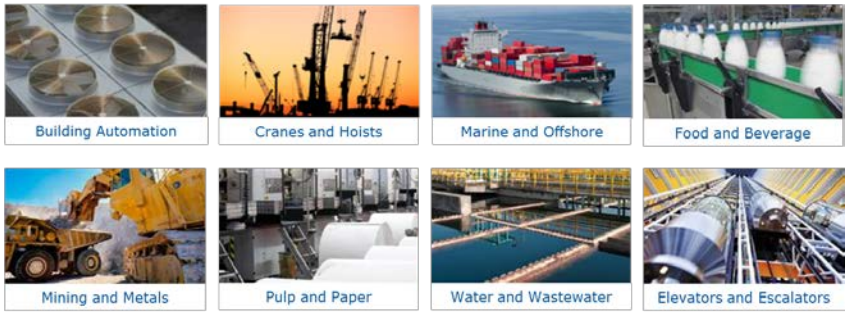
Vacon

100 % focus on AC drive and inverter products from small powers to multi-megawatt solutions

NIST / DOE Workshop
16-17 April, 2014

100% focus on AC drives

Vacon is the world's largest company, in terms of revenues and product selection, that concentrates entirely on AC drives.



Product portfolio

Compact AC drives

- **VACON® 10** For applications where simplicity and efficiency are the key requirements
- **VACON® 20** One of the most adaptable and functional compact AC drives around
- **VACON® 20 Cold Plate** For customer-specific cooling solutions
- **VACON® 20 X** Outstanding reliability and performance in decentralized installations
- **VACON® 5X** Small and robust AC drives designed for harsh environments

Multipurpose AC drives

- **VACON® 100** High-performance multipurpose AC drive with unique possibilities for industries
- **VACON® 100 FLOW** AC drive dedicated to pump, fan and compressor applications
- **VACON® 100 HVAC** AC drive dedicated to heating, ventilation and air conditioning
- **VACON® 100 X** Powerful decentralized AC drive with a robust IP66/Type 4X enclosure
- **VACON® 50 / 500X** Robust IP66/Type 4X drive for more demanding environments
- **VACON® NXL** Suited for industrial and residential processes
- **VACON® NXS** Powerful, robust AC drive for heavy use

Industrial AC drives

- **VACON® NXP** A premium AC drive where robustness, reliability, precision and power are required
- **VACON® NXP Common DC Bus** Efficient and flexible solutions for demanding industrial drive systems
- **VACON® NXP Liquid Cooled** Premium AC drive with space-saving cooling system
- **VACON® NXC** Cabinet mounted AC drives with safety, flexibility, robustness and compactness

690V @ 5MW

Solar power inverters

- **VACON® 8000 SOLAR Multimaster Inverter** A robust inverter that utilizes Multimaster technology to cover all the needs and grid code approvals of the commercial, industrial and utility sectors
- **VACON® 8000 SOLAR Standalone Inverter** A cabinet-assembled with integrated isolation transformers for maximum grid compatibility worldwide. Ideally suited for smaller, decentralized installations e.g. rooftops
- **VACON® 8000 SOLAR MW Station** A standalone building designed to house and protect VACON 8000 SOLAR inverters in challenging environments. All in one convenient turnkey package.
- **VACON® 8000 SOLAR Inverter Module** A comprehensive solar inverter solution with a wide range of options to ensure it fits requirements

Wind power converters

- **VACON® 8000 WIND** A double-fed power converter solution which has been specially designed to control and adjust power generated by wind turbines.
- **Converter Modules Air Cooled** Air cooled modules for wind power converters which utilize VACON® NXP technology. Versatile and efficient, these offer solutions which are sure to bring a quick return on your investment.
- **Converter Modules Liquid Cooled** High quality modules for wind power converters which utilize VACON® NXP liquid-cooled drives to provide a comprehensive space-saving solution for challenging environments.
- **Drives for yaw, pitch and auxiliary control** VACON® NXP AC drives can be adapted for a whole range of wind power applications where performance, robustness and power are a necessity.

WBG CUSTOMER BENEFITS

Cost / Efficiency

Reduced THD (line/load)
Reduced magnetics (line/load)
Reduced thermal management costs
REDUCED OVERALL SYSTEM COSTs --- expected

Reliability

Reduced number of devices
Cosmic-ray derating < Si

Performance

Significant performance improvement based on higher F_{sw} to address motor performance and grid stability issues

Easy

Reduced power footprint to facilitate retrofits of “soft starters”

Higher powers air cooled with higher temperature devices

WBG CONCERNS / RESEARCH AREAS

Customers looking for 20yr Life, 8yr MTBF

Accurate models for reliability predictions during the design phase
Real-time monitoring of the power device fatigue to address reliability/up-time

Du / Dt

Differential and Common Mode EMI (>50kV/us)

Insulation systems (cable, motor, transformers, inductors, Low inductance BUS)

Measurement devices susceptibility to du/dt

Gate driver power supply

High Temperature packaging

Silicone encapsulant temperature stability

Sinter die attach and Ribbon bonding

Summary

Material Science

RF management

Device packaging

Thank You!