

## Green IT – High Efficiency Datacenter

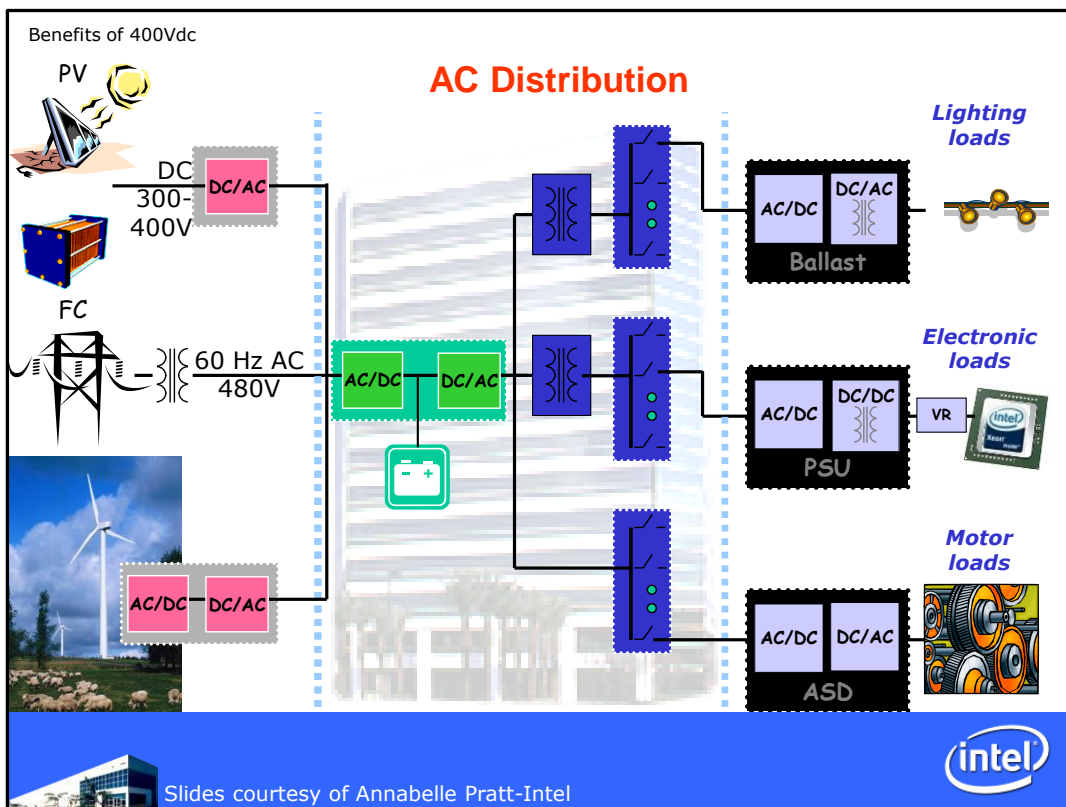
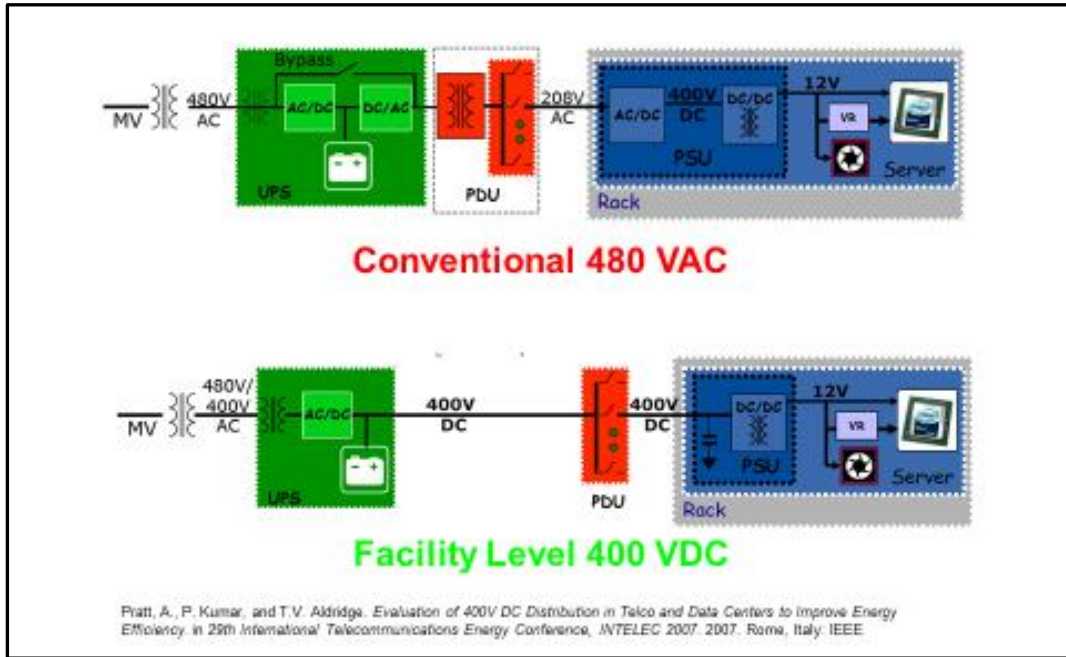
All IT devices are using Low Voltage DC power supplies.

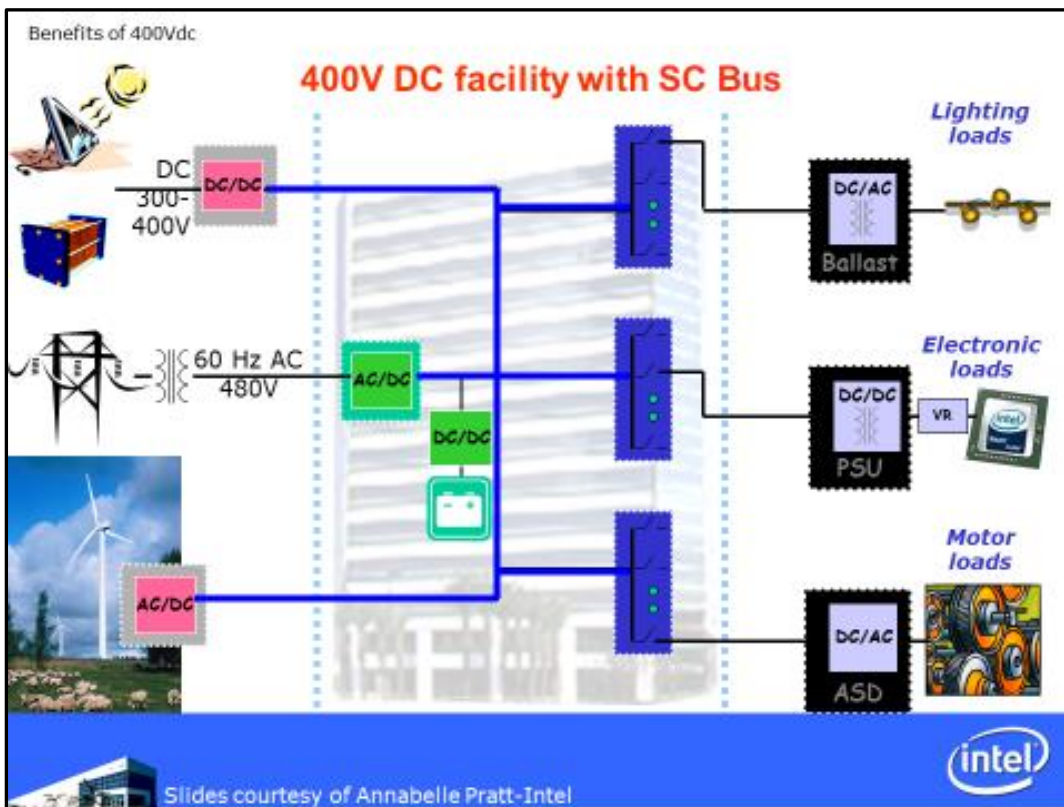
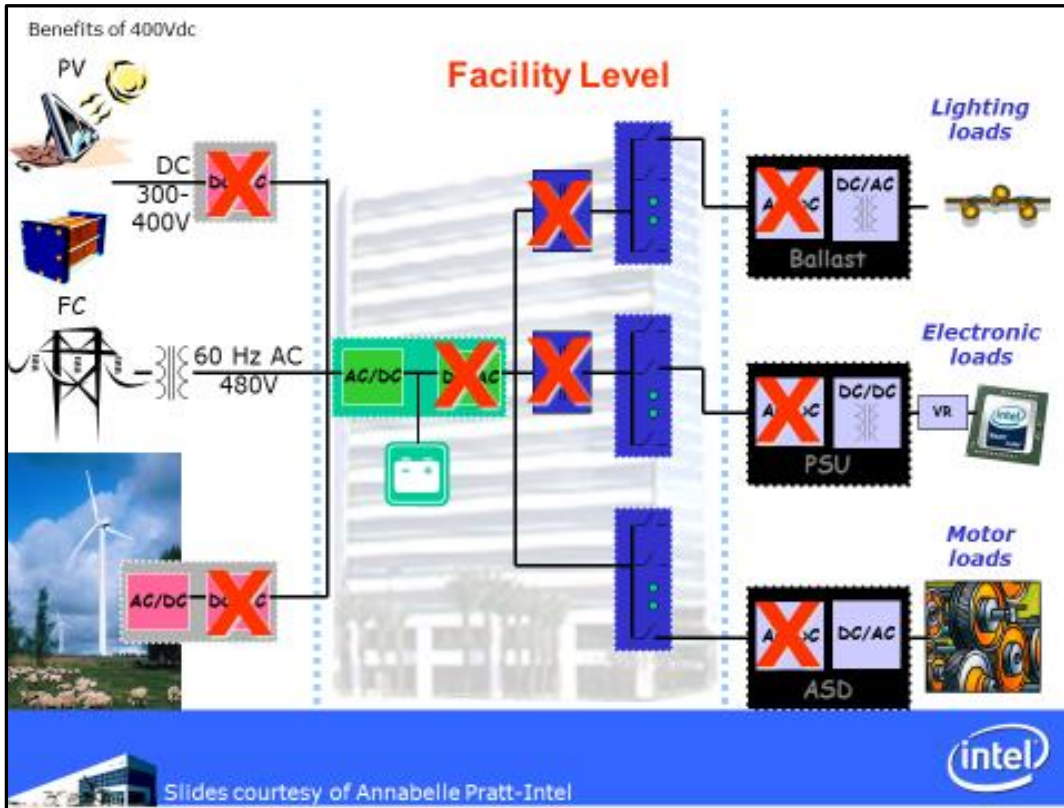
### *Why not feeding and distributing data centers and server farms with DC?*

LV-DC together with Super Conductors (SC) technology eliminates several power conversion levels with 15 – 20% total power savings. In addition to electrical advantages the new LV-DC+SC design gives also facility and operating advantages:

- electrical advantages
  - extremely low electrical power losses
  - no electromagnetic fields
  - no voltage difference between A and B power supply
  - best 0V ground earth stability
  - no MV in the vicinity of server space
  
- facility advantages
  - reduced space requirement
  - easy to design power distribution
  - easy to change and to adapt to usage
  - lower investment & reduced space for cooling equipment
  
- operating advantages
  - lower electricity bill
  - zero additional heat
  - zero fireload

From AC to DC Distribution





## DC Distribution with Super Conductors (SC)

In the past the conversion from AC to DC did not work out. E.g. using copper or aluminum bus bars for the power supply of a 4 MW data center on 400 VDC all advantages are eaten up by the large power losses. The new revolutionary design is using Super Conductor bus bars with zero electrical resistance between UPS and server racks. Operating power is only used for keeping the SC bus cool. Vision Electric Super Conductors is providing the SC Bus designed for data centers.

### About high-current busbars

High-current busbars typically transport low-voltage direct currents in the range of 10kA to 350kA. Bridging short distances between 20 meters and some kilometers, they serve mainly as feeder systems for the power supply of energy-intensive and large-scale production processes in primary-, chemical-, and metals industries. Exemplary applications of high current busbars include chlorine-, aluminium-, zinc, and other electrolysis as well as **data centers**.

Conventional copper or aluminium busbars for low-voltage power transportation must be designed with large cross sections in order to limit ohmic loss, and thus require considerable floor space. Heat emissions, external magnetic fields, short-circuit protection, and industrial safety make further demands on construction.

With superconducting high current busbars, electric loss is practically zero and floor space requirements are reduced by 90 percent compared to conventional systems of similar capacity. Also, since superconductors are encapsulated in cryostats, no special constructional measures are required for regard to short current protection and industrial safety. Heat emissions are limited to the refrigeration system. Project-specific conditions that make one or several of these factors particularly cost-relevant can make superconducting high current busbars an economic alternative to conventional systems.

### About Vision Electric Superconductors

We are pioneers in the development and implementation of superconductor technology for industrial applications.

OUR VISION is an intact and worth living environment for our children - with sustainable energy.

OUR MISSION is the zero loss and safe transportation of high currents through the innovative use of superconducting systems. The tremendous energy efficiency of these systems reduces power transmission losses.

We are CURIOUS - it means that we understand your application and deliver the best solution for your project in a creative way.

We are BRAVE - being a pioneer courage and the ability to master new paths. For our customers we transfer cutting-edge technology into innovative applications. We take up challenges and overcome obstacles. ...and have fun :-)

We are SUSTAINABLE - Our work contributes to the environment and for generations to come. We are pragmatic, we have a down-to-earth-approach and we handle our resources responsible and with care.

We offer:

- Superconducting, turnkey solutions for the transport of high electric currents
- Decades of experience in the design of energy transport systems
- Worldwide project experience

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