



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

## Discussion of assessment conclusions: where to go next?

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# Certain in uncertainty

- Feasibility study deals with vast amounts of assumptions
- Interpret FABRIC results as guidance for future pathways, rather than predictions
- Scenarios are not exhaustive, but explored sensible deployment routes
- Focus on the sensitivity of positive /negative outcome for variations in parameters



# General observations: benefits of DWPT

1. e-Road infrastructure is a relatively small CO2 factor in overall transport system (high utilisation required).
  - Battery size and manufacturing of vehicle are dominant.
2. Total transmission efficiency from grid to vehicle is very dominant.
  - Wired static charging and conductive dynamic power transfer have advantages.
3. Roads can be adapted, using current high-quality components.
  - Driving force for innovative and high-quality constructions
  - Some consequences for recycling / maintenance, but nationally regulated and solvable.
4. Electricity grids are not significantly blocking eRoad deployment.
  - May facilitate solar integration.

# But who will pay? And who benefits?

1. Environmental benefits from CO2 reductions
  - Battery size reduction offsets infrastructure: public incentive!
2. But (Free-rangin) Chicken-Egg problem
  - Battery reduction only when use case of vehicle allows charging everywhere: no gradual adoption!
  - Static Wireless as step towards DWPT?  
look into standardisation processes! Not ready yet;
3. Travel demand and general incentives for general purpose vehicles are questionable.
4. Financially, major subsidies are required for general use cases.
  - Small stretches in urban bus deployment is viable.  
But: infrastructure is significant cost (low utilisation)



# Feasibility

Yes, e-Roads with DWPT can be deployed technically.

No, this is unlikely to be the dominant answer to general electrification;

- Still, heavy vehicles have a clear advantage;
- DWPT for busses / freight can be used for cars, unlike overhead power.

Further development short term:

- Improve efficiency and power transfer capacity;
- EMF/EMC safety in urban environments.

Alternative technologies are competitive:

- Ultra-fast charging (€80k/unit vs 2-4 m€/km);
- Better / smaller batteries.

Further development long term towards MaaS / automated driving can increase attractiveness





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# Thank you!

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