dominoes

market driven distribution grid

NEWSLETTER #5

Greetings from the Coordinator

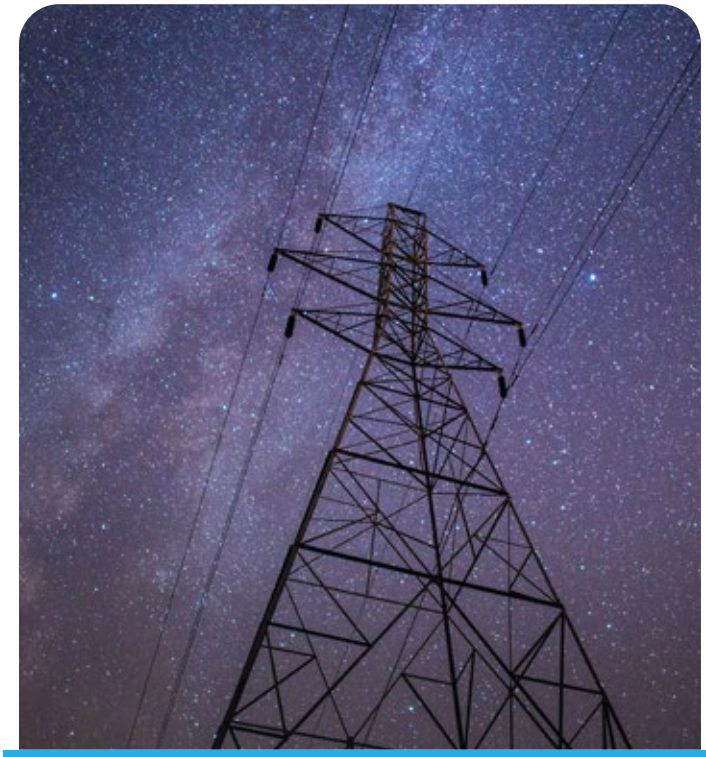
DOMINOES-project is coming close to its end and it's time for the final project newsletter. 3,5 years project is almost ready. The project was originally supposed to end in March 2021, but due to the exceptional COVID-19 pandemic situation and related challenges in customer engagement in one of the validation sites, DOMINOES-project duration was prolonged until the end of June 2021. With the help of additional three months of project duration, those issues are now solved and final validation activities are ongoing in all validation sites and soon to be concluded. Tasks related to the validation and the validation evaluation and dissemination are still ongoing, but all the other tasks of the project are concluded and have submitted their latest deliverables also.

Final results of the project will be published in the deliverables of WP4 and also summarised in the coming DOMINOES-project final event in June (more information about the final event later in this newsletter). Due to the pandemic circumstances, final event and probably also the coming final review will be held as online events. It's a pity that we haven't been able to travel and see each other in the scope of DOMINOES during the last year.

The main objective of the project, a scalable local energy market solution, is still very topical issue in European energy markets and many initiatives are ongoing also in other H2020 projects. Participation in the "Low TRL level Smart Grids and Storage activities Cluster projects" -activities has increased the knowledge what else is happening around the topic in other similar and related projects. DOMINOES perspective on the topic has been in the interoperability and compatibility of the local markets which according to my knowledge hasn't been that much discussed in other projects.

Thank you for your interest on following the DOMINOES-project progress. I wish all of you a nice spring time and I hope to see you at the final event!

Best regards,
Sirpa, DOMINOES-project Coordinator



SAVE THE DATE!

DOMINOES project is coming to an end and invites you to the its final event on the 15th of June.

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Join all Partners and Stakeholders for the presentations and discussion of the work, outcomes and lessons learned from DOMINOES project and interact with your questions and comments on our Q&A chat during the session.

The event will be held online via Zoom and registration is free, but mandatory.

Keep updated and register on our website!

Deliverable 5.4

Roadmap to integrated energy market operation and management

D5.4 was finalised and submitted in January 2021. The main purpose of this deliverable is to provide guidelines on how the integrated operation of local markets in the open energy market would be possible and how customers are incentivized for energy market participation.

In the roadmap, issues about the regulation and market structures are identified. The Clean Energy Package introduces the roles of the citizen energy communities, renewable energy communities and peer-to-peer trading of renewable energy. From the distribution system operator perspective, the regulation is also very important on how DSO can participate in the local market and what are the regulatory possibilities to purchase flexibility.

The deliverable describes three alternative scenarios on the local markets' possible roles and related market development. The local market might remain as isolated markets and trading energy and possibly flexibility by themselves. Partly, the trading of flexibility could be enhanced when the existing market operators extend their role in the direction of flexibility trading and location related flexibility. One scenario is related to alternative ways to handle network access from the distribution grid perspective.

Key conclusions from the roadmap are the role and the regulation of the distribution system operator rement, transparent market information, the high automation level of the related IT systems and services, compatible market structures between the local and overarching markets.

DOMINOES Deliverable 5.4

Deliverable D6.11

Final deliverable (D6.11) of DOMINOES Task 6.2 'Standardization and regulatory issues' was completed in March 2021. This task has reviewed the development of standardization, regulation and legislation related to local markets. While local markets as such are not addressed in European legislation, the requirements from the 'Clean Energy for all Europeans package' concerning e.g. demand response aggregators, energy communities and flexibility incentives for DSOs have been considered in the DOMINOES local market design. Thus, one of the conclusions of D6.11 was that to enable uptake of local markets and utilization of services provided by them, the requirements of the Clean Energy package should be transposed in Member States without delays. Other key conclusions are:

- when possible, Member States should strive for harmonized approaches to facilitate wide uptake and scaling up of the new services;
- remuneration mechanisms for DSOs should take into account the use of flexibility for congestion management and for reliability and quality purposes;
- piloting of novel solutions in cooperation with regulators should be promoted to identify best solutions and gaps in regulation and standardization.

DOMINOES Deliverable D6.11

Validation status:

With the coming end for all the project activities the validation actions are also up to be concluded. Different stages are being reached by the project's validation environments.

- **Microgrid environment, in LUT campus, Finland;**
  For the microgrid environment, in LUT green campus at Lappeenranta, Finland, the targeted use cases implementation was successfully concluded and the validation stage it's almost done as well. The results are being assessed and their comprehensive analysis should be published in work-package 4 final reports, D4.4 – Distribution grid microgrid and VPP validation activities report – and D4.5 – Synthesis of the local market concept.

- **Distribution grid environment, in Valverde demo-site, Évora, Portugal;**
  This validation environment is focused on distribution grid environments and local energy communities. The engagement of nearly 20 local flexible consumers and prosumers was successfully concluded. These end-users agreed to participate in the project and share their electricity consumption, DG and DER technical and real-time monitoring data with the project partners and help validating the use cases targeting the communities and end-users' perspectives.

  The present circumstances delayed the field activities foreseen, mainly related to solutions' commissioning and end-users' engagement, but the use cases implementation is about to be concluded and the validation phase is expected to start in the coming weeks.

- **VPP environment;**
  Regarding the VPP environment, all the services and functionalities were successfully integrated with the DOMINOES market platform and the use cases implementation is progressing. The system operator's and the energy provider's perspectives will be targeted by some of the use cases to test, and with similar timings as the distribution grid environment, the validation phase should start soon, and its outcomes should also be included in the work-package final deliverables.

Published scientific journals

UoL Fengyin Li, Dongfeng Wang, Dongfeng Wang, Xiaomei Yu, Nan Wu, Jiguo Yu, Huiyu Zhou "Wireless communication and mobile computing blockchain-based trust management in distributed Internet of Things", Wireless Communications and Mobile Computing. 2020, Article ID: 8864533. 19 December 2020

ISEP Ricardo Faia, João Soares, Tiago Pinto, Fernando Lezama, Zita Vale, Juan Manuel Corchado
Optimal Model for Local Energy Community Scheduling Considering Peer to Peer Electricity Transactions, IEEE Access vol. 9, pp. 12420-12430, 12 January 2021

UoL Fengyin Li, Pei Ren, Guoyu Yang, Yuhong Sun, Dongfeng Wang, Dongfeng Wang, Siyuan Li and Huiyu Zhou "An efficient anonymous communication scheme to protect the privacy of the source node location in the Internet of Things", Security and Communication Networks, 24 February 2021

ISEP Ricardo Faia, Tiago Pinto, Zita Vale, Juan Manuel Corchado, "Portfolio optimization of electricity markets participation using forecasting error in risk formulation", International Journal of Electrical Power & Energy Systems, vol. 129, July 2021

International conference papers published
(we do not have any since Nov 2020)

Conference papers written
Repo, S., Kilkki, O., Annala, S., Klein, L., Matos, L., Sousa, J.E., Albuquerque, S. (2021). DOMINOES – a roadmap to integrated local energy market operation and management. In Proceedings of the 26th International Conference & Exhibition on Electricity Distribution (CIRED 2021), Geneva, Switzerland, Sep. 20-23, 2021

Facts

DOMINOES Smart Distribution Grid: a market driven approach for the next generation of advanced operation models and services

- Timeline 1.10.2017-31.3.2021
- Budget: 4 M€

Partners: Empower (coordinator – Finland), EDP (CNET and EDP Distribuição – Portugal), ISEP (GECAD - Portugal), Lappeenranta University of Technology – LUT (Finland), VPS (UK), University of Leicester – UoL (UK), and University of Seville (Spain)

Info

The DOMINOES project aims to enable the discovery and development of new demand response, aggregation, grid management and peer-to-peer trading services by designing, developing and validating a transparent and scalable local energy market solution.

Contact

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