Project LEO Newsletter





Local Energy Accelerating Net Zero

As Oxfordshire's energy system becomes increasingly decentralised and new low carbon energy projects are becoming more frequent, it is becoming increasingly important to develop fully connected and integrated systems, moving towards a smart local energy system.

Digitalisation and the introduction of technology platforms will play an important role in this transition helping to automate and standardize the participation in new markets.

Work package 2 (WP2) in Project LEO focuses on understanding the integrations between the various types of platforms needed to facilitate local flexibility markets, including the DSO neutral market facilitation platform, marketplace (PICLO), Flexibility providers (Nuvve, Origami, EDF Powershift). The WP2 partners will look at the time frames, data transfer, and processes necessary in order to facilitate end-to-end fulfilment of a number of different flexibility services.

Throughout the first 9 months of Project LEO, the WP2 partners have had a series of workshops defining the requirements necessary for end-to-end delivery of flexibility (starting from the DSO identifying the need for flexibility, all the way to settlement of that flexibility activity). This end-to-end process should be suitable for a variety of different flexibility services; the main services to be tested within LEO are set out in the TRANSITION "<u>Services</u> in a Facilitated Market ". As the end-to-end process is developed, seamless integration between the different platforms will be necessary to ensure the process is automated and as efficient as possible.





WP2 partners tactically negotiating flexibility sale and testing the market rules at the DSO Market Simulation workshop organised by Origami.



Minimum Viable Systems



The processes are being tested in an iterative and agile manner through a series of Minimum Viable Systems (MVS). In the first MVS, SSEN tested uploading its need for flexibility on an innovation environment of the Piclo Platform, the Low Carbon Hub bid in with a battery and the flexibility was dispatched. Both the battery and the SSEN substation were monitored to determine the flexibility was correctly dispatched and the agreed upon settlement was transferred from SSEN to the Low Carbon Hub. Over the coming months this process will be tested using a variety of different assets, providing different services, with the goal of automating the interactions between all the parties.

Over the next 6 months...

The partners of LEO will continue to refine the processes and functionality needed to facilitate an automated end-to-end fulfilment, while continually building and testing these new features. In addition to participating in WP2 workshops on designing the end-to-end process for delivering flexibility, Nuvve has been active in signing up customers in the Oxfordshire area. The first V2G charging stations for Project LEO are expected to be installed in Q2 of this year. In the next few months, Nuvve will be working with the other consortium partners to develop the first Minimum Viable System (MVS) tests of local flexibility services and the end-to-end process with bi-directional electric vehicles.

Nuvve's vehicle-to-grid (V2G) platform, called GIVeTM (Grid Integrated Vehicles), offers reliable, powerful charging for electric vehicles (EVs) that enables twoway energy flows between an EV battery and the electric grid. Instead of just charging an EV (one-way exchange), Nuvve's solution allows an EV to become an active participant in the transition to cleaner



energy by storing energy and then discharging it back to the grid. In Project LEO, Nuvve will be integrating with Piclo Flex to aggregate and optimize EVs situated behind the meter at the edge of the distribution grid.

Nuvve's V2G technology unlocks the value of a parked EV and makes better use of it at times when it isn't being driven, i.e. in the middle of the night by contributing to grid resources rather than taking from them. In this way, Nuvve helps to lower the total cost of EV ownership. In Project LEO, this untapped potential of EVs will be furthered through local flexibility services.

More about our partnerships..





EDF Energy is one of the flexibility providers with its platform Powershift, providing flexibility by aggregating storage and decentralised generation for grid services. This platform could interact with the Piclo Flex Platform to deliver services for the DSO. Our current focus of the WP 2 is to ensure a seamless interconnection with the various pieces of the market platform.



In Project LEO, Nuvve will be integrating with Piclo Flex to aggregate and optimizes electric vehicles situated behind the meter at the edge of the distribution grid. As more electric vehicles are sold, customers will need a place to charge them, and if unmanaged this can place a strain on the electric grid. By connecting in unidirectional and bi-directional electric vehicles, customers can save money on their bills or generate some revenue by bidding in their flexibility. Project LEO will demonstrate that unidirectional and bidirectional EVs in Oxfordshire can participate in DSO markets. This unlocks real value from the vehicles participating in local flexibility markets and combines flexible vehicle resources with other assets such as microgrids, solar, battery storage, and large flexible loads.



Origami is providing expert knowledge on the market operation and commercial requirements for development of flexibility services to enable the transition from DNO to DSO and move towards a more reliable and efficient energy system. As one of the technology platform providers on Project LEO, Origami also offers a commercial solution for the automatic dispatch and monitoring of flexible energy assets in near real-time. Origami also provides a real-time feedback loop to minimise the cost of delivery of flexibility services to DSOs. Currently Origami has over 650MW of assets enabled through the platform and is a project partner on TRANSITION and FUSION innovation projects.

Ppiclo®

Piclo is using its Piclo Flex Marketplace in project LEO, providing a special innovation environment of the platform, to trial trading of new DSO flexibility services between the DSO and other project participants. As part of Project LEO Piclo will look to add new features and automate the end-to-end interactions between participants and the Piclo Platform.















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