Funding California Investor Owned Utilities Smart Grid Technologies & Deployments

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Main Topics

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3. CPUC Decision (D.) 10-06-047 with SGDP Requirements
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7. AB 327 Distributed Resource Plans…

Rate Recovery Background for California IOUs

- The CPUC (Commission) has ratemaking authority for all electrical corporations, as defined in Public Utilities Code § 218.
- A General Rate Case (GRC) is a regulatory process used to develop reasonable costs for utility services. Phase I determines Revenue Requirement and Phase II determines Revenue Allocation.
  - A utility GRC is generally filed every 3 years.
  - Utility Phase I filing requirements include 5 years of recorded cost data and forecasts of future expenditures.
  - Parties, including Office of Ratepayer Advocates (ORA), The Utility Reform Network (TURN), review/ analyze utility filings, and develop their own independent estimates and recommendations.
  - Hearings held before an Administrative Law Judge (ALJ), briefs filed, ALJ proposed decision issued, comments filed, and final Commission decision setting a level of authorized revenue.
  - The entire GRC process can take up to 2 years.

Policy Background on California Smart Grid (SB 17)

- Energy Information & Security Act (EISA) 2007 required consideration of certain smart grid issues by "each State regulatory authority (with respect to each electric utility for which it has ratemaking authority)" (§ 1307).

- California Senate Bill 17 (SB 17) approved by Governor in October 2009 -- Public Utilities Code § 8360 declared that it is the policy of this state

  "to modernize the state's electrical transmission and distribution system to maintain safe, reliable, efficient, and secure electrical service, with infrastructure that can meet future demand growth and achieve the items set forth in subdivision (a) through (j)"…

Policy Background on California Smart Grid (SB 17)

- SB 17 also established Pub. Util. Code § 8366 stating that “Smart grid technology may be deployed in a manner to maximize the benefit and minimize the cost to ratepayers and to achieve the benefits of SG technology.”

- CPUC Rulemaking (R.08-12-009) initiated to consider Smart Grid technologies pursuant to federal legislation and on the Commission’s own motion to actively guide policy in California’s development of a Smart Grid system.

CPUC D.10-06-047 with SGDP Requirements & D.13-07-024

- PG&E, SCE and SDG&E required to file applications with Smart Grid Deployment Plan (SGDP) by July 2011 consistent with SB 17 requirements.

- Smart Grid Deployment Plan format to include:
  1. SG Vision;
  2. Deployment Baseline;
  3. SG Strategy;
  4. Grid Security & Cyber Security Strategy;
  5. SG Roadmap;
  6. Cost Estimates (5 years);
  7. Benefits Estimates; and
  8. Metrics.

- D.13-07-024 Approved IOUs filed SGDPs and annual filings required (October 1st each year) through 2020. -- IOUs SGDPs Public

CPUC D.10-06-047 with SGDP Requirements & D.13-07-024

- Vision shall address how the grid can achieve SB 17 policies including:
  - self-healing & resilient;
  - customer empowerment to participate in grid operations;
  - resist attack;
  - provide higher quality of power and avoid outages;
  - accommodate all generation and energy storage options;
  - enable electricity markets to flourish;
  - run the grid more efficiently;
  - enable penetration of intermittent power generation sources;
  - create a platform for deployment of a wide range of energy technologies & management services;
  - enable & support demand response, energy efficiency, DG and storage into wholesale energy markets as a resource; and
  - significantly reduce environmental footprint.

Approved PG&E SG Deployment Plan Pilot Projects (D.13-03-032)

- Line sensor pilot request approved for $16.76 million minus ¼ of its 20% technology contingency amount.
- Voltage & Reactive Power Optimization pilot approved for $38.49 million minus ¼ of its 20% technology contingency amount.
- Detect & Locate Distribution Line Outages & Faulted Circuit Conditions pilot approved for $12.9 million minus ¼ of its 20% technology contingency amount.
- Short Term Demand Forecasting Smart Grid pilot approved for $13.45 million minus ¼ of its 20% technology contingency.
- The Commission denied the Technology Evaluation, Standards and Testing (TEST) Initiative & PG&E's Customer Outreach & Education project requests.
- Reporting conditions are included and funds may not be spent beyond current phase of each pilot until status report for that phase is submitted via a Tier 2 Advice Letter to Commission staff and approved. Also, Advice Letter 4227-E filed & approved…

SDG&E 2012 GRC Application A.10-12-005 / Decision D.13-05-010
SDG&E Electric Distribution (ED) Operations

- SDG&E's ED system serves approximately 3 million persons using 1.4 million meters, and covers an area of more than 4,100 square miles from southern Orange County to the California-Mexico border.
- SDG&E's customer mix is composed of about 1.23 million residential customers, 144,292 commercial and industrial customers, and 6,187 street light customers.
- According to SDG&E, the ED system includes: 277 distribution substations; 995 distribution circuits; roughly 225,000 poles; 10,000 miles of underground system; 6,500 miles of overhead systems; and various other pieces of distribution equipment.
- ED capital projects include: construction or modification of facilities to distribute at **15kV and below**; construction or modification of facilities that transform energy from transmission voltage levels to distribution voltage levels; projects to improve system **reliability**; and **protective relaying**, **circuit breakers**, **substation switchgear**, and associated equipment for distribution substations and for equipment on the 15kV and below systems.

SDG&E Energy Storage & Related Legislation

- SDG&E's energy storage capital project makes up the bulk of its capital funding request. For 2011 and Test Year (TY) 2012, SDG&E requested a total of $54.983 million. ***
- In deciding whether it is reasonable to have ratepayers fund SDG&E's energy storage project, Commission relied on the code sections that were added to the Pub. Util. Code as a result of AB 2514 (Stats. 2010, Ch. 469, Sec. 2.). AB 2514 added Chapter 7.7 to the Pub. Util. Code to address energy storage systems.
- In § 2836, the Commission was directed to "open a proceeding to determine appropriate targets, if any, for each load-serving entity to procure viable and cost-effective energy storage systems to be achieved by December 31, 2015, and December 31, 2020."
- Commission issued D.12-08-016, which in phase one, adopted a framework for analyzing energy storage needs. Phase two is currently underway, and is studying how energy storage should be evaluated and incorporated into existing procurement portfolios.

Approved SDG&E 2012 General Rate Case SG Capital Projects ($M)
Application A.10-12-005 / Decision D.13-05-010 2011 & TestYear2012

Smart Grid Capital Projects	SDG&E '11 Forecast	CPUC '11 Approved	SDG&E TY12 Forecast	CPUC TY12 Approved
Energy Storage	$25.193	$0*	$29.790	$26.000
Dynamic Line Ratings	$1.963	$1.463	$1.963	$1.463
PMUs	$1.475	$0.900	$2.581	$1.500
Capacitor SCADA	$2.902	$1.802	$2.902	$1.802
SCADA Expansion	$0	$0	$4.699	$2.250
Smart Transformers	$2.047	$1.300	$.521	$0.521
Plug-in EV Infrastructure & Charging Facilities	$0	$0	$5.230	$0
Wireless Fault Ckt Ind	$1.302	$1.202	$2.199	$1.199
Phase Identification	$1.184	$0	$4.027	$0
Integrated Test Facility	$0.502	$0.250	$1.340	$0.250
TOTAL:	$36.568	$6.917*	$55.252	$34.985

Pending PG&E 2014 General Rate Case SG Projects ($M)
Application A.12-11-009 TY2014 Forecasts, ORA & TURN's Proposals

Smart Grid Capital Projects	PG&E '14 Forecast	ORA '14 Proposal	TURN '14 Proposal	CPUC '14 Approval
Substation SCADA	$58.3	$56.782	$15.699	TBD
Install Feeder SCADA	$5.0	$1.161	$1.573	TBD
Replace Feeder SCADA	$2.0	$1.25	$2.0	TBD
FLISR Feeder Auto	$60.0	$30.0	$41.48	TBD
Install Line Reclosers	$24.42	$17.82	$16.882	TBD
Recloser Control Ups	$1.6	$1.6	$1.1	TBD
Data Historian	$12.278	$0	$0	TBD
Outage Reporting System	$4.516	$3.34	$0	TBD
Network SCADA Monitor	$8.0	$4.101	$8.0	TBD
ED GIS/AM	$27.8	$0	$0	TBD
TOTAL:	$203.9	$116.1	$86.7	TBD

Recently Filed SCE 2015 General Rate Case SG Projects Application A.13-11-003 2013-2017 Forecasts (Nominal $ million)

Smart Grid Capital Projects (T&D Engineering & Grid Technology)	SCE 2013-17 Forecasts	Location in Testimony
EV Testing Center	$8.2	SCE-03 Vol.02 pp. 51-53
Lg Energy Storage Test Apparatus	$2.2	SCE-03 Vol.02 pp. 53-55
Dist Energy Storage Integation	$14.4	SCE-03 Vol.02 pp. 55-57
Westminster Labs Upgrade	$14.4	SCE-03 Vol.02 pp. 57-67
Equipment Demo & Eval Facility	$10.9	SCE-03 Vol.02 pp. 67-71
Wide Area Volt/VAR Control Sys	$4.0	SCE-03 Vol.02 pp. 71-75
Comprehensive GIS	$37.9	SCE-03 Vol.02 pp. 83-85
Centralized Remedial Action Scheme	$102.3	SCE-03 Vol.02 pp. 85-93
Phasor Program	$51.8	SCE-03 Vol.02 pp. 93-98
Consolidated Mobile Solution Benefits	($18.4)	SCE-03 Vol.02 pp. 98-100
SUBTOTAL:	**$227.7**	

Recently Filed SCE 2015 General Rate Case SG Projects
Application A.13-11-003 2013-2017 Forecasts (Nominal $ million)

Smart Grid Capital Projects (T&D System Planning & IT)	SCE 2013-17 Forecasts	Location in Testimony
Capacitor Automation	$9.2	SCE-03 Vol.03 pp. 97-98
Circuit Automation	$38.6	SCE-03 Vol.03 pp. 98-100
SUBTOTAL:	**$47.8**	
Mobile Radio System Replacement	$57.9	SCE-05 Vol.01 pp. 120-123
Common Cyber Security Services	$40.6	SCE-05 Vol.02 Pt1 pp14-15*
SUBTOTAL:	**$98.5**	
Customer Service Capitalized S/W		
Dynamic Pricing	$11.0	SCE-05 Vol02 Pt1 pp107-109
Edison SmartConnect Stabilization	$4.4	SCE-05 Vol02 Pt1 pp118-120
Alerts & Notification System	$10.2	SCE-05 Vol02 Pt1 pp132-136
BuildOut Customer Data Warehouse	$28.0	SCE-05 Vol02 Pt1 pp138-139

Recently Filed SCE 2015 General Rate Case SG Projects
Application A.13-11-003 2013-2017 Forecasts (Nominal $ million)

Smart Grid Capital Projects (T&D System Planning & IT)	SCE 2013-17 Forecasts	Location in Testimony
Prepayment Program	$1.6	SCE-05 Vol02 Pt1 pp146-149
GRC Rate Design Phase II	$6.5	SCE-05 Vol02 Pt1 pp149-152
Enhanced Metering & Usage	$16.6	SCE-05 Vol02 Pt1 pp152-156
Edison SmartConnect Monitoring & Analysis System Phase 2	$5.1	SCE-05 Vol02 Pt1 pp156-161
Hiperwall Refresh	$1.9	SCE-05 Vol02 Pt1 pp161-167
Plug-In EVs Support Systems	$2.5	SCE-05 Vol02 Pt1 pp167-173
Cell Relays Replacement Program	$17.3	SCE-05 Vol02 Pt1 pp177-183
HAN Future Upgrades & Standards	$6.0	SCE-05 Vol02 Pt1 pp183-187
SUBTOTAL:	**$111.1**	
GRAND TOTAL:	**$485.1**	

EPIC Program- Background

- The Electric Program Investment Charge (EPIC) is designed to assist the development of non-commercialized new and emerging clean energy technologies in California, while providing assistance to commercially viable projects.
- CPUC found that each of the first triennial investment plans offer a reasonable probability of providing electricity ratepayer benefits by promoting greater reliability, lowering costs, and increasing safety.
- Projects should be selected for award of EPIC funding on a competitive basis unless the administrators have specifically detailed and justified exceptions to this in their approved investment plans. PRC§ 25711.5 requires competitive bidding to be the preferred method for the CEC to award EPIC funds and imposes specific requirements.
- EPIC administrators are required to report the use of non-competitive awards in their annual reports to the Commission.

EPIC Funding for 2012-2014 Investment Plans

Funding Element	CEC	Utilities	CPUC	Total ($ Millions)
Applied Research	$55.0	-	-	$55.0
Technology Demonstration and Deployment	$45.0*	$30.0	-	$75.0
Market Facilitation	$15.0	-	-	$15.0
Program Administration	$12.8	$3.4	-	$16.2
Program Oversight	-	-	$0.8	$0.8
Total ($ Millions)	$127.8	$33.4	$0.8	$162.0

- *A minimum of 20% of the CEC's funding for technology demonstration and deployment must be used for bioenergy projects
- The figures above will be adjusted on January 1, 2015 commensurate with the average change in the Consumer Price Index, specifically the Consumer Price Index for Urban Wage Earners and Clerical Workers for the third quarter, for the previous three years.

EPIC Program- Funding by each PA

Program Administrators 2012-2014 Triennial Investment Plan Program Budget Allocations (in $ Millions)				
Program Administrator	**2012**	**2013**	**2014**	**Total**
CEC	113.1	127.8	127.8	368.7
PG&E	15.1	17.1	17.1	49.3
SCE	12.2	14.1	14.1	40.4
SDG&E	2.6	3.0	3.0	8.6
Total	143.0	162.0	162.0	467.0

The figures above will be adjusted on January 1, 2015 commensurate with the average change in the Consumer Price Index, specifically the Consumer Price Index for Urban Wage Earners and Clerical Workers for the third quarter, for the previous three years.

EPIC Program is now Live

- On November 1, 2012, each of the Program Administrators submitted their respective initial triennial investment plans to the CPUC for consideration
- The investment plans were modified and approved in Decision 13-11-025 on November 14, 2013.
- The Program Administrators will now hold competitive solicitations, and grant awards to successful bidders and report the award recipients in their annual report filings.
- The CPUC will continue to oversee the implementation of the EPIC program and will begin the deliberation process for the second triennial investment cycle after May 1, 2014 once the program administrators file their second round of investment plan applications with the CPUC.

EPIC Program- CPUC Schedule

	Investment Plan 1	Investment Plan 2	Investment Plan 3
Funding Period	2012 - 2014	2015 - 2017	2018 - 2020
Investment Plan Development	July – October 2012	January – March 2014	January – March 2017
Proposed Plan Submitted to CPUC	November 1, 2012	May 1, 2014	May 1, 2017
CPUC deliberations	November 2012 – October 2013	May – November 2014	May – November 2017
CPUC Decision	November 2013	December 2014	December 2017

Public Info, Reports & Evaluation

Visit the CPUC Proceeding Webpage:

http://delaps1.cpuc.ca.gov/CPUCProceedingLookup/f?p=401:1:0

The EPIC Proceeding number is A1211001, please subscribe to this proceeding to receive the new proceeding number for the second investment plan cycle.

You will be able to see the CPUC specific information, investment plans, comments, reply comments, rulings and any decisions the ALJ issues with regards to EPIC on this page. Also, **Contact the Program Administrators Directly**

- Program Administrators shall file reports annually on February 28 each year.
- CPUC will hire an Independent Evaluator to review the EPIC program by 2016.

Supervisor- Emerging Procurement Strategies

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EPIC Webpages

CPUC EPIC Webpage:
http://www.cpuc.ca.gov/PUC/energy/Climate+Change/research+and+development.htm

CEC EPIC Webpage:

http://www.energy.ca.gov/research/epic/

PG&E EPIC Webpage :

http://www.pge.com/en/about/environment/pge/epic/index.page

SDG&E EPIC Webpage :

http://www.sdge.com/epic

SCE EPIC Webpage :
https://www.sce.com/wps/portal/home/regulatory/epic/!ut/p/b1/lZDLboMwEEW_hiXygHkunaglpJA0olKBDQLHEEdgCHGj9u9rULYpzaxmNI97z6AcpSgX5Y03peS9KNupzp3C8AKyCRMIveiAIVytwr3zamF4M9EnylFOhRzkCWVXygraC8mELjQ4J5rMLLmqy1lP_5owAZOp6WhbNiRXXkj5oryI8pcu8ZV5Rs6M3xLtzC1dc9xmc4AqGX6mFaMKk-Z8gQPgsCS5e3SgBLg58slJ4psIviWKP0_mto2x3gdNxOiPOlc1D1K59b8LKXtB_Cy2e4hDD4mbXyAXUIIBnDuA3_AZYrefeh-jVHy5DsXDlpPHxy6zjvXkd3eojp577piF5Nf6ogfTg!!/dl4/d5/L2dBISEvZ0FBIS9nQSEh/

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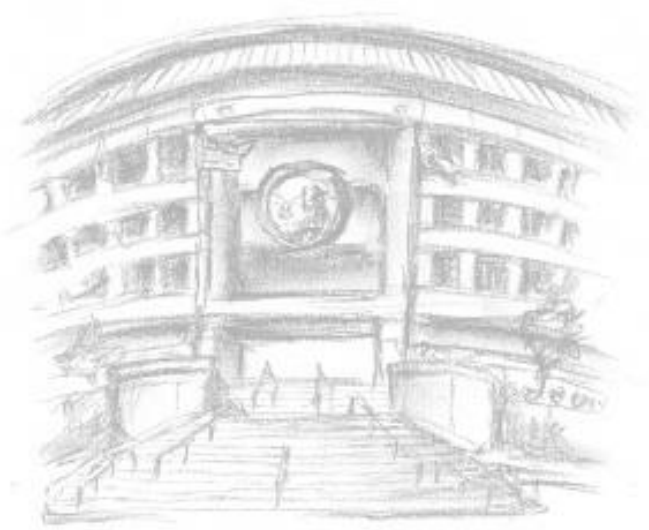
- Service lists are specific to a particular proceeding and you have to individually sign up for each proceeding you want. You can sign up on a Service List as Information Only and you will receive emails from the CPUC, the applicant, and other parties to the proceeding when documents are served for that proceeding.
- Contact Public Advisor's Office for further procedural information and advice to participate in formal PUC proceedings.

One last Separate Note -

- **California Assembly Bill (AB) 327 Distribution Resource Plans…**

Thank you!

More information is available at CPUC main website and California's Smart Grid link: www.cpuc.ca.gov and http://www.cpuc.ca.gov/PUC/energy/smartgrid.htm



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