Products & Technology

Presentation outline

- Presentation on rectifier and monitor products both from the USA and Norway.
- Presentation on system offerings in both USA and Norway.

Products & Technology

- Eltek/PCP manufactures DC Power *Systems* for the global telecom industry.
- Building block approach allows custom configuration using standard components.
- Components include rectifiers, mounting shelves, system monitor and control panels, load distribution panels, low voltage load and battery disconnects, and more.

Products & Technology

Norway

Rectifiers

- AEON 4000
- SMPS 1000
- SMPS 200

Monitors

- AL175NT
- Aeon Gold

USA

Rectifiers

- TwinPack *Plus*®
- MPS
- G-Series®

Monitors

- SSD3
- 20channel Bat Mon
- TCP/IP Gateway™

Systems

- Small: less than 100 amperes (USA:120vac)
- Medium: between 100 and 1000 amperes (USA:208vac)
- Large: greater than 1000 amperes USA:208vac or 480vac)

TwinPack Plus®
1500 and 3000 Watt Rectifier Modules

- Up to four rectifiers in 6U mounting shelf
- Available in 12volt, 24volt, and 48 volt; 1500 and 3000 watts
- Worldwide input range and approvals
- Designed for medium and large systems

Power Density 4w/cubic inch or 0.25w/cubic cm

Mini Power System (MPS)

- Up to nine rectifiers in 6U, 75 amperes at –48 volt
- Complete DC power systems in 3U to 6U that includes monitor/controller, distribution, LVD etc.
- Worldwide input range and approvals
- Designed for small systems
- Fan cooled

G Series Rectifier

- Up to four modules in 6U high mounting shelf
- Modules available in 4000 watts
- Complete digital interface using Lonworks to the system
- Worldwide input range and approvals
- Designed for medium and large systems
- 480vac input

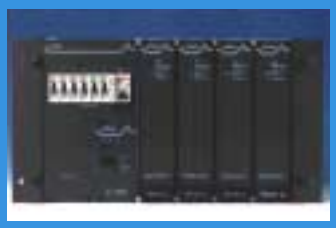
Power Density 5.6w/cubic inch or 0.35w/cubic cm.

SMPS 200

- Up to seven 200 watt rectifiers for a maximum size of 1400 watts
- Integrated system with distribution, LVD etc.
- Convection cooled, no fans
- Designed for small systems
- Very cost competitive!

SMPS 1000

- Up to seven 1000 watt modules in 6U
- Integrated controller, distribution, LVD etc.
- Convection cooled, no fans
- Designed for small and medium systems
- Most cost competitive system



SMPS 4000 Aeon

- Up to six modules in 6U high mounting shelf
- Modules available in 4000 watts
- Complete digital interface using Can bus to the system
- Designed for medium and large systems
- Power Density 7.2w/cubic inch or 0.44w/cubic cm
- One of the highest power density, most cost effective units on the market

AL 175NT

- Used with SMPS 200 and 1000
- System and battery supervision and monitoring
- Local display-access via serial or keypad
- Winpower-running on Windows

Remote monitoring and control through SNMP

AEON Gold - power management unit

- Individual rectifier communication through CAN-bus
- Local display
- Winpower - Running on Windows
- Remote software download
- Remote monitor and control through SNMP

Battery discharge test, user configurable

SSD3 System Status/Control Panel

- Used with TwinPack *Plus*® system
- Communication through Lonworks
- Local Display
- Winpower type software

Use with TCP/IP Gateway or stand alone

20-Channel Battery Monitor

- Monitors voltage, current and temperature of the batteries.
- Communication through Lonworks
- Local display
- Use with TCP/IP Gateway or stand alone

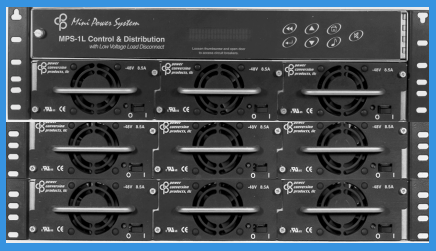
TCP/IP Gateway™

- Most technologically advanced monitor
- DC system communication via Lonworks
- Most technologically advanced monitor
- DC system communication via Lonworks
- Acts like a small web server: Point your browser to IP address and you are connected to the DC Plant
- IP connectivity through Telnet, SNMP and TCP/IP

Small Systems

Applications
Customer premises, POP's, EOP's, BLC cabinets, 3G Wireless, fiber repeaters, Microwave

MPS
Fan-cooled



SMPS200
Convection-cooled

Medium System

Applications
Wireless based stations, distributed power systems, large POP's, fiber repeaters, small switches

Large G-Series System

Applications

Large central office switches, internett HUB´s, Web hosting, co-location, optical switches

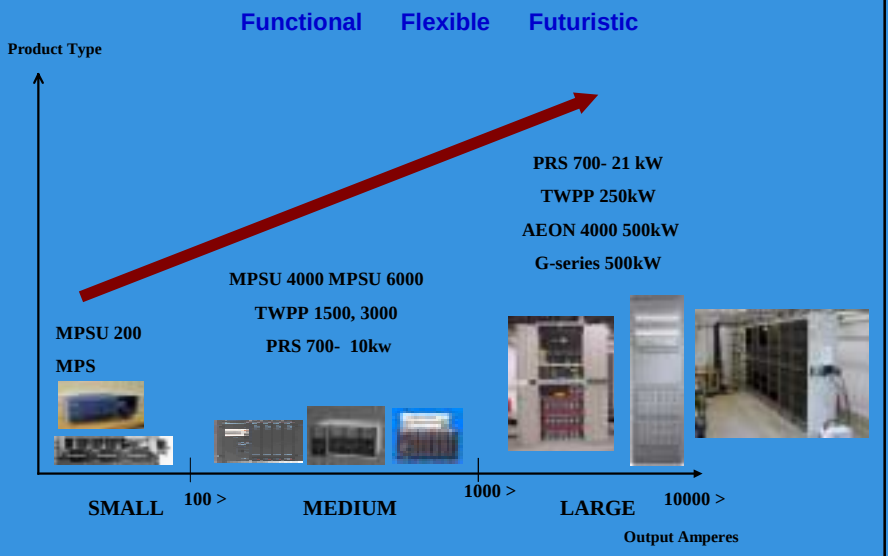
- 480vac/277vac input
- Each Rectifier Bay 1680A
- 24 rectifiers per Bay
- 4800A/6000A/10,000A

HGS

Large AEON System

- Single cabinet with 54V/900A (12 rectifier modules), Monitoring unit and distribution.
- Slave cabinets with up to 1800A (24 rectifier modules).

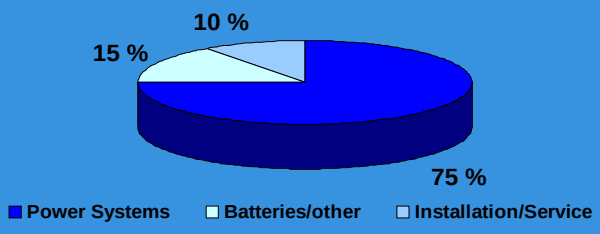
Competitive Product Range



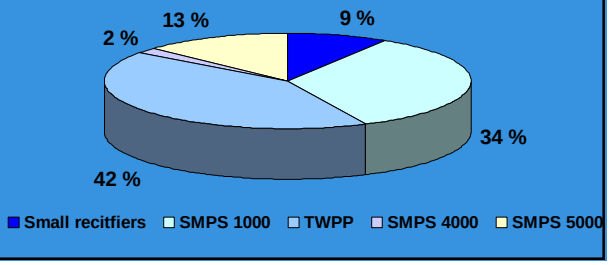
Convergience of IT and telephony

- IT or computer equipment require AC UPS
- Telephony equipment requires DC UPS
- The computer and telecommunication equipment are becoming one!
- This new IP data/voice equipment is being powered by DC UPS (-48vdc).
- These IP data/voice installations are requiring more and more power.

Sales per product area 2000



- Power Systems



Technology and Outsourcing

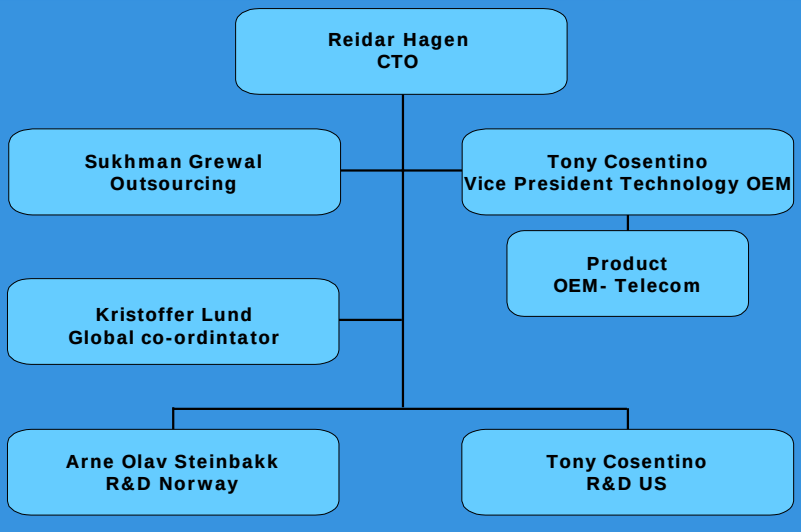
Mission Statement

Our focus is to provide the most cost competitive state-of-the-art power solution - on time.

Presentation Outline

- Review of Technology and outsourcing organization
- How do we provide cost competitive solutions?
- How do we provide state-of-the-art solutions?
- How do we provide solutions on-time?
- Synergies from technology from the merger
- OEM strategy

Technology and Outsourcing



Two R&D Centers

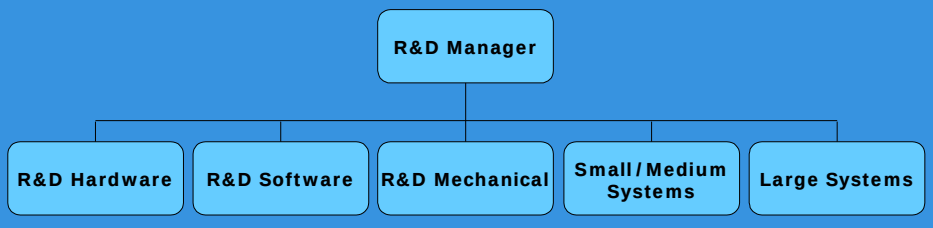
R&D Norway

- 11 Hardware
- 7 Software
- 2 Mechanical
- 2 Project Managers
- 14 Support and Managers
- *36 Total*

R&D US

- 5 Hardware
- 3 Software
- 3 Mechanical
- 1 Project Manager
- 8 Support and Managers
- 6 Contract Eng and Proto
- *26 Total*

R&D Work Chart



Product / System Engineering

USA: 10 engineers and support staff

UK: 14 engineers and support staff

Each subsidiary has a small staff to design systems and support their customers in that region.

Cost Competitive Solutions

- **We sell hardware and understand cost is one of the most important attributes**
- **Design and Outsourcing as one organization**
- **No high-volume production internally**
- **High quality low-cost manufacturing partners in Asia and South America**
- **System Groups are responsible for continued cost reduction**

State-of-the-Art Solutions

- Support of 2-3 students each year on their Masters thesis
- One industry related PGD study sponsored
- Collaboration on strategic research programs
- Two projects are currently under joint development with universities
- Co-operation with universities increases recruitment base

On-Time Solution

- Goal is to reduce development time to 12 months or less for new products
- Leverage University assistance and strengths of each R&D organization
- Focus on project management

Technology and Outsourcing Synergies

- Leverage low cost manufacture developed from Norway for US products. TwinPack *Plus*® and G-Series®
- Joint development projects have begun—leverage strengths of each organization
- Systems designs act local but think global for cost efficiencies

Technology and Outsourcing Synergies

- SMPS 1000 for South America and CALA
- SMPS 200 adjustment for 120vac operation
- Use G-series and AEON for lower cost medium systems
- Implementation of TCP/IP Gateway in all medium and large system applications

OEM Strategy

- Leverage our relationship with current customers and our cost effective standard product designs
- Strengthen our marketing and engineering organization to develop products according to demand
- Assist the customer in developing their internal requirements for power