Hawai‘i’s Energy Transition and the Distributed Generation Model

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Energy Transition
Part 2: Centralized to Distributed
Energy Transition
Part 3: Contemporaneous Use → Storage
Drivers of the Transition

- Resource scarcity/quasi-scarcity/perceived scarcity
- National security concerns
- Public policy
- Technological change
- Economics
General Transition Period Dynamics

- Making social choices under uncertainty is difficult
- Desire not to be wrong supports status quo
- Politics are amplified by uncertainty
- Infrastructure lock-in concerns are real

- Example 1: Urban development patterns - China
- Example 2: Architecture/building standards – Buffalo
- Example 3: Smart grid technology
Hawai‘i’s Specific Context

- Renewable resource endowment is world class
- Capital poor environment/small market
- Limited ability to drive global R&D – must accept innovation driven by conditions elsewhere
- Government has limited resources
- Energy security situation is absurd
- Reliance on tourism → jet fuel
- Antiquated utility infrastructure
- Auto dependent
Some Implications for Hawai‘i as We Look Ahead

• Locally produced energy sources are better
• Non-fuel technologies are better
• Need to use technologies not developed for HI
• We must anticipate affordable/available storage
• There is a one off opportunity to extract maximum ancillary benefits from transition
• Avoid orphaning infrastructure
• Recognize regulatory mismatch between status quo and what we will need in the future system
Some Aspects of a Distributed Model

- Aggressively promote/require/incentivize conservation/efficiency
- Support true offsets such as solar water heating
- Accelerate smart grid ‘intra-structure’ deployment
- Adjust laws/rules to allow optimal generation combination
- Encourage micro-grids
- Make power where it is used
Why DG Makes Sense

- Long term solution to energy problems
- Marshalls substantial private investment
- Creates sustainable employment
- Multiplier effects of construction are high
- Hedge value (all non-fuel technologies)
- Investment capital channeled to HI-based businesses
- Disposable income increased for HI homeowners
How Will We Get There

Stop Making the Problem Harder to Solve
- Energy efficient building codes
- Energy efficient product floor
- Aggressive HVAC retrofit effort
- Auto fuel standards floor

Identify unmet needs
- Residential finance (Malama Loan, PACE)
- Commercial loan guarantees

Avoid Obvious Mistakes
- No new fossil based generation

Take Advantage of Resources We Have

Regulatory Revolution
- Create the system we want and then regulate it

De-Link Energy Costs from Fuel Costs
- Residential finance (Malama Loan, PACE)
- Commercial loan guarantees

Acknowledge that delay is no longer an option
Thank You