Heimdall Power

Importance of joint efforts for development and commercialization

NextGrid Summit 2025 November 4th in Oslo

The power grid has become a mainstream topic

Key to reaching net zero and other policy targets

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'Magic balls' installed by drones may soon be revolutionizing the US power grid: 'Unrivaled quality at scale'

Rick Kazmer

January 12, 2024 · 3 min read

124

High-voltage power lines in the United States will soo
"magic balls" from Norway.

Heimdall Power is rolling out unique technology in th
sensors that have increased power-line capacity by 3
to a story on the tech from Electrek.

Better yet, early users of the sensors are reporting th
because transmission lines are better utilized in their

Forbes

FORBES > INNOVATION > TRANSPORTATION

PREMIUM • EDITORS' PICK

Using 'Magic Ball' Sensors And Software To Boost Electric Grid Capacity By 40%

Norwegian startup Heimdall Power is working with Minnesota's Great River Energy to squeeze more electricity out of the utility's power lines with AI-enabled temperature and weather monitoring.

Alan Ohnsman Forbes Staff

Senior editor covering cleantech and advanced mobility

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Mar 20, 2024, 10:14am EDT

Updated Mar 20, 2024, 10:50am EDT

Heimdall Power's Neuron sensor, about the size of a bowling ball, mon
power transmission lines. HEIMDALL POWER

As utilities scramble to meet fast-growing U.S. powe
says it has sensors and software that help increase ex
to 40% to get more electricity to customers. And the
U.S. deal to date to prove it can deliver those kinds o

Minneapolis 69°F

The Minnesota Star Tribune

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BUSINESS

Balls, orbs or neurons: The pioneering tech helping Great River Energy manage transmission lines

A small sphere Norway's Heimdall Power created aims to free up space and reduce congestion, potentially eliminating the need for new infrastructure.

By Walker Orenstein
The Minnesota Star Tribune

MAY 6, 2024 AT 6:06PM

The Economist

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AI and other tricks are bringing power lines into the 21st century

Grids are at last becoming smarter and more efficient

Pillars of innovation PHOTOGRAPH: PANOS

May 5th 2024

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THE RISE of artificial-intelligence (AI) data centres, with their insatiable hunger for electricity, is asking an awful lot of the world's utilities and grid operators. On the bright side, AI can also give a fair bit back, by helping transform ancient, overloaded and dumb electricity networks into something fit for the digital and decarbonised age. America's Department of Energy reckons that AI and other improvements to the country's existing grid could liberate as much as

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BUSINESS | ENERGY & OIL

The Aging U.S. Power Grid Is About to Get a Jolt

Bracing for an expected surge in demand for electricity, utilities adopt new tech to boost transmission capacity

By Scott Patterson Follow
June 6, 2024 9:00 am ET

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Data center development is booming across the U.S. thanks to AI. Some industry analysts estimate global capacity to double by 2030. But it faces a big obstacle: getting enough power. Graphic: Ryan Trefes, JLL

The country's aging power grid, built over the past 100 years, is about to leap into the 21st century as the Biden administration scrambles to meet a coming burst of new power demand.

To boost the grid's capacity, the administration is pushing to step up efficiency of existing power lines with new technologies. The upgrades are far cheaper and

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The massive blackout in Spain, Portugal, and France exposed a global power crisis. Now what?

As clean energy scales up, experts say outdated grids and poor planning are turning local outages into global wake-up calls.

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Forbes

BUSINESS > ENERGY

Study: Extended Interconnection Queue Times Plague Wind, Solar

By David Blackmon, Senior Contributor. © David Blackmon is a Texas-based p...

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Published May 06, 2025, 11:02am EDT, Updated May 06, 2025, 11:04am EDT

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Solar project developers in Texas
OT power grid. (Photo by M ... More

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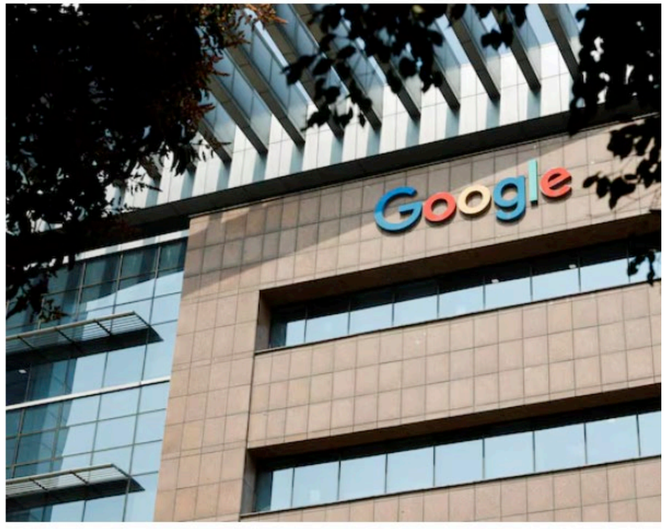
Google agrees to curb power use for AI data centers to ease strain on US grid when demand surges

By Laila Kearney

August 4, 2025 6:48 PM GMT+2 · Updated August 4, 2025



A logo of Google is seen on its office building in Hyderabad, India, January 29, 2024. REUTERS/Francis Mascarenhas/Fil
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FINANCIAL TIMES

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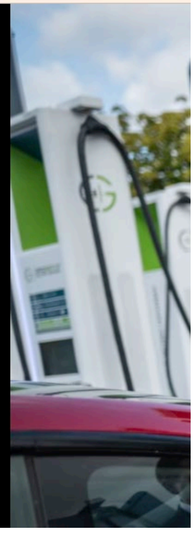
UK business + Add to myFT

How a lack of power grid capacity is holding back UK economic growth

Businesses warn that the struggle to meet demand for new connections is putting decarbonisation plans at risk



Want to create jobs, but lack electricity

Several companies in Norway that want to establish themselves have given up because they are not guaranteed enough electricity.

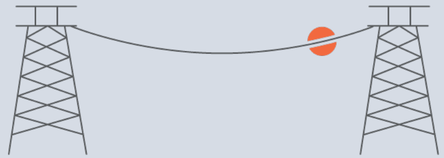
Day Kessel
Journalist

Alexander Nordby
Journalist

Lars Erik Skrefsrud
Photographer

Published Nov 3, 2023 at 8:32

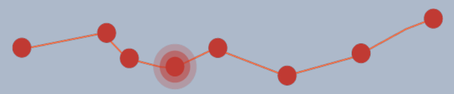
The article is more than a year old.



DEVLEOPMENT

Technology development
2016-2019

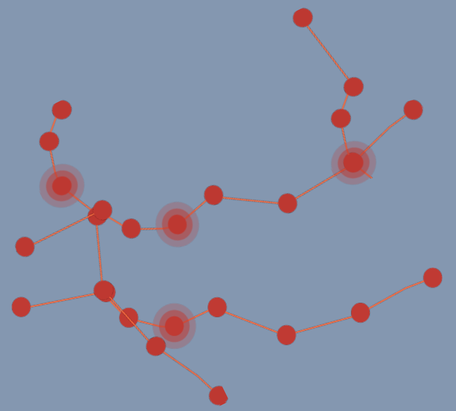
✓ **Demonstrate and develop together with customers**



PILOT

Single Line monitoring
2019 →

✓ **Document use-cases and ROI**

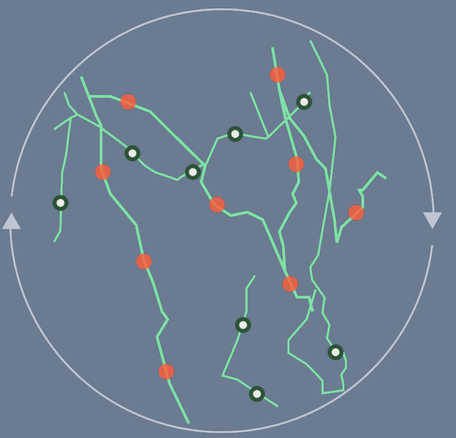


EXPANDED SCOPE

System perspective
2021 →

✓ **Increased value and use-cases**

CINELDI
Centre for intelligent electricity distribution
- to empower the future Smart Grid



FULL IMPLEMENTATION

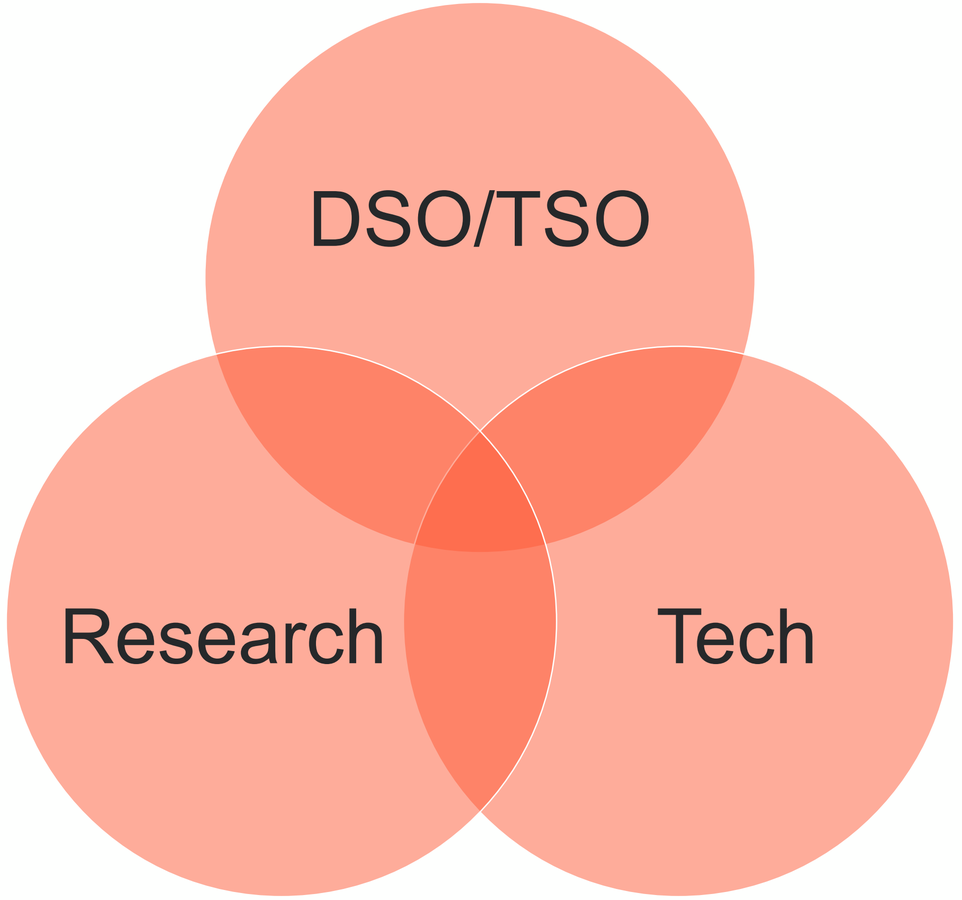
Systemwide monitoring
2023 →

✓ **DLR on all lines through a combination of Physical and Virtual Neurons**

NextGrid

The power of three-party collaboration

Customers, research institutions and technology supplier

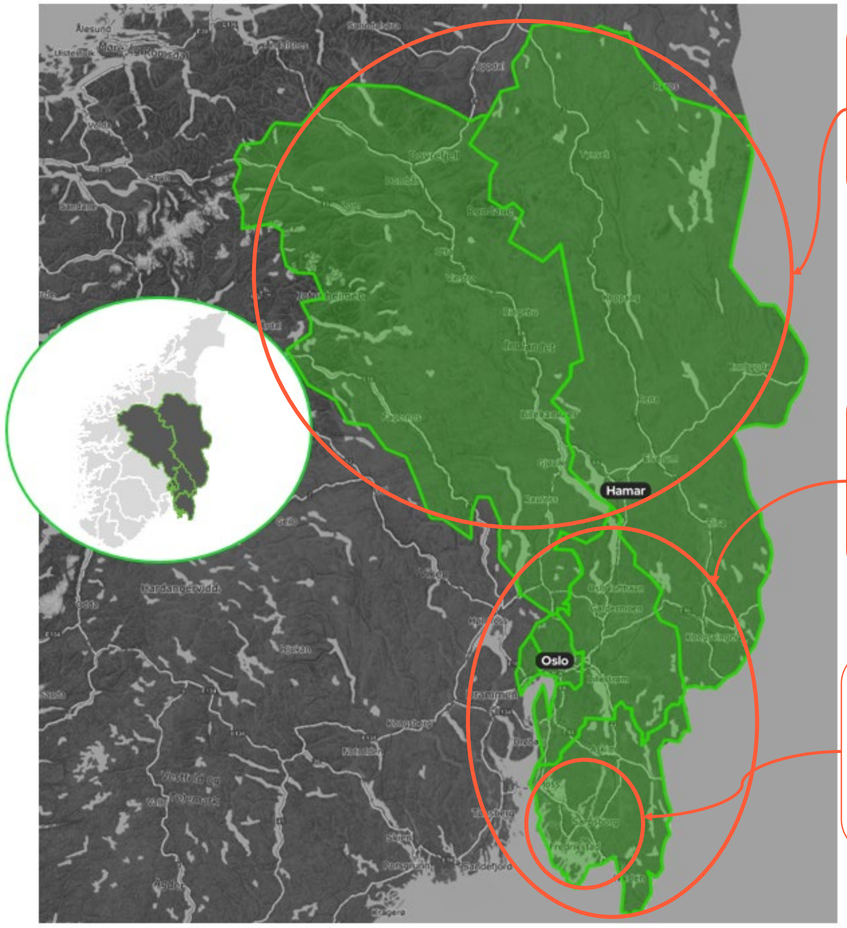


Samfunnsøkonomisk verdi fra de seks suksesscasene

Case	Samfunnsøkonomisk nåverdi til Norge
1. Redusert produksjonstap med avanserte metoder for drift av solparker	0,3 – 0,7 mrd. kr
2. Utslippskutt med CO_2-kjøling av dagligvarehandler	4,9 – 5,2 mrd. kr
3. Økt kapasitet i kraftnettet med dynamisk drift av kraftledninger	1,4 – 18,9 mrd. kr
4. Billigere transport av CO_2 på skip ved bruk av lavtrykksteknologi	0 – 0,7 mrd. kr
5. Utslippskutt og lavere energibruk med høytemperatur varmepumper	1,5 – 8,7 mrd. kr
6. Redusert fare for havari i vannturbiner	1,3 – 1,7 mrd. kr
Total	**9 – 36 mrd. kr**

Real value into the control room

Elvia Goal: 20% capacity increase from the current infrastructure



Virtual monitoring

Neurons critical spans

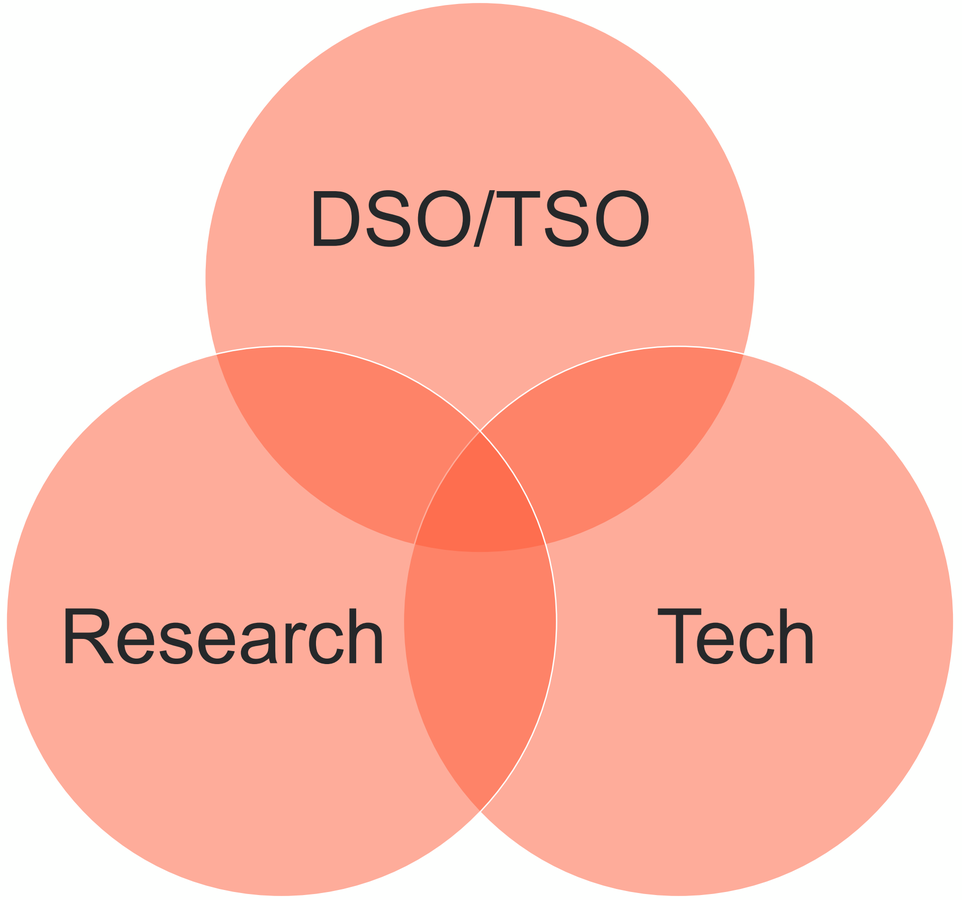
Several Neurons on every line

Expected insights & results:

- Real bottlenecks differ from theoretical assumptions
- Better understanding of the inherent flexibility in the grid
- More resilient grid operations, already having measurement wherever the fault situation happens
- Allow for faster (curtailable) connections of and variable power production (sun/vind)
- Better investment decisions and prioritization

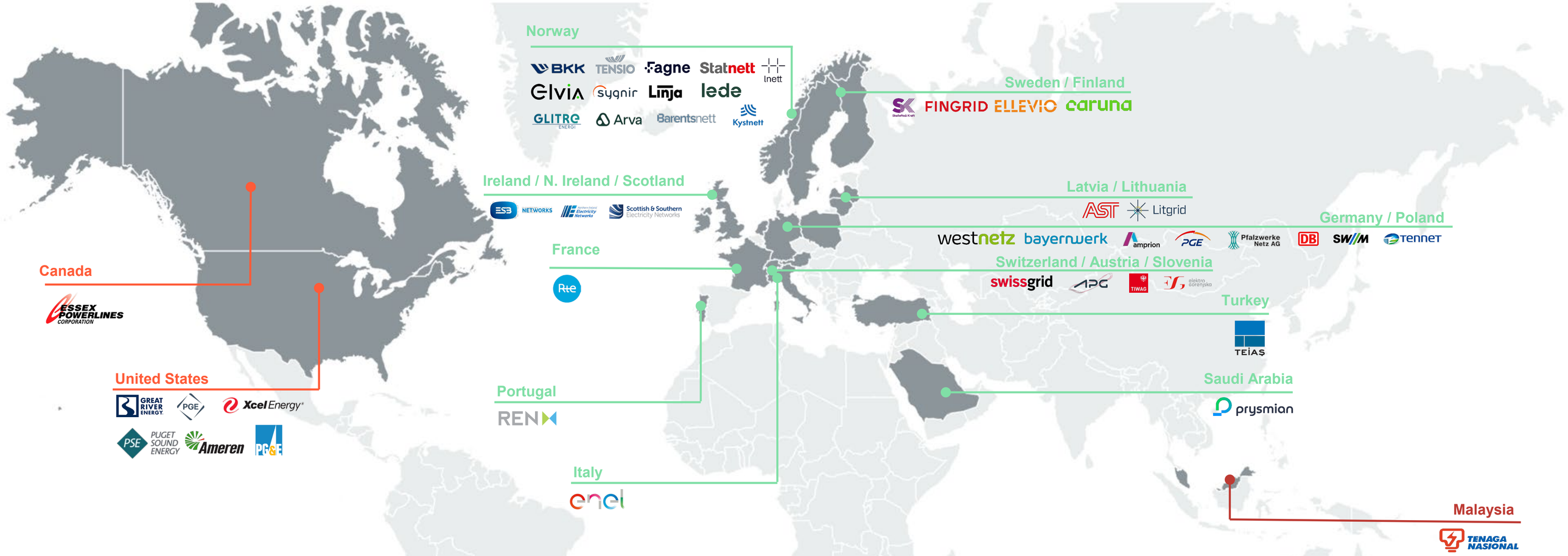
The power of three-party collaboration

Customers, research institutions and technology supplier



Heimdall is already the leading DLR vendor globally

Deployed by more than 50 utilities across 20 countries



Sep 23: Announcing the world's 1st system-wide contract!

With Norway's largest DSO, Elvia

Elvia + Heimdall Power

Grid to be monitored

+3200 km

# of Virtual- and Physical Neuros

1500 + 110

Neurons installed by drone

> 90%

Then the second system-wide contract!

With Norwegian regional DSO, Fagne

Fagne + Heimdall Power

Grid to be monitored

~750 km

# of Virtual- and Physical Neuros

275 + 70

Neurons installed by drone

80% targeted

Mar 24: Followed by the largest DLR project in the US!

With Great River Energy (providing electricity to 1.7m people)

GREAT RIVER ENERGY + Heimdall Power

Grid to be monitored

9 critical lines

Physical Neuros

56

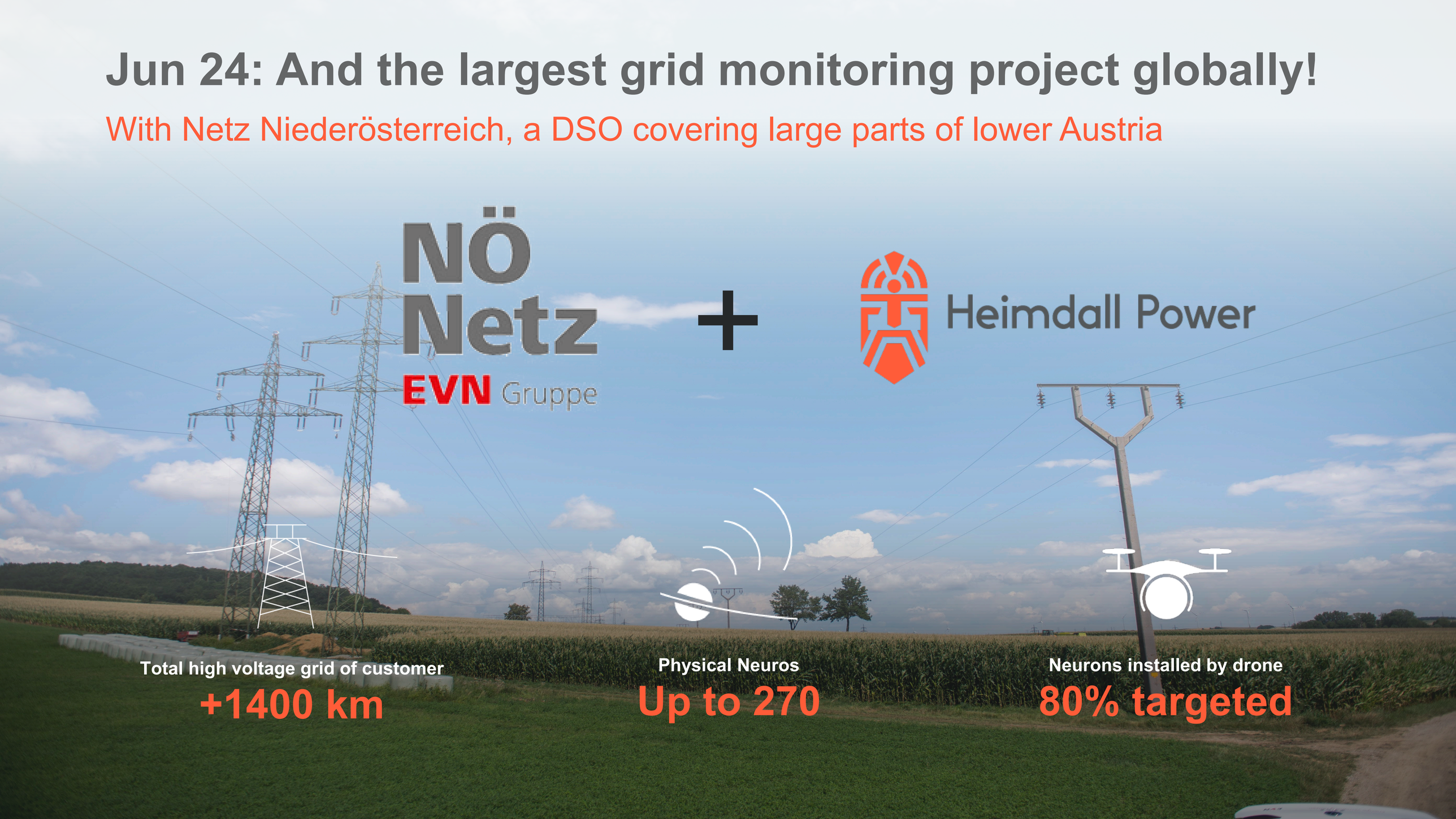
Neurons installed by drone

> 80%

Source: WCCO - CBS Minnesota

Jun 24: And the largest grid monitoring project globally!

With Netz Niederösterreich, a DSO covering large parts of lower Austria



Total high voltage grid of customer

+1400 km

Physical Neuros

Up to 270

Neurons installed by drone

80% targeted

May 25: Followed by the largest DLR project in Germany

With Bayernwerk (part of the E.ON group)

bayernwerk + Heimdall Power

Grid to be monitored

9 critical lines

Physical Neuros

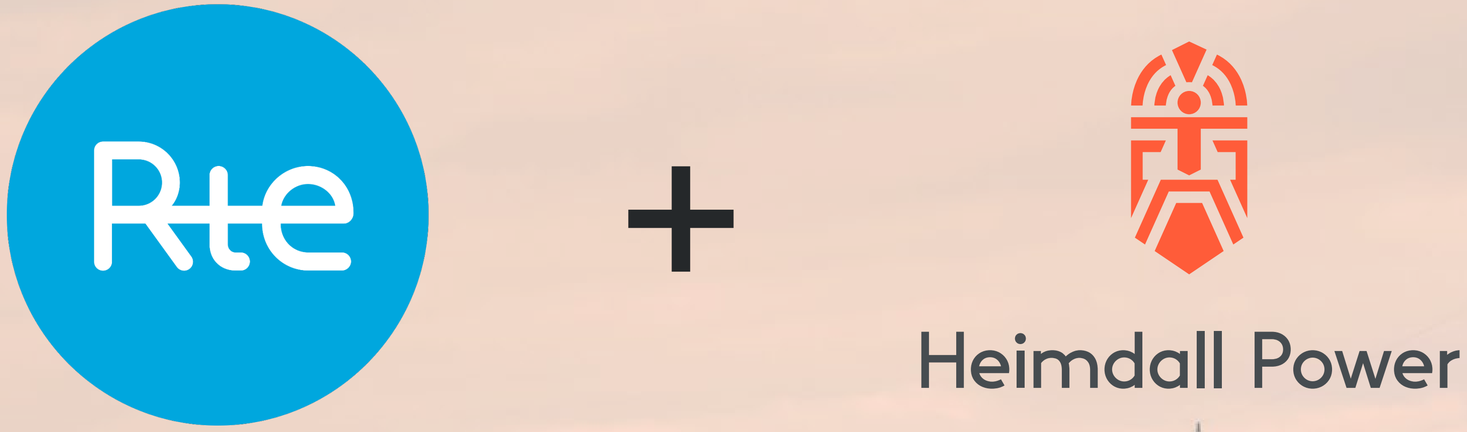
101

Neurons installed by drone

> 80%

May 25: Selected for RTE DLR framework agreement!

Largest DLR framework agreement in the world



May 25: Awarded PSE tender!

The largest DLR deployment in the U.S. with 75 Neurons

Bayernwerk achieved up to 40% capacity increase with Heimdall compared to weather station solutions

Challenge

- **Old lines** in populated areas were **limited by clearance** on specific spans and could not be operated at the design temperature.
- **Physical upgrades were costly** due to weak tower structures.
- Existing weather-station solution did not solve all challenges.

Solution

- Bayernwerk used Heimdall Power sensors to **monitor clearance on most critical spans**, prioritizing lines with high PV load.

Results

- Sensors provided **significant (up to 40%) additional capacity compared to the existing weather-station solution**. These gains were highest during the most critical times (e.g., high ambient temperature).
- The DSO **initiated several additional purchases** after seeing results.
- Client became an **active promotor** towards other German grid operators.

Bayernwerk and Heimdall Power leadership with the Neuron

Bayernwerk is a leading German utility company focused on energy distribution, grid innovation, and renewable integration. Serving around 7 million people, it operates over 400,000 decentralized energy systems. In 2024, Bayernwerk reported approximately $2.3 billion in revenue, highlighting its scale and role in Germany's energy transition.

Building System-wide DLR solution

… three steps completed within months

1

Gather asset data and create a digital twin of all overhead-lines in the project

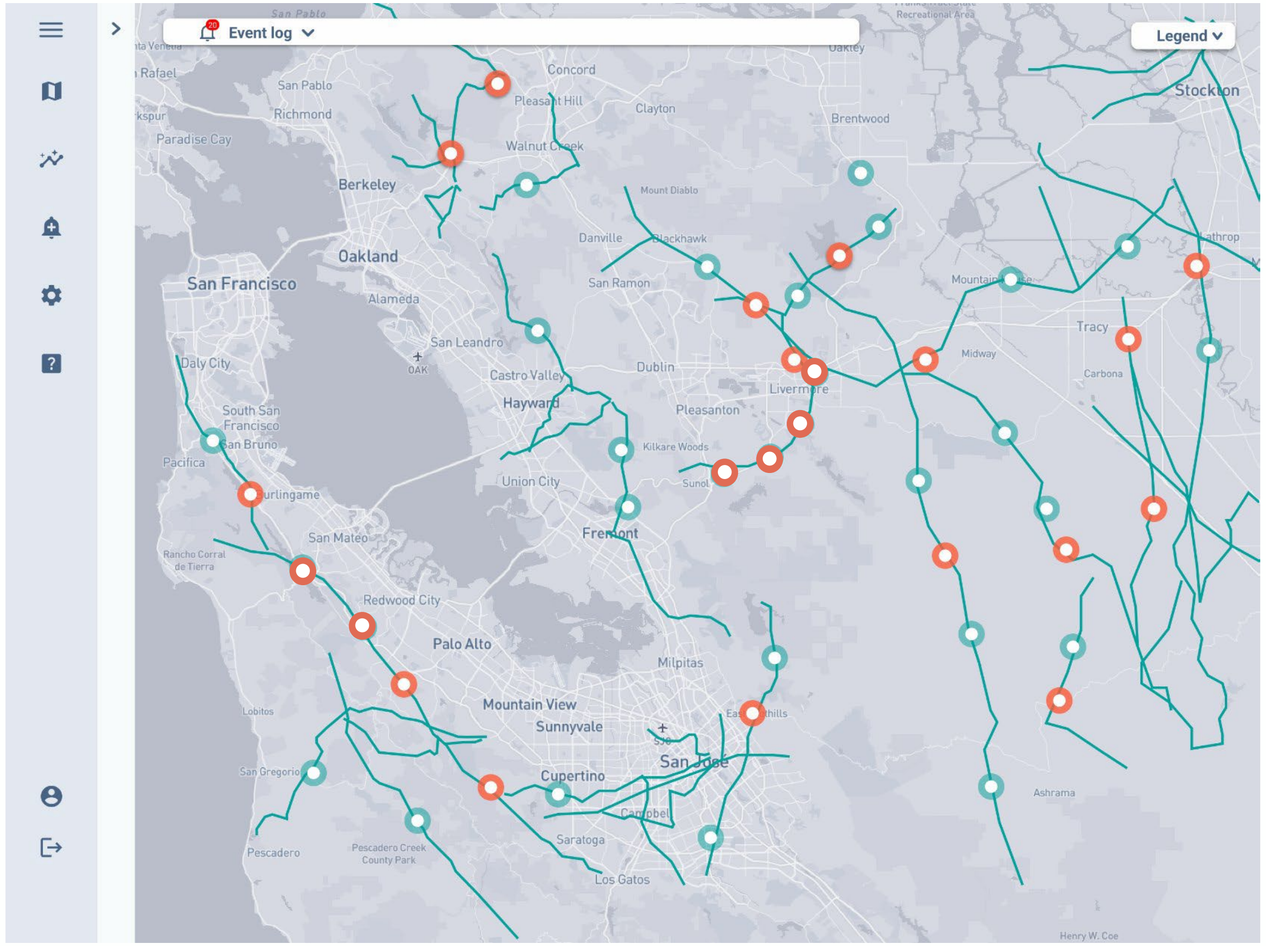
Create **Virtual Neurons** on all line sections to build a **capacity model** for all lines

2

Add **Neurons** to measure and improved accuracy. **Train** the capacity model towards local conditions.

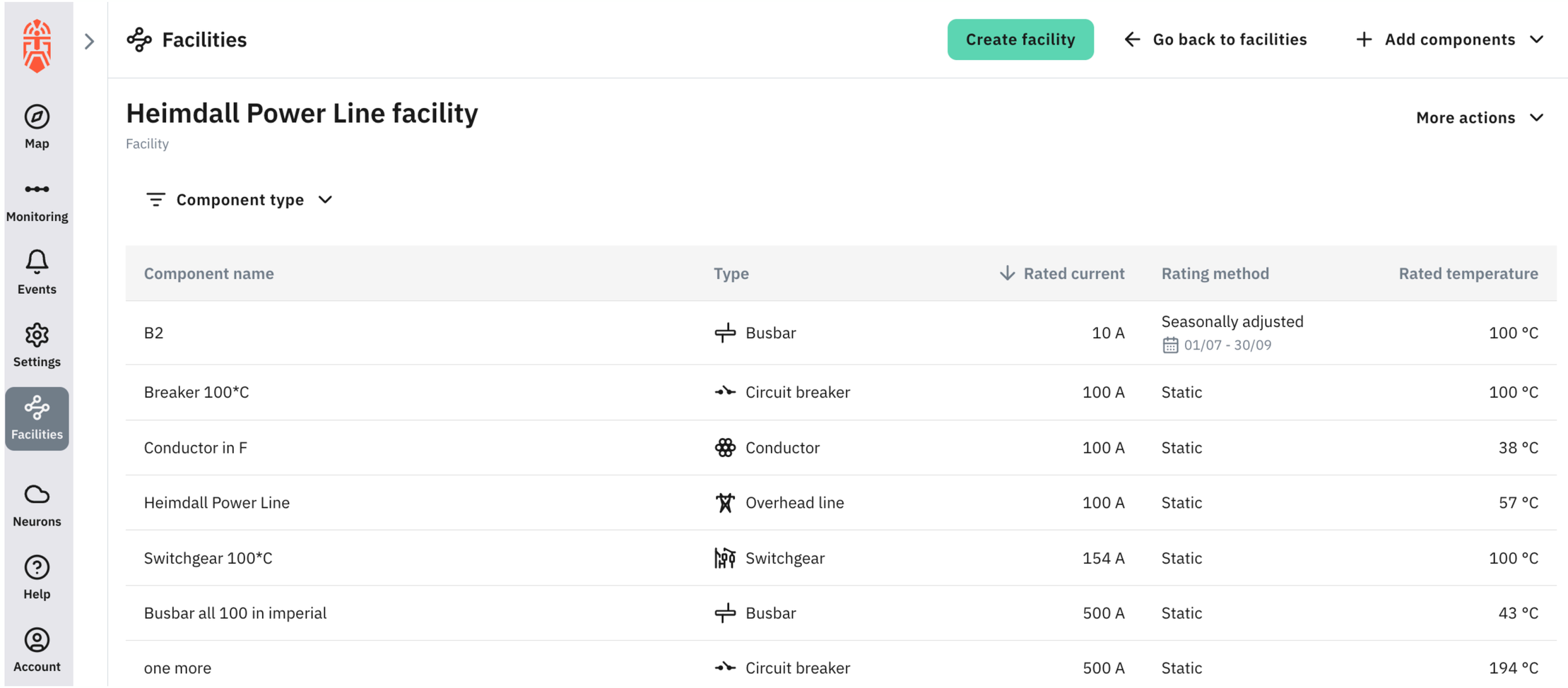
3

Identify lines and critical spans to add more Neurons for **increased observability** and additional sensor-based services on selected lines.



Facility ratings

Capacity limits for all assets can be included – easily configurable and associated to each line



Building a Norwegian SmartGrid/GETs industry

What does it take?

1. Customers willing to act as a sandbox
2. Clear roles between grid companies and technology providers
3. Commercialization mindset
4. Ecosystem collaboration
5. Focus on GET
6. Export orientation form day one

Source: The White House

Thank you!

For any inquiries or further information, please contact:

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