

1 Trends & Key Implications

Demand: Sales rose 2.4% in Q3 on growing demand from the utility and energy sectors. Sales will rise 2.7% in Q4 but decelerate to 1.4% in 2012 Q1 due to weak construction activity in Western Europe and the US. Sales will rise 7% annually through 2013 because demand for electricity will increase globally.

- Sales of motors rose 3.4% in 2011 Q3 on a 4.5% increase in demand for machinery used on oil & gas production platforms.
- Sales of UPS Systems and Batteries will rise 3% in Q4 on an equivalent increase in spending by telecommunication companies.
- Sales of ED&C Equipment will rise 9% annually through 2013 on a 16% annual increase in capital expenditure by Asian utilities.

Supply: Industry capacity rose 1% in 2011 Q3 and will still lag demand growth in Q4 with a 1.6% increase, letting utilization rates reach 84.3%. Utilization will further rise to 84.5% in 2012 Q1, due to insufficient capacity additions. Capacity growth will continue to trail demand by only adding 5.5% annually through 2013, driving utilization up to 87.3% in 2013 Q4.

- ABB and Rockwell Automation are building and expanding plants in Brazil that will contribute to capacity growth in 2011 Q4 and through 2013.
- ABB, Hyosung, and Siemens are all highly utilized at 85-90% for their Electrical Distribution & Control Equipment. WEG is close to fully utilized for Motors.
- Demand will grow 15% cumulatively by 2013 Q4, while capacity will only increase 11.3%, driving utilization rates up from 84.3% in 2011 Q4 to 87.3% two years from now.

Figure 1: Top Suppliers by Electrical Equipment Type

	<u>ED&C Equipment</u>	<u>Generators</u>	<u>Motors</u>	<u>Lighting</u>	<u>Cable</u>	<u>UPS and Batteries</u>
1	Siemens (26%)	Caterpillar (26%)	Siemens (19%)	Siemens (30%)	Prysmian (10%)	Schneider (8%)
2	ABB (22%)	Cummins (17%)	ABB (17%)	Philips (27%)	Nexans (10%)	EnerSys (5%)
3	Schneider (14%)	Wartsila (10%)	Toshiba (8%)	Cooper (5%)	LS Group (9%)	Exide (4%)
4	Mitsubishi E. (11%)	MHI (4%)	Regal-Beloit (6%)	Acuity (5%)	Fujikura (9%)	Simplo (3%)
5	Eaton (7%)	Deutz (3%)	WEG (6%)	GE (4%)	General Cable (8%)	Saft (2%)

- Wolong, a Chinese motor manufacturer, leapt from 10th to 3rd top supplier of large Motors and Drives after its acquisition of the ATB Group, one of the leading electric motor manufacturers in Europe.
- WEG acquired two manufacturers of industrial automation products (Watt Drive and Electric Machinery), which blocks GE from a monopoly over large 60Hz synchronous motors.

Prices: Overall prices rose 1.4% in Q3, led by Asian prices, which rose 2% due to a 3.5% increase in labor costs. Prices will fall 1.7% in 2011 Q4 due to falling LED prices. The sharpest drop happened in China from \$30 per unit in September to \$11 in November. Prices will rise 4% in 2012 and 3.3% in 2013, driven mainly by Asian wages and increasing metal costs. Chinese minimum wages will rise at least 13% annually through 2015 and nickel costs will rise 16% cumulatively through 2013.

Key Sourcing Recommendations:

1. Outsource SF₆ recycling activities to ABB to save up to 30% on total lifecycle costs. Detail below
2. Invite Baldor to demonstrate how the use of shaft grounding rings (SGR's) can minimize shaft voltage induced failures on its API 541 and API 547 motors. Detail below
3. Purchase NiCd battery requirements for 2013 in 2012, as nickel prices will rise 13%. Detail Below

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2 Tips and Recommendations for Oil & Gas Buyers

Electrical Distribution & Control Equipment

1. Outsource SF₆ recycling activities to ABB to save up to 30% on total lifecycle costs. Its new plant in Australia will recycle gas to 99.99% purity allowing for almost perpetual reuse of the gas, thus avoiding complicated in-house recycling or substantial disposal costs. ABB will also handle recovery from switchgear, transportation, and delivery of purified product.
2. Unbundle electrical steel prices from transformers prices from Siemens and ABB. Electrical steel prices have risen, but these suppliers have established price and volume agreements with multiple electrical steel suppliers to keep costs down.
3. Include ABB in bids for micro-grids along with leading suppliers such as Schneider, Alstom, and Eaton. ABB recently acquired Powercorp along with its proprietary technology which allows up to a 90% share of wind power in the energy mix, thus minimizing diesel generator use. This is coupled with its fast reacting flywheel energy storage system design with response time of 5ms for smoothing power supply.

Motors and Drives > 500 hp

4. Invite Baldor to demonstrate how the use of shaft grounding rings (SGR's) can minimize shaft voltage induced failures on its API 541 and API 547 motors. Baldor has integrated SGR's into its Super-E motors, which have power ratings ranging from 1-900 hp. Shaft grounding rings (SGRs) present a low-cost approach for reducing overall motor damage from shaft voltages, compared to Faraday shields, insulated bearings, and grounding brushes.
5. Include Wolong in the tendering process of new projects that require Motors & Drives as its recent acquisition of ATB Group has helped to increase its product offerings for the oil & gas and power generation sectors, and also placed it among the top six suppliers for Motors & Drives > 500 hp.
6. Reconfirm specification of copper windings from Xinquang. The supplier is considering shifting to aluminum as a cheaper alternative due to rising copper prices. Copper prices reached a two year high of about \$4.6/lb in 2011 Q1, and are set to increase 6.3% in 2012 Q1. However, upfront savings would be lost in higher operating costs since motors made with copper are more efficient and have reduced energy losses than those made with aluminum.

Industrial Lighting

1. Incorporate an adjustment factor for changes in rare earth metal prices in long-term framework agreements for fluorescent lamps. The price of rare earths, which has peaked in 2011 Q3, will fall on a two-year horizon, as the Chinese near monopoly power will degrade when new mines in Western Australia, South Africa, and India become operational in 2013.
2. Do not agree to fixed price medium- or long-term contracts with LED manufacturers, as the price of LEDs has dropped unexpectedly through 2011 (e.g. prices dropped 62% in China from September-November) and will most likely continue to do so in the coming years with technological breakthroughs. The replacement of costly sapphire substrates in LED chips with GaAr (or another relatively cheaper material) will be one such breakthrough.
3. Require suppliers of integral lamps and luminaires based on LED technology to present certificates of quality tests from their LED supplier (such as those provided by Cree) to avoid safety hazards arising from insufficient lighting and replacement of LEDs in newly installed luminaires. It has become an increasingly standard practice for luminaire suppliers to blame failures on component suppliers, leaving buyers to bear the burden of costly replacements.
4. Invite Osram to demonstrate how the lighting control and energy management technology recently acquired with Encilium Technologies can help bring down energy related costs in office buildings and hydrocarbon processing plants. Siemens/Osram has previously guaranteed 50% electricity savings when retrofitting major facilities and often exceeded the target by 5-10%.

Industrial UPS & Batteries for Oil & Gas Applications

1. Purchase nickel cadmium battery requirements for 2013 in 2012. In 2013, nickel prices will grow at 13% compared to 6% in 2012, while lead prices will fall 5%. During this period, nickel cadmium battery prices will rise 2-3 times faster than lead acid batteries. Nickel is rising comparatively slower than other years in 2012, due to a curb on housing construction in China and economic decline in Europe.
2. Re-evaluate the scope and duration of available maintenance offerings by current suppliers given the broad range of new supplier capabilities. Many suppliers have expanded and improved their maintenance capabilities, making it worth a re-evaluation. Mitsubishi opened two new service centers in the US to reduce service lead times. Eaton is now offering an online remote monitoring service that relays information to Eaton's regional service center. HP now offers three year maintenance agreements for UPS systems; compared to Schneider that offers only two.
3. Qualify Staco as a supplier. It claims that its new First Line P-Series 65k VA three-phase UPS system is 98%. This is 5% higher than Schneider's comparable Galaxy 3000 UPS system. Moreover, it is equipped with a filter to protect upstream power-supply sources from any harmonics and reactive power generated by the loads power.

Sample Report EXCEPT