

DRES2Market: technical, business and regulatory approaches to enhance renewable energy capabilities to take part actively in the electricity and ancillary services markets.

DRES2Market is a European Union's Horizon 2020 granted research programme project, aiming at the development of a complete and comprehensive framework to facilitate an active participation of distributed generation based on renewable energy - solar PV and wind energy in the electricity market and supply of ancillary services to the power system.

Highlights at January 2022 - M18

Development of the WP 3.

Analyse, compare and identify the most promising solutions for large penetration of RES in the electricity markets and in the supply of ancillary services.

One of the principal objectives of Project DRES2MARKET is to deliver techno-economic studies on the future of distribution power networks with massive integration of renewable energy sources and using different demand management technologies applied. In order to do so, several test cases have been proposed in the recent months for their evaluation.

Some of the test cases address the technical issues related with the massive integration of renewables and reduced inertia in future power systems. Others address renewable grid integration from the market and economic point of view. The latter include scenarios of grid integration using different technologies like demand flexibility, battery storage integration, EV integration, Virtual Power Plant etc. These scenarios will be studied in a multidisciplinary way that involves DSOs, research centres, energy market operators, aggregators etc. The goal is to perform detailed analysis of all Test Cases at different operating points and different levels of renewable penetration. The specific Key Performance Indicators will be obtained and presented for each Test Case.

IMDEA Energy Institute in collaboration with Deloitte, APPA, OMIE, Gesternova, Acciona, ENEA, and other partners is currently preparing technical parts of the test cases for their evaluation.

A European CIGRE Benchmark Network is used to determine any technical issues (line congestions, voltage excursions etc.) while running the scenarios based on the use of real demand and generation data provided by the project partners. Once a congestion occurs, the network condition will be passed on to the local market operator (OMIE in collaboration with VPPs, aggregators, EV etc.) in order to establish a market based solution for the removal of the technical congestion. Test cases is shown in Figures 1 and 2.

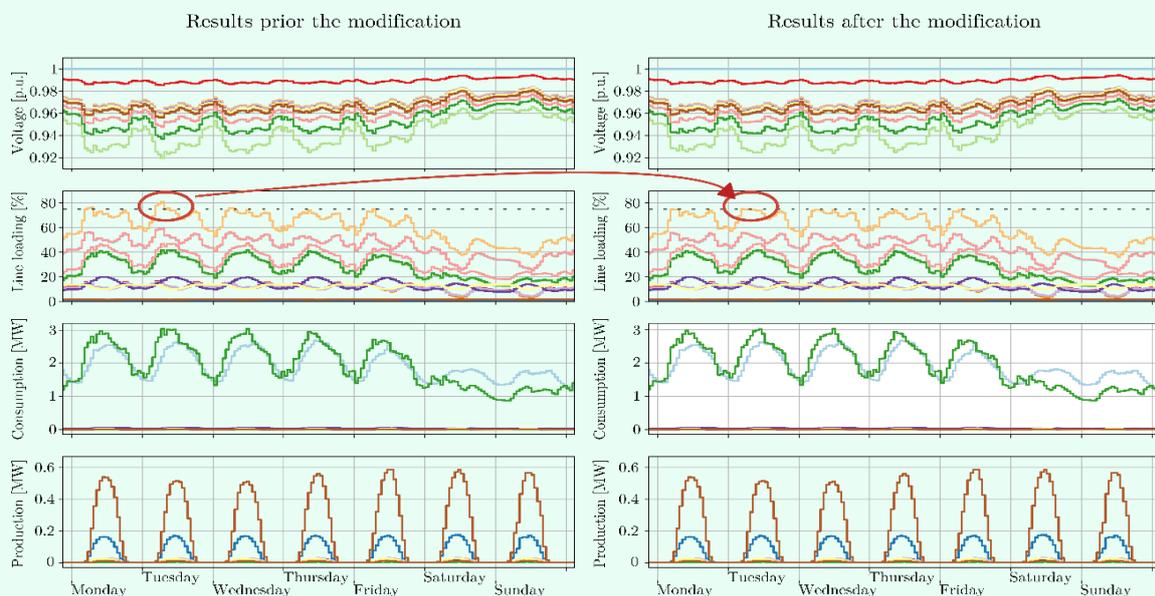


Figure 1.: Line capacity congestion occurred during a week in July (left). The line congestion removed by demand flexibility and by the local market mechanisms (right).

The benchmark network was used and the simulation including demand and PV production was run for all the hours of July. During one week a line congestion occurred and it was then removed by using demand reduction. Such reduction will be obtained by using the network flexibility and the local energy market in the following simulation steps.

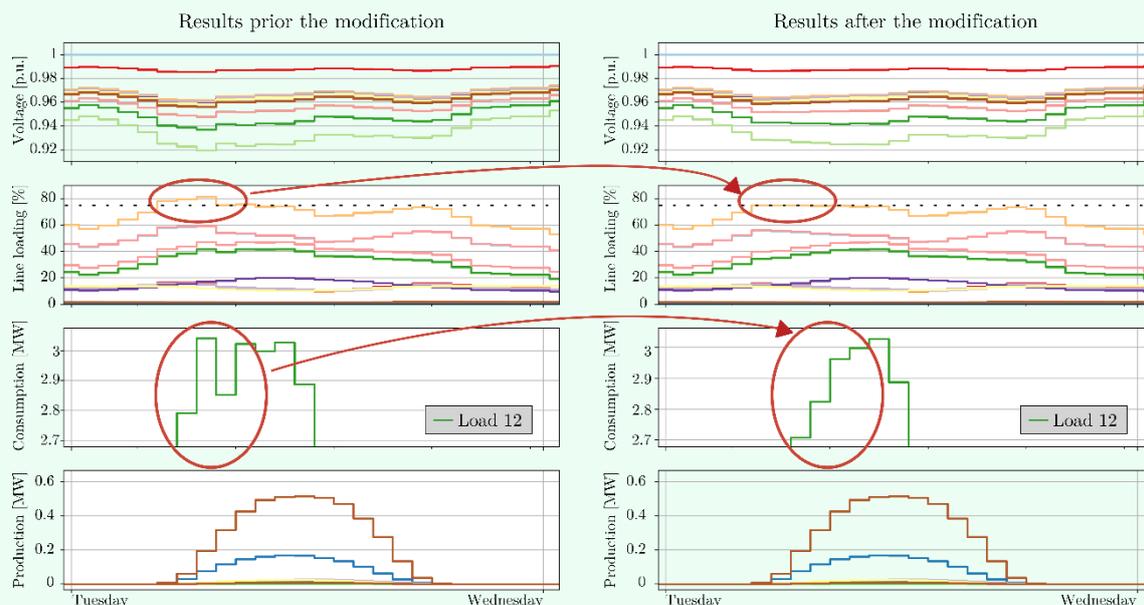


Figure 2.: Magnified view of the line capacity congestion that occurred during a week in July (left). The line congestion removed by demand flexibility and by the local market mechanisms (right).

DRES2Market solutions will be then tested with prosumers with different profiles and different European Union locations. The ancillary service market will be simulated taking into consideration the large penetration of solar PV and wind energy and an active role of the demand side in the markets.

Dissemination, communication & exploitation

The DRES2Market project Partners held a second project meeting on October 21st and 22nd, 2021.

The meeting was hosted by Aix Marseille University. The partners presented and discussed the progress and results obtained in the various work packages, the ongoing tasks as well as developed the farther project activities to be implemented in. The second project meeting was a great opportunity for the whole team to meet together in person.

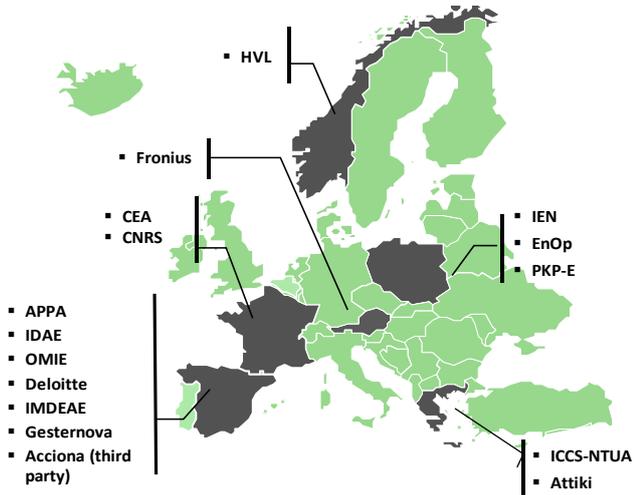


Presentation project achievements and results:

- ❖ V Congreso Nacional de Energías Renovables, Madrid, December 2021.
- ❖ Genera at Feria de Madrid, held from 16th to 18th of November, 2021.
- ❖ Participation in the Intersolar Europe, on October 6th to 8th, 2021.
- ❖ Publishing an article: Barriers to development of photovoltaic systems on electricity markets.



Partners



Countries involved

Austria
Greece
France
Norway
Poland
Spain



For more information please contact us or check the project's website: www.dres2market.eu

The project started on 1st August 2020 and will last until 31st of January 2023.

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