

2017 Annual Joint Powers Authority (JPA) Report

- Central Valley Financing Authority (CVFA)
- Sacramento Cogeneration Authority (SCA)
- Sacramento Power Authority (SPA)
- SMUD Financing Authority (SFA)

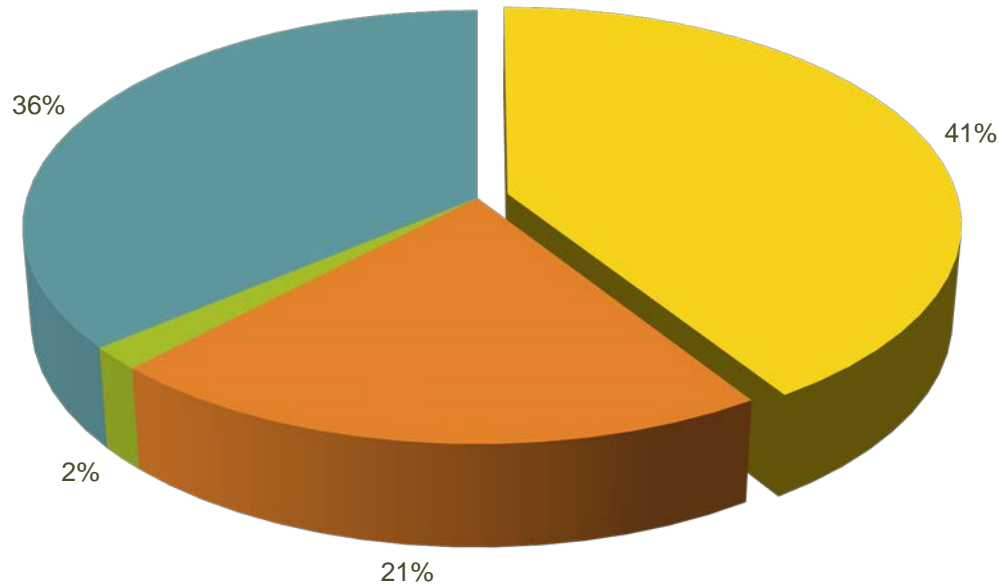
JPA Commission Meetings

April 19, 2018, directly following the SMUD Board Meeting
CSC Rubicon Room

2017 SMUD Load by Resource (GWh)

2017 SMUD Load

	<u>2017</u>	<u>GWh</u>
Thermal (Gross)		4,747
UARP		2,462
Additional Renewable		201
Contracts & Market Purchases		4,189
Total Load		<u>11,599</u>

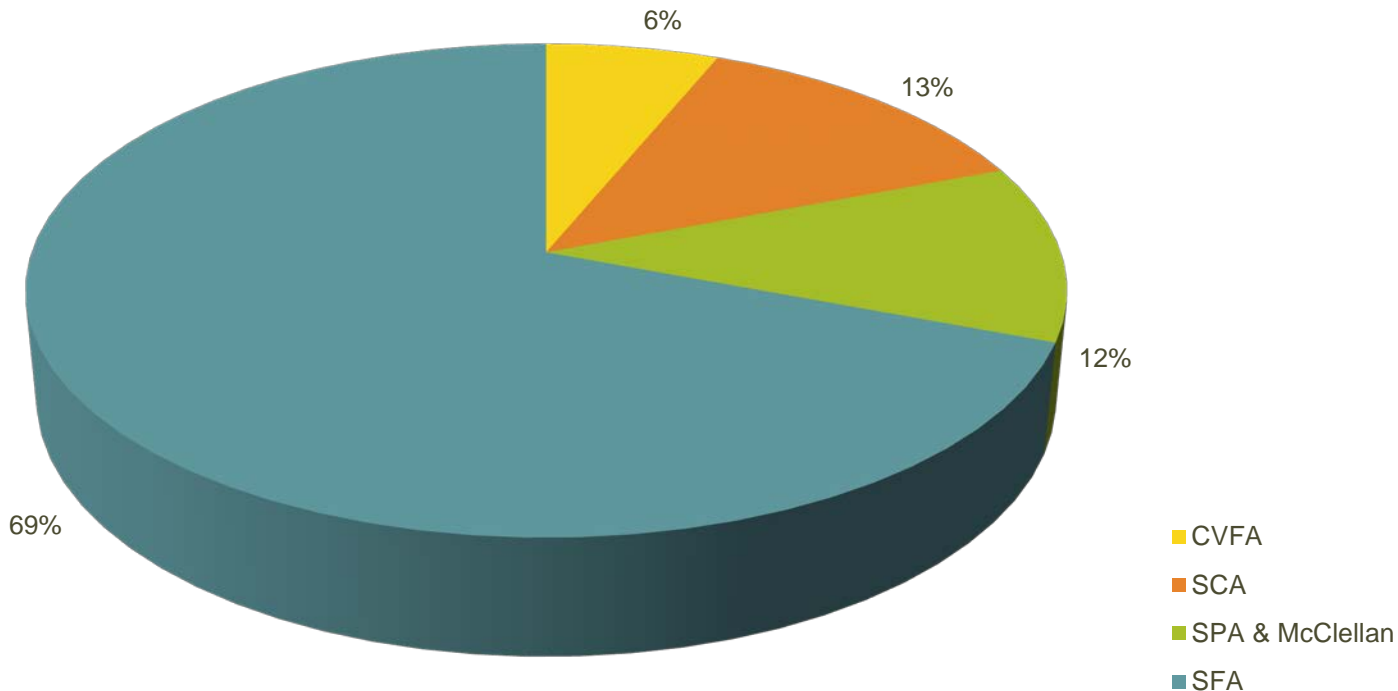


- Thermal
- UARP
- Additional Renewable
- Contracts & Market Purchases

2017 JPA Total Net Generation (GWh)

**2017 Total Net Generation
4,612 GWh**

	<u>2017</u>	<u>MWh</u>	<u>GWh</u>
CVFA		287,446	287
SCA		596,343	596
SPA & McClellan		535,039	535
SFA		3,193,350	3,193
Total Generation		<u>4,612,178</u>	<u>4,612</u>



CVFA Cogen I (Carson Ice Cogen)



CVFA Cogen I (Carson Ice Cogen)

- 99.9MW Net Dependable Capacity:
 - 57MW Cogeneration
 - 42MW Simple Cycle Peaking Unit
- GE Aero Derivative Gas Turbines (LM6000)
- Operated by EthosEnergy Power Plant Services
- Steam Hosts:
 - Sacramento Regional Wastewater Treatment Plant (SRWTP)
 - Installed and commissioned a new Auxiliary Boiler in 2017 to supply SRWTP with steam when the Combined Cycle unit is dispatched offline for economics
- Renewable Energy Twist:
 - SRWTP's Anaerobic Digesters create renewable biogas
 - CVFA treats it to pipeline quality
 - SMUD transfers the digester gas to CPP for generation

CVFA Cogen I (Carson Ice Cogen)

Operational Performance Data:	2016	2017
Equivalent Forced Outage Factor (EFOF)	0.54%	0.16%
IEEE Equivalent Availability (on line or ready to run)	94.91%	88.36%
Overall Capacity Factor (based on 99.9 MW)	43.40%	32.90%
Combined Cycle Capacity Factor (based on 57.4 MW)	61.35%	48.40%
Peaker Capacity Factor (based on 42.5 MW)	4.86%	2.67%
Generation Compared to Budget	98.90%	121.00%

- ❑ There were no lost time or OSHA recordable injuries at the Carson Cogeneration Project during 2017.
- ❑ Lower Availability due to the scheduled Steam Turbine Major Overhaul in 2017.
- ❑ Electrification of Glacier Ice process allows more steam to be diverted to the steam turbine to produce more MWHs.
- ❑ The CVFA peaker starting reliability was 100% in 2017 (53 successful starts).
- ❑ All other permit & regulatory requirements were satisfactorily met during 2017.

SCA Cogen II (Procter & Gamble Cogen)



SCA Cogen II (Procter & Gamble Cogen)

- 184 MW Total Capacity (164.3MW original NDC):
 - 134MW Cogeneration
 - 50MW Simple Cycle Peaking Unit
- GE Aero Derivative Gas Turbines (LM6000)
- Operated by EthosEnergy Power Plant Services
- Steam Host:
 - Procter & Gamble Oleo-chemicals
 - Factory converts palm kernel and coconut oils into alcohol esters
 - Installed and commissioned a new Auxiliary Boiler in 2017 to supply Procter & Gamble with steam when the Combined Cycle unit is dispatched offline for economics

SCA Cogen II (Procter & Gamble Cogen)

Operational Performance Data:	2016	2017
Equivalent Forced Outage Factor (EFOF)	6.50%	0.09%
IEEE Equivalent Availability (on line or ready to run)	90.51%	89.36%
Overall Capacity Factor (based on 164.3 MW)	50.70%	41.40%
Combined Cycle Capacity Factor (based on 120.3 MW)	68.00%	56.00%
Peaker Capacity Factor (based on 44 MW)	9.00%	7.00%
Generation Compared to Budget	102.20%	113.30%

- ❑ There were no lost time or OSHA recordable injuries at the SCA Cogeneration Project during 2017.
- ❑ The SCA peaker starting reliability was 99.0% in 2017 (110 successful starts out of 111 attempts).
- ❑ All permit & regulatory requirements were satisfactorily met during 2017.
- ❑ Lower Availability due to the scheduled Steam Turbine Major Overhaul in 2017.

SPA Cogen III & McClellan Gas Turbine



SPA Cogen III & McClellan Gas Turbine

- SPA Cogen III:
 - 160 MW Cogen facility
 - Siemens industrial frame gas turbine (V84.2)
 - No Current Steam Host

- McClellan Gas Turbine:
 - 72MW Simple Cycle Peaking Unit
 - GE industrial frame gas turbine (Frame 7E)

- Operated by EthosEnergy Power Plant Services

SPA Cogen III & McClellan Gas Turbine

Operational Performance Data:	2016	2017
Equivalent Forced Outage Factor (EFOF)	0.01%	0.27%
IEEE Equivalent Availability (on line or ready to run)	87.67%	90.60%
Overall Capacity Factor (based on 159.8 MW)	60.10%	37.40%
Generation Compared to Budget	124.50%	77.90%

- ❑ There were no lost time or OSHA recordable injuries at SPA facilities in 2017.
- ❑ In November 2017, the plant received a Notice of Violation (NOV) from the Sacramento Metropolitan Air Quality Management District (SMAQMD) when the plant installed new analyzers that expanded the range of CO analyzers. This expanded analyzer range recorded an exceedance over our daily CO permit limit. An immediate variance request was applied for and approved by SMAQMD to continue to run the plant throughout 2018 while a permanent permit modification is approved by SMAQMD.

SFA Cosumnes Power Plant (CPP)



SFA Cosumnes Power Plant (CPP)

- 500MW Combined Cycle 2x1 Power Plant
- GE Frame 7FA Gas Turbines (7241FA)
- Operated by EthosEnergy Power Plant Services
- Renewable Energy Twist:
 - CPP burns SMUD's renewable biogas
 - Digester gas from SRWTP
 - Contracted Biogas from various sources
 - Cleanest, most efficient use of renewable biogas

SFA Cosumnes Power Plant (CPP)

Operational Performance Data:	2016	2017
Equivalent Forced Outage Factor (EFOF)	0.01%	0.02%
IEEE Equivalent Availability (on line or ready to run)	94.01%	85.98%
Overall Capacity Factor (based on 501.2 MW NDC)	87.90%	72.60%
Generation Compared to Budget	97.00%	80.20%

- There were no lost time or OSHA recordable injuries at SFA facilities in 2017.
- All other permit & regulatory requirements were satisfactorily met during 2017.
- Lower Availability due to Steam Turbine generator minor inspection.