



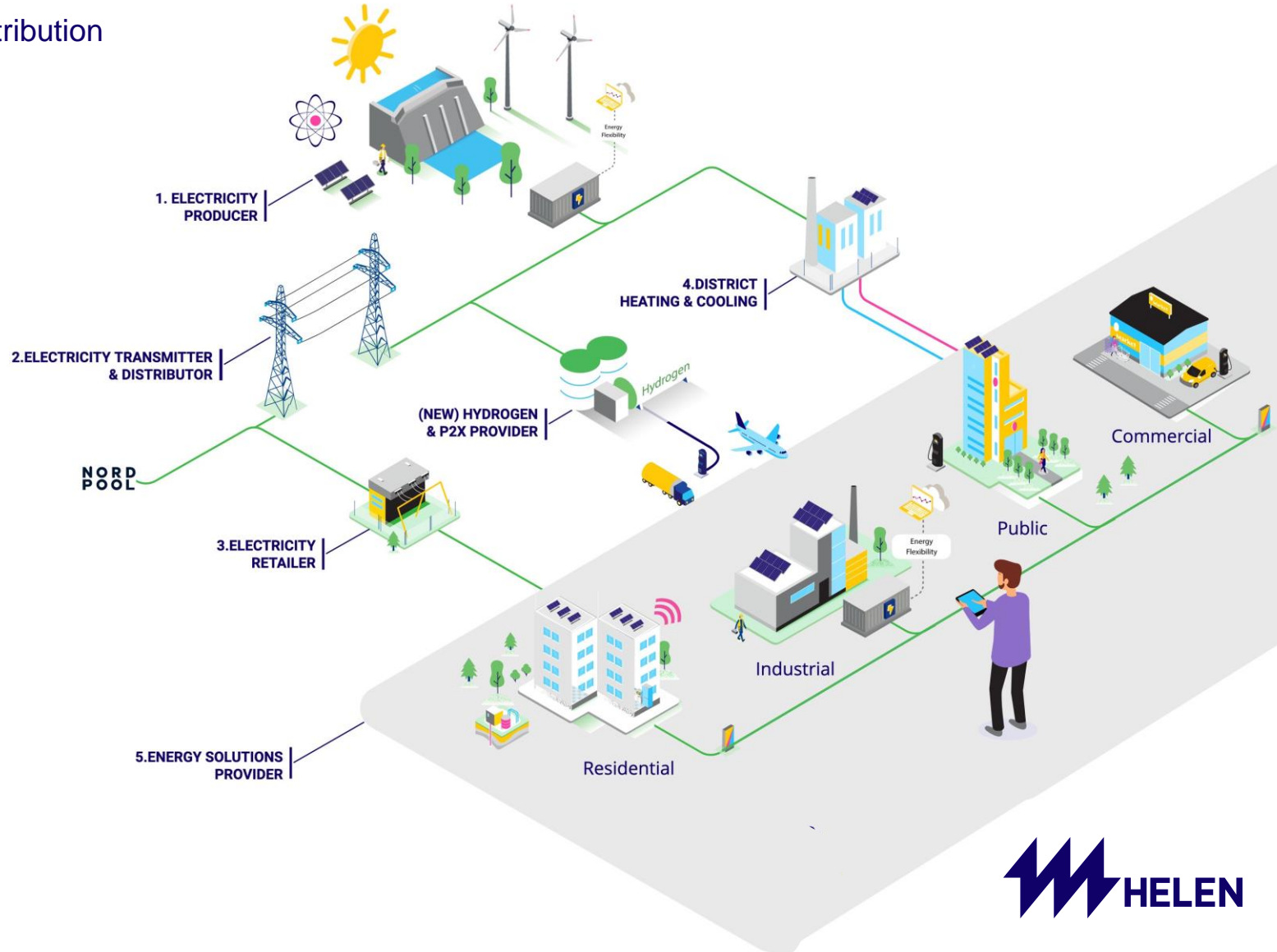
Batteries to increase system flexibility

get inspired 19.9.2023

Kristiina Siilin, business lead batteries and flexibility

Helen – one of the largest Finnish energy companies

Unique value chain from energy production and distribution through markets to the end customer

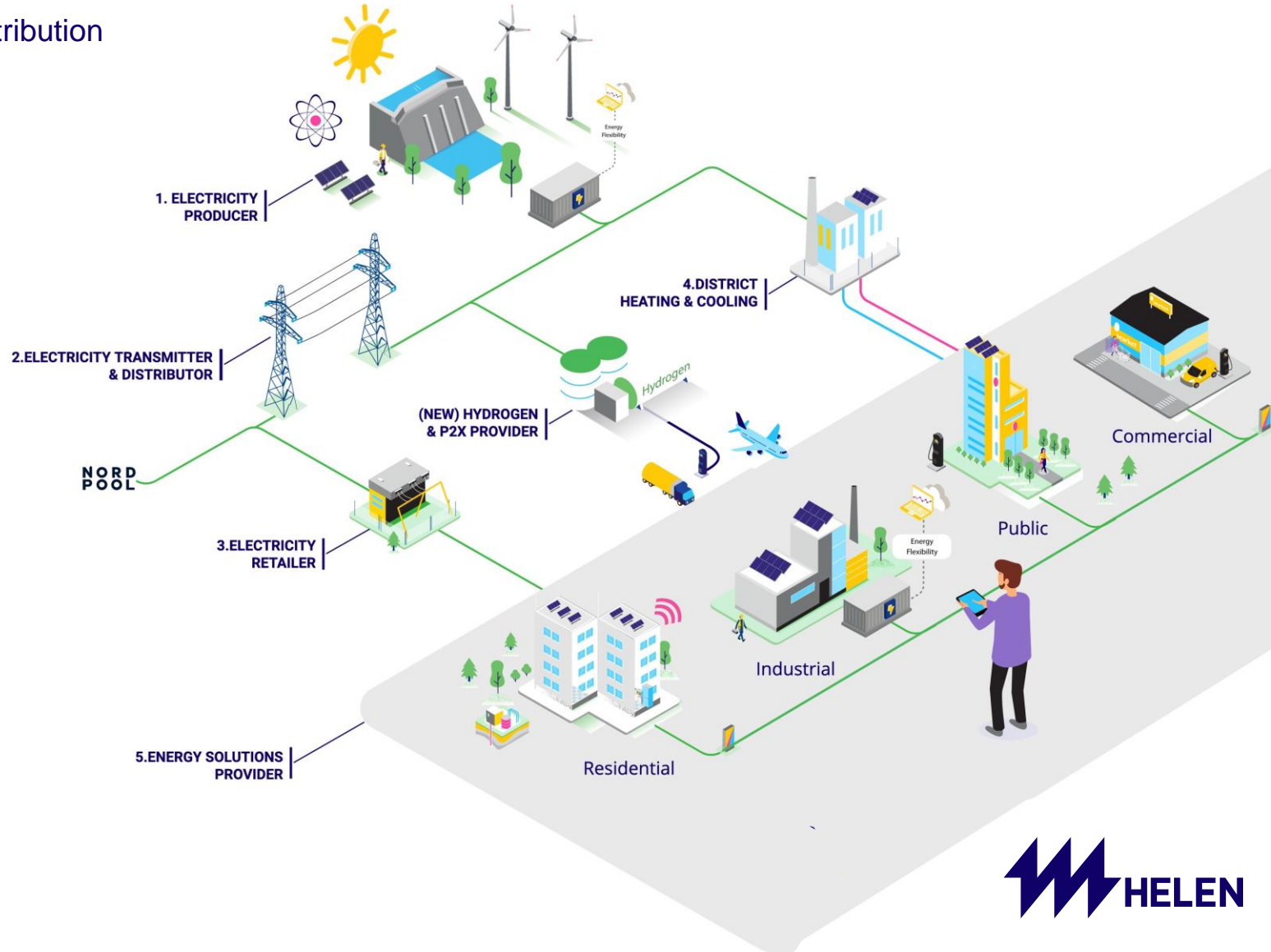


Helen – one of the largest Finnish energy companies

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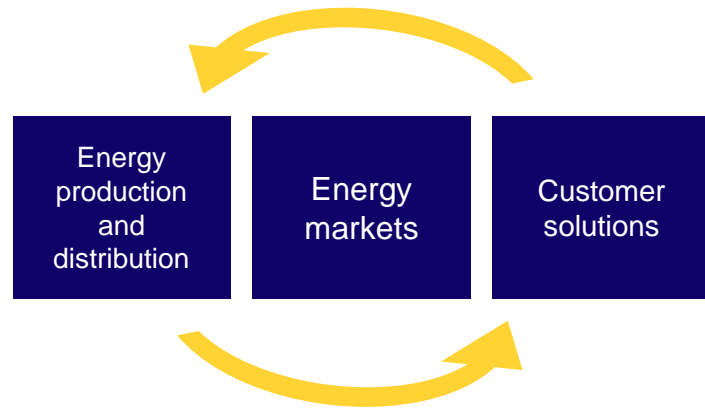


Back in the old days - linear one way stream

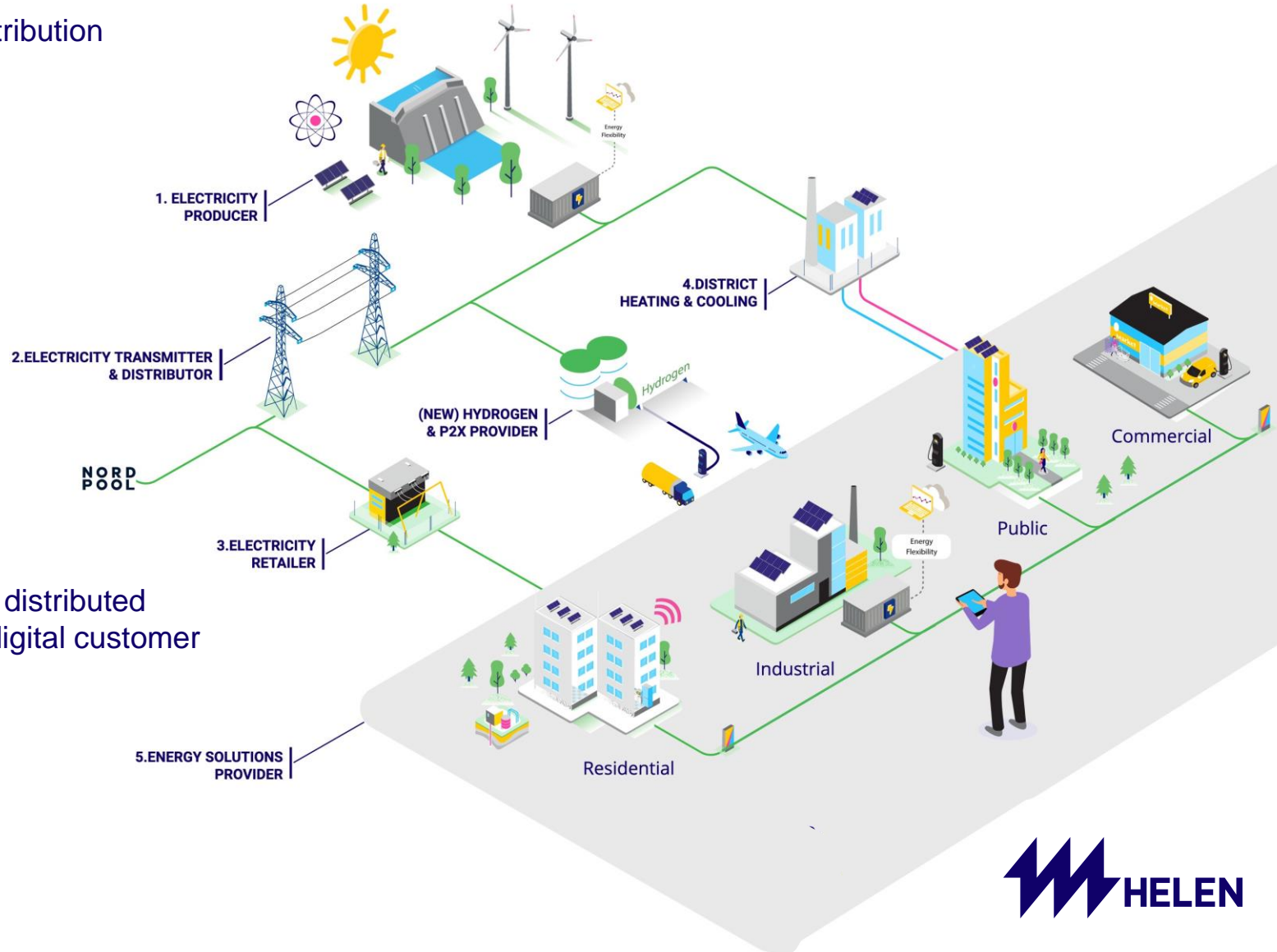


Helen – one of the largest Finnish energy companies

Unique value chain from energy production and distribution through markets to the end customer



With the help of digital embedded intelligence in the distributed energy system, increased level of automation and digital customer solutions we will become one flexible system



Helen is carbon neutral by 2030

- Decommissioning combined heat and power plants – end of coal fired plant -era by 2025
- Helen has made 1 billion euros investments in wind and solar, to own and operate over 1 GW capacity once all sites are built. Share of weather dependent electricity production ~60 %
- Electricity consumption will double through electrified heating, hydrogen production and customer's electrification



How to build the inevident need of flexibility?



Batteries play a crucial role in adding the system flexibility



HELEN'S OWN INVESTMENTS

- Helen will need battery energy storage capacity to balance own electricity supply and demand
- The need in the coming few years will be several hundreds of megawatts of battery capacity
- Confirmed pipeline 5 MW / 10 MWh

Batteries play a crucial role in adding the system flexibility



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CUSTOMERS INVESTMENTS

- Electricity market volatility encourages investors to invest in battery energy storages
- Revenues are expected from reserve markets and energy trading, Finnish reserve market size 800 – 900 MW
- Confirmed customers 5 MW / 10 MWh

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SECTOR INTEGRATED, AUTOMATED OPTIMIZATION AND CONTROL

- Digital platform that bridges the energy infrastructure, energy markets and customers
- Optimizes the revenues for a battery investment and automates the market operations and controlling the assets



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Story of Lakiakangas 3 BESS

First customer of Helen market operation service and first asset which starts utilizing HelenFlex technology



April 2023
Building the foundation



May 2023
Cabling works on going



June 2023
Installation and cold commissioning

Story of Lakiakangas 3 BESS

Successful completion of SAT tests and acceptance of pre-qualification tests by Fingrid support the start of commercial reserve market operation in October



July 2023
Hot commissioning



August 2023
SAT tests



August 2023
Technical on-site training



September 2023
Commercial operation date

Helen is increasing own supply side flexibility with 5 MW / 10 MWh BESS investment

Will be connected to the electricity markets through HelenFlex technology during Spring 2025



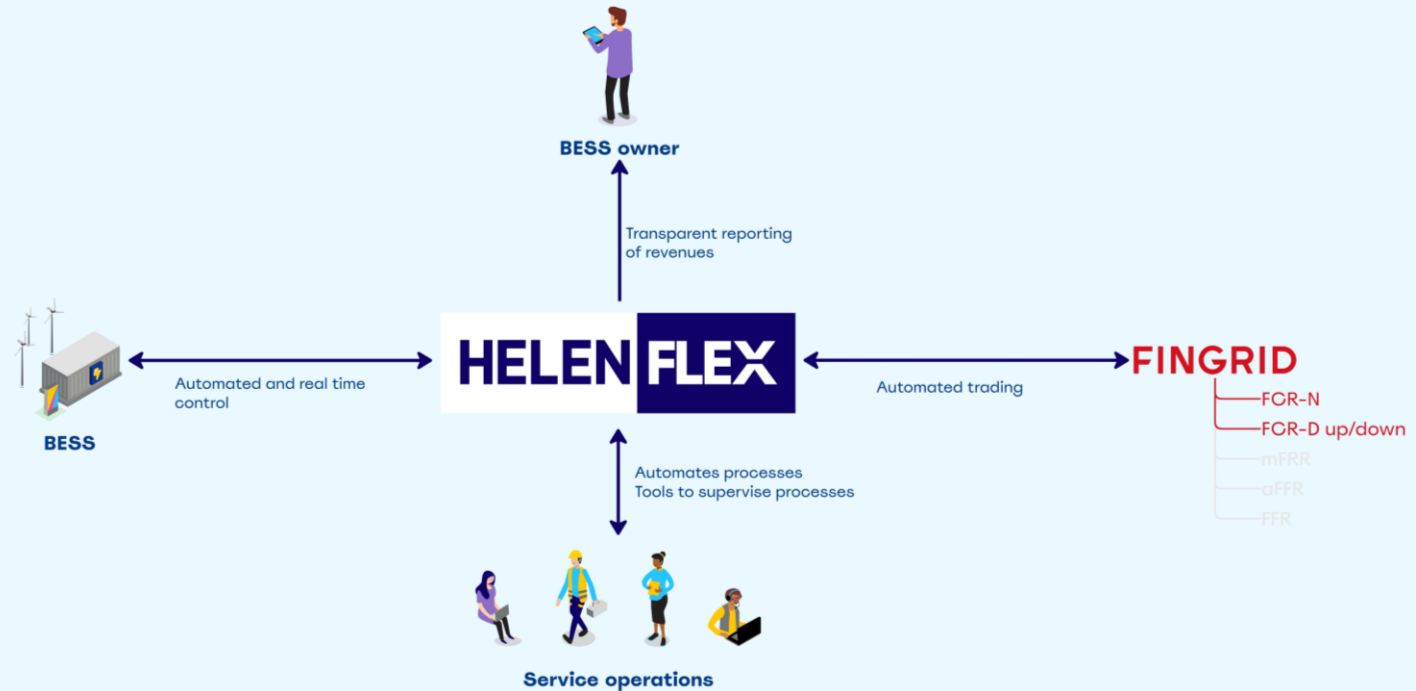
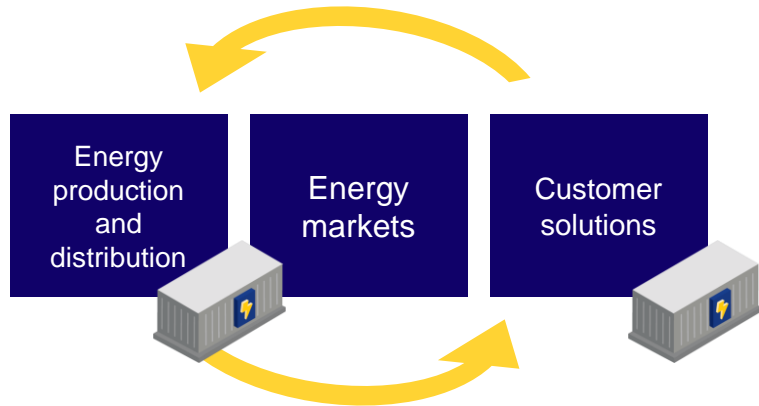
10 MWp Solar park with 5 MW BESS



HelenFlex helps to unlock the flexibility potential of batteries

Own technology development mitigates the investment risks of large BESS portfolio

Experience and agile digital tools enable to deliver winning market operation services to customers



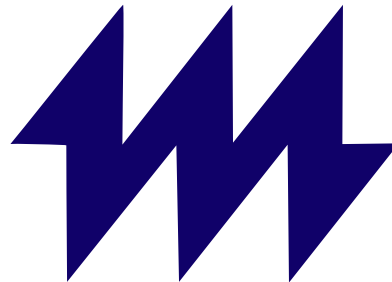


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HELEN