



Feasibility analysis and development of on-road charging solutions  
for future electric vehicles

## Disconnecting charging and range?

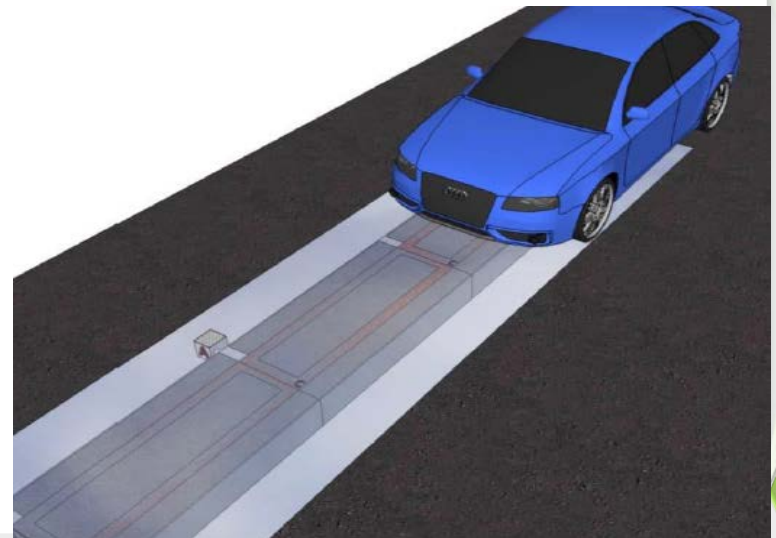
Maurizio MAGGIORE  
DG RTD H2

FABRIC Conference, Brussels, 2 Feb. 2016



# The perspective of the end-users

1. What end-user?
  - Private vs professional vs public
2. What type of vehicle?
  - Light EV vs PHEV
  - Heavy EV vs PHEV vs exotic charging (system approach)
3. What type of infrastructure
  - Slow/Fast conductive vs Slow/Fast wireless
  - On-road conductive vs wireless
4. What applications?
  - Urban/short range vs long range



# Of course there is technology



## Conductive

- Not so much to improve other than....
  - Smart
  - Faster (mostly a battery problem)
  - On road
- Cheap, short term solution
- Need for deployment maybe overhyped in many situations, many low cost solutions already available
- Cities and suburbs with low garage availability are the main problem
- Problems even with garages if shared, simple modifications to building codes and bylaws could solve issues
- A big potential role for energy suppliers on private infrastructure
- Authorities, be it local or national, often seem not to have a clue about the real problems

# Of course there is technology

## Inductive

- Promising but not fully mature
- Intrinsically more costly
- Still relatively large losses, e.g. on-road
- Installation and maintenance issues for the long term
- Urban applications interesting but do not solve the range anxiety problem which is mainly extra-urban
- Massive deployment on main roads needs critical EV mass
- Chicken and egg problem with cars (urban applications could help) but also trucks
- Even if "electrosmog" can be controlled, risk of "unjustified" refusal and NIMBY Syndrome



# Wider questions

- What speed for electrification?
- Does "one size fits all" for infrastructure?
- If not, can we afford multiple electric infrastructures (not to mention other energies like hydrogen, LNG and CNG)? How many?
- Which are the optimal choices for each combination of the above factors?
- Who pays upfront with high risk and low returns over many years?
- The competition of PHEV/EREV/Fast charging
- **What should public authorities do (alternative fuels infrastructure plans due by end 2016)?**





Feasibility analysis and development of on-road charging solutions  
for future electric vehicles

# Thank you!

Maurizio Maggiore

European Commission DG RTD

[Maurizio.Maggiore@ec.europa.eu](mailto:Maurizio.Maggiore@ec.europa.eu)

