An Overview of California Renewable Energy Credit (REC) Markets

Evolution Markets Inc.
Evolution Markets Overview

*Evolution Markets is the Intersection of Environment, Energy, and Finance™*

Complete Financial Services for Green Markets and Clean Energy Sector

- Market Execution Services
- Structured Transactions
- Merchant Banking

**World’s Largest Environmental Brokerage**

- More than 80 Professionals Worldwide
- More than $50 billion in Transactions

**Global Offices in New York – London – San Francisco – Buenos Aires**
Evolution Markets Commitment to Renewable Markets

RECs brokerage since 2002
REC brokerage, green power contracts, financial services
Compliance RECs (Northeast/Texas) from New York
Voluntary RECs (Nationwide) and Western Compliance RECs from San Francisco
Market’s only Green-e approved broker
Market’s most honored brokerage

Environmental Finance Magazine Customer Survey
Best Renewables Broker-North America

Energy Risk Annual Rankings
Best Broker-North America Environmental Markets
Transactions 101: How do RECs trade?

One REC = attributes associated with one megawatt hour (MWh) of energy from a renewable source

Assigned a “vintage” based on the calendar year generated

Quoted by resource type and/or the market eligibility

Examples:

“50,000 CY (calendar year) 2009 Oregon biomass RECs from CEC certified facility”

“100,000 vintage 2009 Idaho wind RECs”

“30,000 2half 2008 Nationwide Green-E Landfill RECs”
Compliance Markets: Pricing

- RPSs vary, so do the markets they create...

- The impact of an RPS is a function of supply (eligible resources) and demand (percentage requirements), enforced by penalties...

  - Maine: 30% requirement, but 50% of supply qualifies ➔ price ~$0.20

  - Massachusetts: 3.5% requirement (’08), but limited resources qualify, and $58.58 “alternative compliance payment” ➔ prices $50+
Renewable Portfolio Standards (RPS)

Differ state to state: prices differ- Makes some states are more attractive than others to renewable energy developers.

Buyers indifferent to technology (insofar as it qualifies)

Limited by geographic region where REC is generated
• REC tracking and accounting system for WECC region

• CPUC and CEC determined fully operationally Q4 2008

• Needed for Western RPS compliance

• Up to 75 day retroactive time period from facility’s complete registration
• CEC required to design and implement a tracking and accounting system (WREGIS came online June ’07)
• CEC required to define and certify qualifying renewables
• Responsible for awarding SEPs
California Public Utilities Commission

- Created Tradable REC program (TREC)
  TRECs defined October, 2008
- Must approve all IOU renewable contracts
California Snapshot

- Investor Owned Utilities (IOUs), Electric Service Providers (ESPs), Community Choice Aggregators (CCAs): **20% of retail sales come from CEC certified renewable power by 2010**

- Municipalities: **follow the “intent” of the Legislature**
California: Market Rules

- Shortfalls made up within three years
- Delivery Rules: Out-of-state green power delivered into CA, WECC transmission connection & COD is 1/1/2005 or later
- Executive Order by Schwarzenegger 33% by 2020
March 11, 2010 CPUC unanimously passed a TREC program

OVERVIEW OF TREC program:
- IOUs capped at 25% of APT
- $50 cost cap
- In State Distributed Generation TRECts allowed
- Previously executed contracts re-categorized as TRECts are NOT grandfathered and applied to the cap.

TREC Workshop April 23, 2010
- CAISO not prepared for dynamically scheduled contracts
- BPA not prepared for dynamically scheduled contracts
- Make a TREC, a TREC
- New legislation?
<table>
<thead>
<tr>
<th>Year</th>
<th>Energy Sales*</th>
<th>RPS</th>
<th>Renewable Demand*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>288,975,574</td>
<td>17.89%</td>
<td>51,697,730</td>
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<td>2009</td>
<td>293,020,925</td>
<td>19.94%</td>
<td>58,428,372</td>
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<td>2010</td>
<td>297,062,377</td>
<td>20.00%</td>
<td>59,412,475</td>
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<td>2011</td>
<td>301,229,787</td>
<td>21.03%</td>
<td>63,348,624</td>
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<td>2012</td>
<td>305,303,010</td>
<td>22.11%</td>
<td>67,502,496</td>
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<td>2013</td>
<td>309,147,629</td>
<td>23.24%</td>
<td>71,845,909</td>
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<td>2014</td>
<td>312,877,581</td>
<td>24.44%</td>
<td>76,467,281</td>
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<tr>
<td>2015</td>
<td>316,574,758</td>
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<td>81,328,055</td>
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<td>2016</td>
<td>320,177,810</td>
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<td>86,480,026</td>
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<td>2017</td>
<td>323,630,005</td>
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<td>91,910,921</td>
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<td>2018</td>
<td>327,085,422</td>
<td>29.86%</td>
<td>97,667,707</td>
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<td>2019</td>
<td>331,185,851</td>
<td>31.39%</td>
<td>103,959,239</td>
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<td>2020</td>
<td>335,337,683</td>
<td>33.00%</td>
<td>110,661,435</td>
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</table>

*MWh (Total Energy Sales forecasted by CEC)
### California Total Renewable Demand Forecast - Munis

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<th>Energy Sales*</th>
<th>RPS</th>
<th>Renewable Demand*</th>
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<tr>
<td>2008</td>
<td>78,023,405</td>
<td>17.54%</td>
<td>13,685,305</td>
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<td>2009</td>
<td>79,115,650</td>
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<td>2010</td>
<td>80,206,842</td>
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<td>2011</td>
<td>81,332,042</td>
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<td>2012</td>
<td>82,431,813</td>
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<td>2013</td>
<td>83,469,860</td>
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<td>2014</td>
<td>84,476,947</td>
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<td>20,646,166</td>
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<tr>
<td>2015</td>
<td>85,475,185</td>
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<td>21,958,575</td>
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<td>2016</td>
<td>86,448,009</td>
<td>27.01%</td>
<td>23,349,607</td>
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<td>2017</td>
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<td>2019</td>
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<td>28,068,995</td>
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<td>2020</td>
<td>90,541,174</td>
<td>33.00%</td>
<td>29,878,587</td>
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*MWh (Munis, forecast from CEC reported data)
Voted Top Renewables Broker –
North America
2002-2008 Environmental Finance Customer Survey

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