SEM committee

ETA Workshop 1.1
Agenda

10:30	Welcome and Introduction
11:00	Overview of ETA Detailed Design Process
	• Outline of key issues to be covered
11:30	Update on Euphemia Testing
12:30	Lunch
13:15	Treatment of Transmission Losses
14:15	Treatment of Firm Access
15:15	Concluding remarks
15:30	Close

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Overview of ETA Detailed Design Phase

ETA Detailed Design Phase

- The ETA Detailed Design Phase will consist of the publication of four consultations:
  - Aggregator of Last Resort Framework – 1 December 2014
  - Building Blocks – 2 February 2015
  - Markets – 1 April 2015
  - “Aggregator of Last Resort Operation – 1 April 2015
- To help develop the “Building Blocks” and “Markets” Consultations, there will be a number of Rules Liaision Groups (RLGs).

Rules Liaison Groups

- There will be three RLGs on Building Blocks:
  - 15 October – CER, Dublin
  - 29 October – Utility Regulator, Belfast
  - 13 November – CER, Dublin
- There will also be three RLGs on Markets:
  - 21 January 2015 – Utility Regulator, Belfast
  - 4 February 2015 – CER, Dublin
  - 18 February 2015 – Utility Regulator, Belfast

Rules Liaison Groups

- The RLG will be an advisory and information sharing body.
- It will be made up of nominated members from participant groups, including interconnector owners and interested parties
- The RLGs are being held to maximise stakeholder engagement and to solicit detailed input and discussions from market participants
- Where relevant, the RAs are open to proposals for alternative options to those described in the discussion papers.
- Participation is limited to one member per organisation; depending on the topics, organisations have the option to send different personnel to different RLGs in order to maximise stakeholder engagement.

Rules Liaison Groups

- A discussion paper and an agenda will be issued before each RLG. The discussion papers will provide a description of the issue, describe how the policy is currently applied and present a number of questions for the detailed design.
- The RAs ask for written comments after the final “Building Blocks” workshop (13 November) to feed into the consultation paper.
- Similarly, comments are sought after the final “Markets” workshop on 18 February.

Building Blocks

- Focussed on Policy Issues
- RLG 1.1: 15 October (Dublin)

  Topics to be covered: Transmission Losses, Firm Access
- RLG 1.2: 29 October (Belfast)

  Topics to be covered: Constraints, Curtailment, Priority Dispatch, De-minimis Level
- RLG 1.3: 13 November (Dublin)

  Topics to be covered: Currency, Participant Registration, Clearing and Settlement, Credit Risk Requirements, VAT, Billing and Funds Transfer, Shipping (Financial), Market Information

Markets

- Focussed on Detailed Design of Day-Ahead, Intraday and Balancing Markets
- RLG 2.1: 21 January (Belfast)

  Topics to be covered: Day Ahead Market and EUPHEMIA, Units under Test, Fallback Procedures, Intraday Market, Participant Registration Process
- RLG 2.2: 4 February (Dublin)

  Topics to be covered: Shipping (Physical), Reaching a Feasible Dispatch, Balancing Market
- RLG 2.3: 18 February (Belfast)

  Topics to be covered: Imbalance Settlement, Metering, Global Aggregation, Instruction Profiling, Tagging and Flagging, Classes of Non-Energy Actions, Local Market Power Considerations, Reserves

Timetable

15 October 2014	"Building Blocks" Workshop 1.1 (Dublin)
29 October 2014	"Building Blocks" Workshop 1.2 (Belfast)
13 November 2014	"Building Blocks" Workshop 1.3 (Dublin)
5 December 2014	"Aggregator of Last Resort Framework" Consultation Paper
21 January 2015	"Markets" Workshop 2.1 (Belfast)
6 February 2015	"Building Blocks" Consultation Paper
4 February 2015	"Markets" Workshop 2.2 (Dublin)
18 February 2015	"Markets" Workshop 2.3 (Belfast)
3 April 2015	"Markets" Consultation Paper
3 April 2015	"Aggregator of Last Resort Operation" Consultation Paper
4 June 2015	"Building Blocks" Decision Paper
7 August 2015	"Markets" Decision Paper
7 August 2015	"Aggregator of Last Resort" Decision Paper

Summary of Key Issues

Workshop 1.1
Transmission Losses
Firm Access
Workshop 1.2
Constraints
Curtailment
Priority Dispatch
De-minimis Levels
Workshop 1.3
Currency
Participant Registration
Clearing and Settlement
Credit Risk Requirements
VAT
Billing and Funds Transfer
Shipping (Financial)
Market Information

Workshop 2.1
Day Ahead Market and EUPEMIA
Units under Test
Fallback Procedures
Intraday Market
Participant Nomination Process
Workshop 2.2
Shipping (Physical)
Reaching a Feasible Dispatch
Balancing Market
Workshop 2.3
Imbalance Settlement
Metering
Glabal Aggregation
Instruction Profiling
Tagging and Flagging
Classes of non-energy actions
Local Market Power considerations
Reserves

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Treatment of Transmission System Losses

Current Policy Implementation

- Transmission Loss Adjustment Factors (TLAFs):
  - Calculated on a locational basis
  - Set ex-ante each year
  - Applied to the outputs of each generator
- Generators and Interconnector Users account for their TLAFs in their offer prices through adjustments to their COD
  - And receive payment based on their Loss-Adjusted MSQ
  - The Supplier TLAF is set to 1
- Differences between the TLAFs and actual transmission losses are recovered from all suppliers through global aggregation

Global Aggregation

- Loss-Adjusted Net Demand per jurisdiction is equal to the Metered Generation (jurisdiction) less the Metered Demand (jurisdiction) plus the Net Import (jurisdiction), adjusted for the jurisdiction's share of the losses
- Profiling inaccuracies, theft, TLAF estimation inaccuracies
- Loss-Adjusted Net Demand by Jurisdiction as per T&SC:

$$NDLFeh = \sum_{u\,in\,e}(MGuh) - \sum_{v\,in\,e}(MDvh) + NIJIeh$$

$$-\left(\sum_{u}(MGuh) - \sum_{u}(MGLFuh) + \sum_{v}(MDLFvh) - \sum_{v}(MDvh)\right) \times \left(\frac{\sum_{u\,in\,e}(MGuh) + NIJIeh}{\sum_{e}\sum_{u\,in\,e}MGuh}\right)$$

Global Aggregation (2)

- The cost of the NDLF (Loss-Adjusted Net Demand) is smeared across profiled demand (those with non-interval meters)

- This is a policy decision in both jurisdictions – T&SC allows for the RMVIP (Residual Meter Volume Interval Proportion) to be parameterised

- The RMVIP should continue be parameterised in I-SEM

Questions for Detailed Design

- Can the current policy on transmission system losses be carried forward into I-SEM?

- One possible approach:
  - Traded volumes in the DAM and IDM are at the Trading Boundary and thus net of Transmission Losses. TLAFs have to be accounted for in offer prices
  - Physical nominations of generators are at the station gate
  - Metered generation of generators are adjusted by their TLAF in imbalance settlement

Worked Example

Unit Capacity is 450MW at the station gate.

Unit TLAF is 0.98.

Unit's price at the station gate is 50 €/MWh.

The Day Ahead Market (One hour Trading Period)

The unit:

- submits an offer of 441MWh to the Day Ahead Market (DAM) at 51.0204 €/MWh;
- is scheduled at 392MW in the DAM for hour X (comprising half hours X1 and X2);
- nominates a position of 400MW (at the station gate) to the TSO for hour X.

The Balancing Market (Half hour Trading Period)

The unit:

- submits an offer of 49MW to the BM with an offer price of 51.0204 €/MWh for half hours X1 and X2;
- is dispatched up by 20MW in the BM (at the trading point) in half hour X1;
- is dispatched up by 20.4082MW (at the station gate) by the TSO for half hour X1.
- is dispatched up by a further 10MW in the BM in half hour X2;
- is dispatched up by 10.2041MW (at the station gate) by the TSO for half hour X2.

Worked Example (2)

Settlement

Assume that the unit sets the marginal clearing price in all markets.

In hour X the unit therefore receives:

- (392MW * 51.0204 €/MWh * 1 hour) + (20MW * 51.0204 €/MWh * 0.5 hour) + (30MW * 51.0204 €/MWh * 0.5 hour);
- €19999.996 + €510.204 + €765.306;
- €21275.51

The unit's costs at the station gate are:

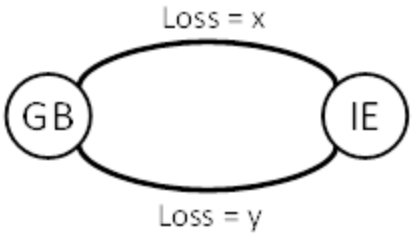
- (400MW * 50 €/MWh * 1 hour) + (20.4082MW * 50 €/MWh * 0.5 hour) + (30.6123MW * 50 €/MWh * 0.5 hour);
- €20000 + €510.205 + €765.3075;
- €21275.51

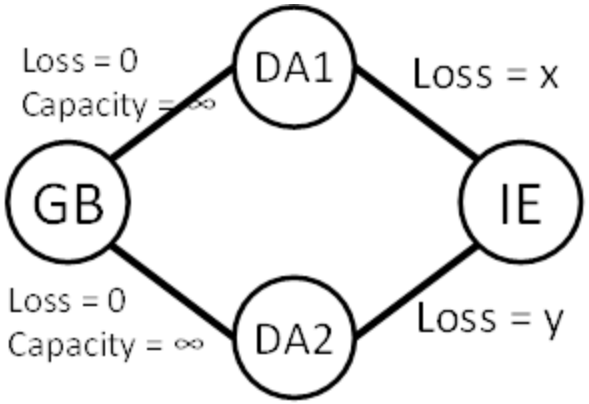
Questions for Detailed Design

- Treatment of Losses on the Interconnectors
- Configuration of Loss Factors on DC lines in EUPHEMIA will need to be decided
- Two potential methods
  - one line between I-SEM and GB with a loss factor equal to the weighted average of the loss factors on Moyle and EWIC
  - represent the Moyle and EWIC lines separately with each having its own individual loss factor

Two Lines between Bidding Areas - EUPHEMIA

- Two dummy areas (DA1 and DA2) created between I-SEM and GB
- Lines between GB and the dummy areas (GB-DA1 and GB-DA2) have infinite capacity
- Lines between the dummy areas and I-SEM (DA1-ISEM and DA2-ISEM) model the actual loss factors (and interconnector ramp rates)
- When interpreting the flows, DA1-ISEM is considered to be the Moyle result and DA2-ISEM is considered to be the EWIC result
- The GB-DA1 and GB-DA2 results can be ignored (these lines have infinite capacity, hence do not model any constraint)





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Firm Access

Current Policy Implementation

- Generators with non-firm access which are dispatched by the TSO are then assigned availability in the ex-post pool equal to their actual dispatch level

- They can be scheduled up to this level in the ex-post market if they are in merit

- By definition they cannot be ‘constrained down’ as their MSQ cannot be greater than their DQ (for their non-firm volume)

Questions for the Detailed Design

- The Day Ahead and Intra Day Markets in I-SEM are firm ex-ante markets
- The current ex-post setting of availability will not be possible

- Will generators with non-firm access be eligible to offer into these markets for their non-firm quantity?
- How will generators with non-firm access offer into the Balancing Market and how will their offers be accepted?

Questions for the Detailed Design (2)

- Incidences where plant has traded its non-firm access quantity in the ex-ante markets but the TSO cannot accommodate this non-firm access quantity in dispatch.
- Potential solutions:
  - plant must trade itself out of non-firm positions in the IDM if notified in time
  - plant must bid to buy back any non-firm volumes in the Balancing Market at the DA price, or some price related to its actual trades (including trades in the IDM)
  - plant must buy back any non-firm volumes at the Imbalance price. Its own Decremental bid price is ignored in the setting of the Imbalance price

Worked Example

Unit Capacity is 450MW at the station gate.

Unit has 300MW firm access and 150MW non-firm access.

Unit TLAF is 0.98.

Unit's price at the station gate is 50 €/MWh.

The Day Ahead Market (One hour Trading Period)

The unit:

- submits an offer of 441MWh to the Day Ahead Market (DAM) at 51.0204 €/MWh;
- is scheduled at 441MWh in the DAM for hour X (comprising half hours X1 and X2);
- nominates a position of 450MW (at the station gate) to the TSO for hour X.

The Balancing Market (Half hour Trading Period)

The unit has no trades in the Intraday Market (IDM).

The unit submits a buy bid to the Balancing Market (BM) at a bid price of 51.0204 €/MWh for half hours X1 and X2.

The TSO cannot dispatch the unit above its firm access quantity of 300MW (at the station gate) in either X1 or X2. The TSO dispatches the unit to 300MW (at the station gate) in X1 and to 250MW in X2.

The BM clearing price in both X1 and X2 is 55 €/MWh.

Worked Example (2)

Settlement

Assume the unit sets the marginal clearing price in the DAM.

In hour X the unit receives from its DAM trade:

- 441MW * 51.0204 €/MWh * 1 hour;
- €22500

In X1, the unit is 'cashed out' at the Imbalance price of 55 €/MWh for its non-firm portion of 147MW (150MW non-firm access quantity scaled by the TLAF of 0.98) in the BM.

Thus in half hour X1 the generator pays back:

- 150MW * 0.98 * 55 €/MWh * 0.5 hour;
- €4042.50

In X2 the unit is 'cashed out' at the imbalance price of 55 €/MWh for its non-firm portion of 150MW (at the station gate) and constrained down a further 50MW of firm access quantity.

Thus, in X2, if the action is a non-energy balancing action, the generator pays back:

(a) in respect of the non-firm access quantity

- 150MW * 0.98 * 55 €/MWh * 0.5 hour;
- €4042.50

(b) in respect of the firm access quantity

- 50MW * 0.98 * 51.0204 €/MWh * 0.5 hour;
- €1250