



Data centres as flexible energy hubs

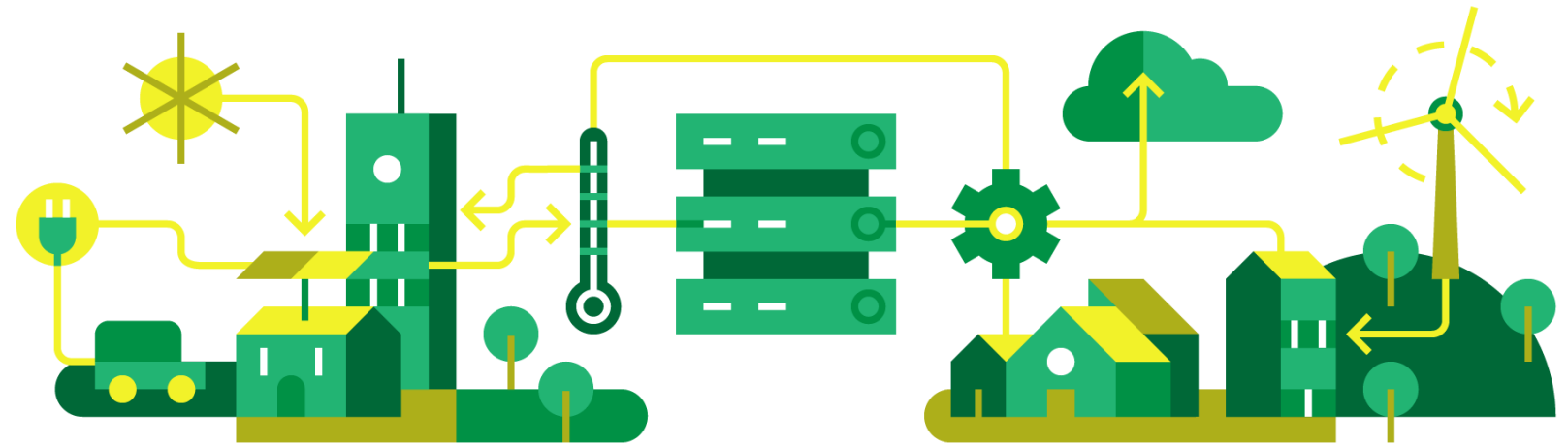
Diego Arnone, Engineering I.I. S.p.A.

Bruxelles, Belgium | 2019/02/13



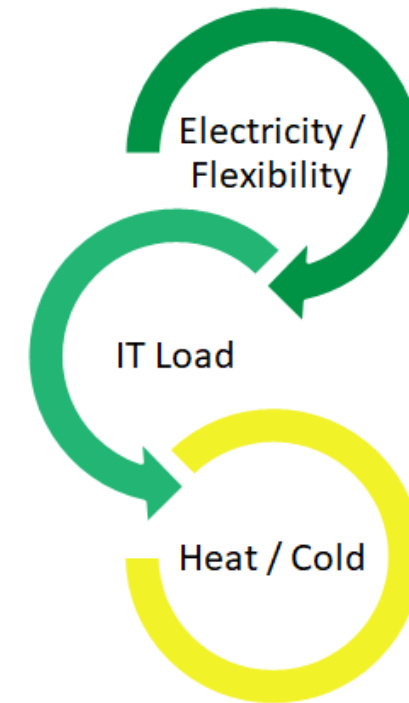
H2020-EE-2017-RIA-IA
Grant Agreement no
768739

Data Centres can and should offer energy flexibility services to their smart grid and district heating networks

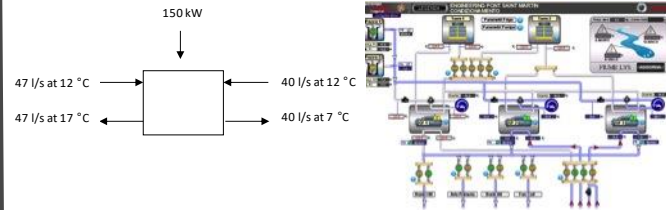


Marketplace as a Service

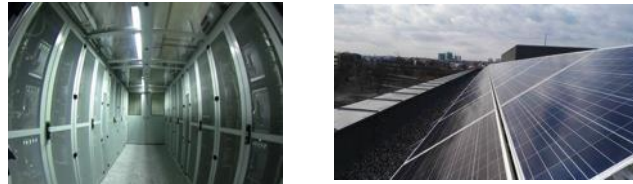
Scenarios are built up from the **premise** that *electricity (incl. flexibility), heat and IT load* are nothing but **commodities** that data centres can **transfer, exchange and trade** in their corresponding emerging markets either individually or combined to achieve **synergies** whenever applicable.



Pilots ID card



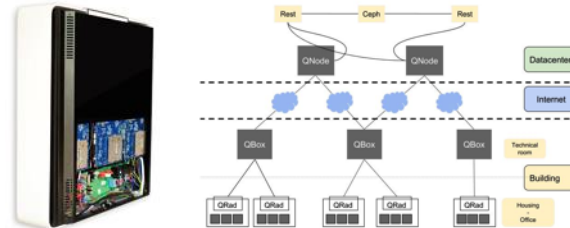
- **Type:** Colocation
- **Technologies:** Thermal inertia of cooling, geothermal, heat re-use considered
- **Resources:** 3 DCs owned by Engineering
- **PUE = 1.52**



- **Type:** HPC
- **Technologies:** Liquid cooling, heat re-use, servers powered by PV onsite
- **Resources:** Liquid cooled HPC DC, micro DC with PV system integrated
- **PUE = 1.3**



- **Type:** Colocation
- **Technologies:** Aquifer Thermal Energy Storage, diesel preheating, water treatment
- **Resources:** Production DC
- **PUE = 1.35**



- **Type:** Distributed (HPC)
- **Technologies:** Direct heat re-use, free cooling with heat sinks
- **Resources:** Subset of nodes in residential buildings and offices
- **PUE = PUE not measured, 1 by design**

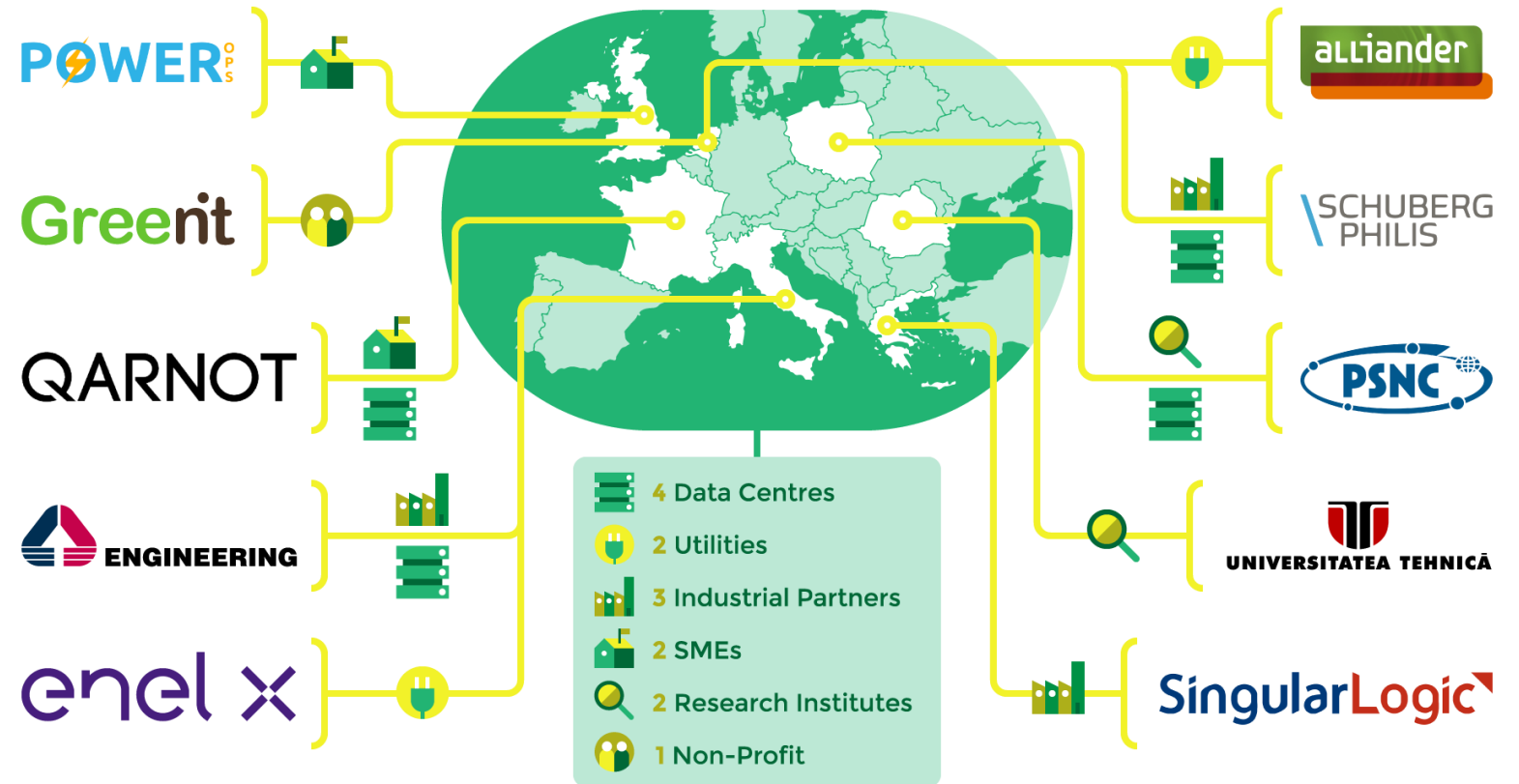
At a glance:

Converting Data Centres in Energy Flexibility Ecosystems

H2020-EE-2017-20 Innovation Action

October 2017 – October 2020

2.982.805 Euro (EU
2.299.103,5 Euro)



Thank you!
Stay in touch...



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