



# DEXTER

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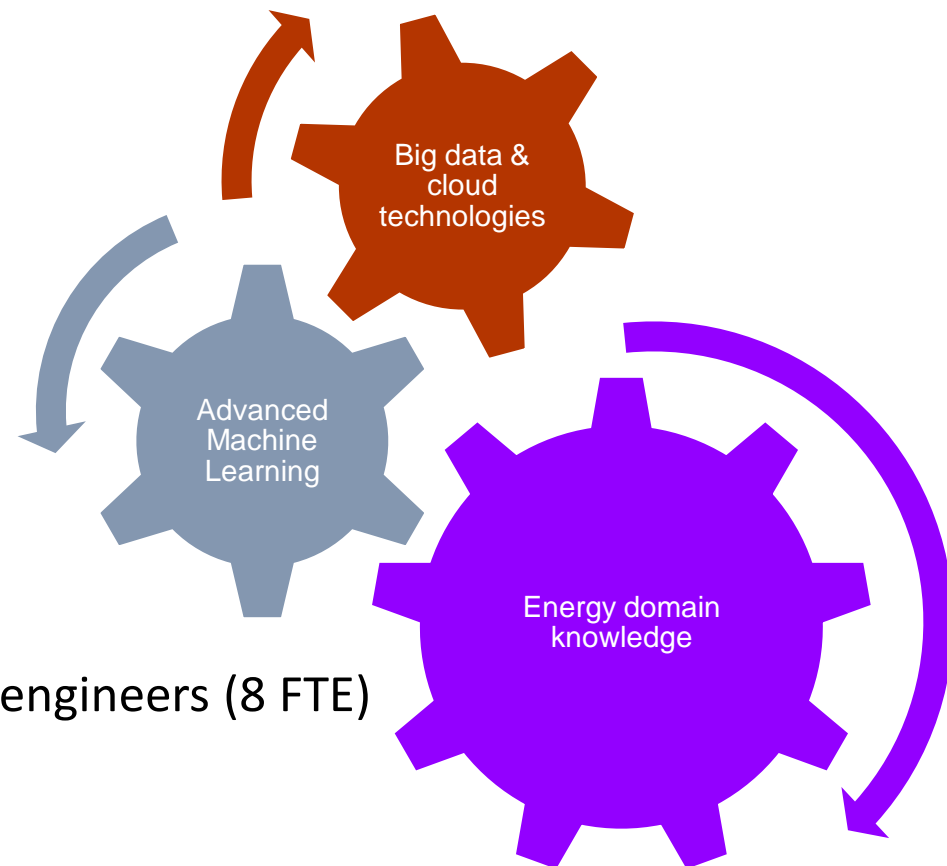
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- Energy forecasting & data services
- Founded in 2017
- Amsterdam-based
- Independent player
- Energy specialists & data scientists & software engineers (8 FTE)



**Lead** the way **towards** a **cleaner** & more **affordable** energy **future**...

... by helping energy **utilities** manage **imbalance** through **AI** forecasting technology



# Energy utilities forecast electricity to minimize imbalance and optimize imbalance costs

## 1 What is the context?



- In electricity systems, supply & demand must be in balance to prevent blackouts



- No large-scale storage (yet)

## 3 Why imbalance management?



- Imbalance is managed (& minimized) through accurate forecasting



- Imbalance costs is the result of penalties due to causing imbalance

## 2 Whose problem is it?



- Imbalance is responsibility of energy utilities



- Causing or solving imbalance is penalized or incentivized

## 4 What to forecast?



- Market players forecast electricity flows (supply & demand)...



- ...and imbalance itself

# Trends: the problem and opportunity of imbalance is expected to increase due to the energy transition

## Renewables



- Large—scale wind & solar
- Unplannable
- Difficult to predict

## Decentralisation



- Residential solar roofs
- Residential storage
- Small-scale wind power

## New loads



- Electric vehicle charging
- Electric heat pump
- Dynamic price-dependent loads

Dexter's software uses machine-learning algorithms to forecast energy & optimally deploy flexible assets



Deep knowledge energy markets

Artificial intelligence

ENGIE

NUON

Eneco

DNV-GL

DEXTER

Google

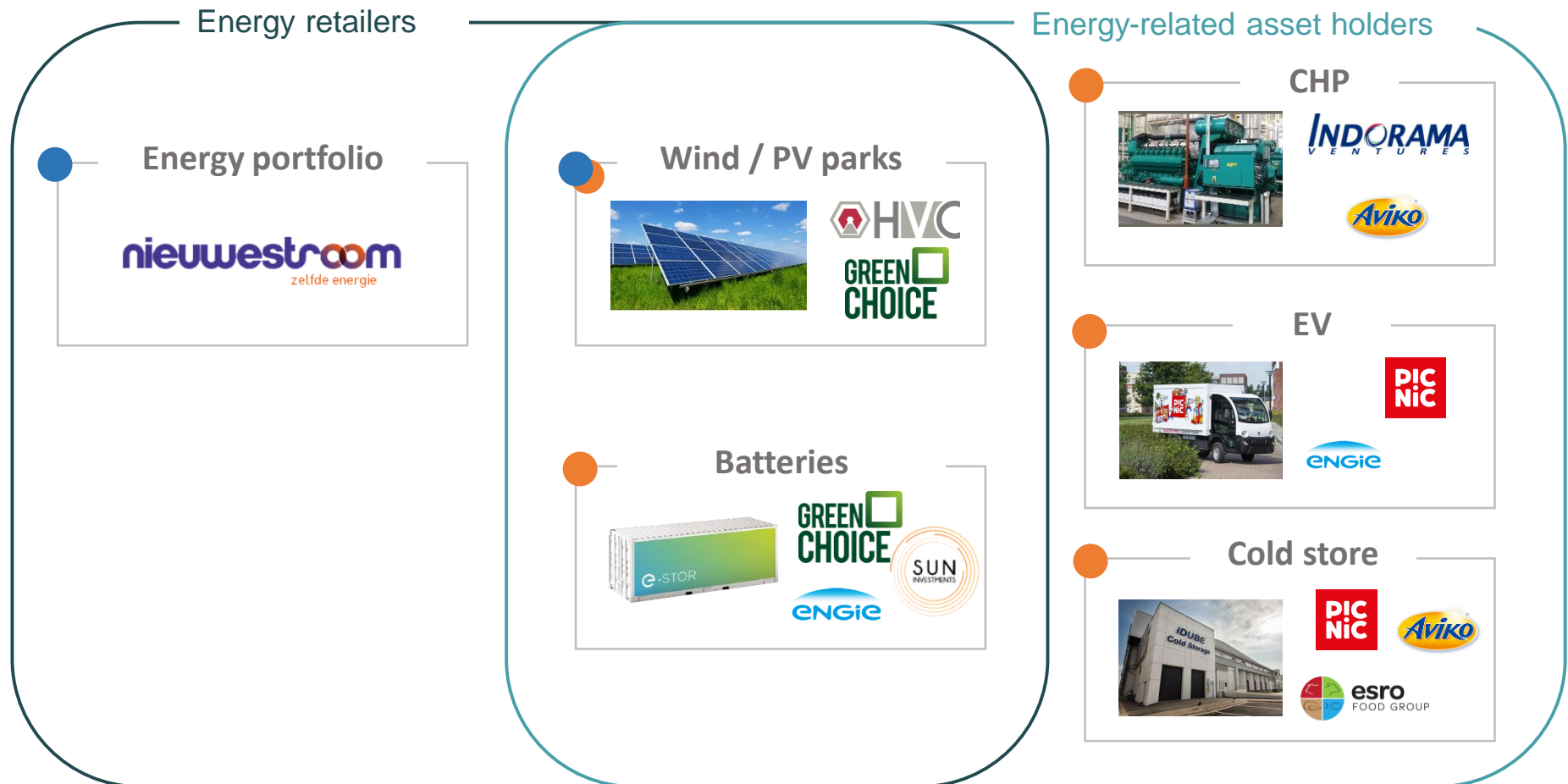
H2O.ai

UBER

Google  
DeepMind

- ✓ **Forecasting** of energy market prices
- ✓ **Forecasting** of energy loads
- ✓ Optimal **dispatching** of flexible assets

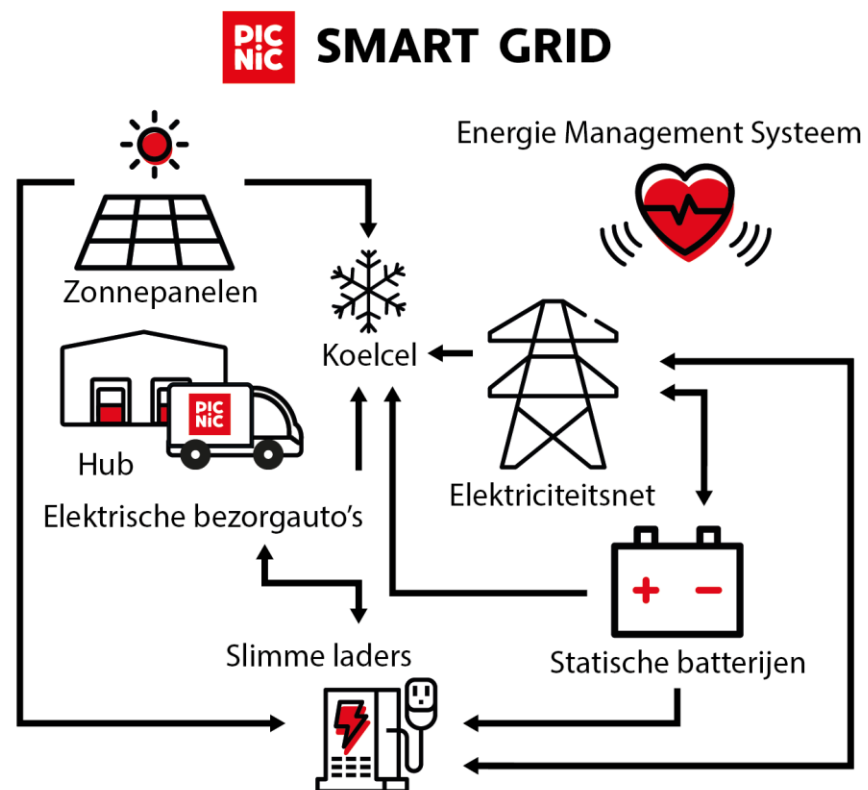
# Dexter forecasts loads, generation and short-term energy prices and optimizes dispatching of flexible assets



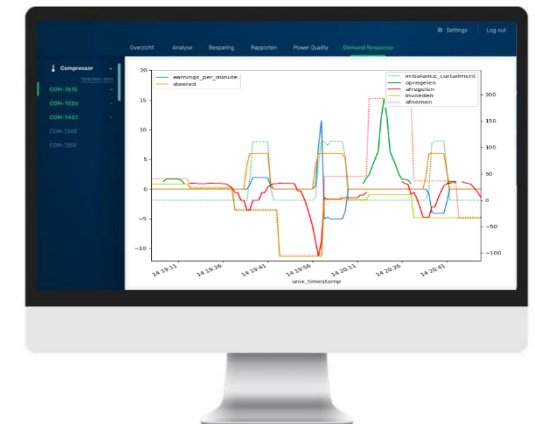
● Load & generation forecasting

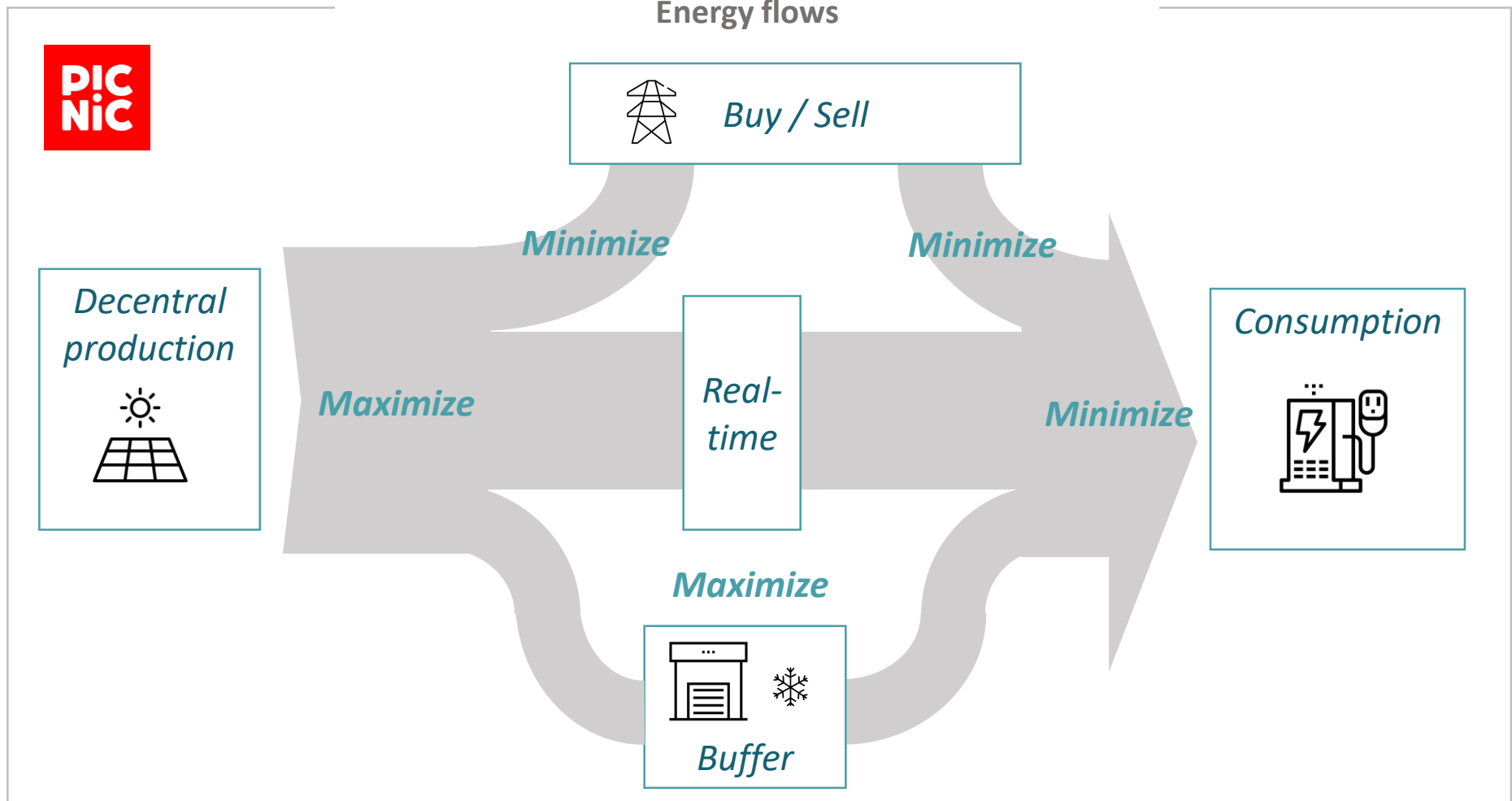
● Dispatch using short-term price forecasting

## Use case: Picnic smart grid



# Smart grid pilot





## Monitoring



## Demand Response



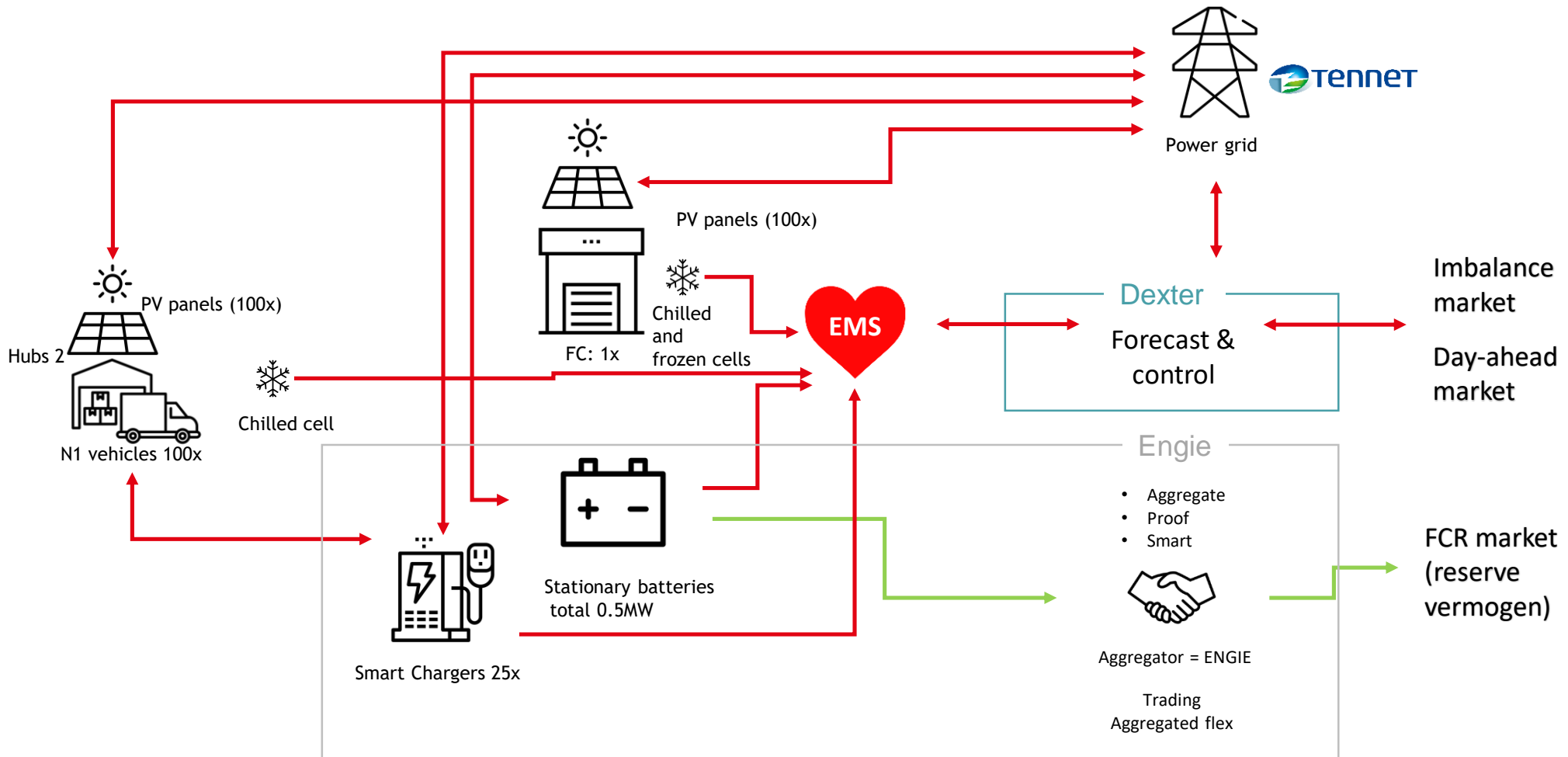
## Smart charging / V2G / V2O



## Energy Storage



# Integration



# So... Why Dexter?



Affordable & future-proof set-up...



**API interfacing**



**Cloud-based**



**Machine Learning & best-in-class domain knowledge on energy forecasting**



**Data pooling & output statistics**

... with the best performance



# Current results



## Load forecaster

**For?** Energy retailers / wind & solar energy producers

**Result?** Accuracy forecast increased >30%

**Traction** 3 Dutch customers

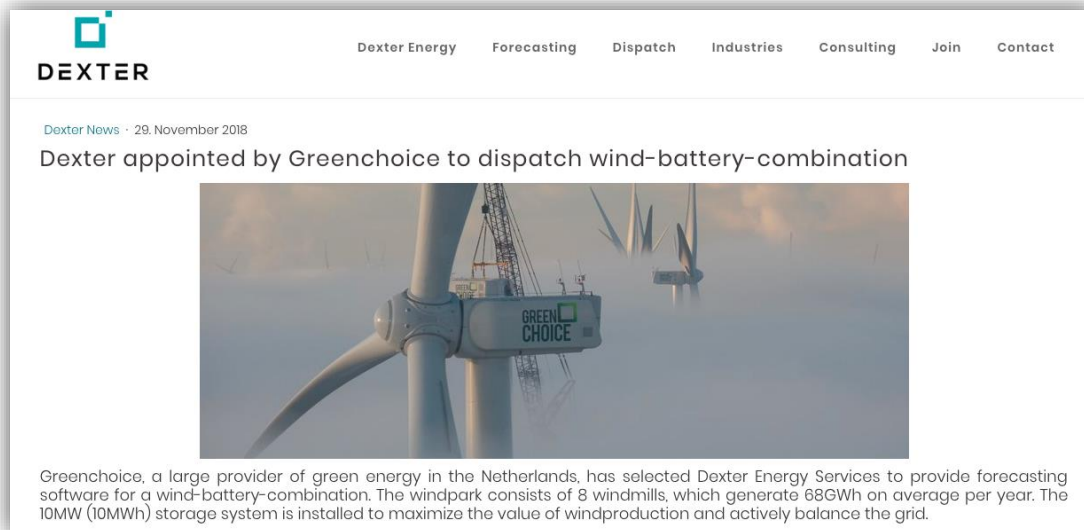


## Imbalance forecaster & dispatcher

**For?** Batteries & production flex

**Result?** Revenue increase of >50-130%\*

**Traction** 3 Dutch customers



# Thank you



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