

ZIV Webinars

ANM Series



12:00 to 12:20 CET
including Q&A

1

March 24th
ANM / DERMS Benefits

2

March 31st
VPP Management

3

April 28th
ANM: Centralised or de-Centralised?



Webinar 1 DERMS/ ANM



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ANM Benefits

Background

Over recent years, there has been a significant growth in the number of distributed generators seeking to connect to the Distribution Networks

Active Network Management (ANM) systems are a key tool in enabling the integration of large numbers of DERs safely and effectively.



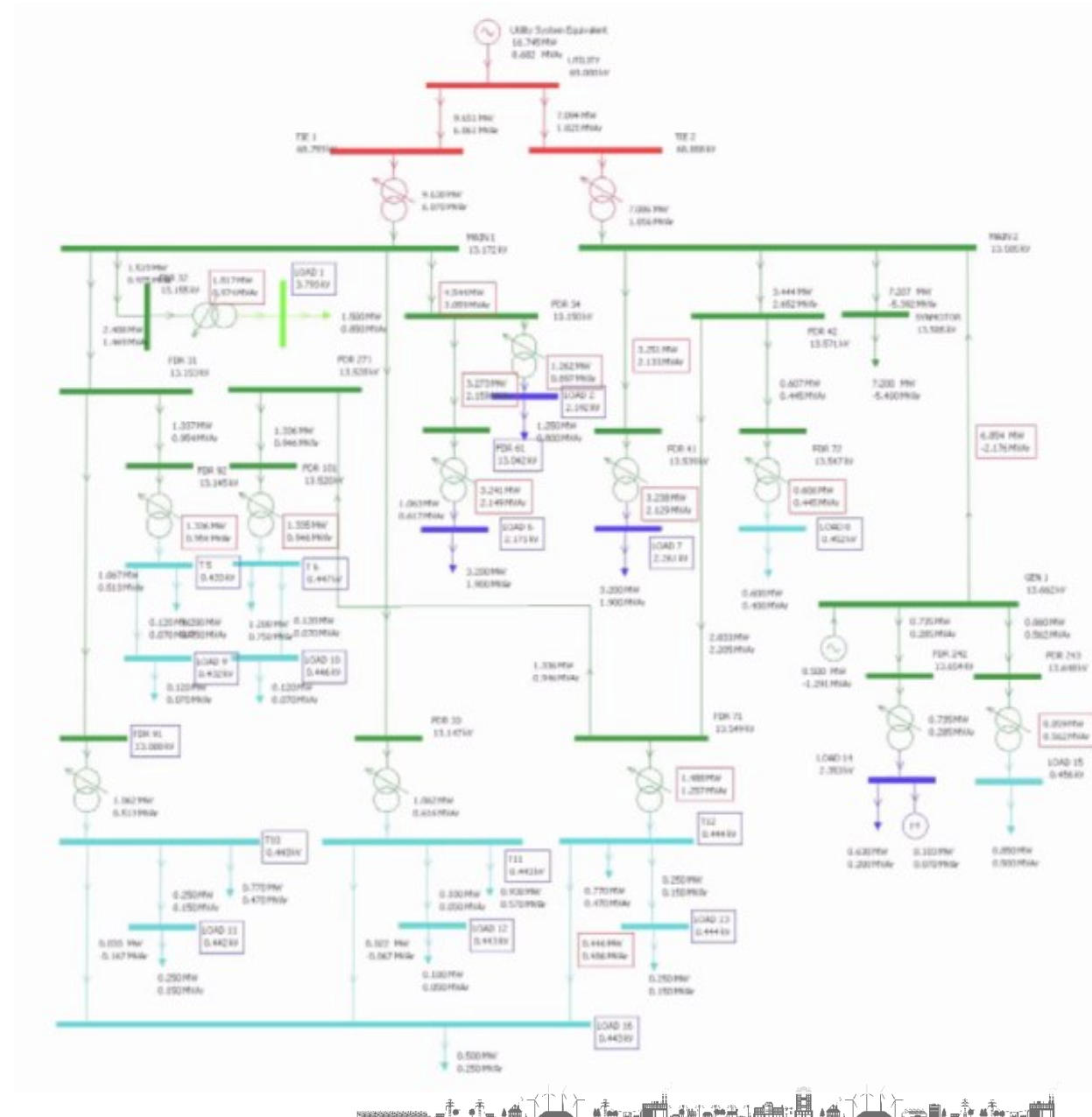
Need for ANM

To provide a reliable and safe way of adding quantities of DERs to the existing network.

Identify and manage network constraints in real time

Delaying the need for expensive reinforcement of the existing grid

Ensures that DERs operate within the Grid Code



Uses for ANM

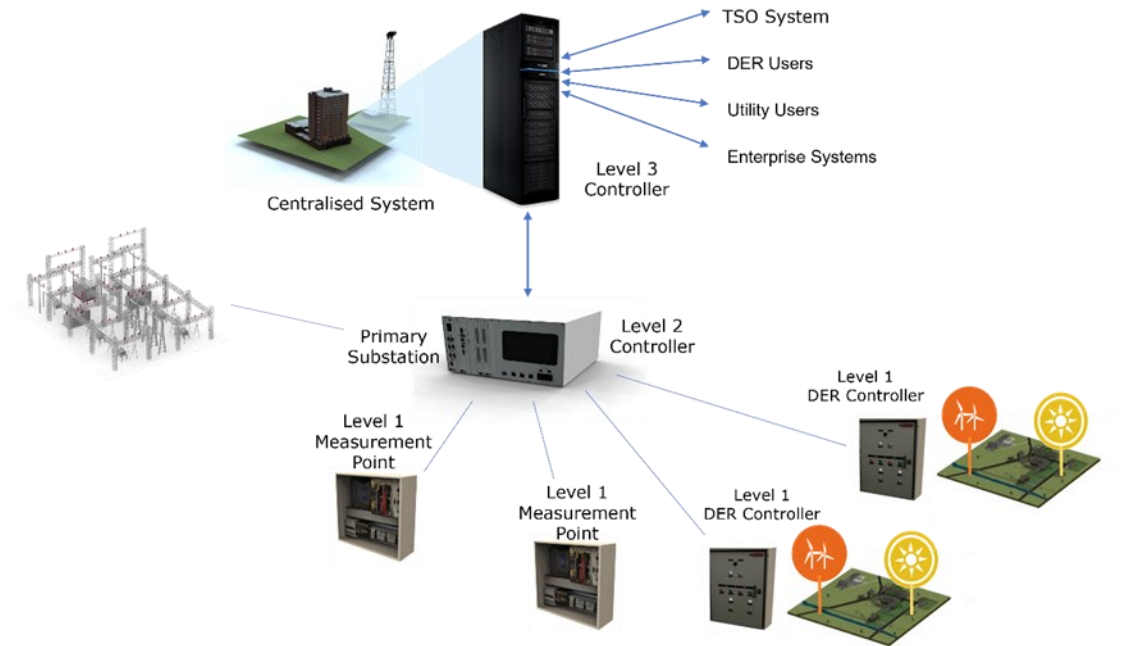
Managing Thermal constraints in real time during periods of high generation

Managing High voltage when there is low demand and high generation

Dynamic voltage stability requiring reactive power compensation

Optimise the connection of DERs on the network

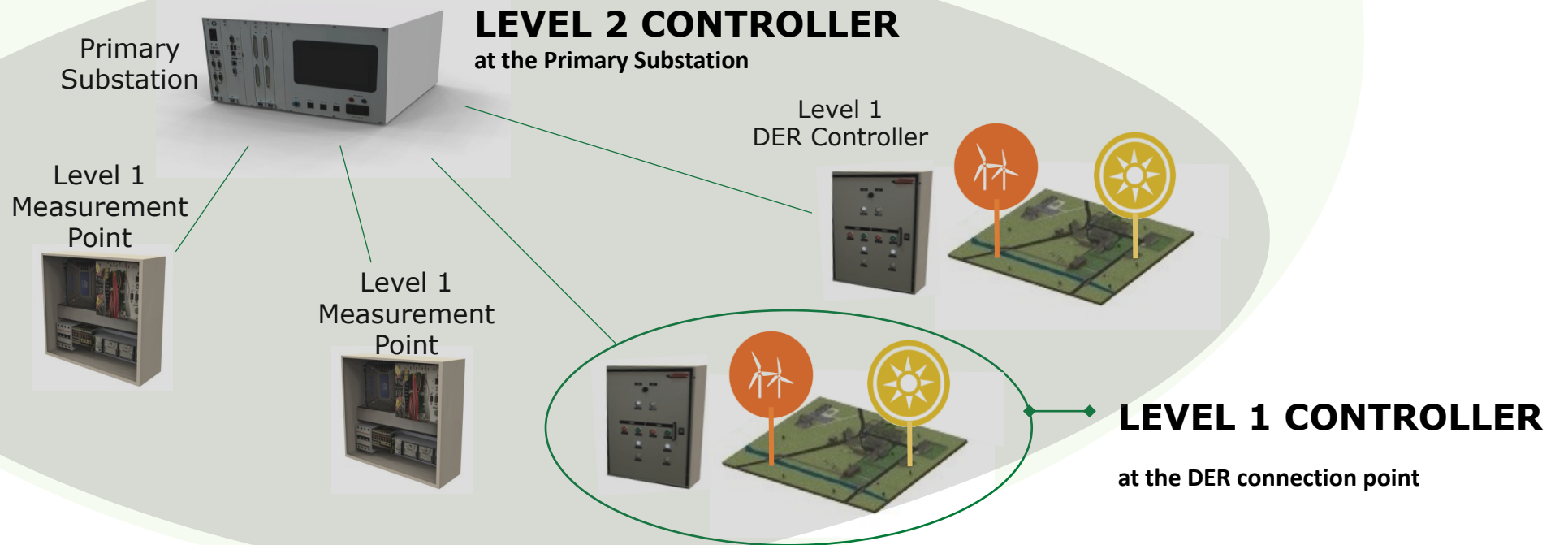
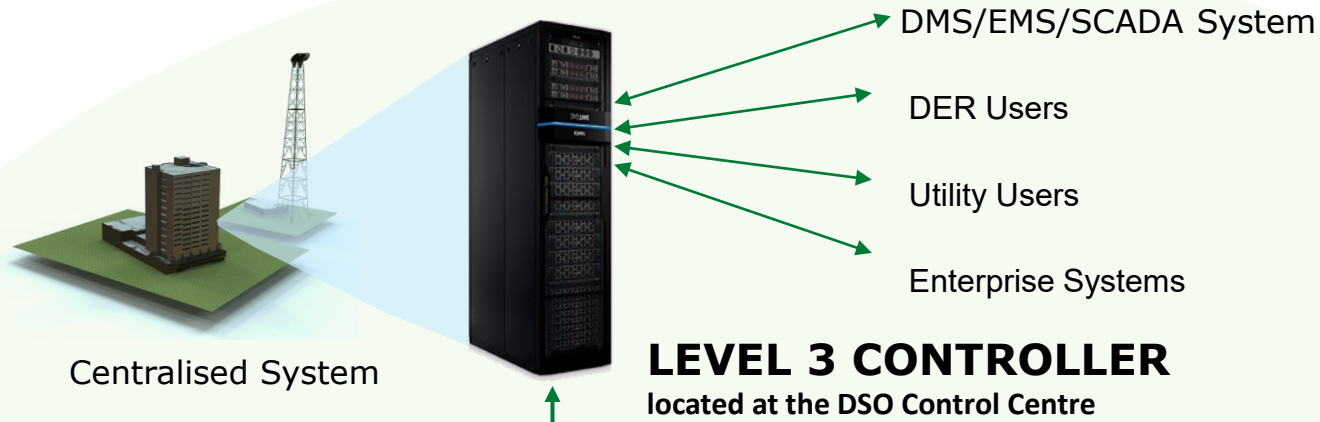
Provide operational support for Trading Platforms



System Architecture

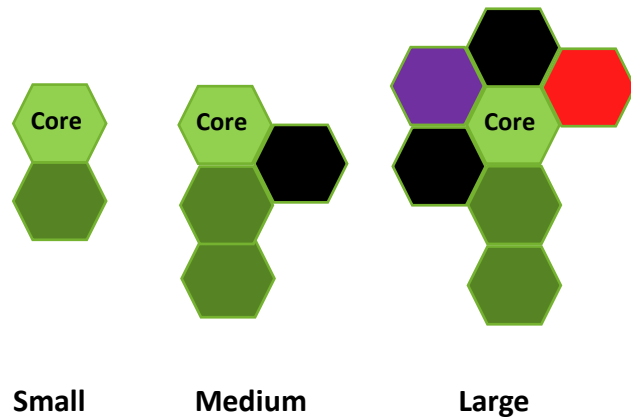
Levels 1, 2 & 3





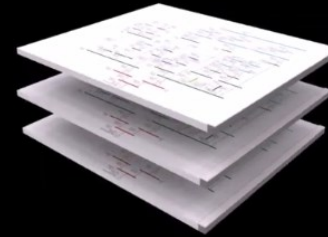
Key Attributes

Incremental Deployment

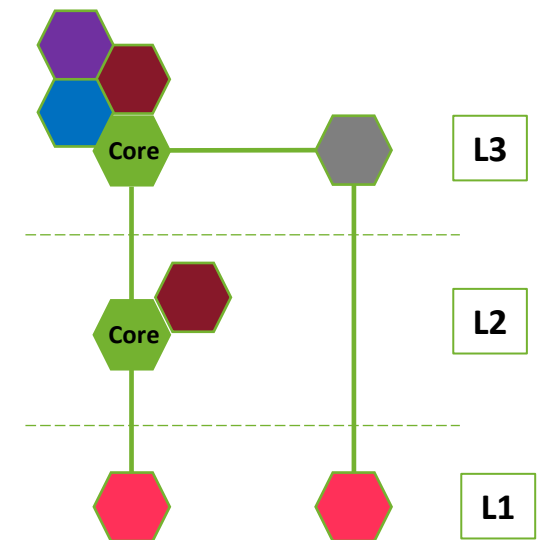


Realtime Network Analysis

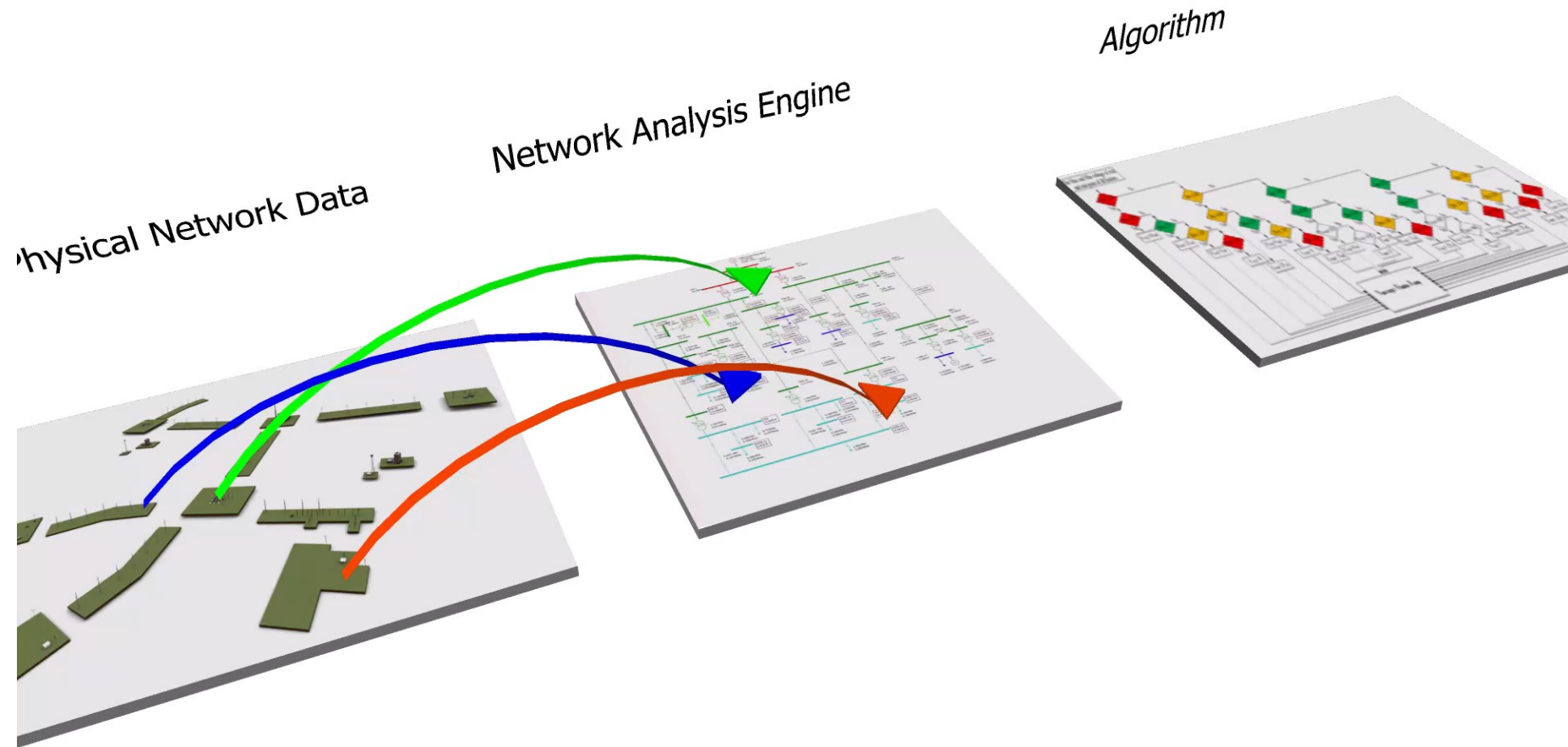
NOVA Analysis engine powers the advanced optimisation and control applications



End-to End Platform



Analysis Engine



Applications

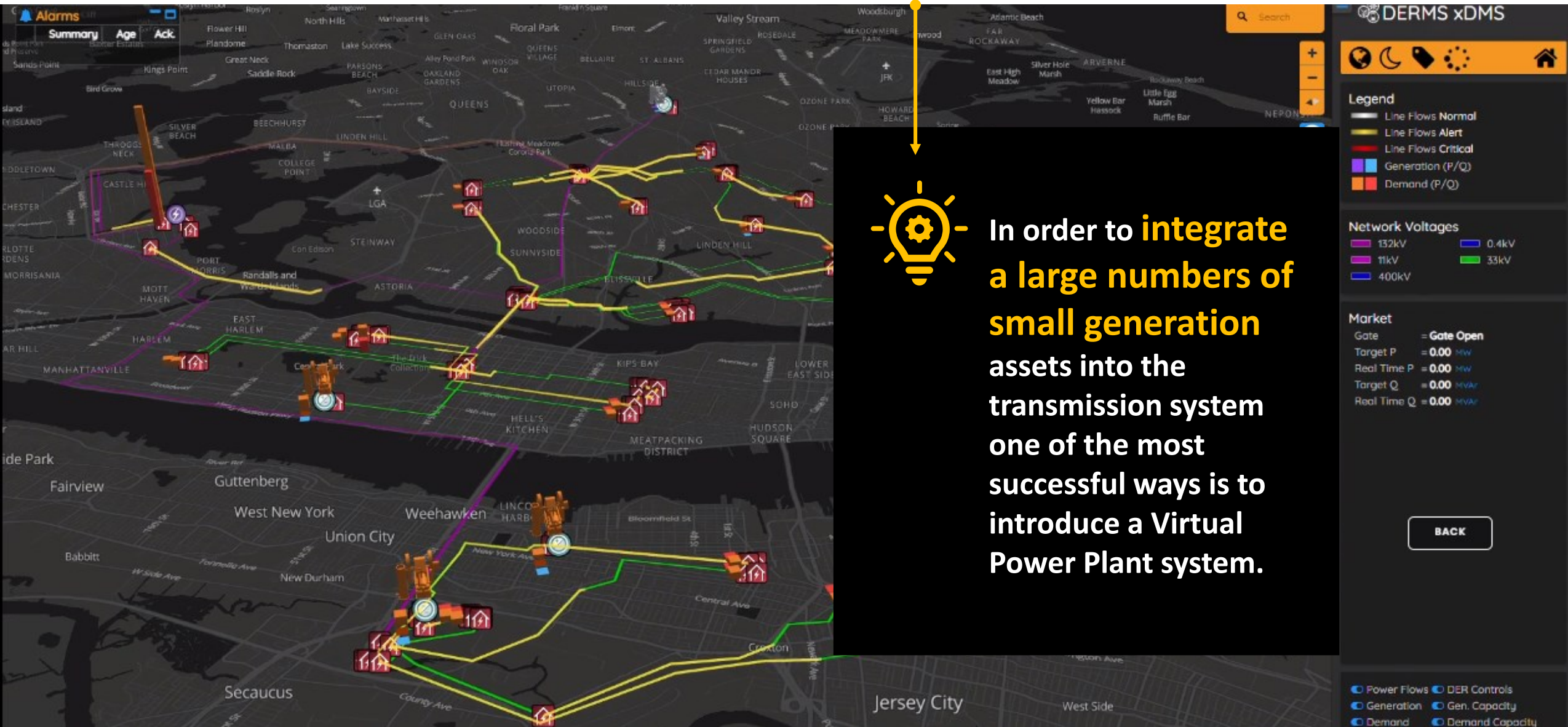
Realtime Loadflow Analysis	The Load Flow Component of the Nova Engine performs a set of calculations using a model of the power system network and power flow data both obtained from the ANM FEP. The network model and the power flow data may represent historical, forecast, simulated or real-time data depending on how the Nova Engine is being used.
Thermal and Voltage Violation Detection	The Violation Checking and Generator Curtailment module involves running the power flow analysis and identifying all the thermal and voltage constraints in the network. Several settings are available to allow users to define the thermal and voltage limits for components on an individual and system wide basis.
Rating Analysis and Contingency Analysis	In order to ensure that the system is capable of delivery of the required services at all times this module uses contingency analysis to establish that the power flows and voltages remain within acceptable limits under defined abnormal or N-1 running arrangements.
Fault Level Analysis	Real time calculation of system fault levels allows the management of circuit breaker operations. Integration with available DERs enables a system where DERs can be tripped, and breakers can be managed in order to reduce excessively high or low fault levels if required.

Webinar 2 DERMS/ ANM



Virtual Power Plants Management

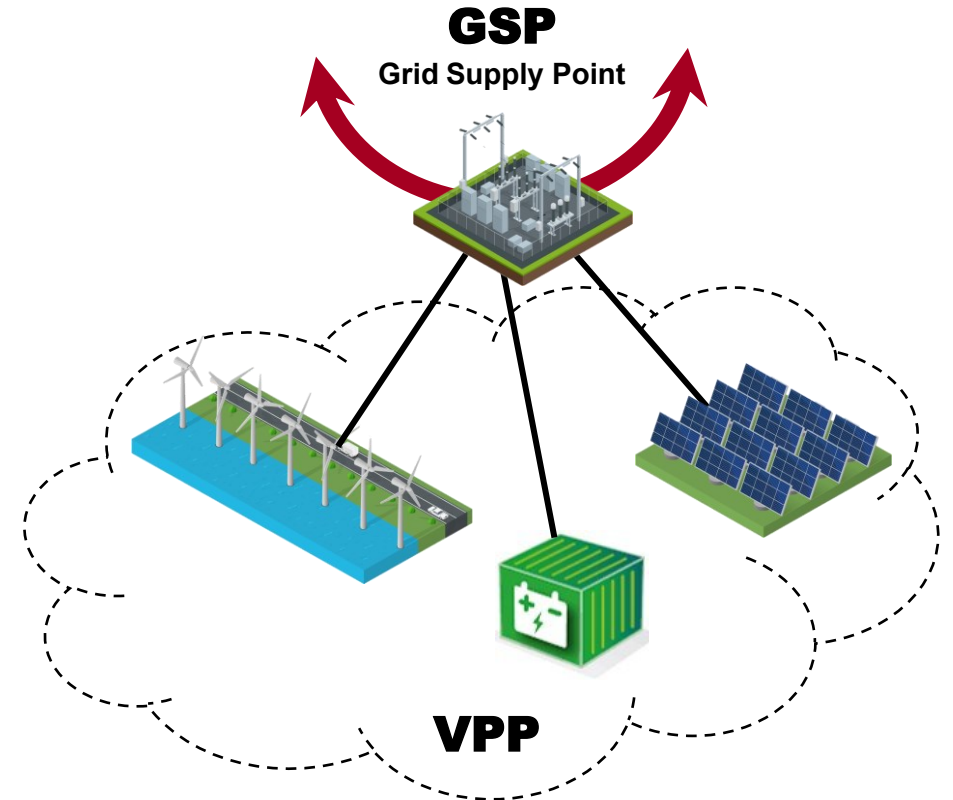
Background



In order to **integrate a large numbers of small generation assets** into the transmission system one of the most successful ways is to introduce a **Virtual Power Plant** system.

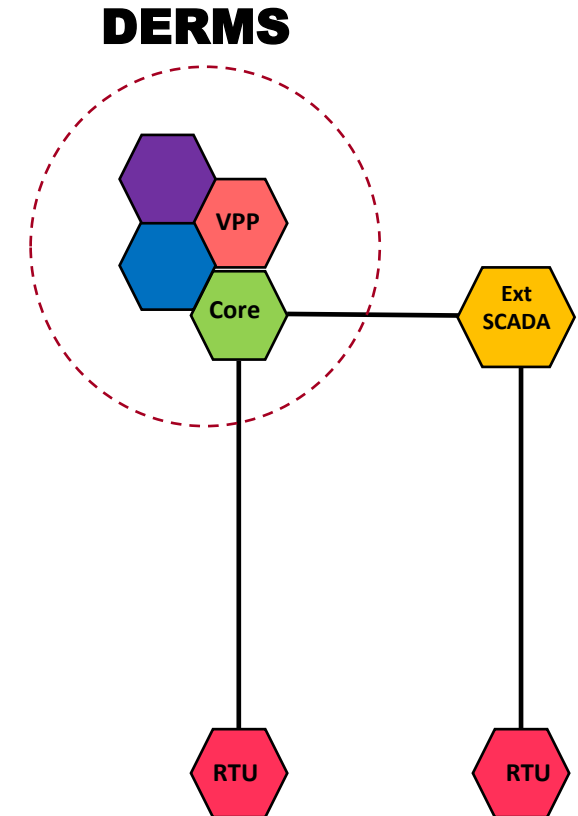
Objectives of a Virtual Power Plant

1. Integrate the many smaller generation and storage assets onto the Grid
2. Balances the Active and Reactive power requirements at the GSP for the Grid
3. Predict the generation demands of the future
4. Support the operation of Trading Platforms
5. Dispatch the energy requirements in real time



VPP functionality

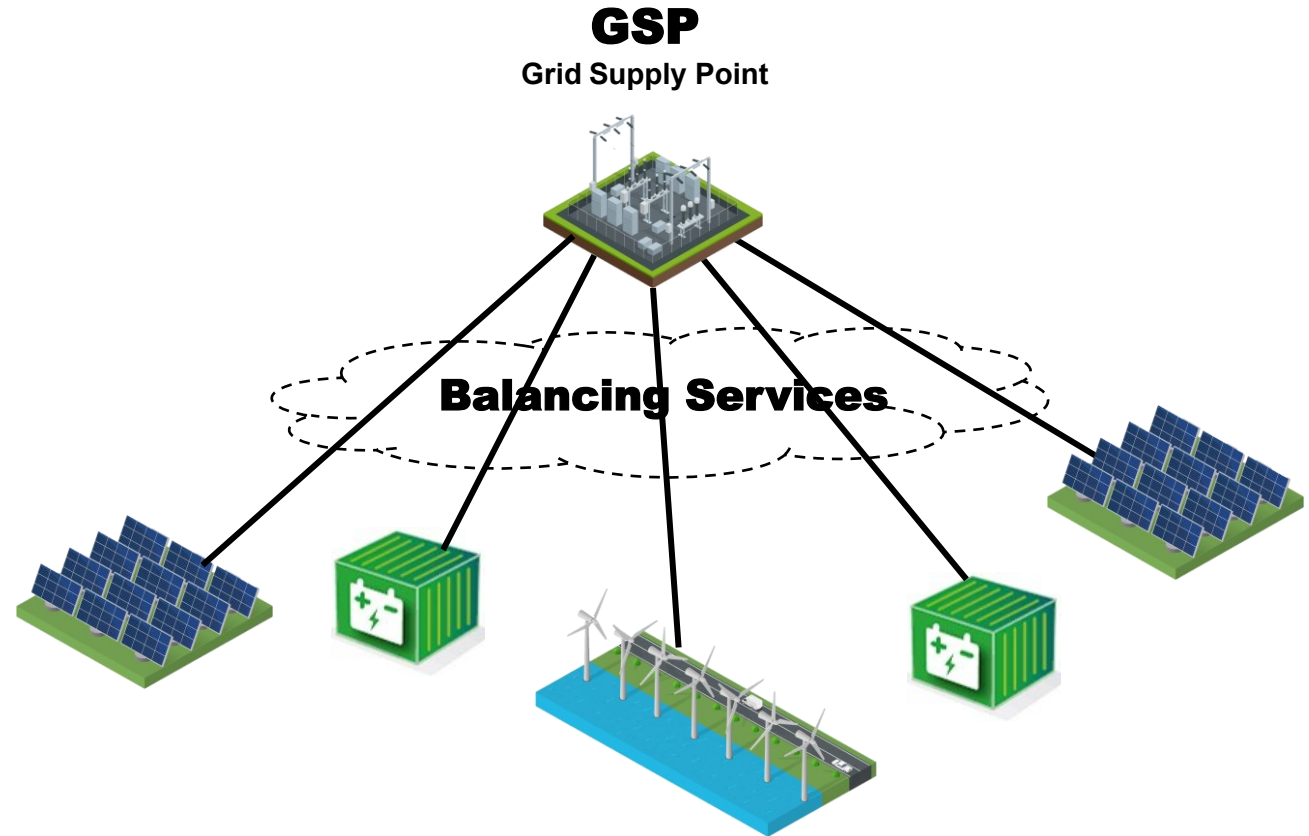
- Optimise the selection of DERs to balance Grid demand based on LIFO, Cost, technical or agreed model
- Managing Thermal and Voltage constraints during selection of DERs
- Forecasting generation capacity for day-ahead or Week-ahead using the Predictor module
- Schedule the dispatching of energy from the controllable DERs for the future, or in real time.
- Provide operational support for Trading Platform
- Audit actual services provided by the VPP system



Balancing Services

Facilitation of future services uses either a gate-based bidding process or a simple cost-based scheduling service.

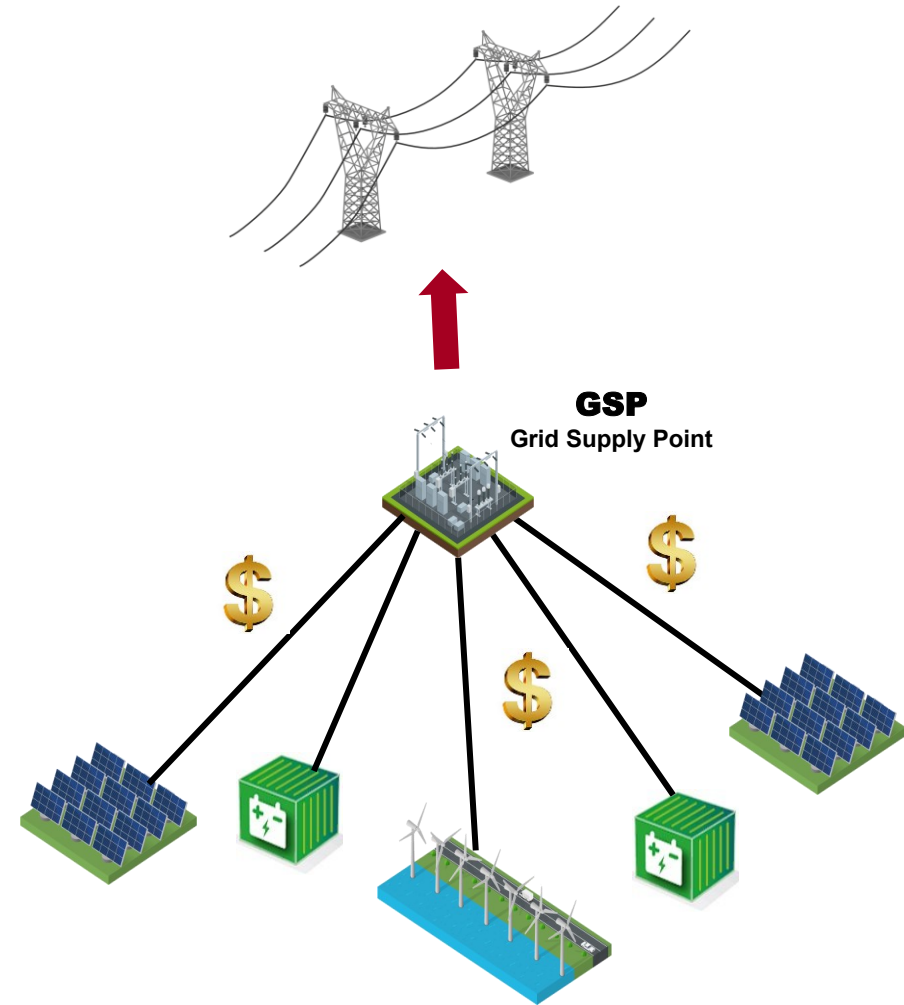
The Balancing Services then use the appropriate real time modules to automatically dispatch the accepted DER services in response to the live network conditions.



Trading Platform

Facilitates DERs offering their available energy by participating in a market driven service. This service may be real time, day ahead, or future services.

The platform offers the available generation predicted for that period, accepts Bids, awards contracts and can automatically dispatch the accepted DER services in response to live network conditions.



Predictor Module

The Predictor provides short and long range predictions of Generation for use in the decision making processes.

It uses neural forecasting to predict DER output based on historical data and current weather forecasts , date time and other factors.

It supports an active learning process where the neural model is continually learning from historical data to optimise the accuracy of the predictions.



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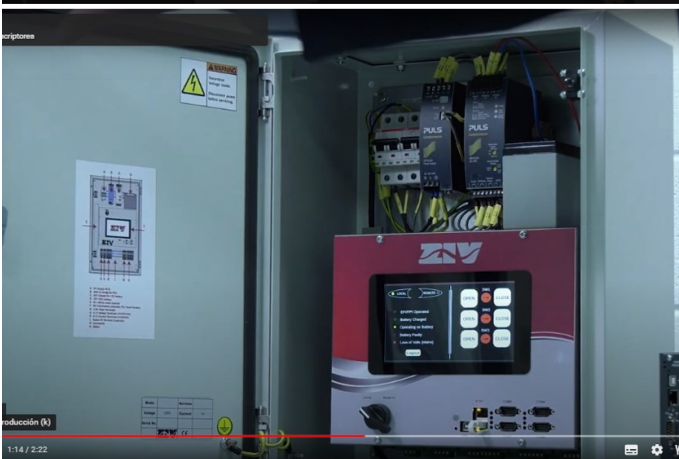
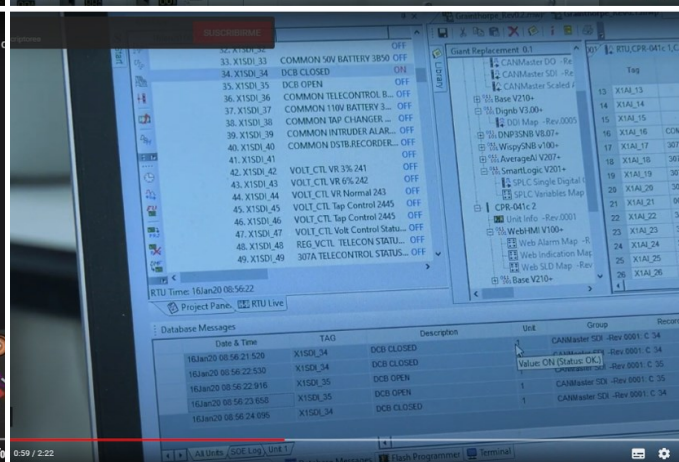
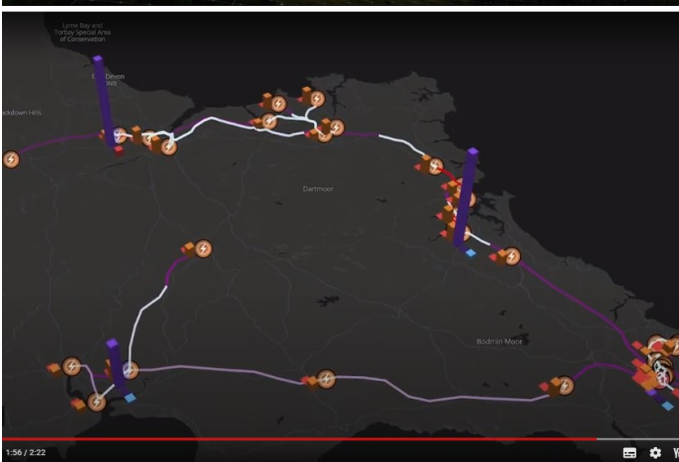
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VPP Management

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Register now [HERE!](#)



Thank you!

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