

Research Needs Continental Supergrid Environmental Issues



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Starting Point:

Supergrid is fundamentally “green!”



The problem is how do we get to the future!

There are large scale issues as well as small scale questions.

The most pressing research needs are in the arena of economics and public behavior! We need a social science research agenda.



Costs and tradeoffs

What incentives needed to move away from existing environment-unfriendly technology?

We see a wide range of human dimensions research needs.



- economic incentives
- design to maximize centralized use (mega city focus) opposed to decentralized populations based on distribution (this is a landscape question)
- how do we make a paradigm shift that leads, rather than follows, stakeholder needs

Aside from large scale questions we also need to focus on smaller scale technology issues and the research needs associated with cradle to grave analysis of the technology.





- new materials – does manufacturing, use, disposal pose environmental risk?
- where does water for H₂ come from?
- where do waste streams from water treatment go?
- how do you maintain the grid?



- what are the likely materials changes w/ exposure to hydrogen, temperature, pressure
- likelihood and consequences of leakage of hydrogen
- effect of strong electrical fields generated by power transmission
- byproduct management

Critical information needed for refinement of research needs:



What is the realistic time horizon, we need this delta function for all future planning.