Knowing Your Power

Keeping Utilities Accountable with Accurate Power Content Labels

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Steve Weissman – Lecturer at UC Berkeley's Goldman School of Public Policy,
Former Director of Berkeley Law's Energy Program

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California's Power Content Label

POWER CONTENT LABEL

ENERGY RESOURCES	2014 POWER MIX	2014 CA POWER MIX**
Eligible Renewable	32%	20%
Biomass & waste	7%	3%
Geothermal	2%	4%
Small hydroelectric	4%	1%
Solar	12%	4%
Wind	7%	8%
Coal	10%	6%
Large Hydroelectric	8%	6%
Natural Gas	38%	45%
Nuclear	0%	9%
Other	0%	0%
Unspecified sources of power*	12%	14%
TOTAL	100%	100%

* "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.

** Percentages are estimated annually by the California Energy Commission based on the electricity sold to California consumers during the previous year.

For specific information about this electricity product, contact:

Sample
555-555-5555

For general information about the Power Content Label, consult:

California Energy Commission
1-844-217-4925
http://www.energy.ca.gov/pcl/

Would you eat a food product for which 14% of the ingredients are unspecified?

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In 1997, the California Legislature said:

> " There is a need for reliable, accurate, timely and consistent information regarding fuel sources for electric generation offered for retail sale in California." (SB 1305)

Ways in which the reporting is unreliable and inaccurate, untimely and inconsistent

- Unspecified power
- The use of unbundled renewable energy credits
- Inconsistency between power contracts and reported unspecified levels
- Inconsistency between utility reports and California Energy Commission reports
- Annual aggregation of data

Why is this a problem?

Utilities and other retail providers are not fully accountable for the impacts of their power choices.

Controlling factors:

- Organized markets are treated like black boxes (an agency problem)
- Major participants lack motivation to be more accurate
- No one wants to claim the marginal resource (masking leakage issues)
- Competitors want to keep secrets

Southern California Edison's Power Choices

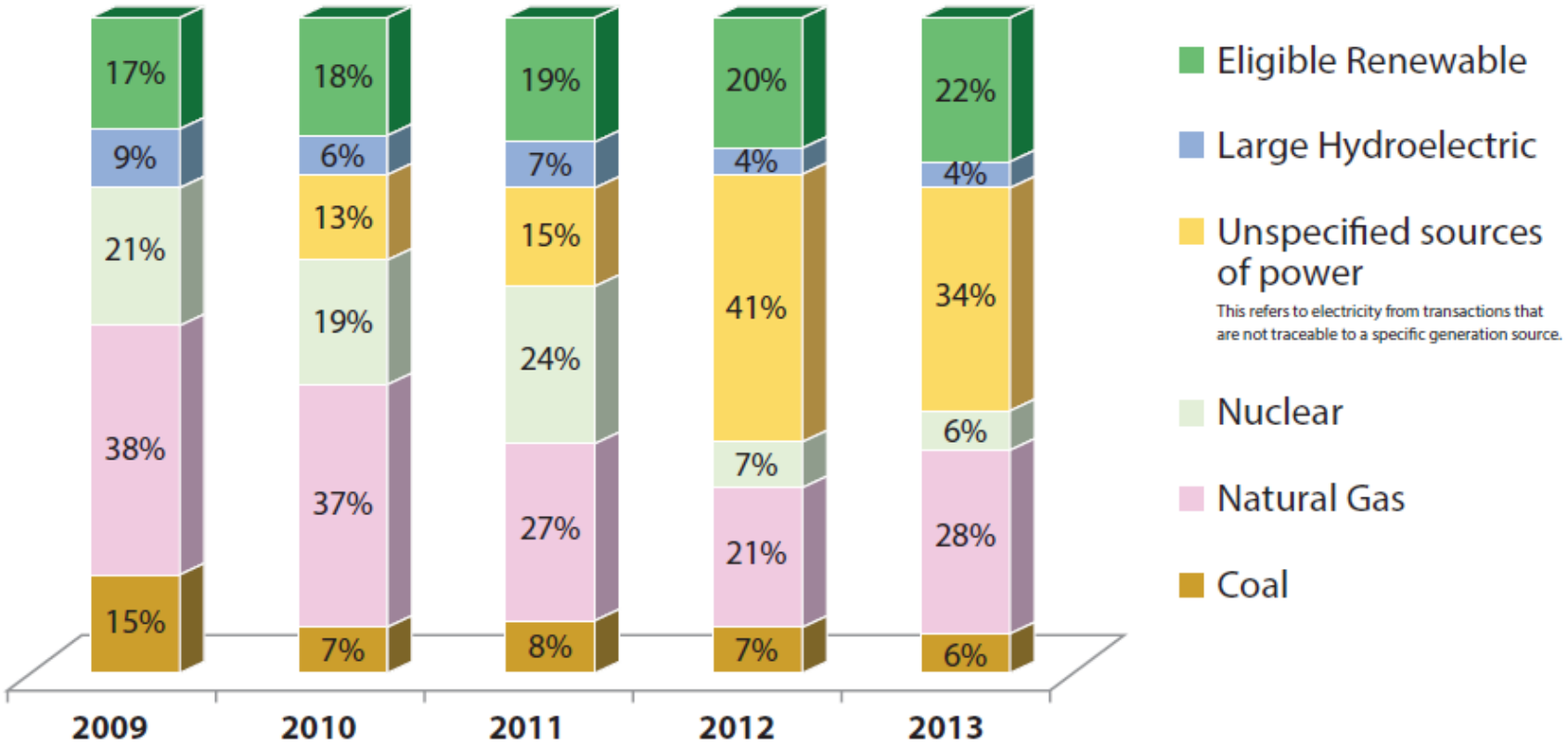

Chart from SCE illustrating the change in reporting with the introduction of the unspecified sources of power in 2010 as required by AB 162.

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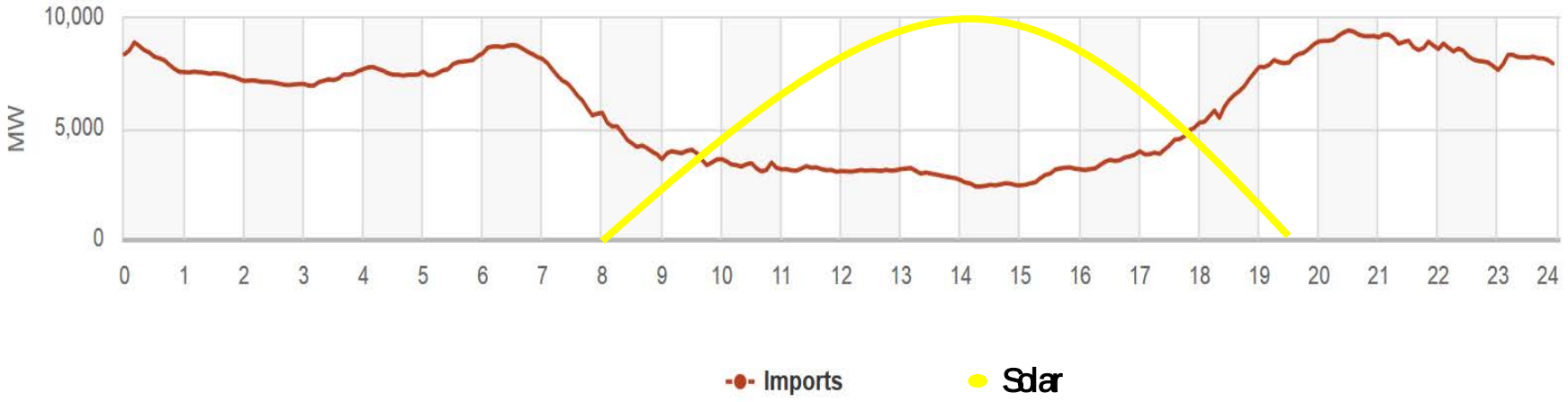
What are unspecified sources?

Public Utilities Code Section 398.2(e), as amended by AB 1110, defines unspecified sources as: ***Electricity that is not traceable to specific generation sources by any auditable contract trail or equivalent***, *including a tradable commodity system, that provides commercial verification that the electricity source claimed has been sold once, and only once, to a retail consumer.*

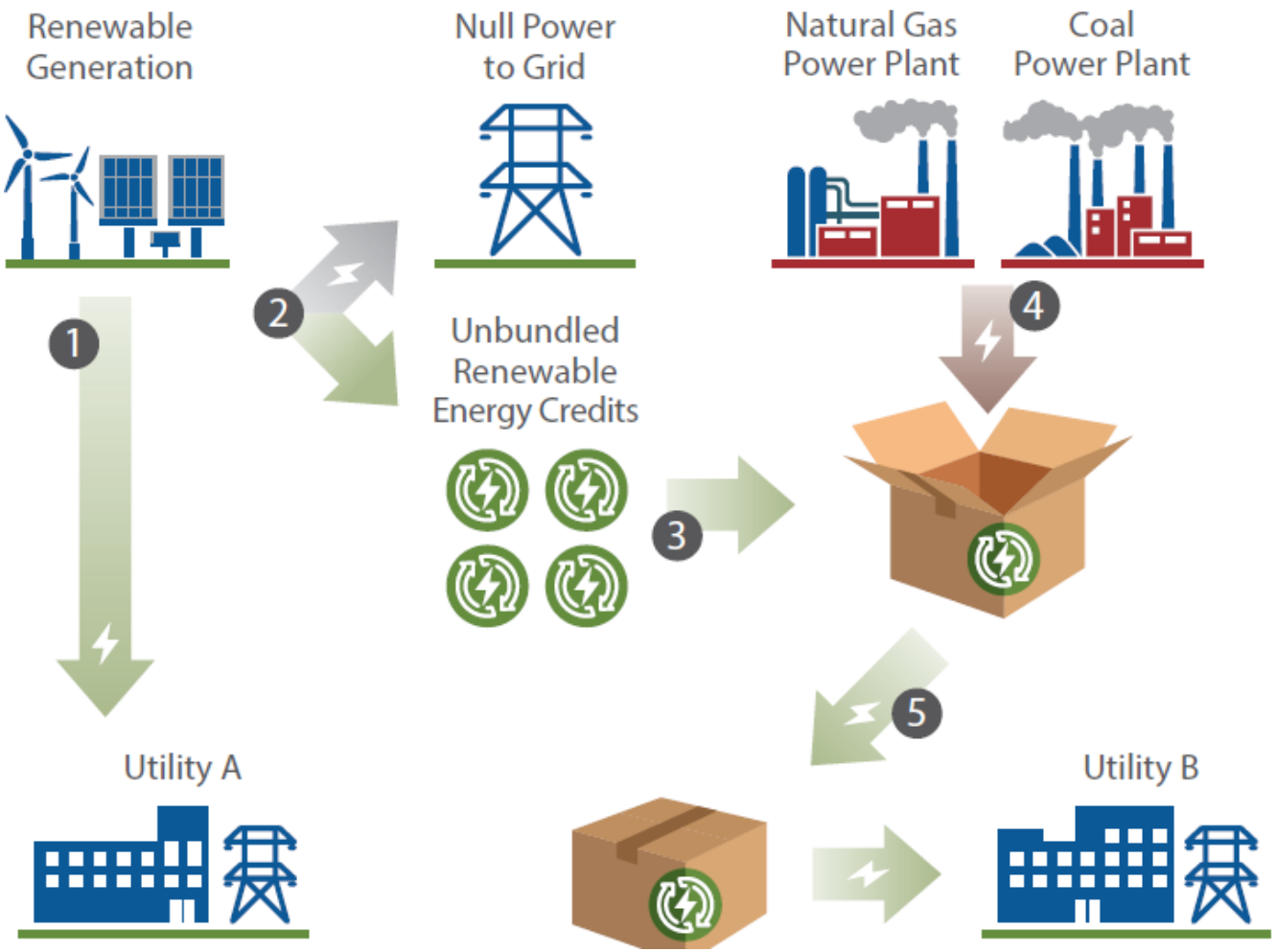
Time of day matters, too.

California: May 7, 2018



Source: California Independent System Operator

Unbundled RECs – Leaving the Wrong Impression



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Retail Supplier 1

Retail Supplier 2

RECs associated with 200 MW of Renewable Energy

50 MW Coal

150 MW Natural Gas

How should a customer evaluate these two different options?

While both retail suppliers have purchased the same generation to serve their load, retail supplier 1 has also purchased (and retired) RECs.

Retail Supplier 1

RECs associated with 200 MW of Renewable Energy

Retail Supplier 2

RECs associated with 200 MW of Renewable Energy

How should a customer evaluate these two different options?

While both retail suppliers have purchased the same quantity of electricity and the same number of RECs, retail supplier 2's purchases have a higher GHG emissions intensity.

Retail Supplier 1

RECs associated with 200 MW of Renewable Energy

Retail Supplier 2

200 MW of Renewable Generation and the associated RECs

How should a customer evaluate these two different options?

In a properly functioning Cap-and-Trade market should these two retail suppliers have spent the same amount of money to procure their respective products?

Null Power

Retail Supplier 1

200 MW of Hydroelectric

Retail Supplier 2

200 MW of Renewable Generation and the associated RECs

Retail supplier 2 sells its RECs to retail supplier 1

200 MW of Hydroelectric

200 MW of Renewable Generation WITHOUT the associated RECs

How should a customer evaluate these two different options?

Null Power

Retail Supplier 1

200 MW of Hydroelectric

Retail Supplier 2

200 MW of Renewable Generation WITHOUT the associated RECs

Retail supplier 2 sells its RECs to retail supplier 1

RECs associated with 200 MW of Renewable Energy

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How should a customer evaluate these two different options?

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How should a customer evaluate these two different options?

What can be done?

1. Learn from the Energy Imbalance Market
2. Rely on E-tags
3. Pursue the promise of blockchain
4. Regionalization of the grid
5. Expand WREGIS to all attributes (keep an eye on New York)
6. Always assume use of marginal resources
7. Unmask the power behind unbundled RECs


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Steve Weissman
sweissman@berkeley.edu