OPENADR EUROPEAN CASE STUDY

DEMAND-SIDE RESOURCE AGGREGATION

Pearlstone Energy and National Grid

PROJECT GOALS

Electricity demand is increasing whilst traditional generation is on the decline, and renewable energy is intermittent in nature which creates complexity. Demand-Side Resources, or DSR, addresses this issue by incentivizing non-domestic consumers of energy to turn down non-essential electrical plant in their buildings during times of stress on the grid. This process is commonly known in the industry as 'Flexibility.' Until recently, DSR was for the top 1% of energy users. Solutions such as Pearlstone's Virtual Integrated Building (VIB) technology enable a greater range of organizations and customer profiles to generate revenue this way.

Pearlstone

nationalgrid

PEARLSTONE ENERGY

Pearlstone Energy is a recognized and approved National Grid DSR aggregator and technology company providing services to commercial and industrial customers. As an innovative developer of clean DSR technology integrating smart building systems with the electricity grid, Pearlstone manages and monetizes flexible load in buildings creating value for clients that would find it difficult to achieve on their own. The company's Virtual Integrated Building (VIB) and cloud-based technology is proprietary to Pearlstone and allows the company to perform in-house data analytics and match client capacity with electricity grid needs in an automated fashion. Pearlstone aggregates underused flexibility with no impact on customer operations or comfort levels in buildings and creates a new source of revenue for its clients with positive environmental benefits.

NATIONAL GRID

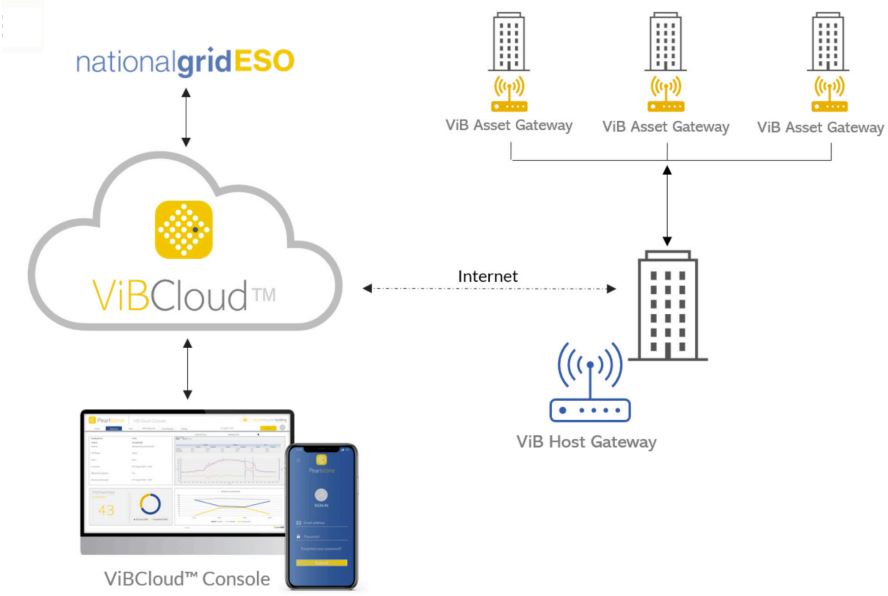
Demand-side response (DSR) plays an important role in ensuring National Grid can keep the lights on by balancing supply and demand. Electricity demand is increasing whilst traditional generation is on the decline, and renewable energy is intermittent in nature adding to the problem. National Grid operates several DSR schemes known as balancing and ancillary services to incentivize customer participation. With an aggregated pool of contracted buildings, Pearlstone can then sell acquired DSR flexibility to National Grid and then share its revenues with its connected customers.

For more information
please visit
www.openadr.org

openADR ALLIANCE

PROJECT IMPLEMENTATION

Organizations with large portfolios of buildings have previously not been able to participate in demand-side response due to the high cost of implementation and connectivity across their estate. VIB has been created and designed by Pearlstone to allow customers with multi-site environments and smaller buildings access to new markets using low-cost, cloud-based connectivity to control DSR events simultaneously across their portfolio of facilities. Pearlstone installs VIB at no cost to the customer who will also benefit from the share of long-term savings and revenues.



TECHNICAL INTEGRATION AND PARTNERS

Providers of Distributed Energy Resource Management Systems (DERMS) generally integrate the OpenADR protocols on behalf of their utility customers. Aggregators such as Pearlstone work with businesses to maximize the flexibility they can offer the to the grid and manage their participation. NG is in the process of introducing minimum standards around sales and marketing, cyber security, proposals, contracts and complaints, giving customers the confidence to make an informed decision about the aggregator they work with. Pearlstone is working to develop a Virtual Power Plant (VPP) using the OpenADR 2.0b communication protocol to securely and reliably operate Demand Response (DR) and distributed energy resources (DERs) over public Internet infrastructure, providing ancillary services to the transmission system operator (TSO).

OpenADR provides a non-proprietary, open standardized DR & DER interface that allows DSR service providers to communicate DR, DER, and TE (Transactive Energy, Blockchain & IoT) signals directly to existing customers using a common language and existing communications such as the Internet. Cyber Security is an important component of the Smart Grid and customers are getting more concerned about it. OpenADR helps to fulfil our role in ensuring strong Cyber Security in the Smart Grid. Those providers typically test and certify their integration with the OpenADR Alliance, to ensure interoperability with the systems managed by the utility's program partners.

About OpenADR Alliance

The OpenADR Alliance brings together over 150 system operators, utilities, aggregators, controls vendors and solution providers to support the growth of this international standard (IEC 62746-10-1). There are currently over 200 certified OpenADR products.