

## Up to date and upcoming activities

Task 20 “Quick charging technology”

HEV-IA

International Energy Agency

**EVS27**  
**Barcelona, Spain**  
**18 November 2013**

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# Introduction to IEA

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## International Energy Agency (IEA)

- Autonomous agency, established in 1974
- 28 member countries
- Mandate:
  - **Promote energy security** amongst its member countries through collective responses to physical disruptions in oil supply
  - Advise member countries on sound **energy policy**

# IA-HEV strategic objectives (1)

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- 1) **Produce objective information** -for policy and decision makers- on H&EV technology, projects and programmes, and their effects on energy efficiency and the environment
- 2) **Disseminate** this information to the IEA community, national governments, industries, and others

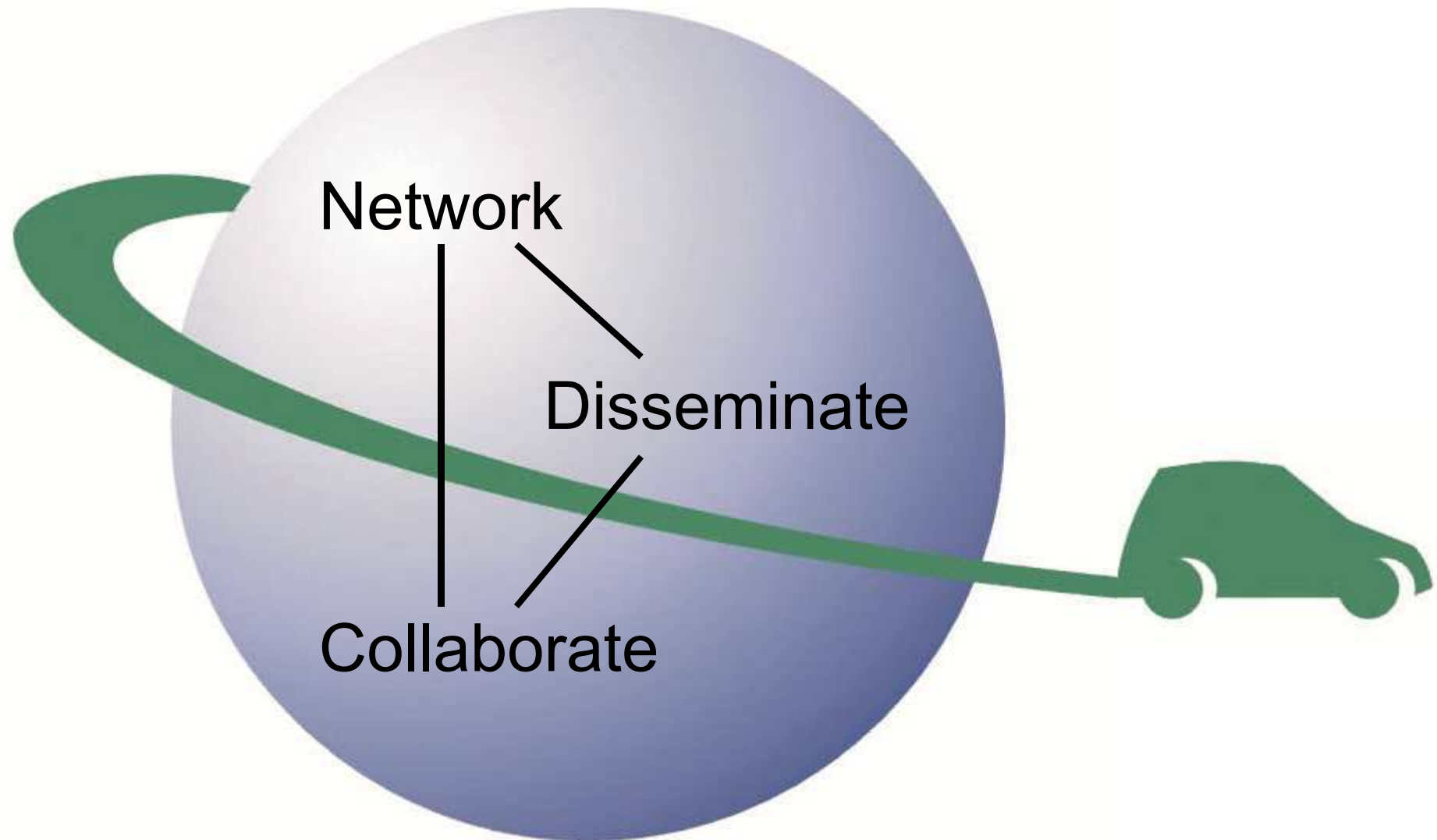
## IA-HEV strategic objectives (2)

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- 3) **Collaborate** on pre-competitive research projects, and investigate the need for further research in promising areas
- 4) Collaborate with transport related IAs, and with specific groups or committees
- 5) **Be a platform** for reliable information on hybrid and electric vehicles

# Key activities

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# IA-HEV participation and organization

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- Executive Committee

17 member countries:



Austria



Germany



Sweden



Belgium



Ireland



Switzerland



Canada



Italy



Turkey



Denmark



Netherlands



UK



Finland



Portugal



USA



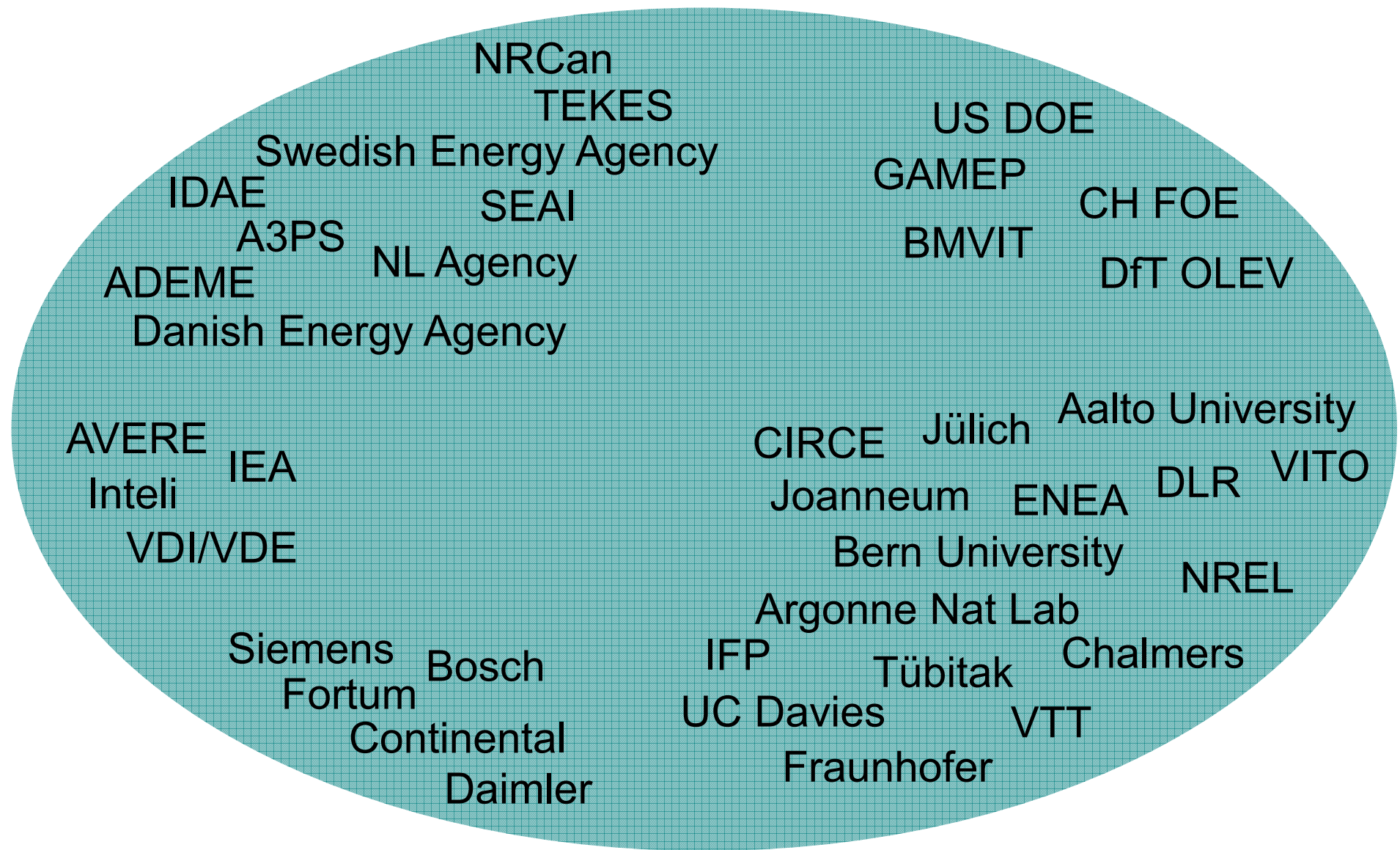
France



Spain

# IA-HEV network

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# IA-HEV completed Tasks: completed Task

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## **Vehicles**

- Environmental issues
  - Hybrid vehicles
- Heavy-duty hybrid vehicles

## **Components**

- Batteries and supercapacitors
  - Fuel cells

## **Market deployment**

- Infrastructure for EVs
- Deployment strategies
  - Clean city vehicles
    - Electric cycles

# IA-HEV completed Tasks: currently 10 Task running

## **Vehicles**

- Plug-in Hybrid Electric Vehicles
- Life Cycle Assessment of EVs

## **Components**

- Electrochemical systems
- System optimization and vehicle integration
- Lithium ageing accelerated testing procedures

## **Market deployment**

- Lessons learned
- EV ecosystems
- Quick charging technology

- Information exchange

# Objectives of the Task 20

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- To report on the current status of the quick charging technology.
- To **have neutral discussions** from the view point of the decarbonization of the transportation sector for the promotion of the vehicle's electrification.
- To **share knowledge regarding the market deployment** roadmaps considering the quick charging technologies development and trends. Giving special focus on:
  - ▣ **Diminish the grid and EV-battery impact**
  - ▣ **Breakdown non-technical barriers**
- To get the consensus and give recommendations on the standardization process in order to promote vehicles electrification.

## Task 20- “Quick Charging Technology”; Main subjects

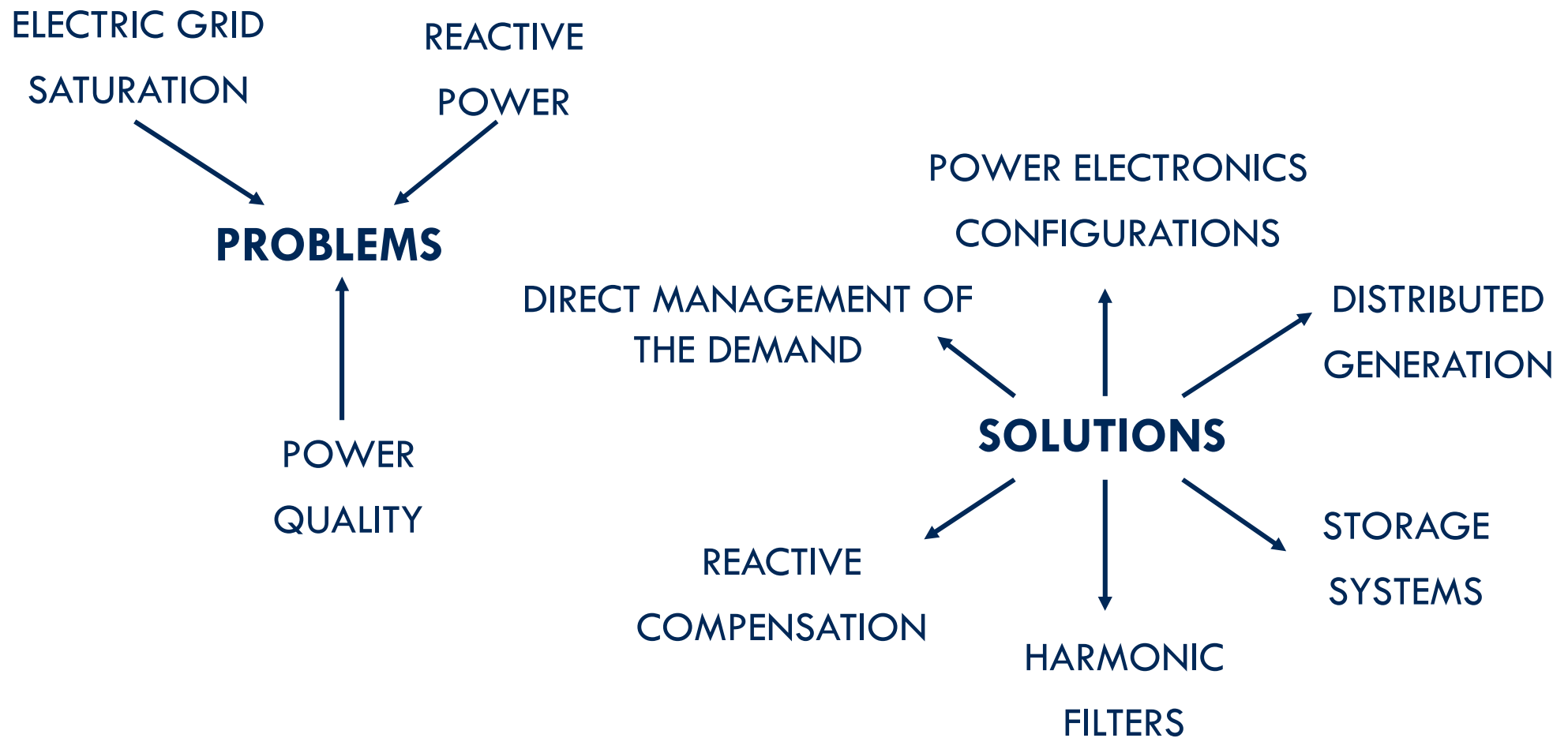
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- **Business cases** There is a clear interaction gap among the main contributors
- **Interoperability.** to what extent the vehicle and the grid should be adapted to be able to charge using different solutions is encouraged to prepare for the future. Who is missing?
- **Batteries** remains as one of the most significant bottlenecks in the use of quick charging technologies

**General remark: it is mostly accepted that there is not a unique solution but a wide portfolio of solutions. A large number of stakeholders may contribute to**

# EV QUICK CHARGE IMPACT IN THE ELECTRIC GRID

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## 2013 Activities



1. Very ambitious Workshop and technical visits took place in Japan on the 3rd, 4th and 5th of June 2013 in different locations with the support from METI
2. Third face to face meeting on the 17<sup>th</sup> of November in Barcelona
3. Launching of a questionnaire dealing with Quick Charging Technology

# Workshop in Japan June 2013

- **Rational;** Developing a viable business model for QC depends on obtaining data from the field, and the best solution for each implementation of QC will depend strongly on how the QC site is used. Task 20 fosters the information exchange and multiple points of view needed in order to understand the whole picture, and identify potential gaps and solutions.
- **Participants;** 37 participants in total, 18 from US and Europe entities (OEM, QC providers, RTOs, Public Administration). In addition, top demonstration projects were visited





# Workshop in Japan June 2013

- **AGENDA OF THE MEETING**

Session1 : Quick Charge business cases in Japan

Session2 : Grid Impact and battery Issues

**V2G site visit (Mitsubishi Motors Factory)**

Session3: Business cases for future charging technologies

Session4; New applications using QC technology

❖ **V2H ~ HEMS integration (Near Yokohama area) + QC site tour (including QC with battery)**





# Workshop in Japan June 2013

## Key findings from the Task 20 meetings

- **There is no single business model for QC to succeed.** Currently customers' behavior and interaction with QC should be studied during an initial phase when the charging is provided for free. Most QC deployment initiatives are based on the fact that owners install and operate QC stations for non-economic reasons, such as providing a public service or corporate social or environmental responsibility.
- **The trend is for QC customers to charge their EVs for about 15 minutes, which charges the battery to between 50 and 80 percent of capacity.**
- It appears to be a strong **correlation between the number of QC points and the EV sales rates in the region**, although factors such as purchasing incentives also necessarily influence EV sales.

## Workshop in Japan June 2013

### Key findings from the Task 20 meetings

- **Fast charges occur most frequently in the evening, often coinciding with grid peak demand.** Solutions to avert excessive demand charges could include adaptive power electronics, vehicle-to-grid (V2G) and V2X solutions, and integrating QC with renewable resources and energy storage.
- New QC stations will need to support both the new SAE Combo connectors and CHAdeMO standard because of the existing fleet.
- The compatibility of various chargers and EVs will need to be tested. **Harmonization of test procedures** is also necessary.

## Other activities 2013

- **Workshop in Barcelona November 2013;**

Following up to the conclusions of the Workshop in Japan last June;

- Mitigate the immediate damage to the grid (such as the possible power down)
- Operational cost plays still a big part of the business model
- To guarantee interoperability among different service providers

(24 confirmed participants; strong participation from Utilities and test compatibility experts)

- **Questionnaire on Quick Charging Technology**

<http://www.fcirce.es/web/sites/IEA.aspx>

In the spirit of facilitating the participation of a larger number of involved stakeholders, a online questionnaire has been launched.





## Task 20 “Quick Charging Technology” HEV-IA

International Energy Agency



Survey



Downloads

### SURVEY: CURRENT BARRIERS AND FUTURE SOLUTIONS TO FOSTER A LARGER DEPLOYMENT OF QUICK CHARGING (QC) TECHNOLOGY

The following tabs link to the different parts of the survey. Please fill the 'Organizational Info' and then click on each of the sections you might be interested in and complete it. After finishing each part (Including the Organizational Info), click the 'Send' button at the bottom of the screen. It is not compulsory to fill all of the sections.

**ORGANIZATION INFO**

PART 1  
BUSINESS MODELS

PART 2  
CHARGER INFRASTRUCTURE

PART 3  
OEM

PART 4  
GRID IMPACT

PART 5  
ROADMAP: Future Developments in Quick Charging

#### ORGANIZATION INFO

1 Name of the organization

## Next steps: future activities



1. More focus meetings and/or webinars with specific experts to target narrower topics with a smaller number of attendees
2. Analysis of the questioners gathered

# Contact



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Task 20 “Quick Charging Technology”

Hybrid and Electrical Vehicle Implementing Agreement

International Energy Agency

