



# RPS Calculator



**Generation & Transmission Planning Section**  
***Carlos Velasquez***

**California Public Utilities Commission**

May 7, 2013





# Outline

- Overview: RPS Calculator
- Portfolios:
  - Long Term Procurement Plan
  - Transmission Planning Process
- Ongoing Analysis: Environmental Scoring Methodology





# RPS Calculator

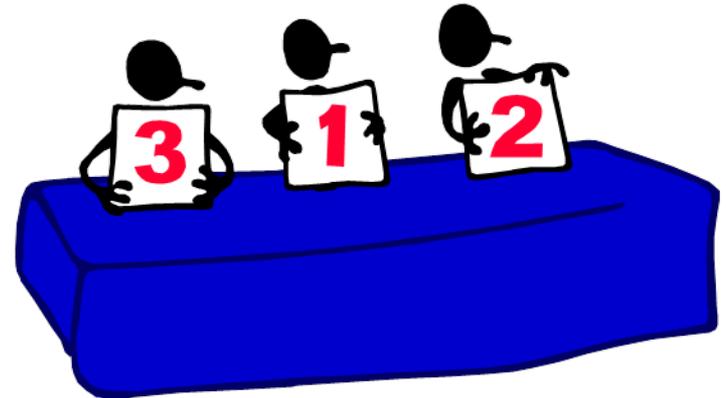
Originally developed by Energy +  
Environmental Economics (E3) for  
Energy Division





# Project Scoring Methodology

- Each renewable project is scored on a 0-100 scale (0 is best) based on four scoring metrics:
  - Net Cost Score
  - Environmental Score
  - Commercial Interest Score
  - Permitting Score
- The RPS Calculator calculates the weighted average score of these 4 metrics for each project





# Calculator's Project Selection Methodology

1. Ranks each project based on its weighted average score: the lower the score, the higher the rank
2. Allocates lowest cost out-of-state projects to host states until all non-CA WECC RPS targets for 2022 are satisfied
3. Once all the projects are ranked, the calculator selects in-state/out-of-state projects to fill transmission bundles
4. The Calculator then calculates the aggregate score for each of these transmission bundles
5. These aggregate scores are used to rank the transmission bundles against individual non-CREZ (Competitive Renewable Energy Zones) projects and REC-only projects





## Preference Given To Discounted Core Projects

- Discounted Core projects are given preference in the RPS Calculator because they are deemed to be the most commercially viable by meeting two criteria:
  - Discounted Core projects either have an executed or an approved contract, and
  - The relevant environmental permit application is completed

Executed contract: executed between an IOU and the developer

Approved contract: an executed contract that has been approved by the CPUC





# Building RPS Portfolios

Discounted Core projects are selected first (i.e. forced in) to unless they require new transmission

- After the Discounted Core projects are selected, other projects & bundles are selected on the basis of their ranking in order to meet the given Portfolio's Renewable Net Short (RNS)
  - RNS – energy value indicating the renewable energy that is still needed to comply with the 33% RPS target in 2020 and beyond





## Clarification: Discounted Core

- Discounted Core projects are “forced in” if:
  - They do not require new transmission, or
  - Discounted core projects fill 67% of energy delivered (i.e. 67% of GWhs) on a new transmission bundle
- Failing this 67% test, Discounted Core projects must compete based on their ranking, along with all other projects





# Long Term Procurement Plan (LTTP) Proceeding Portfolios





# Metric Weights: LTPP Portfolios

-- LTPP Portfolio results are driven by the RNS & “Commercial Interest Score” Metric

Portfolio Name	Base	Replicating TPP	High DG + High DSM	High DG + High DSM 2030, 40%
Renewable Net Short	32,796	39,957	26,618	42,660
Metric Score Receiving 70% Weighing	Commercial Interest	Commercial Interest	Commercial Interest	Commercial Interest
Metric	<b>Weighing Assigned To Each Scoring Metric</b>			
Net Cost Score	10%	10%	10%	10%
Environmental Score	10%	10%	10%	10%
Commercial Interest Score	70%	70%	70%	70%
Permitting Score	10%	10%	10%	10%





# LTPP Portfolio Summary

Scenario Name	Base	Replicating TPP	High DG + High DSM	High DG + High DSM - 2030, 40%
Load	Mid	Mid (1-in-5 peak weather)	Mid	Mid
Inc EE	Mid	None	High	High
Inc PV	Mid	None	High	High
Inc CHP	Low	None	High	High
Net Short (GWh)	32,796	39,957	26,618	42,660
	Portfolio Totals (MW)	Portfolio Totals (MW)	Portfolio Totals (MW)	Portfolio Totals (MW)
Discounted Core	10,505	10,521	10,767	15,767
Generic	1,639	4,597	0	1,500
<b>Total</b>	<b>12,144</b>	<b>15,119</b>	<b>10,767</b>	<b>17,267</b>
Biogas	136	136	133	136
Biomass	57	75	57	57
Geothermal	688	719	211	607
Hydro	-	-	-	-
Large Scale Solar PV	5,578	7,421	3,816	5,491
Small Solar PV	2,135	2,381	3,913	7,441
Solar Thermal	1,402	1,402	787	1,402
Wind	2,149	2,984	1,850	2,134
<b>Total</b>	<b>12,144</b>	<b>15,119</b>	<b>10,767</b>	<b>17,267</b>
<b>New Transmission Segments</b>	<b>Merced - 1</b>	<b>Merced - 1</b>	<b>Merced - 1</b>	<b>Merced - 1</b>
	<b>Kramer - 1</b>	<b>Kramer - 1</b>		<b>Kramer - 1</b>
	<b>Los Banos - 1</b>	<b>Los Banos - 1</b>		<b>Los Banos - 1</b>





# Transmission Planning Process (TPP) Portfolios





# CPUC/CEC Proposed 3 Portfolios

- Commercial Interest
  - Preference to projects with both PPAs and completed permit applications
- Environmental
  - Preference to generation in environmentally preferred locations
- High DG
  - Variant of the commercial interest portfolio that includes extra small solar PV near load





# Metric Weights: TPP Portfolios

-- TPP PORTFOLIO RESULTS ARE LARGELY DRIVEN BY THE METRIC WEIGHT GIVEN TO THE “COMMERCIAL INTEREST SCORE” & “ENVIRONMENTAL SCORE”

Case Name	Base	Base	Base
Renewable Net Short	32,184	32,184	32,184
Metric Score Receiving 70% Weighing	Commercial Interest	Environmental	Commercial Interest (High DG)
Metric	Weighing Assigned To Each Scoring Metric		
Net Cost Score	10%	10%	10%
Environmental Score	10%	70%	10%
Commercial Interest Score	70%	10%	70%
Permitting Score	10%	10%	10%



# TPP Portfolio Summary

	Base	Base	Base
Scenario Name	Commercial	Environmental	Commercial (High DG)
Load	288,854.0	288,854.0	288,854.0
Inc EE	19,543.0	19,543.0	19,543.0
Inc PV	2,158.8	2,158.8	2,158.8
Inc CHP	-	-	-
Net Short (GWh)	32,184	32,184	32,184
	Portfolio Totals (MW)	Portfolio Totals (MW)	Portfolio Totals (MW)
Discounted Core	10,383	9,744	13,504
Generic	1,571	3,112	0
<b>Total</b>	<b>11,954</b>	<b>12,855</b>	<b>13,504</b>
Biogas	136	(+3) 139	133
Biomass	57	(+180) 237	57
Geothermal	648	211	211
Hydro	-	(+21) 21	-
Large Scale Solar PV	5,535	(+54) 5,589	3,816
Small Solar PV	2,034	(+1,460) 3,494	(+4,229) 6,263
Solar Thermal	1,402	1,194	1,174
Wind	2,142	1,971	1,850
<b>Total</b>	<b>11,954</b>	<b>12,855</b>	<b>13,504</b>
<b>New Transmission Segments</b>	<b>Merced - 1</b>	<b>Merced - 1</b>	<b>Merced - 1</b>
	Kramer - 1		
	Los Banos - 1		





# Ongoing Analysis: Environmental Scoring Methodology





# CPUC Energy Division Examining Environmental Scoring Methodologies

- CPUC subcontracted Black & Veatch to analyze environmental scoring/screening methodologies
  - Back testing data for:
    - Robustness
    - Comprehensiveness
  - The RPS staff has commented on two of these methodologies to the CEC
    - Renewable Energy Transmission Initiative (RETI) methodology
    - WECC's Environmental Data Task Force (EDTF) methodology
    - [http://www.wecc.biz/committees/BOD/TEPPC/External/EDTF\\_FAQs.pdf](http://www.wecc.biz/committees/BOD/TEPPC/External/EDTF_FAQs.pdf)





# Collection Of Environmental Data

- Black & Veatch started analyzing the environmental data in late March, 2013
  - Black & Veatch is collecting additional data to perform the full analysis
- The CPUC's RPS section is also collecting project specific data from the IOUs to help with Black & Veatch's analysis
- All data necessary to conduct the analysis is expected to be received by the end of May of 2013





## ...Next Steps

- Pending the results of the analysis:
  - The CPUC could find that it is necessary to revisit the environmental scoring methodology being used in the RPS Calculator
  - The CPUC will collaborate with the CEC as this analysis develops and results become available





# What If A New Methodology Is Developed?

- The CPUC would hold a public stakeholder process with workshop(s) in order to vet any proposed environmental scoring methodology with the stakeholder community
- Depending on the final results:
  - We anticipate that by late 2013 / early 2014, the development of any new environmental scoring or screening methodology and the stakeholder vetting process will have been completed





## For more details:

### “Tools” and Spreadsheets:

<http://www.cpuc.ca.gov/PUC/energy/Procurement/LTPP/2012+LTPP+Tools+and+Spreadsheets.htm>

#### Re: RPS Calculator

Carlos Velasquez, CPUC Staff  
[Carlos.Velasquez@cpuc.ca.gov](mailto:Carlos.Velasquez@cpuc.ca.gov)  
415-703-1124

#### Re: Environmental Scoring

Jason Simon, CPUC Staff  
[Jason.Simon@cpuc.ca.gov](mailto:Jason.Simon@cpuc.ca.gov)  
415-703-5906

#### Re: LTPP Scenarios

Nathaniel Skinner, CPUC Staff  
[Nathaniel.Skinner@cpuc.ca.gov](mailto:Nathaniel.Skinner@cpuc.ca.gov)  
415-703-1393

