

MAXIMIZING THE BENEFITS OF DIGITAL TRANSFORMATION THROUGH DATA CENTRES AND INTEGRATED ENERGY SYSTEMS WITH ENERGY FROM DATA CENTRES UTILIZATION

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THE HEAT IS ON

- **UN** and **scientists** in **Emissions Gap Report 2021** (**UNEP-DTU Partnership**) warning that humanity is running out of time to limit global **warming to 1.5°C** over pre-industrial levels;
- **Data centres** are responsible for **3%** of carbon emission, that is equivalent to the whole aviation industry;
- It **will double** within next five years and **triple** by the **2030**.

The Heat Is On

A world of climate promises
not yet delivered



UN SUSTAINABLE DEVELOPMENT GOALS



- **SDG 7** Affordable And Clean Energy
- **SDG 9** Industry, Innovation and Infrastructure
- **SDG 11** Sustainable Cities and Communities
- **SDG 12** Responsible Consumption and Production
- **SDG 13** Climate Action

DIGITALISATION AND ENERGY CONSUMPTION

Should we **Foster Digitalization**, if it is responsible for energy consumption and **CO₂** emissions?



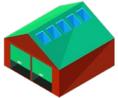
DIGITALISATION AND ENERGY CONSUMPTION

- **Smarter and Sustainable use of Energy** through the Digitalization means **may save up to 10%** of Energy

SEGMENTS



Factories



Warehouses



Commercial Buildings

ADRESSING



HVAC & Refrigeration

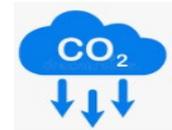
SUPPLIED SERVICES



RESULTS



Improved Operation and Predictive Maintenance



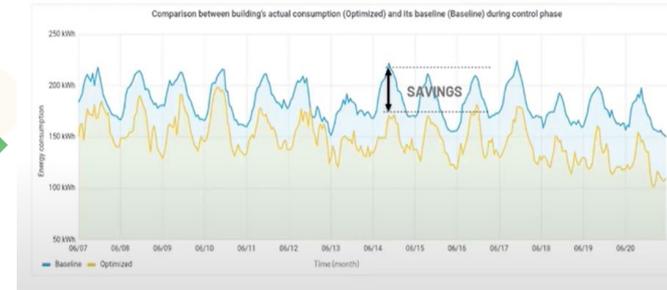
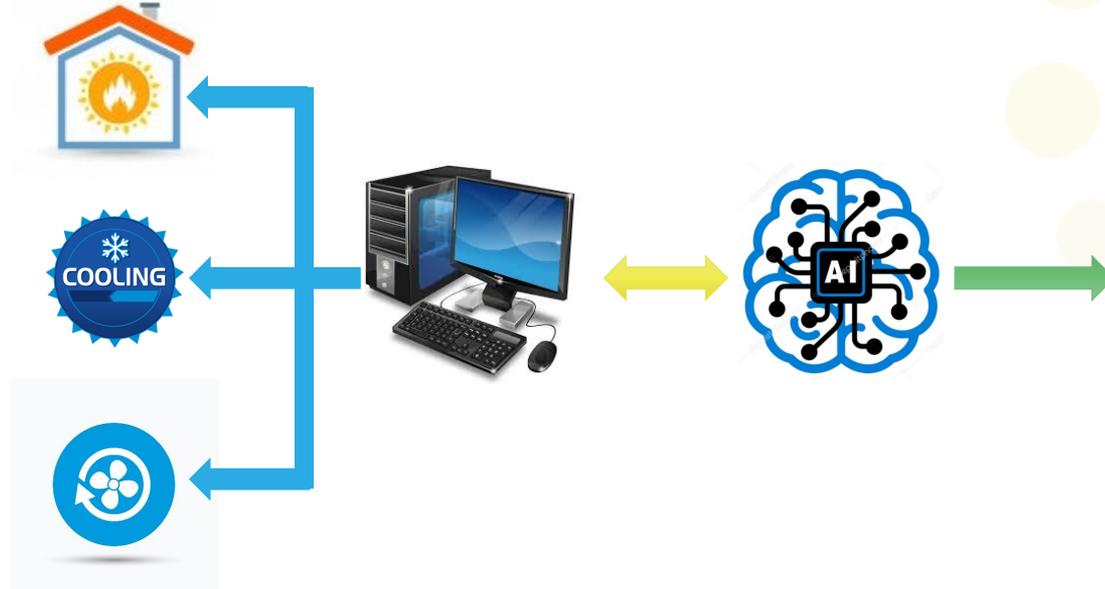
CO₂ Emissions



Energy Savings

DIGITALISATION AND ENERGY CONSUMPTION

Should we Foster Digitalization, if it responsible for CO₂?



INTEGRATED ENERGY SYSTEMS WITH ENERGY FROM DATA CENTRES UTILIZATION

- Low Temperature **Waste Heat from Data Centers** can be utilized to heat **Swimming Pools**;



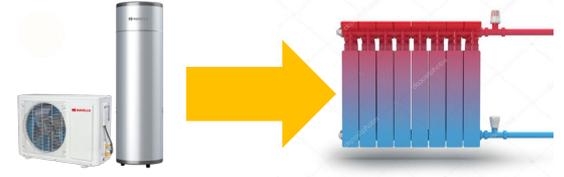
Butte-aux-Cailles' swimming pool, France

INTEGRATED ENERGY SYSTEMS WITH ENERGY FROM DATA CENTRES UTILIZATION

- Data Centers with new **Immersive** technologies generates higher temperature ($\sim 60^{\circ}\text{C}$) waste heat comparing to traditional ($\sim 40^{\circ}\text{C}$);



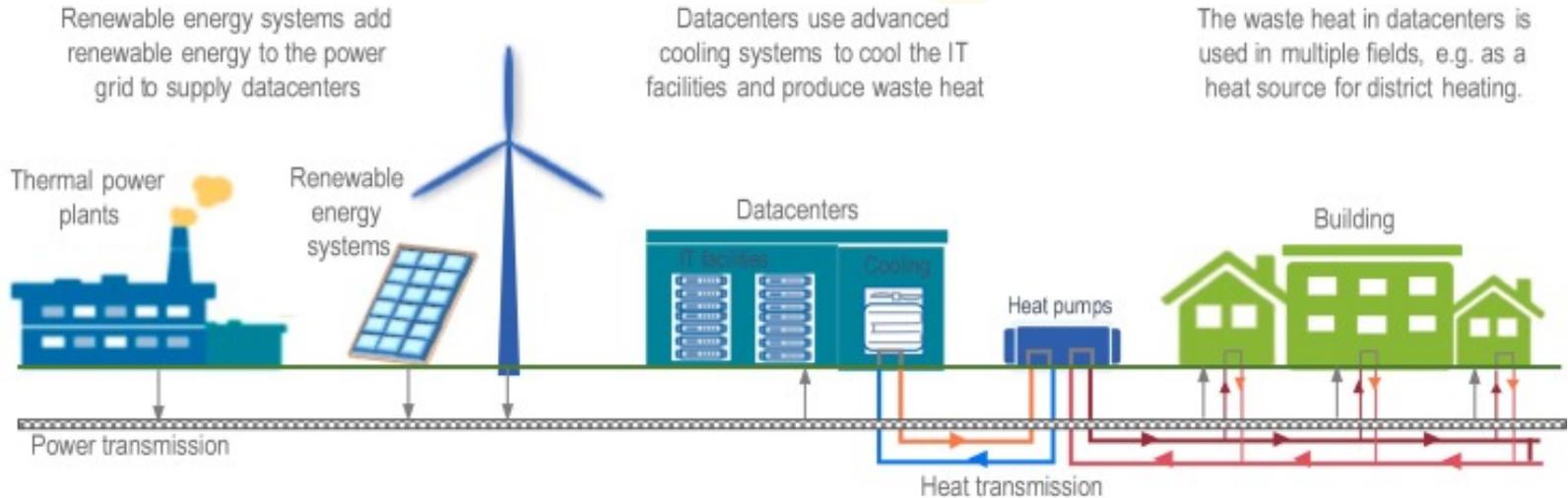
Direct Waste Heat Utilization



Direct Waste Heat Utilization in combination with Heat Pump

INTEGRATED ENERGY SYSTEMS WITH ENERGY FROM DATA CENTRES UTILIZATION

- Low Temperature **Waste Heat from Data Centers** can be utilized in **District Heating System**;
- Data Centers can be connected to District Cooling network;
- Data Centers can be a part of Integrated Energy System.





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THANK YOU