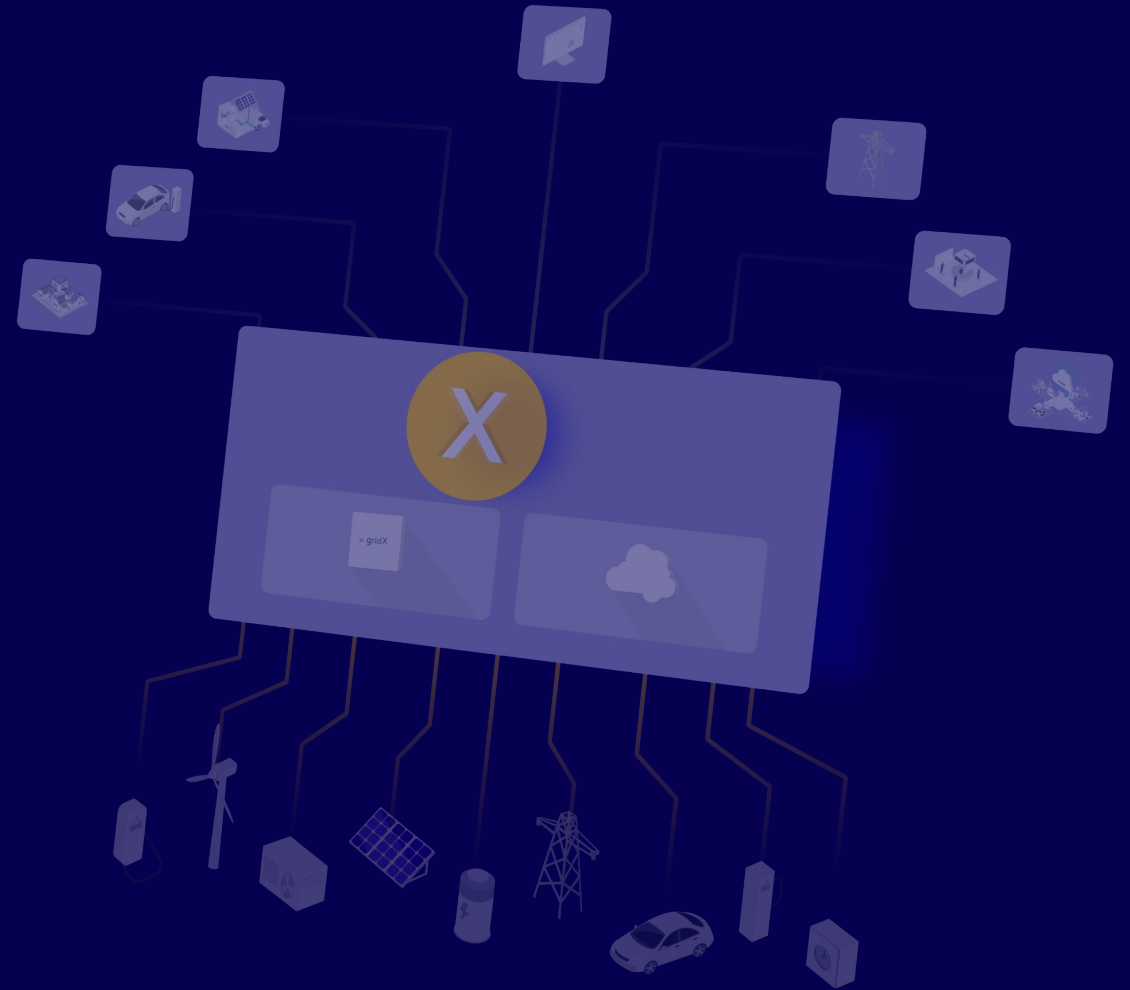


gridSession

HEMS in Europe

Solutions from the UK and Germany
and perspectives on the future



Delta-EE – HEMS in Europe

New energy is characterised by a vast and complex variety of new technologies and business models

Delta-EE provides versatile tools with which to make sense of this complex landscape



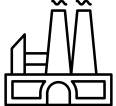












Researching the topics you need to know about

- eMobility
- New heat
- Connected buildings
- Energy services
- Storage
- Decentralised generation
- Demand Side Response
- Networks
- And more



Access to Delta-EE research gives you expert support when you need it



<p>Consultancy Bespoke information, insight and support from energy experts</p> 	<p>Connected Home Service The opportunities in the growing connected home market and how to capture them</p> 	<p>Distributed Power Service How to succeed in the global distributed power market</p> 	<p>Electrification of Heat Service Identify and capture the increasing range of opportunities from growing electrification of heat</p> 
<p>Energy Insights + How can we best use energy insights to enhance residential customer engagement and create value for us and our customers?</p> 	<p>Energy Storage Research Service Capturing the best opportunities for distributed energy storage</p> 	<p>EV Charging Service How to best develop position and activities to succeed in the rapidly growing eMobility market</p> 	<p>Flexibility Research Service Capturing opportunities in the growing demand side flexibility market</p> 
<p>Gas Heating Service What is the future of gas in buildings and how can you best capture the opportunities and respond to the threats?</p> 	<p>Global Hydrogen Intelligence Service How the global hydrogen sector is developing</p> 	<p>Heating Business Service How to evolve from selling individual products and commodities to become a successful home energy solution provider</p> 	<p>Local Energy Systems Research Service Understand and respond to the challenges and opportunities from the growth in energy communities, microgrids and local energy markets</p> 
<p>New Energy Business Model Service Understand, identify and implement the most promising commercial opportunities from the increasing disruption in the energy sector</p> 	<p>New Energy France Research Service The trends and opportunities in France across the whole energy transition market</p> 	<p>Distribution Network Service Enabling distribution network companies, regulators and electricity OEMs to make better decisions at the network level in the context of the energy transition</p> 	

HEMS – Framework and definition

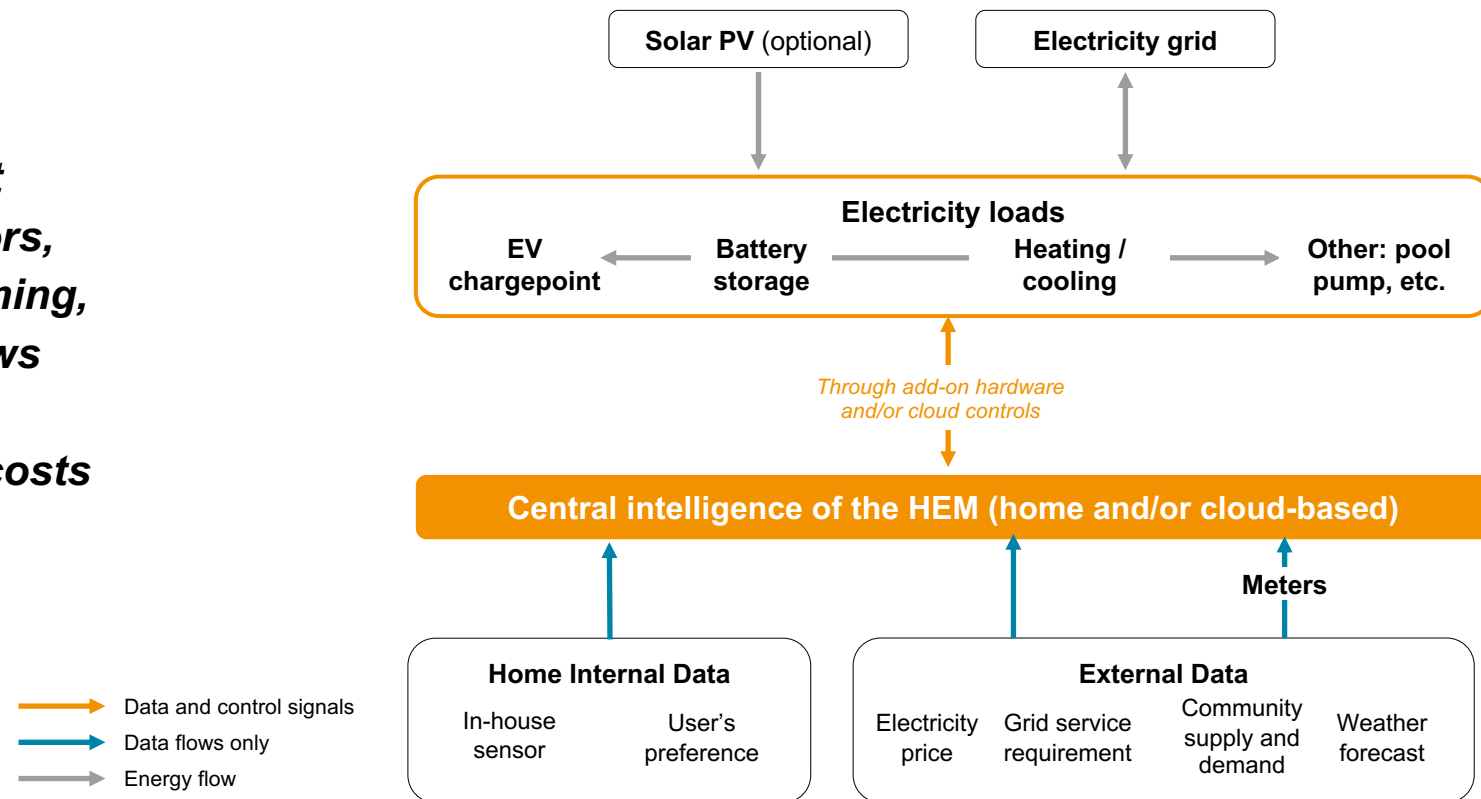
7min

What is Home Energy Management?

Home Energy Management is the dynamic and intelligent management of energy flows within the home

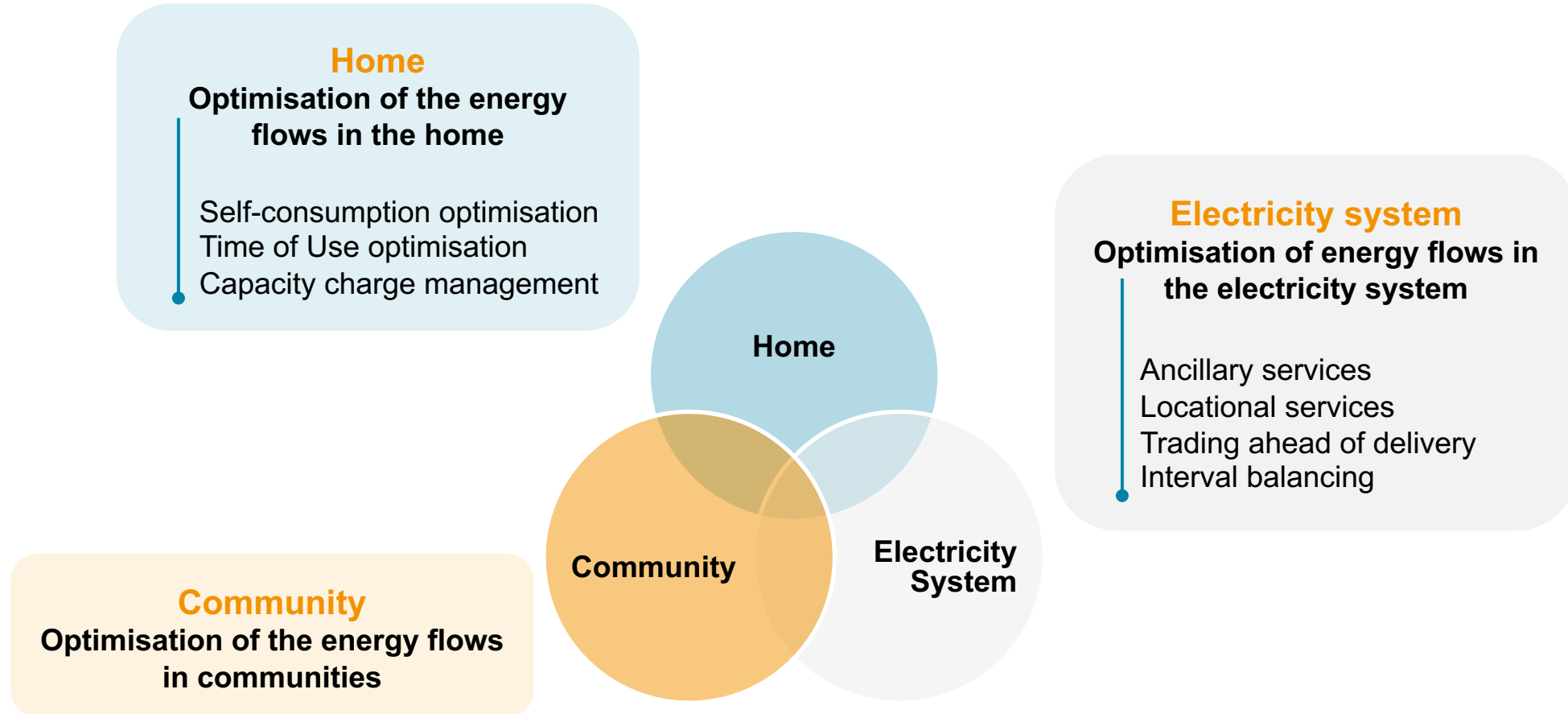
“A Home Energy Management System autonomously monitors, controls and optimises the timing, volume and mix of energy flows within the home, in order to minimise customers’ energy costs while meeting customers’ preferences.”

Data, controls and energy flows within a HEM system



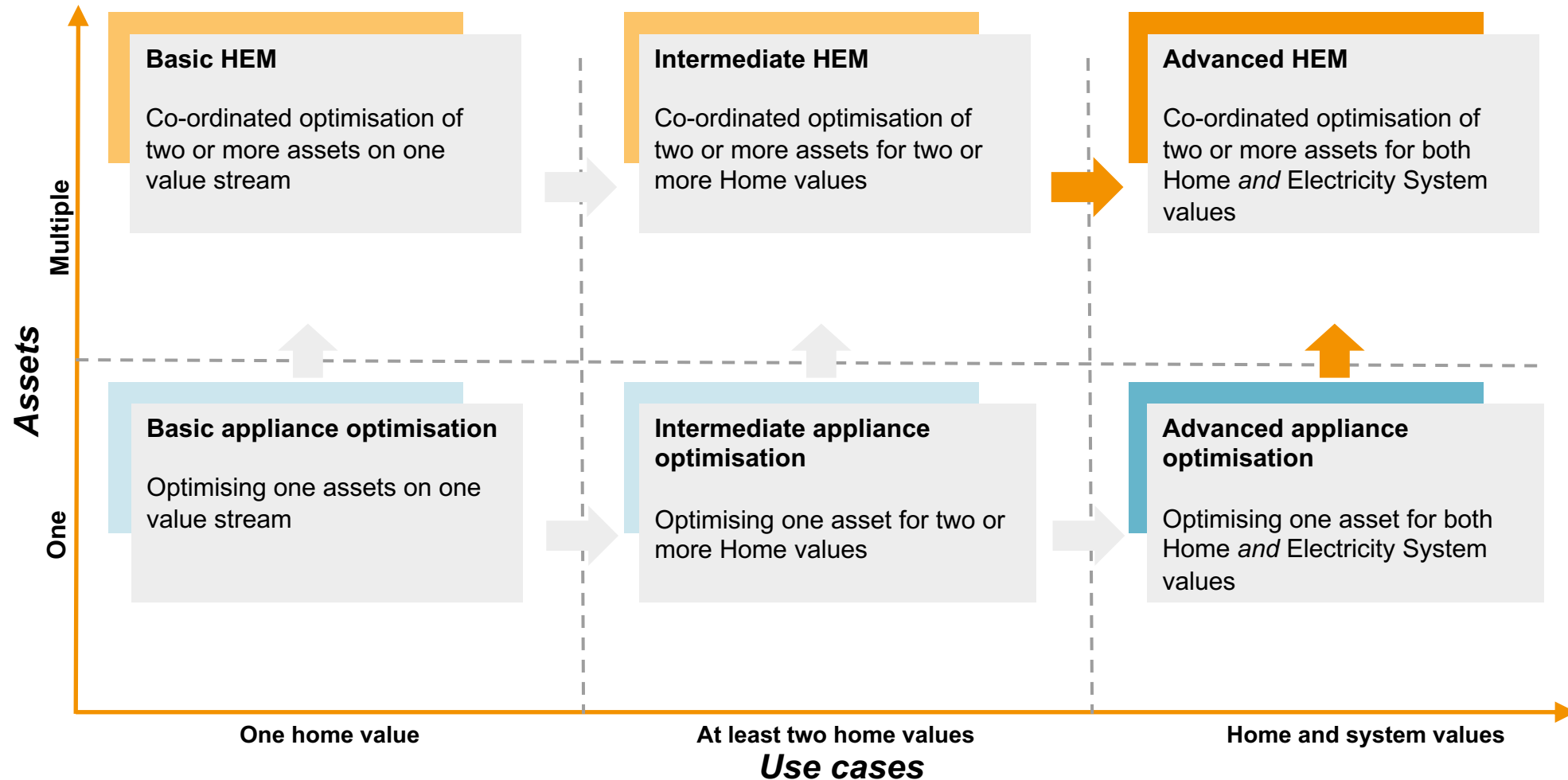
Interactions between home and the rest of the system

Optimising the energy flows in the home is part of a wider trend towards a more distributed, democratised energy system



The Delta-EE HEM Framework

HEM systems differ a lot in complexity: Delta-EE's framework classify them by two criteria: number of assets and number use cases covered by the solution

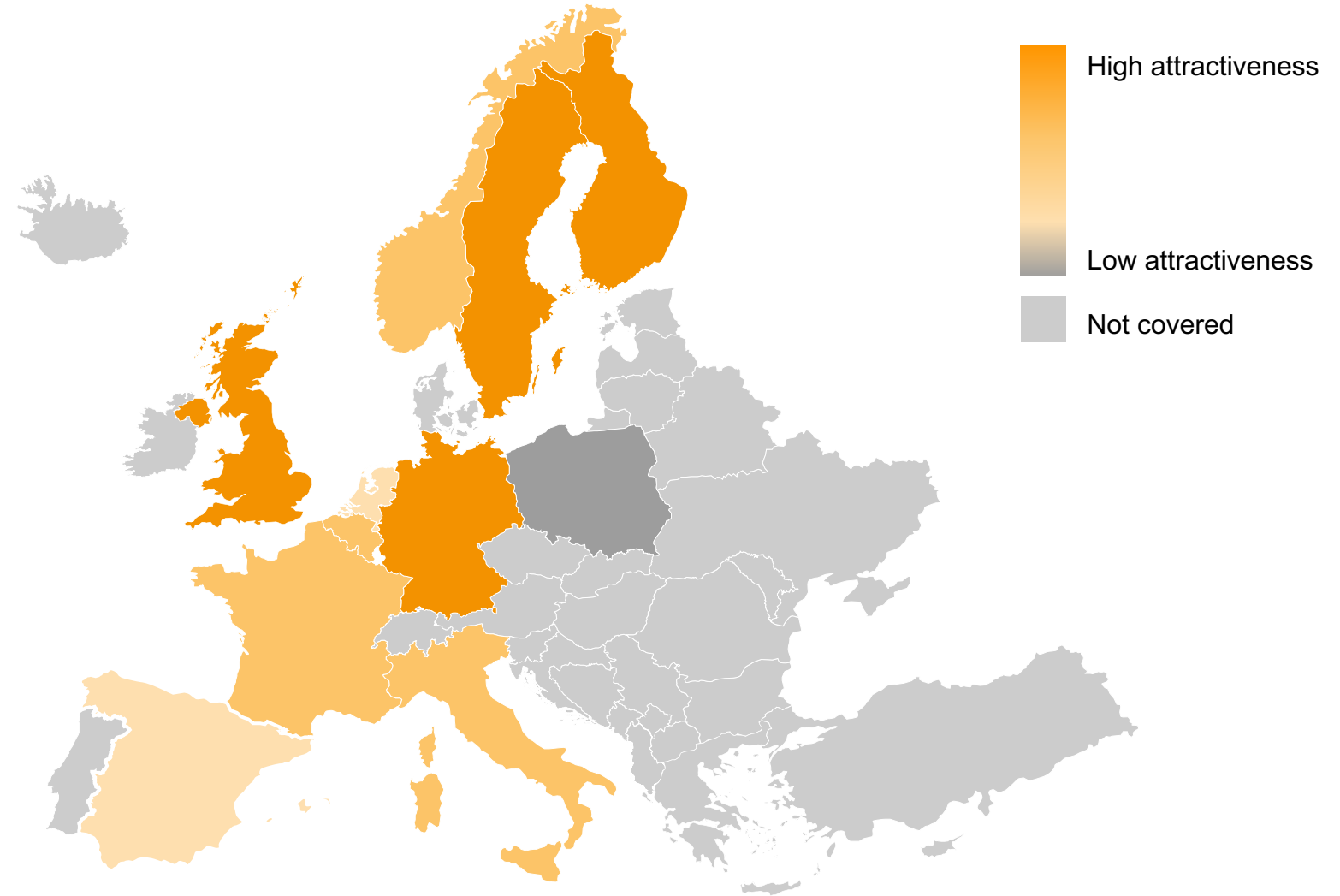


Current market attractiveness

Germany and the UK represent the largest opportunities for HEMS in Europe

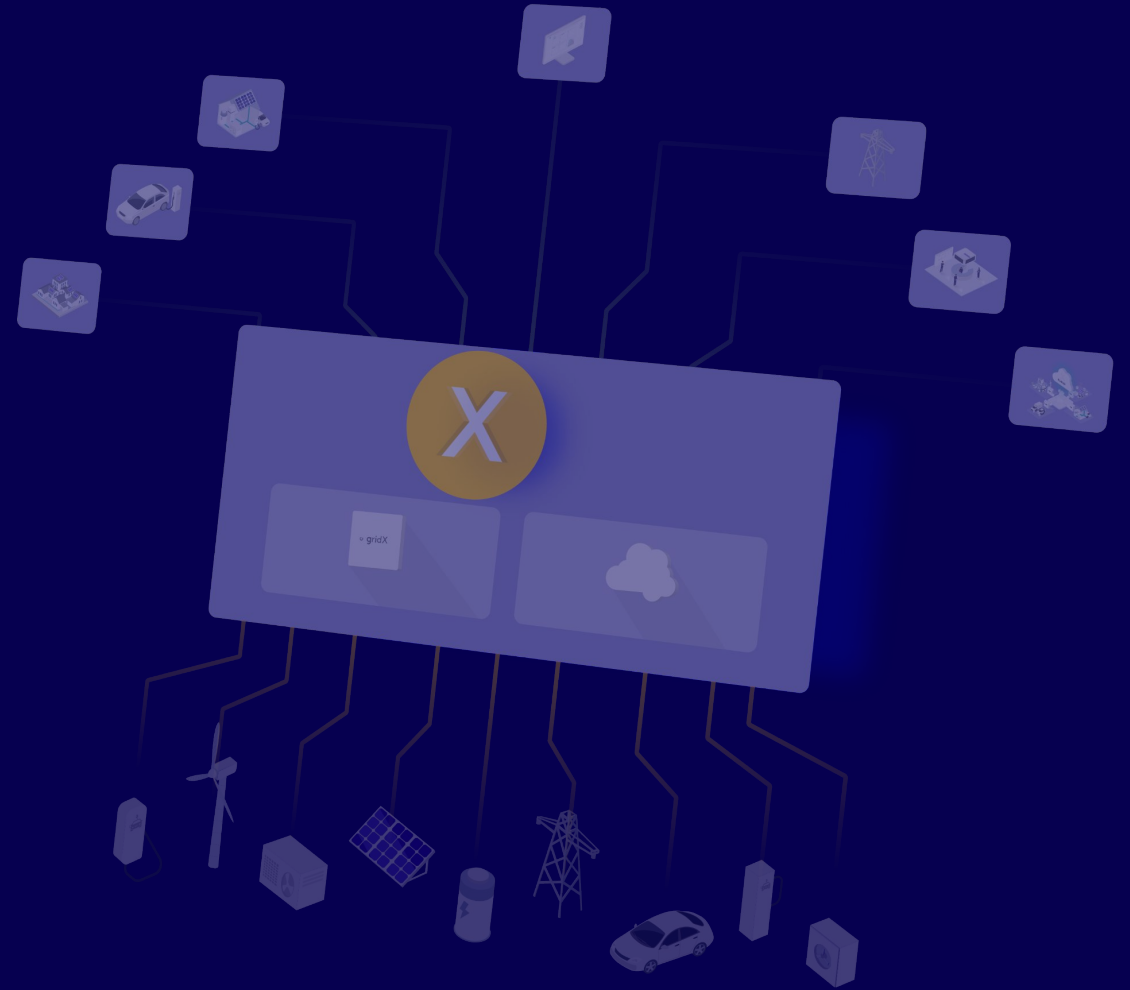
+80

Actors offering HEMS in Europe



gridX

Enabling partners to build
customized energy solutions

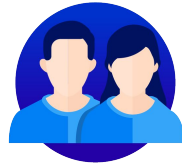


The A-Team of energy connecting all DERs to one platform

About us



Started in
2016



Full time employees
70+

Two offices
Aachen & Munich



+18 GWh
handled since launch



+10,000
connected devices

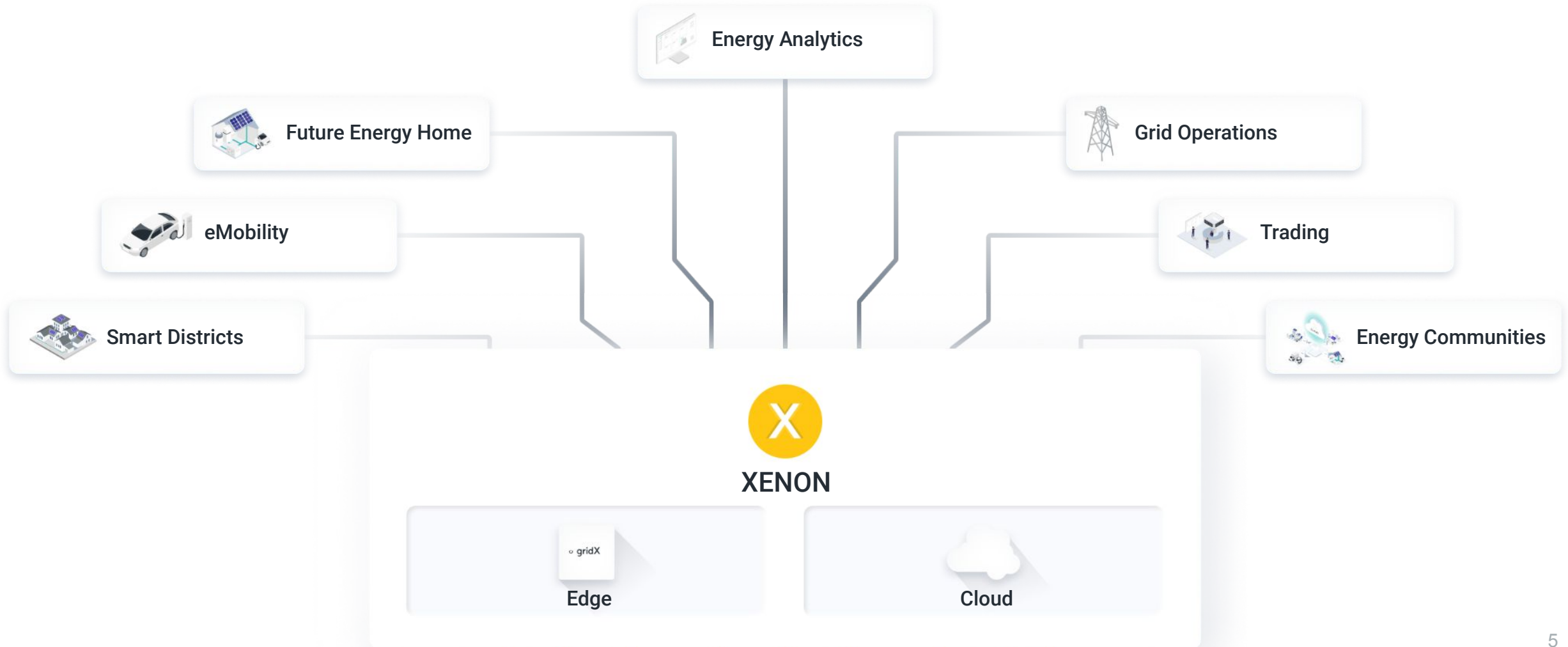


+30
supported OEMs



Master all use cases with one platform

XENON - Platform



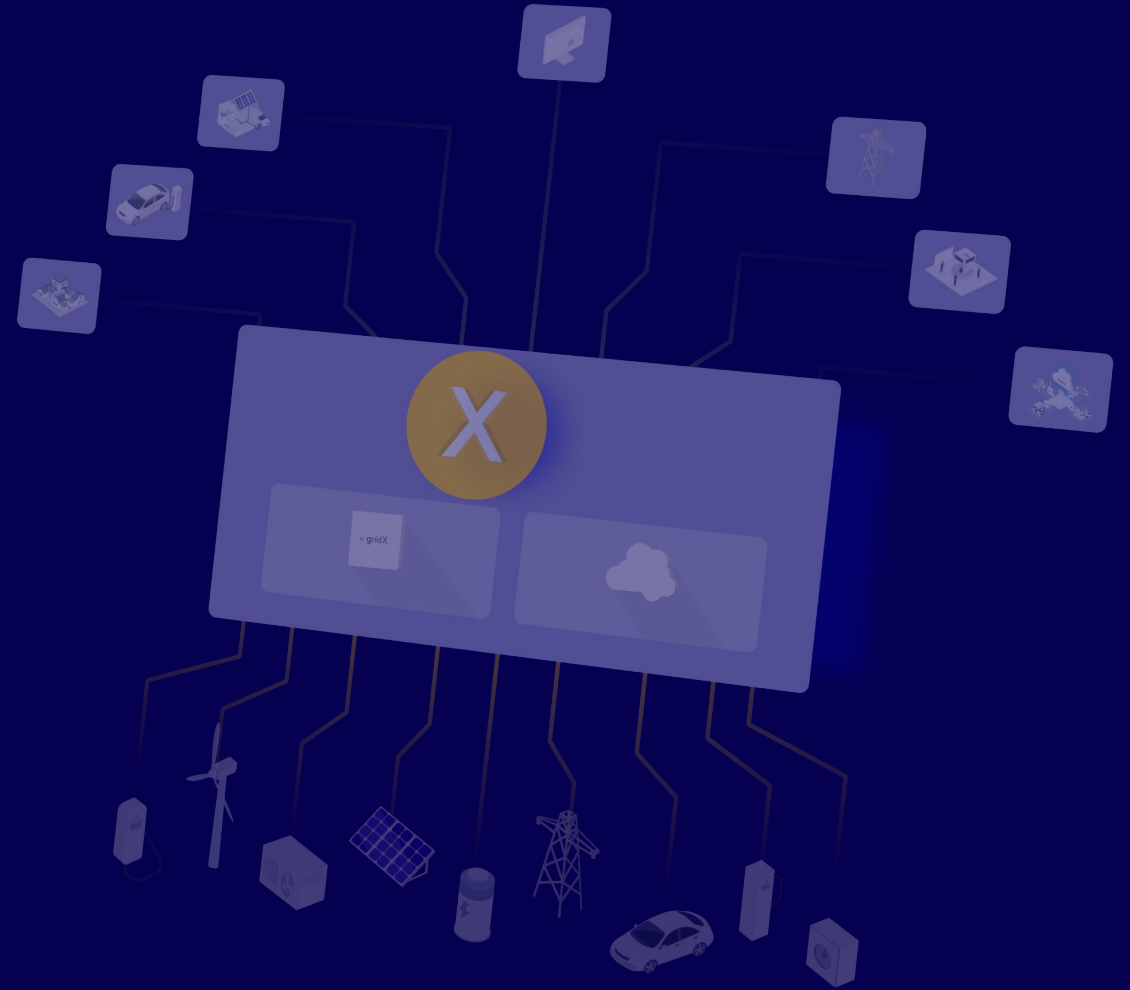
Building customized (HEMS) solutions on XENON

XENON - Platform



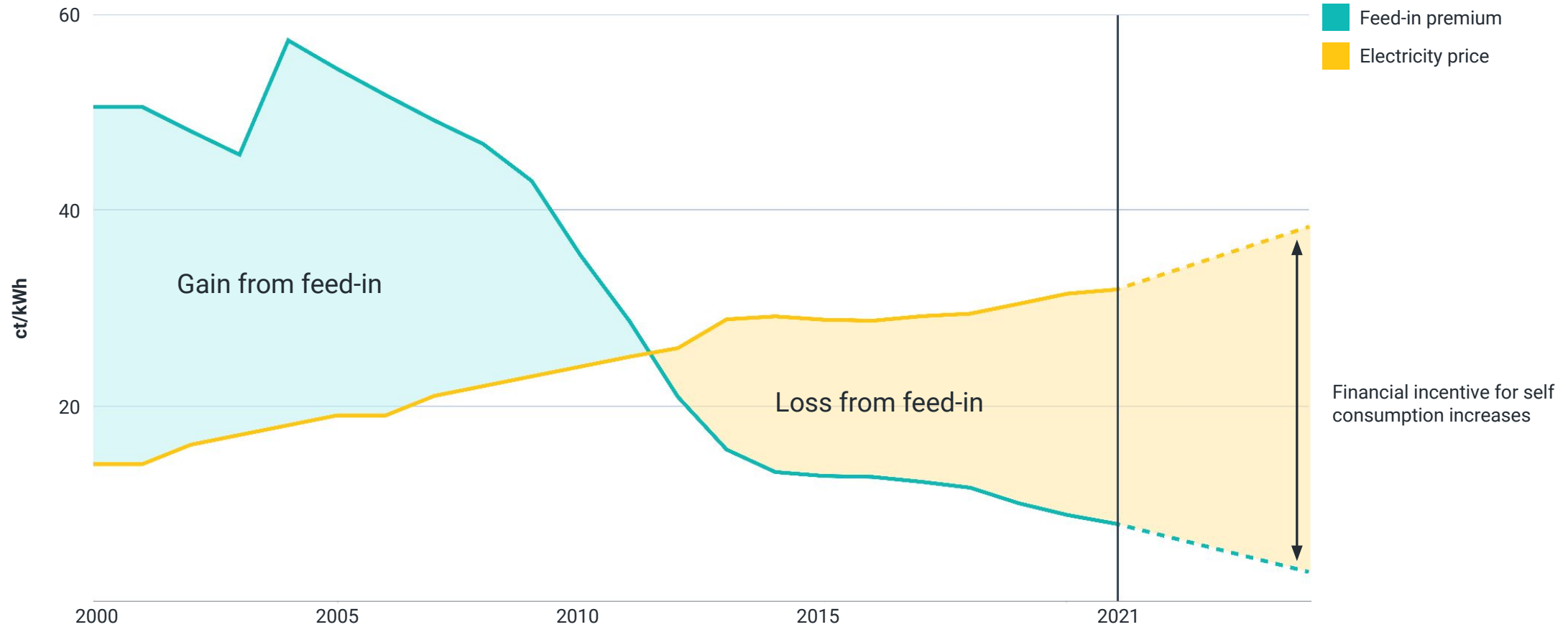
Distributed Energy Resources

Values **gridX** creates in European HEMS rollout



Increasing financial incentives for self consumption drives HEMS

Feed-in compensation vs. electricity price in Germany over time



Full control of energy assets via digital monitoring interface

Enabling management of future energy home

Benefits

High engagement

50%

of all users log into the dashboard every day.

Improved upselling

➔

Targeted upsell opportunities thanks to closer engagement and comprehensive customer insights

Reduced service need

>50%

of all incidents are resolved remotely.



Reducing cost by maximizing self-sufficiency

Based on forecasting models

Benefits

Lower costs

>€150

reduction in annual energy costs in an average household with one EV.

Higher self-sufficiency

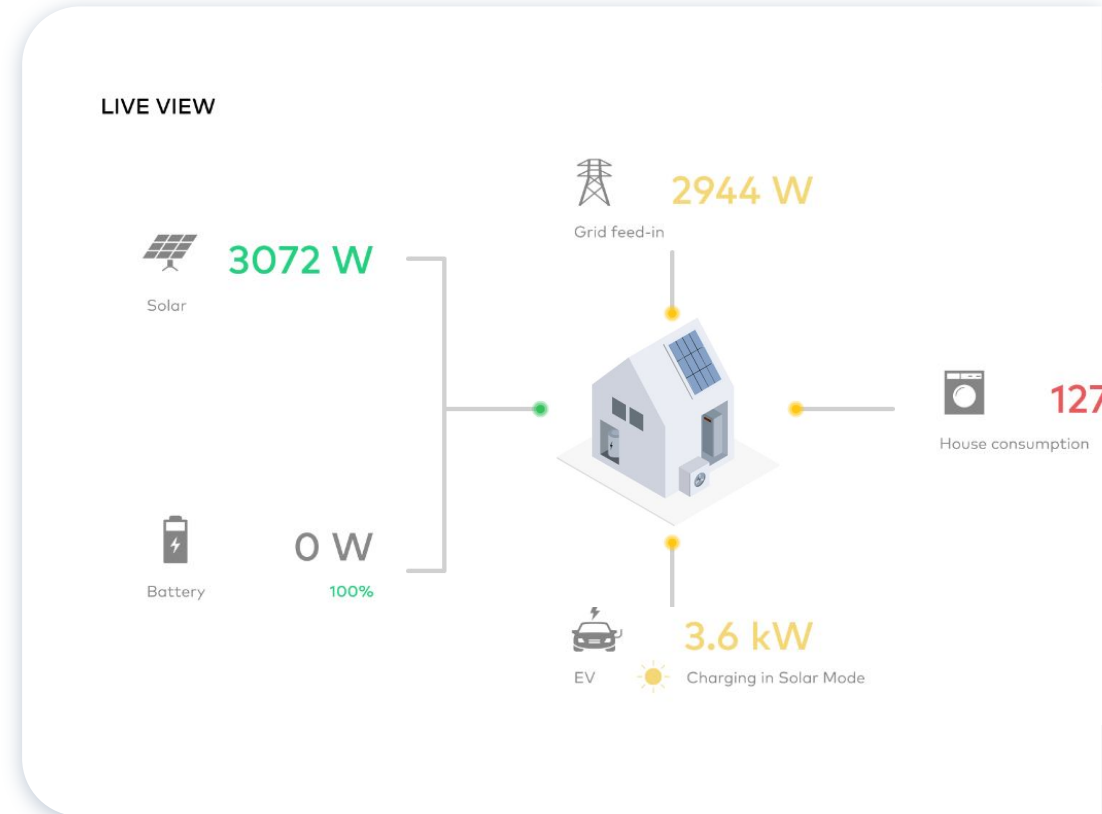
~70%

self-sufficiency (average of XENON users) and higher.

Lower emissions

~3t

reduction in carbon emissions per household – every year.



SUCCESS STORY

Building a wholistic service offering around XENON

With XENON, Viessmann was able to adapt its model to become a fully integrated energy solutions provider that offers innovative solutions to end users in the new energy ecosystem.

50% DAU

50% of all registered users log in each day

192% CAGR

Since 2018 sales with HEMS have grown 192% per year.

243t CO2

were saved across all system in April 2021 alone

80,000€

monthly savings in energy costs across all systems

VIESSMANN

Use case

Home energy management

Modules used



Web app



Mobile app



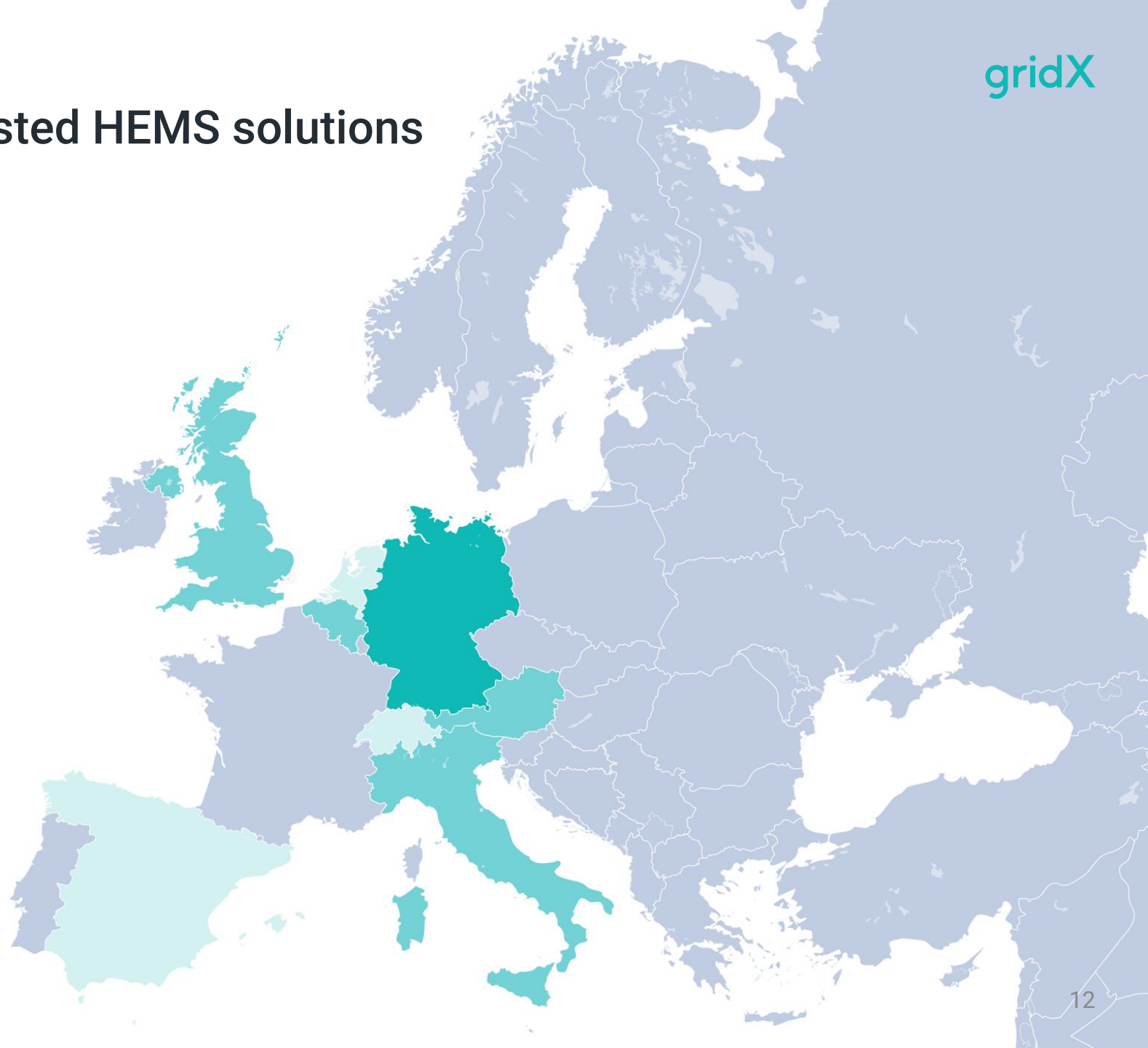
Energy Optimizer

Different markets require adjusted HEMS solutions

Incentives based on regulation

HEMS projects

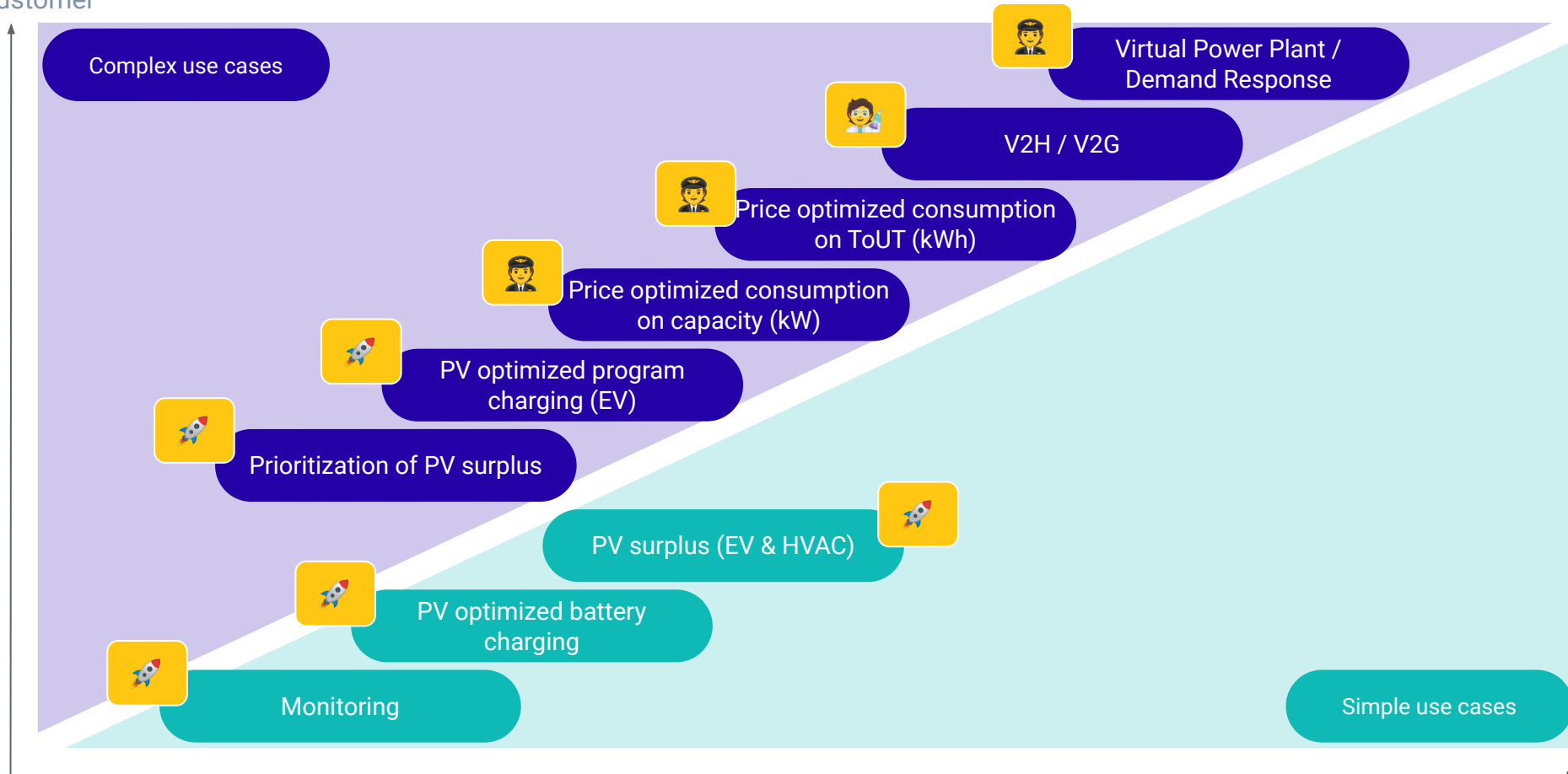
- In rollout
- Rollout preparation
- Piloting



Use cases for HEMS differ in value and complexity

HEMS use cases in Europe

Cumulative Value
for customer



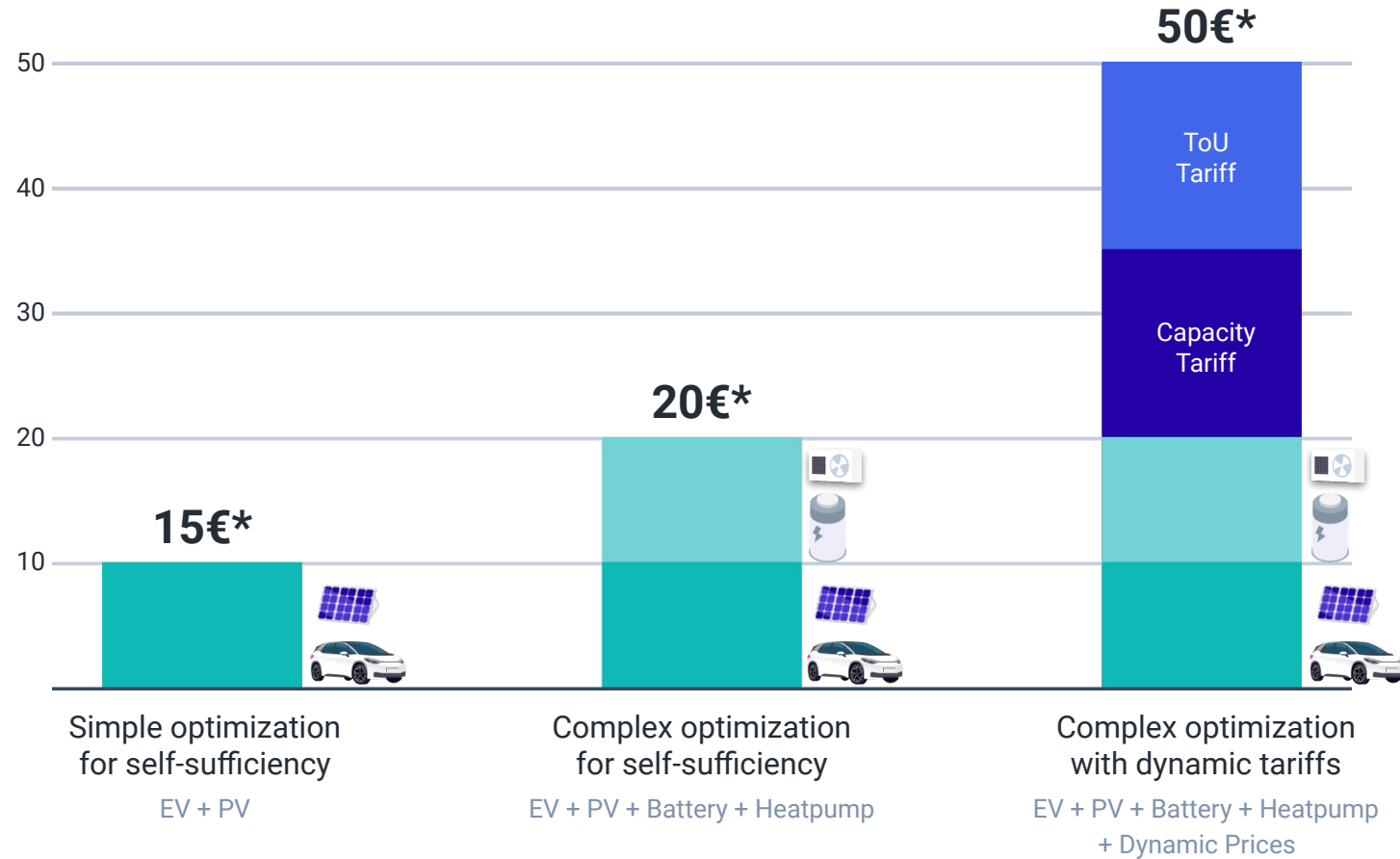
	Piloting
	Rollout preparation
	In rollout

Market Maturity

With complexity comes value

Potential monthly savings per household

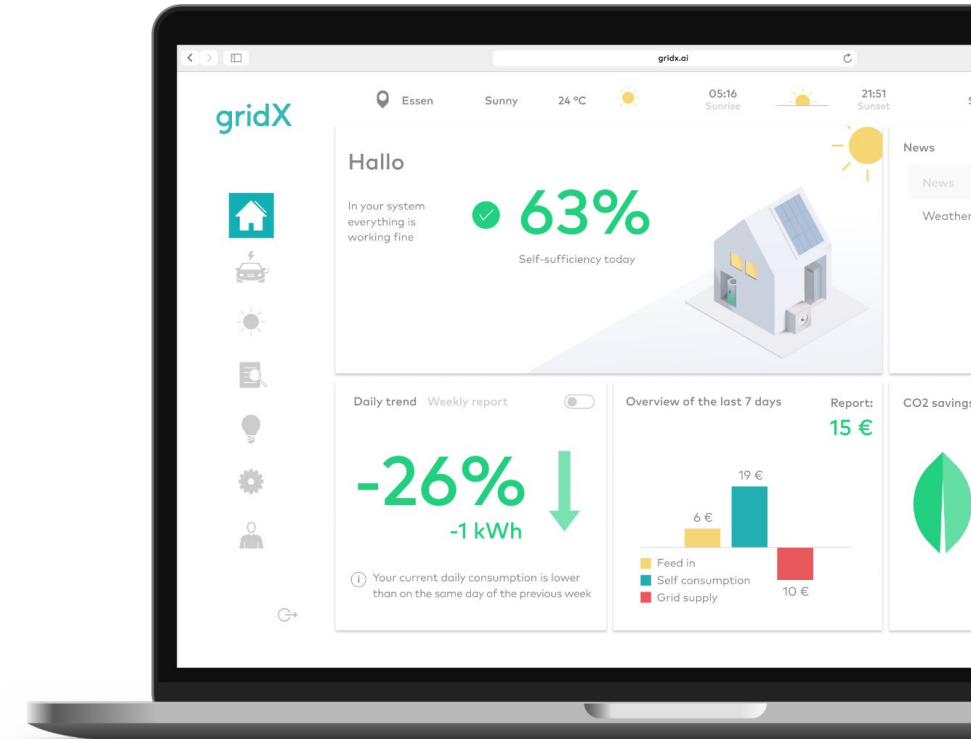
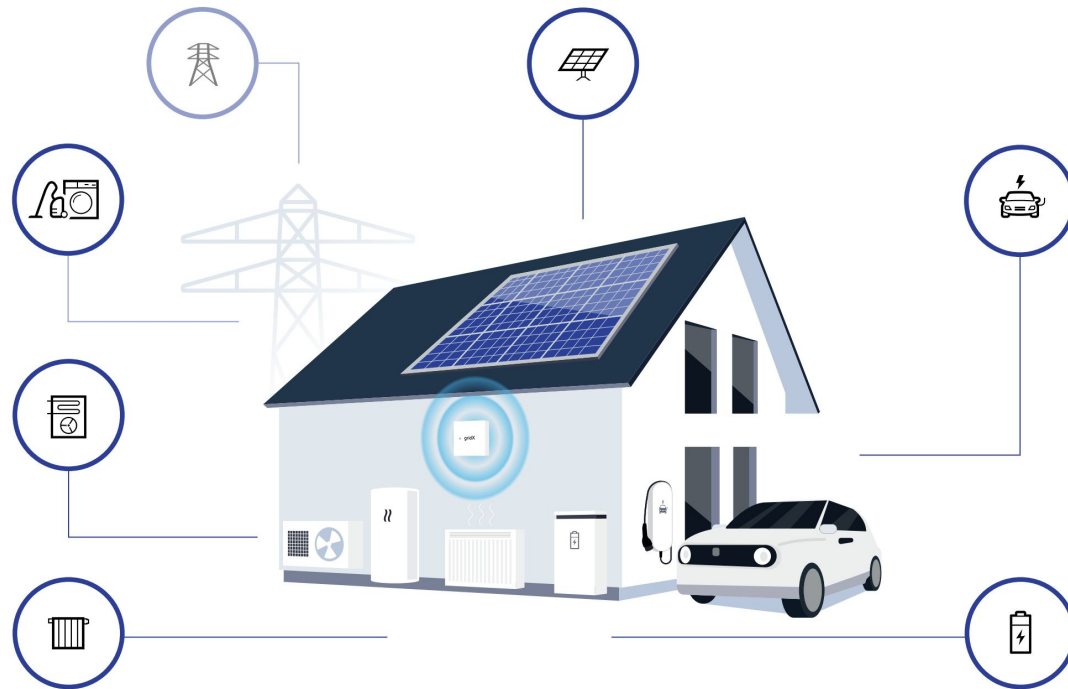
Besides clear monetary values there are other benefits arising through e.g. interoperability and asset management



*Values strongly depend on different factors like energy prices & regulatory developments

HEMS as a crucial part of the energy transition in Europe

Matching consumption with generation of renewables and reducing impact on the grid





Till Sonnen

Business Development Manager
t.sonnen@gridx.de



Conclusions from Core4Grid

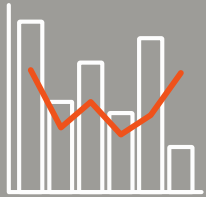
Thom Whiffen

10 November 2021



about geo

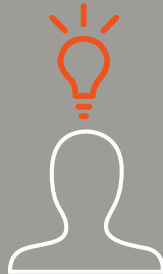
geo is a leader in consumer energy feedback, control and automation, deploying leading edge technology in data science, AI, cloud, firmware, UX, UI and customer insight



PhD level team with unique internet of energy domain expertise



Industry leading cloud expertise



geo experts are regular authors of white papers, speakers and panellists at industry events and have been responsible for multiple firsts in the sector





We want to create a sustainable future where every household is able to reduce its energy cost and carbon footprint, without even having to think about it.



Product overview



trio touchbutton

Standard IHD
Wi-Fi connectable
millions of units sold

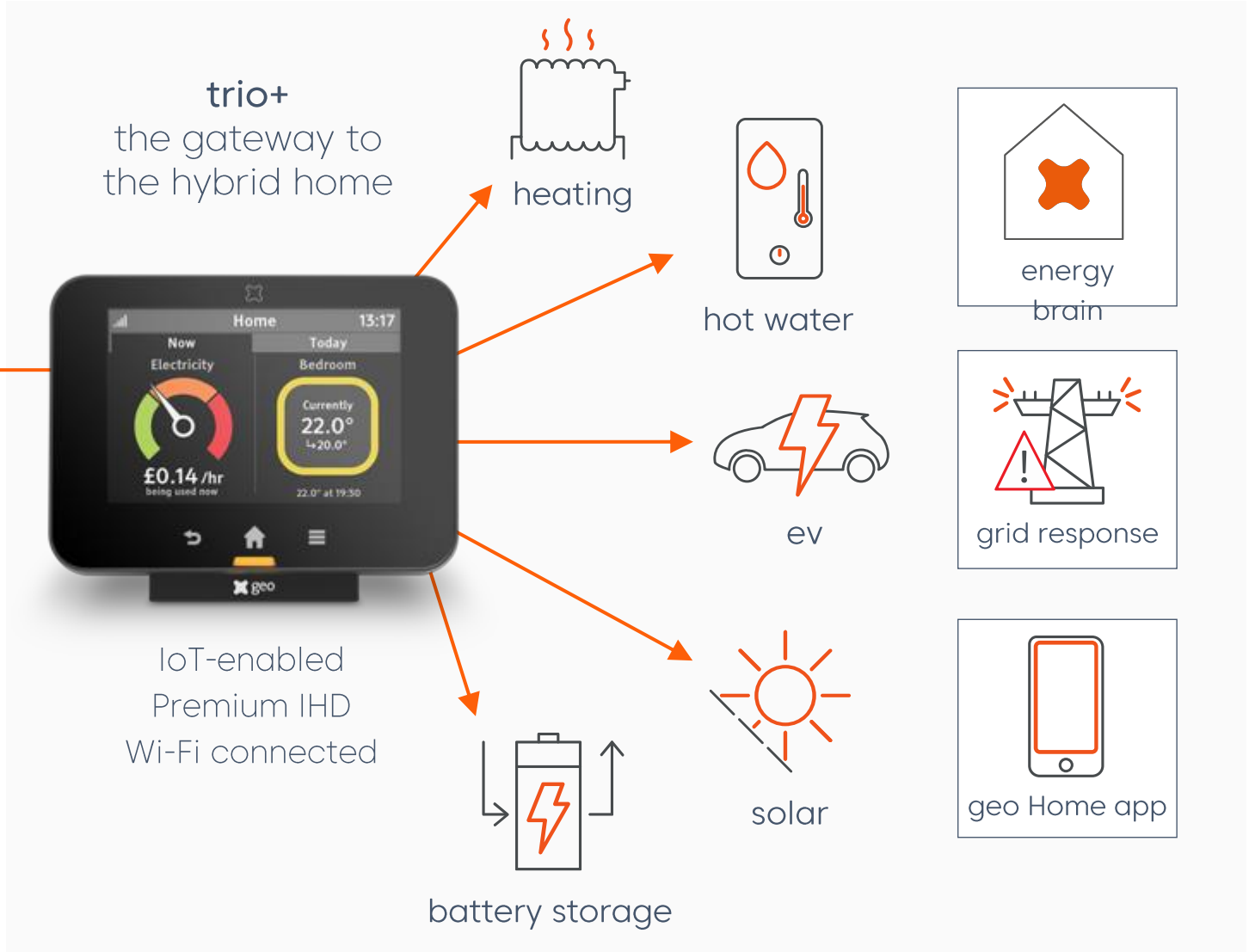


trio touchscreen

Premium IHD
Wi-Fi connected
hundreds of thousands
of units sold



trio accessible





smarter energy

Conclusions from Core4Grid





Ground-breaking home flexibility trial

Delivery

- More than £1.4M of BEIS and industry funding
- geo led consortium of 8 industry leading partners

Aim

- Demonstrate market and household acceptance of and engagement in the domestic, flexible future grid via Hybrid Homes, today.





Approach

- Deployed smart meters & in-home displays to all
- Set up a smart tariff
- Deployed 24 Hybrid Homes
 - Home energy management system (HEMS), app and flexible assets (battery, ev charging, heating control, solar generation)
- Connected HEMS to smart meter and aggregator platform
- Optimised for value
 - smart tariff, generation, DSO DSR and wholesale markets
- Tracked performance
 - customer attitudes; technical, financial and environmental KPIs



Customer savings – without them having to think about it

49%

customer cost savings

14%

customer carbon savings

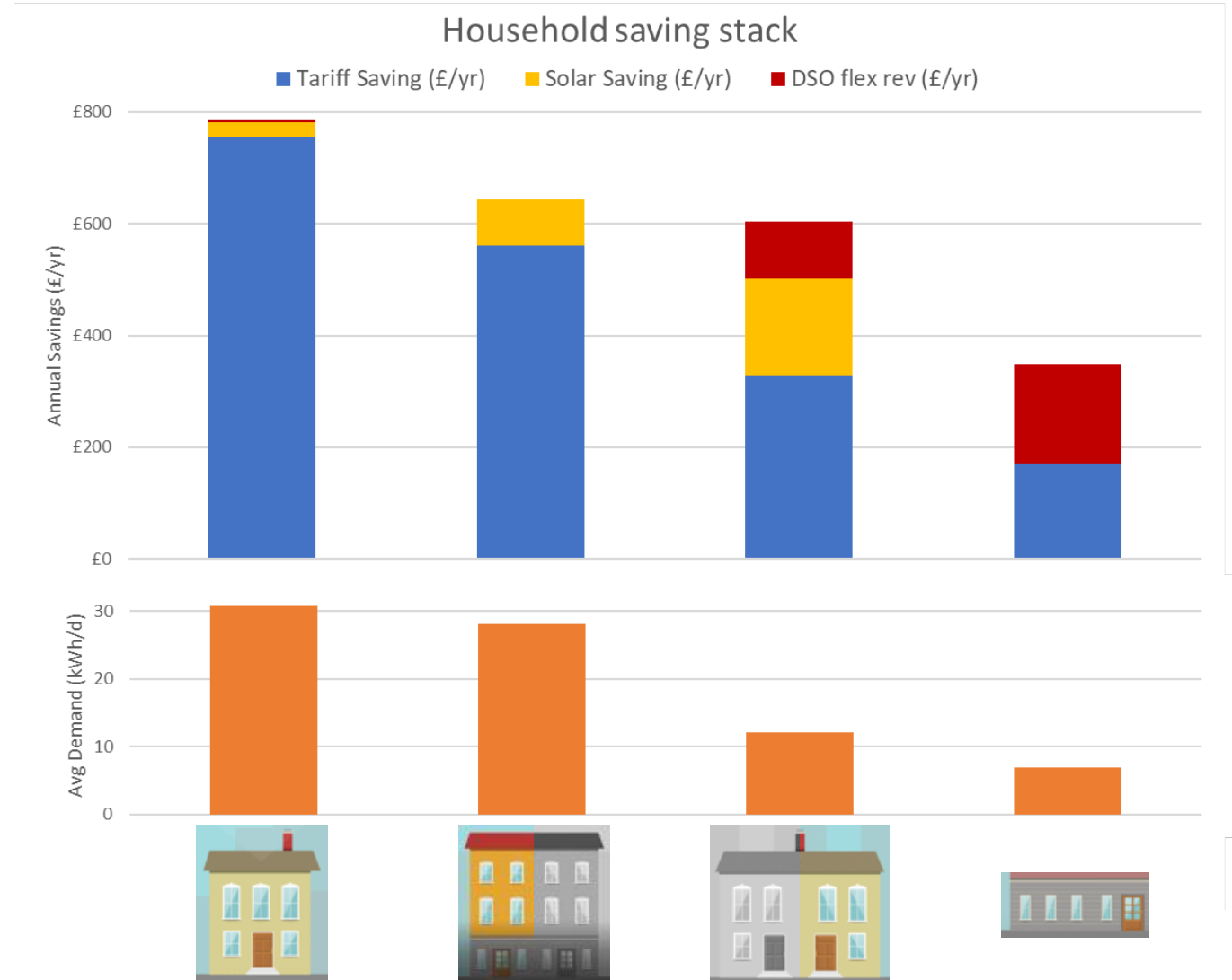
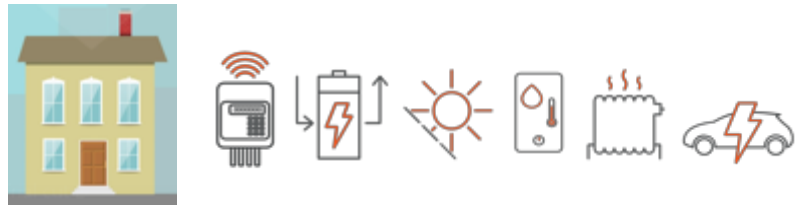
74%

customers would recommend





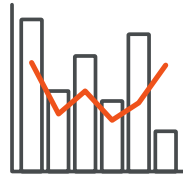
Behind the savings





Technical

Utilise existing technology where possible, deploying compatible HEMS with rollouts



Economic

Optimise for wholesale opportunities where possible



Households

Simple explanation and control

Propositions that package incentives tied to DSR actions



Many thanks

thomas.whiffen@geotogether.com



Discussion
