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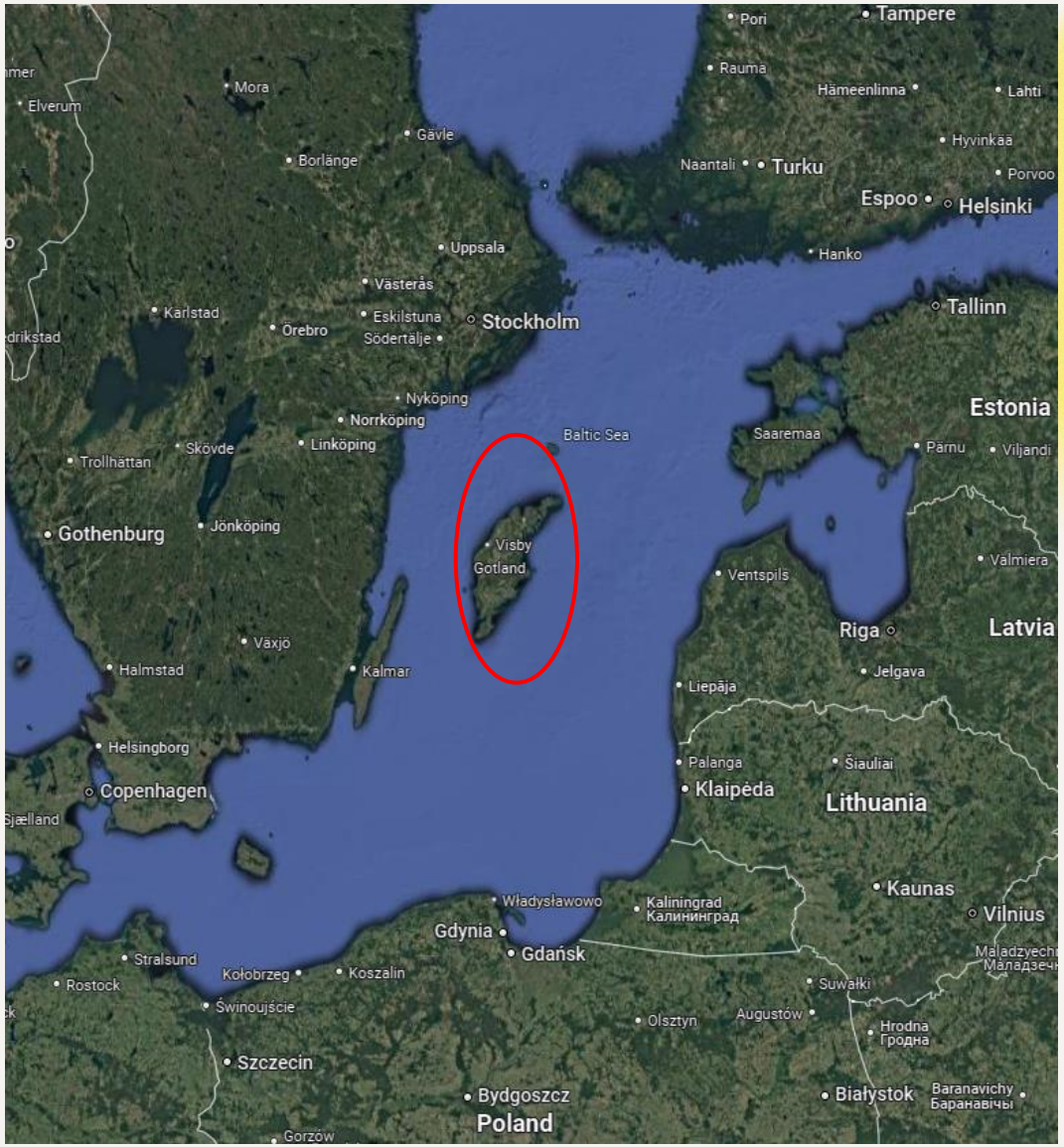

Capacity based DSO tariffs

Project owner energicentrum GOTLAND

Project partner GEAB Gotlands Energi

Funded by the European Union

2025-01-30

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Background

Regulatory sandbox for DSO tariffs, since 2016

Target

- Efficient grid utilization

Problems

- Low grid utilization
- Too much solar in weak grids
- Local grid congestion - Spot price adaption
- Shutdown of RES at low spot prices

Authorities propose a ”time-differentiated” power fee for all DSOs 2027

- Not adapted to real location-based scenarios

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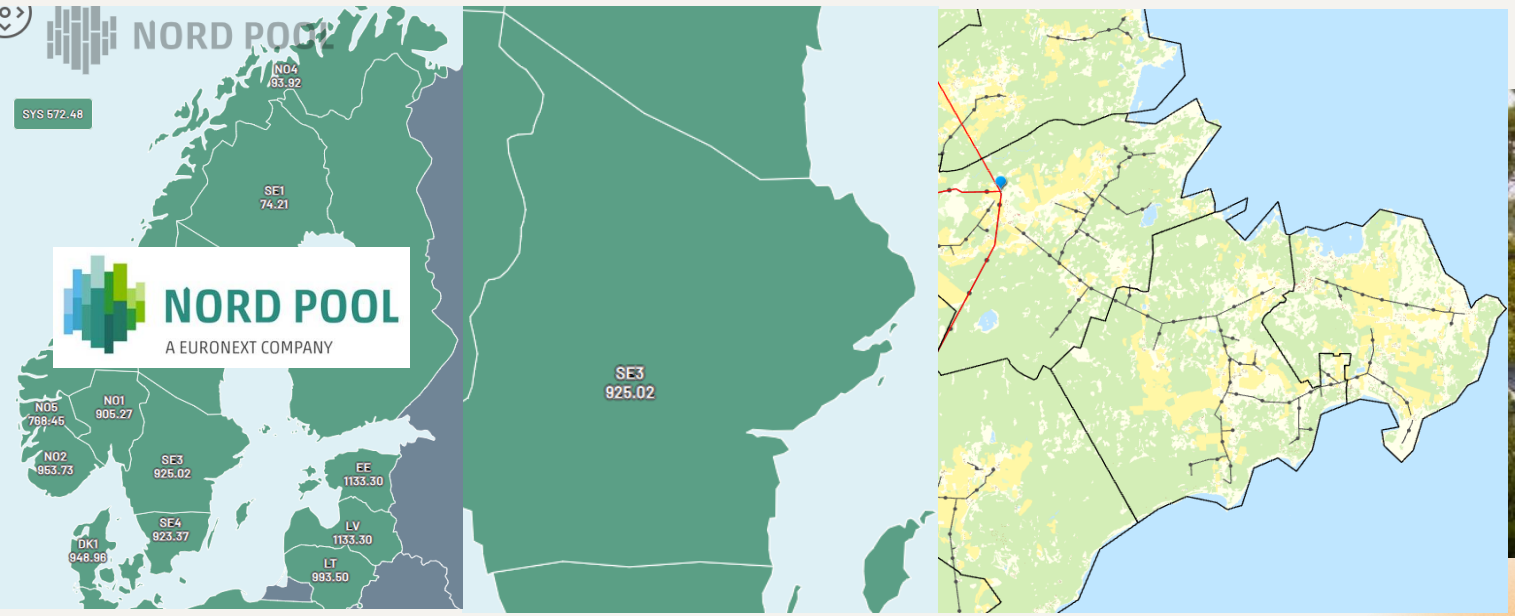
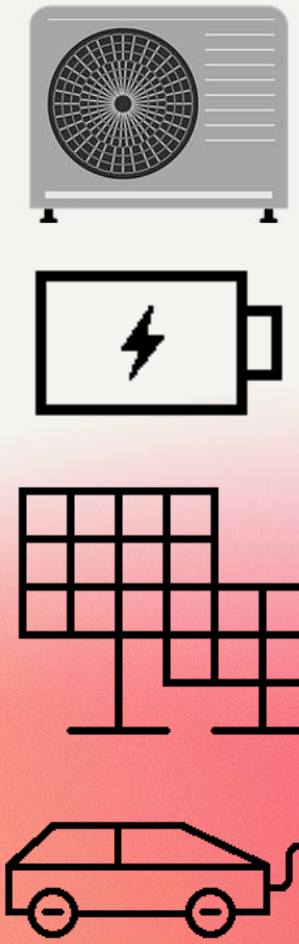
Grid congestion caused by one-sided flexibility incentives





<u>Solution</u>: Adapt flexibility-incentives to local grid conditions

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Flexible resources

Automated flexible resources

Increased cost

Reduced cost

Depending on the control signal

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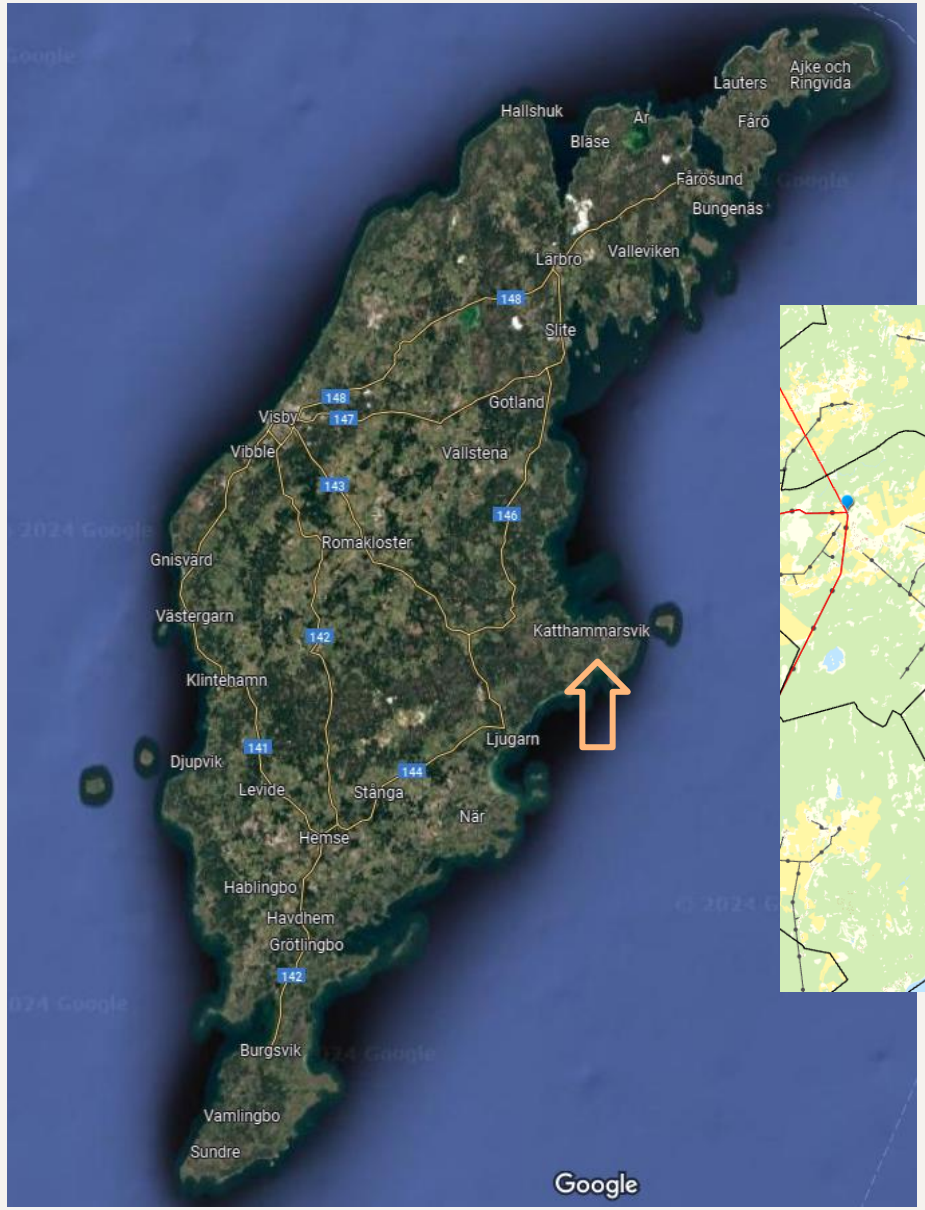

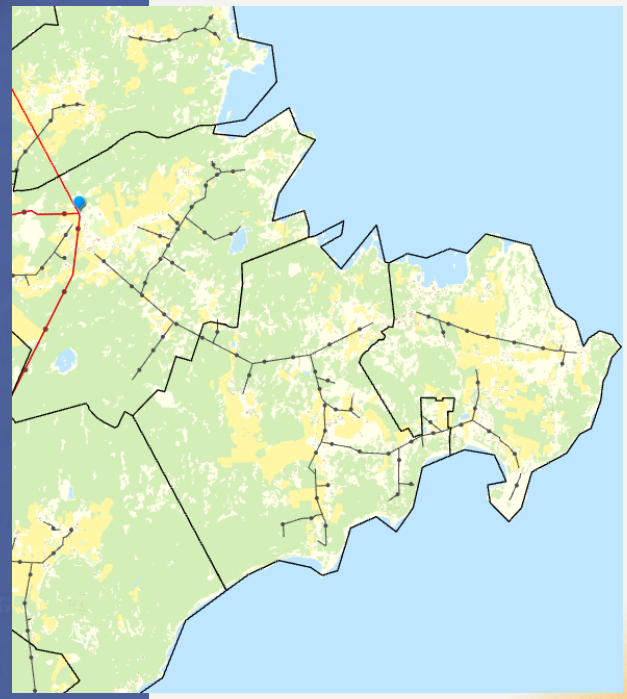

Our solution

A high resolution capacity-based approach

Where

Sweden – East of Gotland - Kräklingbo

Resolution

- 1700 costumers/150 Secondary substation
- Due to the station load, unique prices per every station,
- Time: 30-minutes
- Location and time specific!

12 month test

- Start 1 feb-2025
- 10 testpilots

According to this you will actual pay for the strain you cause where you actually are and when it happens.

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Historical data from customers and secondary substations

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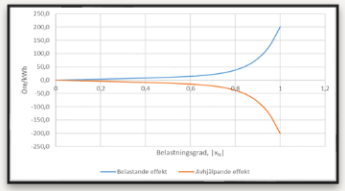
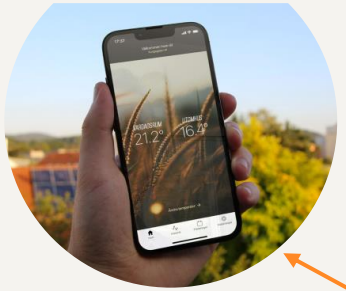


Tariff pricing model

Satisfied customers

Customers



Behavior

AI power grid analysis

Plexigrid

Digital twin

SMHI

Weather forecast

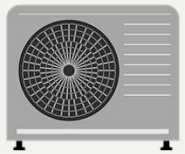
Price signal/hour to customer
Grouped by secondary substation
SE3_1…

Price signal/30 min 4 pm

Tomorrow's

spot price

NORD POOL
A EURONEXT COMPANY



tempo

Automatic controls

NGENIC

2025-01-30

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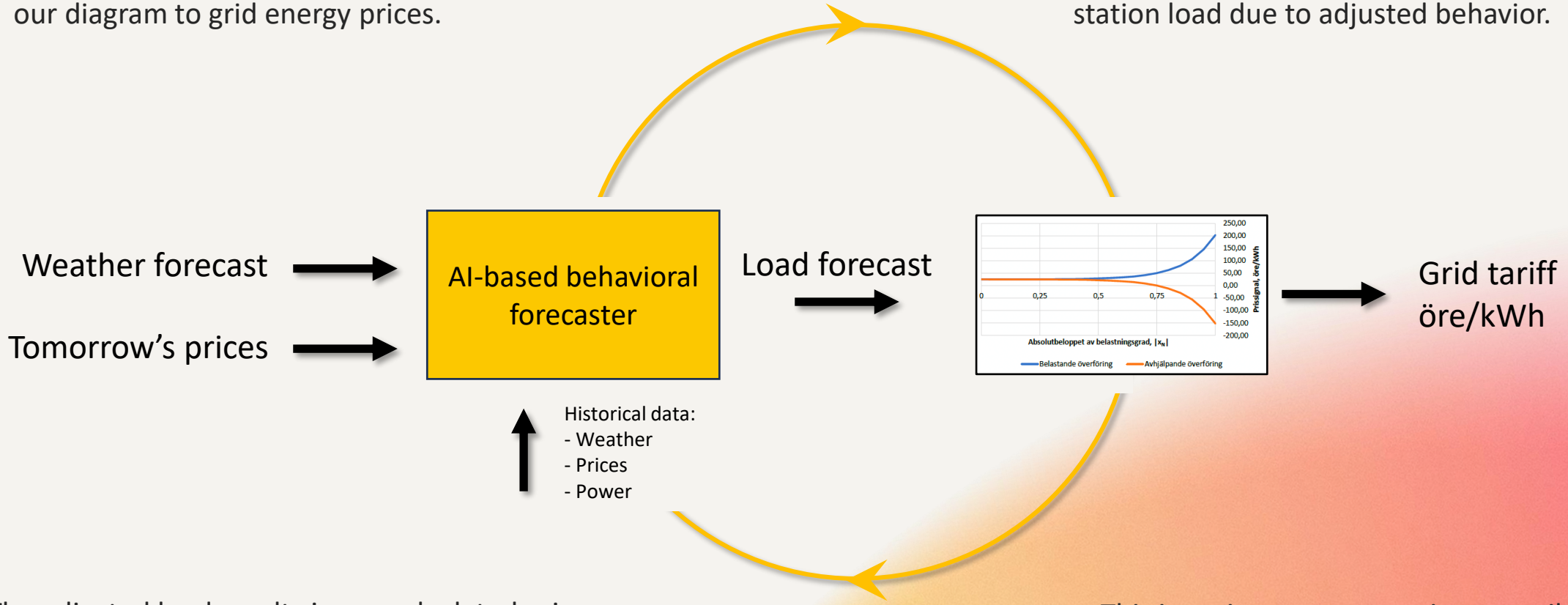
Satisfied users

- User friendly App
- High-degree of automation
- Composite price signal (= spot + grid prices)
- Two signals, usage and production

Calculation of the tariff based on load forecast

1. The forecasted load is directly translated via our diagram to grid energy prices.

2. The updated energy prices may impact the station load due to adjusted behavior.



3. The adjusted load results in a recalculated price

This iterative process continues until the difference between the iterations is small enough.

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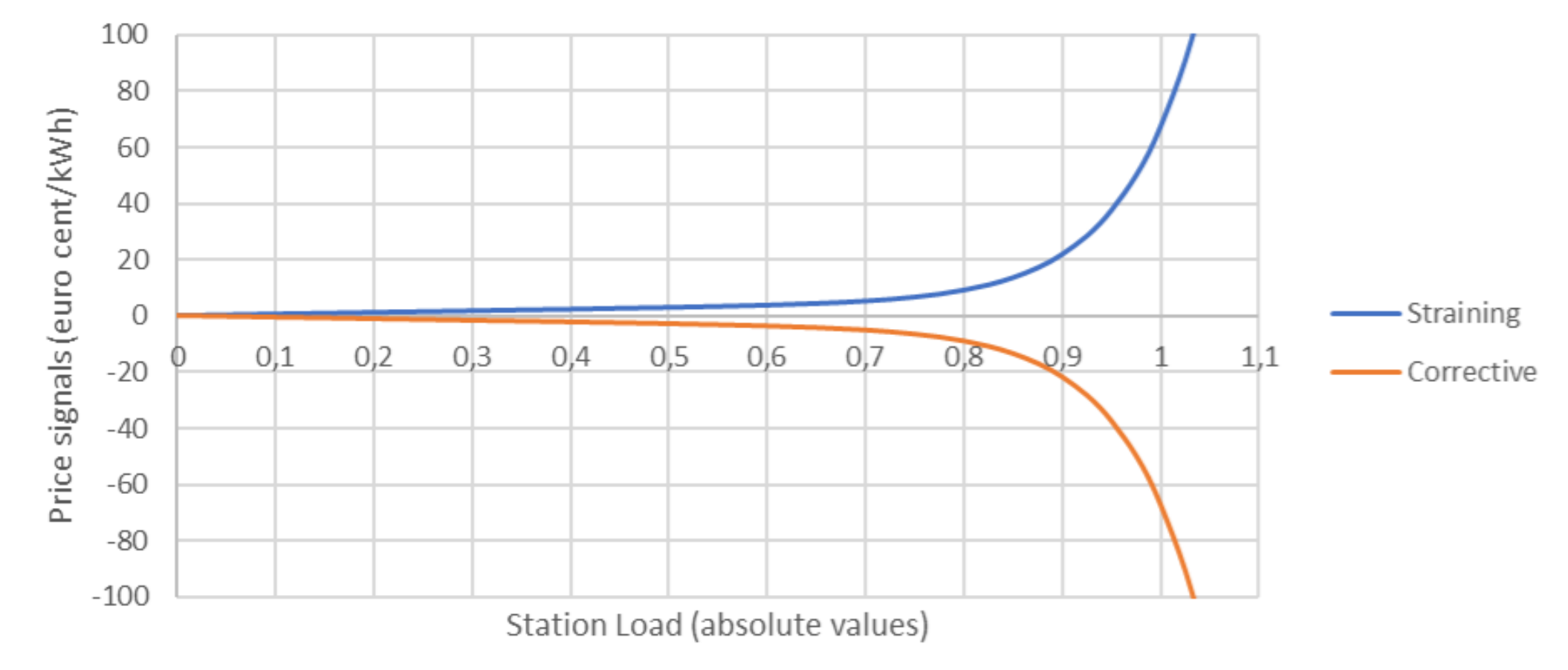

- The goal is a balance between consumption and production
- Higher incentives for balance is only present at high loads

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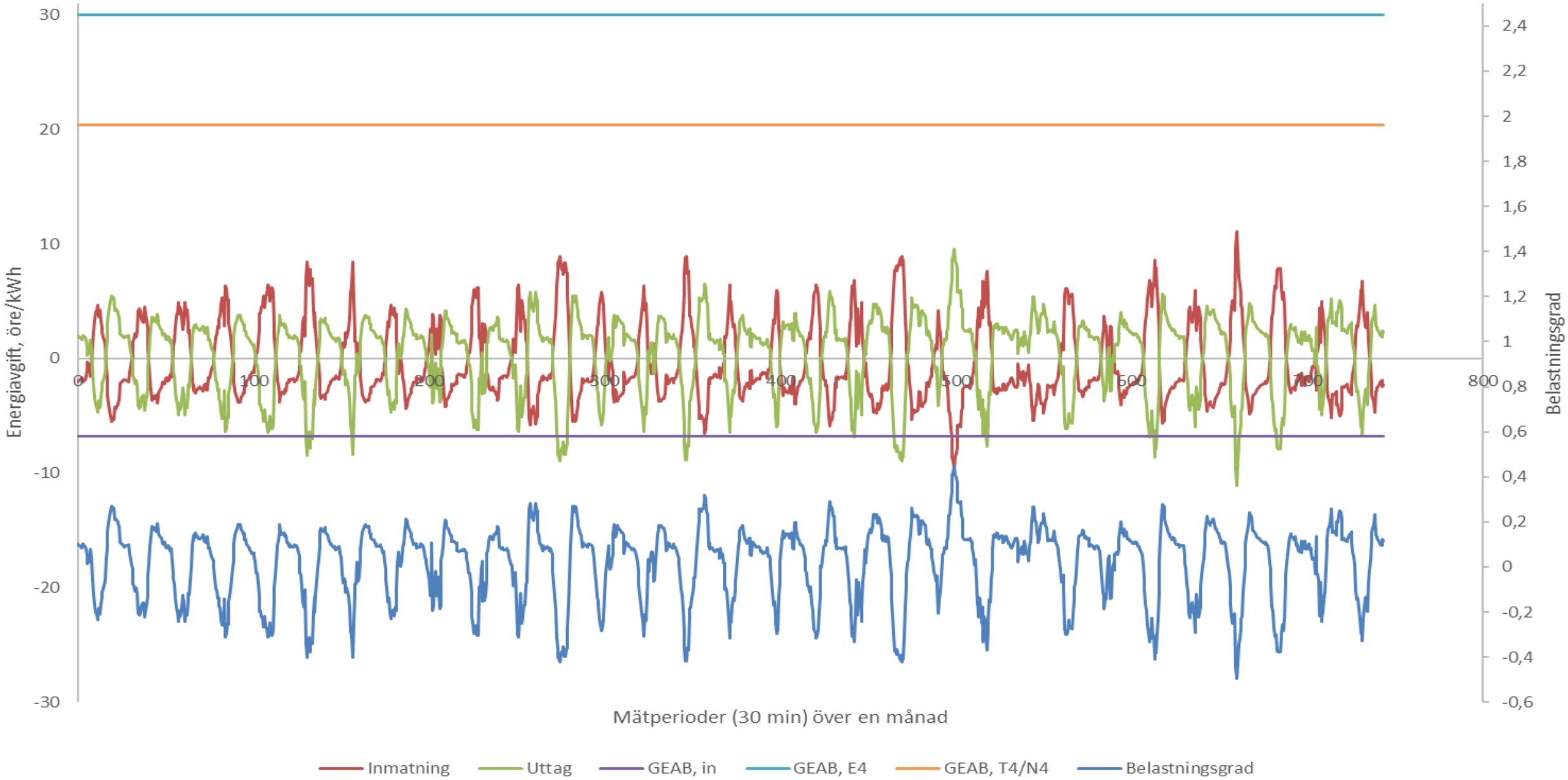
Energy prices and station load August -24



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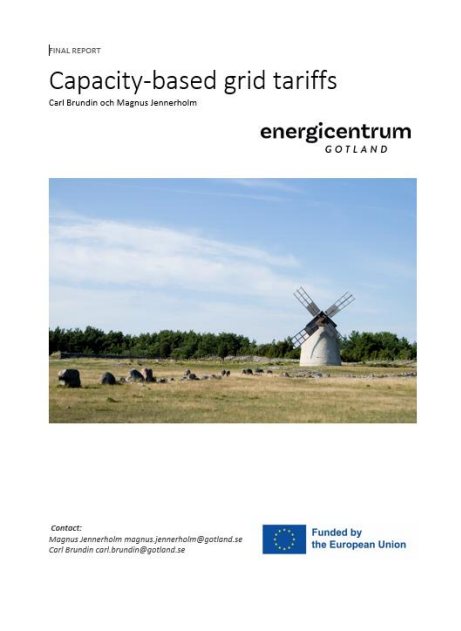
Download the project's final report

- www.energicentrum.gotland.se/project/tariffmodeller




Questions?