ESTONIA

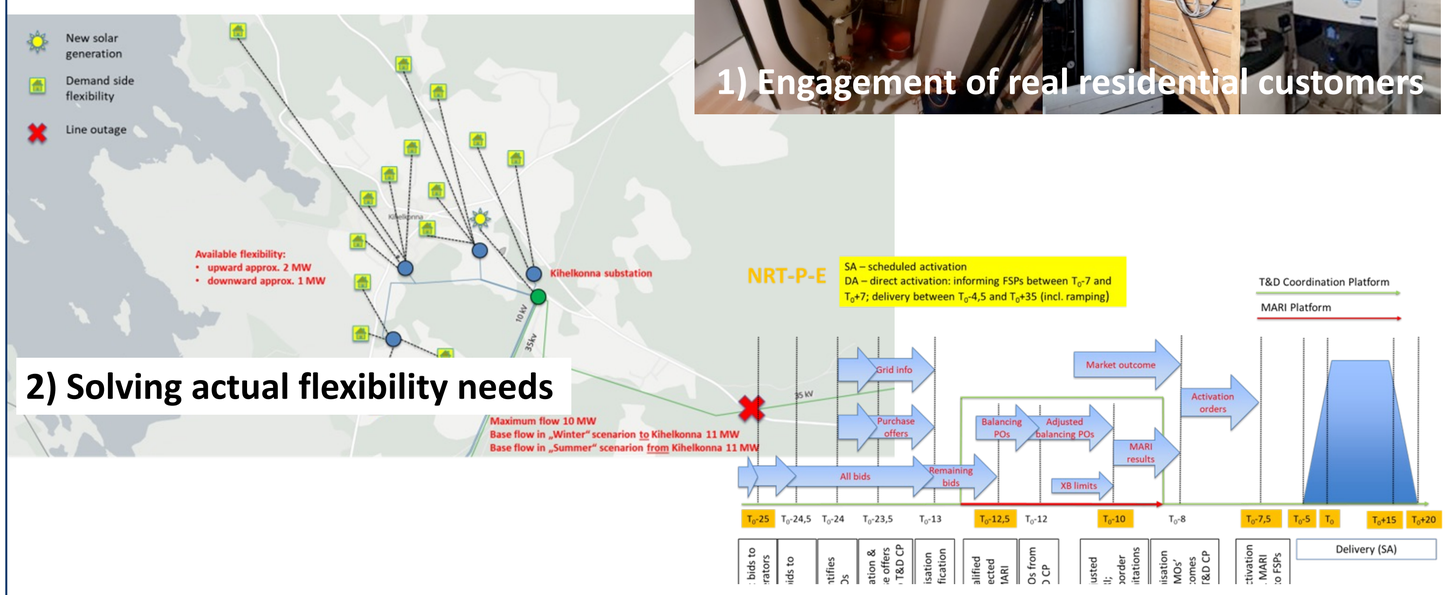
Elering – Elektrilevi – Cybernetica – Vito

Problem Statement

The objective of Estonian demonstrator is to increase liquidity and transparency in the flexibility market, thereby enabling more RES connections while avoiding congestions in the grid. This could be achieved through a common marketplace consisting of harmonised set of flexibility products, processes and tools, both on national and regional level.

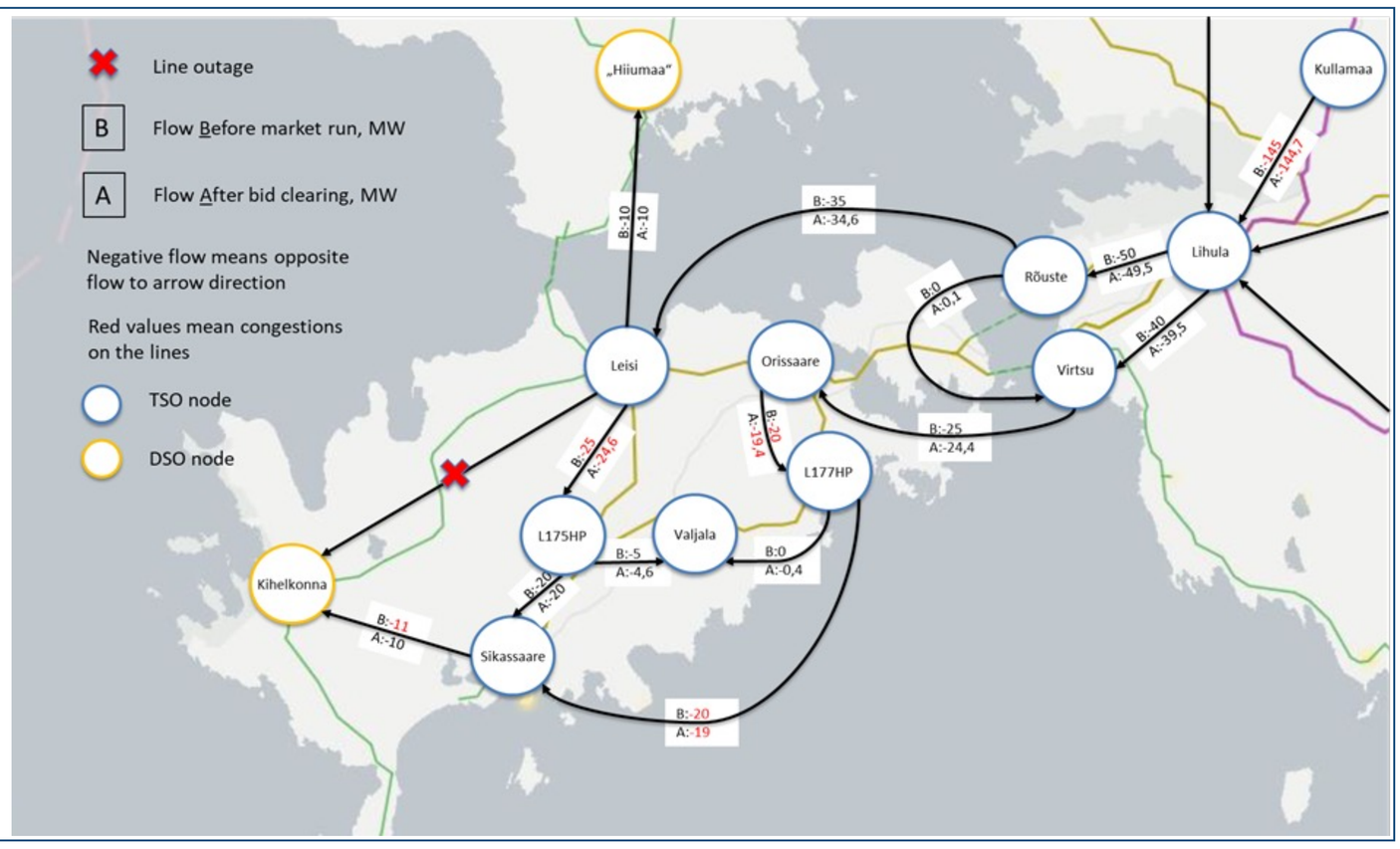
Estonian main DSO is already faced with the urgency to manage grid congestions in some parts of Estonia. Due to the congestions, there is no longer possible for micro-producers to join the grid. It is not possible to ensure that voltages remain within the permitted limits. Therefore, it is necessary to reconstruct the electricity network or provide flexibility services.

Demo's Innovation



Results and Lessons Learned

- Two scenarios linked to network congestions in Saaremaa island were investigated: 1) "Summer" scenario with lots of grid connected solar and wind in combination with some line outages; 2) "Winter" scenario with peak demand in combination with even further line outages.
- The demonstration interacts with 14 real homes located in France and Estonia, particularly focusing on residential prosumers equipped with different DERs behind the meter.
- Near real-time energy product can be consumed by both TSO and DSO for congestion management, but also for the balancing. Capacity product did not require dedicated demonstration being technically very similar to the energy product.
- With the optimisation process it was confirmed that simultaneous congestions in both TSO and DSO grids can be solved with same resources at the same time.



Main Challenges

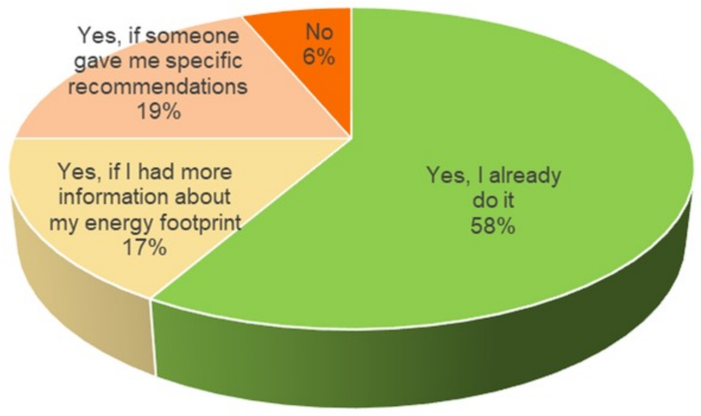
Technically most challenging was to compile the needed grid data in the needed structure. Such data is required for both grid qualification and bid optimisation.

- ➢ Access to source data was not always straightforward because it was time-consuming for SOs to provide the necessary data and the way how to interpret the data took quite some further effort.
- ➢ Next, PTDFs have not been used before and were calculated for the first time (for TSO lines only) – this presumed setting up methodology and script for automated calculation.
- ➢ Finally, for calculating the congestions, also the "booked " network capacities must be considered. This is especially the case on generation side, whereby large amounts of RES providers are in the process to sign network connection agreements in coming years.

From market perspective it is challenging to combine congestion management and balancing as for the former bids are optimised locally and for the latter on European level. It is not clear if some balancing needs could be solved also locally (e.g., „counter-balancing"). Separate optimisation does not bring along most efficient market outcome.

Recommendations

- Implement common flexibility register, products, optimisation and data models to facilitate the participation of flexibility providers and minimise costs for system operators.
- Support (residential) customers in their desire to change the current energy behaviour.



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