I-SEM ETA Building Blocks Consultation Paper

Public Presentation

Dundalk, 10th March 2015

SEM committee

Building Blocks Consultation Paper

- 3 Rules Liaison Group (RLG) meetings held to discuss topics with industry
- Comments from industry following final RLG meeting
- Consultation paper published on 11th February 2015
- Deadline for responses is 17:00 on 25th March 2015

Topics Covered in Consultation

- Treatment of Transmission Losses
- Treatment of Constraints
- Treatment of Firm Access
- Treatment of Priority Dispatch
- Treatment of Curtailment
- I-SEM De Minimis Level
- Policy for Currency in I-SEM
- Market Information in I-SEM

Treatment of Transmission Losses

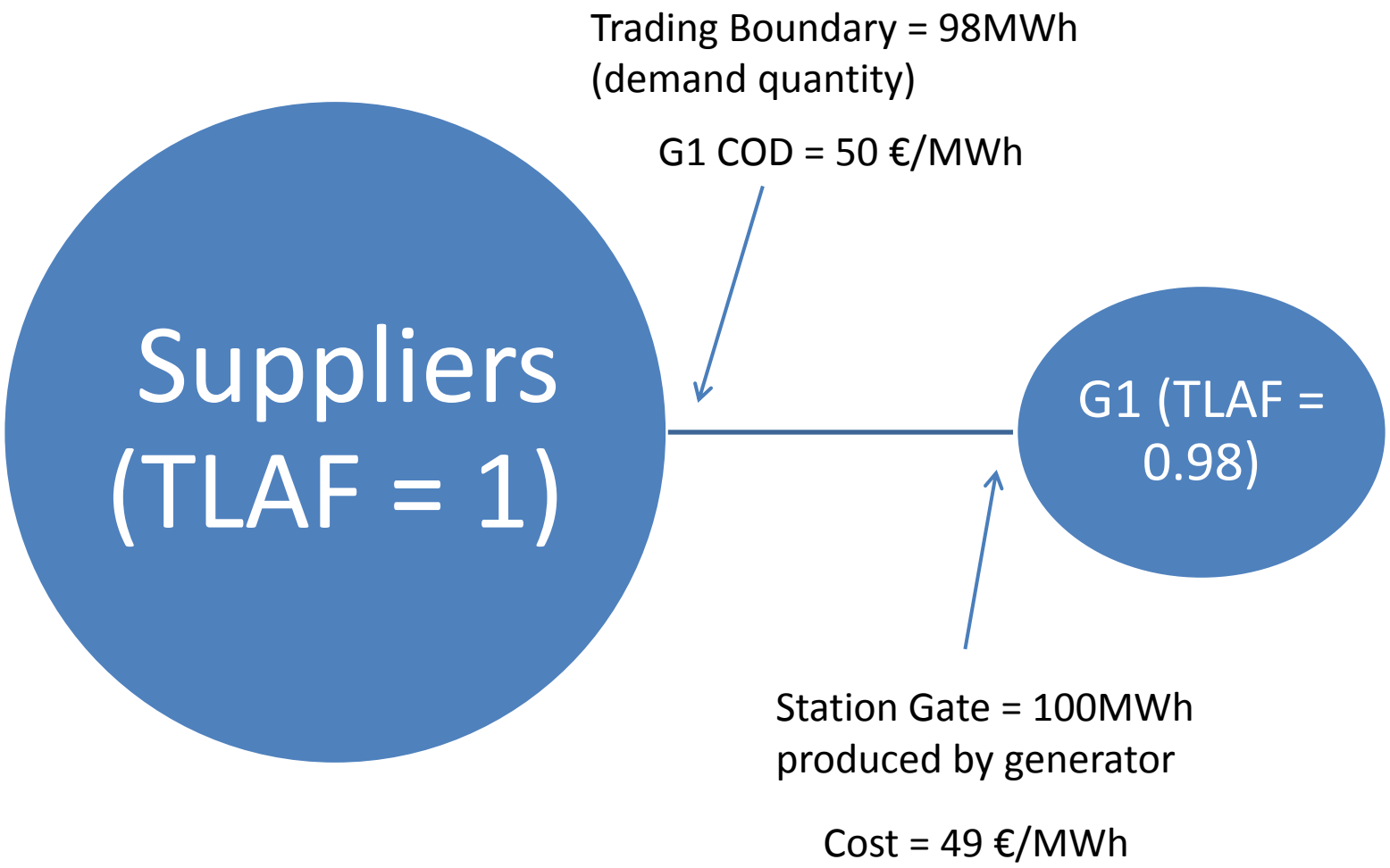
Transmission losses refer to the difference between the amount of electricity injected into the transmission system by generators and the amount of electricity taken off the transmission system by demand

These losses can vary depending on location of generators and by time

Treatment of losses in SEM

- TLAFs set ex-ante
- Applied by all Generator and Interconnector users to their Commercial Offer Data (COD)
- Settlement is on 'Loss-Adjusted' MSQ
- TLAFs for suppliers set to 1
- Any difference between ex-ante forecast losses and actual losses recovered from suppliers through global aggregation

Treatment of Transmission Losses



Treatment of Transmission Losses

Proposals for I-SEM

- Traded volumes in DAM and IDM at trading boundary (net of losses)
  - participants will likely account for these losses in their offers (volume and price)

- Physical notifications to the TSO at station gate (before losses)

Treatment of Transmission Losses

However, there are options for pricing balancing actions at either station gate or trading boundary for consideration

Option (a)

- Balancing actions **priced** at the Trading Boundary
- Generator is paid the offer price (or, if higher, the balancing price) on the loss-adjusted volume at the Trading Boundary
- i.e. generator is paid: POij*(QMij*TLAFij)

Option (b)

- Balancing actions **priced** at the Station Gate
- Generator is paid the offer price (or, if higher, the balancing price) on the metered quantity at the station gate
- i.e. generator is paid: POij*QMij

Treatment of Transmission Losses

The only difference between the two options is that

- in Option (a) the generator submits a price knowing that the price will be applied to the loss-adjusted metered quantity
- whereas in Option (b) the price is applied to the metered quantity directly

Any changes to TLAFs in future would require:

- Option (a) -- changes to each participant's systems
- Option (b) -- changes to the TSOs' systems

  (also noting that a system of being able to reflect costs directly, without having to adjust for TLAFs, may be simpler for new entrants)

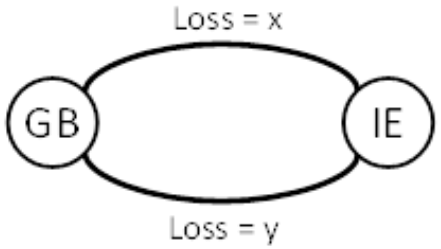
- Option (b) would be amenable to many different treatments of losses in dispatch, and thus may be a more flexible approach for the future

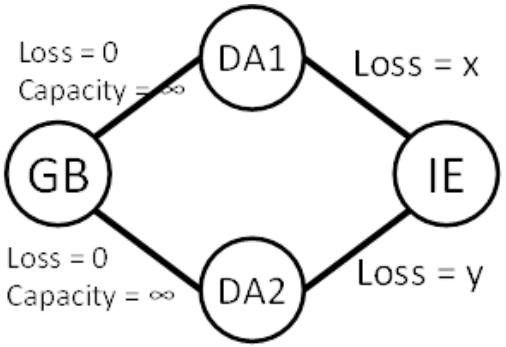
Treatment of Transmission Losses

Treatment of Interconnectors

- Significant difference between losses on EWIC (6%) and Moyle (2%)
- Only one “boundary” between bidding areas in EUPHEMIA
  - A weighted average loss factor (4.6%) could apply to the ICs
- Alternatively, each line could be represented separately by introducing dummy areas

		I-SEM GB Price Differential			
		1%	3%	5%	7%
Aggregate Loss Factor	Moyle Flow				
	EWIC Flow				
Two Loss Factors	Moyle Flow				
	EWIC Flow				





Constraints
Treatment in SEM

- Unconstrained Market Schedule

- Unit constrained **down** – DSQ < MSQ
- Unit constrained **up** – DSQ > MSQ

- If constrained **down**, unit "keeps" its inframarginal rent
  - Earns market revenue and pays back its offer price (SRMC)

- If constrained **up**, unit receives its offer price (SRMC)

Constraints
Proposals for I-SEM

- HLD states energy actions will receive marginal balancing energy price while non-energy actions will receive their offer price
  - their offer price being their incremental offer price or decremental bid price to the BM as opposed to offers in DAM/IDM

- A generator is entitled to receive the Day Ahead or Intraday price or be compensated for lost profits (as revealed through their offer/bid price to the BM), if they obtain a matched trade in these markets and are unable to generate to meet that trade due to a constraint

- If constrained **down** due to a dispatch instruction, unit will pay back the lower of its decremental bid price or the BM clearing price
- If constrained **up** due to a dispatch instruction, unit will receive the higher of its incremental offer price or the BM clearing price

Constraints Examples

Unit sells 100MWh in DAM in hour X.

The clearing price in the DAM is 50 €/MWh.

Unit's TLAF is assumed to be 1 for simplicity in these examples.

Example a) Assume: Non-Energy action

The unit's decremental bid price into the BM is €35/MWh.
The unit is dispatched at 80MWh.
The BM price is €40/MWh.

Total Revenue

= €50/MWh*100MWh + €35/MWh *(80MWh - 100MWh)

= €50/MWh*100MWh + €35/MWh *(- 20MWh)

= €5000 - €700

= €4300

Example b) Assume: Non-Energy action

The unit's decremental bid price into the BM is €35/MWh.
The unit is dispatched at 80MWh.
The BM price is €30/MWh.

Total Revenue

= €50/MWh*100MWh + €30/MWh *(80MWh - 100MWh)

= €50/MWh*100MWh + €30/MWh *(- 20MWh)

= €5000 - €600

= €4400

The accepted non-energy action pays back the lower of the BM price and the bid price.

Treatment of Firm Access

Treatment in SEM

- Firm Access entitles a generator to deliver energy up to a set MW level. If constrained down below this they “keep” their inframarginal rent

- Non-firm Access only allows access to the grid up to a set MW level where technically feasible
  - If unit is not dispatched into its non-firm region there is no entitlement to inframarginal rents

Treatment of Firm Access

Proposals for I-SEM

- "Ex-post" setting of availability not possible
  - I-SEM ex-ante markets are firm
- Proposal to have no restriction on Day Ahead Market and Intraday Market participation based on Firm Access Quantity

- SEM Committee's initial view is that where a generator trades in the ex-ante markets for its non-firm volumes and has its output reduced (in the non-firm region) then it should be cashed out at the imbalance price
  - Its decremental bid price would be ignored in this instance
- Alternative option in the paper is that the generator would 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)

Treatment of Priority Dispatch

Priority dispatch can be described as the obligation on TSOs to dispatch electricity from certain generators ahead of others as far as safe & secure operation of the electricity system permits

Treatment in SEM

- In the Trading & Settlement Code generators must register as price takers to get priority dispatch status
- Priority Dispatch plant receive SMP (set by price making generation)

Treatment of Priority Dispatch

Proposals for I-SEM

Day Ahead Market

- units with priority dispatch can submit proxy price taker bids
- taking any price between PCAP (3000 €/MWh) and PFLOOR (-500 €/MWh)

Intraday Market

- continuous market
- all units seeking to match the highest buy price available
- no “priority” when it comes to achieving a matched trade

Treatment of Priority Dispatch

Proposals for I-SEM

A Priority Dispatch plant wishing to become 'price maker' for part of its output could:

- submit a physical notification, based on their expected output, to the TSO which would have Priority Dispatch status; and
- submit incremental offers and decremental bids to the BM reflecting the prices at which it is willing to deviate from its physical notification

- Wind that wishes not to submit an FPN will be dispatched to its availability (forecast of wind output) as far as possible, and will take the imbalance price for un-contracted quantities [Not in Building Blocks paper, this is emerging Project Team view from the Markets RLG meetings]

Consideration should be given to the decremental bid price (e.g. from demand to consume more) below which priority dispatch should not be accommodated

- e.g. a demand unit may have a large negative dec bid price that the TSO could use to accommodate an extra 1 MW of RES (demand unit would be paid to increase demand)

Treatment of Curtailment

- Currently no distinction between constraints and curtailment in terms of settlement to participants

- SEM Committee clarified the issue in SEM-13-010
  - Curtailment will be applied pro-rata on all wind generation in the market;
  - The TSOs will apply a rule set for distinguishing between constraints and curtailment; and
  - From 2018 onwards, wind generation will not be compensated when it is curtailed.

Treatment of Curtailment

- Specifics of the treatment of curtailment in the I-SEM will be developed as part of the wider development of the detailed balancing market design

- At the Building Blocks consultation stage the intention is to pose a number of questions for discussion which will inform that detailed design

Treatment of Curtailment

Questions for I-SEM

1. *How should the SEM Committee decision on curtailment compensation be implemented?*

It is necessary to have a mechanism to recoup revenues achieved in the ex-ante markets. There are two approaches as to how this could be done:

a) Mandated bidding behaviour
   - Difficult for generation and monitoring authorities

b) Reconciliation and post processing
   - Needs access to all market revenues

Curtailment Example

Unit sells 100MWh in DAM in hour X.

The clearing price in the DAM is 50 €/MWh.

Unit's TLAF is assumed to be 1 for simplicity in these examples.

Curtailment occurs and the unit's output is reduced to 80MWh.

The clearing price in the BM is 40 €/MWh.

Post-2018 Treatment, i.e. plant not compensated for curtailment.

Option a)

Wind generators bid a decremental price into the Balancing Market based on their revenues from the ex-ante markets

Total Revenue

= €50/MWh*100MWh + €50/MWh*(80MWh-100MWh)

= €50/MWh*100MWh + €50/MWh*(-20MWh)

= €5000 - €1000

= €4000

Option b)

The position is "cashed out" at the Imbalance price and there is a reconciliation process

Total Revenue

= €50/MWh*100MWh + €40/MWh*(80MWh-100MWh)

= €50/MWh*100MWh + €40/MWh*(-20MWh)

= €5000 - €800

= €4200

There is then a reconciliation process by which the curtailed generator pays back €200

Treatment of Curtailment

Questions for I-SEM

2. *Should there be a distinction made between Ex-ante trades (in DAM and IDM) versus output in the BM and imbalance settlement?*
    - Clawing back DAM and IDM trades may act as a disincentive to trade in these markets
        - could be significant with the levels of wind expected
        - could increase DAM price
        - but potentially higher DAM price needs to be weighed against potential compensation amounts

I-SEM De Minimis Level

Treatment in SEM

- De-Minimis level of 10MW

Proposals for I-SEM

- No changes to De-Minimis level proposed in consultation paper

Currency in I-SEM

Proposals for I-SEM

Maintain Dual Currency and socialise cost

Two options

- Invoice as a single line item on all suppliers
  - Same as current SEM
  - Suppliers highlighted at RLG meeting that this current process is overly complicated
- Levy on all suppliers (similar to DBCs)
  - Tariff set on ex-ante assessment
  - Difference to actual to be carried over in correction factor

Market Information in I-SEM

Proposals for I-SEM

- It is proposed to continue current levels of data publication

- In addition the following is proposed for consideration
  - TSOs demand forecast
  - Greater information from TSOs wind forecast
  - Market notice board with generator outages highlighted?
  - REMIT and MAD II requirements

- Timing of information release critical so that a balance is struck between participants being able to respond to market signals and concerns over market power or gaming

Discussion

Treatment of Transmission Losses

Treatment of Constraints

Treatment of Firm Access

Treatment of Priority Dispatch

Treatment of Curtailment

I-SEM De Minimis Level

Policy for Currency in I-SEM

Market Information in I-SEM

Responses to Consultation paper

- Deadline for responses is 17:00 on 25th March 2015
- SEM Committee intends to publish responses unless marked confidential