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LA DWP





Exploring Terms Commonly Used in Renewable Energy and Clean Energy

Aaron Bloom

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City Council Actions

- March 2016
  - "Develop and implement a partnership…with the objective of determining what investments should be made to achieve a 100% renewable energy portfolio for the LADWP."
- September 2016
  - Amends the March 2016 motion to examine "…the potential for high quality careers and equitable economic development, including local hiring programs for work that must be performed to modernize the electricity system infrastructure…"
- August 2017
  - Amends the March 2016 motion to include: "a) Rate Payer Advocate analysis of impact on current rate structure, b) incorporate the CalEnviro screen into each research area, c) prioritize environmental justice neighborhoods as first immediate beneficiaries of air quality improvements and greenhouse gas reduction."

A Guide to Understanding Clean Energy Jargon

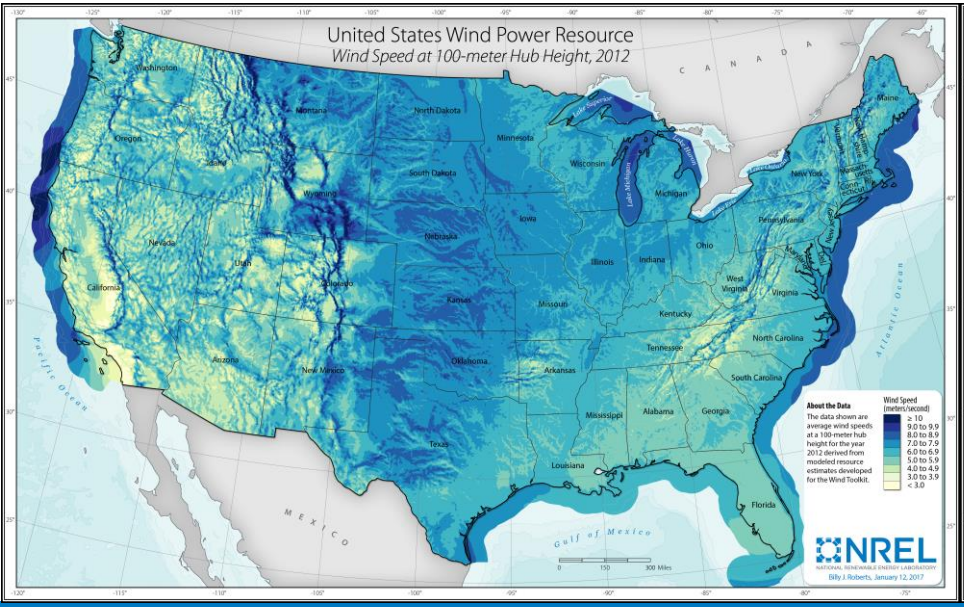
- Policy makers have taken a lot of different approaches to reducing the environmental impact of the energy sector.
  - Promotion of specific technologies
  - Differences in language renewable, net zero, clean, and carbon
  - Technical and economic impacts of policy

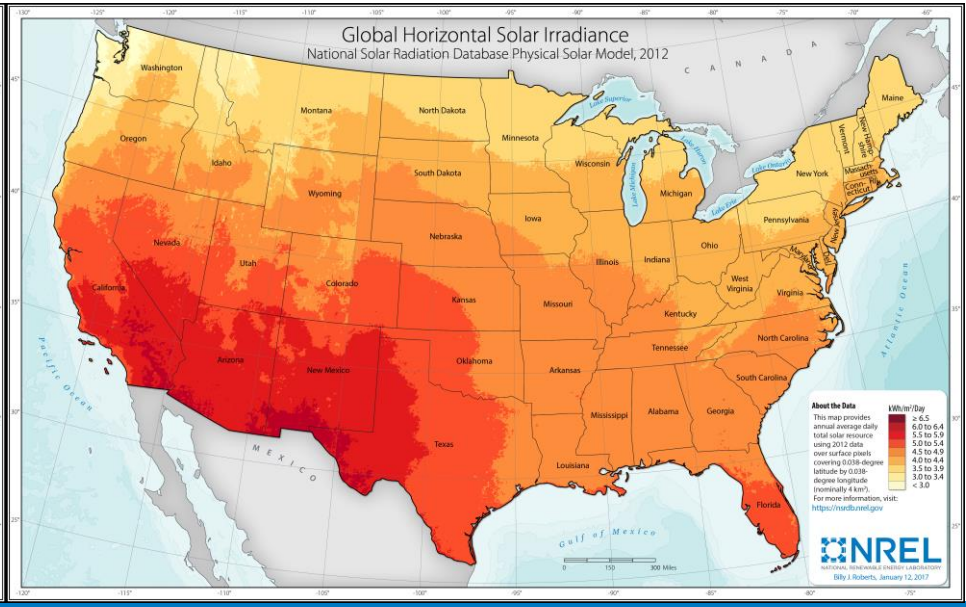
Renewable Energy Definitions

Resource	California RPS	New Jersey RPS	Colorado RPS	Austin, Texas RPS	IEA	EIA	Renewable Energy Certificates	REN 21	RE100
Wind and Solar	√	√	√	√	√	√	√	√	√
Hydro	√*	√	√	√	√	√	√	√	√
Bioenergy	√*		√ (biomass)*	√ (biomass or biomass-based waste products)	√	√ (biomass)	√ (biomass)	√ (biopower)	√ (biomass and biogas)
Landfill Gas	√	√		√					
Fuel Cell	√	√		√					
Geothermal	√	√	√	√	√	√	√	√	√
Municipal Solid Waste Conversion	√								
Ocean Thermal	√*				√	√			√
Ocean Wave	√*	√		√	√	√			√
Tidal Current	√*	√		√	√	√			√
Other Minor Technologies	√	√	√						√
Tradable Renewable Energy Credits	√		√						

Definitions on Renewable Energy

- Renewable Resources:
  - energy resources that are naturally replenishing but flow-limited. They are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time. (US Energy Information Agency)
  - Focuses on the electricity generating resource
  - Critical definition for many renewable portfolio standards





Low Carbon, Carbon Neutral, Zero Carbon

- Carbon Policy focuses on the byproducts of energy and electricity generation
  - Instead of aiming to increase a specific resource, the focus on carbon is designed to remove the “bad” things
- *Low Carbon*
  - policies that target a desired decrease in the emission of carbon dioxide from electricity generation, see NREL Low Carbon Grid Study
- *Carbon Neutral*
  - policies or technologies which result in no net addition of carbon dioxide to the atmosphere, see Biomass
- *Zero Carbon/Carbon Free*
  - in the electricity sector, this refers to any generating technology that does not result in the addition of carbon dioxide to the atmosphere, see nuclear or large hydro.

Renewable Technologies

- Technologies widely adopted and developed
  - Wind
  - Solar Photovoltaic (Utility and Distributed)
  - Concentrating Solar Power
  - Geothermal
- Newer technologies with limited deployment
  - Hydrogen fuel
  - “Small” hydro
  - Hydrokinetic
  - Tidal

Large Hydro

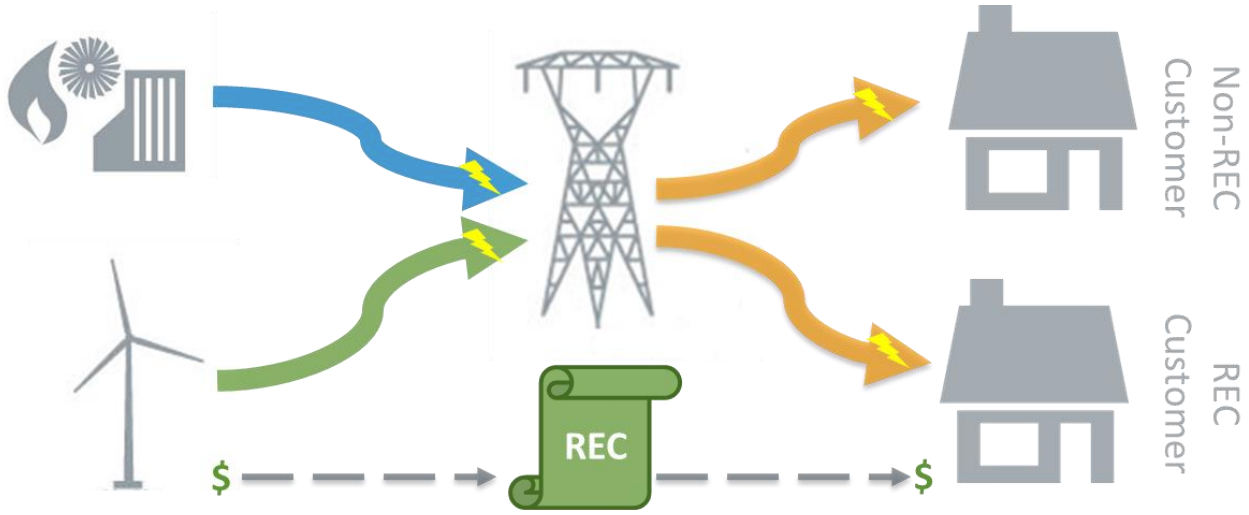
- Large hydro is carbon free, but is not always considered renewable or sustainable.
  - Is the closing or sale of existing hydro assets economic and beneficial to realizing the 100% goal?

Bioenergy

- Bioenergy includes
  - Biofuel
  - Biomass
- Bioenergy is renewable and carbon neutral, but there are emissions.
  - What are the tradeoffs associated with including carbon neutral resources?

Nuclear Energy

- Nuclear generation is carbon free, but it is not renewable.
  - Should new nuclear be an option for reaching clean energy goals?



Renewable Energy Credits

- Renewable energy credits qualify as “renewable” under existing California legislation, but it is not strictly carbon free.
  - The last 10-20% of carbon free or renewable electricity might be incredibly expensive in time and money?
  - Is 80% physically carbon free and 20% carbon neutral acceptable?

Policies for Renewables and Carbon reduction

- Most environmental policy has been targeted at the development of renewable generating technologies.
- Carbon policy is growing increasingly popular as renewable technologies become more mainstream.
  - What are the differences between policies targeted at reducing/removing carbon versus promoting renewables?

Scenario Development Process

- Scenarios and sensitivities are used to isolate variables and increase confidence
- Scenarios can be designed to target questions regarding:
  - Resource mix
  - Policy
  - Investment costs
- Sensitivities can be designed to determine robustness:
  - How do weather patterns affect results?
  - What are mitigation options for observed challenges?
  - What if the rest of the west increases renewables?

Discussion Activity

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