cyberNOC
Flexibility Aggregation Platform

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This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement n° 691777
About cyberGRID

• Founded in 2010 in Vienna
• Focused on development and deployment of flexibility aggregation platforms (DR, VPP & VB) and related consultancy services
• Founder of Smart Energy Demand Coalition (now SmartEn)
• Member of ESMIG, ETIP SNET, EU Battery Alliance, BRIDGE
• Research partners: AIT, TU Graz, TU Wien, RSE, EIMV, etc.
• Flexibility innovation partner in several Horizon 2020 projects (Flexiciency, FutureFlow, InteGrid, CrossBow, Magnitude …)
• Commercial operations in aFRR and mFRR balancing markets in Austria and Slovenia
Monetizing Flexibilities

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FutureFlow aFRR aggregation platform

- Aggregation of DR&DGs from 4 EU MS
- Interfacing with 106 DR&DGs (monitoring and control)
- Forecasting (C&I + RES)
- Automatic marginal bidding
- Interfacing with aFRR market
- Automatic real-time controlling of DR&DGs

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Automatic bidding to regional aFRR market

Enabling automatic energy bidding based on the market rules
1. Create **internal merit order** based on the DR & DG in the pool
2. Apply the **backup policy** of VPP operator
3. Select the **bid size** (market rule)
4. **Minimum bid price** is calculated (DR & DG marginal costs)
5. Bid price based on the **revenue optimization** strategy by VPP operator
6. Submitting bids to local TSO to be forwarded to aFRR market

Bids are generated every hour automatically
Real-time activation control

Processing of received activation message (setpoint) from the connected TSO and de-aggregating received setpoint for controlling individual DR&DG

Steps:
1. Receive setpoint from local TSO (real-time)
2. Creating internal real-time merit order list (considering: availability, price, … of DR&DGs)
3. De-aggregate incoming setpoint signal (from TSO) to meet the internal merit order list and distribute individual signals (setpoints) to the DR&DG
4. Monitor any deviations of the activated DR&DG and reduce deviations by closed-loop controller

Reducing DR/DG set-point

Increasing DR/DG set-point

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Prevention of double counting flexibility

Motivation
• Flexibility from units can today be traded on different electricity markets
• In the future it is expected emergence of new electricity markets for various domains (TSO, DSO, …)
• This plethora of markets represents possibility of double count flexibility they purchased was provided in full or just partially

FAQ
• All the threats starts at the flexibility units level
• Architecture needs to prevent “gamming”

Solution - Blockchain
• Security and authentication of units at acquisition
• Access management
• Activate matched aFRR bids as Smart Contracts
• Update Smart contracts with validation information
• Automatic checking of double counting
• Open access for other players: market operators, regulators…
Monetizing Flexibilities

TODAY'S MARKETS AND TOMORROW'S ENERGY ASSETS

cyberGRID provides the link

cyberGRID’s award-winning software supports our partners in deploying one of Europe’s largest fleets of utility-scale battery storage – providing a link between energy assets and electricity markets to secure investments and reduce payback periods.

Thank you

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