EAST BAY MUNICIPAL UTILITY DISTRICT

Power and Water Resources Pooling Authority

September 10, 2014

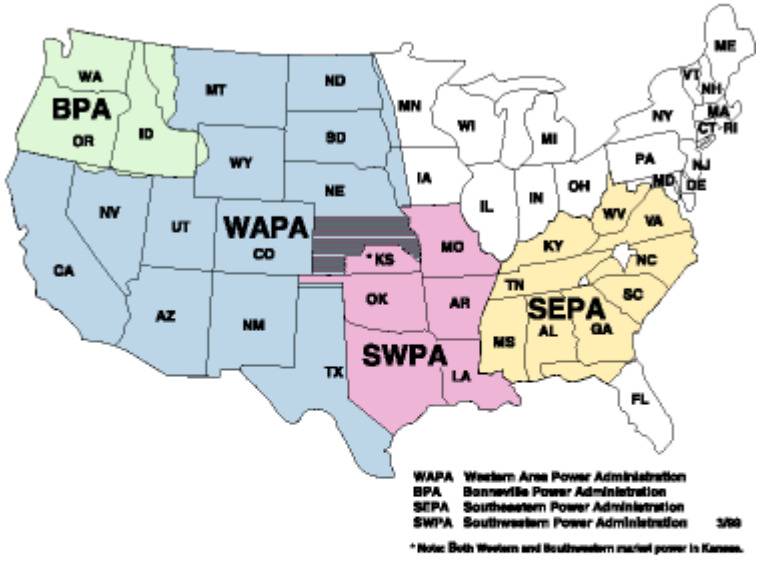
Sustainability/Energy Committee

Overview

- Western Area Power Administration
- PWRPA Evaluation
- FERC Settlement Agreement
- Next Steps

Western Area Power Administration (WAPA)

- One of four power marketing administrations within the U.S. Department of Energy
- Wholesale power provider
- Low cost federal hydropower
- Sierra Nevada Region
  - Installed Capacity: 2,113 MW
  - FY13 generation: 4,481 GWh



WAPA Limitations

- PG&E imposed limitations because of wholesale distribution tariff
  - Minimum Load: 500 KW
  - Minimum Service Voltage: 2,000 volts
  - Location outside a city boundary (unincorporated areas)
- Maximizing WAPA service
  - WAPA service at five District facilities and seeking service at one more facility

Power and Water Resources Pooling Authority (PWRPA)

- Publicly-owned electric utility
- Joint powers authority established in 2004
- Pools participant's WAPA Base Resource
- Supplements WAPA with wholesale power
- 15 Participants

Banta-Carbona ID	Arvin-Edison Water Storage District
Glen-Colusa ID	Cawelo Water District
James ID	Reclamation District 108
Lower Tule River ID	Santa Clara Valley Water District
Princeton-Codora-Glen ID	Sonoma County Water Agency
Provident ID	Westlands Water District
West Side ID	Zone 7
West Stanislaus ID	

PWRPA Membership and Eligibility Requirements

- Current contract holder of WAPA Power
- Construct and maintain intervening facilities
- Negotiate and execute PWRPA agreements

December 2013 EBMUD/PWRPA Letter Agreement

- Complete preliminary activities to evaluate District participation in PWRPA
- 10 large load sites selected
- Provide preliminary design and cost estimate of intervening facilities
- Can submit District accounts in PWRPA requests to PG&E
- Establish buy-in costs

Results of PWRPA Evaluation

Site	Estimated Saving/YR	Intervening Facility cost	Payback (years)	
Castenada PP	**$130K**	**$300K**	**2.3**	✓
Lafayette WTP	**$130K**	**$330K**	**2.4**	✓
Orinda WTP	**$140K**	**$340K**	**2.4**	✓
Claremont Center	**$130K**	**$360K**	**2.7**	✓
San Ramon PP	**$120K**	**$340K**	**2.8**	✓
USL WTP	**$90K**	**$340K**	**3.6**	✓
Richmond RARE	**$70K**	**$340K**	**5.0**	✓
Shasta Woods PP	$40K	$470K	11.3	X
Walnut Creek RWPP	$110-210K	N/A	N/A	X
Diablo Vista	N/A	N/A	N/A	X
TOTAL	**$810K**	**$2.4M**		

PWRPA Benefits

- Access to additional low cost WAPA power
  - Unused Base Resource can be reassigned
- Ability to enter into power agreements (e.g., purchase green energy)
- Potential mechanism for self service
- Operational flexibility (e.g., time-of use)

2010 Settlement Agreement

- Did not resolve whether PWRPA is an electric utility
- 15 megawatt (MW) cap for new PWRPA loads
- New load request in December and June
- Expires September 2015 unless extended

Current Settlement Agreement Discussions

- PWRPA's right to exist as JPA
- Increase limits of PWRPA load
  - Currently 9 MW available out of 15 MW cap
  - 7 District sites total 10.5 MW
- June 2014 EBMUD/PWRPA Non-Disclosure Agreement
  - Monitor settlement discussions

Next Steps

- Submit seven accounts to PWRPA for December 2014 submittal to PG&E
  - Non-Binding
  - Reserves available capacity
- Monitor PWRPA/PG&E settlement
- Complete analysis of costs, benefits and risks of PWRPA membership

EAST BAY MUNICIPAL UTILITY DISTRICT

Renewable Energy Update

September 10, 2014

Sustainability/Energy Committee

Overview

- Existing renewable energy projects
- Net energy metering developments
- Potential photovoltaic projects
- In-Conduit hydro projects
- Next steps

Existing Renewable Energy Projects

Projects	Capacity	FY 13 Generation
Hydropower		
Pardee	30 MW	64,800 MWh
Camanche	11 MW	17,500 MWh
Bio Fuel		
Wastewater PGS	11 MW	48,500 MWh
Photovoltaic (solar)		
District owned (3 projects)	470 kW	500 MWh
PPA thru Solar City (5 projects)	780 kW	1,500 MWh
Total	53.5 MW	132,800 MWh

Net Energy Metering (NEM)

- Provides the best economic payback
- Renewable generation credited at retail rates
- Value of credit varies by size of the service

NEM Aggregate (NEM-A)

- Tariff released in January 2014
- Provides similar credit as NEM
- Single generation project can apply to other accounts
- Accounts must be on the same, adjacent or contiguous properties

Changes in NEM Tariffs

- Current NEM or NEM-A tariffs available until
  - July 2017 or
  - NEM capacity exceeds 5% of utility peak load
- Existing NEM projects can remain on current NEM tariff structure for 20 total years
- New NEM tariffs after July 2017
  - Expected to be based on lower generation credit

Potential NEM PV Projects

- Investigated PV feasibility at
  - 335 small accounts (A-1)
  - 77 mid sized accounts (A-6)
  - Large accounts determined infeasible (E-19/E-20)
- Five potential sites identified
  - Onsite electric load > 100,000 kWh
  - Area available for PV panel installation
  - Significant solar exposure

NEM PV Financial Analysis

- Estimated Costs $1M to $2.5M
- 20-year NPV: $750K to $1.2M

Project Site	Capacity (kW)
Eden PP (A-6)	50 kW
Proctor PP (A-6)	122 kW
Rolph PP (A-6)	19 kW
Skyline PP (A-6)	35 kW
Sleepy Hollow PP (A-6)	49 kW
Total	**275 kW**

Potential NEM-A PV Projects

- Investigated 7 upcountry sites
- Six potential sites identified
- Subject to NEM regulatory limitations
  - Availability until July 2017 or cap reached
  - 20-year life

NEM-A PV Financial Analysis

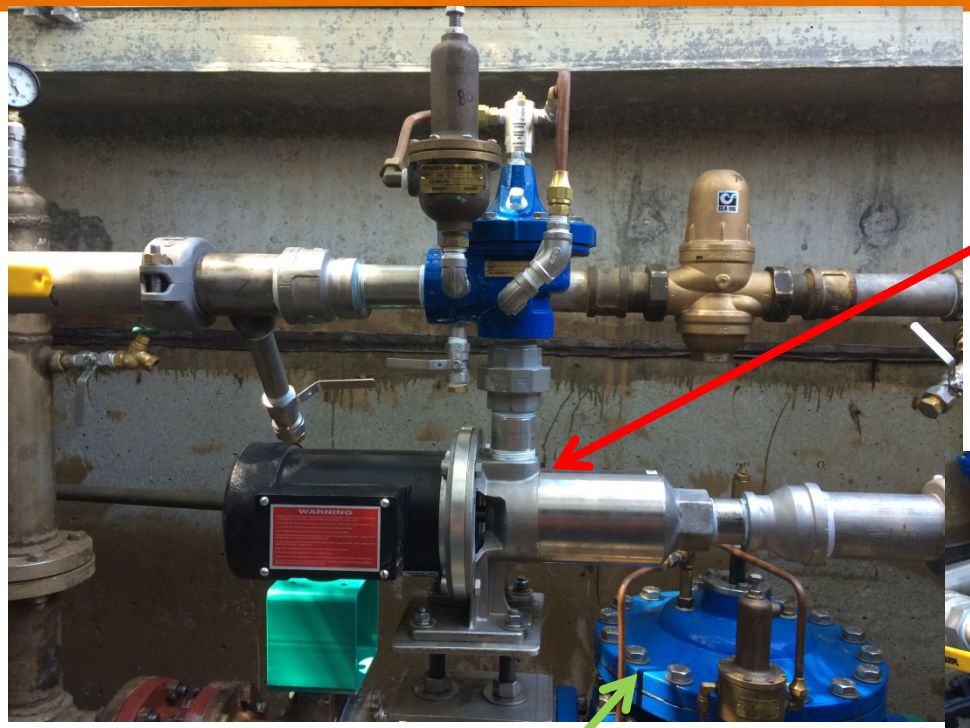
- Estimated Costs $1.7M to $2.7M
- 20-year NPV: $1.4M to $2.4M

Project Site	Capacity (kW)
Pardee Recreation WTP	23kW
Pardee Recreation WTP PP	
Pardee Recreation WWTP	60kW
Pardee Recreation WW ponds	
Cam Dam HOS system	169 kW
Cam Fish Hatchery	226kW
Total	**478kW**

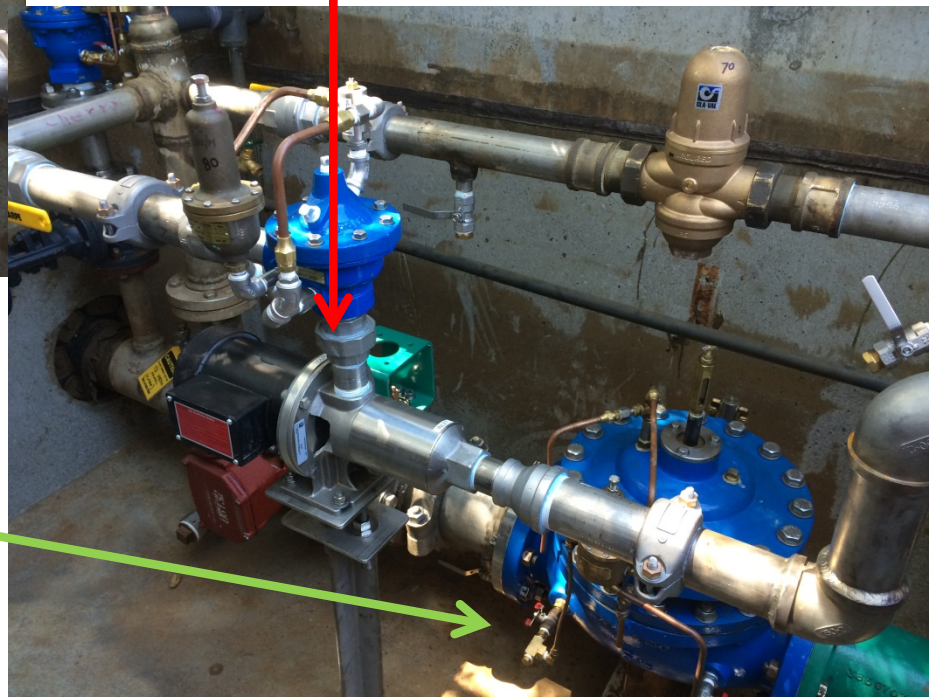
In-Conduit Hydro Pilot

- Pilot installation at Cherry Regulator
  - PG&E service not economical
  - 250 watt generator
  - Provides power for lights, ventilation, sump pump and communications
- If successful will add technology to four other regulator design in progress

Cherry Regulator Pilot



Inline Hydroelectric Generator



Regulator

Next Steps

- RFP for PV projects (2nd quarter FY15)
  - Direct Purchase
  - Power Purchase Agreement
- Evaluate small in-conduit pilot project
- Continue to investigate other in-conduit opportunities