

Energy, Power and Sustainability in Industry

Three Themes

PLUG Toronto, October 17th, 2014

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We are the Global Specialist in Energy Management™

24

billion € revenue
(FY 2013)

43%

of revenue in new economies
(FY 2013)

150 000+

employees in 100+ countries

4-5%

of sales dedicated to R&D



*A large company, with a balanced
geographical footprint and a commitment
to sustainability*

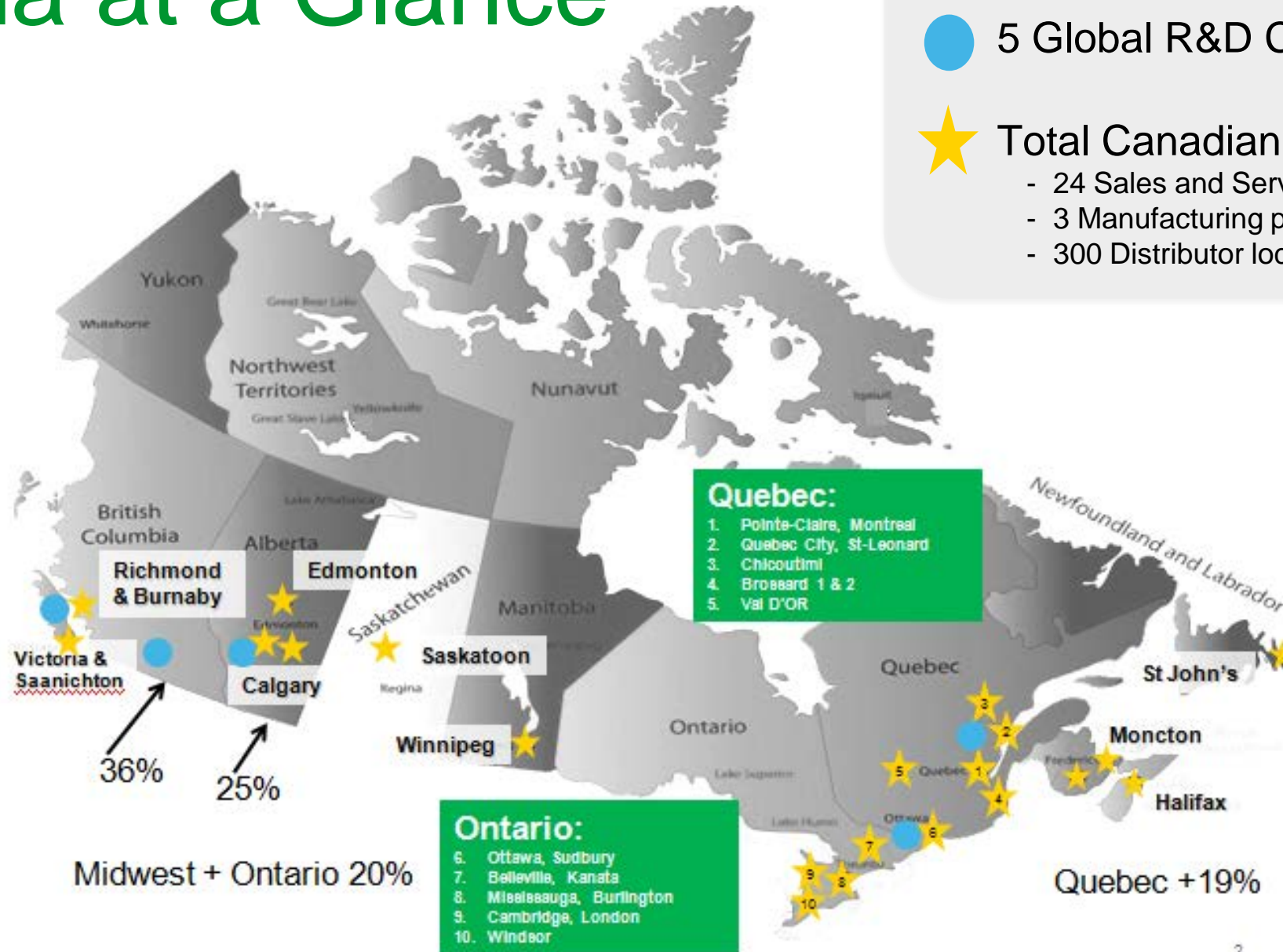
Canada at a Glance

Total Employees in Canada: 3000

● 5 Global R&D Centers

★ Total Canadian Locations: 36

- 24 Sales and Service locations
- 3 Manufacturing plants
- 300 Distributor locations



Theme 1: Energy Management

Challenge: Lack of confidence in sustaining continuous improvement and savings in energy programs.

Implications:

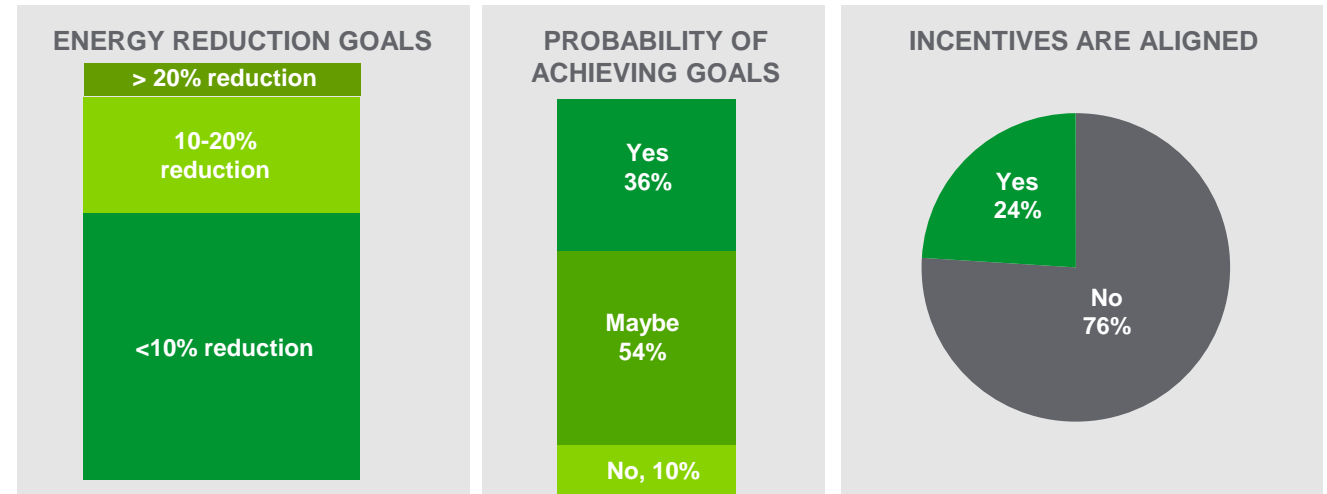
Adoption of consistent standards (like ISO50001) and comprehensive “energy management lifecycle” programs is increasing quickly.

Metrics tying energy usage/costs to “line of business” data is becoming critical (kWh/car, energy \$/car through various manufacturing stages etc.)



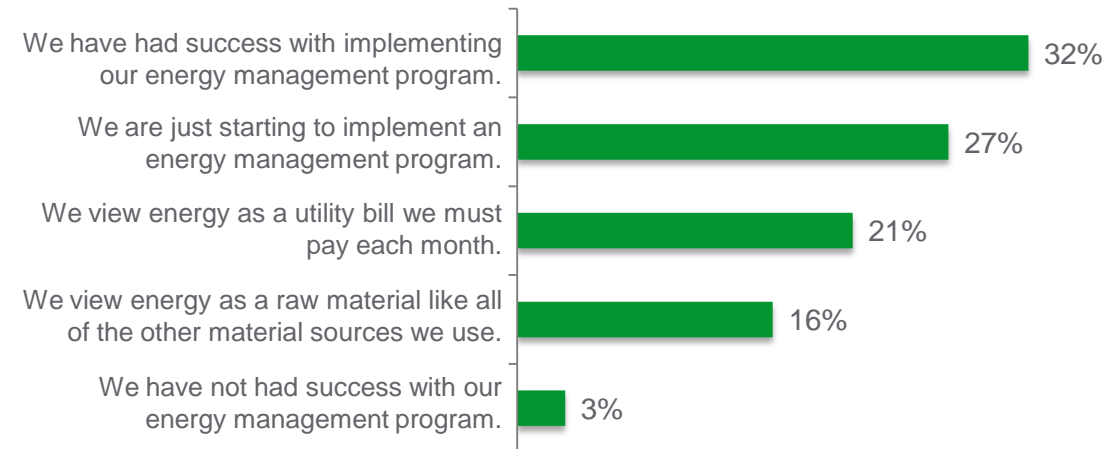
Modest energy reduction goals

67% of respondents said their plants have energy reduction goals of less than 10% for the upcoming year. **Only 36% are confident that these goals will be achieved, and 76% are not incentivized to meet these goals.**



Company attitude

Thirty-two percent of respondents claim to have had success with implementing their energy management program — down 8% from 2013 — while 27% are just getting started.



Theme 2: Power Reliability

Challenge: Grid reliability has continued to deteriorate because of extreme weather events and regulatory pressures discouraging new plant construction.

Implications:

- Increased interest in distributed generation and microgrids in large industrials where downtime costs are astronomical
- Investment in systems that increase power reliability and comply with IEEE standards like IEEE519

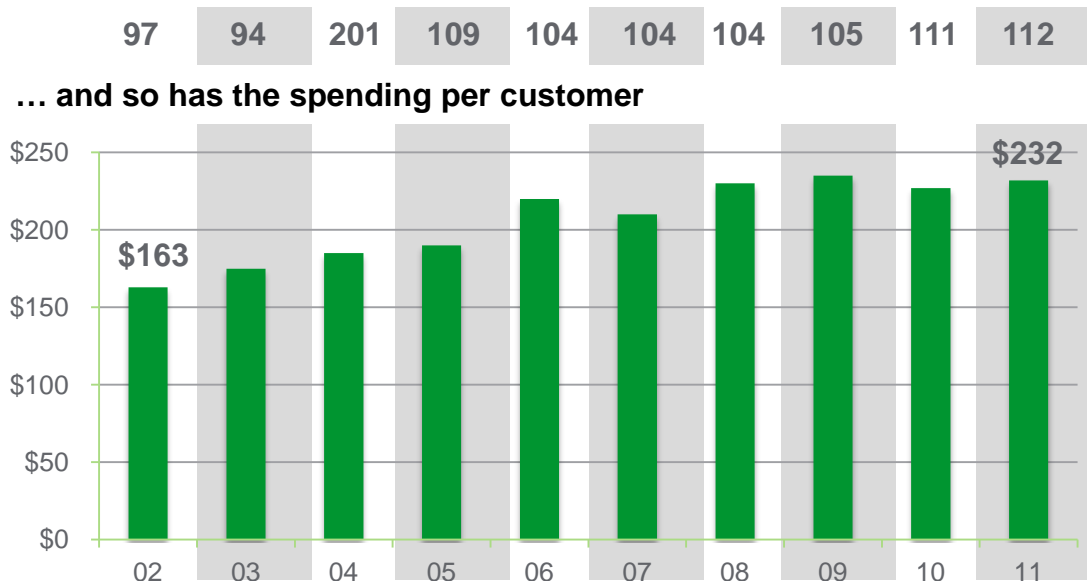
2011-2013 Extreme Events and Reported Customers Affected by Power Outages

Event	Date	Region, Province	Customers Affected*
2013 Ice Storm	December 2013	Ontario, Quebec, Maritimes	1,500,000
Alberta Flood	June 2013	Calgary, Alberta	100,000
Toronto Flood	July 2013	Toronto	50,000
Early Season Snow Storm	September 2014	Calgary, Alberta	30,000

Less reliable, more expensive

The annual cost to maintain local electrical distribution equipment has risen, but reliability hasn't improved. Utilities pass these costs on to customers.

Number of minutes without power has increased...



Theme 3: Sustainability

Challenge: Sustainability is not a passing fad, it is no longer about being “green” – it is a necessity, not a luxury. Shareholder value reflects sustainable practices.

Implications:

- Many industries now require emissions reporting (GHG Scope 1, 2 and 3) and disclose CDP.
- Supply chain pressures mean that most vendors are now more “links” in the chain are more sensitive to sustainability concerns



Control Your Environmental Impact

Establish and track your carbon, water and waste footprints across operations, products, and supply chain.

The dashboard displays several key metrics and charts:

- Greenhouse Gas (GHG) Emissions:** A line chart showing "Total Volume" from January to December. The y-axis ranges from 200 to 600. The x-axis lists months from JAN to DEC. The chart shows a general downward trend with some fluctuations.
- Emission Profile:** A donut chart showing the distribution of emissions across three scopes: Scope 1 (blue), Scope 2 (red), and Scope 3 (orange). The chart is labeled "Past 12 Months" and "Units: mean CO₂e".
- Data Collection:** A table showing data for "Scope 1" with two rows: "Natural Gas" at 80% and "Fuel Oil" at 84%.
- Mission Statement:** A text box stating: "ABC Company's sustainability mission is to promote conservation and operational efficiency throughout the organization to support strategic goals to reduce our energy, carbon, water and waste impacts. Engaging our employees to contribute to our collective efforts is critical to the success of this mission."

Resource Advisor

truxureWare

Thank you!

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