How a smarter grid enables smart mobility… and how smart mobility enables smarter cities!

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Schneider Electric – the global specialist in energy management

22.4 billion € sales (last twelve months)

39% of sales in new economies (last twelve months)

137,000+ people in 100+ countries

4–5% of sales devoted to R&D

Balanced geographies – FY 2011 sales

North America 23%
Western Europe 32%
Asia Pacific 27%
Rest of World 18%

Diversified end markets – FY 2011 sales

Utilities & Infrastructure 24%
Industrial & machines 22%
Data centres 16%
Non-residential buildings 29%
Residential 9%
The Energy challenge is the cornerstone of our business strategy.

The facts vs. The need

Energy demand
By 2050
Electricity by 2030

Source: IEA 2007

× 2

CO₂ emissions to avoid dramatic climate changes by 2050

÷ 2 vs. 1990 level

we want to help address this challenge
Why should the Grid become smarter?
The new Grid equation

3 drivers + 3 accelerators

Growing electricity demand
Need to reduce CO\textsubscript{2} emissions
Constraints on existing networks

Technology availability
Active government & regulators
Active end-users

making the smart grid happen
The one-way energy-only grid becomes two-way energy+data smart grid

Communication and software at all levels “Smart Grid”

1. Distributed Generation
2. Active Energy Efficiency: Energy visibility & Means to act
3. Consumers
4. Centralised Generation

Distributed Generation

Renewable Energy Plants

Transmission

Distribution

Utility network

Consumers

Residential

Industry

Buildings

Data Centres

Infrastructure

Electric Vehicles

Active Consumers
Electric Vehicles and the smart grid

Supervision system:
- optimizes charging: avoids peak times and favors renewable energy, through charging management systems in charging stations, buildings & homes, all connected to the grid

Charge everywhere, anytime
100% safe charging infrastructure
Optimised energy bill and carbon footprint
Smart grid / demand-response
We offer Electric Vehicles charging infrastructure & supervision services
Why should cities become smarter?
The Energy challenge and the cities

Cities today…
- Earth’s surface: 2%
- World population: 50%
- Global energy consumption: 75%
- Global CO₂ emissions: 80%

…and by 2050
- World population: 70%
- Years to double the urban capacity developed over the past 4000 years: 40

the battle will be won, or lost, in the cities
As cities grow, so do their challenges

Scarcity of resources
Aging and overloaded infrastructure
Traffic congestion
Environmental targets & pollution
Crime

Reduce costs & manage debt
Attract global investment, jobs, talent

Cities’ challenges are challenges of survival!
Cities need to become smarter
by becoming more efficient, more sustainable and more liveable

Efficient
- Better information sharing
- Improved resiliency to disruptions
- Increased control over city systems

Sustainable
- Reduced Carbon emissions and energy consumption
- Operational cost savings
- Decreased need for massive infrastructure investments

Liveable
- Higher quality of life for city residents
- Increased attractiveness to jobs & talent
- Increased global competitiveness
A city is a system of systems

with infrastructure pain points to solve
A Smart City is an efficient, sustainable, livable system of systems.
We deliver urban efficiency through collaboration.

- 6 areas of expert solutions
- customized to cities’s unique needs
- integrated for performance
- delivered in a collaborative model
Introducing Smart mobility
From urban mobility…

**Communications**
- Traffic management: traveler information, tolling and parking services...
- Weather management: forecasts, emergency information, flood management...
- Electric Vehicles supervision services

**Infrastructure**
- Active Infrastructure: Electric Vehicles charging stations, traffic lights...
- Basic Infrastructure: roads, tunnels...
...to smart mobility!

Integration

Communications
- Traffic management: traveler information, tolling and parking services...
- Weather management: forecasts, emergency information, flood management...
- Electric Vehicles supervision services

Infrastructure
- Active Infrastructure: Electric Vehicles charging stations, traffic lights...
- Basic Infrastructure: roads, tunnels...
We provide Smart Mobility solutions that facilitate citizen mobility

- Congestion reduction
- Mobility Management Downtown
- Parking Optimization
- Critical Infrastructures Management
- Public Transport promotion
- Air Quality. Emissions reduction
- Road Safety. Enforcement
- Mobility Services

Facilitating citizen mobility through better information & interoperability
In conclusion...
Towards an integrated SmartCity platform to optimize city operation and efficiency
We deliver urban efficiency through collaboration

Cities can now:
- achieve up to 30% energy savings
- reduce water losses by up to 15%
- reduce travel time and traffic delays by up to 20%
- and deliver indirect benefits

- **Social**: Increase safety and security of citizens and create jobs
- **Environmental**: Reduce air pollution and CO\textsubscript{2} emissions
- **Economical**: Achieve economic boost through increased investment in city infrastructure
Make the most of your energy™