



CONNECTING
THE WORLD

The logo features a stylized globe with a grid of latitude and longitude lines, rendered in a dark blue color. The globe is centered within a larger, light blue circular frame. Overlaid on the globe are the letters 'NF' in a large, bold, white sans-serif font, and the number '23' below it in a similar but slightly larger font.

NF
23

CONNECTING
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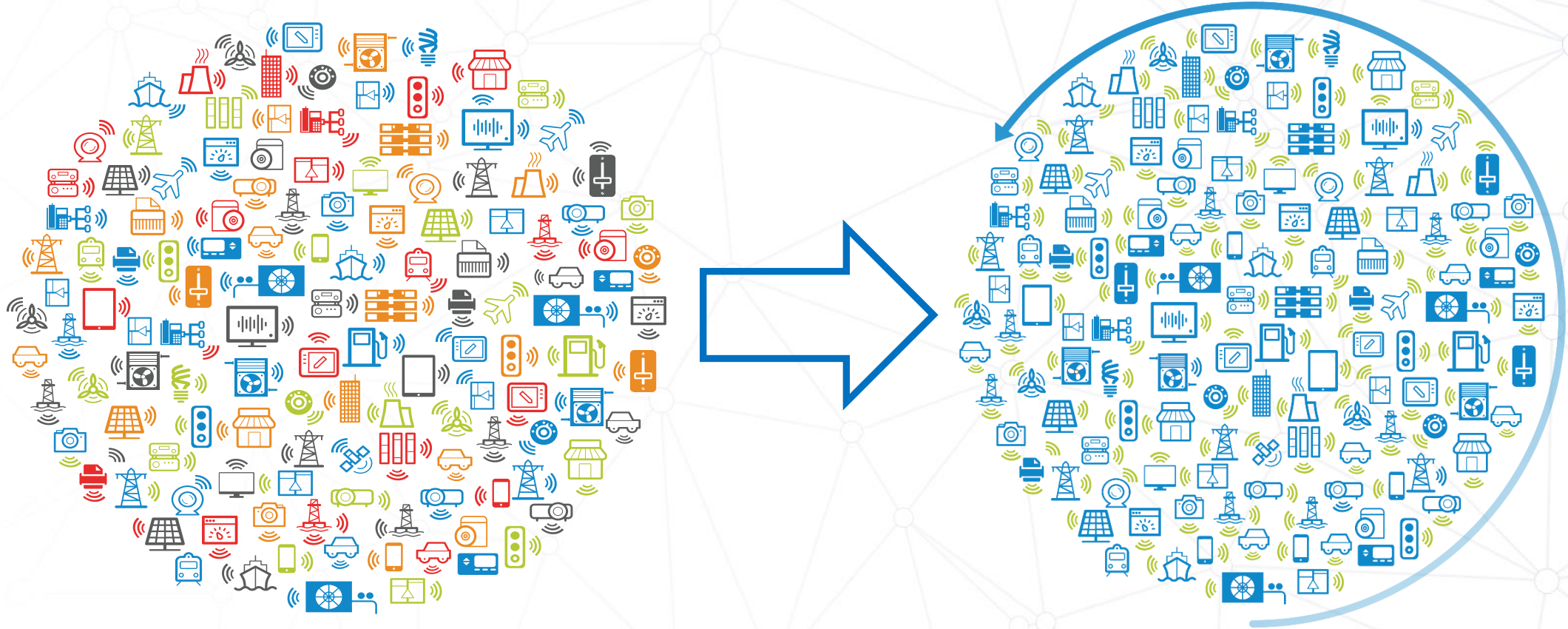
Driving value with Niagara



*Frank
Blumensatt
Tridium Europe Limited*

TRIDIUM

From features ...



... to value



... to value



But ...what drives value?

- Openness & flexibility
- Security by design
- Investment protection
- Breaking up silos
- Cross-functional logic
- Actionable insights
- Increasing uptime & efficiency
- Single source of truth & data lake

Customer Success Stories

Tridium Case Studies

hello

Reference Project – Wawa



- convenience grocery store & fueling station chain retailer
- 800+ stores in US; 500+ that sell gasoline
- variety of operational technology (OT)
- HVAC, lighting, refrigeration, food preparation, access control, utility meters, fuel-tank monitoring, fuel dispensing and car-wash irrigation

Reference Project – Wawa



- maximized operational efficiency and profitability
- energy management and benchmarking
- reduced downtime through automation of fault detection
- preventive and predictive maintenance support
- maximized customer experience

Reference Project – Whirlpool



- Whirlpool's Benton Harbor data centre
- data centre's biggest drivers are uptime & efficiency
- urgent need to prevent single point of failure
- multiple generators, transfer switches, sub-stations, UPS and battery systems
- multiple chillers and CRAC units via different protocols

Reference Project – Whirlpool



- centralized controls system for 15 types of equipment
- integration of multiple protocols (BACnet, LonMark & Modbus) from multiple vendors
- easier to plan and conduct maintenance on power system
- 24/7 monitoring for alarms by third party
- proactive maintenance and rapid response to alerts

Reference Project – University KL

- BACnet Building Controller (B-BC) certification
- AMEV profile AS-B (Automation Station, extended version) attestation
- centralized energy mgmt. and control of heat power plant
- control and monitoring of 31 buildings with district heat
- PLC-based management of 30 MW heat and power plant

Reference Project – University KL

- seamless integration of data
- user-friendly visualization
- more efficient operation of the entire campus
- future-proof and extensible and scalable system

Customer Success Stories

Phoenix Contact Case Studies / Reference Projects

hello

Speaker Intro: Deepan Patel

- Industry Manager Infrastructure at Phoenix Contact, UK
- over a decade of experience in Controls Industry
- strives to develop the exposure of Phoenix Smart Building solutions
- graduated from QMUL BEng Computer Systems Engineering & Postgraduate in Project Management



Speaker Intro: Tino Zander

- Int. Business Development at Phoenix Contact, Germany
- engineering degree in IT & Communication
- Two decades of experience in BMS
- Project Mgmt. for Hörburger AG, Germany
- developed new business area in building automation based on Niagara Framework
- Changed in 2023 to Phoenix Contact
- international marketing and sales of Emalytics product family based on Niagara Framework



Data Center North London – Requirements

- Downtime on availability
- Panel sizes ever increasing
- Integration of multiple gateways costly, i.e. Ethernet switches for IP Routes, etc...
- Multiple vendors, communication over different protocols not harmonious



Data Center North London – Benefits

- Improving uptime / reducing downtime
- Niagara has assisted in providing Data Centers with 500KW with 60+ days without any downtime
- Resilient network design: Tier 3 N+1 Network between outstations/MCCs and Building BMS network server
- The Niagra Platform is a more versatile platform for use in Data Centers



Data Center North London – Benefits II

- Niagara has played a vital part in its programming capability to reduce sites energy usage by 20%.
- Phoenix Contact ILC2050 Niagara controller compliments its counterpart by offering flexible connectivity with up to 63 IO Modules



Data Center North London – Benefits III

- Niagara monitors and controls several cooling systems focusing on the DC becoming self sustainable
- Hyperscale data centre is designed to be able to provide 100% free cooling throughout the year
- Due to Niagara the customer managed to improve their PUE from 1.67 to 1.05
- Phoenix Contact UPS Solutions to offer power reliability



Loughborough University

Sustainability / Decarbonization



Loughborough University – Pains

- Schneider Sachwell 2000
 - Old legacy system since 1980's
 - Windows platform software support coming end-of-life
- 150 Outstations
 - Outstations in some sectors were having availability issues for HVAC system
 - Failing outstations causing issues for tenants, etc...



Loughborough University – Benefits

- Niagara is fast becoming an industry standard adapted with many installations throughout the world
- Open System, which allows the university to freely program the system and gives training options for the universities own Engineers and Technicians



Loughborough University – Benefits

- Minimised downtime during hardware changeover to Phoenix Contact as backplate design
- Temp. Monitoring improved throughout building reducing waste to 5%
- Energy efficiency increased up to 96% throughout site
- Niagara enabled multiple protocol integrations without gateways



Building Bad Pyrmont

Phoenix Contact

Phoenix Contact - Bad Pyrmont



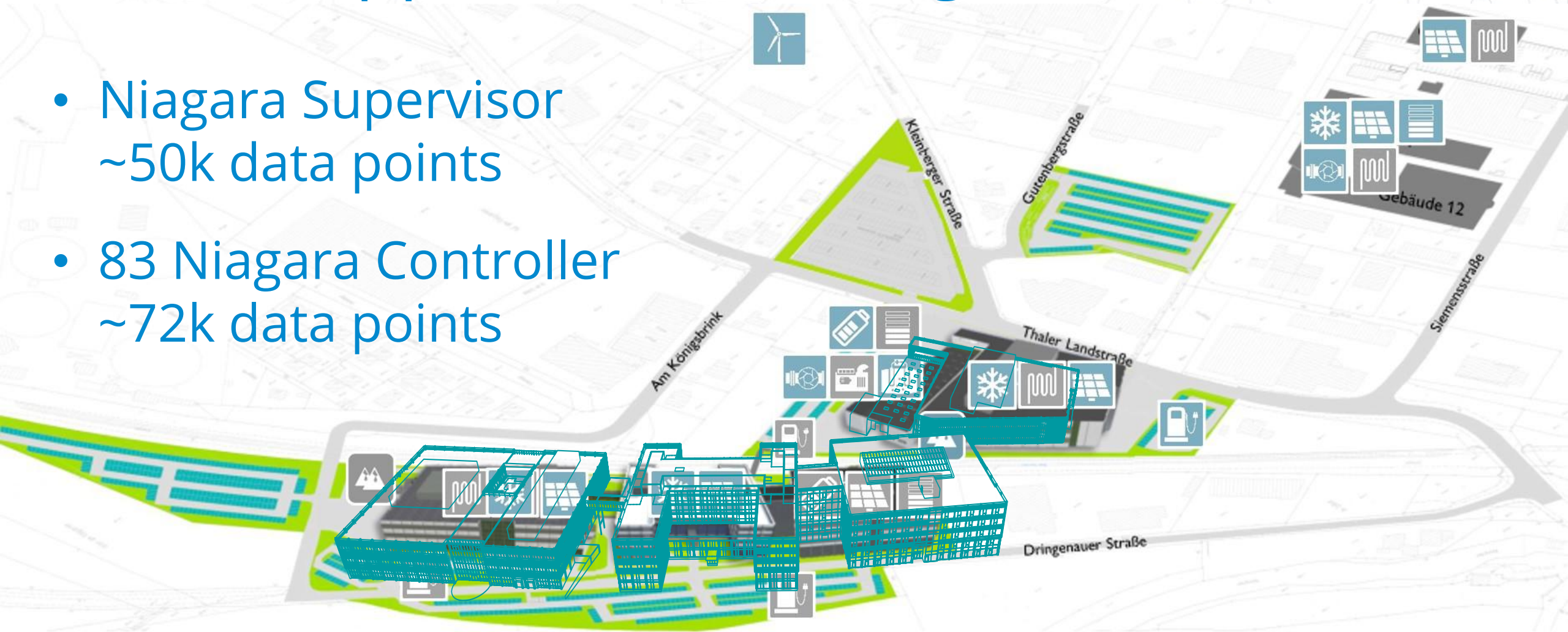
Niagara Framework enables
the way to climate neutrality



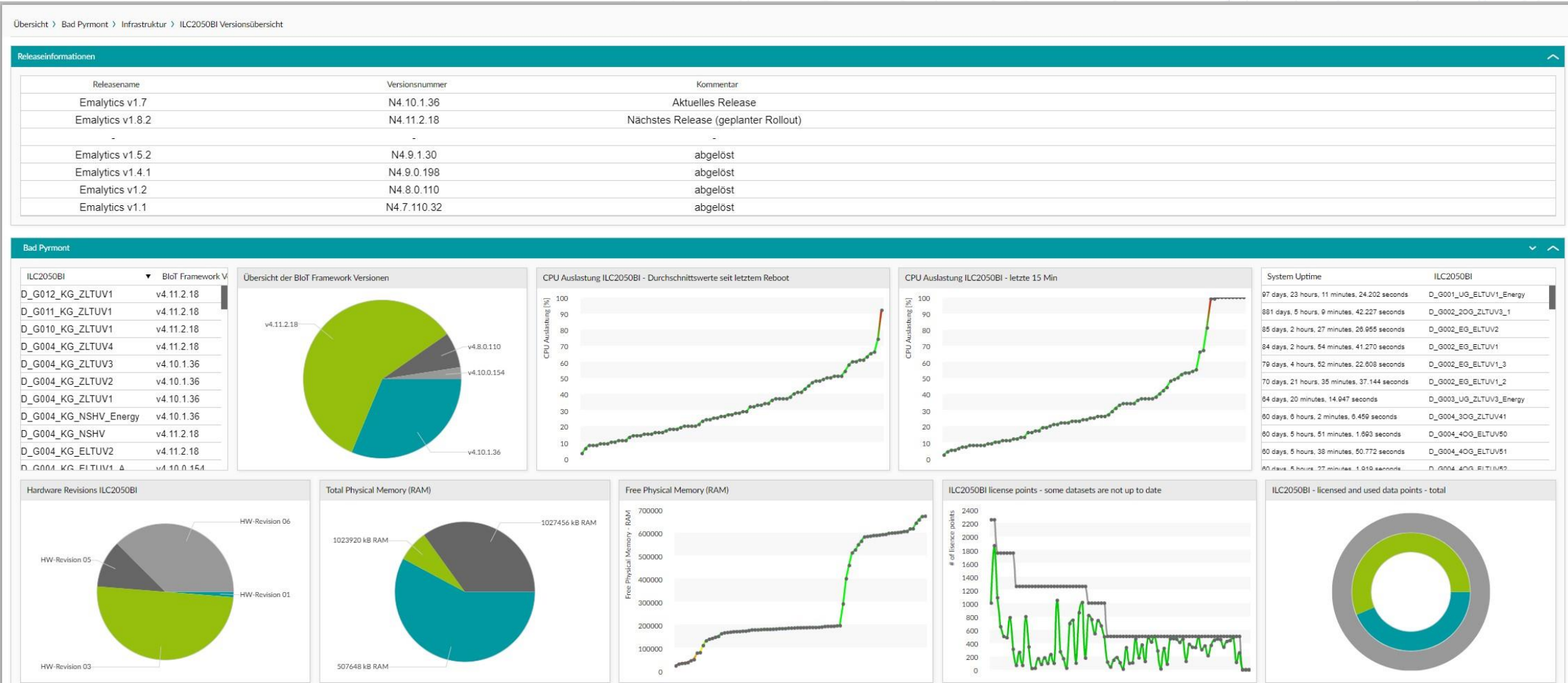
Holistic approach with Niagara



- Niagara Supervisor
~50k data points
- 83 Niagara Controller
~72k data points



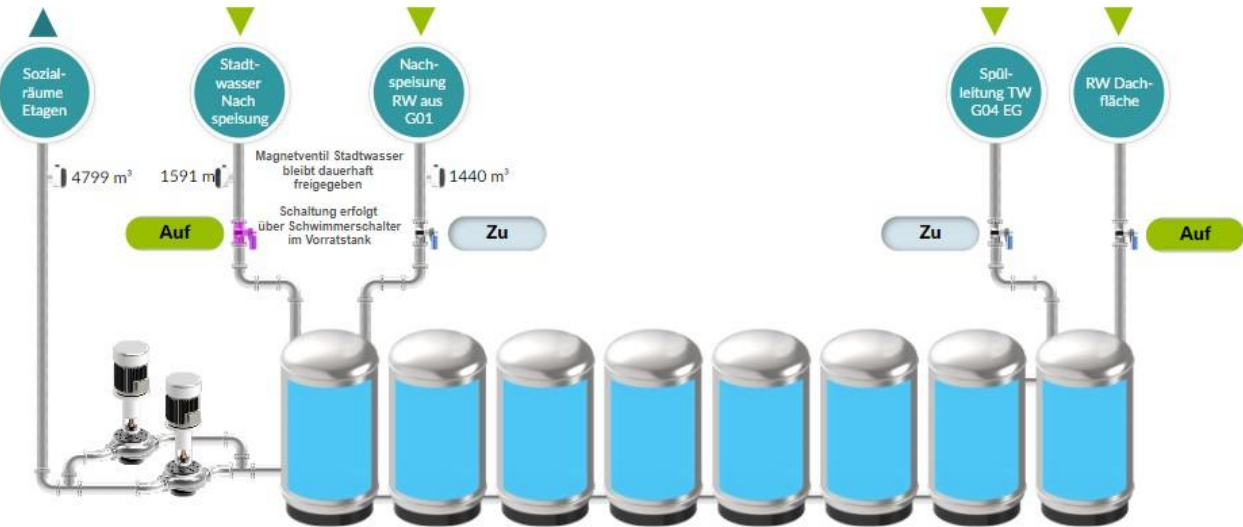
Central Dashboard - Full Overview



Primary Assets



Übersicht > Bad Pyrmont > Gebäude 4 > G04-KG > Regenwassernutzung



Anlagenbedienung

Werte

Bezeichnung	Wert
Facets	units=u:liter;L; (m3);*0.001; precision=i:1 min=d:- inf max=d:+inf
Out	14.000,0 L

Wetterdaten

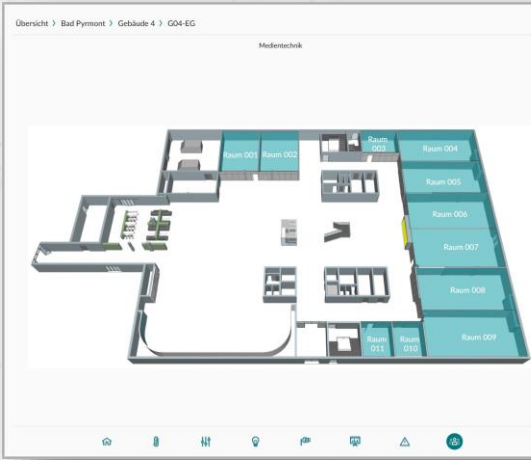
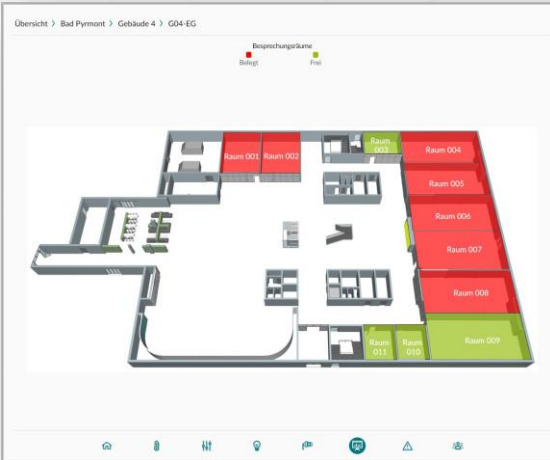
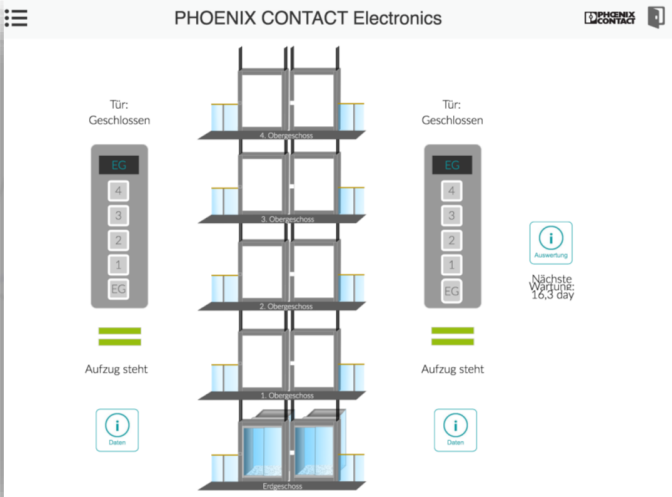
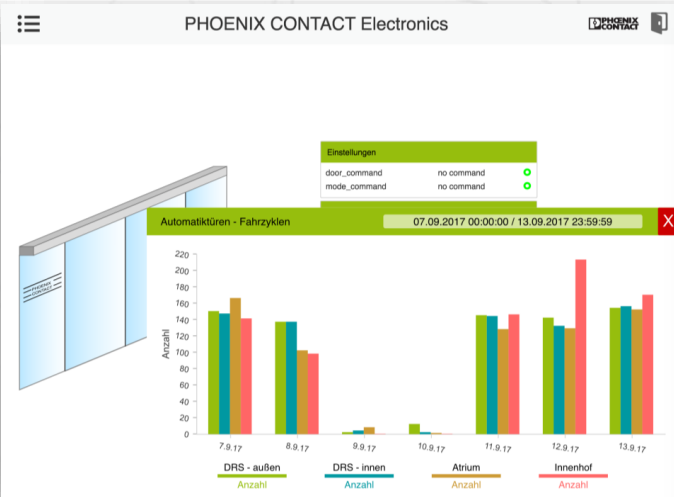
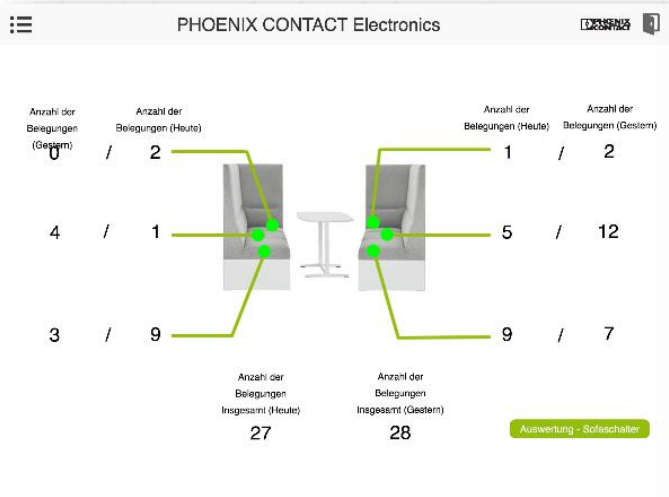
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Out	5,1 °C

Pumpe 001

Bezeichnung	Wert
Alarm	Normal
Automatikbetrieb	Ein
Betrieb	Ein
Betriebszeit	8.384,3 hr
Betriebszeit akt. Tag	0,0 hr
Deaktiviert	Aus
Drehzahl	0,0 /min
Handbetrieb	Aus
Schaltzyklen	61.982,0
Störung	Normal
Warnmeldung	Normal



Secondary & other Assets



Comfort & Wellbeing



Data from the building

↓

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timestamp : 2021-02-18T09:21:22+00:00
country : Germany
site : Bad Pyrmont

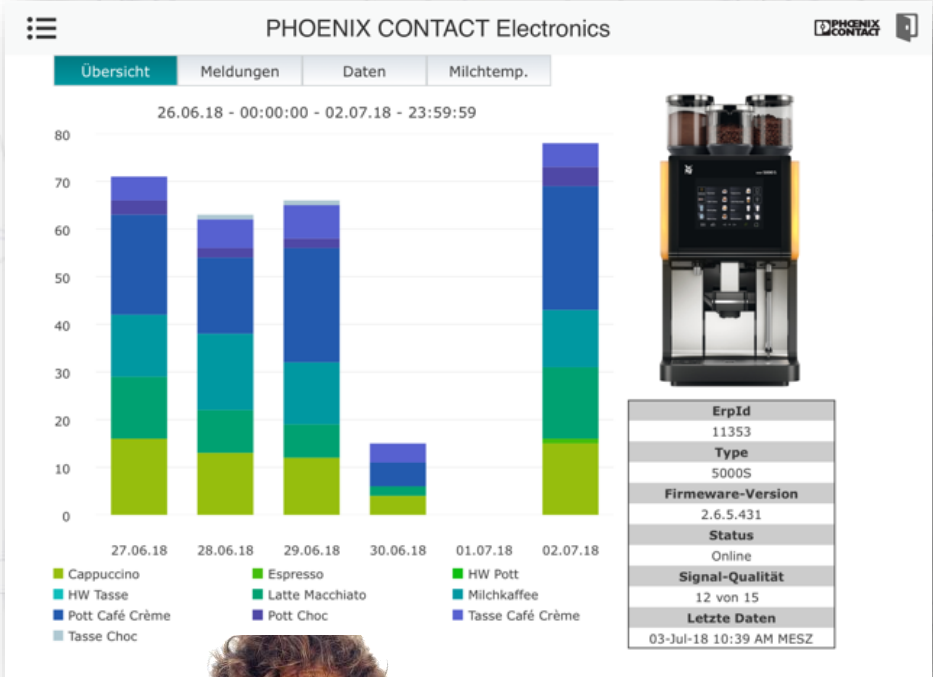
Room book

↓

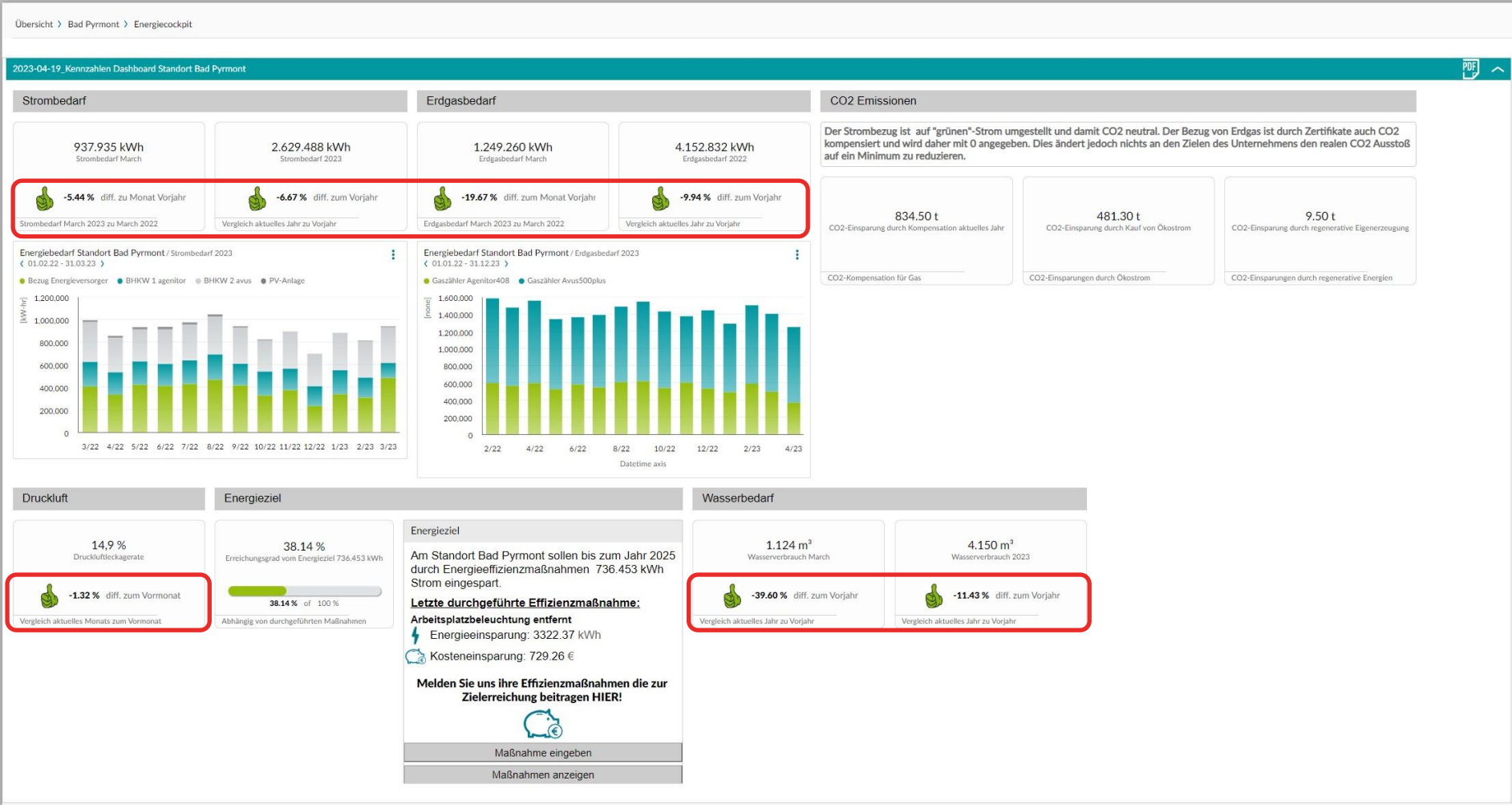
rooms {42}
04_0.0_01 {10}

Cleaning service provider

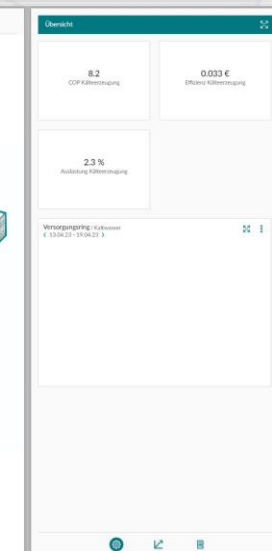
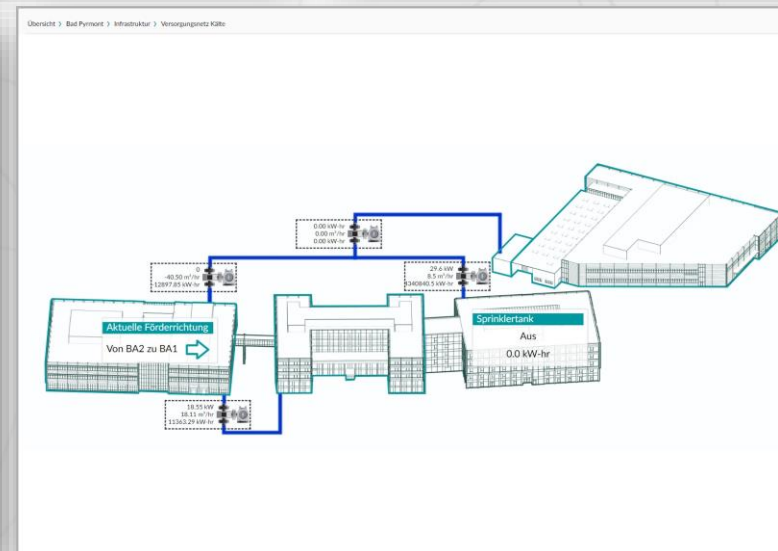
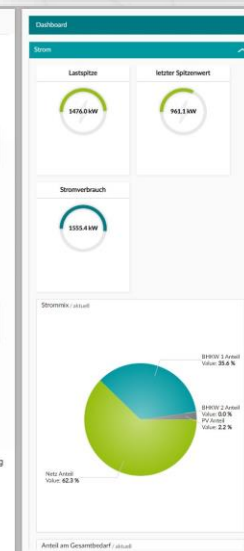
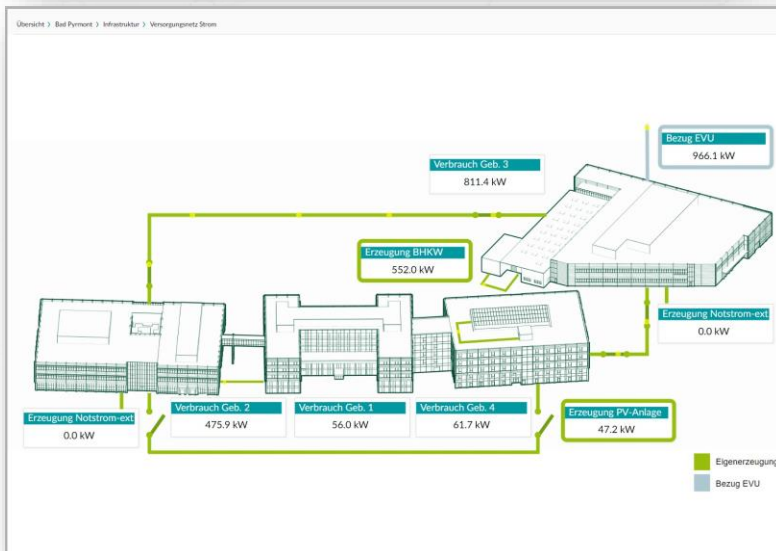
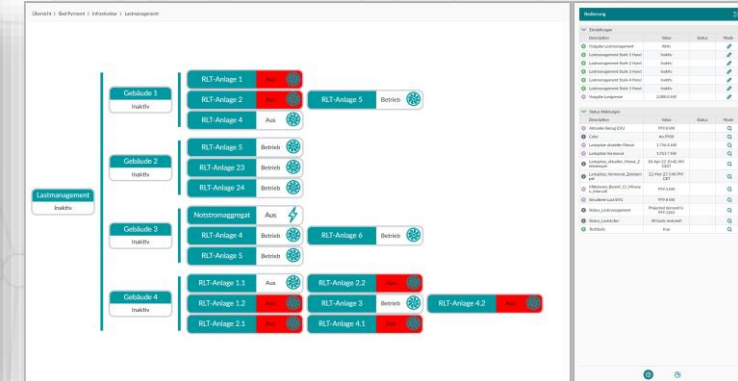
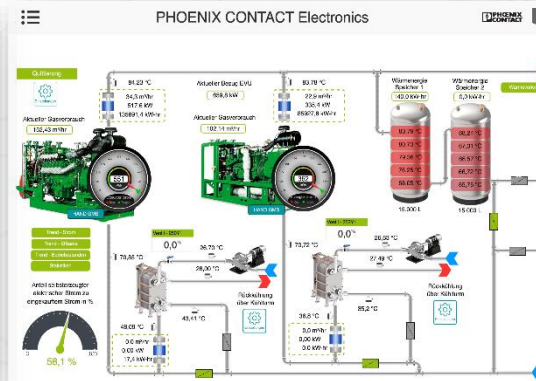
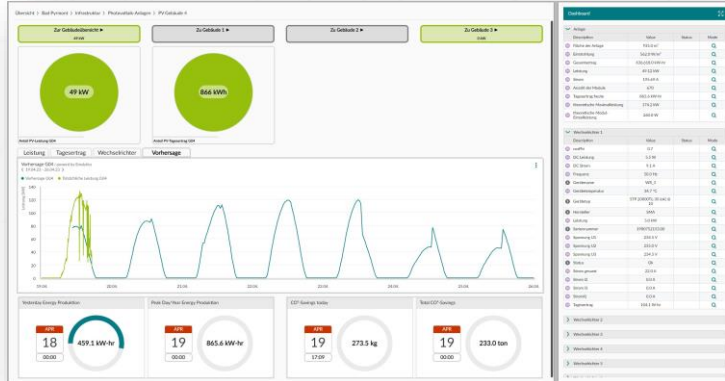
priority : high
floortype : DoBo - Naturstein
description : Bewirtungsküche Caterer
cleaning_done : ☐ false
cleaning_required : ☐ false



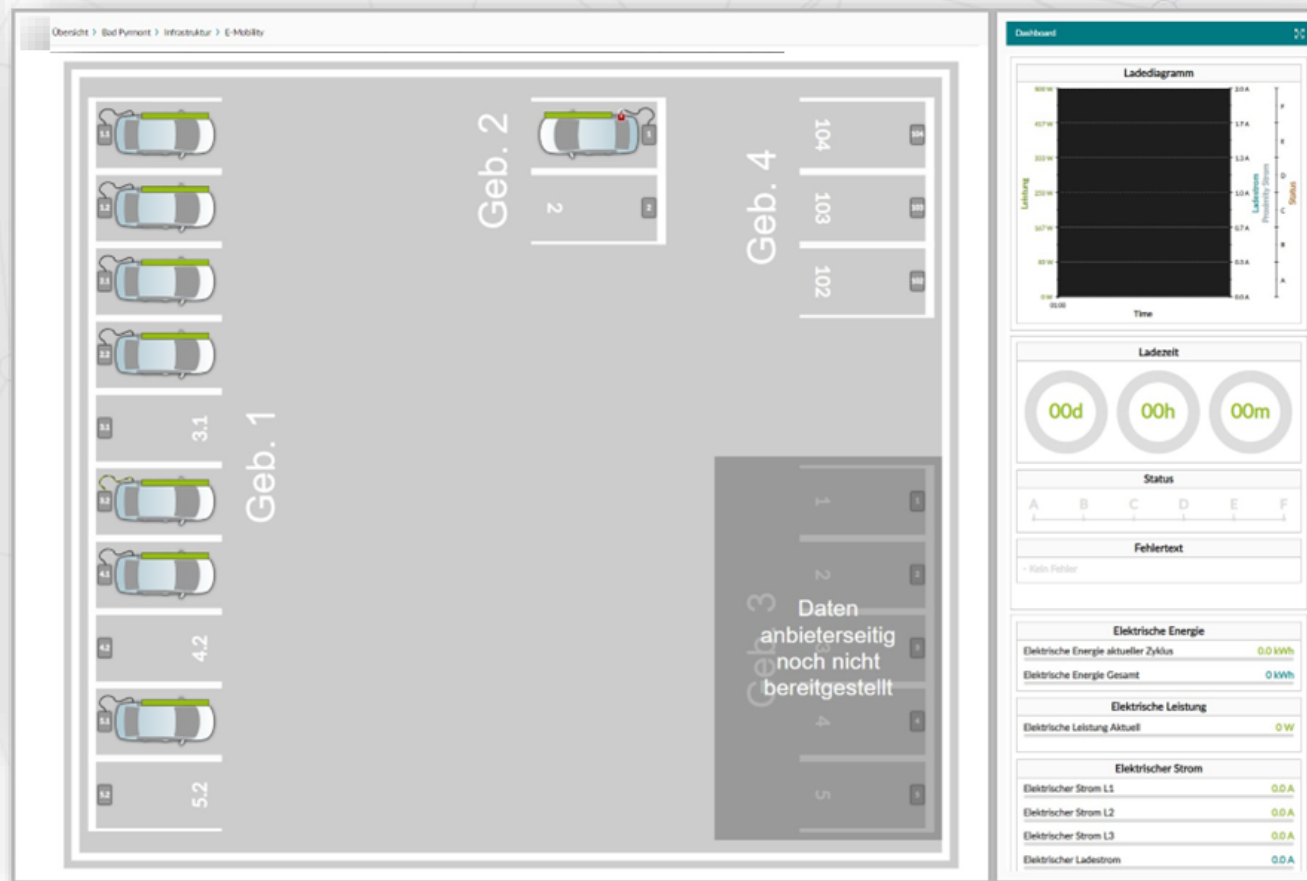
Energy Dashboard



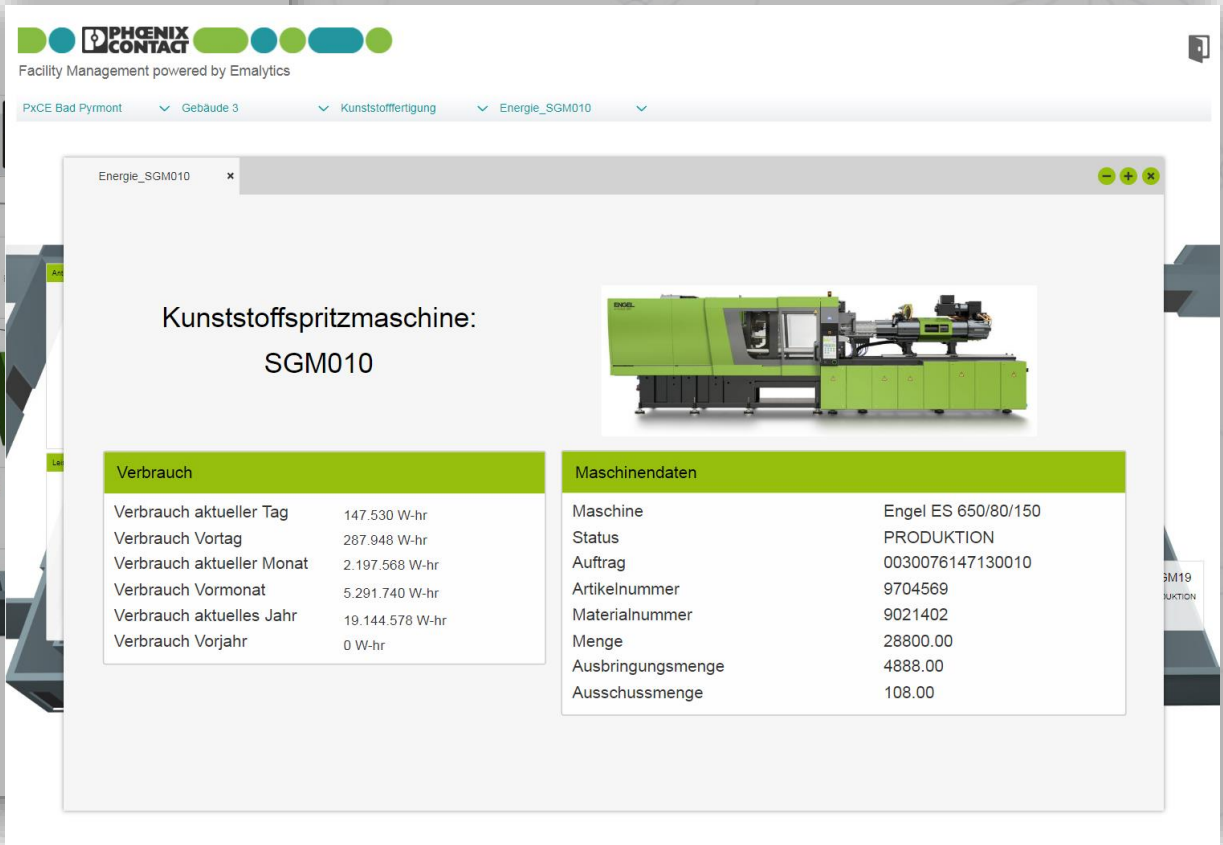
Generation, Distribution & Control



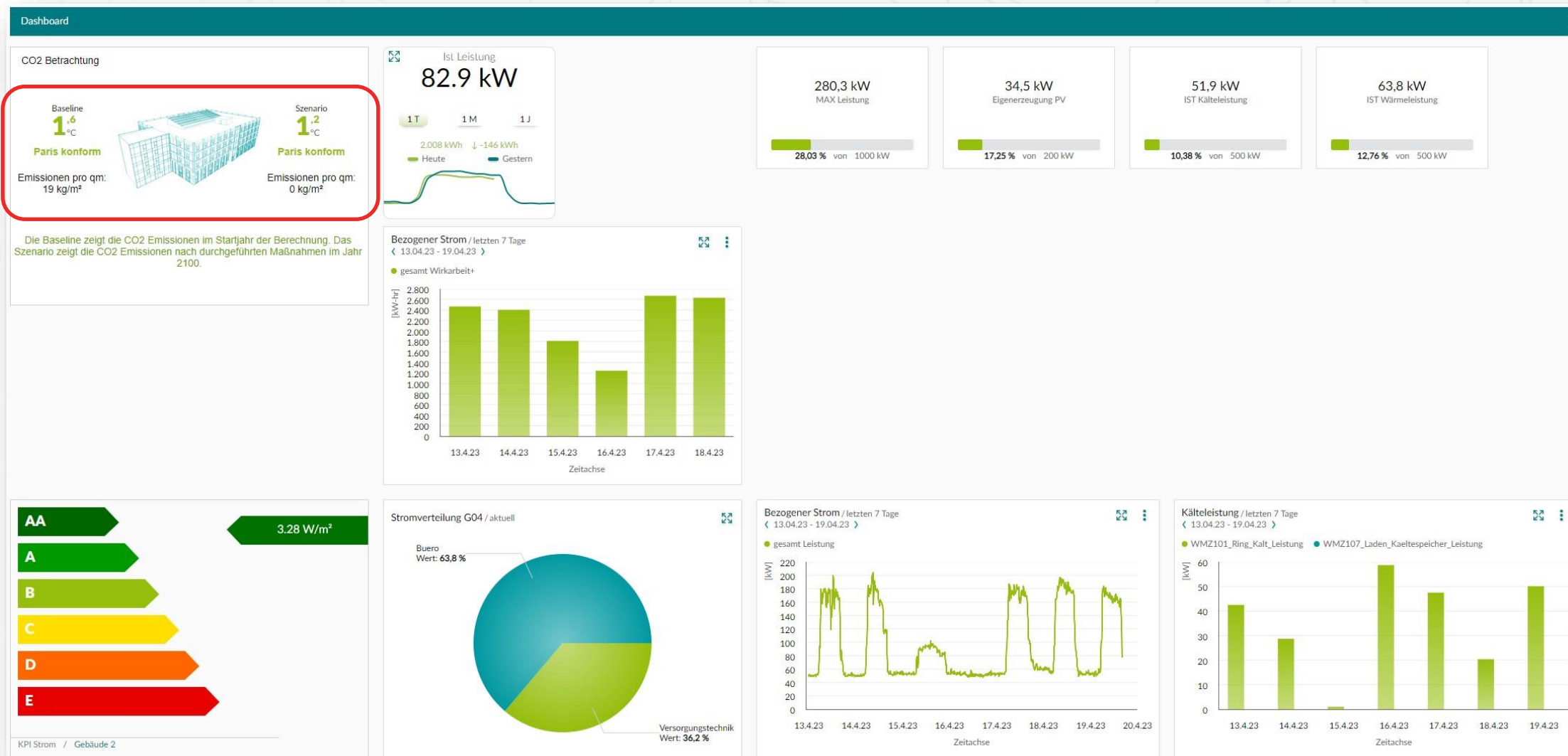
E-Mobility – Load & Flow Control



Production Facilities Thermal Mgmt.



Paris conform: Path to Net Zero!

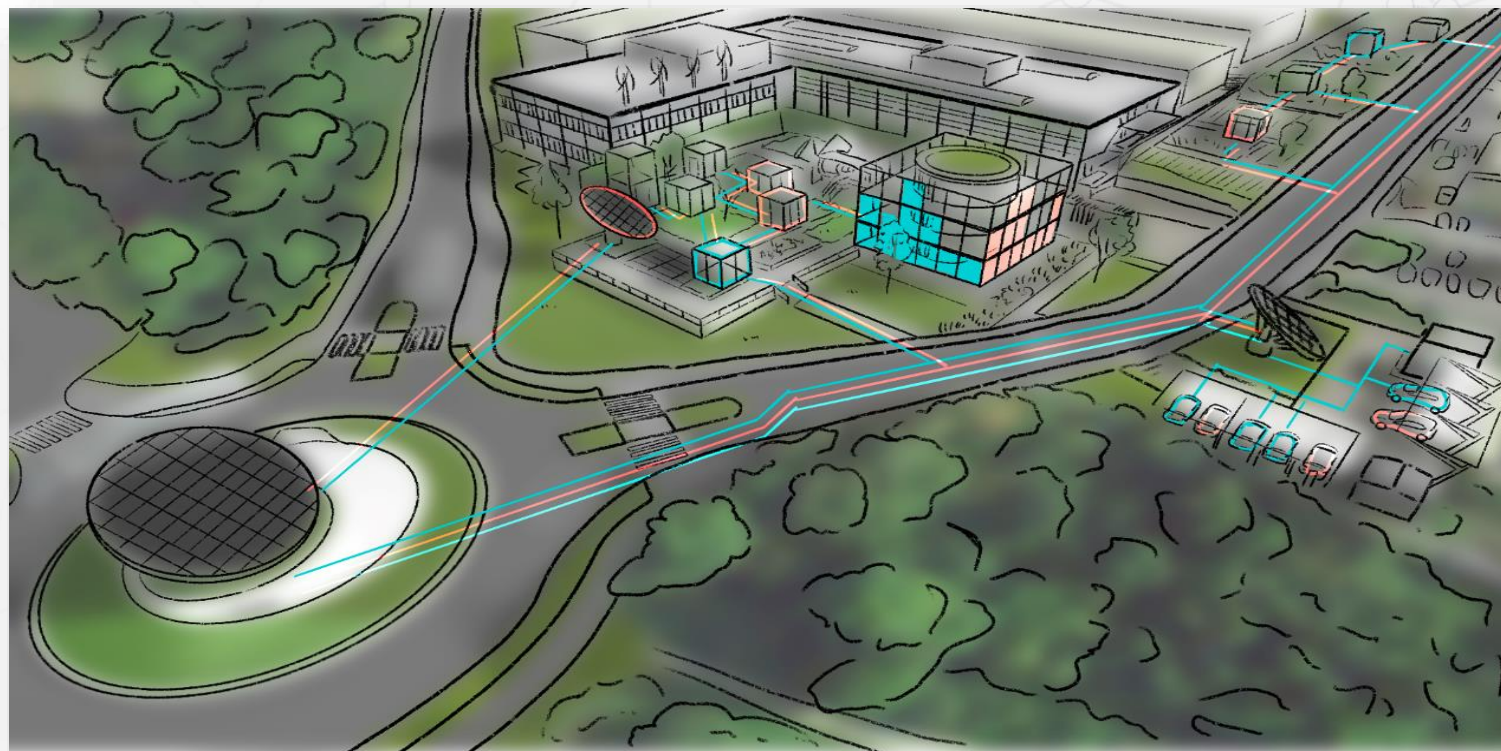


All Electric Society Park

Phoenix Contact

All Electric Society Park - Vision

- Phoenix Contact headquarter Blomberg
- Niagara Framework is part of high-tech sector coupling



Phoenix Contact All Electric Society Park in Blomberg, Germany

From Vision to Reality

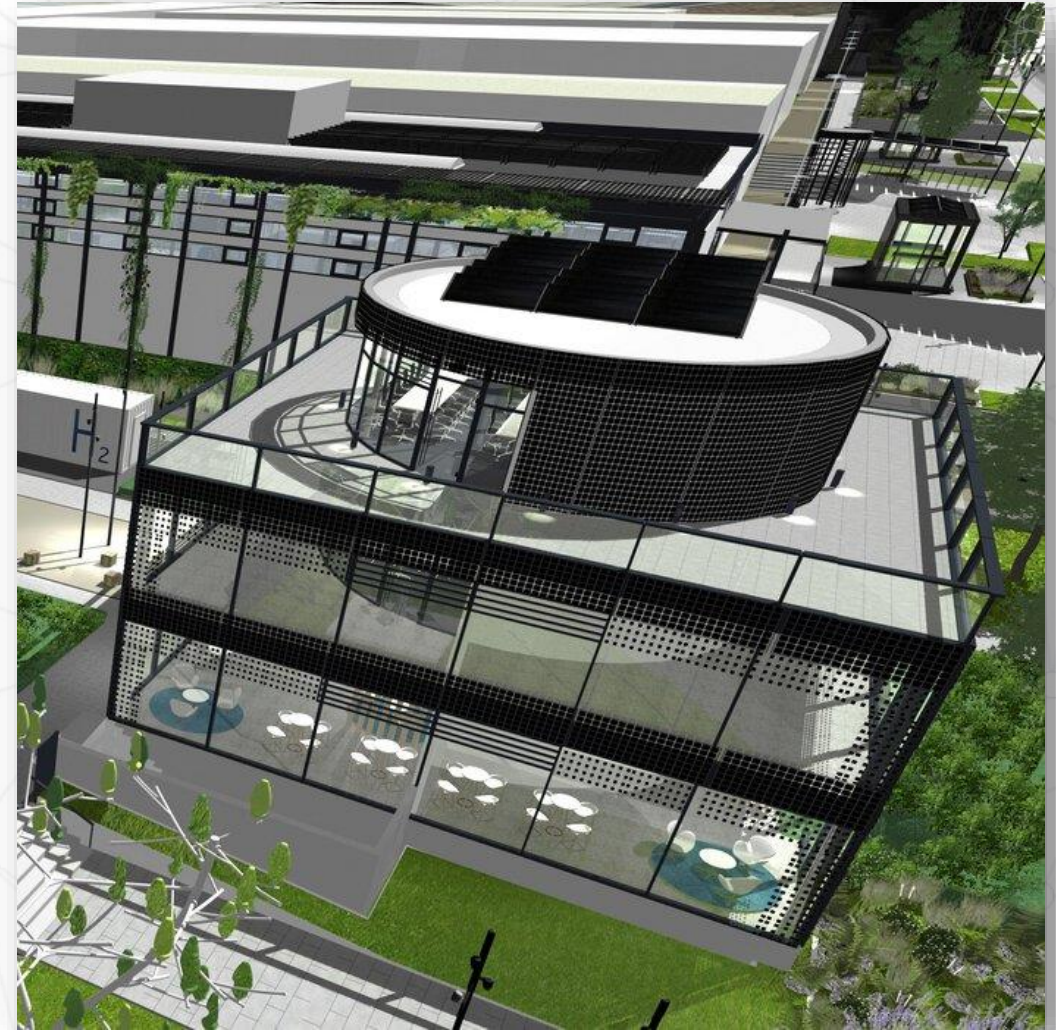
- Niagara Supervisor for visualization
- Niagara Controller for control and interconnections



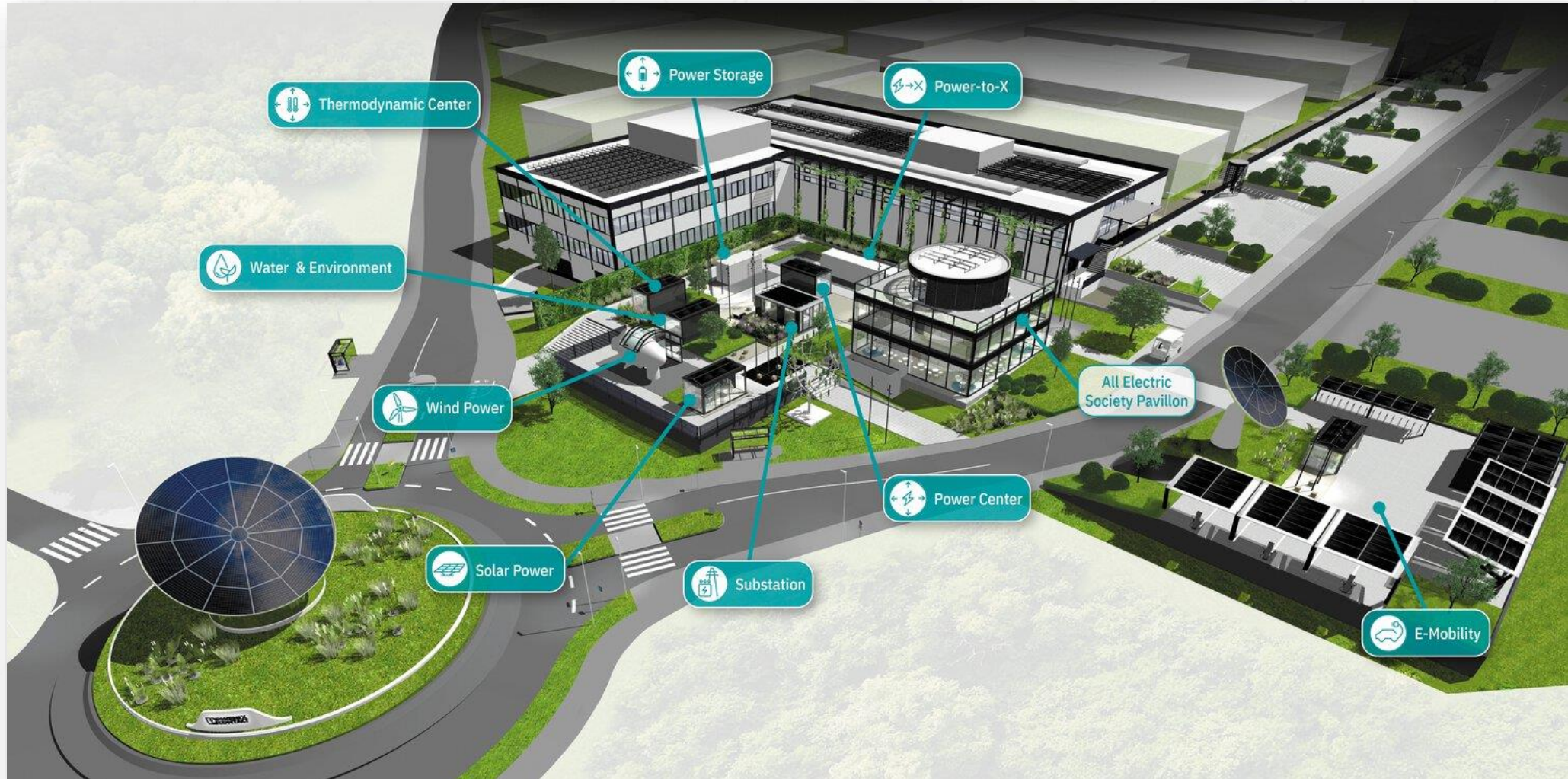
Phoenix Contact All Electric Society Park in Blomberg, Germany

Pavillon

- Niagara based building automation enables smart building
- Electrical power distribution
- Thermal power distribution
- optimized flow of renewable energy



Interactive Focus Areas

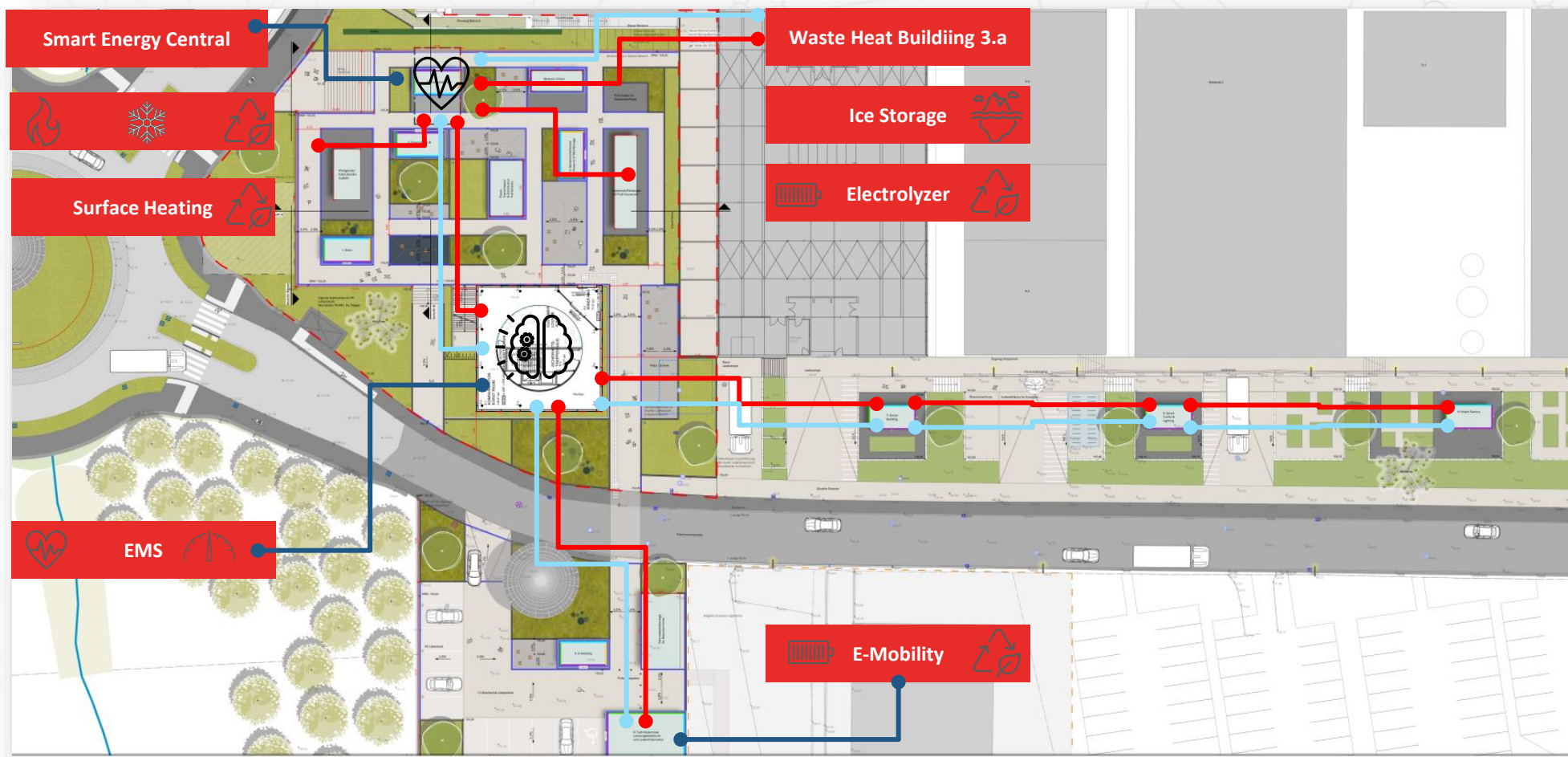


Green Energy

- 200.000 kWh
- Solar panels
- Solar paving stones
- Wind trees



Niagara enables Sector Coupling



Invitation to All Electric Society Park



- AES Park opens from September 1st, 2023
- Free public visit from 7am to 9pm 😊



Let's recap and summarize

Driving Value with Niagara

Summary & Take Away

niagara⁴ ...

- is an extremely capable and flexible product
- enables a broad range of open and scalable solutions
- is much more than a pure BMS application
- can be used as IoT Middleware & data lake
- enables value and sustainability in various projects

Thank you very much ...

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TRIDIUM

Speaker Intro: Howard Gray

- Director, Business Consulting & Practice Lead Sustainability & Climate Change Advisory at CGI
- drives pathways towards net zero
- over 25 years experience in utilities, property management, hospitality, agriculture and manufacturing



CGI



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