

PARITY

Newsletter #1

March 2020

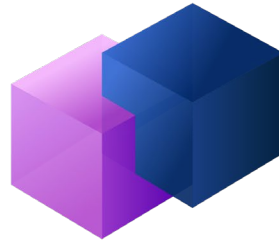
PARITY

parity-h2020.eu



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 864319

Call identifier: LC-SC3-2019-ES-SCC



P A R I T Y

The parity concept

The aspiration of PARITY project is to address the “structural inertia” of existing distribution grids by delivering a transactive grid & market framework. PARITY will go beyond the traditional “top-down” grid management practices by delivering a unique local flexibility market platform through the seamless integration of Internet of Things (IoT) and blockchain technologies. By delivering a market for automated flexibility exchange based on smart contracts & blockchain, PARITY will facilitate efficient and transparent local flexibility transactions and reward flexibility in a cost-reflective and symmetric manner, through price signals based on real-time grid operational constraints and available Distributed Energy Resources (DER) flexibility. By deploying State-of-the-Art IoT technologies PARITY will offer distributed intelligence (DER profiling) and self-learning/self-organization capabilities (automated real-time distributed control), orchestrated by the cost-reflective flexibility market signals generated by the blockchain market platform.

Within PARITY, DERs will form dynamic clusters that essentially comprise self-organized networks of active DER nodes that will efficiently distribute and balance global and local intelligence, enabling real-time aggregated & Peer-to-Peer transactions through enhanced forecasting, optimization and control of DER flexibility. Finally, the PARITY solution includes novel tools for Active Network Management, including an innovative STATCOM and PQ monitoring device, that will enable the Distribution System Operator to enhance its management capabilities, grid observability and Renewable Energy Source hosting capacity.

Industry challenges

Today's energy markets remain inherently incomplete and imperfectly competitive mainly due to the characteristics and special nature of the commodity of power. Inelasticity of Demand along with the continuously increasing presence of distributed intermittent energy sources pose significant challenges and undoubtedly have considerably negative impact on the overall grid balance.



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Moreover, non-forecastable variable generation from RES is posing critical challenges in grid management at all levels (distribution, transmission and cross-border). Grid defection is becoming a rapidly growing threat to traditional utility business models.

Objectives

The parity project focuses on 6 main objectives:

- DER Flexibility Ecosystem seamlessly integrating Heterogeneous DER within a Unified Flexibility Management Framework, Actively Participating in Smart Grid Operations
- Storage-as-a-Service framework efficiently combining Actual Storage (EVs and batteries) and Virtual Energy Storage (Power-to-Heat).
- Smart Contracts Enabled Local Flexibility Market Platform that facilitates the transition to enhanced Transactive Flexibility Systems through Distributed Intelligence and Integrated Market Based Control.
- SG Monitoring, PQ Management and Active network management
- Holistic Assessment of Novel Business Models and Validation in Real-Life environments to ensure wide Market Actor Engagement in the PARITY Local Flexibility Market Platform
- Promote the adoption of the PARITY solution as a next-generation Local Flexibility Market Platform through intense dissemination and knowledge transfer of the project's outcomes.

Scope

In order to achieve its objectives, PARITY relies upon 3 key elements:

- Flexibility measures and electricity grid services provided by storage of electricity (including batteries and vehicle to grid technologies), power to-X (in particular power to heat), demand response and variable generation enabling additional decarbonization.
- Smart grids technologies for an optimum observability and tools for higher automation and control of the grid and distributed energy sources, for increased resilience of the electricity grid and for increased system security, including under extreme climate events.”
- Market mechanisms incentivizing flexibility or other market tools should be defined and tested, for mitigating short- term and long-term congestions or other problems in the network (e.g. dynamic network tariffs and solutions to reduce the costs of energy transition, non-frequency ancillary services). Solutions should



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demonstrate the necessary cooperation with other system operators and particularly TSOs by facilitating the integration of wholesale and retail markets.”

News

KICKOFF MEETING IN THESSALONIKI

In 22nd and 23rd of October 2019 the PARITY Kickoff meeting took place in Thessaloniki, hosted in the premises of the project coordinator, Information Technologies Institute (ITI) of the Centre for Research and Technology Hellas (CERTH).

During this face to face meeting the project partners had the chance to discuss the details of the project implementation, know each other and organize the cooperation framework of the tasks ran during the first six months of the project.



MONTH 6 CONSORTIUM MEETING (ONLINE)

In 12nd and 13rd of March 2020 the PARITY 6-month plenary meeting took place online, due to safety precautions and following the “stay at home” safety guidance.

In this online meeting the PARITY partners discussed the progress during the first six months of the project, the barriers they met and the programming for the work implementation for the next six months, along with the risks that might arise. Finally, a workshop took place to discuss the Use and Business Cases that are going to be implemented in the project pilot sites.

