

Newsletter #11 - September 2019

The latest news about the Interflex project

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Editorial



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Significant shifts are under way in how electricity is produced and consumed in Europe. On the demand side, the switch to electricity for heating and cooling of residential and commercial buildings is gaining momentum. This is also true for the adoption of electric vehicles (EVs), as according to a recent Accenture study, EV sales in the EU are projected to grow by 30% annually between 2020 and 2030. On the supply side, wind and solar power are accounting for a growing share of electricity generated in Europe. The net impact of these changes will be higher demand peaks, but of shorter duration, both at national/continental level and at very local levels. The industry can manage this variability and volatility considering the local and decentralized aspects of flexibilities. The field is challenging, but full of new opportunities for energy stakeholders. Grid operators have started to consider various mechanisms to maximise the use of flexibilities for grid management, while retailers and aggregators are designing multiple services and offers to unlock untapped flexibility.

Accenture accompanies its clients in their large transformation projects to transition towards a zero-carbon economy, from strategy to process reengineering and implementation leveraging the full potential of digital and analytics technologies. We have developed an innovation-led approach to help our clients develop, deliver and faster scale disruptive innovations in the energy transition field, to allow them to imagine the future and bring it to life.

As one of the 20 partners of InterFlex, Accenture aims at maximizing the impact of communication and dissemination activities. Within this project, we set up various workshops and discussions on InterFlex results and its perspectives with external stakeholders, organized 3 community meetings gathering 50 to 70 stakeholders, and co-authored multiple articles with project partners and regulators. In addition, we also co-chair the BRIDGE Regulation Working Group, the European Commission initiative gathering the results of all H2020 storage and smart grids projects.

These activities will help to extend the impact of InterFlex with the objective to assist consortium members and its ecosystem in being stronger players of the European energy transition industry.



NICE SMART VALLEY: DAVID LISNARD, THE MAYOR OF CANNES, INAUGURATES THE LÉRINS ISLANDING SYSTEM

On July 16, Enedis, Engie, Socomec and the Municipality of Cannes inaugurated the Lérins-Grid project.

The Lérins Islands form an archipelago off Cannes with two main inhabited islands: Sainte Marguerite and Saint Honorat. As part of the French InterFlex demo "Nice Smart Valley", Enedis, its partners and the city of Cannes designed an innovative and environmentally friendly solution to ensure electrical security of the island.

Improving the reliability of the electricity supply on the islands

The Islands are historically supplied through a single submarine cable. If ever this cable is damaged (bad weather, boat anchor, etc.) the archipelago would then be cut off from any power supply, leading the DSO to deploy fossil fuelled generators, inducing noise and GHG emissions.

In the frame of the islanding use case of Nice Smart Valley, two storage systems designed by Socomec have been installed by Engie and Enedis to face such a situation with more environmentally friendly solutions. When disconnected from the mainland grid, the system continues to be remote controlled and supervised from Enedis grid control centre, guaranteeing the same level of quality and safety as during normal operations.

The DSO's battery storage, acting as a grid forming unit, can take control over the aggregator's

storage, acting as a grid supporting unit, thanks to a wireless communication system developed by Socomec.

A multiservice approach in order to reach economical viability

As any sustainable development project, the economical viability of the project is a key issue. In order to maximize the use of the installed storage systems, Enedis and Engie developed an innovative business model by allowing an aggregator such as ENGIE to use the DSO-owned storage on unregulated market activities when it is not used for islanding.

The mayor of Cannes acknowledged the successful work of the consortium to integrate such an innovative installation while respecting the Natura 2000-protected exceptional landscape and environment. A valuable recognition for the project partners and the subcontractors after two years of work.

« Islanding seems simple, but is in fact a technically complex operation [...] we did a lot of laboratory tests prior to the real scale experiment in March »
- Carole Ory, territorial director of Enedis Alpes maritimes.

« This project responds to the safety reliability and environmental respect of the power grid » - David Lisnard, Mayor of Cannes.

AVACON ADDS POWER LINE COMMUNICATION TECHNOLOGY TO THE GERMAN FIELD TEST SITE

Another big step has been made in the German InterFlex Demo. In Spring 2019 Avacon decided to extend its field test region to invite even more pilot customers to participate in the programme. First private household customers from the local districts of Syke and Diepholz, near the city of Bremen, have already been equipped with the new technical solution and welcomed in the project. The region reflects a representative mix of suburban and rural regions with a high penetration of DER, which offers perfect conditions for further testing of the developed integrated steering solution, the Smart Grid Hub, and its IT-infrastructure. So far the field test trials were focused on the region of Lüneburg.

Customers with flexible devices such as photovoltaic systems, heat pumps or night storage heaters used for central heating were equipped with a digital meter, smart meter gateway and control box. This makes small scale flexibilities

both accessible and controllable for the DSO.

A key learning from the early phases of InterFlex was that only a surprisingly small share of interested customers can actually be involved in the flexibility mechanism that Avacon is demonstrating. The reasons are manifold, ranging from a lack of LTE-connectivity to technical and regulatory barriers. As a result, Avacon was falling behind expectations to acquire enough customers in the Lüneburg region even though a sufficient number of potentially interested parties signed up initially.

By expanding the field test area to the region south of Bremen, Avacon expects to increase the number of customers that are online and participating in the flexibility mechanisms, and hopes to gain more insight into how different regions respond to the use cases presented in InterFlex.



<<< Kick-Off for InterFlex in the region of Syke and Diepholz left-to-right (Member of the board of Avacon: Dr. Stephan Tenge, District Administrator of Diepholz: Mr. Cord Bockhop, Avacon political affairs: Hermann Karnebogen and Project Manager of the German InterFlex Demo: Thorsten Gross

LAST ROOFTOP PV SYSTEMS WITH BATTERIES NEEDED FOR THE CZECH DEMONSTRATION ARE INSTALLED

CEZ Distribuce and its partners aim at demonstrating how the combination of new smart PV inverters with residential storage batteries, under real operating conditions within LV distribution networks, can increase the DER hosting capacity and flexibility in case of grid constraints. A successful demonstration requires appropriate conditions for testing residential PV systems using smart PV inverters with residential batteries installed under preselected MV/LV secondary substations.

An area with high penetration of PV systems and residential batteries compared to the baseline scenario were needed. To obtain a high penetration of systems in the selected LV network, CEZ Solarni secured customer recruitment and the subsequent installation of rooftop PV systems with smart PV inverters and residential storage batteries in the Luzany area.

The last systems needed for the project were installed and commissioned in July and August 2019. The demonstration of solution is ongoing and will be evaluated in the upcoming months.



Fronius PV inverter + battery storage system + control box – equipment used for demonstration of smart energy storage concept under WP6



E.ON IS EXPERIMENTING EXTENDED ISLANDING WITHOUT BACKUP GENERATOR

As an attempt to fully utilize renewable energy sources in the Swedish demo, the Local Energy System in Simris is attempting to power the village in islanded mode for two full weeks without using the backup generator.

By doing this, the system is forced to optimize the use of the battery systems in place and to maximize the use of the residential assets. During summer, we can take advantage of a high solar radiation and a fair amount of wind due to changing temperatures. These circumstances make it possible to produce high levels of renewable energy.

By having the Redox Flow battery as an additional energy storage, we have been able to run Simris in islanded mode on only battery power from 7pm during night time until 8am, which is an encouraging result.

This situation, coupled with limiting curtailment of renewable energy sources, also enables possibilities to further test the failsafe procedures implemented in the control system to fall back into grid connected mode. Still fully utilizing the DSR assets by staying in virtual islanded mode.



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