IEA WORKSHOP, PARIS, DECEMBER 2019

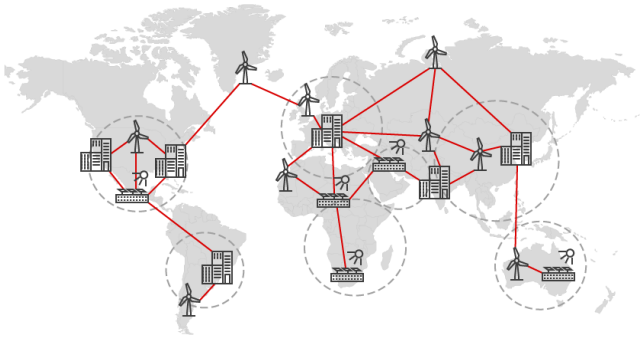
Technology synergies and knowledge sharing for future power systems

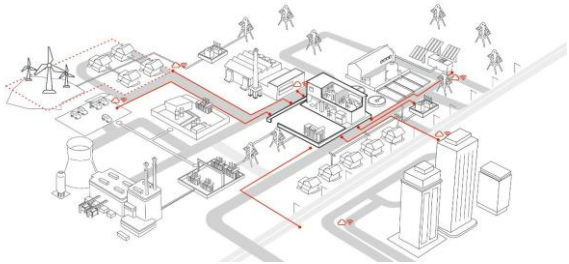
Gerhard Salge, Business CTO, ABB Power Grids

Technology synergies and knowledge sharing for future power systems

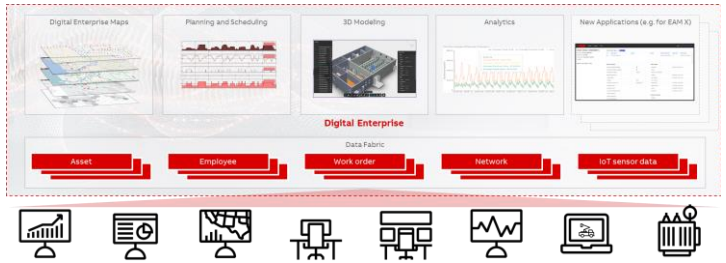
Enabling a stronger, smarter and greener grid

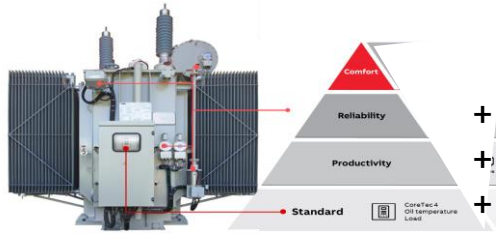
Stronger: Towards Resilience





Smarter: Towards Digital Enterprise





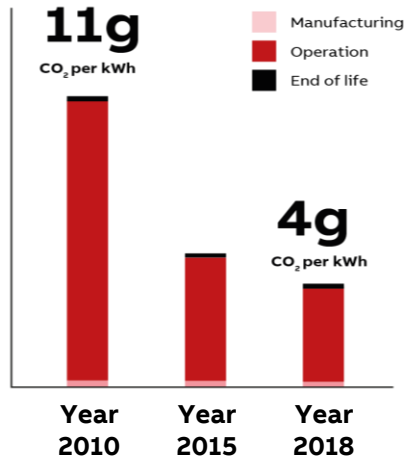
+ Hardware
+ Software
+ Expert Services

Greener: Towards Decarbonization











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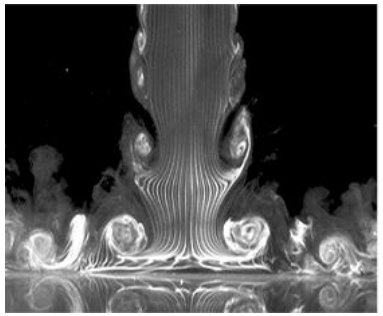
Technology synergies and knowledge sharing for future power systems

Examples from core technology know how and connecting & automating devices

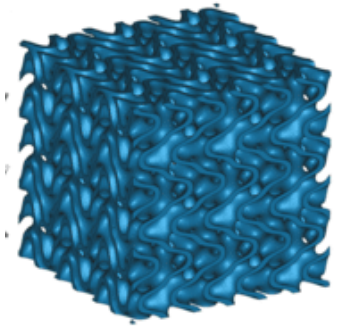
Commonality between a semiconductor packaging and a HV Circuit Breaker nozzle

Commonality between a transformer insulation and power electronics converter cooling concept

Jet impingement modelling

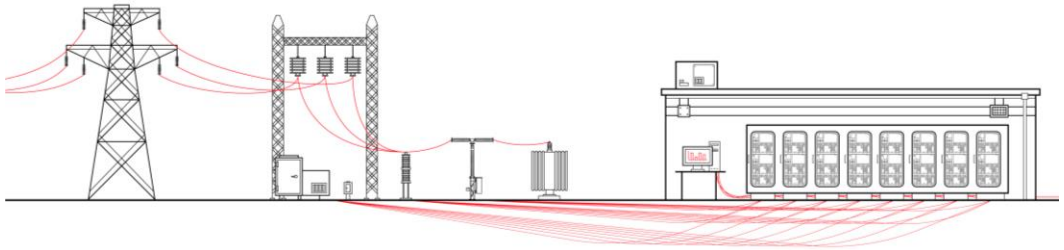


Triply periodic minimal surface

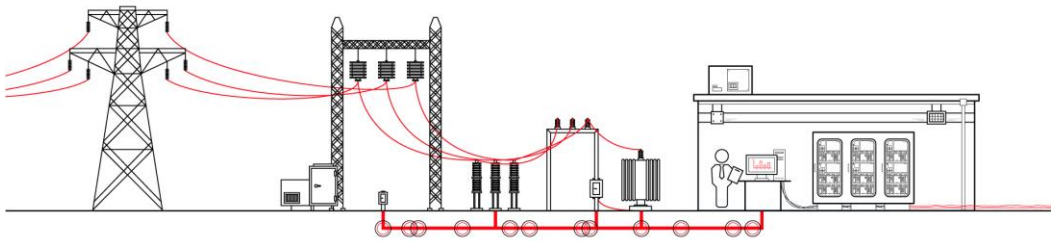


Collaboration and partnership with universities, research institutes, start-ups and further partners

Conventional substation



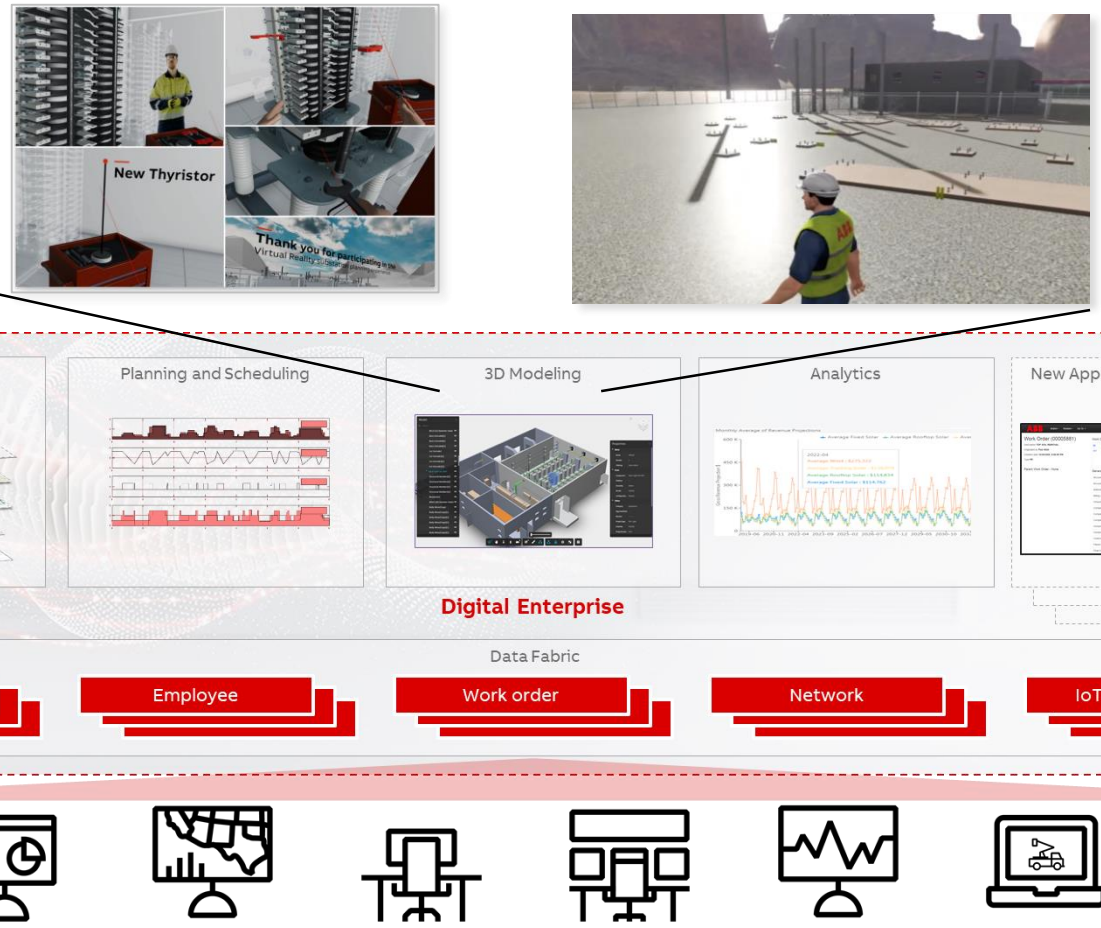
Digital substation



Sources: ABB, https://www.cpdlr.com/notes-articles-engineering/298-jet-impingement-heat-transfer.html, https://www.researchgate.net/figure/triply-periodic-minimal-surfaces-employed-as-sheet-reinforcement-for-interpenetrating_fig1_311583144

Technology synergies and knowledge sharing for future power systems

Digital Enterprise – integrating any product or application into one common operational frame



Technology synergy enabler

- Providing Merging Units for Analog to Digital generation connection
- Standardized communication protocols
- Cloud (and on-site) provider agnostic data storage
- Cyber Security best practice application
- Microservice based Software architecture, utilizing Open Source Software components
- Flexible integration of various suppliers, and across technology generations
- VR/AR platform technologies from gaming for planning, construction and training

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Sources: ABB
Data Fabric is an architecture and portfolio of data services that connect endpoints in on-premises and cloud environments and provide them with unified, cross-functional capabilities (source: www.netapp.com)


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