

Transparency

Response to Eurelectric's proposal from 3 Feb 2016

MESC, 11 May 2016

Proposal

- PCR proposes to organise a technical expert meeting within ESC, dedicated to discuss the indicators (what makes sense, what not and why)
- The scope of the answer is PCR, but initially the indicators will be published for MRC unless some indicators are requested to be published for the 4MM coupling

Introduction

PCR Transparency monitor

- During last Market ESC meeting Eurelectric proposed a series of performance indicators to monitor the performance of Euphemia
- The following slides detail the indicators PCR can provide

Indicators

Block statistics

- Aggregated over all PCR bidding areas information will be published on:
 - Number of submitted blocks;
 - Number, volume (MWh) and average depth (the amount the PRB is in-the-money) of the PRBs;
- It is left to the discretion of individual PCR members/NRAs to provide more detailed on block orders and PRBs via their respective communication channels

Indicators

Block statistics on local search

1. Number of combination of PRB reinsertion (number of simple, double, etc.) cannot readily be extracted. To provide this information new Euphemia developments, which cannot be ready before earliest by October 2016, are required.
 2. On the other hand, the coming “Gap re-evaluation” module will provide a better estimate on how far from the optimality the results are.
- => 1. Becomes redundant as soon as 2. is available.

Proposal to be discussed in the technical meeting: wait until “Gap re-evaluation” module is implemented to generate the requested statistics.

Indicators

Timing

- *Time dedicated to each subtask*
 - Reading data
 - Relaxation (root node)
 - Tree exploring (branching)
 - PUN search
 - Volume problems
- *Number of feasible solutions explored*
 - Mind that Euphemia will only log a new solution, if:
 - All constraints are respected;
 - The solution has higher welfare than the current best
 - For PRB / PRMIC reinsertion: in case of multiple successful reinsertions, only the best one is counted;

Indicators

Quality

- The objective of Euphemia is to maximize welfare.
- A quality indicator can be found in the optimality gap
- During the 11 January Euphemia stakeholder forum PCR presented:
 - Limitations of the gap in the presence of non-convex constraints;
 - Mitigation: re-evaluate ex-post the gap through a geographical decomposition
- The ex-post re-evaluation is currently being further refined
- An automated solution is expected for Q4 2016

Indicators

Quality

- Eurelectric requested to run Euphemia for 2 hours and compare results
- PCR proposes to use the gap indicator from the previous slide as a recurring performance indicator
- Since the gap indicator will only be available by the end of this year, we propose to run the 2 hour analysis comparing E9.4 production results* over 2 successive batches, to bridge the period where the gap indicator is not yet available.
- Once the gap indicator becomes available, the publication of this indicator would halt.

* The 2 hour simulations will be run offline, on test systems with comparable hardware as production machines

Indicators

Heuristics

- Delta P rule (2€ cut-off)
 - The “activation” of this heuristics is part of the branching strategy, and is not explicitly logged. On the MRC scope one can reasonably expect this heuristics to always be applied somewhere within the branching. Publication “true” everyday would not yield an informative indicator;
 - Proposal to be discussed in the technical meeting: PCR proposes to run a dedicated study assessing the impact of heuristics on a larger dataset:
 - Setting the cut-off to higher and lower values (e.g. 1€, 3€), but also de-activating the heuristic.
 - A report interpreting results could be published

Indicators

Heuristics

- *Intuitive patch*
 - In current Euphemia release (E9.4) the activation of the intuitive patch is not readily available
 - The next Euphemia release, expected for Q4 2016 should log its activation. At that time this indicator will be published
- *FB vs FBI*
 - The CWE projected has started the publication of both “plain” and “intuitive” FB results.

Indicators

Heuristics

- *True vs false PRBs (meaning to be discussed in the technical meeting)*
 - The notion of a false PRB is that the block was PRB in the published solution, but could be accepted in the optimal solution. Without knowing the optimal solution, this indicator cannot be made available. From our experimentation running Euphemia for longer periods of time, we know simply increasing calculation time still does not allow us to identify this optimal solution for MRC instances.
 - Instead we again refer to the gap re-evaluation which should give a better indication of optimality once available