

Renewable Energy Working Group & Wedges

Presenter: Gerry Groner, WAPA board & Dan Olis, NREL



Credit: Don Buchanan, VI Energy Office



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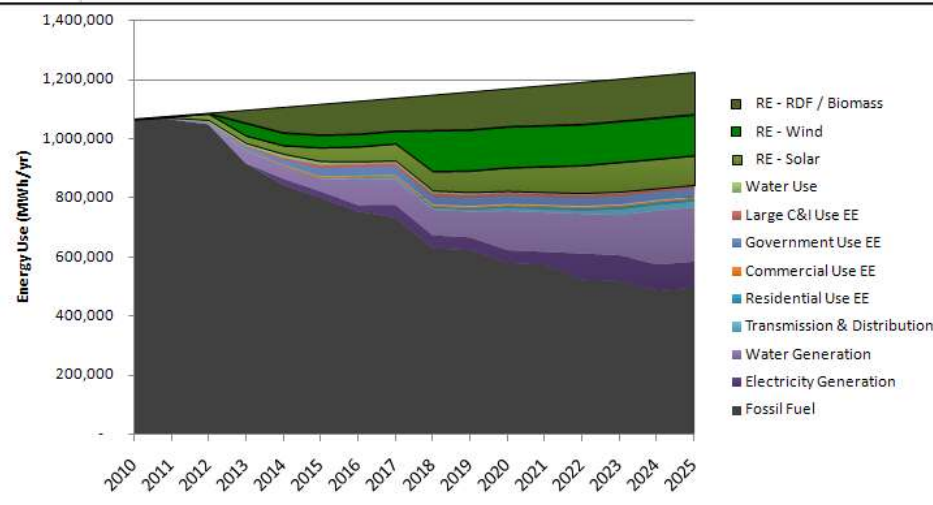
Credit: Warren Gretz, NREL



Renewable Energy Working Group

The Goal: Move the wedge!

The Team:



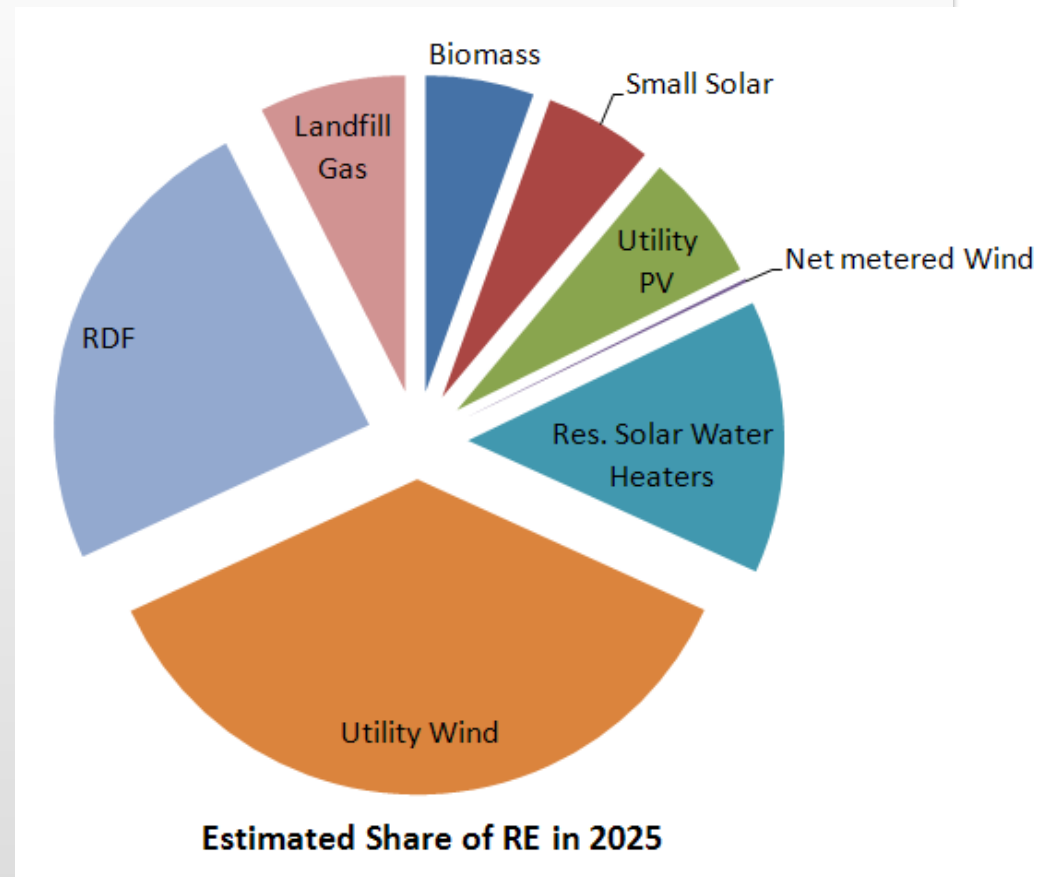
- Five meetings since June
- Status reports, discussions, and debates

Kari Burman	NREL
Paul Chakroff	STX Environmental Association
Nesha Christian-Hendrickson	private citizen, attorney
Cassandra Dunn	WAPA
John Foster	TUTU Park Mall
Helen Gjessing	League of Women Voters
Vahan Gevorgian	NREL
Allyson Gregory	WAPA, Transmission and Distribution
Gerry Groner	WAPA Governing Board
Scott Haase	NREL
Clinton Hedrington	WAPA, Transmission and Distribution
Hugo Hodge	WAPA, CEO
Carl Joseph	VI Energy Office
Peter Lilienthal	HOMER Inventor
Dan Olis	NREL
Rebekah Shirley	UC Berkeley grad student
Bevan Smith	VI Energy Office
Dave Smith	UVI Physics Professor
Brian Walden	Solar Systems VI
Adam Warren	NREL
Juanita Young	WAPA Governing Board

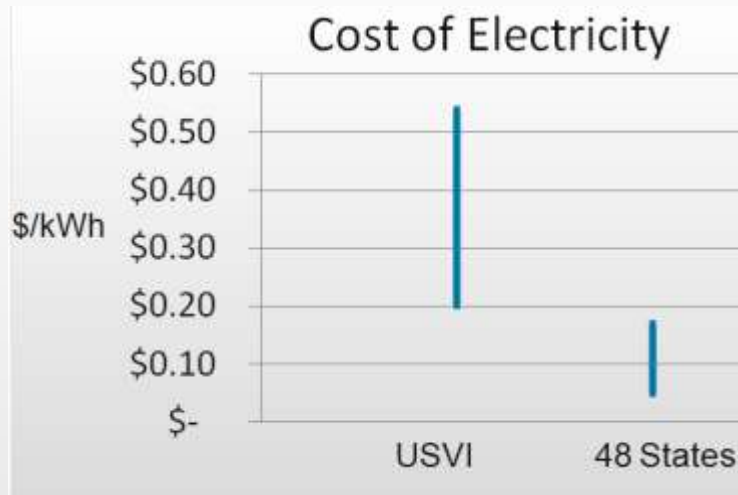
Renewable Energy Working Group

Some of our REWG meeting agenda items:

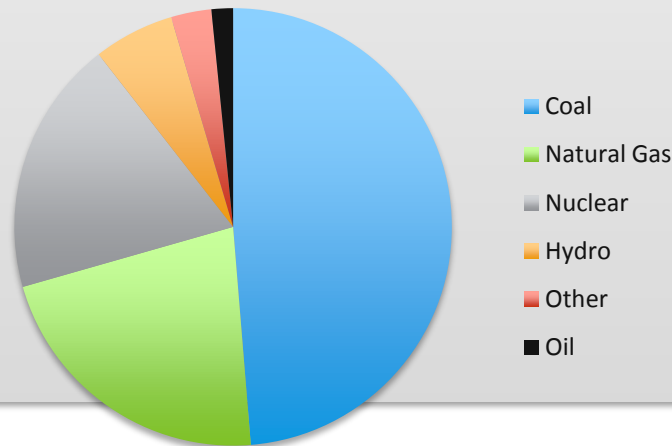
- Wind anemometry
- WAPA & RE studies
- VI biomass characterization
- PV economics
- Education & Outreach
- Puerto Rico interconnection
- Net-metering



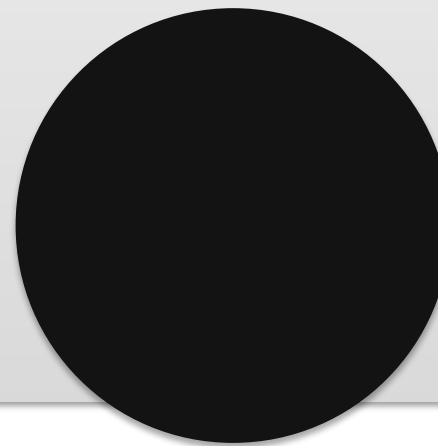
Unique challenges, unique opportunities



The 50 States generation mix



USVI generation mix



Renewable Energy

Opportunities

- USVI is in a unique position to lead
 - Caribbean
 - U.S.
- Economics is in on our side
 - Cost-benefit
 - Job creation
 - Tourism
- Most VI'ers are tuned in to energy issues

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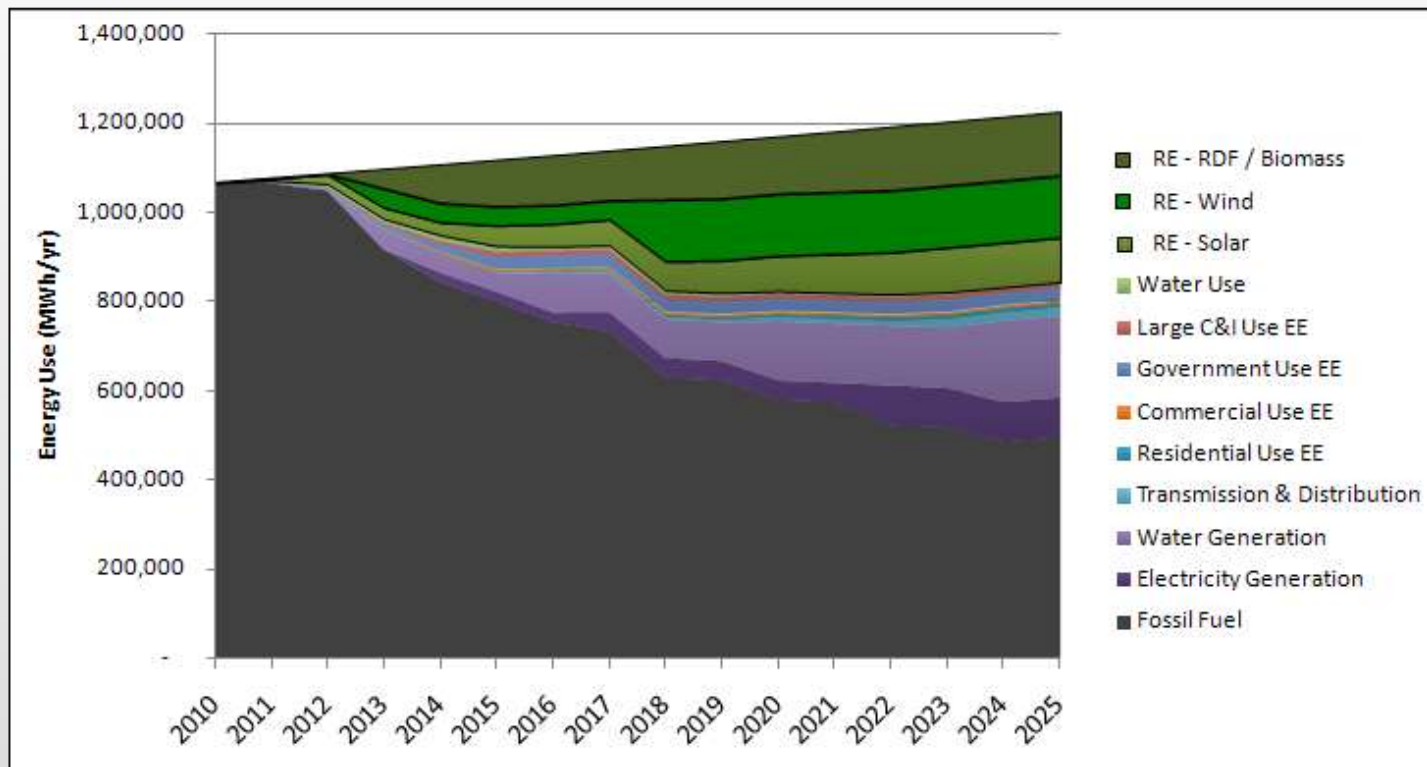
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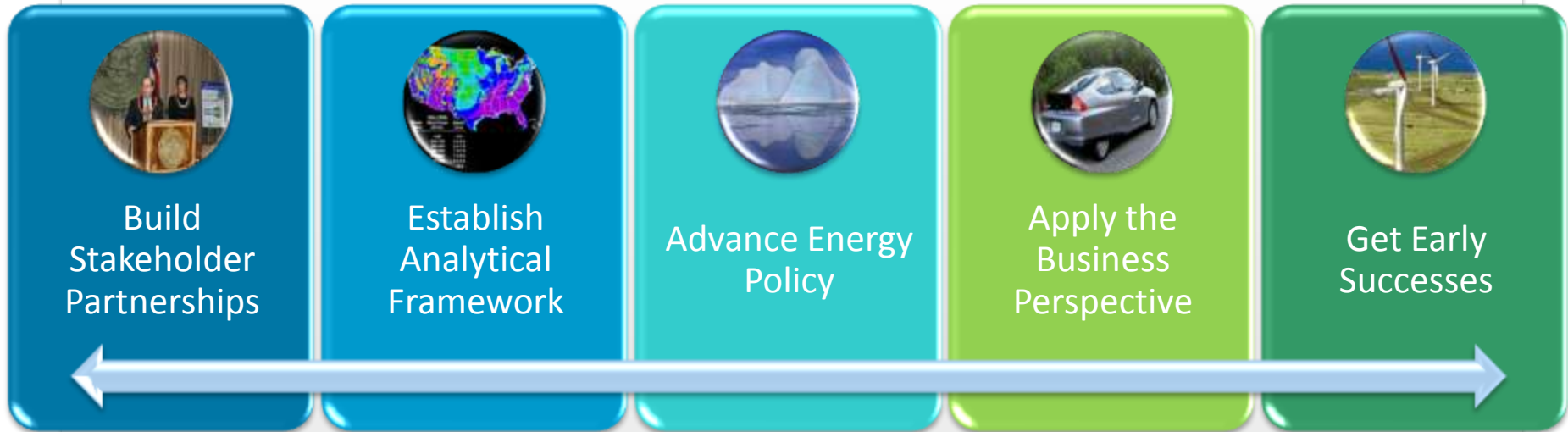
Challenges

- Lots to do
- New paradigms, change is not easy
- Integration with utility system
- Big goals requires big team
 - Need widespread ownership
 - Across and deep into many agencies, groups

30% RE - How do we get there?



Integrated Approach



- Team
- Analytical Framework -
 - Goals, wedge analysis, tools & models, develop the plan
- Policy: Important contributor to ‘how’, ‘how far’, ‘how fast’
- Most cost-effective solutions are the most impactful solutions (more with less)
- Early success and demonstration projects

‘Integrated’: team, tools & analyses, policy, business perspective, early successes

- Site
- Resource
- Offtake
- Permits
- Technology
- Team
- Capital

An Example - Permits

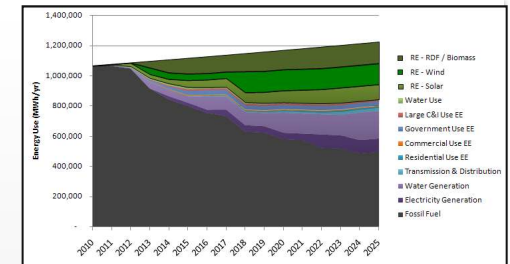
- An critical component for deploying RE
- Is there an opportunity for Faster, Streamlined, Cheaper
 - MORE!
- Hawaii identified a hurdle, and made it an opportunity
- Could help track 60%x2025 progress, development areas, provide data on costs, etc.



“Every renewable project in the state of Hawai‘i requires several resource-specific federal and state permits as well as a number of county permits. Identifying which ones you'll need involves two basic steps...”

Today's RE Presentations

- USVI carbon calculator
- Cost-benefit analysis of utility scale renewable energy using HOMER
- Recent wind and solar work and discussion of wind siting
- Presentation by Alpine Energy on STX waste-to-energy plant
- Biomass & biofuels
- Grid integration of high penetration of RE
- Puerto Rico – VI interconnection



	Aggressive RE	Aggressive EE
Utility Wind	45 MW	25 MW
Net-metered Wind	0.5 MW	0.1 MW
Utility PV	20 MW	5 MW
Net-metered PV	15 MW	2 MW
RDF, biomass	19.5 MW	16.5 MW
SWH resident. penetration	80%	35%
Landfill gas	5.4 MW	5.4 MW
Part of 60% by 2025	31%	18%