

with the grid

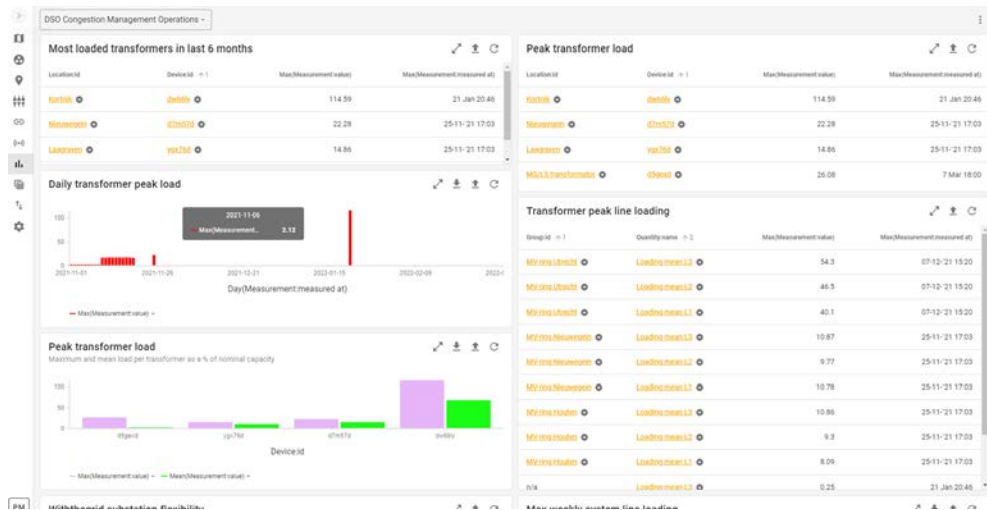
Teleport: Unlocking the flexibility of assets

Overview

# Withthegrid provides asset monitoring software for TSO/DSO's and a gateway to control energy assets

Withthegrid solutions

## Asset monitoring: AMP



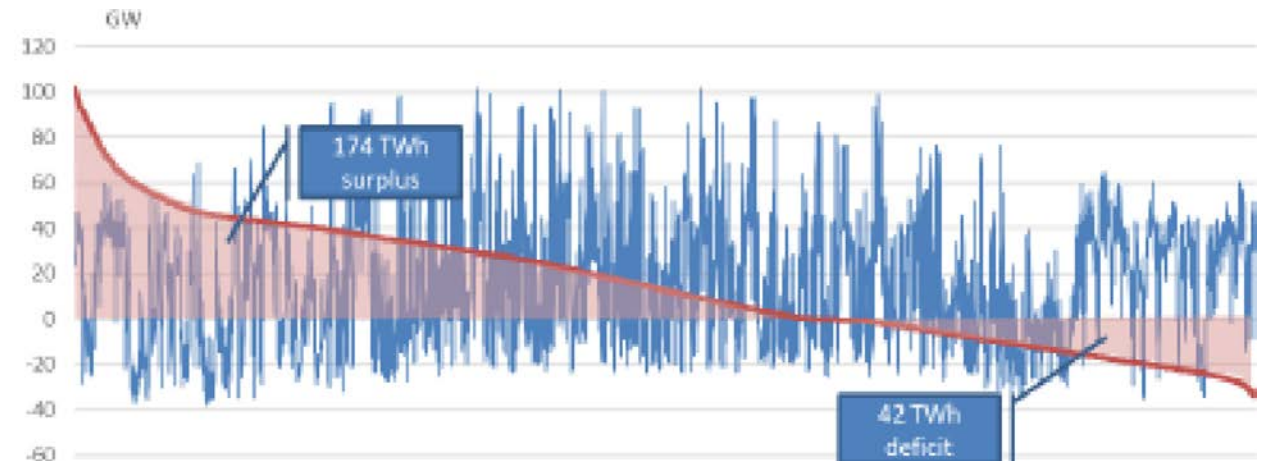
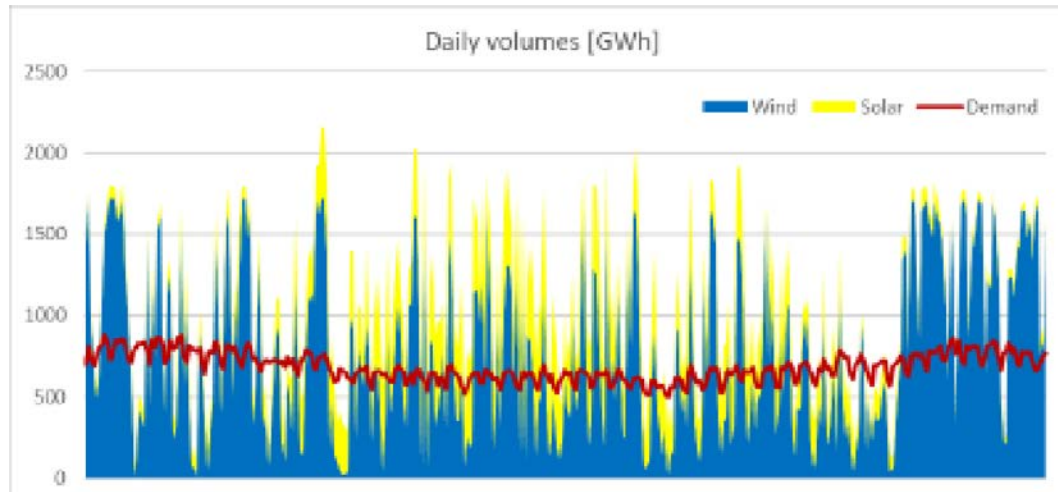
FOCUS

## Asset Control: Teleport



# Enabling real-time, reliable and safe asset control is crucial for our future energy system

Netherlands energy system in 2050



- 60% of the year there is electricity surplus
- Surplus can be up to +100GW
- Deficit can be up to -35GW

# The control of smaller assets must also be enabled to increase the required flexibility

Teleport project size scope

Large projects (>100MW)

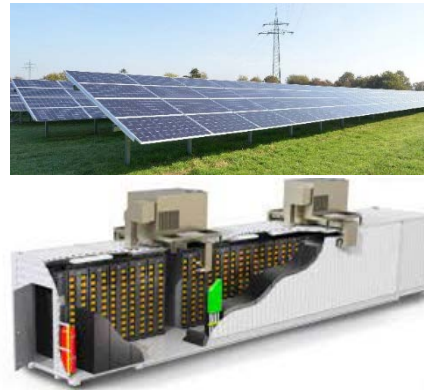


SCADA controller (custom per project)



**FOCUS**

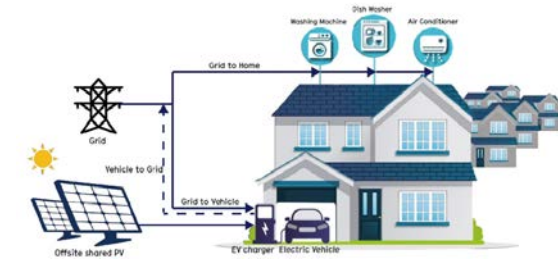
Mid-size projects (100kW-100MW)



IoT controller (pre-defined protocols, connected to own cloud)



Small projects and households (<100kW)



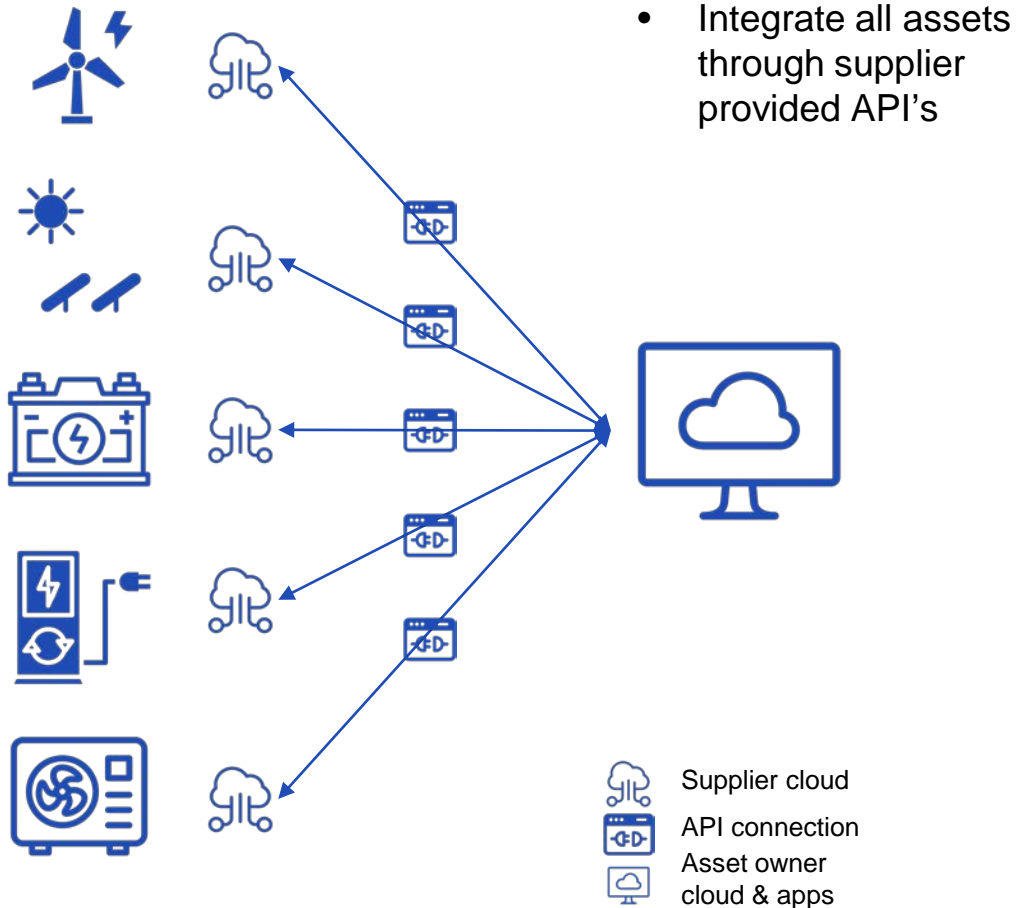
End-to-end solution (controller + operating software and user interface)



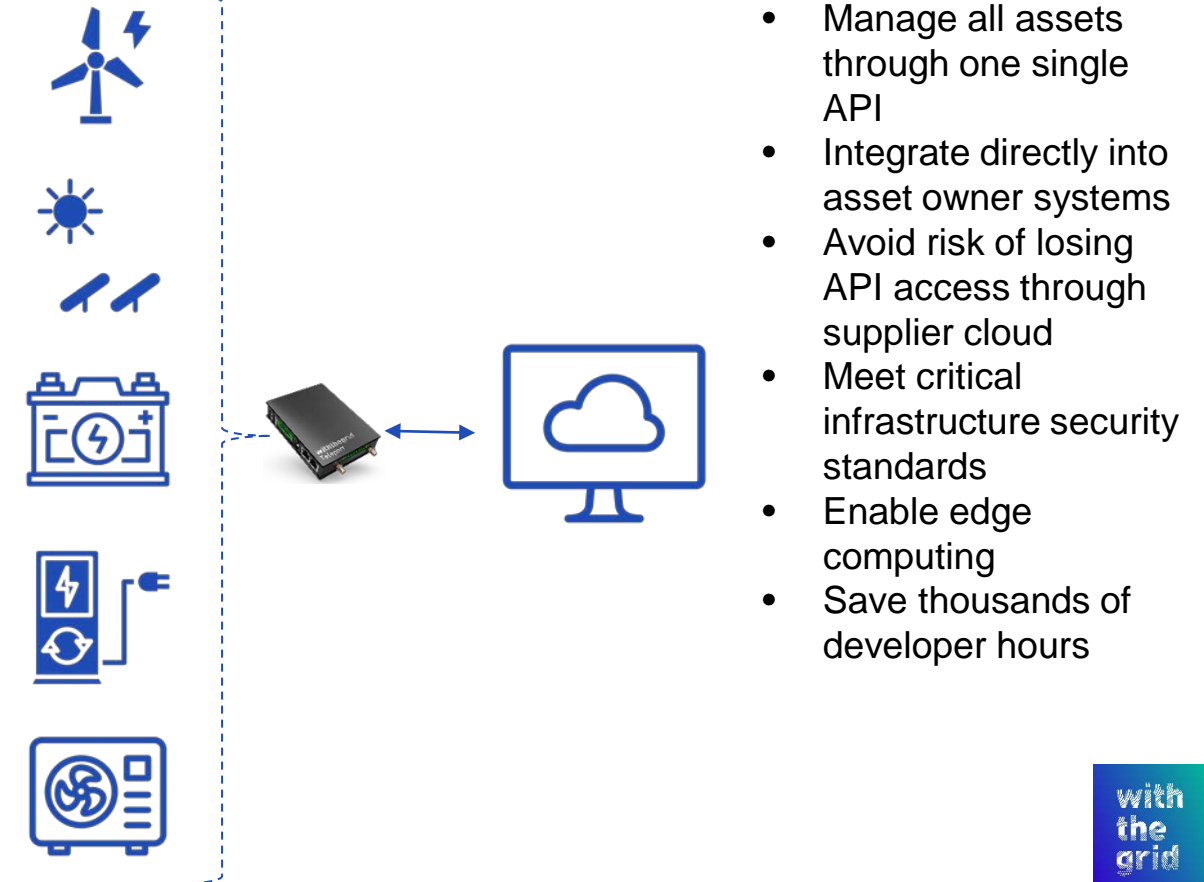
# This increases the asset diversity making a secure & reliable data connection complex and difficult to maintain

Teleport approach

## Supplier cloud approach



## Asset owner cloud approach



# The Withthegrid Teleport connects all your energy assets to your cloud out of the box



## Teleport

Real-time cloud control of energy assets

Introduction

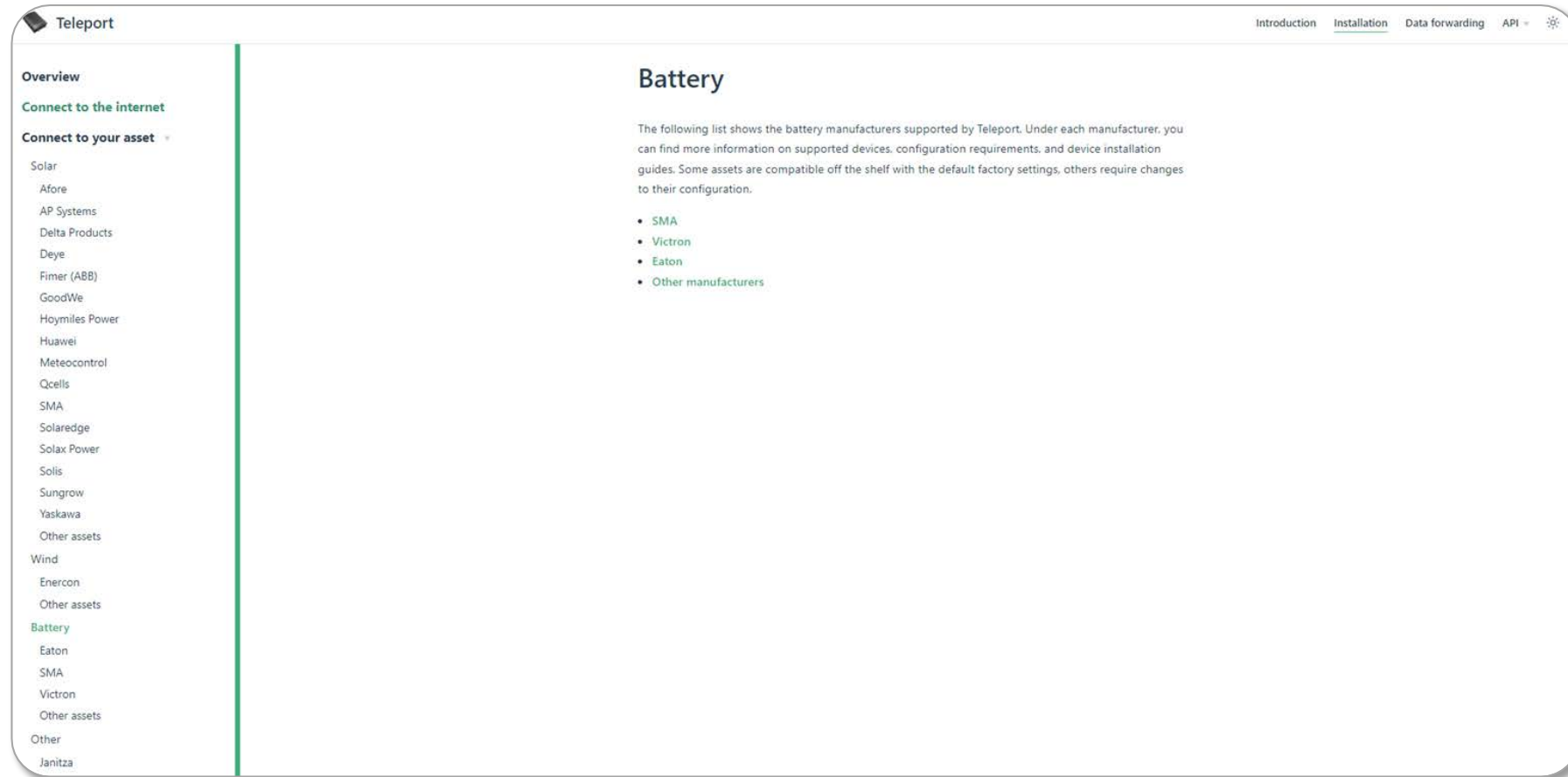
Use the API

<https://teleport.withthegrid.com/>

with  
the  
grid

# With a growing asset library to enable a frictionless installation and maintenance process

Currently >150 asset types connected



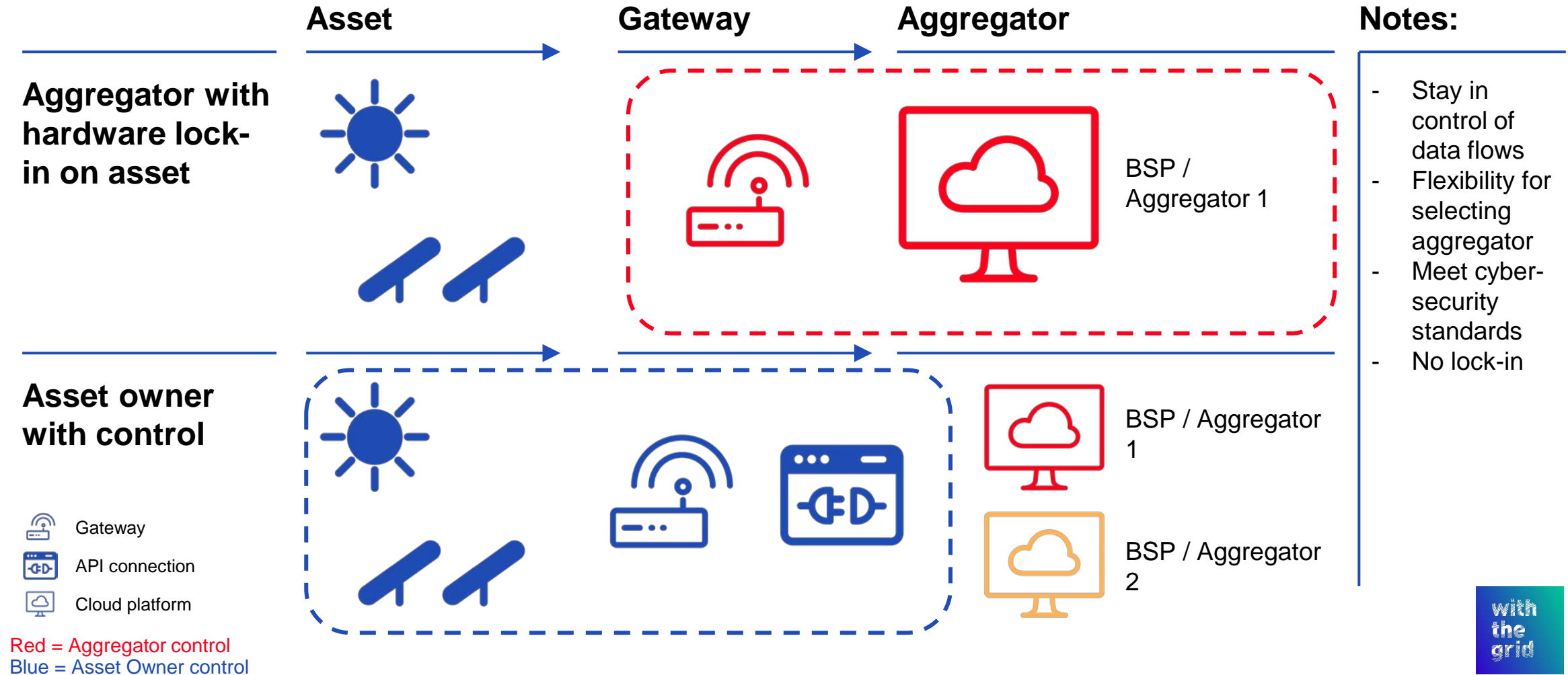
- 1 codebase for all Teleports
- Automatic asset fingerprinting (no configuration)

<https://teleport.withthegrid.com/>



# The Teleport enables you as an asset owner to regain control of your asset and data flows

Asset owner value





# Your energy assets are at your fingertips

## Connects to any asset

The Teleport connects to assets like inverters, batteries, charging stations and heat pumps.

## Offers standardized control

A single JSON REST API to control all asset types

## Adheres to standards

Supports read-out and control over RS232, RS485, Ethernet, through protocols like Modbus, OCPP and SunSpec.

## Responds in real-time

Response times between cloud and asset < 1 second

## Is secure by default

Teleport establishes outbound connections only. All communication is encrypted.

## Integrates with your systems

Can forward messages to your own database (eg. MySQL, Postgres, Influx), message broker (eg. Kafka) or webhook.

# And allows for control through one single and secure API

```
1 # Tell inverter to limit power production to 40% for 15 minutes
2 curl -X POST https://api.teleport.withthegrid.com/v1/command \
3 -H 'authorization:Bearer [token]' \
4 -d '{
5   "command": {
6     "type": "limitProductionPower",
7     "percentage": 40,
8     "startAt": "2022-06-01T00:00:00Z",
9     "endAt": "2022-06-01T00:15:00Z"
10  },
11  "deviceIdentifiers": ["my-inverter"]
12 }'
```

# Assets need to be able to be controlled remotely (RfG) and cybersecurity increases the need a proper setup

Regulatory rationale

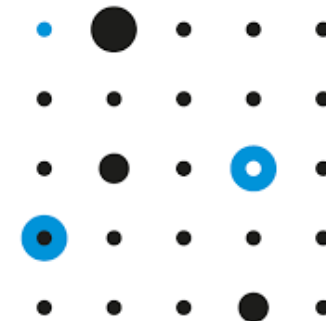
## Requirements for Generators



The screenshot shows the entsoe website header with navigation links: Network Codes & CEP, Data, R&I, and Outloc. Below the header, there are links for News & Events, Deliverables, Stakeholder Committee, and Implementati. The breadcrumb trail reads: Home > Network Codes > Requirements for Generators. The main heading is 'Requirements for Generators' in green. Below it, a paragraph states: 'The Network Code on Requirements for Generators is harmonising standards that generators must respect to connect to the grid. These harmonised standards across Europe will boost the market of generation technology and increase competitiveness.'

- European regulator requires control of assets by DSO/TSO
- In Netherlands realized through implementation of Real-time Interface protocol

## Cybersecurity



ENCS

- European network for cyber security releases guidelines for controlling assets. Each year more stringent.
- For example: end-to-end encryption and remote security updates and patching are requirements

Source: [ENTO-E](#); [ENCS](#)

# Withthegrid

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The image shows a large industrial building with a glass facade and a tall chimney. The text 'ENERGY SOLUTION INCUBATOR' is written vertically on the side of the building and horizontally at the bottom. The building is set against a blue sky with clouds.

Een deel van centrale Lage Weide wordt getransformeerd tot de Energy Solution Incubator. Deze authentieke locatie in Utrecht biedt sfeer en ruimte. Het behoort niet voor niets tot industrieel erfgoed. Een unieke kans die door een energiek en ambitieus team wordt geregisseerd.

De focus ligt vooral op het doen: het realiseren van constructieve oplossingen. Dit past geheel bij het industriële karakter van de centrale en is onderscheidend in de energiewereld.

Het doel van de Energy Solution Incubator is om platform te bieden voor de realisatie van constructieve oplossingen voor energievraagstukken. Dit zijn schaalbare oplossingen voor actuele problemen, die voorop lopen in de tijd én nu iets oplossen.

Om dit doel te bereiken ontwikkelen we de nu nog onbenutte ruimte van centrale Lage Weide tot een incubator. De mogelijkheden lopen uiteen van huisvesting, het uitvoeren van testprojecten, tot het inspireren met oplossingen.

We incuberen startups, scale-ups, ideeen en projecten voor korte en langere tijd, afhankelijk van de bijdrage aan het doel. Dit doen we met focus op de thema's wonen, mobiliteit en opslag. Ons team voert regie op de samenwerking tussen alle verbonden partijen.