



International Cooperation on Public Policies and Strategies for Hybrid & Electric Vehicles under the International Energy Agency

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International Energy Agency (IEA)

- IEA is an organization of 29 Country Governments interested in energy issues.
- Founded in 1974, based in Paris.
- IEA works to ensure reliable, affordable and clean energy.
- IEA has four main areas of focus:
 - energy security
 - economic development
 - environmental awareness
 - engagement worldwide.
- IEA has 40 different Technology Collaboration Programs (formerly called Implementing Agreements) in all kinds of energy fields; one of these is the Hybrid & Electric Vehicle TCP (HEV-TCP)



IEA's Hybrid & Electric Vehicle TCP (HEV-TCP)

- HEV-TCP was formed in 1994; today it is a working group of 17 Governments interested in electric drive vehicle technologies
- An Executive Committee (ExCo) directs the work of the task forces, plans new initiatives, and disseminates the information produced
- Countries participate in various task forces (working groups) on specific technologies of their choice



HEV-TCP Participants

- Executive Committee – 17 member countries:



Austria



Germany



South Korea



Belgium



Ireland



Sweden



Canada



Italy



Switzerland



Denmark



Netherlands



Turkey



Finland



UK



France



Spain



USA

- Task forces are led by an Operating Agent (OA)



Active Tasks (Working Groups)

- Task 1: Information Exchange
- Task 23: Light Electric Vehicle Infrastructure
- Task 24: Economic Impact of e-Mobility
- Task 25: Plug-in Electric Vehicles
- Task 26: Wireless Power Transfer
- Task 27: Electrification of Transport Logistic Vehicles
- Task 28: Home Grids and V2X Technologies
- Task 29: Electrified, Connected and Automated Vehicles (e-CAVs)
- Task 30: Environmental Effects of Electric Vehicles
- Task 31: Fuels and Energy Carriers for Transport
- Task 32: Small Electric Vehicles
- Task 33: Hybrid and Electric Buses
- Task 34: Battery Systems



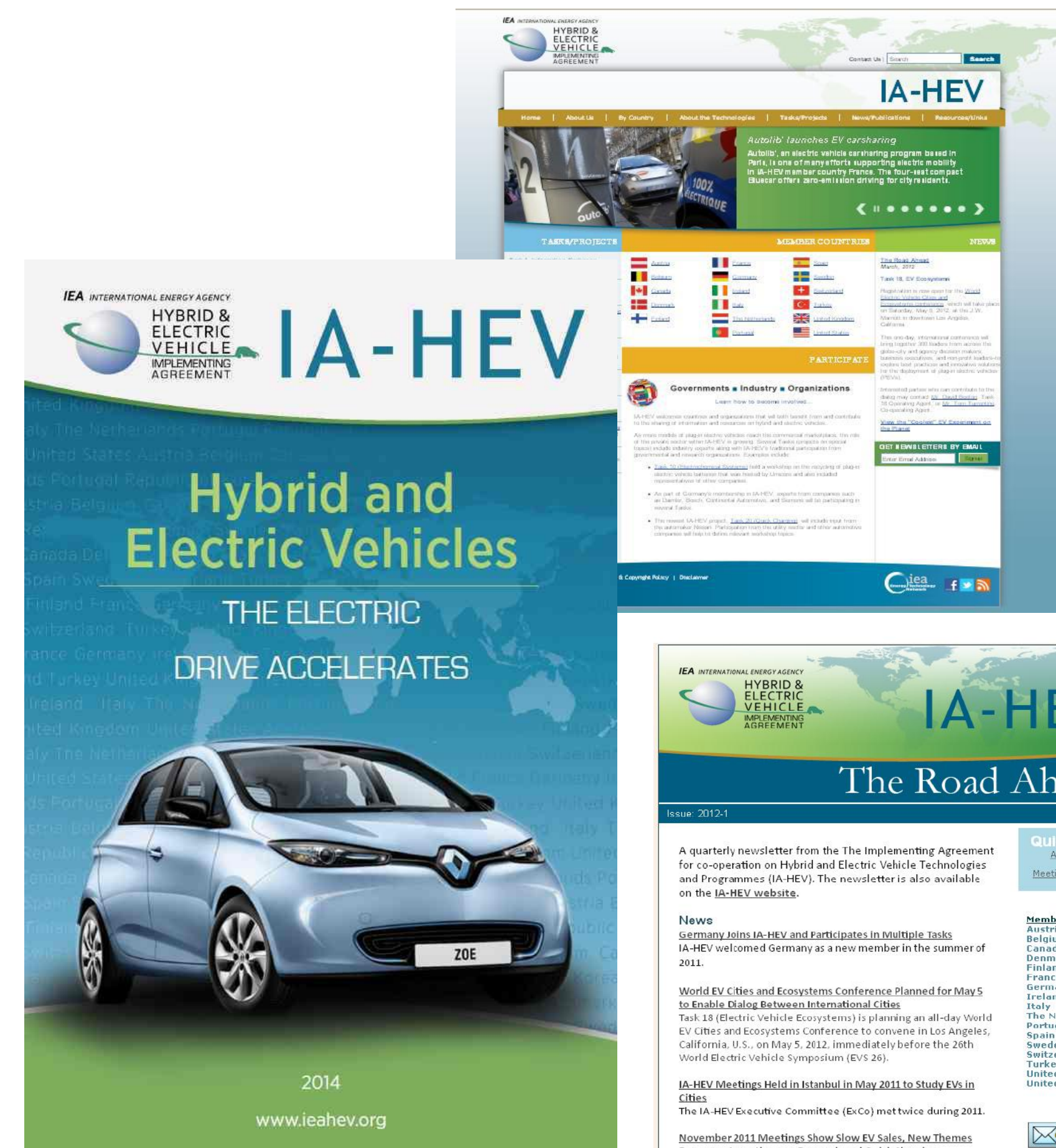
Information Exchange - Task 01

Operating Agent: VDI/VDE-IT (Germany)

gereon.meyer@vdivde-it.de

Activities:

- Country experts meetings
- Annual report
- Newsletter
- www.ieahev.org



Task 10 – Electrochemical Systems

Operating Agent: James Barnes (USA)
barnesjim@aol.com

Objective:

Exchange information to advance battery and capacitor technology in focused working groups

Future Workshop examples:

- Response to Battery Fires
- Internal Short Circuits
- 2nd Use of Vehicle Batteries



Task 23 – Light Electric Vehicle Parking and Charging Infrastructure

Operating Agent: EnergyBus e.V. (Germany)
hannes.neupert@energybus.org

Objectives:

- Document existing solutions for best practice
- Create turnkey guidelines for local governments
- Workshops for interested communities





Task 24 – Economic Impact Assessment of e-Mobility

Operating Agents:

- NL Enterprise Agency (Netherlands) sonja.munnix@rvo.nl
- VITO (Belgium) carlo.mol@livinglab-ev.be

Objective:

- Develop a methodology and collect data to monitor the economic perspective of e-mobility.
- Get a better view on the **value chain for e-mobility** and the **economic potential** in the local e-mobility sector in each participating country or region.
- Common value chain has 4 main categories: electric vehicles, charging infrastructure, energy, and mobility services.
- Final report expected in October 2016.

Task 25 - Plug-in Electric Vehicles

Operating Agent: Argonne National Laboratory (USA)

Aymeric Rousseau, arouseau@anl.gov

Objectives in three fields:

- Vehicle energy consumption
 - Compare xEVs to advanced conventional powertrains;
 - Evaluate impact of regulations on vehicle design;
 - Run multiple test cycles
 - Database updated
- Component cost, vehicle cost, and TCO
 - Compare methodologies → recommendations
 - Common methodology developed
- Market penetration
 - Compare methodologies → recommendations
 - Introduction of different tools completed



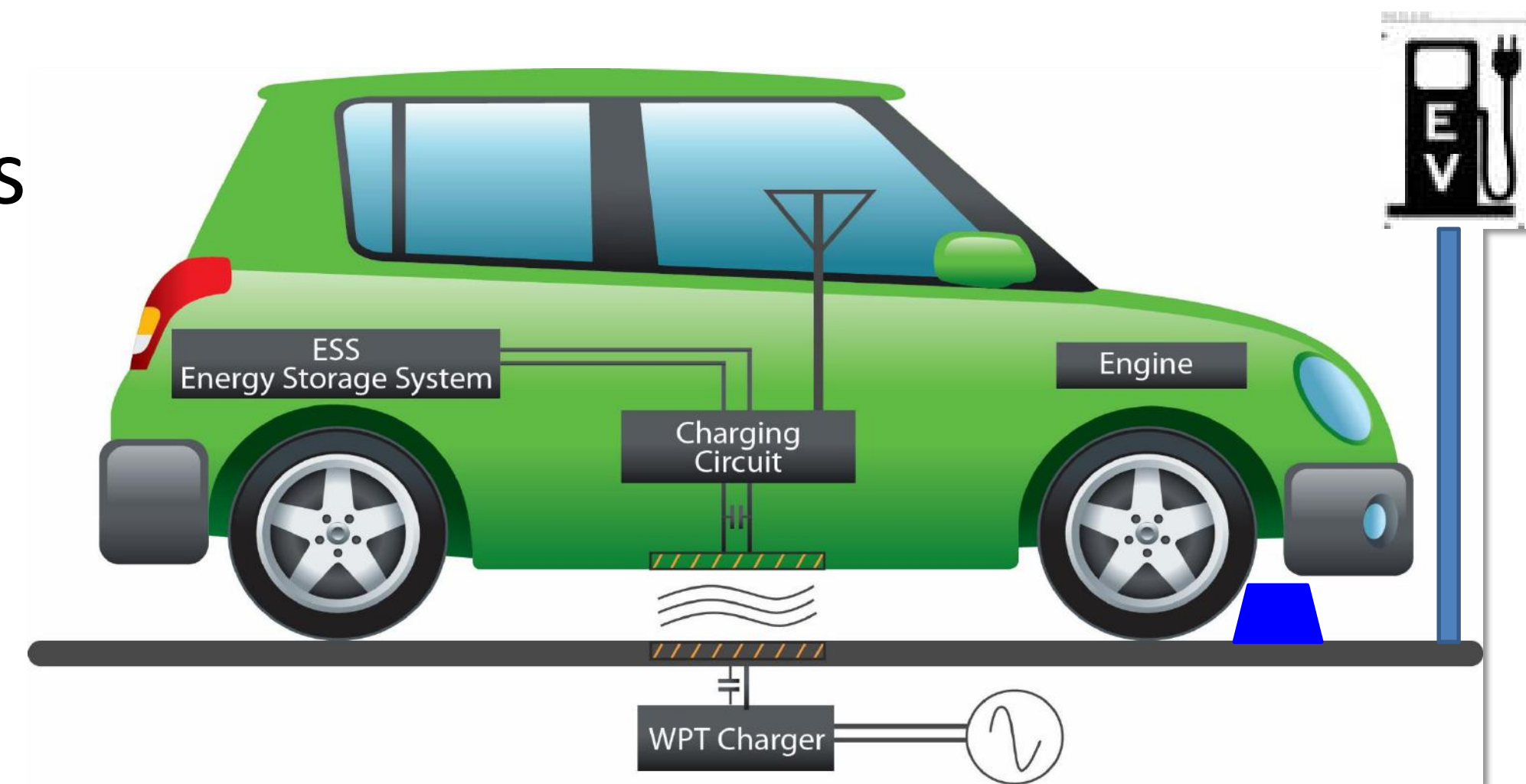
Task 26 – Wireless Power Transfer for EVs

Operating Agent: Oak Ridge National Lab (USA)

Burak Ozpineci, burak@ornl.gov

Objectives:

- Address interoperability and comparison of standards
- Discuss safety issues of misalignment, leakage fields and debris tolerance
- Begin cataloging potential grid impacts



Task 27 – Electrification of Transport Logistic Vehicles

Operating Agent: DLR (Germany)

florian.kleiner@dlr.de



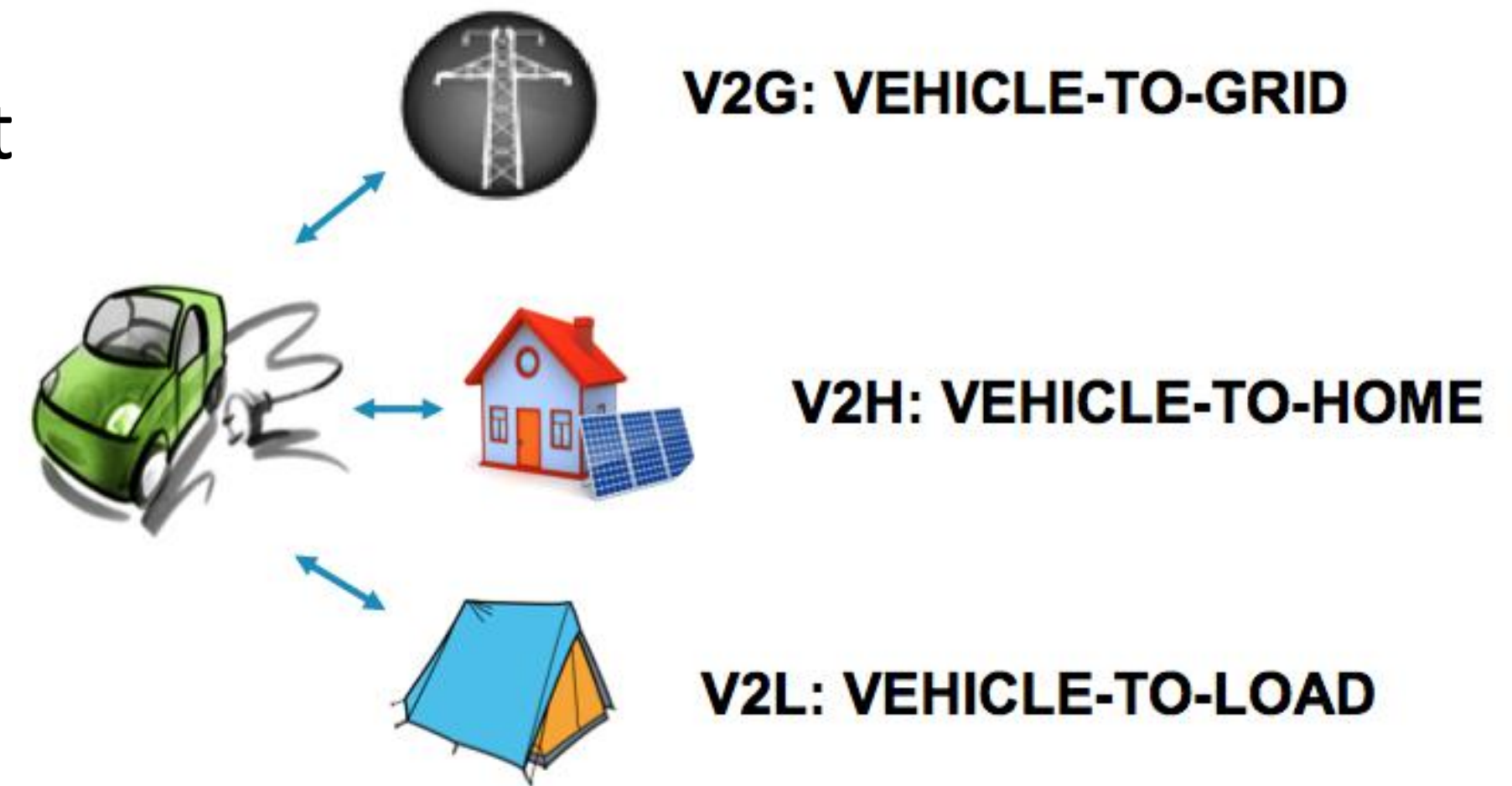
Objectives:

- Produce a summary of the status of technologies, implementations and hurdles
- Identify early niche markets and commercialization opportunities
- Vehicle database compiled
- Provide policy recommendations for further RD&D activities
- Workshops:
 - April 2016, Amsterdam, “Experiences and Prospects of electric freight vehicles”
 - October 19th 2016, Vienna

Task 28 – Home Grids and V2X Technologies

Operating Agent: IREC (Spain)

ccorchero@irec.cat , msanmarti@irec.cat



Objectives:

- Analyze the technical and economic viability of vehicle to grid technology
- Produce a policy making toolbox
- Define a technology roadmap



Task 28 – Home Grids and V2X Technologies

List of strategic goals and specific actions:

1. Improve interaction between TSO & DSO
2. Business case for V2X technology
3. Regulation
4. New V2X services
5. Battery degradation
6. Standardization
7. Marketing
8. Dissemination
9. Harmonization
10. Engagement

V2X and Home Grids Workshop:

- Location: Denver, USA
- Dates: 18-19 May 2016
- Topics:
 - I. V2G participation in US demand response markets
 - II. Effects of usage profiles on battery lifespan
 - III. Improved models of battery degradation for V2X
 - IV. Market potential as a function of mobility patterns
 - V. Interoperability standards with V2X for EVs

Task 29 – Electrified, Connected and Automated Vehicles

Operating Agent: VDI/VDE-IT (Germany)
gereon.meyer@vdivde-it.de



Objectives:

- Analyze the potential **technological synergies** of electrification, connectivity and automation of road vehicles and derive research, development and standardization needs.
- Study the **business models** combining electrification and connectivity / automation of road vehicles and identify need for action by companies and/or governments.
- Assess the impact of **user / driver behavior** on the combination of electrification, connectivity and automation and conclude on needs for measures in awareness and legislation.

Task 30 – Environmental Effects of Electric Vehicles

Operating Agent: Joanneum Research (Austria)
gerfried.jungmeier@joanneum.at



Objectives:

- Analyze the environmental effects of electric vehicles (EVs) on the basis of life cycle assessment (LCA), including the production, operation and the end of life treatment of the vehicles, and in comparison to conventional vehicles.
- Builds on the work of Task 19 (2012-2015) on life cycle assessment of EVs, moving from “process chain” (Task 19) to “environmental effects” (Task 30).
- Assessment will include effects of EVs on water, air, land use (resource consumption, waste management), and overall environmental effects and their assessment.



Task 31 – Fuels and Energy Carriers for Transport

Operating Agent: AVERE

Bert.Witkamp@avere.org

Objectives:

- Provide policy makers with **up-to-date** insight in environmental and energy impacts of (PH)EVs compared to ICEVs (petrol and diesel)
 - Based on **available independent, state-of-the-art studies**
 - Reviewing the current situation (2016)
 - Assessing potential impacts of future developments in vehicle technology and energy systems (up to 2030)
- Focus on **life cycle GHG** emissions and **local pollutants**, with noise and energy security as possible additions



Task 32 – Small Electric Vehicles

Operating Agent: DLR (Germany)
Stephan.Schmid@dlr.de

Objectives:

- Increased safety, comfort and usability at lower costs for SEVs due to technological progress
- Better market perspectives for SEVs due to a change in surrounding conditions like e.g. regulations, transport policies and mobility concepts

Scope and Technical Approach:

- Electric vehicles not a two-wheeler, and up to small cars (e.g. smart ED, i-MiEV)
- Compare major international markets like North America, China, India, Japan and Europe
- Collect and exchange information in workshops with experts (e.g. manufacturers, researchers, city planners, policy makers and other stakeholders)



Task 33 – Hybrid and Electric Buses

Operating Agent: Joanneum Research (Austria)
gerfried.jungmeier@joanneum.aut

Objectives:

- Analyze state of technology and systems of battery electric buses
- Collect and document „International Success Stories“ in common format
- Give overview of systems & technology providers with characteristic data
- Analyze combination of trolley and battery systems
- Integration and use of existing infrastructure of trams, trolleys and metro
- Identify success factors (e.g. size of bus, distances between bus stops)
- Analyze sustainability issues – economic, environmental & social aspects
- Identify R&D demand
- Summarize future perspectives



Potential *new* Tasks

- 2nd use of batteries
- Fast charging
- Interoperability
- Stranded energy / safety of rescue workers
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Summary

IA-HEV Annual Report

Printed copies are available
in the Exhibition Hall at the
National Research Council of
Canada booth

or online at
ieahev.org

