



InteGrid – the role of flexibility

In the first year, InteGrid's global architecture and uses cases were completed and soon public deliverables will be available in InteGrid's [website](#). From its four uses-cases groups (Grid-operations; grid and market-hub, grid users and energy services) we choose to focus this newsletter on a daily application of this ambitious project: flexibility provided by buildings' heating systems.

Grid-Market Hub Grid Operations Grid Users Energy Services



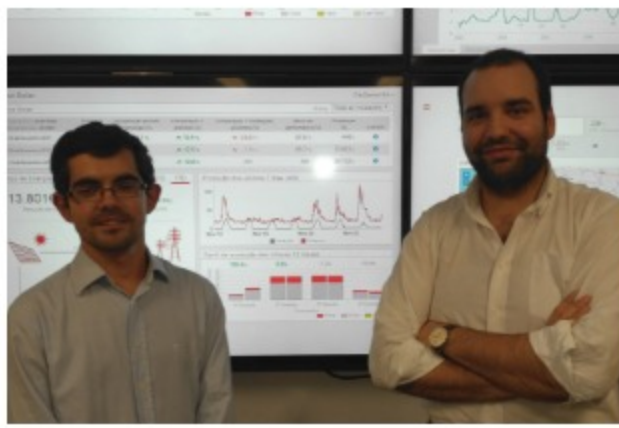
Heating systems are really interesting for grid users, operators and market players, since they actually are a potential flexibility provider for grid operational and planning and market purposes. In this second newsletter, partners KTH, EDP CNET with EDP Comercial, will give you InteGrid's perspective on this subject.

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Partner focus – KTH, CNET and EDP Comercial

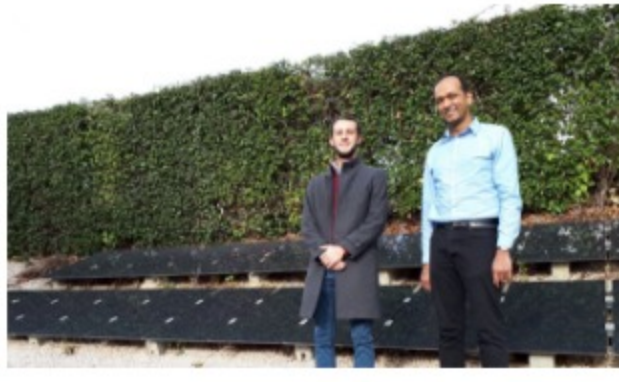


KTH is Sweden's oldest and largest technical university – and its campus just celebrated its centennial. KTH is bringing to the InteGrid project its novel approaches to increase residential user engagement. This involves R&D experience in large scale projects such as Urban Smart Grid, Active House, Smart City SRS and Citizen Communication Platform. Most recently, KTH and a large national consortium are setting the research and innovation agenda for Sweden in a new program called [Viable Cities](#).



[EDP Comercial](#) (EDP C) shares both an energy retailer and an ESCo player perspective in both Portugal and Spain. The work with industry and services segments brought in experience in energy efficiency projects and energy management platforms. Due to continuous learning in those areas, EDP C holds knowledge about consumption profiles and efficiency opportunities that can be leveraged through analytics. The automation side of energy management is the natural way to enhance the savings in business clients.

Thermal inertia has been one of the key models studied and analysed by EDP C, when aggregating and offering its customers' flexibility.



[EDP CNET](#) has also experienced in [SENSIBLE](#), [Sharing Cities](#), [BestRES](#) and other [EU H2020 projects](#), similar challenges. The work carried out in these projects, from smart grids to energy management, led EDP CNET's fourteen people team to acquire knowledge in the energy value chain, adopting an integrated and sustainable approach towards disruptive solutions that empower its partners and bring value to its shareholders.

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The challenge



Although much experience is already granted by the partners, for having buildings offering flexibility and other services to the grid, national regulations should enable it. There are still countries where there is not a regulatory framework suited for the participation of aggregators, ESCOs and retailers in ancillary services market. Also, the problem of having different regulatory constraints in different countries, leads to different business models, which impact in value for the stakeholders.

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So, what can we expect from InteGrid?

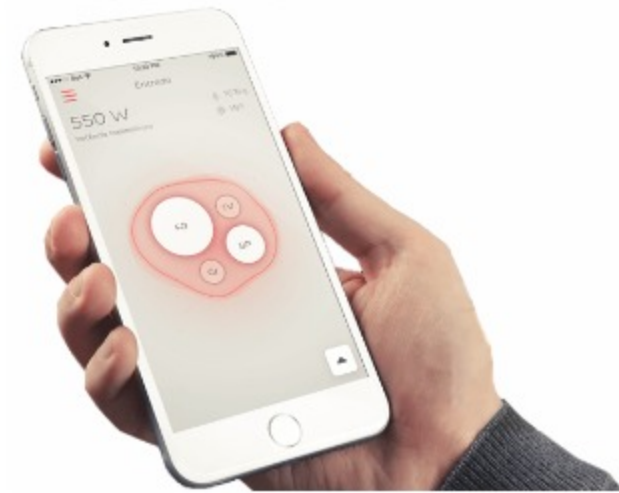


In order to achieve an effective flexibility trade, where offer and demand match without harming distribution grid safe, reliable and continuous operation, all the involved providers and procurers must easily signal all their flexibility -related availability and needs, respectively, before market participation. This is not a trivial endeavour, since it requires a harmonious integration link between all the impacted stakeholders, namely consumers, ESCOs/retailers and DSOs, that promotes a uniform exchange of information.

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Opportunities

While reducing the fossil fuel content of the global power production constitute a central mission of the Paris agreement – the increase of intermittent renewable energy sources such as solar, wind, and wave power, will put a substantial strain on the balancing capacity of the grid. Since battery storage technologies still are developing and are not always cost effective compared to other fossil fuels-based balancing mechanisms, such as gas turbines, the challenge is both to make the grid more stable, by having clean reserve capacity, and, more importantly, reducing the resulting fossil fuel peaks.



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Past Events:



Labora and III China-Portugal Energy R&D Seminar 2017 – Cascais, Portugal, October 2017

This year the Labora and III China-Portugal Energy R&D Seminar addressed the major challenges and opportunities that face the electric sector in technical, market and regulatory terms and that are arising from the increasing integration of production of electricity from renewable sources. InteGrid was presented by some invited speakers like João Gonçalo Maciel from EDP CNET, Ricardo Bessa – InteGrid's Technical Coordinator on behalf of INESC TEC – and EDP Distribuição's Pedro Godinho de Matos – InteGrid's Project Coordinator.



World Congress of Smart Energy – Wuxi, China, November 2017

Project InteGrid was presented by Mag. Marko Svetina, Managing director of cyberGRID at 7th World Congress of Smart Energy-2017 in Wuxi, China. The congress was part of the 9th Chinese Renewable Energy Conference and Exhibition.



InteGrid Project Day – Porto, Portugal, November 2017

At the end of the month, InteGrid partners EDP Distribuição, INESC TEC, EDP CNET, DNV-GL, AdTA, SAP and GE, gathered at FEUP's facilities to present the project status, discuss challenges and talk about future steps to a large audience.

Scientific articles published

R.B. Pinto, R.J. Bessa, M.A. Matos, "Multi-period flexibility forecast for low voltage prosumers", Energy, vol. 141, pp. 2251-2263, Dec. 2017. [Read the abstract here.](#)

J.R. Andrade, J.M. Filipe, M. Reis, R.J. Bessa, "Probabilistic price forecasting for day-ahead and intraday markets: Beyond the statistical model", Sustainability, vol. 9, no. 11, pp. 1990, 2017. [Read the abstract here.](#)

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