Energy Management, IoT and Analytics

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Information and Common Components
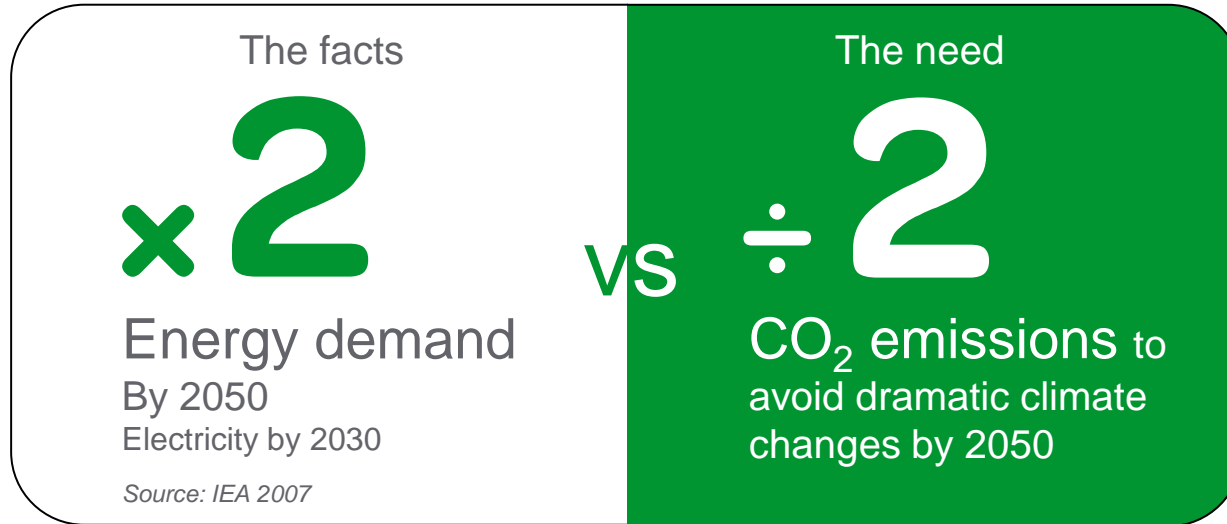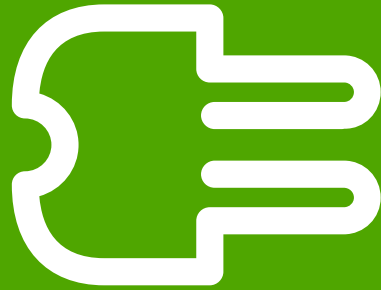
March 20th, 2015

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Agenda

- Introducing Schneider

- Overview of Energy Management

- Schneider Way

- A possible IoT and Analytics architecture towards Energy Management
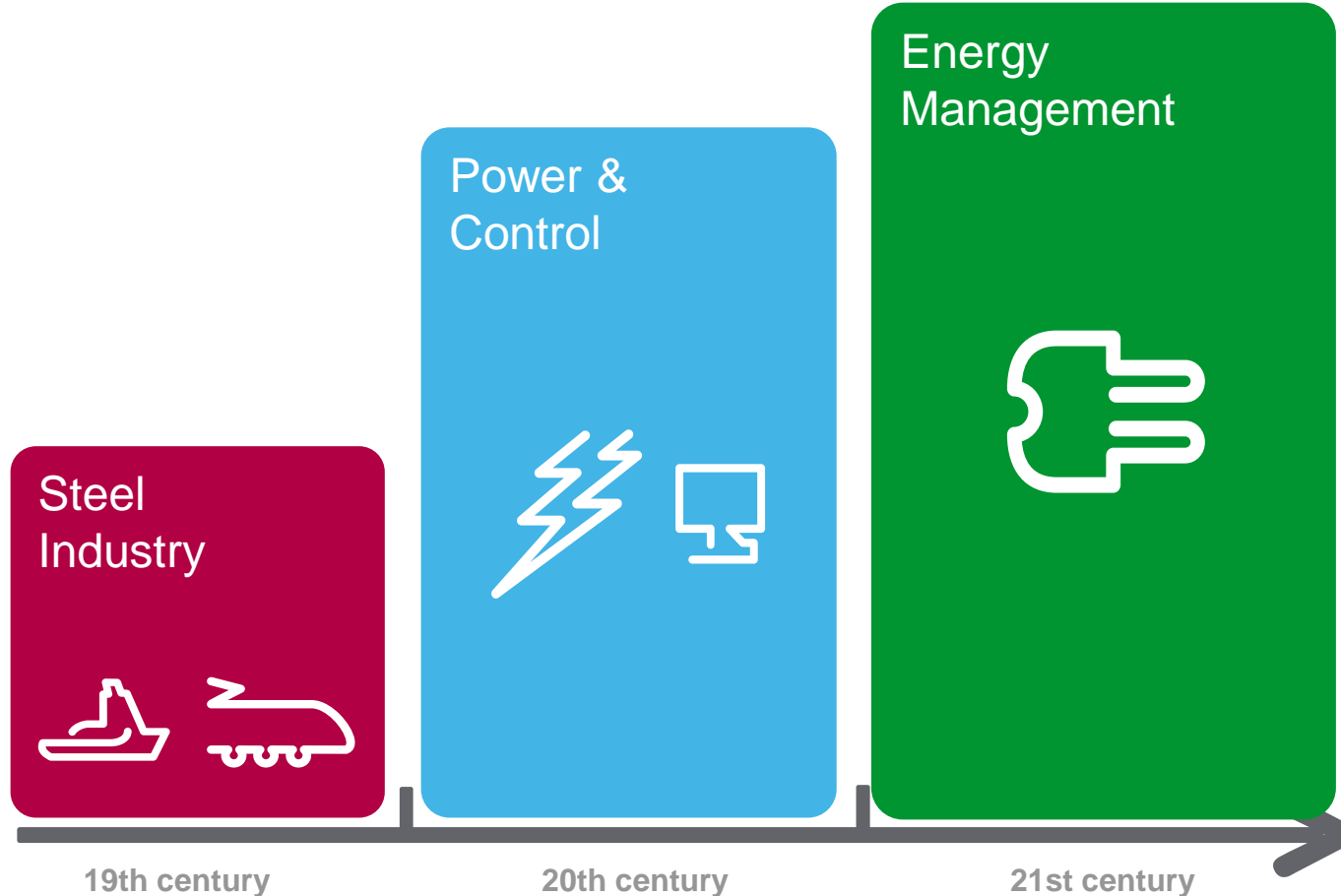
- Questions

The energy dilemma is here to stay

The facts	The need
×2	**÷2**
Energy demand	CO_2 emissions to
By 2050	avoid dramatic climate
Electricity by 2030	changes by 2050
Source: IEA 2007	

vs

Source: IPCC 2007, figure (vs. 1990 level)

Frequent power outages	**Rising energy prices**	**Climate change**	**Conflicts for resource access & control**

Our answer:
Helping people make
the most of their energy

More than 175 years of history

Steel Industry

Power & Control

Energy Management

19th century

20th century

21st century

Schneider Electric at a glance

We are the global specialist in energy management and efficiency technologies

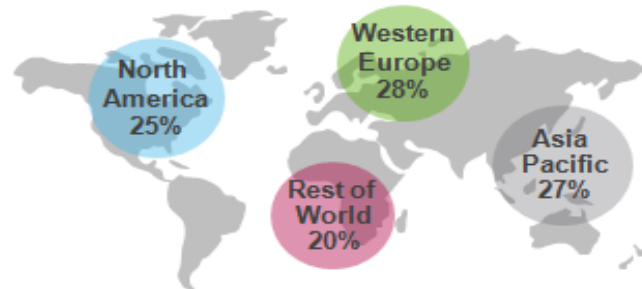**25** billion € revenue (FY 2013[1])

4–5% of sales devoted to R&D

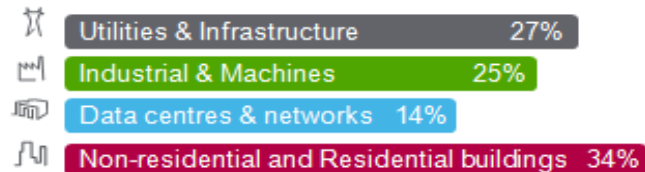**43%** of revenue in new economies (FY 2013[1])

160 000+ people in 100+ countries

Balanced geographies – FY 2013 revenue[1]

- North America 25%
- Western Europe 28%
- Asia Pacific 27%
- Rest of World 20%

Balanced end markets – FY 2013 revenue[1]

Utilities & Infrastructure	27%
Industrial & Machines	25%
Data centres & networks	14%
Non-residential and Residential buildings	34%

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Services

Providing an in-depth relationship with our customers

Energy & Sustainability Services

- Covering the Energy Management Lifecycle
- Improving energy efficiency and lowering costs
- Advising on energy supply and sustainability issues

Cloud Services

- Weather, Market Prices, Traffic, …
- Analytics for Operational Intelligence
- Supply-chain efficiency solutions

Field Services

7600+ professionals

16+ million active customer sites

- Reducing unscheduled downtime of assets
- Reliability, safety and availability of installation
- Optimizing OPEX and CAPEX

Overview of Energy Management

Why Energy Management

Reduced Energy Consumption

Environmental Friendly

Reduced operating and maintenance costs

Reduced System and Equipment Failures

Improve productivity of equipment and human user

Improve Comfort

Technique for Energy Management

" Electricity is Energy, but Knowledge is Power"

- Acquiring data for each location is vital (*IoT*)
- Turning data into actionable information is a key task (*Analytics*)
- Working without data or metering details is like driving a car without a speedometer

Energy Management Life Cycle

What is my energy Strategy?

Why Strategy?

Faced with *unpredictable energy costs, stressed electrical grids, environmental concerns, legal mandates and aging facilities*, to stay on top of everything an optimized energy strategy is needed

How Schneider Electric Can Help:
Strategic Energy Planning & Roadmaps
- Help to view energy and sustainability issues strategically
- To ensure energy decisions support the financial and operational integrity of a business, and deliver measurable ROI

Sustainable Roadmaps
- Develop a customized sustainability strategy to meet organization's needs
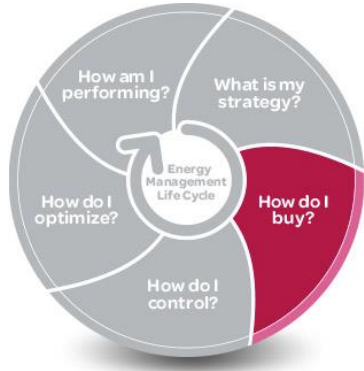- Insight into water and energy conservation technique

Market Research & Analysis
- Perform sophisticated econometric, statistical and technical analyses
- Track regulatory and legislative changes
- Deliver market intelligence relevant to an organization and its facilities
- Issue clear, actionable recommendations that enable you to act on opportunities

Rebates & Incentives
- Oversight to meet regulatory guidelines to qualify
- Track deadlines and manage rebate administration

Wonderware
by **Schneider** Electric

How Do I Buy energy?

How to Secure saving and limit risk of market spikes?

With prices in *constant flux, the cost of energy often impacts profits* – positively or negatively – depending on the choices being made

How Schneider Electric Can Help:

Strategic Sourcing
- Buying strategy and recommend best time to buy
- Analyze, recommend and negotiate best price

Rate and Tariff Analysis
- Find rate which best fits energy usage pattern
- Negotiate rate structure based on usage pattern

Risk Management
- Identify risk profile and risk tolerance
- Customize risk management to fit global footprint

Demand Response
- Provide optimal demand response solution by taking guess work out

Utility Bill and Data Management
- Best data collection method
- Every critical information captured to support audit process
- Streamline invoice payment to eliminate fees and notices

How Do I Control energy usage?

Why Control?

In order to control and monitor energy and resource consumption *from shop floor to top floor its critical to measure them*

This require right infrastructure and software tools in place to

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How Do I Optimize energy usage?

Why Optimize?

Every dollar saved on energy and resource costs is a dollar added to bottom line

Optimizing energy and resource consumption *helps reduce costs, improve processes and meet defined sustainability goals*

How Schneider Electric Can Help:

Design/Build Energy Projects
- Supply and Demand analysis to define and prioritize energy projects

Energy Efficiency Audits and Workshops
- Identify Energy conservation opportunities to achieve savings
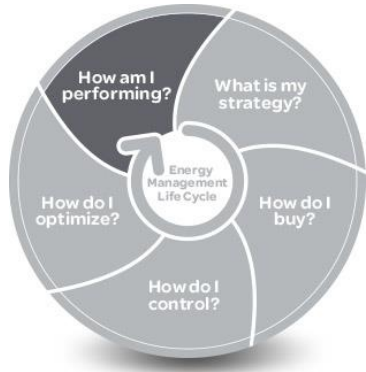- Deliver accurate costs, savings , ROI details

ISO 50001 Assessment
- Help get ISO 50001 certification which could increase efficiency, generates energy saving and solidify commitment to sustainability

Renewable Energy Solutions
- Help find renewable energy solutions that decreases impact on environment and make financial solutions

How am I performing?

Why measure performance?

Being able to report *key performance indicator* on progress is a key to the success of energy and sustainability program and strategy

How Schneider Electric Can Help:

Environmental Footprint Reporting
- Provides software and tools to measure current footprint which includes baseline to relevant changes

Corporate Goals
- Help translate key energy performance data into relevant performance metrics
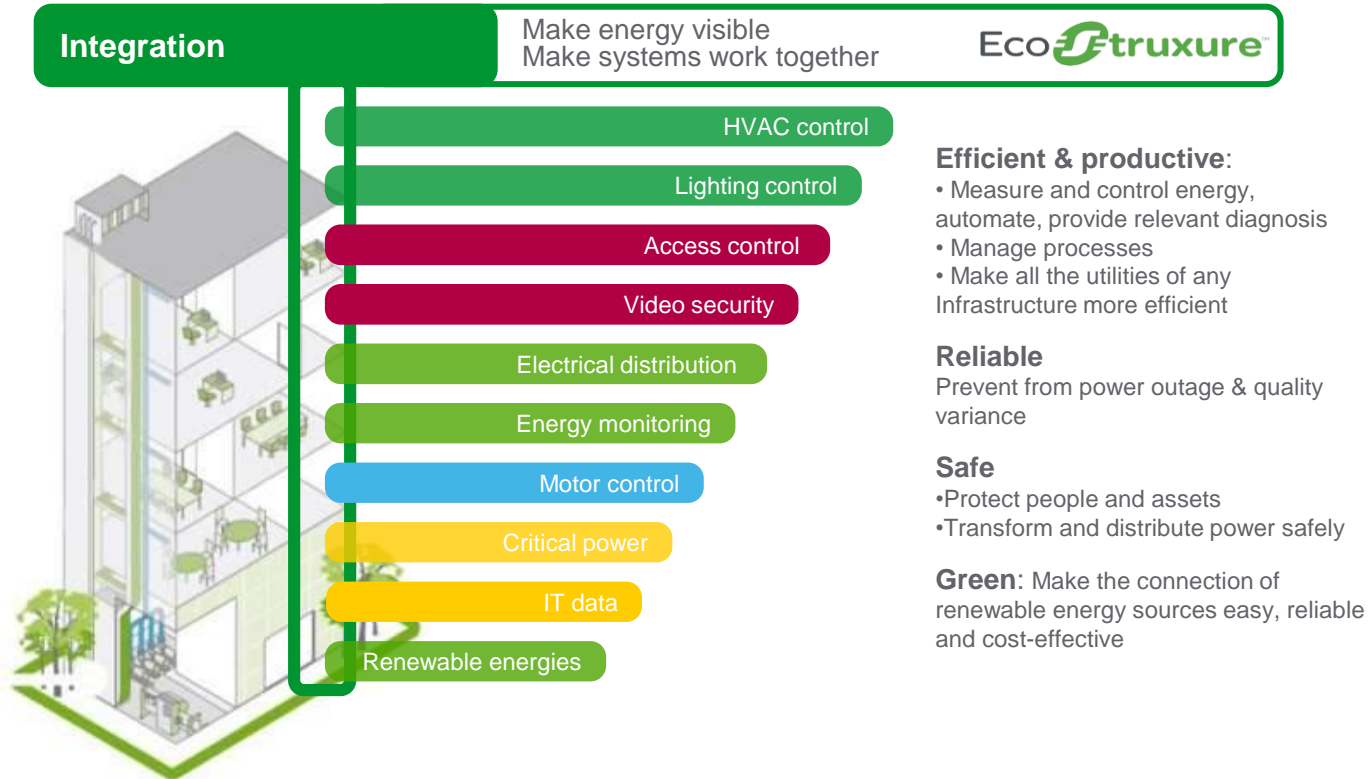
External Reporting Efforts
- Help develop and report responses to external agency and watch-groups

Schneider Electric Way

Providing integrated solutions

| Integration | Make energy visible
Make systems work together | Eco**Struxure** |

- HVAC control
- Lighting control
- Access control
- Video security
- Electrical distribution
- Energy monitoring
- Motor control
- Critical power
- IT data
- Renewable energies

Efficient & productive:
• Measure and control energy, automate, provide relevant diagnosis
• Manage processes
• Make all the utilities of any Infrastructure more efficient

Reliable
Prevent from power outage & quality variance

Safe
•Protect people and assets
•Transform and distribute power safely

Green: Make the connection of renewable energy sources easy, reliable and cost-effective

Within an innovation eco-system
for a simpler and greener future

We start today…

So we can be…

Partnering with 50+ best-in-class public and private organisations

IBM
CISCO SAP
MiT ParisTech
Microsoft

Leading global projects for Intelligent buildings, renewables, nanotechnologies

Homes
Minalogic
Smart
Electricity

Boosting standardisation
Zigbee, IEC, NEMA

Funding start-ups
Schneider Electric Venture capital fund

Demand response, software breakthrough

11000 R&D engineers 70 sites in 22 countries

Energy efficient

Environmentally friendly

Open and connected

Available 24/7, on site and remote

Energy Leaders' Education:
Zoom in the programmes!

1 **Conserve My Planet** is aimed at school children and sets to educate them about energy conservation. It teaches how to minimize energy use and empowers children to make the changes necessary to be energy-smart in schools and at home.

2 **Solar Decathlon** is the largest global university competition focused on energy management in homes sponsored by Schneider Electric. It brings together university teams who design, build, and operate solar-powered houses that are cost-effective, energy-efficient, and attractive.

3 **Go Green in the City** is an international challenge for business and engineering students around the world to find clever solutions for energy management with the support of Schneider Electric mentor.

4 **Energy University™** is a free, Web-based learning programme focused on improving energy efficiency and conservation. It delivers timely, unbiased information from energy experts across multiple industries. In addition, Energy University courses qualify for professional education credits from numerous associations and offers professional certification.

Why the Innovative Solutions?

> **Achieve the Energy Challenges: Doing more with less**

> **To bring more safe, reliable, efficient, easy to use and green energy management solutions**

> **To make Smart Grid a reality**

> **To provide the electricity to everyone**

> **To provide Energy Efficiency in the everyday life**

> To provide the best design & ergonomics in our solutions

Our innovations are focusing on Energy Efficiency in 3 Steps!

Step **1** : Making Energy Digital
Step **2** : Designing « Energy Management Platform »
Step **3** : Delivering scalable energy efficiency solutions easy to deploy & use

Schneider Electric - Videos

- [Energy Management Made Easy](#)

Thank You!