



Energy Transition Geographies of SIDS

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Accelerating Technological Sustainability Transitions by Overcoming Adoption and Diffusion Barriers in Energy Transitions

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Islands as niches for innovation?



Marshall Islands (ndcpartnership.org)

Small Island Developing States

1992 UN Conference on Environment and Development: **Small & Remote**

Therefore, can be characterized by:

- Limited economies of scale
- Reduced land area
- High costs of transportation
- Dependence on fossil fuels, aid
- Significant vulnerability to natural disasters and climate change

SIDS as niches for innovation!

„Niches are locations where it is possible to deviate from the rules in the existing regime.“ - Geels 2004: 912

Transitions of Islands

Forefront of a global push to use remote, energy-constrained territories as a petri dish for fossil-fuel-free societies.

Paris Agreement- INDCs

Molokai- 100% by 2020; Hawaii- 100% by 2045; Samso; Smart Island Initiatives
IRENA Roadmaps



Our Research

Island studies

Reconfiguring current spatial patterns of economic and social activities

Topophilia- love of a place

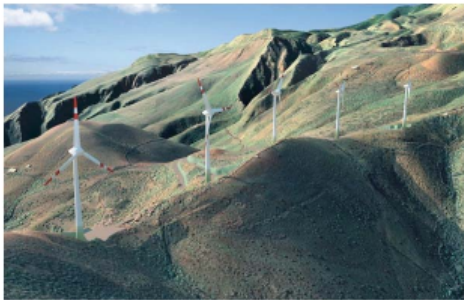
Urban Scale

Demand-side

Scaling

Practical Applications

- Best-practice examples:
 - El Hierro (Canary Islands) - wind/hydro (PHS)
 - Ikaria (Greece) - wind/hydro (PHS)
 - Tokelau (Pacific) - PV/diesel
 - *Graciosa (Azores)* - *wind/PV/diesel (NaS)*



El Hierro: 11.5 MW wind, 11.32 MW hydro, 11.36 MW diesel (Backup)

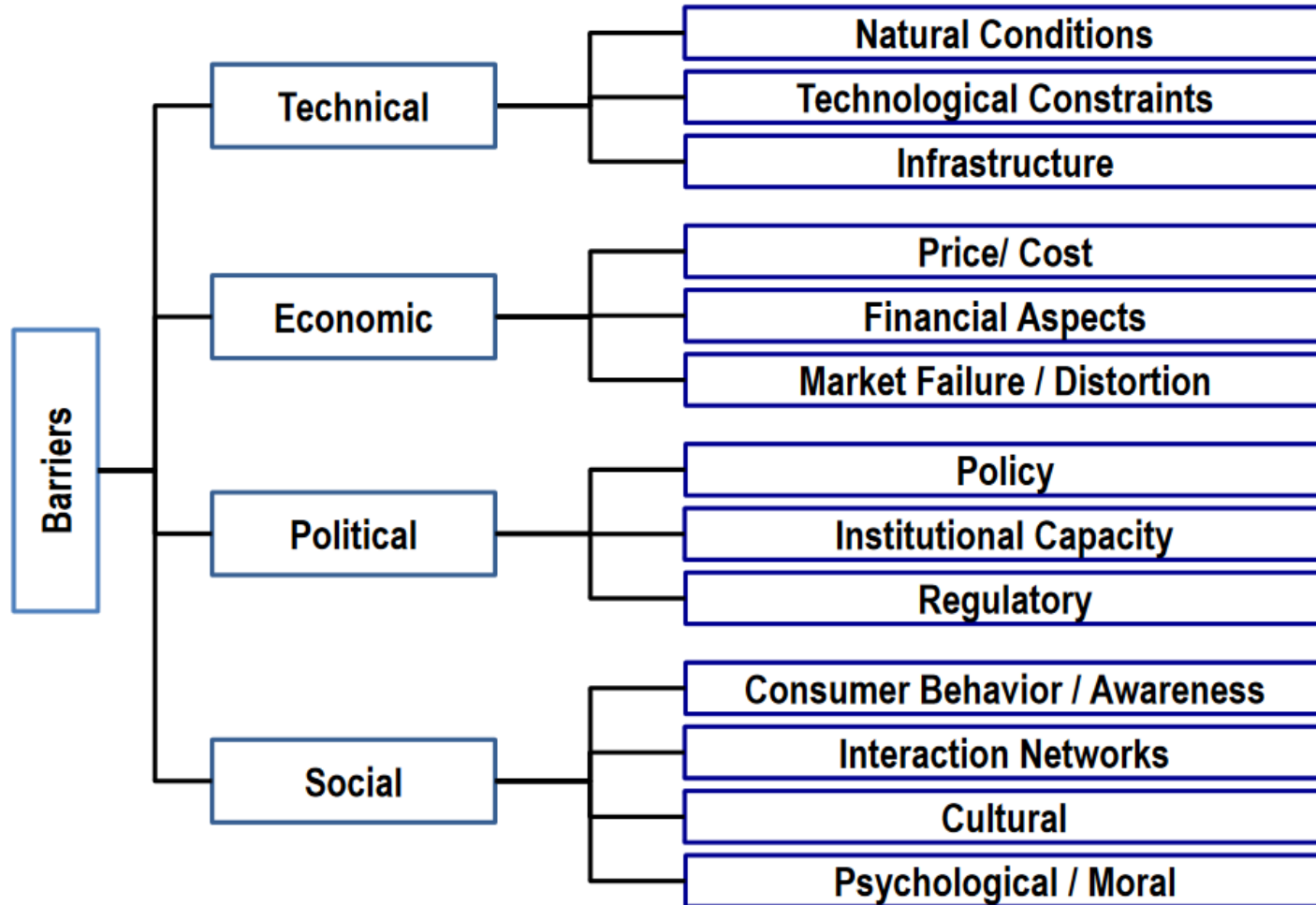


Graciosa (planned): 9 MW wind, 1 MW PV, 4.2 MW diesel (Backup), 3 MW NaS battery

Ikaria: 4.5 MW wind, 2.73 MW hydro, 1.04 MW PV, 15.85 MW diesel



Barriers



Blechinger (2014)

Case Study

Mauritius

Infrastructure system- reconfiguration of current patterns

Scales of economic activity

Fuel-cost/ autonomy in the fuel supply

Resilience



Pathway towards further Research

1. Continue with **primary data collection**: baseline map-based assessments, island comparisons
2. **Scenario building**
Building up on experiences from other islands
Focus on barriers applicable to islands
Combination of energy webmapping with mobility modeling tools
3. **Cost - benefit Analysis**



Thank you for your attention!

- Preliminary research question
- Stakeholder/ Network Building
- Studies/ Publications

We look forward to taking this discussion further!

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