Southern California Edison's Renewable Auction Mechanism (RAM) Program

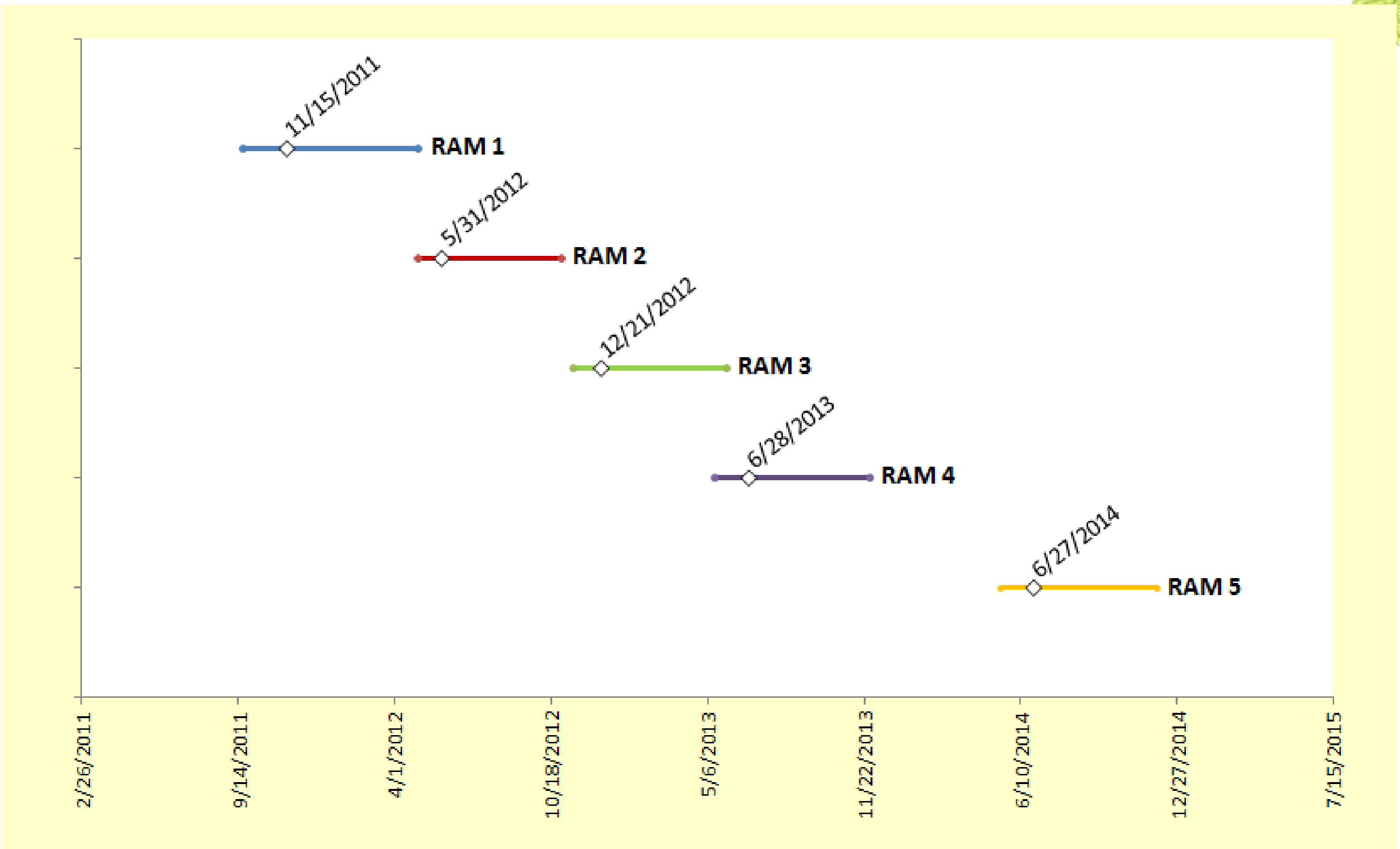
June 6, 2014

EPRG Workshop on Distributed Generation and Smart Connections

The RAM Contracting Tool

- In D.10-12-048 ("the RAM Decision"), the California Public Utilities Commission ("CPUC") adopted a new contracting tool called the Renewable Auction Mechanism, or RAM
  - To procure eligible renewable resources from generating facilities not greater than 20 megawatts (MW)
  - Located within one of the California investor-owned utilities' (IOU) service territories
    - Southern California Edison (SCE)
    - Pacific Gas and Electric (PG&E)
    - San Diego Gas and Electric (SDG&E)
- RAM uses a standard non-negotiable power purchase agreement (PPA)
- SCE is required to procure 754.4 MW in three separate resource categories
  - Peaking, as-available (e.g., solar)
  - Non-peaking, as-available (e.g., wind)
  - Baseload (e.g., geothermal, biomass)
  - Offers must be evaluated and ranked separately within each category, based on price, plus transmission adder, minus resource adequacy benefits ("PTAR")

RAM Contracting – a Six Month Process



RFO	Auction Date	COD[1], Months after CPUC Approval
1	November 15, 2011	18[2]
2	May 31, 2012	24[2]
3	December 21, 2012	24[2]
4	June 28, 2013	24[2]

[1]Commercial Operation Deadline required in the RAM PPA
[2]RAM PPA allows for a 6-month extension in the event of regulatory delays beyond Seller's control

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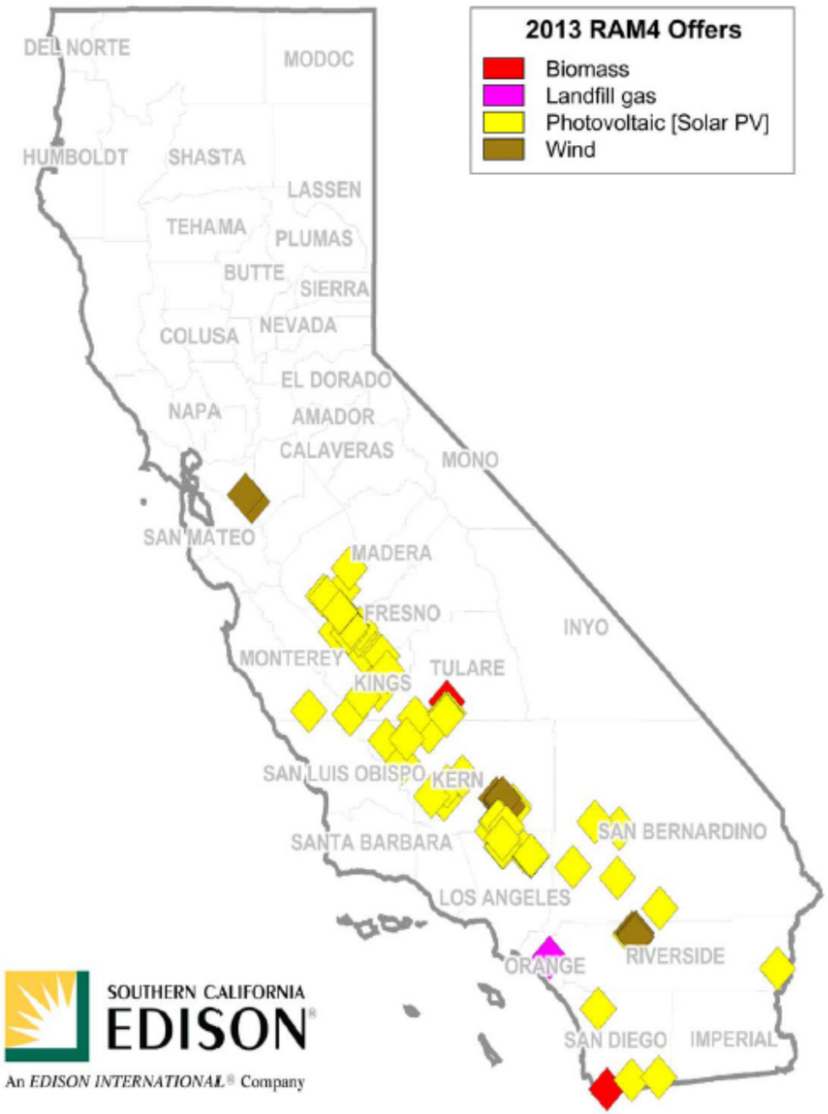
RAM 1 through RAM 4 – A Competitive Market

- Offers contracted, in terms of both number of offers and megawatts, have been a small percentage of offers received
  - Ten percent or less in each RAM auction
- These results provide a good indication of a competitive market

	RAM 1		RAM 2		RAM 3		RAM 4	
	#	MW	#	MW	#	MW	#	MW
Offers	92	1,260	142	2,133	130	1,928	126	2,021
PPAs	7	67	6	97	13	202	10	164
PPAs, % of Offers	8%	5%	4%	5%	10%	10%	8%	8%

RAM 4 – Offer Locations



RAM Resource Categories

- SCE has procured within resource categories as ordered in the RAM Decision
- The market has been dominated by solar PV offers
  - Therefore, SCE established targets (±20 MW) that allowed up to 100% of the selected offers to be in the peaking, as-available category

Number of MW in PPAs Executed, by Resource Category

Resource Category	RAM 1	RAM 2	RAM 3	RAM 4
Peaking, as-available executed MW	67	97	194	128
Non-peaking, as-available executed MW	0	0	7.5	35.8
Baseload executed MW	0	0	0	0
Total executed MW	67	97	201.5	163.8

Eligibility Criteria for Screening Offers – RAM 5

- The Generating Facility must be an eligible renewable resource, 3 to 20 MW
- The project has received a complete System Impact Study or Phase I Interconnection study, or passed Fast Track screens
- Offeror's interconnection study supports an interconnection date on or before December 1, 2016
- Forecasted Commercial Operation Date is on or before December 1, 2016
- The Site is within SCE's, PG&E's, or SDG&E's service territory
- An existing project, if currently under contract to SCE, PG&E or SDG&E, is eligible if the facility's existing contract term is scheduled to expire by December 1, 2016
- Site control; team development experience; commercialized technology
- SCE affiliation is disclosed, if applicable
- Offeror agrees to non-disclosure requirements in the NDA
- Offeror has provided other information requested by SCE

RAM Eligibility Screening - Experience

- Large numbers of offers were screened out during each procurement
  - The primary reason was failure to demonstrate the ability to meet the required COD (which was 18 months in RAM 1; 24 months in RAM 2-4)
    - Based on interconnection studies and milestone schedules submitted with the offer
  - Other reasons amounted to failure to provide conforming documentation to support the offer (e.g., interconnection study)
  - Offerors were given the opportunity to cure

	RAM 1	RAM 2	RAM 3	RAM 4
# Offers	92	142	130	126
# Screened Out for COD	45	22	16	30
# Screened Out for Other Reasons	1	7	21	16
Total # Screened Out	46	29	37	46
Percentage of Offers Screened Out	50%	20%	28%	37%

Offer Price Assumptions

The Offer Price must be developed with consistent assumptions. Offer Price must assume the following:

- Grid Interconnection Costs
  - Direct Assignment Costs – Seller bears the Direct Assignment Costs because there is no reimbursement of these costs to Seller
  - Network Upgrades – Seller bears the cost of financing the Network Upgrades* (unless the upgrades are pre-funded and such pre-funding has been approved by the CPUC)
- Awards – Production Tax Credits, Investment Tax Credits and all other awards that Seller reasonably expects to apply
- Payments will be adjusted in each time of delivery ("TOD") period by the Product Payment Allocation Factors set forth in the RAM PPA
  - Energy-only ("EO") TOD Factors apply when the project is interconnected as EO or if the project is bid as EO
  - Full Capacity Deliverability Status ("FCDS") TOD Factors apply to projects bid as FCDS when the project FCDS date bid in the offer has occurred

* Developer is entitled to repayment with interest over a 5 year period following initial operation. Interest will be calculated in accordance with FERC's regulations at 18 C.F.R. §35.19a(a)(2)(iii).

Offer Price Assumptions *(continued)*

The Offer Price must be developed with consistent assumptions. Offer Price must assume the following:

- TMY data
  - Offeror must use TMY-3 data* in building the Generation Profile
  - On the Generation Profile spreadsheet, Offeror must indicate the USAF Number (Station Number) that was used as the source of the TMY-3 data
  - Hourly average data to represent all hours in a month are not acceptable
- Distribution loss factors (“DLFs”)
  - Offer price should not include DLFs
  - SCE will incorporate them as applicable
- Collateral requirements
  - Development security
  - Performance assurance
- SCE’s Revenue Calculator will be provided as informational only
  - Calculates revenue from energy generation profile
  - Takes into account the TOD Periods and Product Payment Allocation Factors

*The "TMY-3“ data can be found on the NREL website at http://rredc.nrel.gov/solar/old_data/nsrdb/1991-2005/tmy3/.

Resource Adequacy

- Offerors have the option to bid their project into the RAM 5 RFO based on EO or FCDS interconnection
  - Offeror is not required to have applied for or obtained FCDS as a condition of submitting an Offer
  - Only those projects that interconnect as FCDS or have been assigned deliverability are eligible to provide resource adequacy (“RA”)
  - Each Offer must indicate whether it is based on an FCDS or EO interconnection, and, if interconnecting pursuant to FCDS, the Offer must indicate the date by which the Generating Facility will begin delivering Resource Adequacy (“RA Guarantee Date”)
  - An Offeror can submit multiple Offers for the same Generating Facility, including separate Offers for EO and FCDS
- Offers based on FCDS will receive RA benefits in the evaluation
  - RA benefits will only be credited for periods after the offered RA Guarantee Date
- Conversely, EO Offers will not receive any RA benefit in the evaluation

Evaluation of Offers

- SCE will screen conforming Offers on a “pass-fail” basis against the eligibility criteria listed in the RAM 5 RFO Instructions
- SCE will rank eligible Offers based on the sum of levelized Product Price (TOD-adjusted) and estimated costs of Network Upgrades calculated from Offeror’s interconnection study or interconnection agreement for the project, minus RA benefits
  - Price plus Transmission Adder minus RA benefits (“PTAR”) in $/MWh
  - Only Reliability Network Upgrades (RNUs) will be used to create the transmission adder for EO Offers
  - Deliverability Network Upgrades (DNUs) and RNUs will be used for FCDS Offers
- Any non-competitive Offers or evidence of market manipulation will result in Offers being rejected
- Subject to previous bullet, ranking will start with the least expensive Offer based on PTAR until the capacity target in each bucket (plus or minus 20 MW) is reached, and the overall capacity target is reached

Seller's Product Delivery Obligation

- Expected Annual Net Energy Production ("EANEP"):
  - EANEP = Capacity x capacity factor x 8,760 hours per year
  - Example:
    - 10 MW wind project
    - 25% capacity factor
    - EANEP = 21,900 MWh/year
- Seller's Product Delivery Obligation for intermittent technologies is based on a percentage of the EANEP during the prior 24-month period
  - 140% for Wind; 0% for Hydro; 160% all other intermittent technologies
- For baseload technologies, Seller's Energy Delivery Obligation for the twelve (12) month period immediately preceding the end of each Term Year commencing at the end of the second Term Year must equal 90% of the EANEP
- If Seller delivers less than its Product Delivery Obligation (except for certain excused amounts, such as Curtailed Product or Lost Output), it must pay a Product Replacement Damages Amount

Further Information

- RAM 5 RFO website https://sceram.accionpower.com
  - See especially the RFO Instructions in the Documents tab
- George Wiltsee: 626-302-4945; george.wiltsee@sce.com