

Sustainable Energy Management that makes a difference is complex and requires focused innovation



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Huawei: Leading provider of ICT infrastructure and smart devices

Bring digital to every person, home and organization for a fully connected, intelligent world



196.000

Employees



107.000+

R&D employees



170+

Countries and regions



68+

Interbrand's
Top 100
Best Global Brands



44+

Fortune Global 500

Huawei: UN Global Compact



United Nations
Global Compact

Participant since 9. November 2004



Huawei: Tech4All, Environments and Development

Examples for Projects and Programs



Forests



Oceans



Wetlands



Digital village



Why Energy Management?

Energy Management – Why now?

1

Increasing demands

2

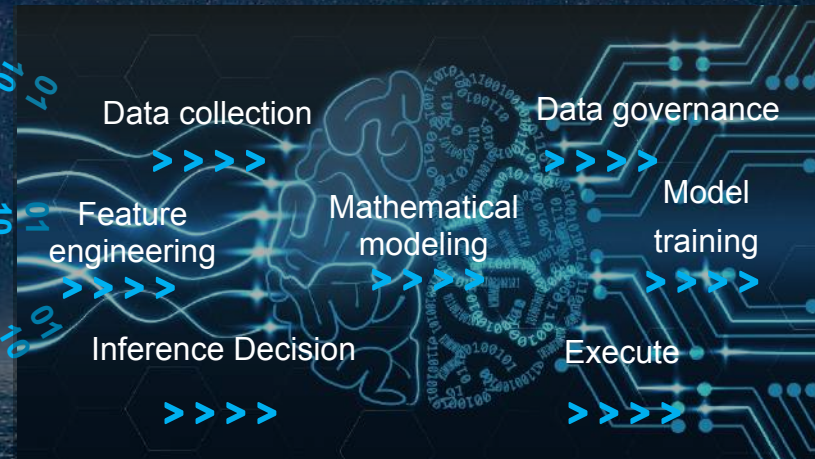
Legislation / Standards

3

Technology / Innovation

Energy Management – Why now?

1. Increasing demands



Intelligent diagnosis



Early warning and early prevention

Intelligent optimization



Further improvement in energy efficiency

Intelligent collaboration



Manual to automatic, reducing Opex

IoT

5G

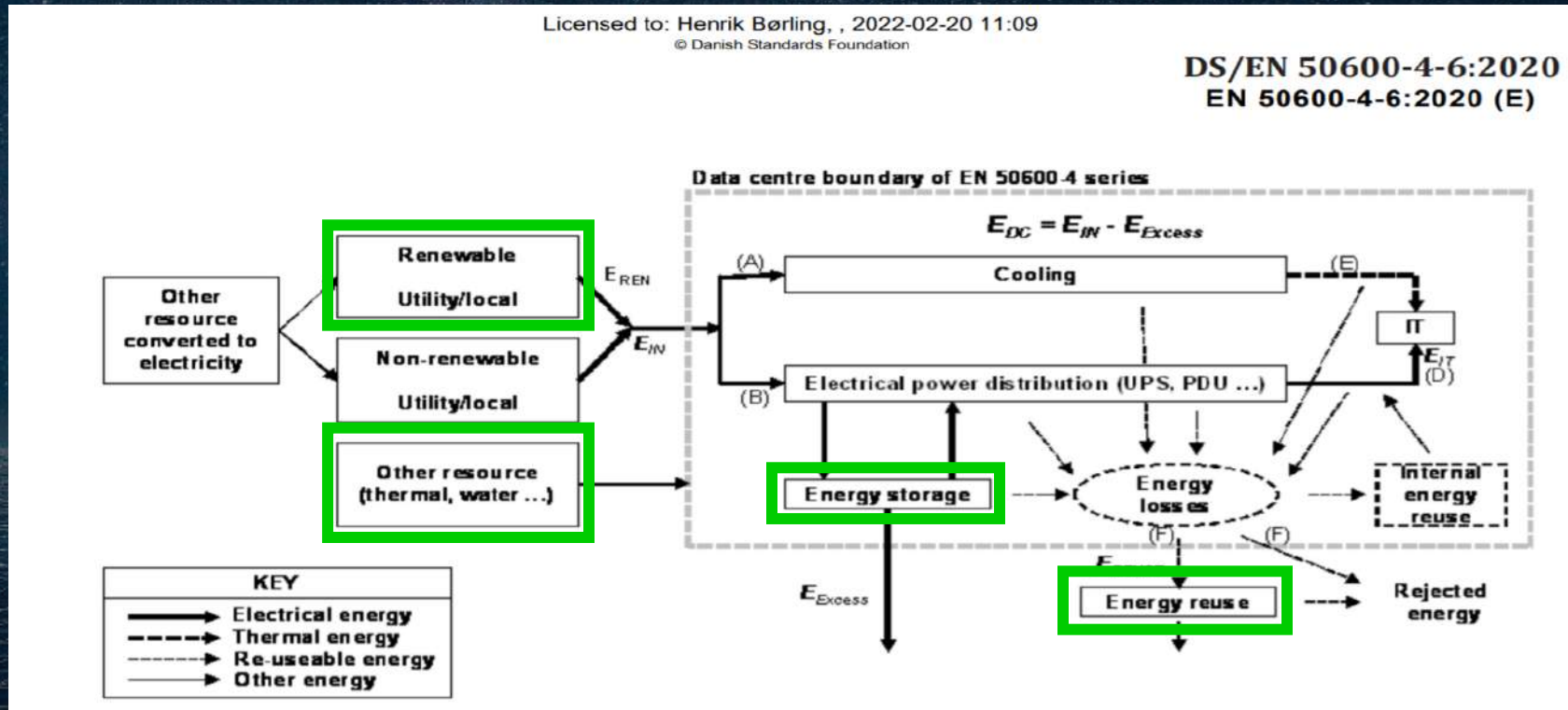
IT/
OT

AI/
ML

Energy Management – Why now?

2. Legislation / Standards

Focus for sustainability has increased as there now for The European standard for datacenters EN50600 has an amendment EN50600-4 with several definitions of KPI's for datacenter installations



Energy Management – Why now?

2. Legislation / Standards



ISO/IEC 30134

ISO/IEC 30134-2 Data Centre Key Performance indicators, Power Usage Effectiveness (PUE)

ISO/IEC 30134-3 Data Centre Key Performance indicators, Renewable Energy Factor (REF)

ISO/IEC 30134-4 Data Centre Key performance indicators, IT Equipment Energy Efficiency for servers (ITEEsv)

ISO/IEC 30134-5 Data Centre Key performance indicators, IT Equipment Utilization for servers (ITEUsv)

ISO/IEC 30134-6 Data Centre Key Performance indicators, Energy Reuse Factor (ERF)

ISO/IEC 30134-7 Data Centre Key Performance indicators, Cooling Efficiency Ratio (CER)

ISO/IEC 30134-8 Data Centre Key Performance indicators, Carbon Usage Effectiveness (CUE)

ISO/IEC 30134-9 Data Centre Key Performance indicators, Water Usage Effectiveness (WUE)

Energy Management – Why now?

2. European- and local regulations and initiatives

European



Energy Management – Why now?

2. Procurement requirements

Environmental requirements must make up a significant proportion of the total supplier evaluation

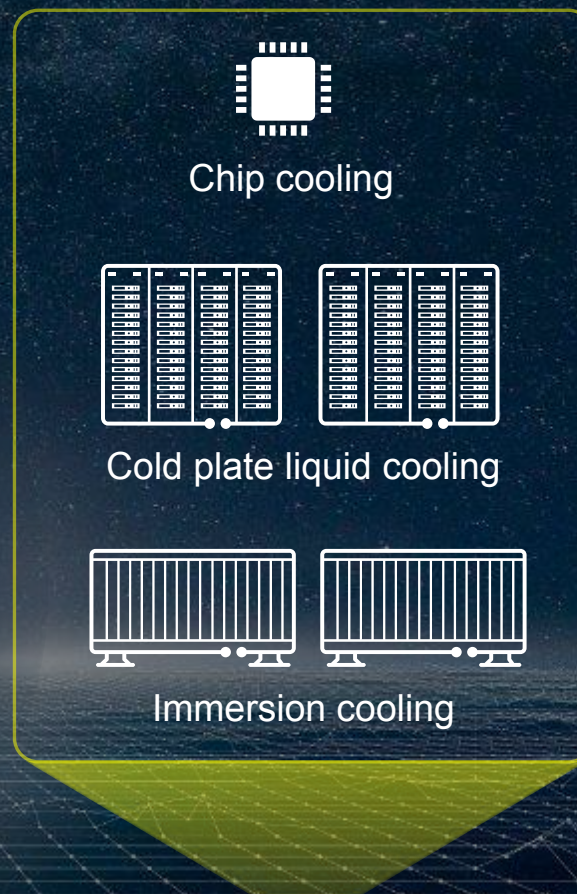
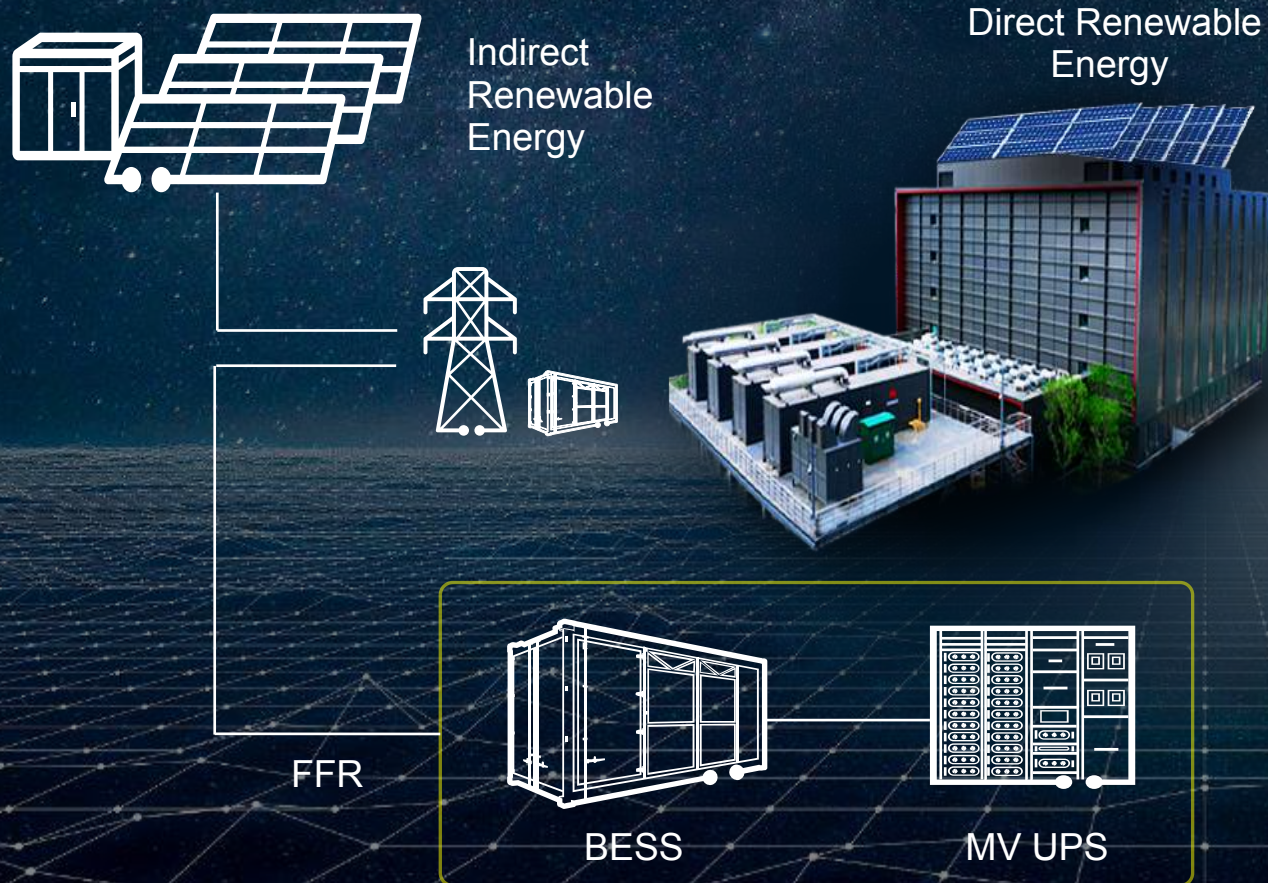
- Environmental requirements for a Cloud Solution as example
- Evaluation and compliance with environmental requirements account for 15% of the overall evaluation based on the following headlines:



- Non-compliance with requirements and reporting will initially be considered as breach of contract

Energy Management – Why now?

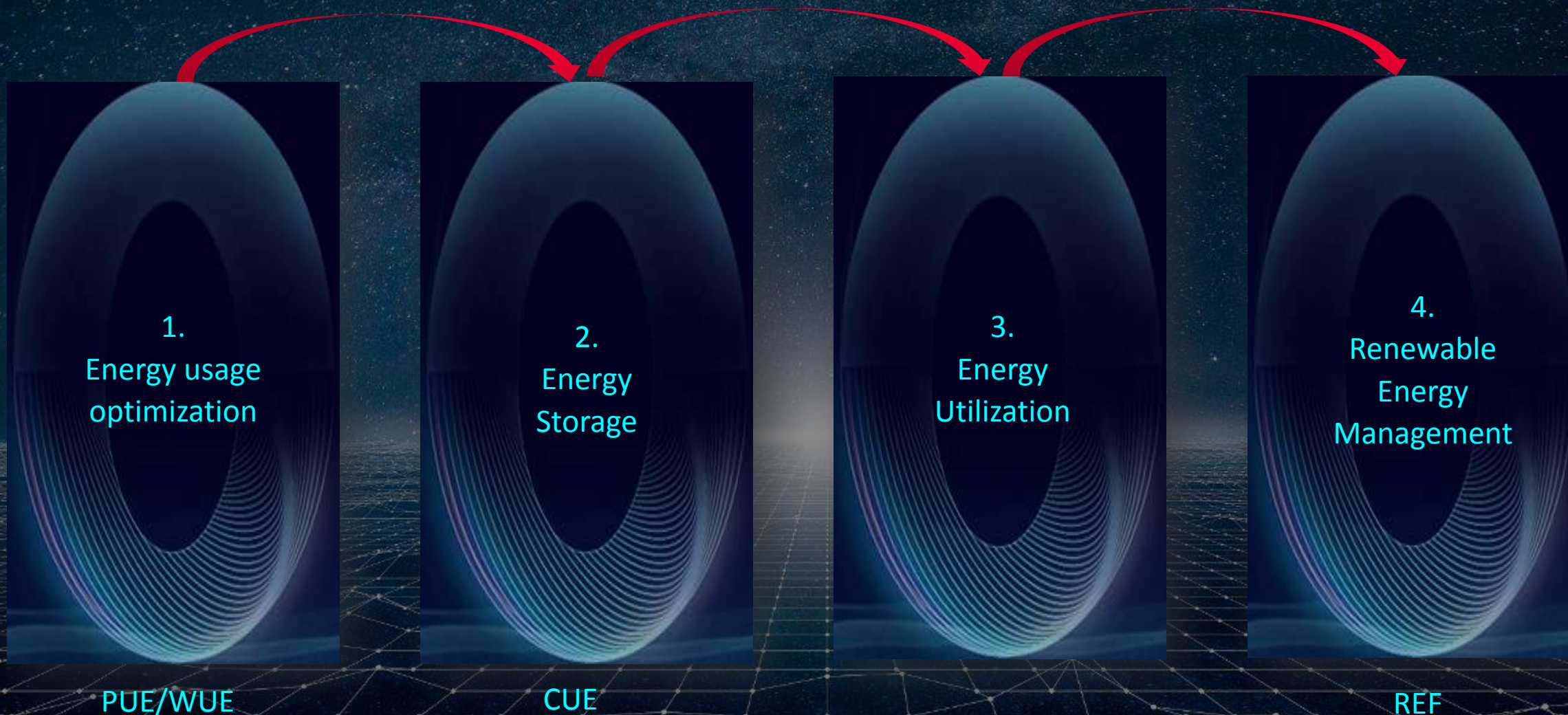
3. Technology / Innovation



Energy Management How?

Energy Management – How?

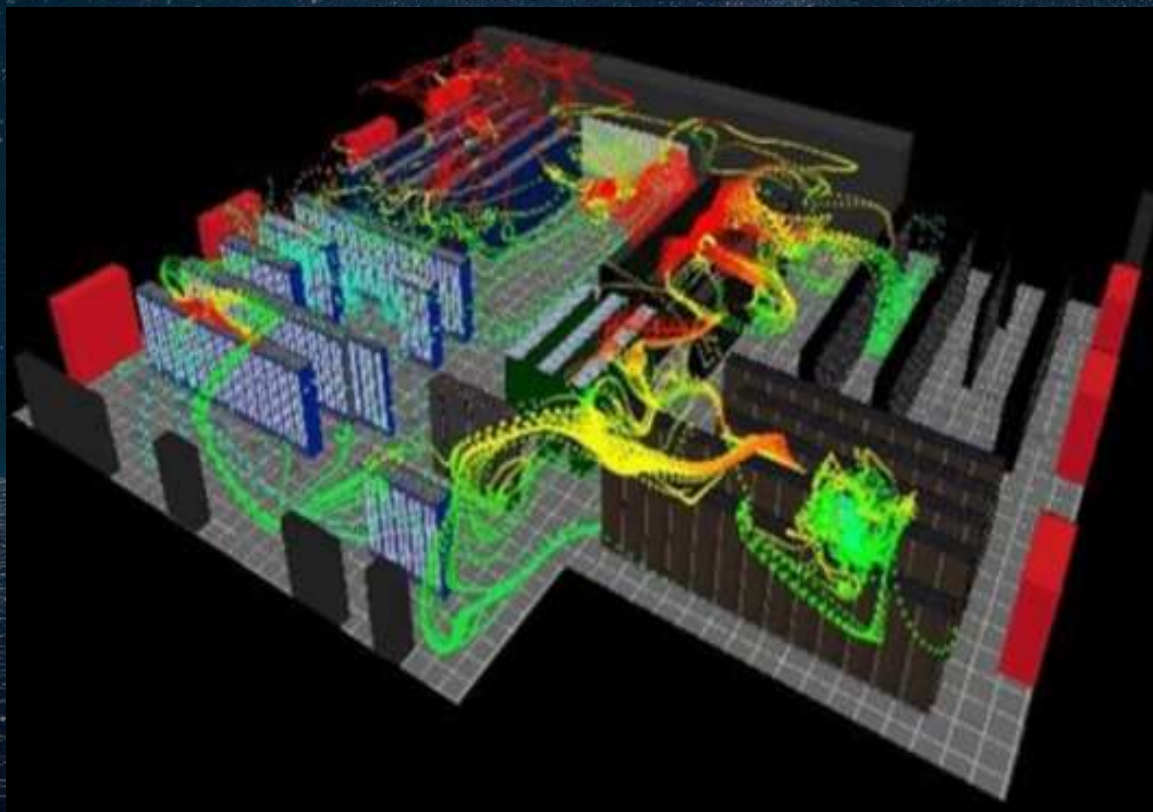
Process for Energy Management



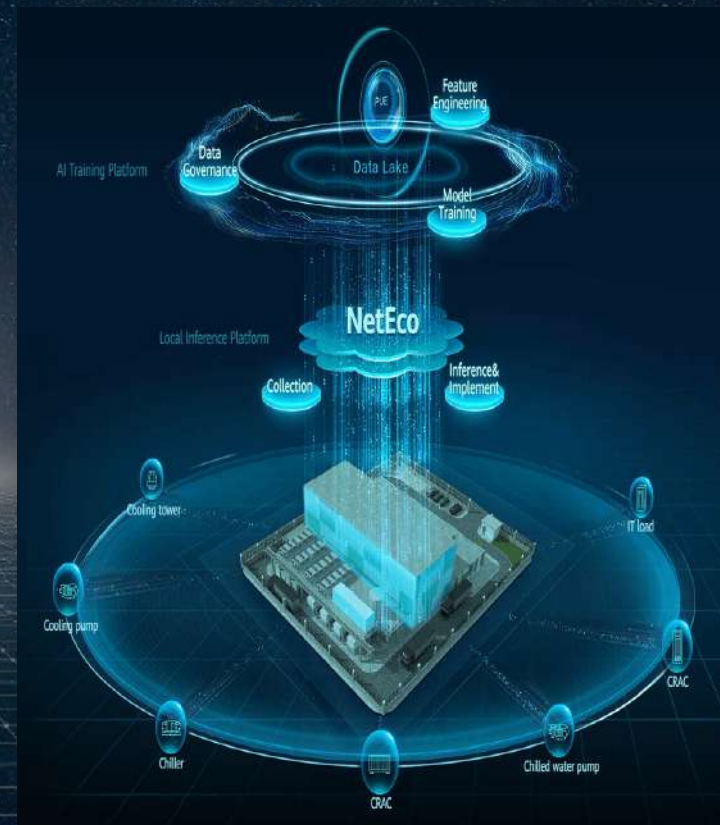
Energy Management – How?

1. Energy usage optimization: From component to system

Utilization

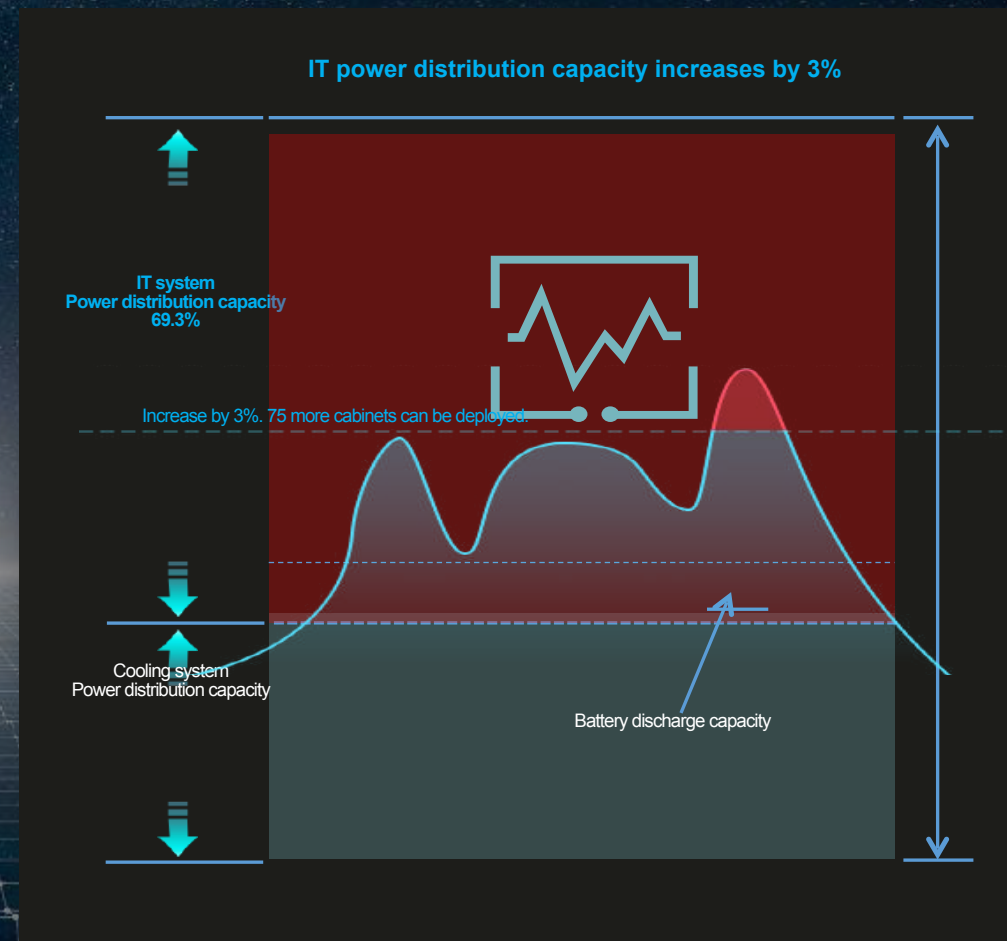
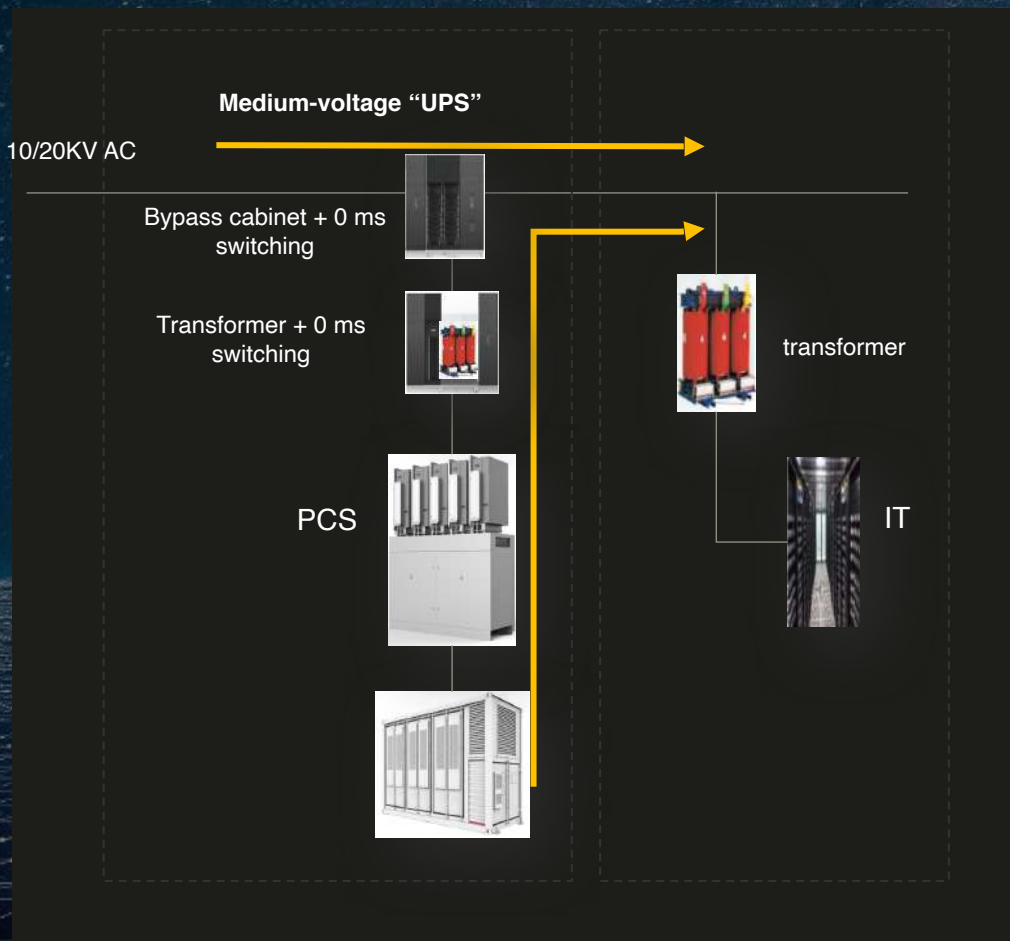


AI



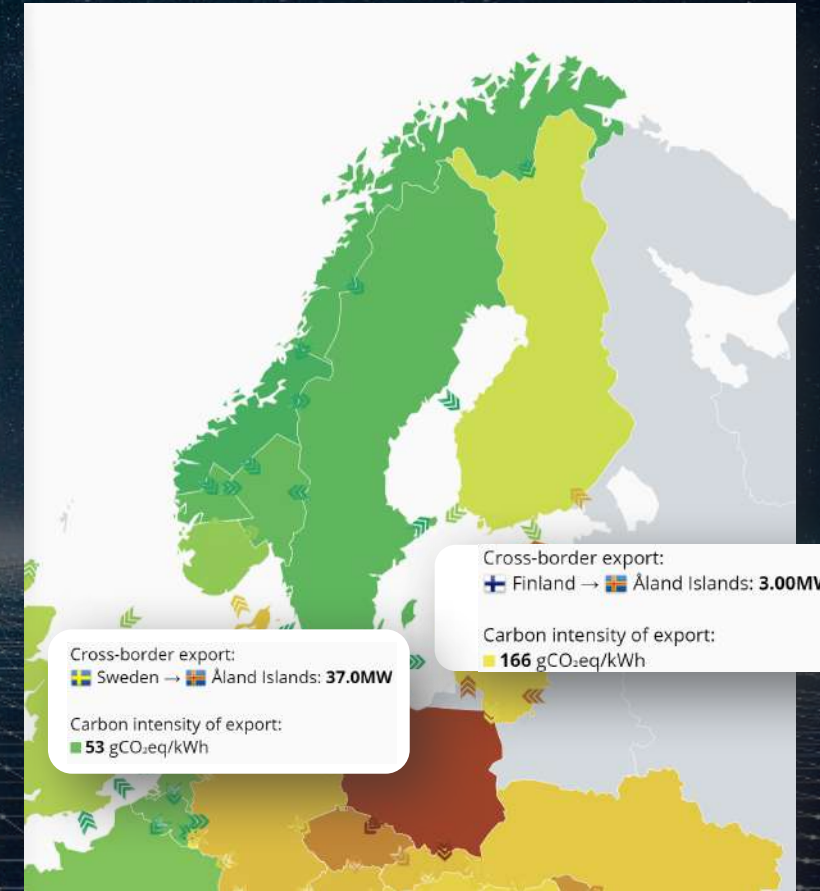
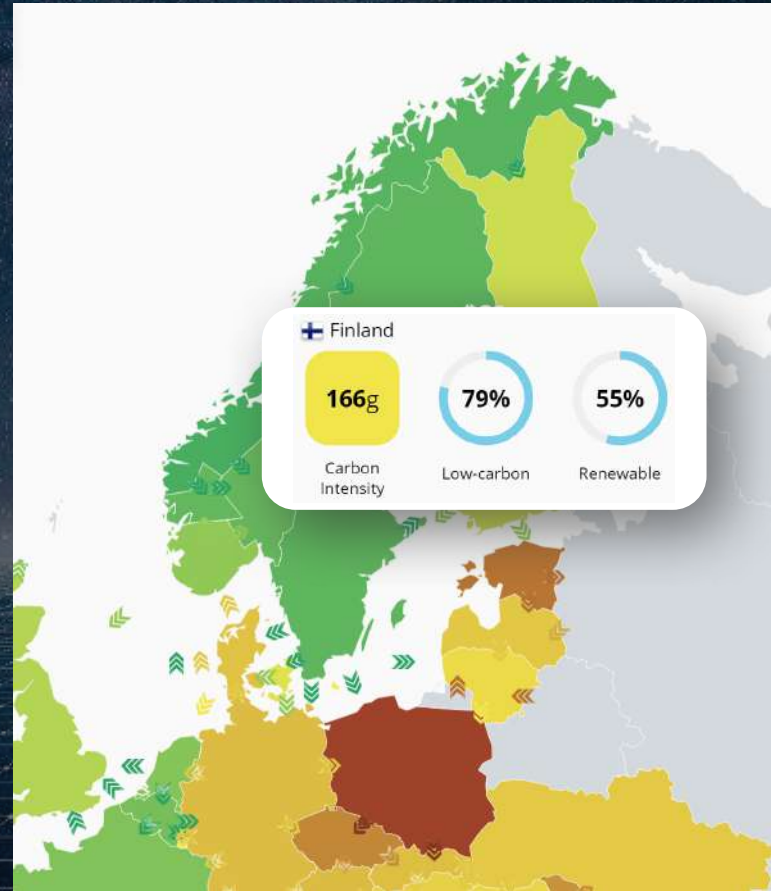
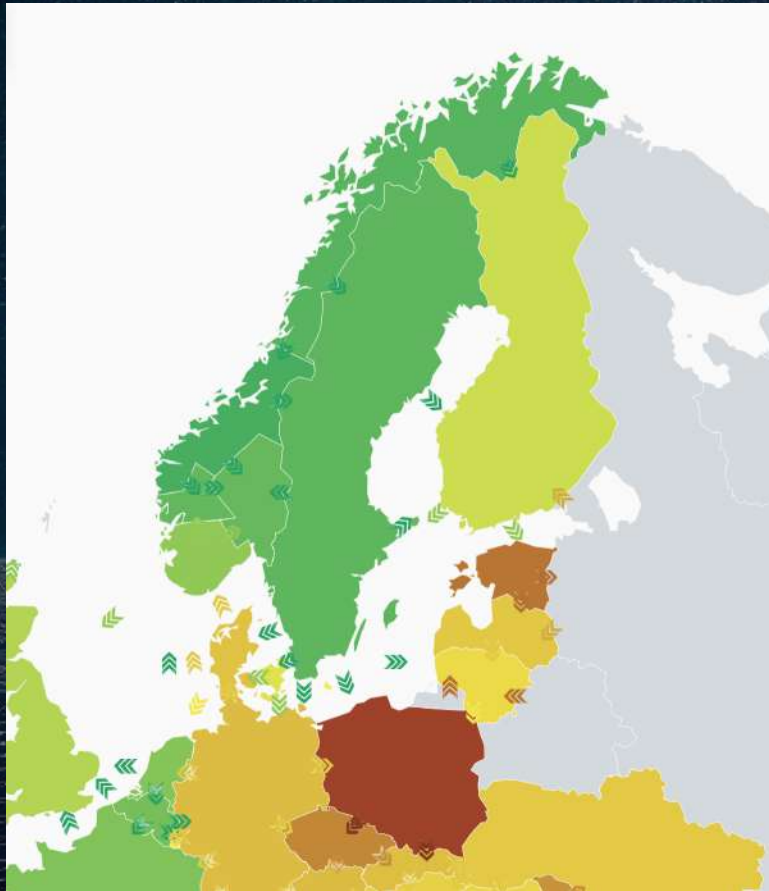
Energy Management – How?

2. Energy Storage: From PPA to 100% Real-time Match



Energy Management – How?

3. Energy Utilization: From Independent Systems to Grid Collaboration



Electricitymap.org/map

Energy Management – How?

3. Energy Utilization: From Grid collaboration to predictive power management

Historical



All the way back to 2018
With hourly granularity

Real-Time



Updated hourly, estimated in
Case of delayed/missed data

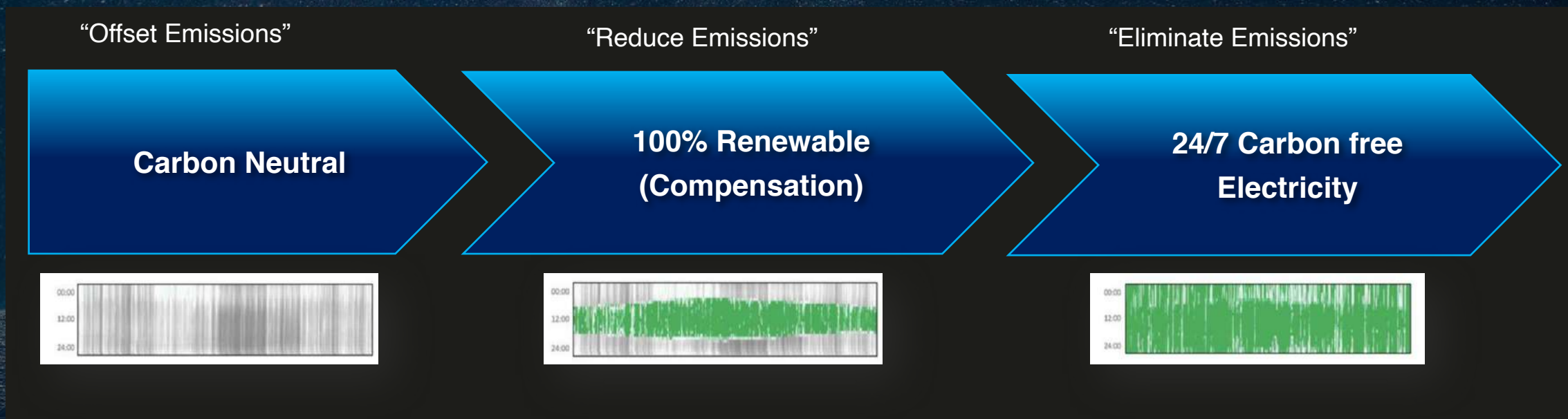
Forecasted



Hourly granularity up to 24
Hours ahead of time

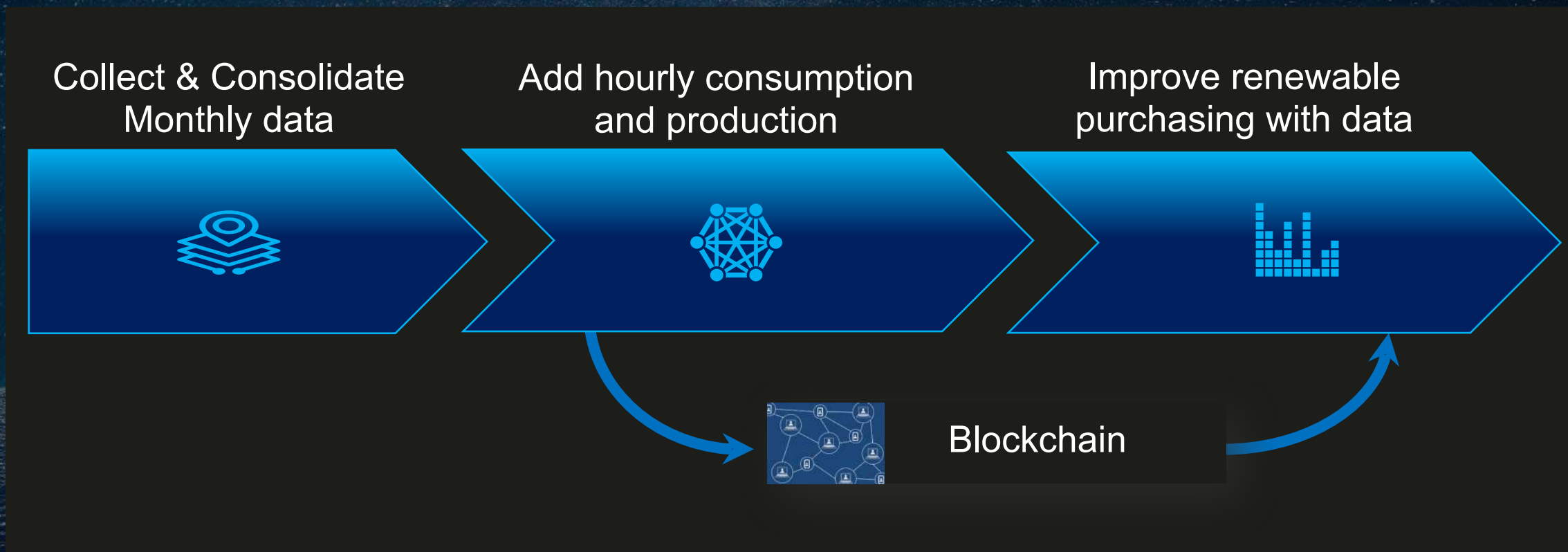
Energy Management – How?

4. Renewable Energy Management



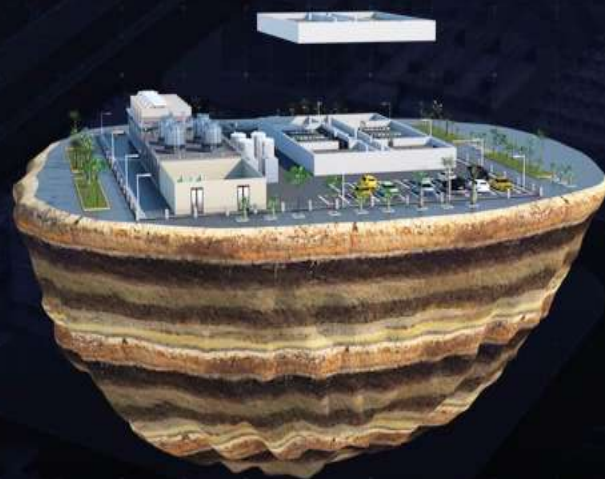
Energy Management – How?

4. Renewable Energy Management



Energy Management – How?

4. Renewable Energy Management: Smart operation @ AI



PROGRESS BAR

Energy Management as a concept

Smart Operation
@ AI

Documented
Green Energy



Through strategic partnership documented usage of renewable energy, by using a blockchain solution.



Predictive
Green Energy



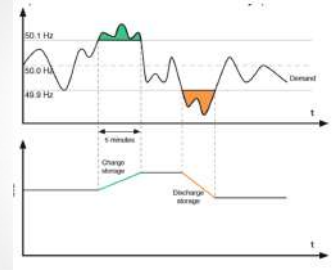
Through strategic partnership – Able to predict renewable energy production in a timeslot for up to 24h



BESS



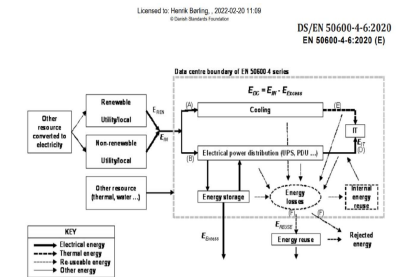
Implement BESS, as Energy Management refining, and possibility for FFR functionality



Validation &
Certification



By using EN standard 50600, and the ISO standard 30134, enables an overall certification.



Digital Power: Your Best Partner for a Better, Greener Future

By December 31, 2021, Digital Power has helped customers

generate green power

482.9 billion kWh

save power

14.2 billion kWh

reduce carbon emissions

230 million tons

equivalent to planting

320 million trees



Conversion note:

1 kWh electricity is equivalent to 475 g CO₂ (global average).

Source: IEA Global Energy & CO₂ Status Report 2018

1 tonne CO₂ equivalent of trees needed to offset 1 tonne CO₂ by planting trees. 1 tree absorbs 28.3 kg of CO₂ per year, and each tree has a 40-year lifespan.

Source: Open data of the North Carolina State University website

**We Do Not Inherit The Earth From Our Ancestors,
We Borrow It From Our Children.**

