IT and OT:

How the Internet of Things enables the convergence of IT & Energy

November 25th, 2013

Jonathan Hart – SVP Corporate Marketing, Schneider Electric

The World is facing a dilemma: in the next 40 years

×2

Energy consumption will double

÷2

CO2 emissions need to be halved

↑4

We must become 4 times more efficient

Schneider Electric

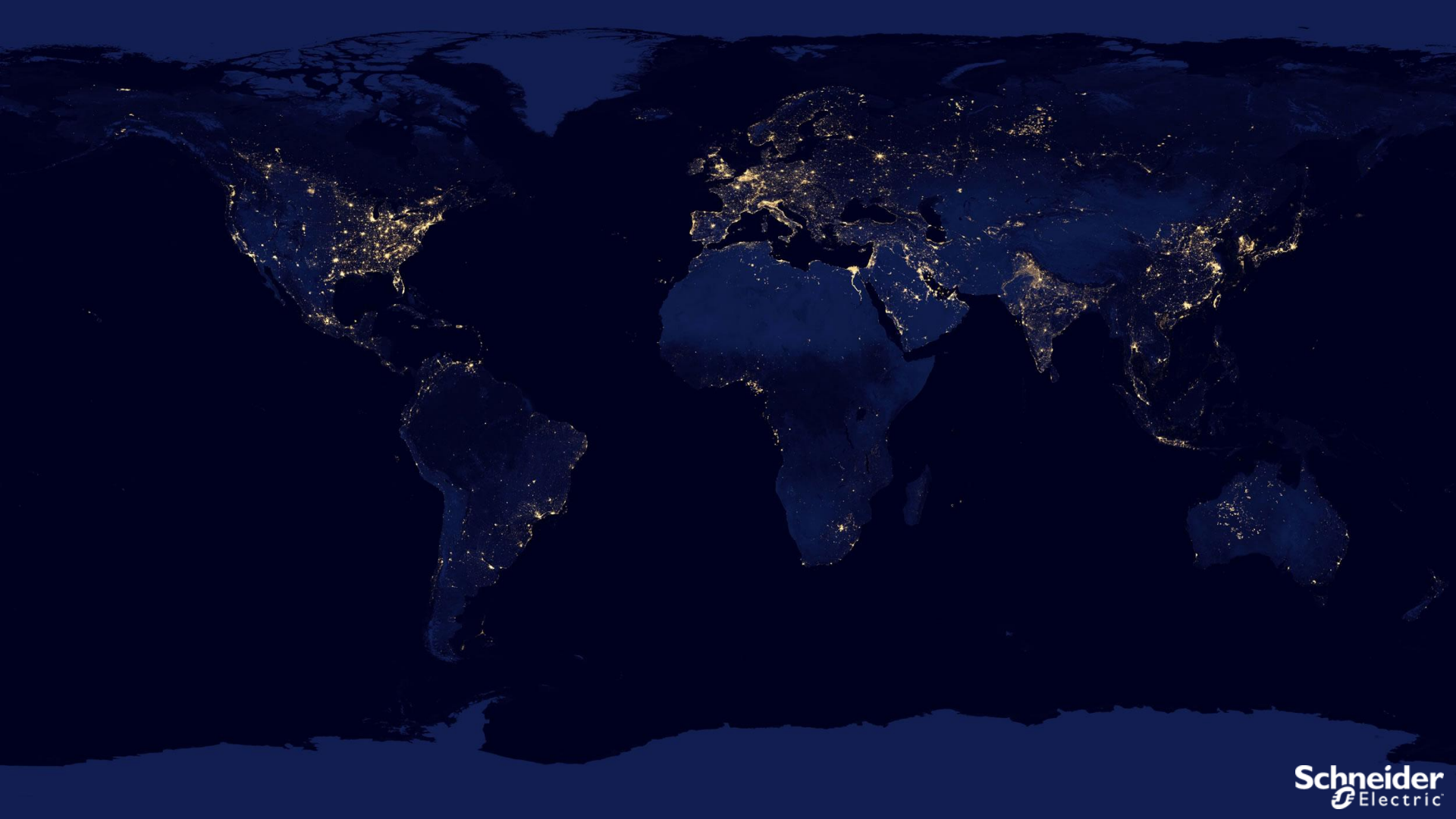
21st century megatrends are driving energy consumption and growth

Urbanisation

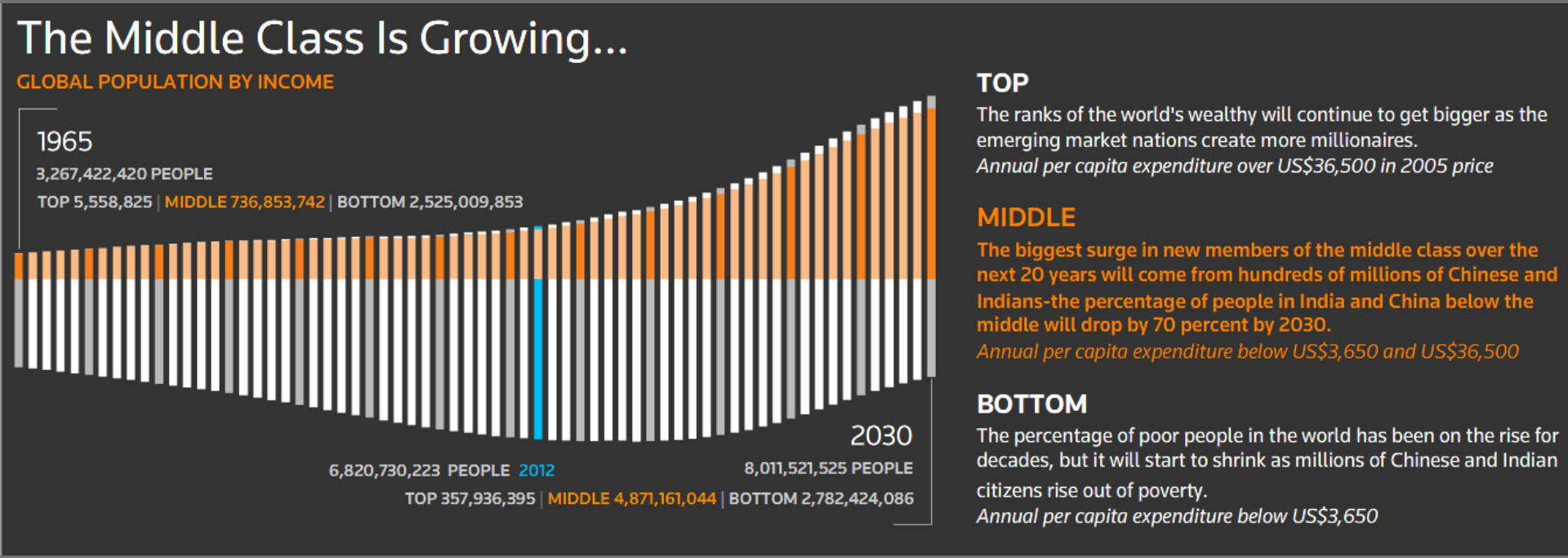
Industrialisation

Digitisation

Schneider Electric


Schneider
Electric

Rising consumption = impending problems



Source: http://www.reuters.com/middle-class-infographic

Schneider Electric

…and massive challenges

Increasing energy prices

Peak demand

Pollution

Climate disorder

Underutilised generation

Traffic congestion

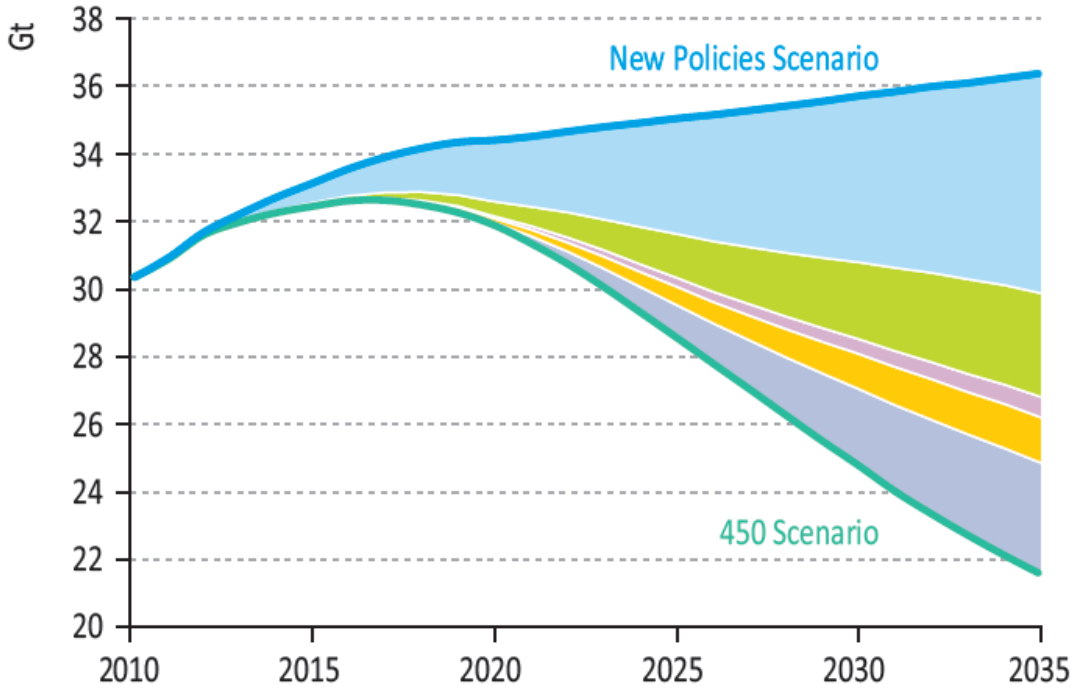
Water scarcity

Changing public opinion

Schneider Electric

The solution is a combination of:
cleaner generation, greater efficiency and a smarter grid

World energy-related CO2 emissions abatement



	Abatement	
	2020	2035
Efficiency	72%	44%
Renewables	17%	21%
Biofuels	2%	4%
Nuclear	5%	9%
CCS	3%	22%
Total (Gt CO_2)	2.5	14.8

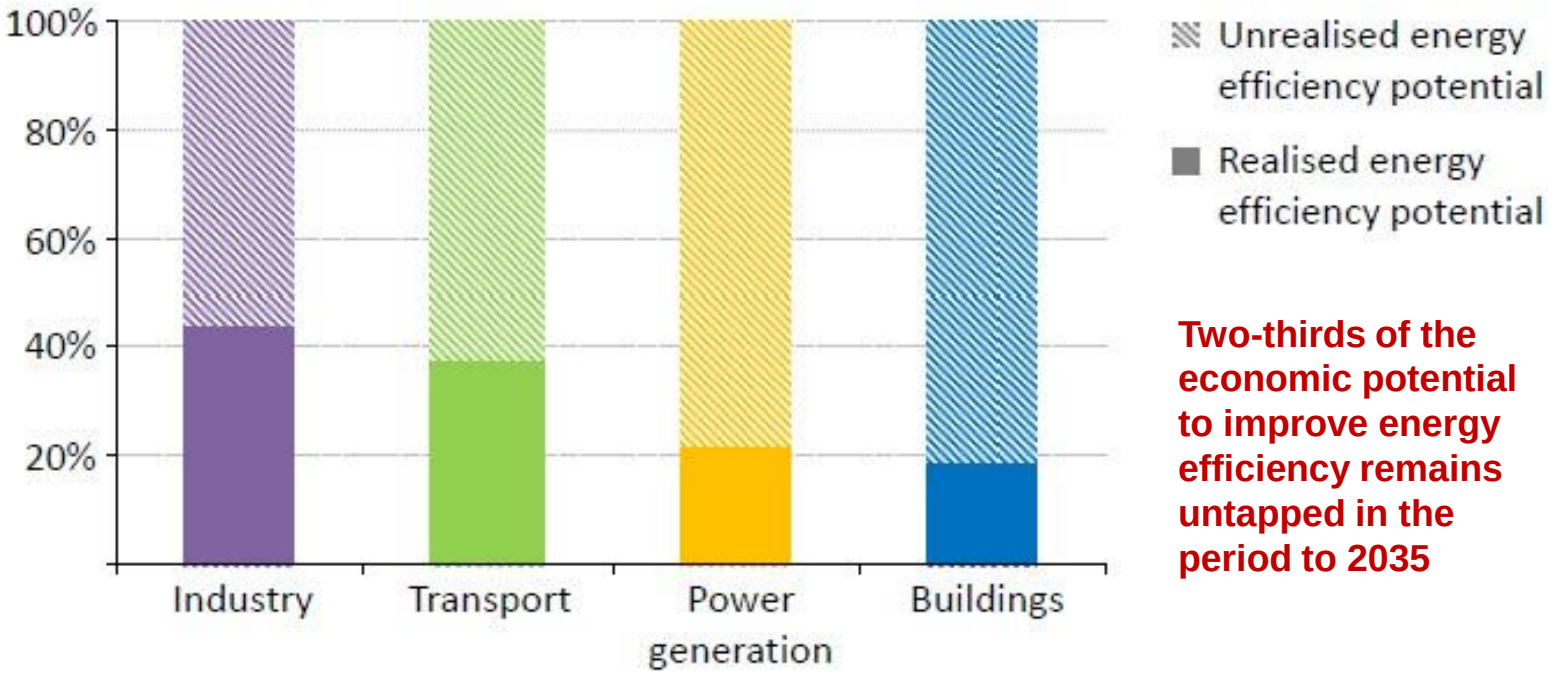
Efficiency measures account for almost 3/4 of abatement in 2020

Source: World Energy Outlook 2011, OECD / IEA

Schneider Electric

…and our efficiency entitlement is massive

Energy efficiency potential used by sector in the New Policies Scenario



Two-thirds of the economic potential to improve energy efficiency remains untapped in the period to 2035

Source: World Energy Outlook 2012, OECD / IEA

Schneider Electric

Welcome to the Efficiency Economy.

In this new economy, economic growth is decoupled from rising energy consumption.

Schneider Electric

The Efficiency Economy is born from the convergence of the worlds of IT and energy

to link and manage all elements of the smart grid, delivering the greenest energy at the cheapest price and the desired time.

Efficiency
Economy

=

Energy optimisation

+

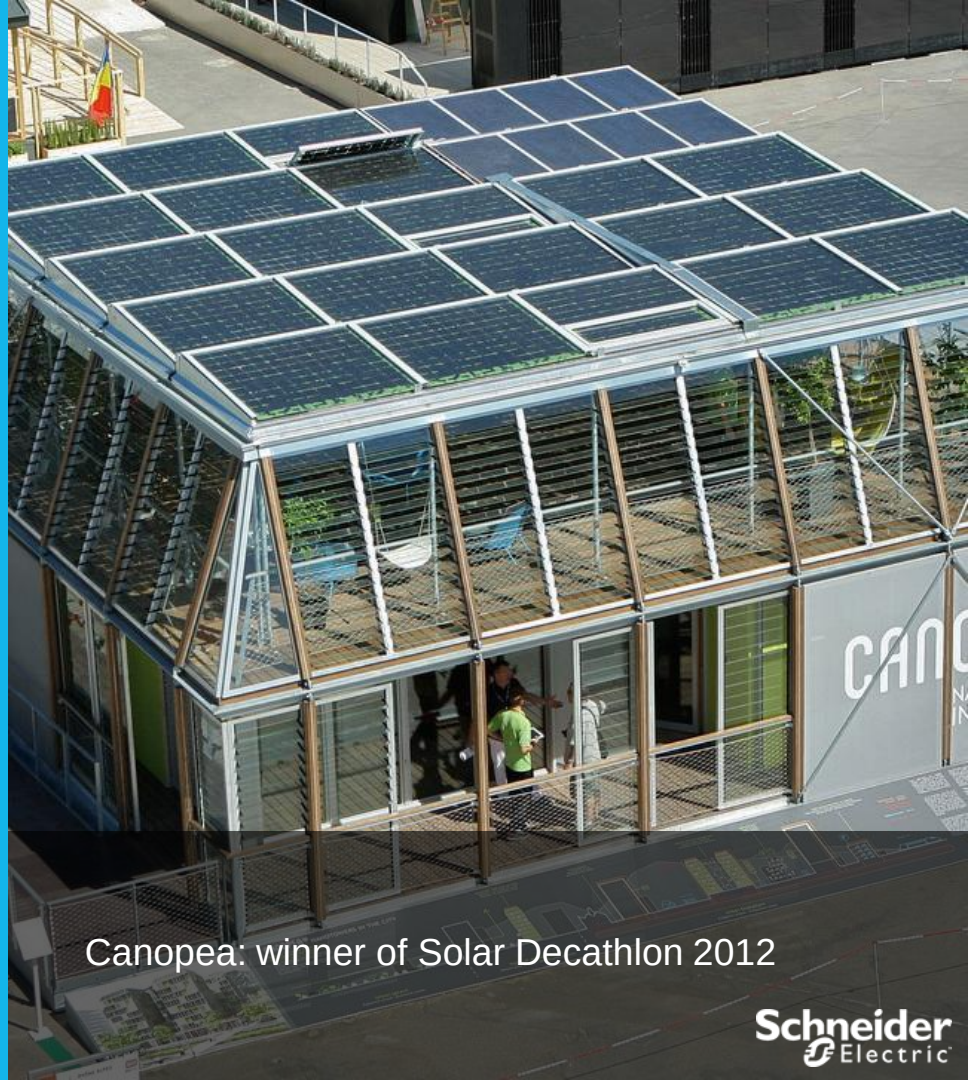
Process optimisation

+

Security optimisation

Schneider Electric

The Efficiency Economy drives us towards decentralized generation and net positive buildings



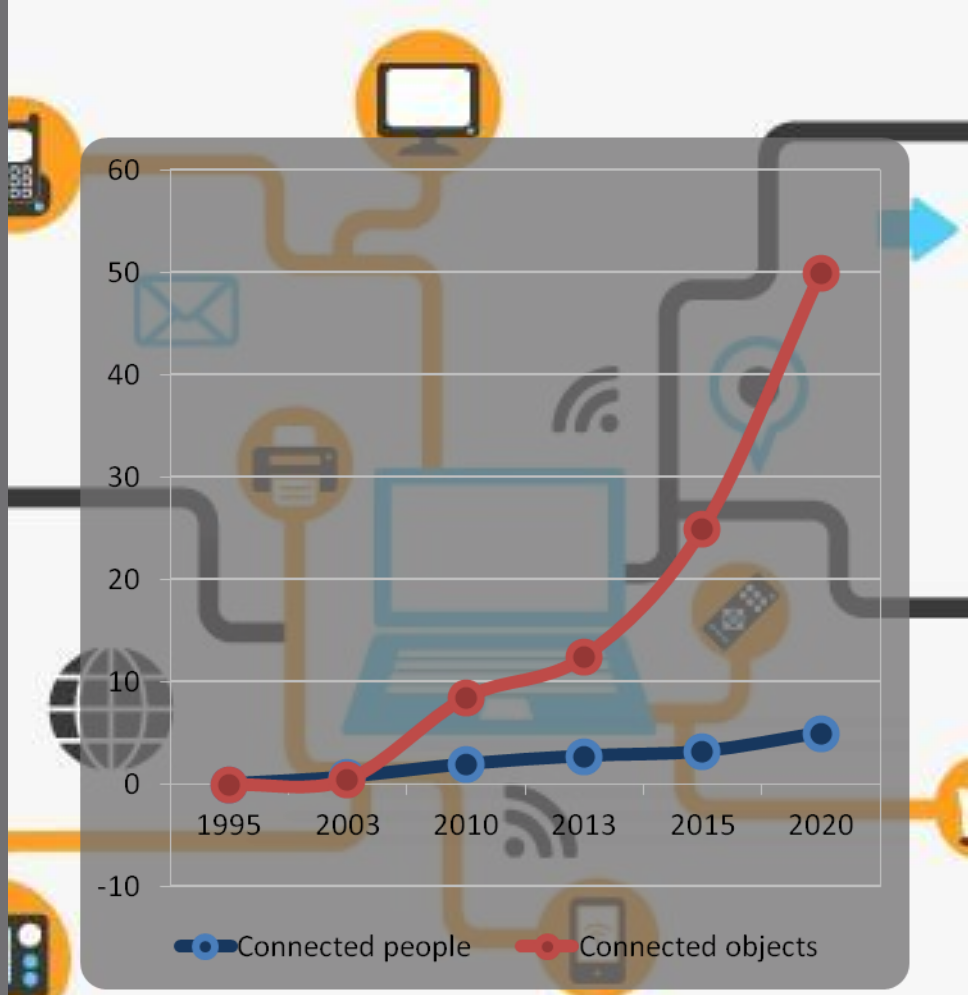
Canopea: winner of Solar Decathlon 2012

Schneider Electric

But there is some good news!

The world is getting smarter.

Connecting machines to machines.

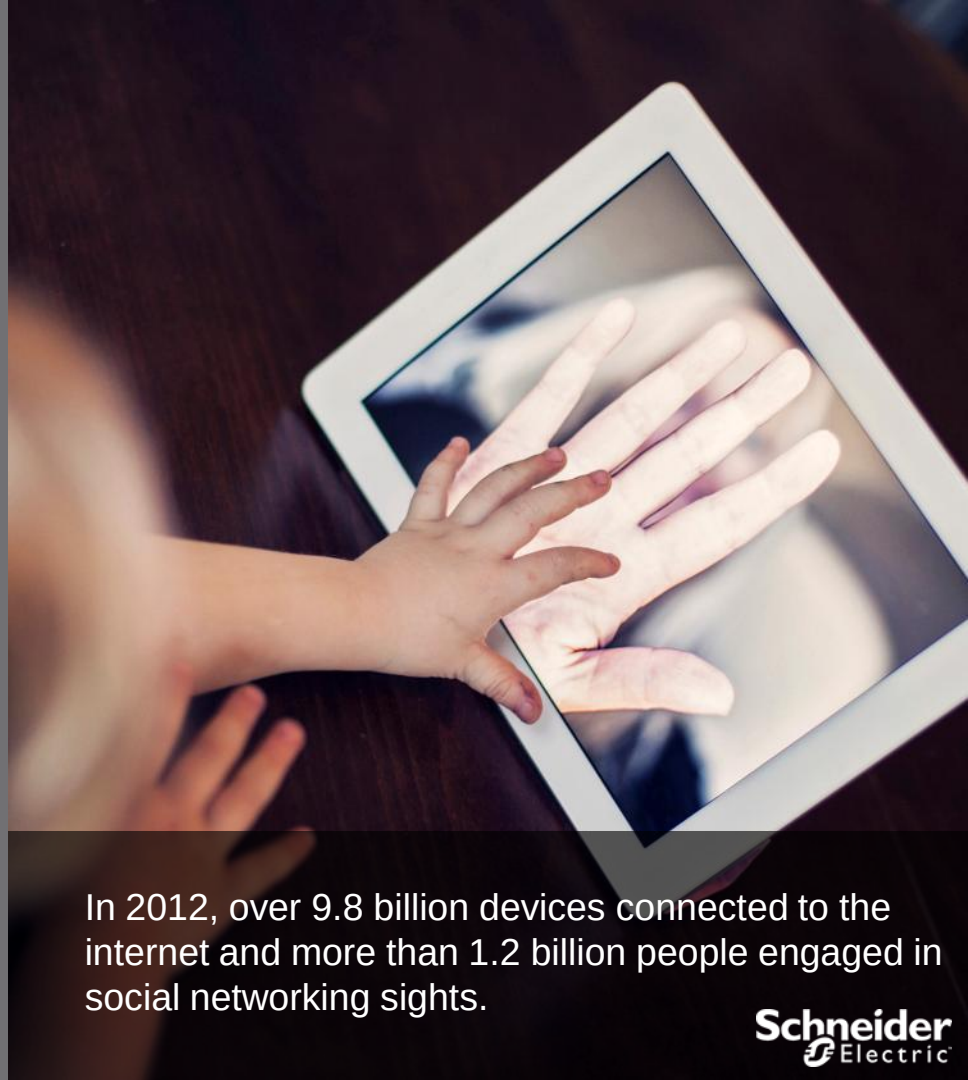


Source: Cisco IBSG April 2011 / Internet World Statistics

Schneider Electric

Advances in technology are bringing us closer together.

Connecting people to machines and to each other.



In 2012, over 9.8 billion devices connected to the internet and more than 1.2 billion people engaged in social networking sights.

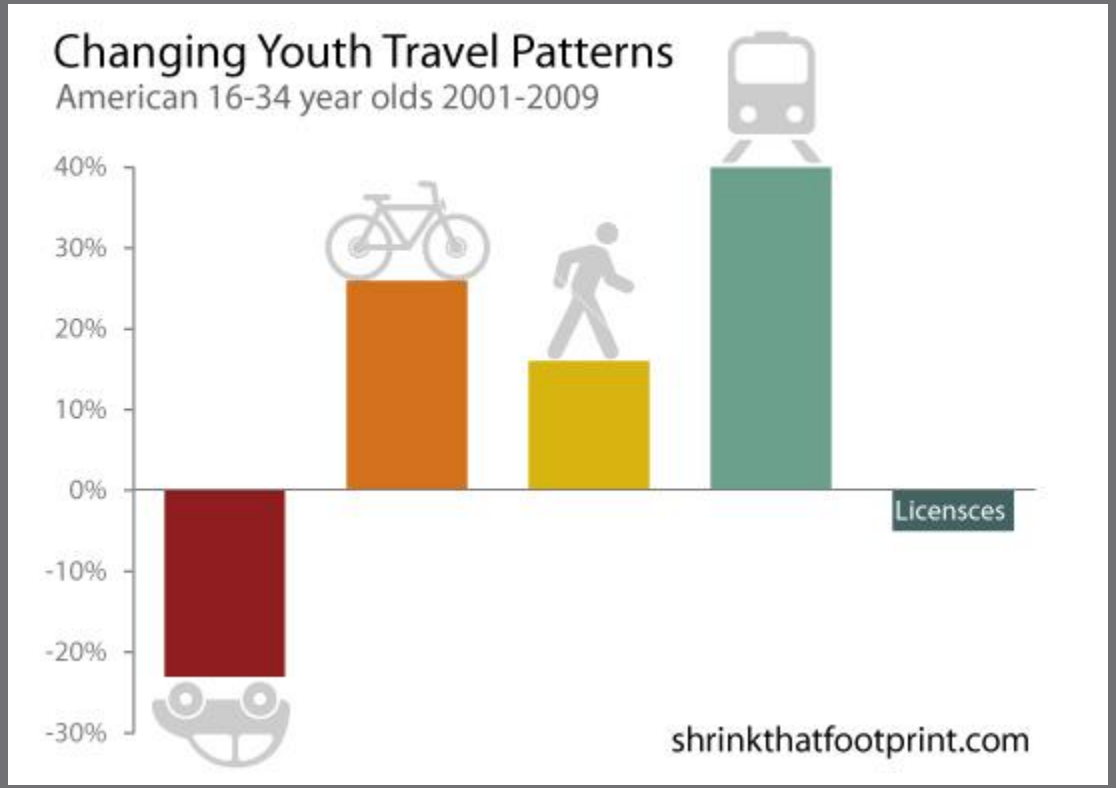
Schneider Electric

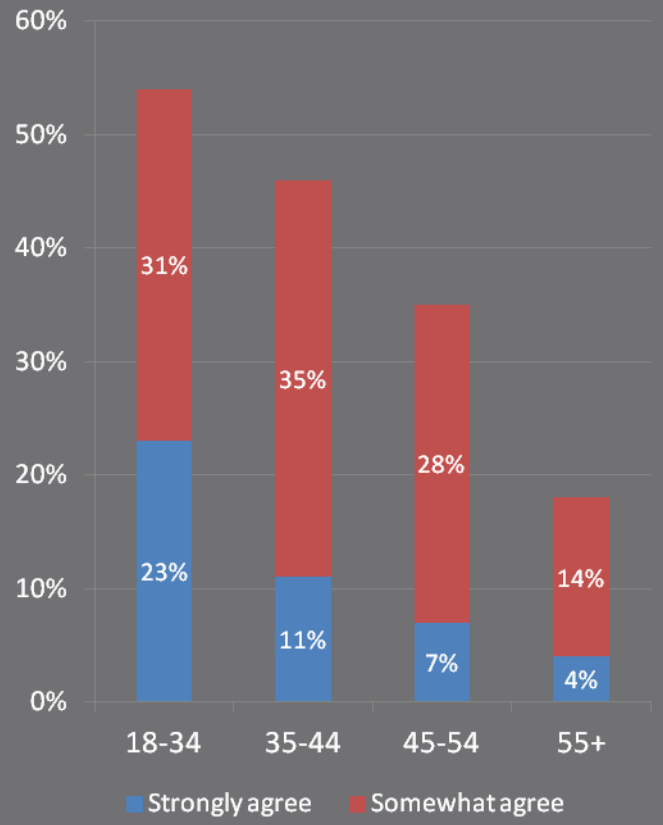
Nearly half of Smartphone owners (46%) and tablet owners (43%) said they use their devices as second screens while watching TV every day

Source: Nielson

Today’s TV watcher


Today’s concert goers





"I know I shouldn't text and drive – I'll just text"

"With access to social networking sites such as Facebook and Twitter, text messaging and online gaming, I sometimes choose to spend time with friends online instead of driving to see them"

Today’s equipment is becoming more ‘intelligent’

Pacemaker

80 000
lines of code

F-35 Joint Strike Fighter

6 000 000
lines of code

Boeing 787

8 000 000
lines of code

Chevy Volt

10 000 000
lines of code

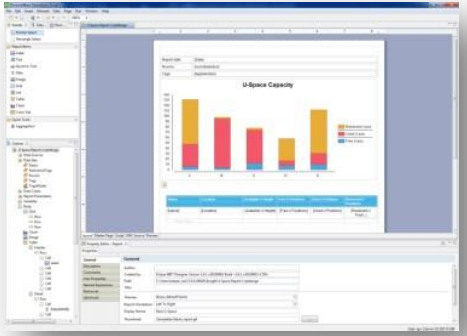
And its own IP address

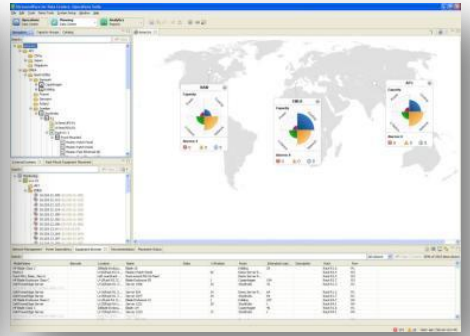
This is where we contribute.

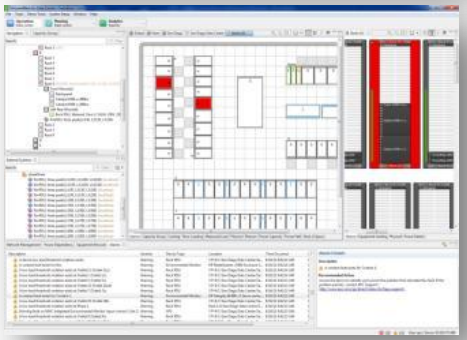

SCHNEIDER & Cie ET Cie DE FIVES-LILLE
CONSTRUCTEURS

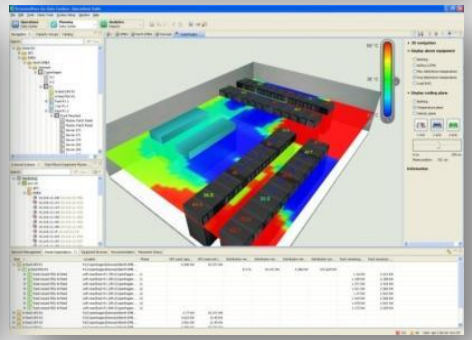
From steel to circuit breakers

...and from hardware to software









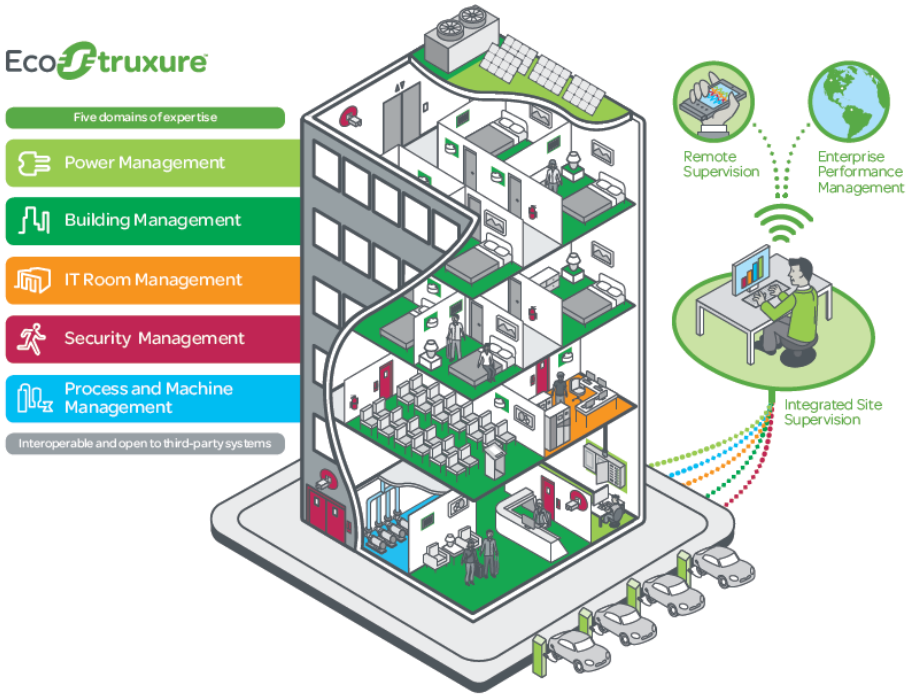
Schneider Electric believes in a new efficiency paradigm to drive long-term sustainability

Save × Connect × Share

Schneider Electric

At Schneider Electric, we believe it’s time to save.

Integrate your facility and used decentralised generations to reduce the energy consumed, the cost per kWh and operating expenditure and drive a self-sufficient, net-positive mindset



Control your facilities processes, **optimise** your operations and assets and **conserve** your enterprise resources by combining the worlds of energy & IT

Schneider Electric

We believe it’s time to connect.

By accessing smart, real time data and information, optimised & delivered across integrated systems though open platforms. We connect all people, points and devices, enabling insight and action for a sustainable future

Schneider Electric

We are your Resource Advisor.

Providing secure access to data, reports and summaries to drive your energy and sustainability programs

Systems Integration

- StruxureWare applications
- API integration with existing data systems (ERP, EH&S, etc.)

Invoice Management

Global Invoice Processing

(Customer Supplied, Emailed, FTP, Scanned Images, UBM)

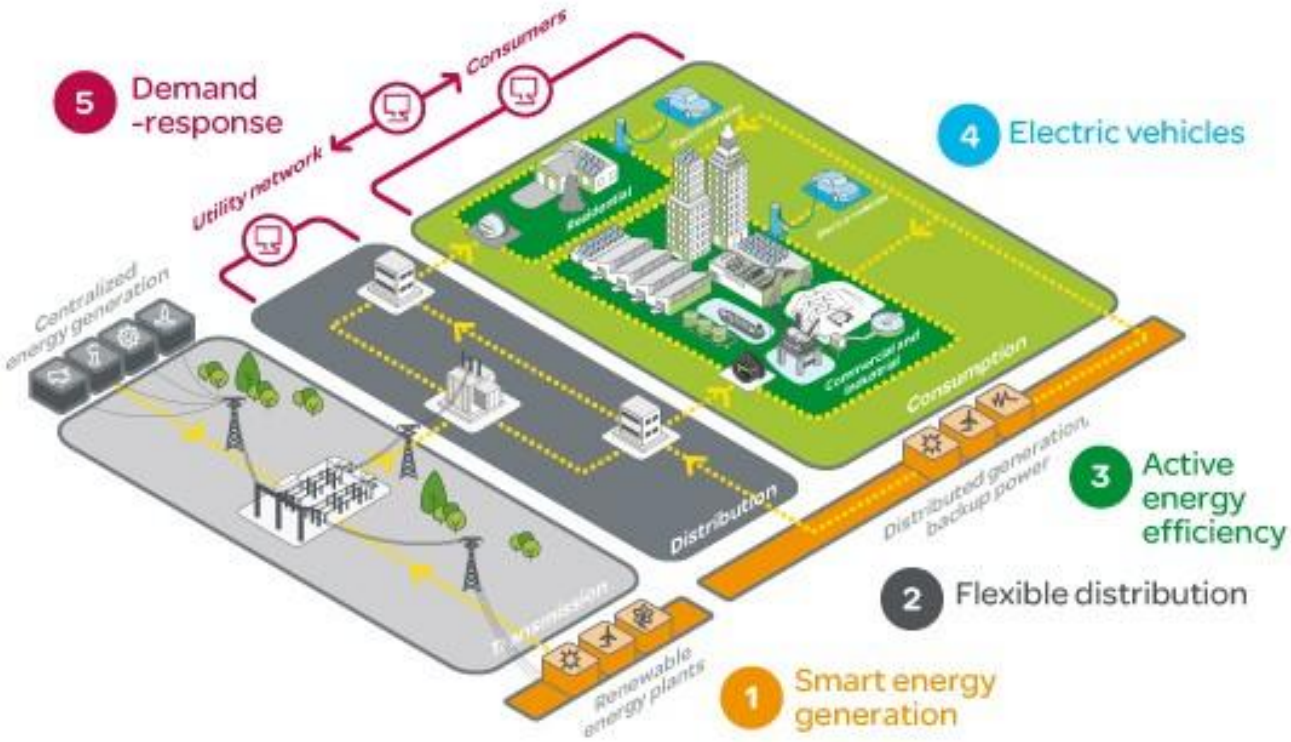
User Management

- Data entry by user
- Spreadsheet upload by user

Schneider Electric

We believe it’s time to share across the grid

Enabling people to consume the cheapest, greenest energy across the smart grid



We believe it’s time to share in your city.

All energy systems become a fully connected urban environment operating in a cohesive, multi-modal system. Share, shave, shift capacity & integrate to balance supply and demand & drive urban efficiency.

We enable up to **30%** energy savings, **5%** reduction of water losses, **20%** reduction of travel time and traffic delays, as well as environmental, social and economic benefits

Schneider Electric

From smart devices through to big data, we provide our customers with services, systems and technology to:

- Reduce energy consumed
- Reduce cost per kWh
- Reduce CO_2 footprints
- Optimise operating expenditures
- Realise measurable efficiency and productivity
- Produce energy locally across the grid

Schneider Electric

Transforming Efficiency Together in buildings:

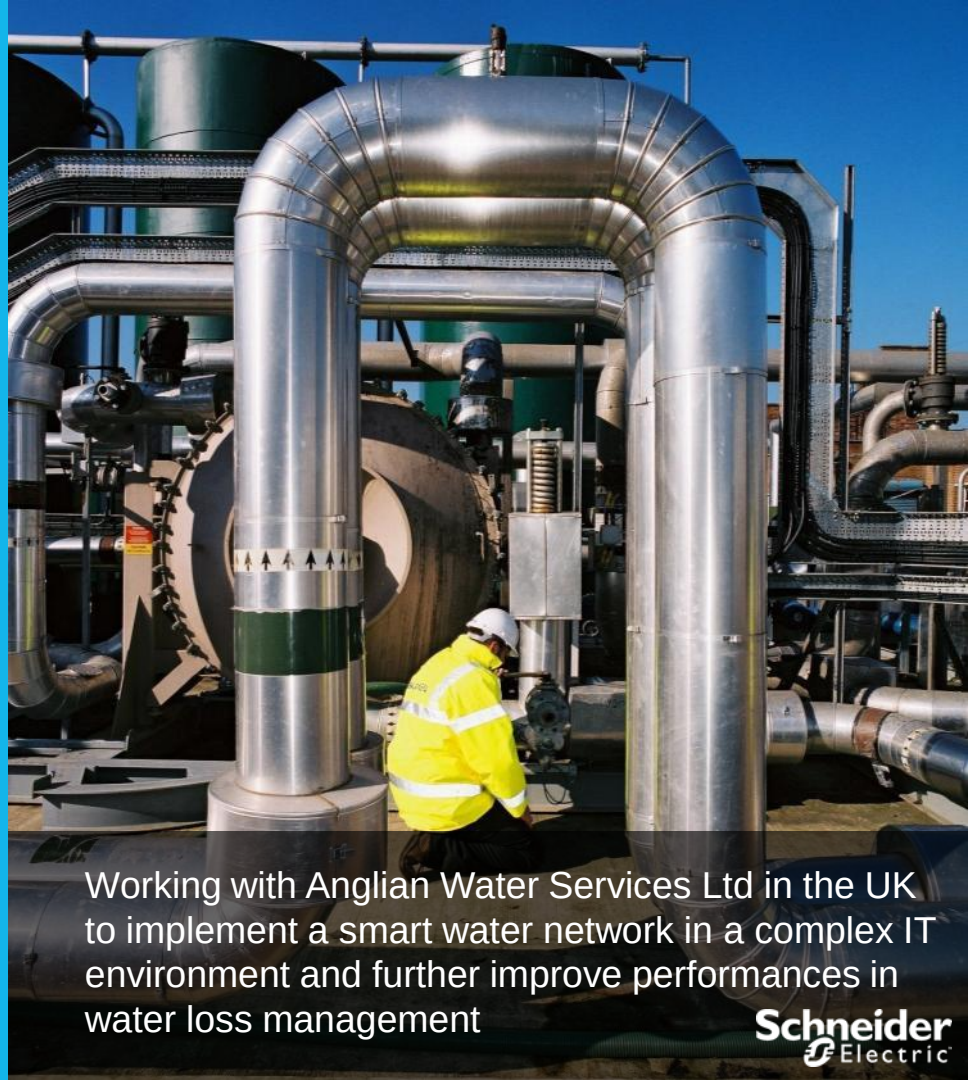
Reducing operating costs, improve CO_2 footprint and deliver greater space optimisation and employee comfort.

Hong Kong Science and Technology Park pioneering “going green” in Hong Kong with first ever Green Lease Initiative with StruxureWare energy management software

Schneider Electric

Transforming Efficiency Together in Water:

Decreasing resource losses and operational costs, enhanced customer service and environmental stewardship, strengthened regulatory compliance



Working with Anglian Water Services Ltd in the UK to implement a smart water network in a complex IT environment and further improve performances in water loss management

Schneider Electric

Transforming Efficiency Together in datacenters:

Helping reduce lifecycle cost & increase uptime & availability

Helping a global leading bank operate uninterrupted 24 hours per day, 365 days per year, to meet current and foreseeable future business needs for more than 20 countries and 60 locations

Schneider Electric

IT & OT convergence drives efficiency and will help us make the most of our energy