **Combined Credit Assessment Price** for the Undefined Exposure Period
- **VCAS_{pγ}** is the **Credit Assessment Volume** for each New Participant for the Imbalance Settlement Period γ

Credit Assessment Price

- First, let's look at the Price
- For Suppliers, the price used is the **Combined Credit Assessment Price (CCAP)**
- This is a combination price made up of
 - the **Credit Assessment Price**
 - the Imperfections Price
 - the Currency Cost Price; and
 - the Residual Error Volume Price
- This means the CCAP takes account not just of a forecast of imbalance prices but also tariff prices that are applied to Suppliers
- For Generators, only the Credit Assessment Price is used

Credit Assessment Price

The Credit Assessment Price

- This is the price used for calculating undefined exposure for Generators that are classed as New / Adjusted but is also used for Suppliers in all cases
- For New / Adjusted, it is applied to forecast data but for normal cases it is applied to a forecast determined from historical assessment
- This price is determined from a historical assessment of imbalance prices
- The method used is the **exact same** as that used to determine the Estimated Energy Price in the current arrangements, set out in Part A of the TSC (6.191 to 6.195)

Credit Assessment Price

The Credit Assessment Price

- Step 1:

$$DAPIMB_d = \frac{\sum_{\gamma \text{ in } d} \text{Min}(PIMB_{\gamma}, PSTR_m)}{\text{count}(PIMB_{\gamma} : \forall \gamma \text{ in } d)}$$

- Determine a daily average price
- Simply, sum the **Imbalance Settlement Price** for each **Imbalance Settlement Period** across the **Settlement Day**
- That is, the half hour average imbalance price from midnight to midnight
- Note, this is capped at the **Strike Price**. This means any scarcity prices are excluded from this calculation
- This is done for each day in the Historical Assessment Period

Credit Assessment Price

The Credit Assessment Price

- Step 2:

$$UMPIMB_g = \frac{\sum_{d \in g} DAPIMB_d}{NDAPIMB_g}$$

- Determine a mean daily price across the Historical Assessment Period
- Simply, sum the daily average prices from Step 1 for each settlement day in the Historical Assessment Period
- **NDAPIMBg** is the Number of Daily Average Imbalance Prices determined in Step 1, i.e., 100
- This gives a single value to be taken forward in the calculation

Credit Assessment Price

The Credit Assessment Price

- Step 3:

$$SDPIMB_g = \sqrt{\frac{NDAPIMB_g \times \sum_{d \text{ in } g} (DAPIMB_d)^2 - (\sum_{d \text{ in } g} DAPIMB_d)^2}{NDAPIMB_g \times (NDAPIMB_g - 1)}}$$

- Determine the standard deviation of the daily average prices across the Historical Assessment Period
- Standard formula for Standard Deviation is applied using the Number of Daily Average Imbalance Prices along with “sum of the squares” and “square of the sums” of the daily average prices determined in step 1

Credit Assessment Price

The Credit Assessment Price

- Step 4:

$$PCA_g = UMPIMB_g + AnPP(SDPIMB_g)$$

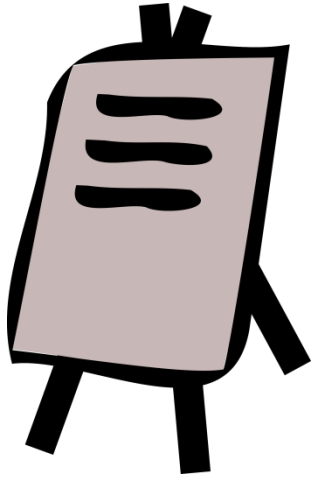
- Calculate the Credit Assessment Price
- Standard formula for determining a value within a percentile certainty
- Price is the mean value across the Historical Assessment Period from Step 2 added to the Standard Deviation from Step 3 multiplied by the Analysis Percentile Parameter (z score value)
- AnPP for I-SEM is 1.96 and is set annually

Credit Assessment Price

The Credit Assessment Price

Day #	Daily Average Price	Square of DAP		Standard Deviation	Mean of DAP	AnPP	PCA
1	€ 55.00	3025.00					
2	€ 56.00	3136.00					
3	€ 54.00	2916.00					
4	€ 50.00	2500.00					
5	€ 55.00	3025.00					
6	€ 42.00	1764.00					
7	€ 99.00	9801.00					
8	€ 48.00	2304.00					
9	€ 49.00	2401.00					
10	€ 51.00	2601.00					
11	€ 55.60	3091.36					
12	€ 59.00	3481.00					
13	€ 80.00	6400.00					
14	€ 72.00	5184.00					
	Square of the sums	Sum of the squares					
	681615.36	51629.36	41195.68	15.04	58.97	1.96 €	88.46

Credit Assessment Price



EXERCISE 2

CREDIT ASSESSMENT PRICE

Please download the following spreadsheet for this exercise:

https://learnerresources.s3.amazonaws.com/60968/learner_resource_uploads/e0a149c31b934ebba77ac4af23/Exercise%202%20-%20Credit%20Assessment%20Price.xlsx?AWSAccessKeyId=AKIAISYQKO7XGWQY6LNQ&Expires=1666139184&Signature=9kjsDKrhV6S5Ic1dS9i3m3JsYe4%3D

Credit Assessment Price

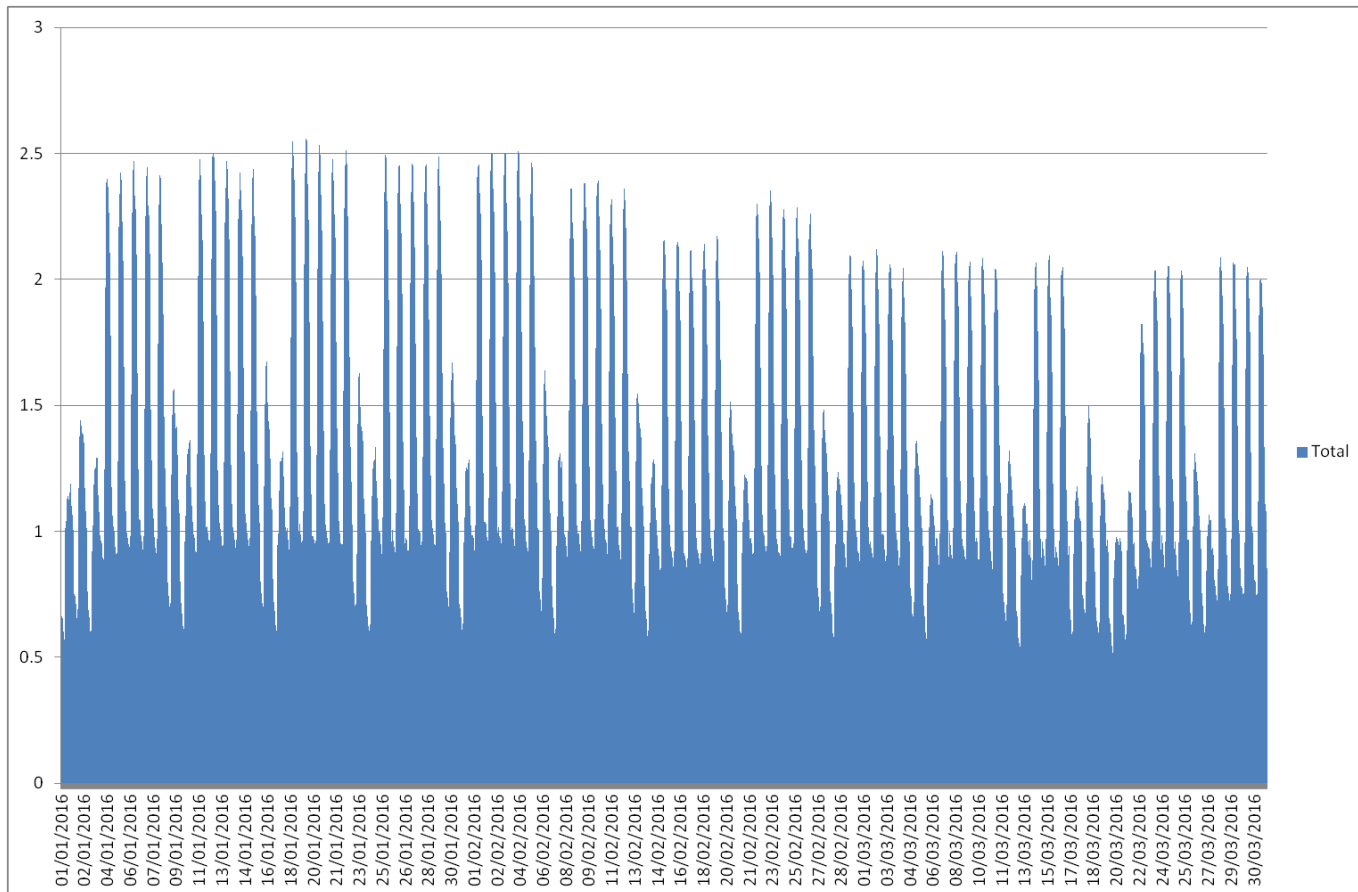
- In the spreadsheet:
 - From the date of Credit Assessment
 - Determine the future Credit Assessment Price
 - Change a few of the input prices and assess the impact
 - Put in ASP (€3,000) and consider the impact
 - Select a Credit Assessment Price for use in further exercises

Undefined Exposure - New / Adjusted Participants

- Let's look at the forecast volumes
- On registration a Participant is required to provide a forecast of up to three months of expected pattern of usage
- As only one single Credit Assessment Price is used, **this forecast does not have to be time accurate**
- The same price is applied to each volume regardless of the time of day, day of week, etc.
- The forecast should be ideally represent what you think will be your pattern of behaviour over this first period of operation
- Supplier forecasts should be of their **gross metered demand**

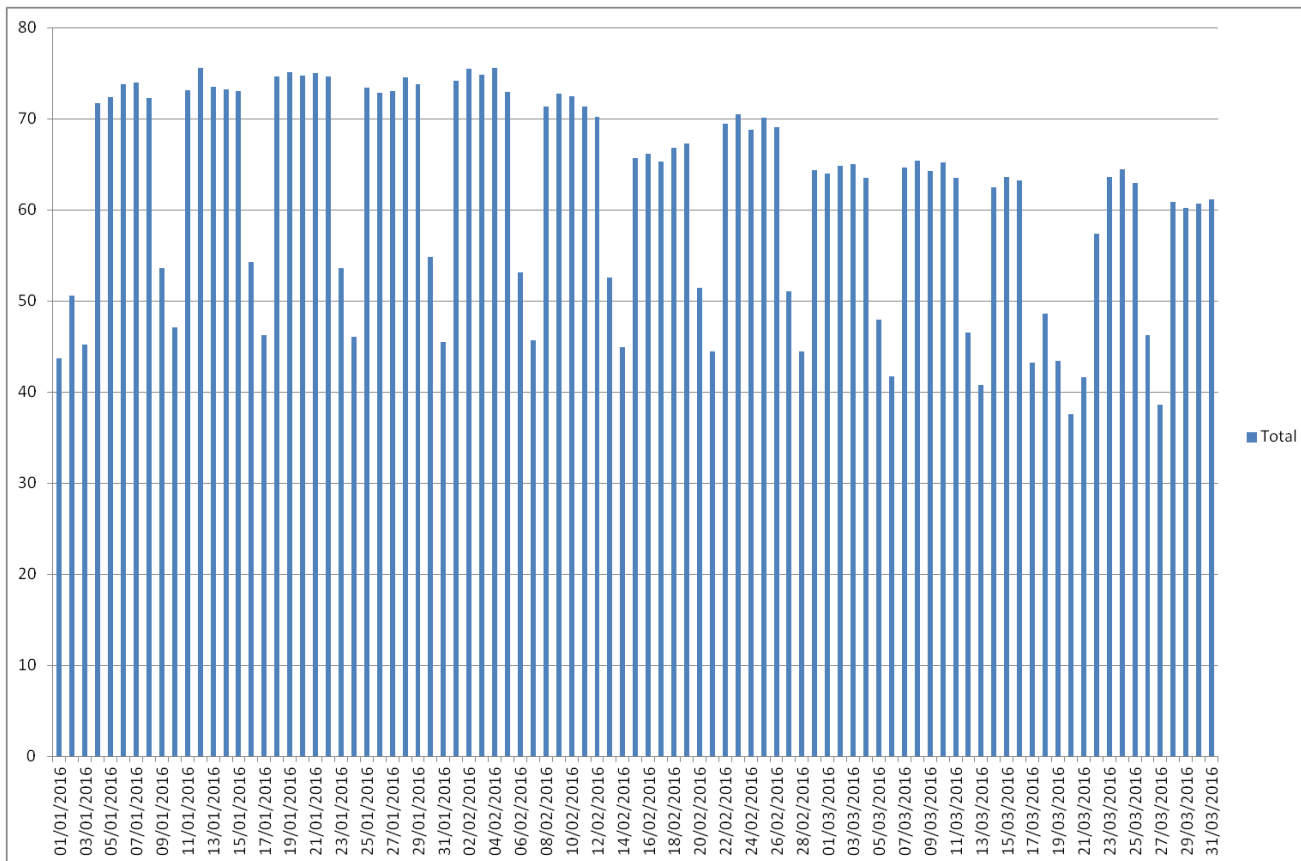
Undefined Exposure - New / Adjusted Participants

- Imagine this profile of consumption, shown here on a half-hour basis:



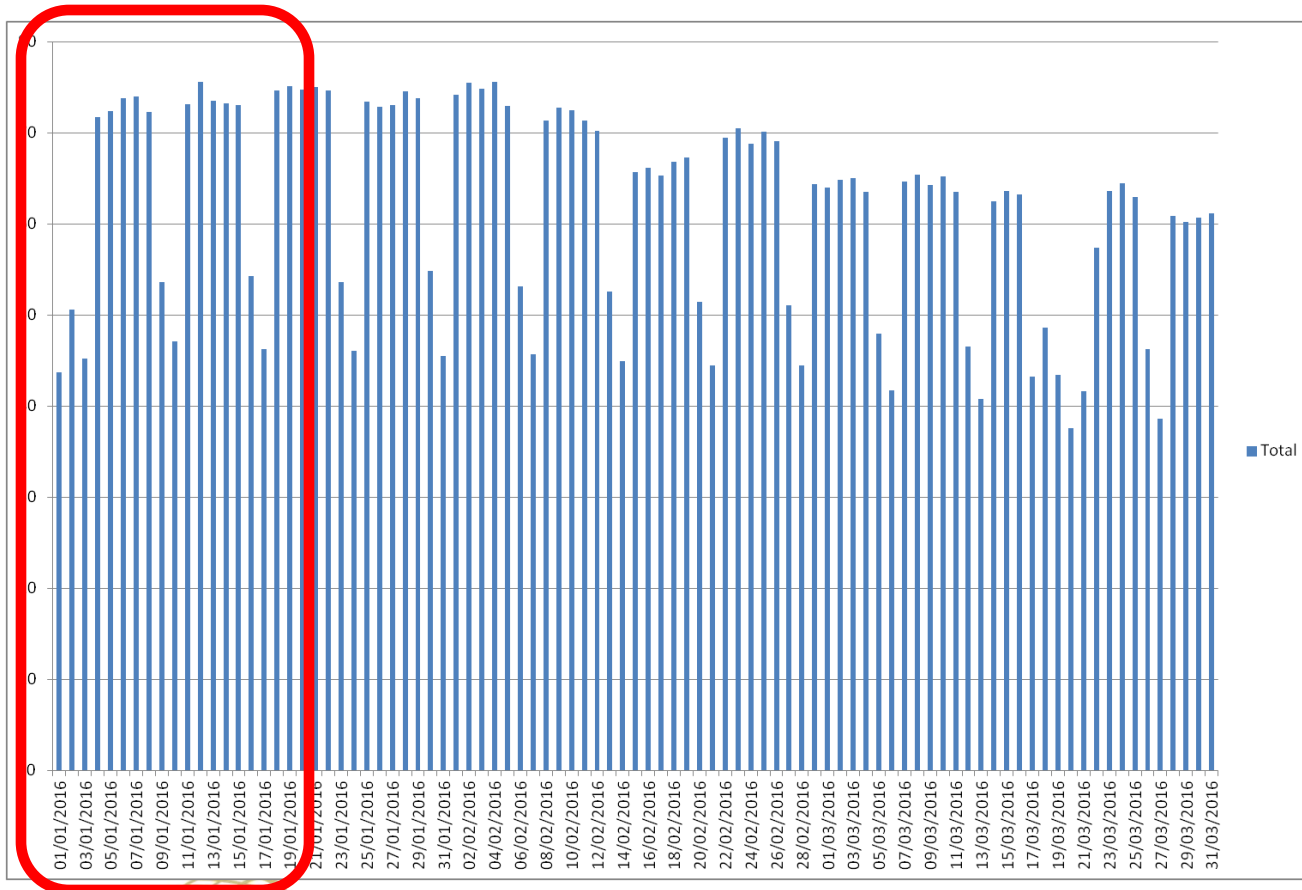
Undefined Exposure - New / Adjusted Participants

- For credit assessment purposes we could look at daily total values instead:



Undefined Exposure - New / Adjusted Participants

- In the credit assessment, we only look at the values that fall in the undefined exposure period:

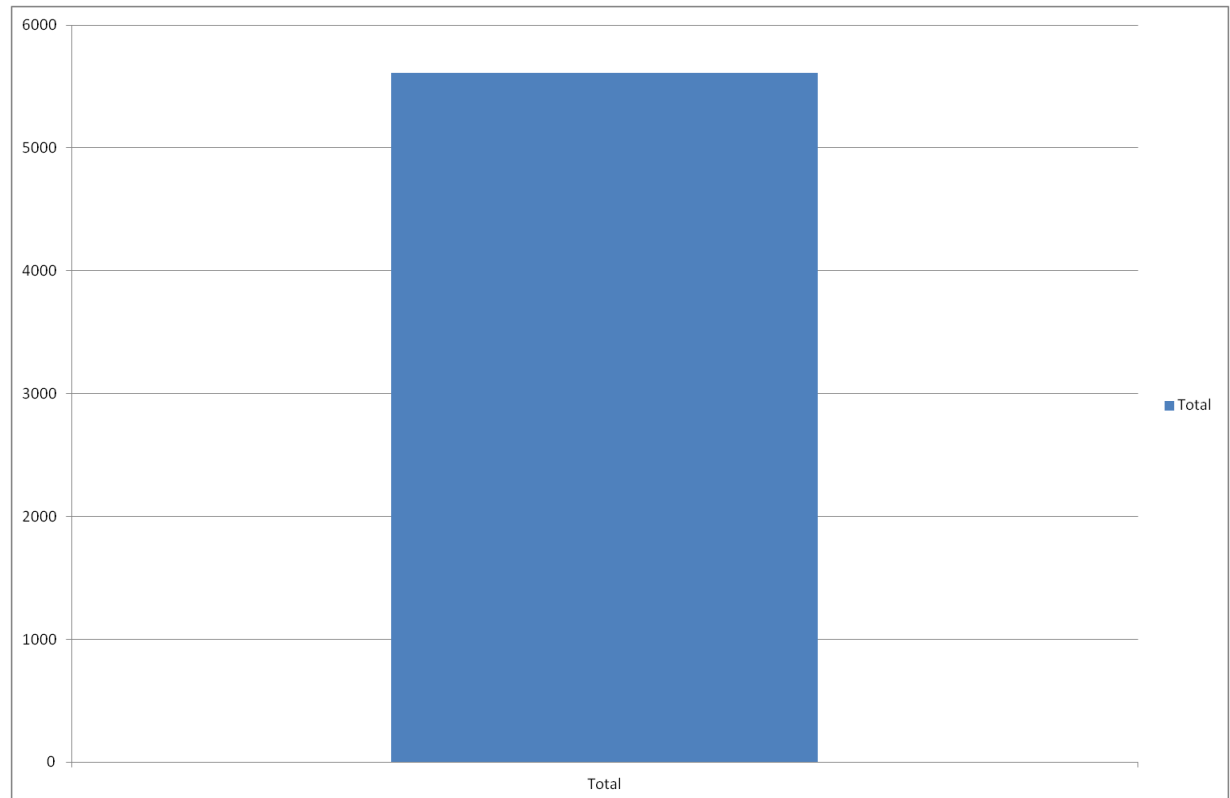


Undefined Exposure - New / Adjusted Participants

- Which is summed and has the Credit Assessment Price applied:

$$EUPES_{pg} = CCAP_g \times \sum_{y \text{ in } g} VCAS_{py}$$

$$\sum_{y \text{ in } g} VCAS_{py}$$



Undefined Exposure - New / Adjusted Participants

- From a supplier point of view, if you have a good idea of what your consumption levels will be across the three month period, you can submit the same average for each Imbalance Settlement Period
- Equally, you can apply seasonal variations and have the different average values on a weekly / monthly basis
- Participants can make the forecast as complex or simple as they wish

Note:

- ***If you under-forecast, this will just reduce your undefined exposure looking forward***
- ***With each daily settlement, actual consumption will be added to your Actual Exposure and may lead to Credit Cover Increase Notices***

Undefined Exposure - New / Adjusted Participants

- For Generators, the forecast should be of **net imbalance volumes**
- The payment / charge for imbalance volumes is determined as:

$$C_{IMB_{uy}} = P_{IMB_y} \times (Q_{MLF_{uy}} - Q_{EX_{uy}})$$

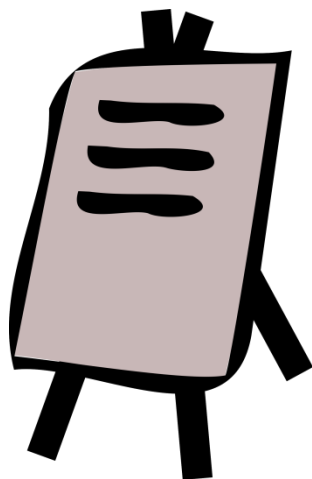
- This is imbalance price by imbalance volume
- Imbalance volumes are $Q_{MLF_{uy}} - Q_{EX_{uy}}$
- That is, loss adjusted metered quantity less ex-ante quantities expressed as a half hour value
- This should include whether the change in production is due to an imbalance or a TSO dispatch action (constraint)

Undefined Exposure - New / Adjusted Participants

- As with the Supplier calculation, only one Credit Assessment Price is applied to all volumes so time of day / day of week accuracy is not important
- For dispatchable generator, forecast can be based on:
 - Expected ex-ante trading
 - Expected level of re-dispatch
- As with the Supplier calculation, if the forecast is out, daily imbalance settlement will quickly adjust as actual values appear in the Actual Exposure calculation
- This could again lead to Credit Cover Increase Notices that must be satisfied within 2 working days

Undefined Exposure - New / Adjusted Participants

- For non-dispatchable generator, forecast can be based on:
 - Expected ex-ante trading
 - Expected level of output
- Would expect non-dispatchable generators to have a view on whether they intend to trade in ex-ante or not
- Forecast of level of output could be based on Wind Capacity Credit by installed capacity



EXERCISE 3

NEW PARTICIPANT FORECAST

Please download the following spreadsheet for this exercise:

https://learnerresources.s3.amazonaws.com/60968/learner_resource_uploads/9019c9310a77746ef562712040/Exercise%2003%20-%20New%20Participant%20Forecast.xlsx?AWSAccessKeyId=AKIAISYQKO7XGWQY6LNQ&Expires=1665344848&Signature=1cAbpNPzlyE D7%2BH7SteYJE0MzuY%3D

New / Adjusted Participants

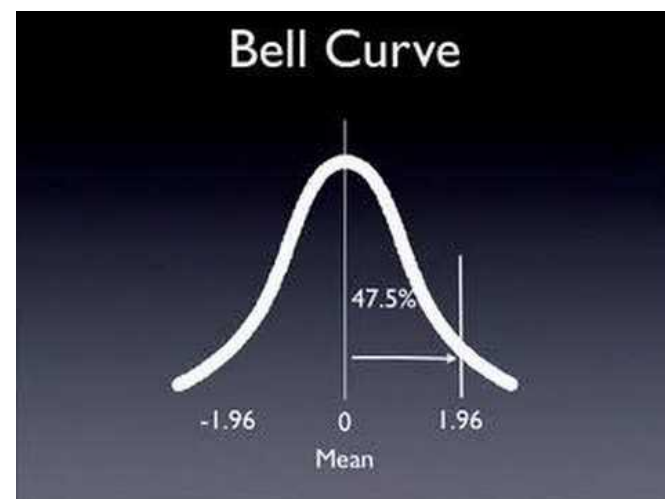
- In the spreadsheet:
 - From the date of Credit Assessment
 - Determine a forecast for a supplier unit
 - Determine a forecast for a dispatchable generator unit
 - Determine a forecast for a non-dispatchable generator unit
 - Apply the Credit Assessment Price determined in the previous exercise

$$RCC_{pr} = FCR_{py} + EA_{pr} + ETND_{pd} + EUPES_{pg} + EUPEG_{pg} + EUPECC_{pg} + EUPECP_{pg} \\ - FASRAS_{apr} + \sum_{a \text{ in } p} FASRAP_{apr}$$

Topic 5: Undefined Exposure - The Statistical model

Undefined Exposure - The Statistical model

- To calculate a Standard Participant's undefined exposure, the methodology used is:
 - Review the data in the Historical Assessment Period
 - Take Samples of settlement amounts for a period of time equal to the undefined exposure period
 - Calculate average settlement amounts for each sample and a standard deviation
 - Apply an Analysis Percentile Parameter: this is a z score value from a bell curve that provides a statistical confidence that up to a given percentage, all such scenarios should be covered



Undefined Exposure - The Statistical model

- What you will notice is that this is a small expansion on the method we've covered for the Credit Assessment Price
- Where the Credit Assessment Price method applies the statistical method to daily average price values, this approach applies it to **samples**
- Each sample represents a period of historic data of equal length to the undefined exposure period
- In the TSC, these are described as **Sample Undefined Exposure Period** and have the subscript ω (lowercase omega)
- The concept is to determine a value that represents the time to remedy period
- A collection of sample values are determined from the Historical Assessment Period

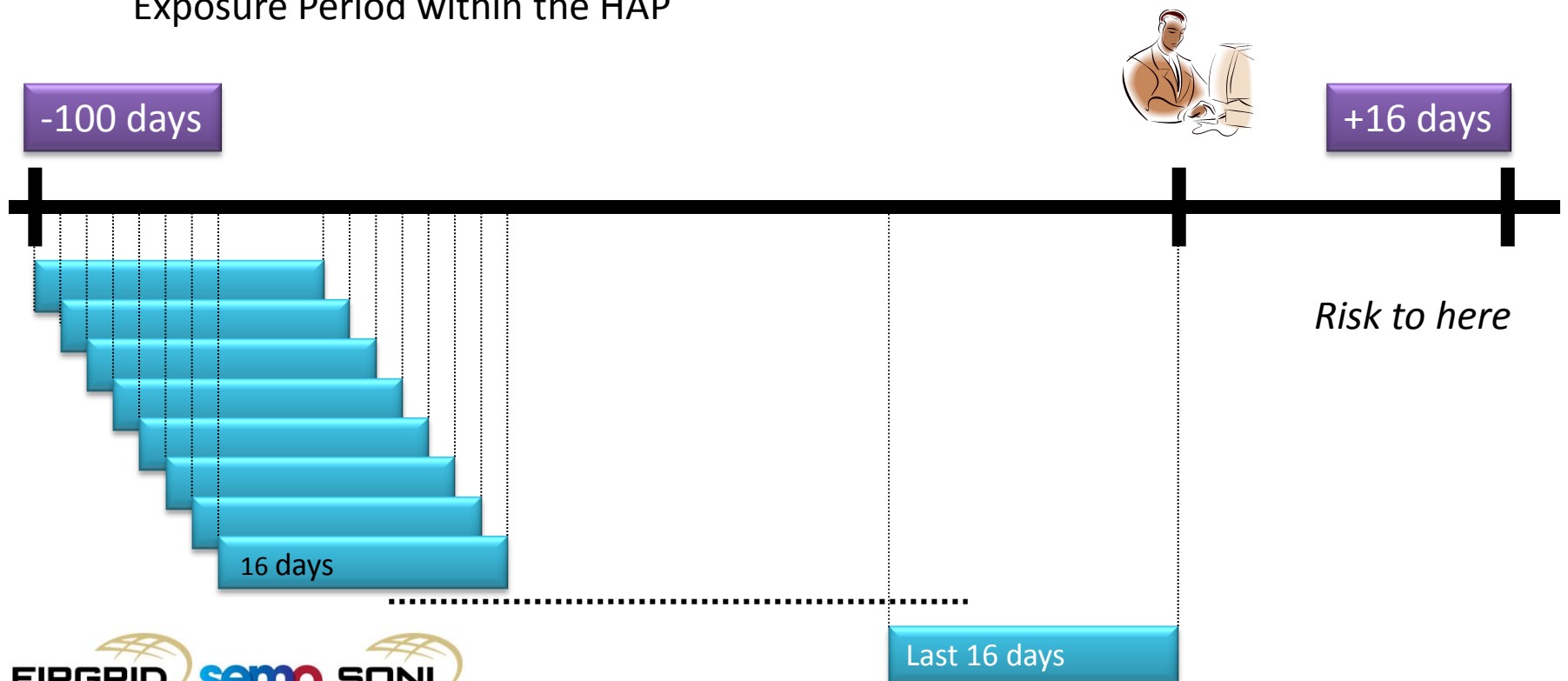
Undefined Exposure - The Statistical model

- From the date of the Credit Assessment run, the MO will look back across the HAP



Undefined Exposure - The Statistical model

- From the date of the Credit Assessment run, the MO will look back across the HAP
- Determine an aggregate value to represent each of the Sample Undefined Exposure Period within the HAP



Undefined Exposure - The Statistical model

- From the date of the Credit Assessment run, the MO will look back across the HAP
- Determine an aggregate value to represent each of the Sample Undefined Exposure Period within the HAP
- Following the same approach as used for the Credit Assessment Price, the calculation determines the undefined exposure amount by applying the same steps
- First, determine a mean value of the sample values
- Then, determine a standard deviation of the sample values
- Lastly, apply the Analysis Percentile Parameter and determine the undefined exposure value

Undefined Exposure - The Statistical model

The Supplier Unit calculation

- Step 1:

$$QMB_{pg\omega} = \sum_{d \text{ in } \omega} \sum_{v \text{ in } p} \sum_{\gamma \text{ in } d} QM_{v\gamma}$$

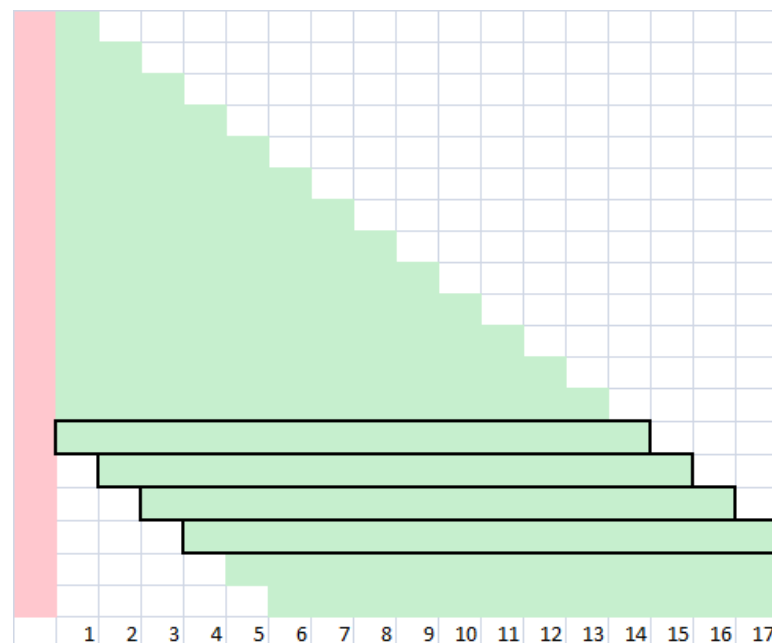
- Determine a total value for each sample in the HAP
- Simply, sum the **metered demand** for each **Imbalance Settlement Period** across the **Settlement Day** ($\gamma \text{ in } d$)
- This is summed across all Supplier Units registered to the Participant ($v \text{ in } p$)
- And then summed for each Settlement Day in the Sample Undefined Exposure Period ($d \text{ in } \omega$)
- This results in a single value for each sample in the Undefined Exposure Period

Undefined Exposure - The Statistical model

The Supplier Unit calculation

- *How many samples in the Undefined Exposure Period?*
- This is a function of the number of days in the HAP and in the Undefined Exposure Period
- In TSC, this is the BPHAP
- It is determined as the number of days in the HAP minus the number of days in the Undefined Exposure Period plus 1
- E.g., 17 day HAP with 14 day sample duration = 4 samples

$$BPHAP_g = (DINHAP - UEPBD_g) + 1$$



Undefined Exposure - The Statistical model

The Supplier Unit calculation

- Step 2:

$$QMBM_{pg} = \frac{\sum_{\omega=1}^{\omega=BPHAP_g} QMB_{pg\omega}}{BPHAP_g}$$

- Determine a mean value for the Historical Assessment Period
- Simply, sum the sample values from Step 1 for each sample in the Historical Assessment Period and divide by the **BPHAP_g**
- **BPHAP_g** is the number of Sample Undefined Exposure Periods in the HAP, i.e.,
 $(100 - 16) + 1 = 85$
- This gives a single value to be taken forward in the calculation

Undefined Exposure - The Statistical model

The Supplier Unit calculation

- Step 3:

$$QMBS_{pg} = \sqrt{\frac{BP_{HAP_g} \times \sum_{\omega=1}^{\omega=BP_{HAP_g}} (QMB_{pg\omega})^2 - \left(\sum_{\omega=1}^{\omega=BP_{HAP_g}} QMB_{pg\omega}\right)^2}{BP_{HAP_g} \times (BP_{HAP_g} - 1)}}$$

- Determine the standard deviation of the sample values across the Historical Assessment Period
- The same standard formula for Standard Deviation is applied using the number of samples in the HAP along with “sum of the squares” and “square of the sums” of the daily average prices determined in step 1

Undefined Exposure - The Statistical model

The Supplier Unit calculation

- Step 4:

$$QUPEB_{pg} = QMBM_{pg} + AnPP(QMBSD_{pg})$$

- Calculate the **Undefined Exposure Quantity**
- Standard formula for determining a value within a percentile certainty
- Value is the mean value across the Historical Assessment Period from Step 2 added to the Standard Deviation from Step 3 multiplied by the Analysis Percentile Parameter (z score value)
- AnPP for I-SEM is 1.96 and is set annually

Undefined Exposure - The Statistical model

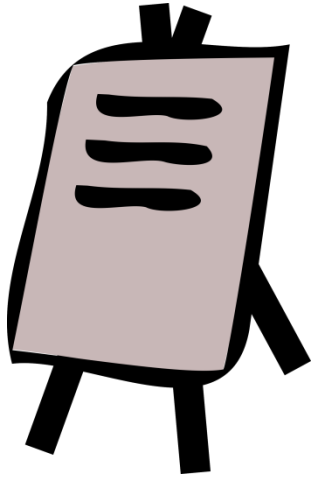
The Supplier Unit calculation

- Step 5:

$$EUPES_{pg} = CCAP_g \times QUPEB_{pg}$$

- Calculate the **Undefined Exposure**
- Simply, take the value determined in the previous steps and apply the Combined Credit Assessment Price
- This is the Credit Assessment Price adjusted for the relevant tariff prices that apply to Supplier Units (Imperfections, Residual Energy Volume, Currency Cost)'

The Statistical Model



EXERCISE 4

SUPPLIER UNIT CALCULATION

Please download the following spreadsheet for this exercise:

https://learnerresources.s3.amazonaws.com/60968/learner_resource_uploads/bde3be90fb688d8bc5fadeba50/Exercise%2004%20-%20Supplier%20Unit%20Calculation.xlsx?AWSAccessKeyId=AKIAISYQK07XGWQY6LNQ&Expires=1666140730&Signature=mDE4WIm2RSNo4yRHS7xIKJZ2C50%3D

The Statistical Model

- In the spreadsheet:
 - From the date of Credit Assessment
 - Determine a forecast for a supplier unit
 - Vary actual demand within the Historical Assessment Period and review the impact
 - Apply the Credit Assessment Price determined in the previous exercise

$$RCC_{pr} = FCR_{py} + EA_{pr} + ETND_{pd} + EUPES_{pg} + EUPEG_{pg} + EUPECC_{pg} + EUPECP_{pg} \\ - FASRAS_{apr} + \sum_{a \text{ in } p} FASRAP_{apr}$$

Undefined Exposure - The Statistical model

The Generator Unit calculation

- This calculation repeats the almost the exact same steps and the Supplier Unit calculation

- The only difference is with the input data

- **Step 1** calculates:
$$CUB_{pg\omega} = \sum_{d \text{ in } \omega} \left(\sum_{u \text{ in } p} CDAY_{ud} + \sum_{\Omega \text{ in } p} CDAY_{\Omega d} \right)$$

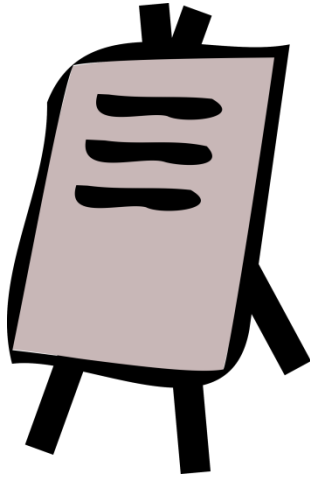
- Again, it determines a total value for each sample in the HAP
- But this is the sum the **settlement amounts** for each **Imbalance Settlement Period** across the **Settlement Day** ($\gamma \text{ in } d$)
- This is summed across all Units registered to the Participant ($u/\Omega \text{ in } p$)
- And then summed for each Settlement Day in the Sample Undefined Exposure

Undefined Exposure - The Statistical model

The Generator Unit calculation

- **Step 2:** Determine a mean value for the Historical Assessment Period which is the sum of the sample values from Step 1 for each sample in the Historical Assessment Period divided by the BPHAPg
- **Step 3:** Determine the standard deviation of the sample values across the Historical Assessment Period
- **Step 4:** Calculate the **Undefined Exposure** using the standard formula for determining a value within a percentile certainty
- Because the inputs to this calculation are money amounts, the result of Step 4 is a money value. There is no need to apply the Credit Assessment Price

The Statistical Model



EXERCISE 5

GENERATOR UNIT CALCULATION

Please download the following spreadsheet for this exercise:

https://learnerresources.s3.amazonaws.com/60968/learner_resource_uploads/375252602e437232347d3933e5/Exercise%2005%20-%20Generator%20Unit%20Calculation.xlsx?AWSAccessKeyId=AKIAISYQKO7XGWQY6LNQ&Expires=1666140499&Signature=WJnzxdVVbcclqmROWqIM3Qly2dl%3D

The Statistical Model

- In the spreadsheet:
 - From the date of Credit Assessment
 - Determine a forecast for a generator unit
 - Vary settlement amounts within the Historical Assessment Period and review the impact
 - Use this to reflect changes in ex-ante trading or TSO actions

$$RCC_{pr} = FCR_{py} + EA_{pr} + ETND_{pd} + EUPES_{pg} + EUPEG_{pg} + EUPECC_{pg} + EUPECP_{pg} - FASRAS_{apr} + \sum_{a \text{ in } p} FASRAP_{apr}$$

Topic 6: Undefined Exposure – Traded Not Delivered

Undefined Exposure – Traded Not Delivered

- The volume of energy **Traded Not Delivered** represents the interaction between the ex-ante markets and the imbalance settlement arrangements
- The statistical model will calculate forward from today a Supplier's potential risk exposure
- This covers from today up to the end of the Undefined Exposure Period and includes a projection of tomorrow's consumption
- Where a Supplier makes a purchase in respect of tomorrow's consumption in the ex-ante market, this shifts the default (non-payment) risk from the imbalance settlement to its SEM NEMO
- This feeds back into the SEMO calculation through the Traded Not Delivered element

Undefined Exposure – Traded Not Delivered

$$\begin{aligned}
 ETND_{pg} = & \left(\sum_{u \text{ in } p \text{ h in } g} \sum_{h \text{ in } g} \left(\sum_x qTDA_{xuh} \times \text{Min}(DTDA_x, DISP) + \sum_x qTID_{xuh} \times \text{Min}(DTID_x, DISP) \right) \right. \\
 & \left. \times PCA_g \right) \\
 & + \left(\sum_{v \text{ in } p \text{ h in } g} \sum_{h \text{ in } g} \left(\sum_x qTDA_{xvh} \times \text{Min}(DTDA_x, DISP) \right. \right. \\
 & \left. \left. + \sum_x qTID_{xvh} \times \text{Min}(DTID_x, DISP) \right) \times PCA_g \right) \times -1
 \end{aligned}$$

- Most the complexity in this equation relates to how to convert ex-ante volumes of different contract duration to an Imbalance Settlement Period duration (30 mins)

Undefined Exposure – Traded Not Delivered

Day-ahead 1hr (even split)	T1 Split 1hr evenly into 2 half hr	
Intraday hr (even split)	T2 Split 1hr evenly into 2 half hr	
Intraday half hr (no split)	T3	
Ex-Ante (post split)	$(T1 + T2) / 2 + T3$	$(T1 + T2) / 2$
	30 min	30 min

- Reality is far simpler due to products that will be available at go-live, i.e., day-ahead is 1 hour (even split between ISPs) and intraday is ½ hour (aligns with ISP)

Undefined Exposure – Traded Not Delivered

$ETND_{pg}$

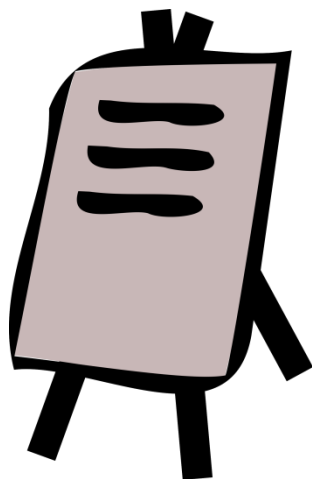
$$= \left(\sum_{u \text{ in } p} \sum_{h \text{ in } g} \left(\sum_x qTDA_{xuh} \times \frac{1}{2} + \sum_x qTID_{xuh} \times \frac{1}{2} \right) \times PCA_g \right) + \left(\sum_{v \text{ in } p} \sum_{h \text{ in } g} \left(\sum_x qTDA_{xvh} \times \frac{1}{2} + \sum_x qTID_{xvh} \times \frac{1}{2} \right) \times PCA_g \right) \times -1$$

- Simply, day-ahead volumes * ISP duration
- No adjustment on intraday volumes
- Note * -1 at the end of the equation
- This ensures that a purchase in the ex-ante market is not added to the calculated Undefined Exposure but is subtracted from it

Undefined Exposure – Traded Not Delivered

- Just as purchases decrease the Undefined Exposure, sales increase it
- This is because each ex-ante sale includes the risk of non-delivery
- This can arise if a dispatchable generator trips in real-time, a non-dispatchable generator has sold on the basis of a forecast that is not realised or an assetless trader does not close out their ex-ante positions
- All of these possibilities give rise to an imbalance volume that must be secured
- Therefore, these sales will be added to a sellers Undefined Exposure
- This may give rise to a Credit Cover Increase Notice if the pattern of trade is unusual
- If ex-ante trading follows an established pattern, it is likely that the statistical analysis will already have accounted for this

Undefined Exposure – Traded Not Delivered



EXERCISE 6

TRADED NOT DELIVERED

Please download the following spreadsheet for this exercise:

https://learnerresources.s3.amazonaws.com/60968/learner_resource_uploads/bd234537d07040671a9d58bae1/Exercise%2006%20-%20Traded%20Not%20Delivered.xlsx?AWSAccessKeyId=AKIAISYQKO7XGWQY6LNQ&Expires=1665418649&Signature=6jKnu7aVjJ8gQx00G7MiSktwmyk%3D

Undefined Exposure – Traded Not Delivered

- In the spreadsheet:
 - From the date of Credit Assessment
 - Determine an amount of ex-ante trading for a Supplier Unit
 - Determine an amount of ex-ante trading for a Generator Unit
 - Calculate the volume Traded Not Delivered and add to the accruing calculation

$$RCC_{pr} = FCR_{py} + EA_{pr} + ETND_{pd} + EUPES_{pg} + EUPEG_{pg} + EUPECC_{pg} + EUPECP_{pg} \\ - FASRAS_{apr} + \sum_{a \text{ in } p} FASRAP_{apr}$$

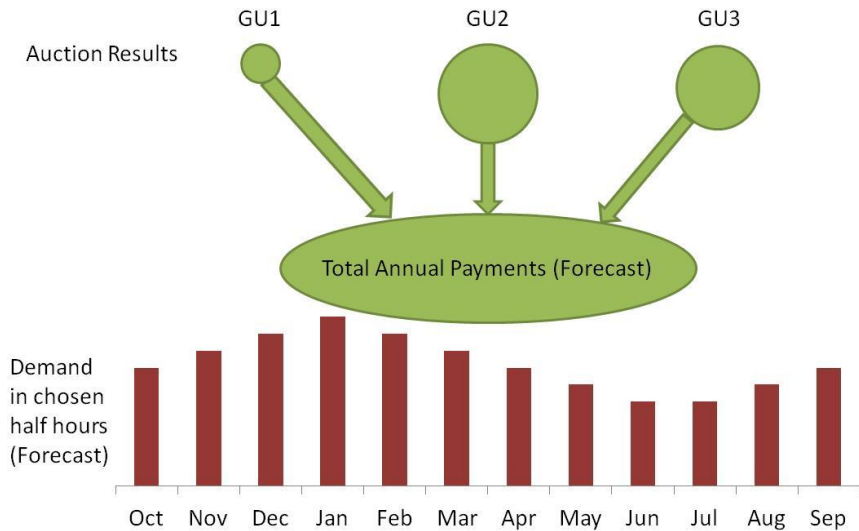
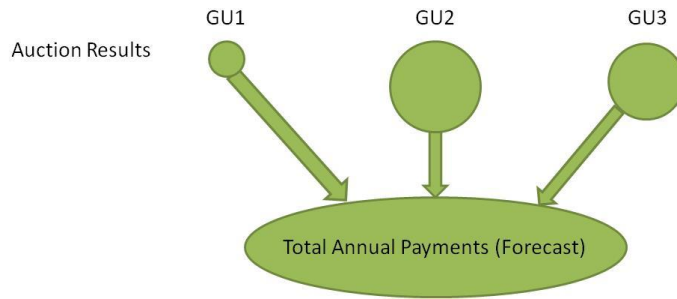
Topic 7: Credit Cover Requirements for Capacity

Credit Cover Requirements for Capacity

- Capacity payments and charges are now calculated based on ex-ante auctions
- As a result, we can calculate the credit that a generator/**Capacity Market Unit** is entitled to because we know what their payment will be based on their awarded capacity
- Suppliers charge is determined by calculating a capacity charge price based on what needs to be paid
- For Credit Cover calculations, this is simulated by pro-rating the payment according to their share of demand (both actual and forecasted)

Credit Cover Requirements for Capacity

- From the Market Overview:



Credit Cover Requirements for Capacity

- So, a Capacity Market Unit's Required Credit Cover is calculated as:
- **Actual Exposure** – same as Trading Payments & Charges, based on bills issued not yet paid and settlement statements issued not yet billed
- **Traded Not Delivered** – only applicable to the spot energy market
- Undefined Exposure –
$$EUPECP_{pg} = \sum_{\gamma \text{ in } g} \sum_{\Omega \text{ in } p} CCP_{\Omega\gamma}$$
- This simply sums payments that are due to be made to this Participant's Capacity Market Unit(s) in any Imbalance Settlement Periods that fall within the Undefined Exposure Period
- **Note:** for a CMU this is a forecast of a payment due and not a charge; this will have the effect of **decreasing** this Participant's overall Required Credit Cover

Credit Cover Requirements for Capacity

- A Supplier Unit's Required Credit Cover for Capacity is calculated as:
- **Actual Exposure** – same as Trading Payments & Charges, based on bills issued not yet paid and settlement statements issued not yet billed
- **Traded Not Delivered** – only applicable to the spot energy market
- Undefined Exposure –

$$EUPECC_{pg} = \sum_{\gamma \text{ in } g} \sum_{\Omega} CCP_{\Omega\gamma} \times \frac{QUPEB_{pg}}{(\sum_p QUPEB_{pg} + (\sum_p (QUPEB_{pg} \times FCAA_{pg})) + \sum_p \sum_{\gamma \text{ in } g} VCAS_{p\gamma})}$$

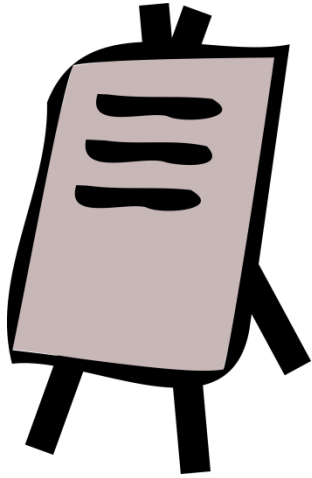
- This takes the Participant's forecast quantity, determined already to come up with the Undefined Exposure for Trading Charges, and uses it to pro-rata a share of the total payments that are due to be made to CMUs within the Undefined Exposure Period

Credit Cover Requirements for Capacity

$$EUPECC_{pg} = \sum_{\gamma \text{ in } g} \sum_{\Omega} CCP_{\Omega\gamma} \times \frac{QUPEB_{pg}}{(\sum_p QUPEB_{pg} + (\sum_p (QUPEB_{pg} \times FCAA_{pg})) + \sum_p \sum_{\gamma \text{ in } g} VCAS_{p\gamma})}$$

- To re-cap, we have already calculated QUPEBpg as the Undefined Exposure Quantity for a Participant in respect of its Supplier Units
- The values below the line represent different instances of this:
 - **QUPEB** - Undefined Exposure Quantity for a **standard Supplier Unit**
 - **(QUPEB x FCAA)** - Undefined Exposure Quantity for a **Adjusted Supplier Unit**
 - **VCAS** - Undefined Exposure Quantity for a **New Supplier Unit**
- **Note:** How this total aggregate value is communicated to Participants has yet to be confirmed

Credit Cover Requirements for Capacity



EXERCISE 7

CREDIT COVER REQUIREMENTS FOR CAPACITY

Please download the following spreadsheet for this exercise:

https://learnerresources.s3.amazonaws.com/60968/learner_resource_uploads/cc5218625845055287c043a768/Exercise%2007%20-%20Credit%20Cover%20Requirements%20for%20Capacity.xlsx?AWSAccessKeyId=AKIAISYQKO7XGWQY6LNQ&Expires=1666139275&Signature=sSWnSw32So8v%2F1vRVLFsGM%2BvODA%3D

Credit Cover Requirements for Capacity

- In the spreadsheet:
 - From the date of Credit Assessment
 - Determine an amount of capacity payments to be made
 - Account for this in the calculation for a Capacity Market Unit
 - Pro-rate this for the Supplier Unit determined in earlier exercises
 - Include in the accruing calculation

$$RCC_{pr} = FCR_{py} + EA_{pr} + ETND_{pd} + EUPES_{pg} + EUPEG_{pg} + EUPECC_{pg} + EUPECP_{pg} - FASRAS_{apr} + \sum_{a \text{ in } p} FASRAP_{apr}$$

Topic 8: Settlement Reallocation

Settlement Reallocation

- Process whereby one participant assigns financial responsibility to another
- Approach for I-SEM is transfer of full financial liability / obligations between two participants
- **Principal Participant** takes on all financial liabilities of a **Secondary Participant**
- One Principal Participant can have many Secondary Participants
- Each Secondary Participant can only have one Principal Participant
- Further, a Principal Participant cannot be a Secondary Participant to another agreement
- SRAs to apply on any billing runs from the date of agreement
- Agreements can be open-ended
- Settlement will be in the currency of the Principal Participant; Trading Day Exchange Rate as on date of action is used (action either Credit Assessment or billing calculation)

Settlement Reallocation

- Entering and termination an SRA is a more timely process than previously
- Formal legal agreement between the Principal Participant, the Secondary Participant and the Market Operator
- Form must be submitted in writing to the MO, signed and witnessed by both Participants
- It must be submitted **60 days** before the effective date of the Agreement
- Agreements cannot be terminated ad-hoc
- **20 Working Days** notice must be provided when terminating an agreement
- Lead-in and lead-out time of the agreement will avoid any sudden step change increase in a Participant's Required Credit Cover (for the Principal Participant on commencement and the Secondary Participant on termination)
- As start / end dates approach, the SRA comes into consideration in the determination of Required Credit Cover and the MO will signal if Posted Credit Cover needs to be updated

Settlement Reallocation

- TSC has two calculations for determining how an SRA is represented in the Required Credit Cover calculation
- It calculates the **Forecast Amount Available for Settlement Reallocation Agreements** for a Secondary Participant

$$RCC_{pr} = FCR_{py} + EA_{pr} + ETND_{pd} + EUPES_{pg} + EUPEG_{pg} + EUPECC_{pg} + EUPECP_{pg} - FASRAS_{apr} + \sum_{a \text{ in } p} FASRAP_{apr}$$

- For the Principal Participant, its exposure is the sum of all agreements to which it is party to and, therefore, takes an aggregate of the Forecast Amount Available from all its Secondary Participants

$$RCC_{pr} = FCR_{py} + EA_{pr} + ETND_{pd} + EUPES_{pg} + EUPEG_{pg} + EUPECC_{pg} + EUPECP_{pg} - FASRAS_{apr} + \sum_{a \text{ in } p} FASRAP_{apr}$$

Settlement Reallocation

- The reason for the two calculations?
- **G.14.15.2** – this is the calculation that can apply where there is a single Settlement Reallocation Agreement that covers the entire Undefined Exposure Period
- This simply allocates all exposures calculated for the Secondary Participant as its Forecast Amount Available for Settlement Reallocation Agreements as below:

$$FAVRA_{apr} = FCR_{py} + EA_{pr} + ETND_{pd} + EUPES_{pg} + EUPEG_{pg} + EUPECC_{pg} + EUPECP_{pg}$$

- However, where an SRA terminates during the Undefined Exposure Period, this does not deliver the correct result
- Further, if the Secondary Participant is changing Principal Participants during the Undefined Exposure Period, this does not deliver the correct result
- This led to the more complex algebra found in paragraphs **G.14.15.4** through to **G.14.15.8**

Settlement Reallocation

- Because an SRA is a **financial transfer**, it is related to the Settlement Document and MO invoice dates
- As such, an SRA is valid for any Settlement Documents or Invoices that fall within the SRA start and end dates

	Date																																				
	10/06/2015	11/06/2015	12/06/2015	13/06/2015	14/06/2015	15/06/2015	16/06/2015	17/06/2015	18/06/2015	19/06/2015	20/06/2015	21/06/2015	22/06/2015	23/06/2015	24/06/2015	25/06/2015	26/06/2015	27/06/2015	28/06/2015	29/06/2015	30/06/2015	01/07/2015	02/07/2015	03/07/2015	04/07/2015	05/07/2015	06/07/2015	07/07/2015	08/07/2015	09/07/2015	10/07/2015	11/07/2015	12/07/2015	13/07/2015	14/07/2015		
Date	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14		
Month No	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Day	Wed	Thu	Fri	Sat	Sun	Mor	Tue	Wed	Thu	Fri	Sat	Sun	Mor	Tue	Wed	Thu	Fri	Sat	Sun	Mor	Tue	Wed	Thu	Fri	Sat	Sun	Mor	Tue	Wed	Thu	Fri	Sat	Sun	Mor	Tue		
Day No	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3		
Week No	24	24	24	24	25	25	25	25	25	25	25	26	26	26	26	26	26	26	27	27	27	27	27	27	27	27	28	28	28	28	28	28	28	28	29	29	29
Trading Payments & Charges			X							X							X							X													
Capacity Payments & Charges																												X									
IMB																																					
CAP				X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	ca						SRA												

- In this diagram, an SRA is in place between two participants up to Thursday, July 2nd
- The Principal Participant takes on all financial liability up to this point
- As the last bill issued within this timeframe is on Friday, June 26th, the principal participant's exposure actually concludes with respect to the settlement days up to Saturday, June 20th as this is the last settlement day to be billed before the SRA End Date

Settlement Reallocation

- To properly calculate the Forecast Amount Available for Settlement Reallocation Agreements for a Secondary Participant, it becomes necessary to consider break the SRA into smaller chunks as they relate to Settlement Documents
- **There are 11 steps to this calculation from a processing point of view:**
 - **Step 1** - Find all SRAs, for any Participant, which is a Secondary Participant to an SRA, which have an SRA Start Date and / or an SRA End Date that falls within Undefined Exposure Period
 - **Step 2** - For each SRA identified under **Step 1**, determine from the Settlement Calendar, what Bill Issue Dates **are associated with each agreement**
 - **Step 3** - Determine the number of days for **each valid SRA** that falls within the Undefined Exposure Period for which no Settlement Statements for Trading Payment & Charges have issued where the BID are associated with each agreement
 - **Step 4** - Repeat Step 3 but for Settlement Statements for Capacity Payments & Charges

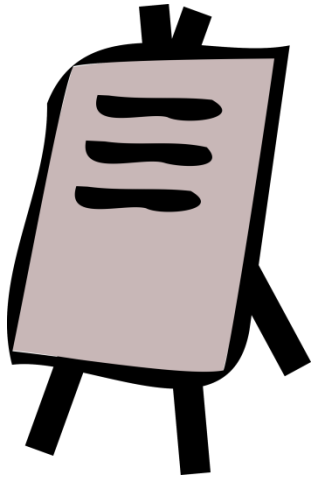
Settlement Reallocation

- **There are 11 steps to this calculation from a processing point of view:**
 - **Step 5** - Calculate Energy Credit for days “**Settled Not Invoiced**” for Imbalance Settlement (G.14.15.4). This step should aggregate all daily amounts from Settlement Statements relating to **Trading Payments and Charges** that fall into Settlement Documents due to issue in the Undefined Exposure Period
 - **Step 6** - Calculate Capacity Credit for days “**Settled Not Invoiced**” for Imbalance Settlement (G.14.15.5). This step should aggregate all daily amounts from Settlement Statements relating to **Capacity Payments and Charges** that fall into Settlement Documents due to issue in the Undefined Exposure Period
 - **Step 7** - Calculate Energy Credit for days covered by “**Time To Remedy**” for Imbalance Settlement (G.14.15.6). This step should calculate amounts to cover the number of unbilled days relating to this SRA that falls within the Undefined Exposure Period
 - **Step 8** - Calculate Capacity Credit for days covered by “**Time To Remedy**” for Imbalance Settlement (G.14.15.7). This step should calculate amounts to cover the number of unbilled days relating to this SRA that falls within the Undefined Exposure Period
- **Note:** both Step 7 and Step 8 result in a value for **each SRA** determined in Steps 3 and 4

Settlement Reallocation

- **There are 11 steps to this calculation from a processing point of view:**
 - **Step 9** - *Determine Forecast Available Amount for each SRA (FAVRA - G.14.15.8)*
- This will not necessarily be a single value for the Settlement Risk Period. For example, Energy Credit for days covered by “**Time To Remedy**” (EC_BILIMB) and Energy Credit for days covered by “**Time To Remedy**” (EC_UNBIMB) could refer to the same SRA or to different SRAs, in which cases this step will determine one value of FAVRA for EC_BILIMB and a separate one for EC_UNBIMB
 - *Step 10 - Determine aggregate allowance for Secondary Participant for all of its SRAs (G.14.15.9). As noted earlier, we have to break the SRAs into chunks earlier, this step re-aggregates for the Secondary Participant to determine the full allowance for the Risk Period*
 - **Step 11** - *Determine allowance for Principal Participant for each of its SRAs (G.14.15.10). This is just set to each individual FAVRA calculated in Step 9 above. The final calculation of Required Credit Cover includes an aggregation of each SRA for the Principal Participant*

Settlement Reallocation



EXAMPLE SRA / SRA CLOSE OUT

Please download the following spreadsheet for this exercise:

https://learnerresources.s3.amazonaws.com/60968/learner_resource_uploads/0e45c5e9c6f06f296d54f5c4f1/Example%20-%20SRA.xlsx?AWSAccessKeyId=AKIAISYQKO7XGWQY6LNQ&Expires=1665346042&Signature=qExLPhIKxdGYSmp7k6ixu%2Bg3XkM%3D

Settlement Reallocation

- Nearly there!

$$RCC_{pr} = FCR_{py} + EA_{pr} + ETND_{pd} + EUPES_{pg} + EUPEG_{pg} + EUPECC_{pg} + EUPECP_{pg} \\ - FASRAS_{apr} + \sum_{a \text{ in } p} FASRAP_{apr}$$

Topic 9: Required Credit Cover

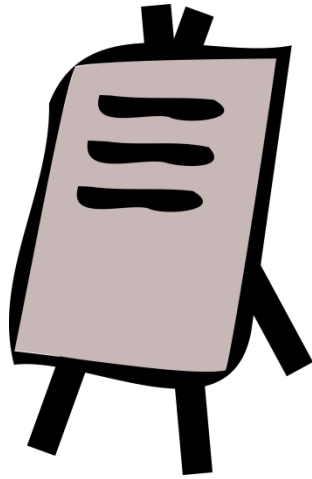
Required Credit Cover

- The calculation for Required Credit Cover is now an aggregation of all the relevant values that we have stepped through to this point

$$RCC_{pr} = FCR_{py} + EA_{pr} + ETND_{pd} + EUPES_{pg} + EUPEG_{pg} + EUPECC_{pg} + EUPECP_{pg} \\ - FASRAS_{apr} + \sum_{a \text{ in } p} FASRAP_{apr}$$

- Where values are not relevant, these fall away as zero values
- For example, as a Principal Participant SRA cannot be a Secondary Participant to an SRA, for each Principal Participant, the value of *FASRAS* will be zero

Required Credit Cover



EXERCISE 8

REQUIRED CREDIT COVER

Please download the following spreadsheet for this exercise:

https://learnerresources.s3.amazonaws.com/60968/learner_resource_uploads/d4d25bdcf6359ec6d15ad977db/Exercise%2008%20-%20Required%20Credit%20Cover.xlsx?AWSAccessKeyId=AKIAISYQKO7XGWQY6LNQ&Expires=1666139386&Signature=qPxne1wsmj94EnCfozzcWMMo3Gk%3D

Required Credit Cover

- In the spreadsheet:
 - Fill in each of the relevant values determined from earlier exercises
 - Enter a value of Posted Credit Cover to represent what you think you would have posted with the MO
 - See if you're getting a Credit Cover Increase Notice

$$RCC_{pr} = FCR_{py} + EA_{pr} + ETND_{pd} + EUPES_{pg} + EUPEG_{pg} + EUPECC_{pg} + EUPECP_{pg} - FASRAS_{apr} + \sum_{a \text{ in } p} FASRAP_{apr}$$

Topic 10: Daily credit checking processes

Daily credit checking processes

- SEMO will carry out credit checks three times each working day
- These start at 09:00, 12:00 and 15:30
- This reflects the greater amount of opportunities for Participant activity
 - **09:00**: updated to account for previous day's SEMO settlement, overnight continuous intraday trading and results of IDA auctions
 - **12:00**: updated to account for results of day-ahead market
 - **15:30**: updated to account for further intraday trading and any funds transfers that have taken place
- Each credit check follows the same process; however, input data may be updated in relation to trading and settlement activity

Daily credit checking processes

- The table below identifies which elements of the Required Credit Cover may be updated with each Credit Assessment run
- What can be seen here is that the Traded Not Delivered element, reflecting a Participant's ex-ante sales and / or purchases, is the main element that gets updated with subsequent Credit Assessment runs

	Billed Not Paid	Settled Not Billed	Traded Not Delivered	Undefined Exposure	Credit Assessment Price
CA – 1	Calculated	Calculated	Re-calculated	Calculated	Calculated
CA – 2	As CA – 1	As CA – 1	Re-calculated	As CA – 1	As CA – 1
CA - 3	Updated post payment	As CA – 1	Re-calculated	As CA – 1	As CA – 1

Daily credit checking processes

- After each Credit Assessment run, SEMO will issue a Required Credit Cover Report to each Participant
- This report contains:
 - *Required Credit Cover (the results of the credit assessment run);*
 - *Posted Credit Cover (collateral held by SEMO for the Participant);*
 - *Available Credit Cover (the delta between these two);*
 - *Credit Cover Increase Notice identifier (which means a CCIN is now in effect);*
 - *Warning Notice identifier (which means the Warning level has been exceeded);*
 - *Credit Assessment Price (the price used in determining the undefined exposure);*
 - *Fixed Credit Requirement for each unit;*
 - *value of Settlement Documents not paid for the Participant;*
 - *value in respect of which Settlement Documents have not been issued for the Participant;*
 - *the value of Traded Not Delivered Exposure for the Participant; and*
 - *value of Undefined Potential Exposure for the Participant.*

Daily credit checking processes

- If the ratio of a Participant's Required Credit Cover to its Posted Credit Cover exceeds the Warning Limit but not the Breach Limit, then a Warning Notice is deemed to be in effect
- A Participant is not obliged to respond to a Warning Notice
- This is an advisory warning that their margin of Available Credit Cover is getting potentially short and they may wish to address this
- The Warning Limit is set at 80% for go-live
- This value is included in the Credit Cover parameters consultation that will take place each year

Daily credit checking processes

- If the ratio of a Participant's Required Credit Cover to its Posted Credit Cover exceeds the Breach Limit, then a Credit Cover Increase Notice is deemed to be in effect
- A Participant is obliged to respond to a Credit Cover Increase Notice within two working days
- This is a notice that there is insufficient Posted Credit Cover to cover their Required Credit Cover as calculated
- At any stage within the 2 Working Days a Participant can:
 - Submit increased collateral
 - Pay Bill(s) (before due date if necessary)
 - Use ex-ante markets to offset volumes

Daily credit checking processes

- Due to changes in the approach for Settlement Reallocation Agreements, these can no longer be used to address a Credit Cover Increase Notice
- This is due to the registration lead time on SRAs in the new arrangements
- If a Participant does not address their Credit Cover Increase Notice, then the Market Operator will begin suspension proceeds to remove the Participant from the market
- Note that the suspension process for non-compliance with Credit Cover requirements does not require written approval of the RAs and is an obligation on the Market Operator

Daily credit checking processes - Summary



Credit Cover
Report published
containing CCIN value

1st Working Day

2nd Working Day

Three credit assessments
daily

17:00

17:00

17:00

- There are three credit assessments run daily
- Where there is insufficient credit cover, a **Credit Cover Increase Notice** applies
- A participant must remedy this **within 2 working days**
- At any stage within the 2 Working Days a Participant can:
 - Submit increased collateral
 - Pay Bill(s) (before due date if necessary)
 - Use ex-ante markets to offset volumes

If a CCIN is not remedied by 17:00 2WD, the Participant is in Default & will be Suspended from the Market

Topic 11: Forms of Collateral



Forms of Credit Cover

- A Participant can meet its Required Credit Cover under the TSC by posting collateral in the form of either:

Cash in euro or Pounds Sterling



Letter of Credit from banks



Forms of Credit Cover

Cash collateral

- A Participant establishes a **SEM Collateral Reserve Account** with the **SEM Bank** in each Currency Zone in which the Participant has a registered Unit as applicable
- This account will be held in the sole name of the Market Operator and on trust for the Participant by SEMO:
 - A Participant can deposit but not withdrawal
 - SEMO can withdraw for defaults or refund to the Participant on request
- Participant can apply for a refund / withdrawal from the account
- SEMO will check the Posted Credit Cover against Required Credit Cover under the Code and if a refund / withdrawal will result in the Posted Credit Cover being insufficient, the application will be rejected

Forms of Credit Cover

Cash collateral

- Agreement between SEMO, SEM Bank and Participant is that SEMO can only draw down from Collateral Reserve Account in the event of a payment default by the Participant
- SEMO's preference is to have some cash for each Participant, avoids drawing on LC as more liquid (just a transfer internally from Cash Collateral to market accounts)
- Participants receive interest on the SEM Collateral Reserve Accounts
- Interest payment to Participants follows the same process as set out for refund / withdrawal request

Forms of Credit Cover

Cash collateral

- Participants can also transfer monies from their SEM Collateral Reserve Account to make a payment due under a Settlement Document
- This can be done as long as this does not result in Posted Credit Cover being less than Required Credit Cover
- Can be an ad-hoc request – submitted by email to Market Helpdesk by 15:00 one WD after the billing date covering one Settlement Document
- MO will advise if approved by 12:00 one WD before payment due date
- Standing request can also be submitted in writing or by fax
- While in place, same conditions relating to Posted Credit Cover / Required Credit Cover apply and a **transfer may not always take place**

Forms of Credit Cover

Cash collateral

- While in the current SEM transfers are kept to small amounts, this restriction will not apply in the I-SEM arrangements
- This is due to the separate of cash flows for Participants between SEMO and their SEM NEMO
- Financial obligations that would be automatically netted in the current SEM are no longer netted due to the different settlement entities
- Removing the limit of transfers from the SEM Collateral Reserve Account will allow participants to avail of netting by lodging earnings from ex-ante revenues to their SEM Collateral Reserve Accounts

Forms of Credit Cover

Letter of Credit

- An **unconditional** and **irrevocable** standby letter of credit issued for the account of the Participant in favour of SEMO
- Provide for payment to SEMO on demand (same day payment)
- Issued by a bank that meets the criteria stated in the code
- Wording very important – needs to be exact. Template in Code – Appendix A
- Cannot be cancelled or amended without SEMO's agreement
- If an LOC is amended without SEMO's agreement, this may lead to an instance where Posted Credit Cover is insufficient and lead to a **Credit Cover Increase Notice (CCIN)**
- **Failure to respond to a CCIN leads to automatic suspension from the SEM**

Forms of Credit Cover

Eligible Credit Cover Providers

- A list of banks that are eligible to issue LOCs to a Participant is published on the SEMO website
- SEMO will maintain the list of letter of credit providers based on the trading and settlement code
- The financial status of LC Providers will be reviewed by the SEMO as required
- Eligibility criteria for a Credit Cover Provider are set out in G.9.1.3 of the TSC
 - *Hold a Banking Licence in Ireland or be authorised by Financial Conduct Authority*
 - *Be a clearing bank in Ireland or UK with set debt ratings or Balance Sheet value*
 - *Be a subsidiary of a Bank with set debt ratings or Balance Sheet value*
 - *Be an international bank approved by relevant regulatory authority*

Topic 12: Course Summary

Review of Learning Objectives

As a result of this training module, you should now:

Understand what credit cover is and why we need it;



Understand the normal daily processes that will be followed for I-SEM;



Understand obligations on Participants and the Market Operator;



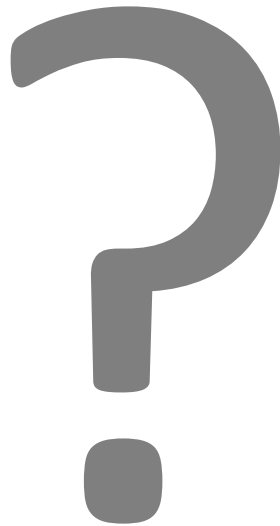
Understand Settlement Reallocation Agreements and how they impact on Required Credit Cover;



Understand how Required Credit Cover is calculated for a New or Adjusted Participant, Standard Participant's Supplier Units and Standard Participant's Generator Units



Questions



Part 2: SEMO (CM & IMB) Fund Transfer



SEMO (CM & IMB) Fund Transfer Agenda

Training Topic

Learning Objectives

Topic 1: Settlement Document

Topic 2: Settlement Reallocation

Topic 3: Settlement Timetable

Topic 4: Payments

Topic 5: VAT

Topic 6: Default

Topic 7: Course Summary

Learning Objectives

- By the end of this training session you should understand:
 - the timings and processes involved
 - the settlement reallocation capability
 - the implications of single SEMO settlement e.g. M+4/M+13 Inclusion
 - VAT treatment and the settlement document content

Chapter 1: Settlement Document

Settlement Document

- Invoices and self-billing invoices are no longer a part of I-SEM for **Trading Payments & Charges** and **Capacity Market Settlement**
- A single **Settlement Document** is now used
- This can include both payables and receivables unlike the current SEM
- This also means when energy and capacity settlement align, they are included on the same Settlement Document
- This will also include M+4 and M+13 resettlement
- This means there is a single clearing account for payment in the I-SEM
- **Market Operator charges** invoices remain separate due to legal restrictions on commingling of funds
- This will see a participant with both payables and receivables in today's arrangements go from dealing with **12** invoices / self billing invoices to **one** Settlement Document

Chapter 2: Settlement Reallocation

Settlement Reallocation

- Process whereby one participant assigns financial responsibility to another
- Approach for I-SEM is transfer of full financial liability / obligations between two participants
- **Principal Participant** takes on all financial liabilities of a **Secondary Participant**
- One Principal Participant can have many Secondary Participants
- Each Secondary Participant can only have one Principal Participant
- Further, a Principal Participant cannot be a Secondary Participant to another agreement
- SRAs to apply on any billing runs from the date of agreement
- Agreements can be open-ended
- Settlement will be in the currency of the Principal Participant; Trading Day Exchange Rate as on date of action is used (action either Credit Assessment or billing calculation)

Settlement Reallocation

- Entering and termination an SRA is a more timely process than previously
- Formal legal agreement between the Principal Participant, the Secondary Participant and the Market Operator
- Form must be submitted in writing to the MO, signed and witnessed by both Participants
- It must be submitted **60 days** before the effective date of the Agreement
- Agreements cannot be terminated ad-hoc
- **20 Working Days** notice must be provided when terminating an agreement
- Lead-in and lead-out time of the agreement will avoid any sudden step change increase in a Participant's Required Credit Cover (for the Principal Participant on commencement and the Secondary Participant on termination)

Settlement Reallocation

- Calculation for SRA for the Settlement Document is much simpler than how it is applied in the Required Credit Cover calculations
- It is a simple matter of determining the Settlement Document amount at the time of billing and setting this as the SRA amount for the Secondary Participant
- First step is to calculate total liability for energy payments and charges (including settlement of difference payments and charges):

$$SLE_{pb} = \sum_{u \text{ in } p} \sum_{d \text{ in } b} CDAY_{ud} + \sum_{\Omega \text{ in } p} \sum_{d \text{ in } b} CDAY_{\Omega d} + \sum_{v \text{ in } p} \sum_{d \text{ in } b} CDAY_{vd} + \sum_{u \text{ in } p} CFC_{ub}$$

- Then, calculation total liability for capacity payments and charges:

$$SLCC_{pc} = \sum_{\Omega \text{ in } p} CCP_{\Omega c} + \sum_{v \text{ in } p} CCC_{vc} + \sum_{v \text{ in } p} CSOCDIFFP_{vc}$$

- These are calculated without Settlement Reallocation Agreements

Contd. over

Settlement Reallocation

- The SRA amount for any Secondary Participant is the sum of their liabilities calculated above:

$$SRAS_{apbc} = SLE_{pb} + SLCC_{pc}$$

- For the Principal Participant, each SRA amount is set to the corresponding SRA of all its Secondary Participants:

$$SRAP_{apbc} = SRAS_{apbc}$$

- This gives the following formula for its application on a Settlement Document:

$$SDA_{pbc} = SLE_{pb} + SLCC_{pc} - SRAS_{apbc} + \sum_{a \text{ in } p} SRAP_{apbc}$$

- $\sum_{a \text{ in } p} SRAP_{apbc}$ is empty for the Secondary Participant
- $SRAS_{pbc}$ is empty for the Primary Participant
- So, for the Secondary Participant SDA_{pbc} becomes zero as $SRAS_{pbc} = (SLE_{pb} + SLCC_{pc})$

Settlement Reallocation

- And for the Principal Participant, ***SDA_{pbc}*** becomes the total of its own liabilities along with the liabilities of all other participants with which it has an SRA

$$SDA_{pbc} = SLE_{pb} + SLCC_{pc} - SRAS_{apbc} + \sum_{a \text{ in } p} SRAP_{apbc}$$

- Only on the monthly billing cycle will the ***SLE_{pb}*** and ***SLCC_{pc}*** both be populated
- For all other billing weeks of the year, the ***SLCC_{pc}*** variable will be empty as there is no weekly Capacity billing
- In the event that there is an upheld query on Capacity settlement that requires an ad-hoc resettlement, the same holds true with regard to ***SLE_{pb}***

Chapter 3: Settlement Timetable

Settlement Timetable

- Three types of settlement under the TSC:
 - **Trading Payments & Charges** – covers settlement of balancing actions, imbalance settlement, difference payments and charges, and application of tariffs
 - **Capacity Market Settlement** - covers Capacity Payments & Charges
 - **Market Operator Charges** – covers variable and fixed market operator fees
- And there are three categories of settlement:
 - **Indicative** – to be compiled one Working Day after the Settlement Day. There is **no** Billing job for Indicative settlement
 - **Initial** – to be compiled five Working Days after the Settlement Day. This includes a Billing job
 - **ReRun** – to be completed in the fourth and thirteenth month. Ad-hoc can also be required following resolution of a formal query or dispute. This also includes a Billing job

Settlement Timetable

- Settlement timelines remain largely unchanged
- Trading Payments & Charges are settled **weekly**
- Capacity Payments & Charges are settled **monthly**
- M+4 and M+13 resettlement will continue to apply
- Settlement Documents will issue on **Friday** (Billing Period + 5 Working Days)
- There is **no** separate Capacity Market Settlement Document
- Instead, when initial Capacity Market Settlement has been completed it will be included on the next timetabled Settlement Document
- Payment timelines as per current arrangements

Settlement Timetable

	Weekly Billing Period (1)							Weekly Billing Period (2)						
Calendar Day	Sun 5 Nov	Mon 6 Nov	Tues 7 Nov	Wed 8 Nov	Thurs 9 Nov	Fri 10 Nov	Sat 11Nov	Sun 12Nov	Mon 13 Nov	Tues 14 Nov	Wed 15 Nov	Thurs 16 Nov	Fri 17 Nov	Sat 18 Nov
Settlement Day	SUN BP 1	MON BP 1	TUES BP 1	WED BP 1	THUR BP 1	FRI BP 1	SAT BP 1	SUN BP 2	MON BP 2	TUES BP 2	WED BP 2	THUR BP 2	FRI BP 2	SAT BP 2
Indicative Settlement Published TD+1WD		SUN BP 1	MON BP 1	TUES BP 1	WED BP 1	THUR BP 1			FRI BP 1 SAT BP 1 SUN BP 2	MON BP 2	TUES BP 2	WED BP 2	THUR BP 2	

- Indicative Settlement is published by 17:00 One Working Day after the Settlement Day
- Indicative Settlement for **Sun 5th Nov** is Published on **Mon 6th Nov**

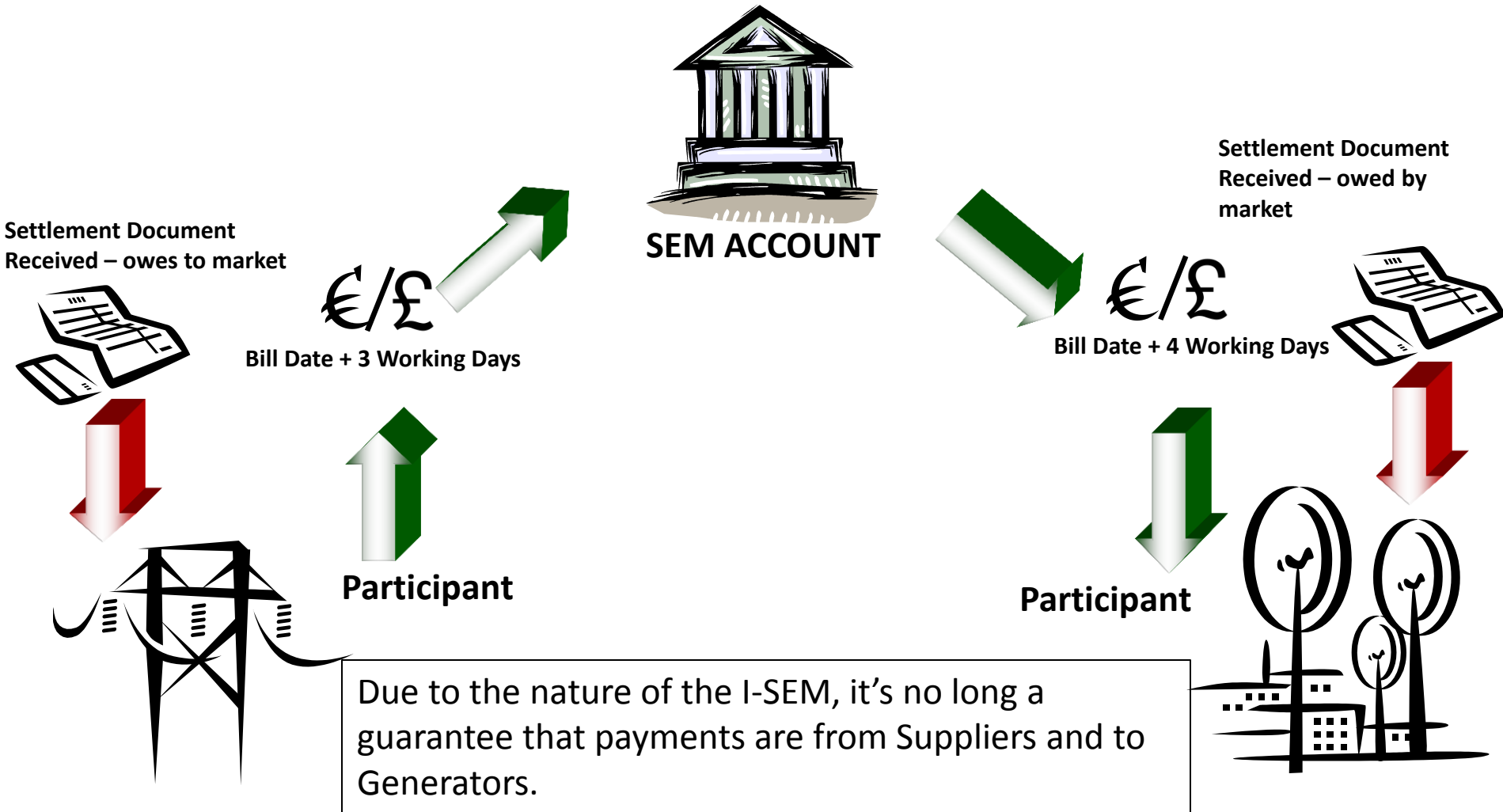
Settlement Timetable

	Weekly Billing Period (1)							Weekly Billing Period (2)						
Calendar Day	Sun 5 Nov	Mon 6 Nov	Tues 7 Nov	Wed 8 Nov	Thurs 9 Nov	Fri 10 Nov	Sat 11Nov	Sun 12Nov	Mon 13 Nov	Tues 14 Nov	Wed 15 Nov	Thurs 16 Nov	Fri 17 Nov	Sat 18 Nov
Settlement Day	SUN BP 1	MON BP 1	TUES BP 1	WED BP 1	THUR BP 1	FRI BP 1	SAT BP 1	SUN BP 2	MON BP 2	TUES BP 2	WED BP 2	THUR BP 2	FRI BP 2	SAT BP 2
Initial Settlement Published TD+5WD						SUN BP 1			MON BP 1	TUES BP 1	WED BP 1	THUR BP 1	FRI BP 1 SAT BP 1 SUN BP 2	

- Initial Settlement is published by 12:00 five Working Days after the Settlement Day
- Initial Settlement for **Sun 5th Nov** is Published on **Fri 10th Nov**
- All Initial Settlement Statements are aggregated for initial billing five Working Days after the end of the Billing Period
- **Sun 5th Nov** is the first day of the Billing Period which ends on **Sat Nov 11th**
- This is all billed five Working Days later on Friday **Nov 17th**

Chapter 4: Payments

Payments



Payments

- **SEM Accounts** will be used to receive in and pay out all amounts in relation to Trading Payments and Charges, and Capacity Market Settlement
- These accounts will be in the name of the Market Operator and **held on trust** (G.1.6 of the TSC)
- With a single Settlement Document covering both Trading Payments and Charges and Capacity Market Settlement, there is no longer a separate bank account for Capacity from Energy as in the current SEM
- The **Market Operator Charge Accounts** will be used to receive all payments due for Fixed and Variable Market Operator Charges
- These accounts are not held in trust as they are set up to receive payments to which the Market Operator is entitled under the TSC

Payments

- SEMO will use the **Business eBanking Platform** provided by the SEM Bank
- This provides for:
 - same day and standard payments in the Republic of Ireland and Northern Ireland;
 - downloading of statements; and
 - monitoring of both the SEM Collateral Reserve Account balances and the posted LOCs.
- Payments are made by way of electronic funds transfer **only**
- Standard payment methods:
 - **BACS** (UK): normally a 3 day cycle, standard payment; and
 - **EFT** (Ireland): normally a 2 day cycle, standard payment.
- Same day payment methods:
 - **CHAPS** (UK): 1 day cycle, same day payment; and
 - **Same day payments** (Ireland): 1 day cycle, same day payment.

Payments

- Settlement Documents are issued on Billing Period +5 Working Days 12:00, Friday
- Payment is then due to the SEM Account on +3 Working Days 12:00, the following Wednesday
- To meet **12:00 Wednesday** deadline:
 - Using **BACS** – submit **Friday**, this is presented 3WD later, Wednesday morning;
 - Using **EFT** – submit **Monday**, this is presented 2 WD later, Wednesday morning;
 - Using **Same day** – submit **Tuesday**, this is presented on the same day, Tuesday evening.;
- If submitted Wednesday, the payment will not be presented until after 12:00 resulting in a Default

Chapter 5: VAT

VAT

- SEMO does not take title to the monies relating Trading and Capacity Market settlement
- Transactions are between all sellers and all buyers
- On this basis (and as agreed with Revenue Authorities), SEMO determine the “**VAT proportion**” for trading and capacity charges/payments that relate to **local**, rest of **EU** and **non-EU**
- Eg. for a Seller, this is based on the place of establishment of the buyers and the amounts bought relative to the place of establishment of the seller
- The VAT proportions are used to determine a split of the total payment amounts to the seller across each of the categories (local, rest of EU and non-EU)
- These values are shown on the settlement document
- Based on the **Reverse Charge** arrangements, the seller in this case records these VAT amounts in their VAT returns for the Revenue Authorities
- There is **no VAT charged or receivable** on the Settlement Documents due to the Reverse Charge arrangements

VAT

- For example:
 - Seller with place of establishment of ROI
 - Sells €100 in balancing market
 - The buyers have the following place of establishment and amounts purchased
 - ROI = **€40** UK = **€30** France = **€20** and USA= **€10**
 - The VAT proportions relative to the seller are **4:5:1** for local, rest of EU, non-EU respectively
 - **Note:** UK and France are classified as rest of EU with respect to ROI
 - The VAT proportion amounts reported on the Settlement Document will be €40 for local; €50 rest of EU; €10 and non-EU
 - VAT proportions will be provided in the Settlement Report
 - VAT proportion amounts will be shown in the Settlement Document
- Details of how these will be provided will be in the Technical Specifications for the Balancing Market

VAT

- Frequently Asked Questions are listed on the I-SEM section of the SEMO website
- This can be found [here](#)
- Answers to the following questions are provided:

Q16. What are the VAT amounts based on, in the Balancing Market / Capacity Market?

- *These VAT amounts are based on the proportion of energy charges and payments in the Balancing Market / Capacity Market relative to the place of establishment for VAT purposes of the buyer or seller.*

Q17. What VAT information is required as part of the Balancing Market / Capacity Market registration?

- *Parties in the I-SEM are required to provide their place of establishment for VAT purposes as part of the registration of the Party and its Participants*

Q18. What is a ‘place of establishment’ for VAT purposes?

- *An establishment for VAT purposes exists in the country where the functions of the business’s central administration are carried out;*

Q19. Does a Party need to provide a VAT registration number as part of registration for the Balancing Market / Capacity Market?

- *A Party should provide its VAT registration number for the jurisdiction in which it is established for VAT purposes in relation to the supply/purchase of energy*

Chapter 6: Default

Default

- There are two types of Default in the I-SEM:
 - Failure to Pay a **Settlement Document**
 - Failure to respond to a **Credit Cover Increase Notice**
- When these events happen, SEMO will issue a **Default Notice**
- The Default Notice will specify:
 - The nature of the Default
 - If the Default is capable of remedy
 - The time from the date of the Default Notice within which the Defaulting Party is required to remedy the Default
 - Any other action which the Market Operator may reasonable require the defaulting Party to take respect of the Default

Default

Single Electricity Market Operator

PO: The Oval, St. Stephen's Road,
Dublin 4
Tel: 01 858 775 111
Fax: +353 1 6410278
VAT No: IE 24579171

NI: Carrickmacross House,
12 Bishop's Road, Belfast, BT4 3BT
Tel: +44 2826 877 2111
Fax: +44 2826 787 588
VAT No: 344 422 840

0900 8485 -0.0000



Default Notice

Default Notice Reference Number: XXXXX
Participant Name: XXXXX
Party ID: XXXXX
Participant Address: XXXXX

We hereby issue the above named Participant a Default Notice.

This Default Notice has been issued in accordance with paragraph 2.240 of the Single Electricity Market Trading and Settlement Code.

The nature of the default is as follows:

In accordance with paragraphs 6.50.4 of the Single Electricity Market Trading and Settlement Code and Agreed Procedure 15 the above named Participant failed to pay Invoice Reference XXXXX relating to MARKET BILLING PERIOD by the due date and time.

Whether the default is capable of remedy is indicated in the boxes below:

The default is not capable of remedy:
The default is capable of remedy:

Please note, a late payment of GBP/EUR XXXX was received by the Market Operator at XX-XX on DD/MM/YYYY.

The default has therefore been remedied and no further action is required by the Defaulting Party.

Please note that this is the XXth Default notice to be issued to PY XXXXX within 20 working days.

Also note section 2.246 (12) of the Trading and Settlement Code in relation to Suspension Orders:

2.246 The Market Operator may, with the prior written approval of the Regulatory Authorities, issue a Suspension Order in respect of all or any of a Party's Units where:

SEMO is a joint venture between EirGrid plc and SONI Limited
EirGrid plc Registered in Ireland No: 28822, V.A.T. No. IE 6282224. Registered Office: The Oval, St. Stephen's Road,
Dublin 4.
SONI Limited Registered in Northern Ireland No: 9 027 15, V.A.T. No: 505 422048. Registered Office: 122 Hillsborough Road, Belfast BT8 5BT.

12. a Party has committed 3 Defaults within a period of 20 Working Days; or
13. a Party has committed a Default and has failed for a period of 20 consecutive days, or such longer period as may be set out in the relevant Default Notice, to comply with the terms of such Default Notice.

- Default Notice Reference Number
- Participant Name
- Party ID
- Participant Address

- Invoice number
- Market billing week

- Amounts of Defaults within 20 working days

Default

- On failure to pay a Settlement Document, the MO will draw down on Posted Credit Cover
- If there is still sufficient Posted Credit Cover after the drawdown, there should be no further action following the Default Notice
- However, if there is insufficient Posted Credit Cover after the drawdown, a Credit Cover Increase Notice will also issue
- Failure to respond to this within two Working Days will lead to a further Default Notice;
- This will also have a Suspension Notice with it
- Barring response from the Participant to resolve the Default, SEMO begin the process to suspend and remove the Participant from the SEM

Chapter 7: Course Summary

Review of Learning Objectives

As a result of this training module, you should now:

Understand the timings and processes involved



Understand the settlement reallocation capability



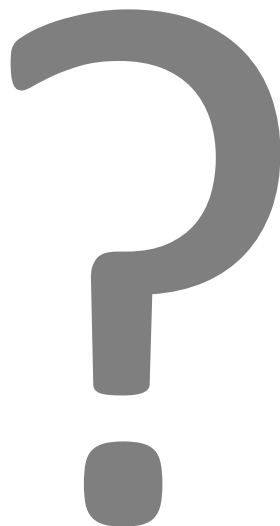
Understand the implications of single SEMO settlement e.g. M+4/M+13
Inclusion



Understand VAT treatment and the settlement document content



Questions



Thank You!

Thank you for your time and engagement during this session.

Please take the time to share your feedback with us by completing the short feedback survey before you leave.