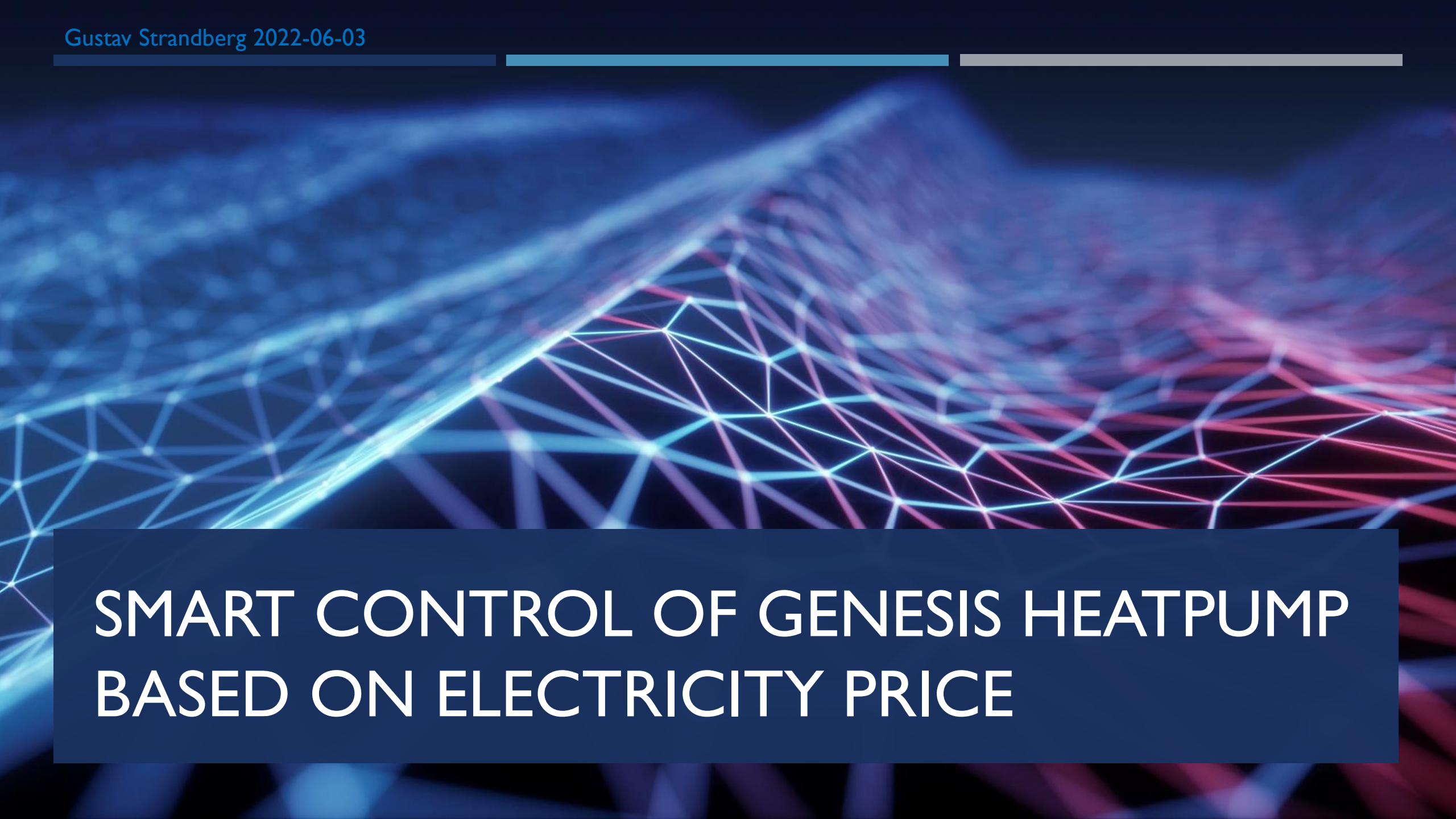
Gustav Strandberg 2022-06-03



SMART CONTROL OF GENESIS HEATPUMP BASED ON ELECTRICITY PRICE

Atlas 12
Heatpump
Modbus TCP

Shelly 3EM
3-phase power meter with relay
Smart grid/EVU

Home Assistant
Home automation platform

COMPONENTS

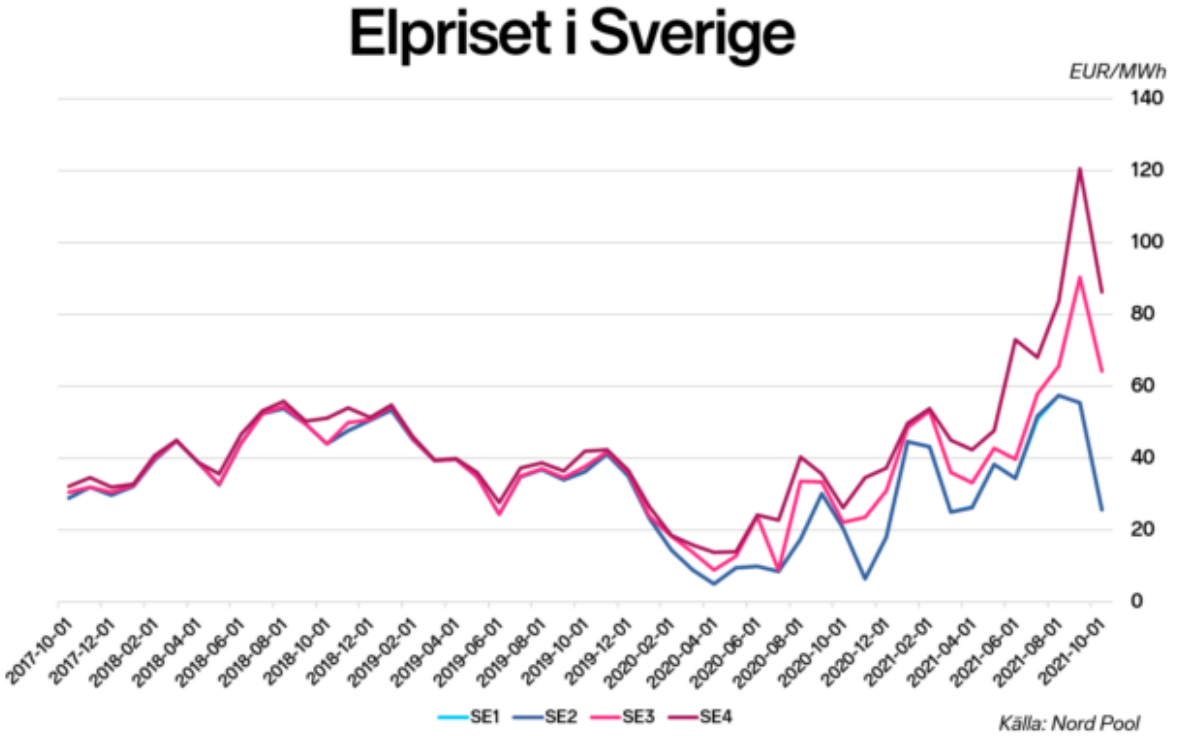
HOME ASSISTANT

- Introduction to Home Assistant
  - https://automatiserar.se/guide-home-assistant/
  - https://www.youtube.com/watch?v=sVqyDtEjudk
- Plugin from HACS that I use – Home Assistant Community Store
  - Nordpool - gathers electricity price - https://github.com/custom-components/nordpool
    - Gathers todays electricity price from Nordpool.
  - Thermia Genesis - https://github.com/CJNE/thermiagenesis
    - Reads and controls heat pump over Modbus TCP.
- Alternative plugin for Home Assistant
  - Thermia Heat Pump Integration - https://github.com/klejejs/ha-thermia-heat-pump-integration
    - Reads information about heat pump from Thermia Genesis Online API.
  - Tibber API - https://developer.tibber.com/
    - Gathers and categorizes electricity price. Requires an active Tibber subscription.
- Alternative solutions
  - NibePi - https://github.com/anerdins/nibepi
    - Reads and controls Nibe heat pumps over Modbus RTU. Can control based on electricity price and weather forecast. Possible to reverse engineer to control an Thermia heat pump?

TESTS

- Block compressor and internal heater by using EVU at price peak.
  - To aggressive? Tested from 06:00 – 11:00 last winter and at one occasion the internal heater was triggered.
- Adjust the thermostat down for heater and warm water based on electricity price for the most expensive six hours.
- Adjust the thermostat up for heater and warm water based on electricity price for the six cheapest hours if the electricity price is under 1kr/kWh.
- Change back thermostat to normal mode for the other 12 hours.

DEMO – CONTROL FROM HOME ASSISTANT



THANKS

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