

The Siemens logo is displayed in a bold, teal, sans-serif font in the upper right corner of the slide. The background of the entire slide is a photograph of a white electric car parked next to a charging station in a grassy area with trees.

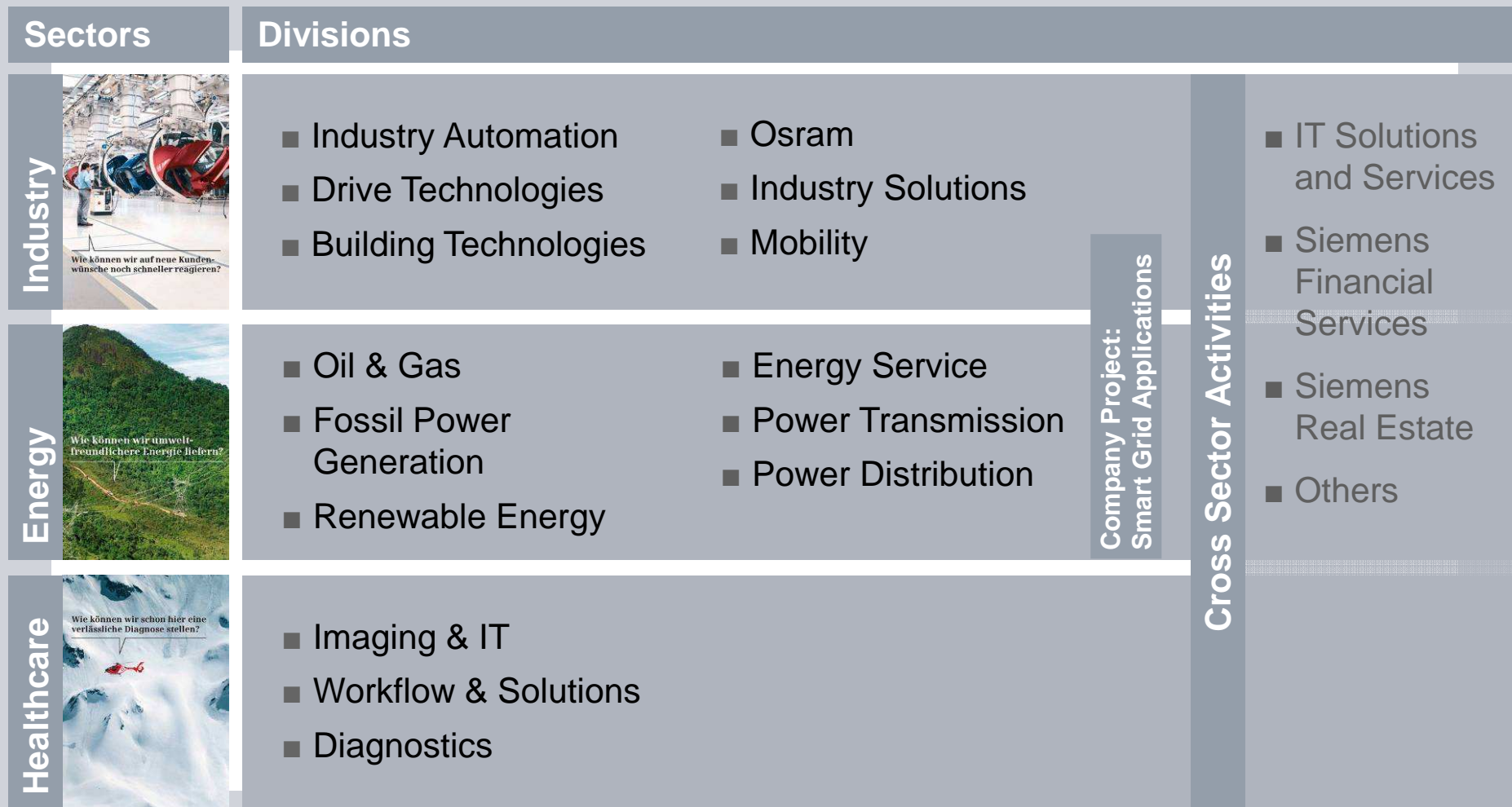
**SIEMENS**

# Siemens CHAdeMO Member Electric Vehicle Infrastructure

Dr. Andreas Kinne, September 23, 2011

# Siemens – The innovative partner for tomorrow's infrastructure solutions

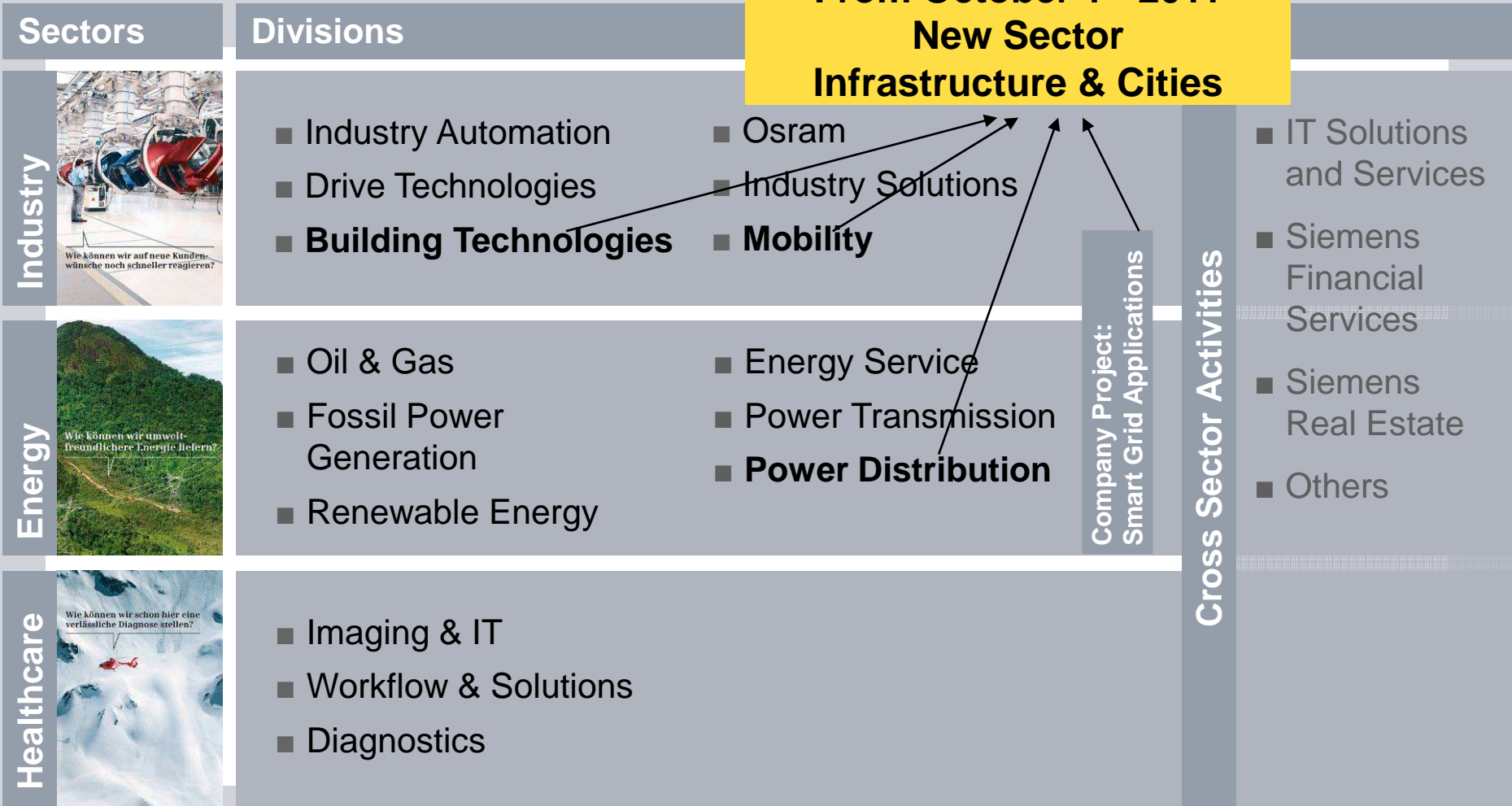
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# Siemens – The innovative partner for tomorrow's infrastructure solutions



**From October 1<sup>st</sup> 2011  
New Sector  
Infrastructure & Cities**



Company Project:  
Smart Grid Applications

# Siemens portfolio reflects the Smart Grid and Electromobility demands

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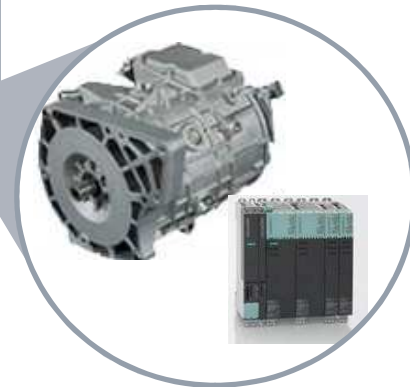
**New Mobility Concepts**



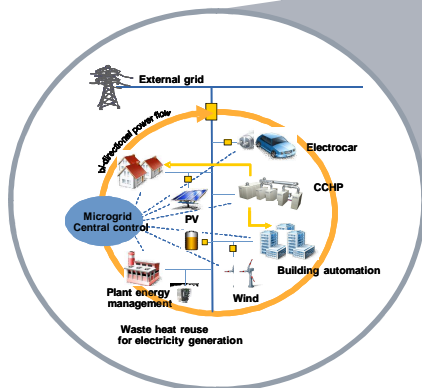
**Information & Com-Tech**



**Storage**



**Inside Electric Car**



**Smart Grid Applications**



**Charging Infrastructure**

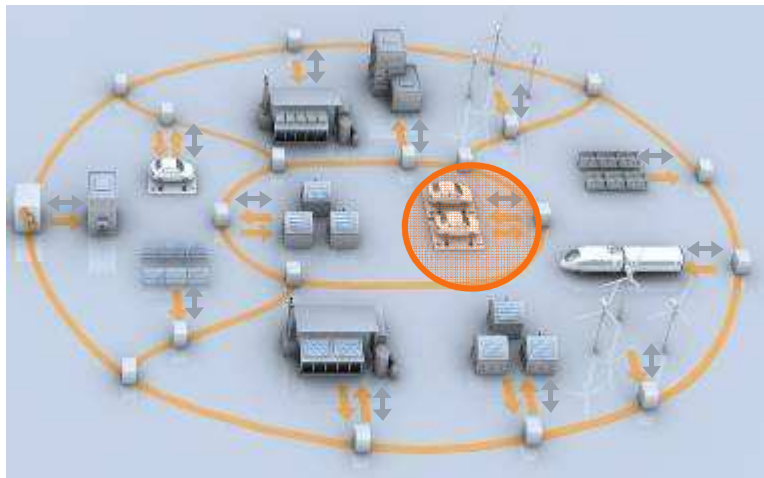
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E D SGA-EVI

# Two interdependent game changers – Smart Grid and sustainable urban mobility

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## Energy: Smart Grid



## Transport: Sustainable urban mobility



- Electromobility as part of the Smart Grid
  - **Sufficient energy supply** to the electric car
  - Electric cars as a **mobile storage system**

- Electromobility as **integral part of urban mobility**
  - **CO<sub>2</sub> reduction** through electric cars
  - **Complete urban mobility** through integration of individual and public transport

# Electromobility infrastructure

Hardware, software



## Home charging



## Semi-public charging



## Public charging



## Operation center



**Electromobility by Siemens: High flexibility and safety**

# Smart Charging Infrastructure

# SIEMENS

AC  
Wall Box



AC  
Charging Point



AC  
Park and Charge



AC Satellite  
System



DC  
Power Box



DC  
Charging Point



Inductive  
Charging



Software &  
Services



**One Stop Shop – Smart Charging by Siemens**

# Electromobility infrastructure AC Charge Points

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# Electromobility infrastructure Park & Charge (incl. local payment)

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Public  
parking lot

Company  
parking lot

Operator's  
parking lot/  
garage

Streetside  
parking

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# Charging infrastructure for electromobility Software

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**Mobility  
service  
operators**

**Company  
parking**

**Car sharing**

**Fleet  
Managers**



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# Smart IT (Information Technology)

managing the infrastructure and offering VAS



## charging

- User Authentication
- Payment and billing
- Roaming
- Remote maintenance
- Load management
- V2G, B2G

## driving

- Real-time navigation
- Traffic information
- Mobile monitoring
- electronic log book

## parking

- Reservation
- Signaling systems
- Guidance systems
- Parking management

## Reference projects

Siemens 4-S / GER



Source London / UK



Enel / ITL



## new business models

- Car sharing
- Fleet management
- Toll systems
- Service platforms

# Siemens Emosphere software architecture enables comprehensive functionality



Siemens Electromobility software architecture



1) Communication via GSM, WLAN, LAN

2) Communication via Remote procedure calls (RPC)

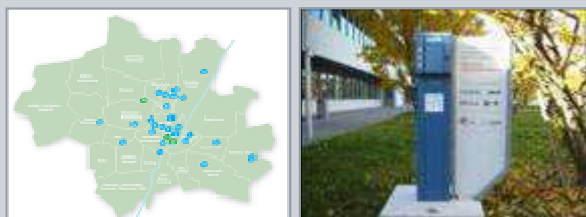
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## Model region Munich – project objectives



### User behavior and preferences

- 40 MINI E for private and commercial use to analyze user behavior



### Charging infrastructure

- Siemens provides 32 public charging poles and 36 home charging stations which run on renewable energy from SWM



### Fast charging

- Development of integrated fast charging system
  - Hardware (plug, cable, EV, charging station)



### Fast charging

- Analyze effects of EV electricity consumption on electrical grid
- Identify potential for efficiency gains

# Charging infrastructure

## 4-S project (4-Sustainelectromobility)

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- **Siemens' test fleet of 100 electric vehicles in Germany (Munich, Erlangen, Berlin)**
- **Day-to-day testing of the vehicles and infrastructure by Siemens employees**
  - Charging points installed in Siemens' parking lots, where the test users can charge the cars with green electricity for free
  - Wall box installed in test users' private garages
  - Siemens departments in Berlin will build up a vehicle fleet for car-sharing models
- **Practical suitability, user acceptance, and customer needs regarding vehicles and the infrastructure**
- **Sponsored by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety**
- **Project goals:**
  - Investigate user behavior
  - Focus on practical suitability and user acceptance in order to draw conclusions about customer needs regarding vehicles and the infrastructure
  - Empirical values from users will flow directly into the further development of products and solutions

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**Thank you for listening**

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