

2014 Quick Look				By/With
Estimated 2014 2015 % Year Average Commercial Fuel Mix Factor (2012-2014) (Metric Tons)	2,086,933.27	1,881,233.04	4,168,136.75	1,000
PG&E Deliverables	2,102,000.00	4,891,136.97	6,993,136.97	1,000
PG&E Purchases	2,102,796.48	1,805,642.85	3,908,439.33	1,000
Total	4,204,796.48	6,696,779.82	10,901,576.30	1,000

- Notes:**
- 1 Actual emissions from PG&E-owned generation (including Lathrop & Pacific) (Metric Tons)
 - 2 Emission factors for secondary purchased from California
 - 3 California Power Sales/Trade, average calculated rate EPA 423 to 2014
 - 4 EPA 423 data to calculate firm emission rates (up to November 30 of 2017, check back)

Steps for Calculating: Emission reports for PG&E generation (JGD&T Fuel), will need to roll up with to entire plant (Environmental Services, currently only, Sierra, Butte) Power Cost Savings Reports (for Sierra & Sacramento Area)

Types of Data from the Power Cost Report: Generation (PG&E) (Metric Tons)

Generation (PG&E) (Metric Tons)

Production: Total PG&E Production (Metric Tons) (plant for average delivery to customers)

Purchases: Secondary: Contract specify metering, power purchased for energy delivery to customers

Other Purchases: Other: Total metered secondary purchases over 100 MWh (Metric Tons) (Step 1) Actual meter read compared to base schedule (in the hour), Step 2) If meter > than base schedule, use actual

Transactions by Other: Our power over other Sierra, 3rd party sale (Metric Tons)

Other by Report: This is a separate report with data to other system (data for fuel) for the duration of delivery PG&E system load

Production: This report is a bracket. One will do this once the fuel mix prices begin to roll

Emission Estimates for Sierra: EPA 423 generation and base rate data, fuel rate factors from EPA 423

Emission Estimates for Sacramento: Provided by Customers (Fuel Mix Methodology)

Population Estimates:

3327	2016	Southern Cal - Edison	Purchases - Secondary	Secondary	System	Yes	Southern Cal - Edison	800.00	800.00	1,001.86	50.00	0.00	Secondary purchases to serve PSE load unclassified
3445	2016	Sunco	EM Sales	Secondary	System	Yes	Sunco	4,270.81					Treat these as secondary purchases even if it's a PSE resource. The way EM works: Step 1) Actual meter read compared to base schedule (in the hour), Step 2) if meter > than base schedule, sale occurred.
3459	2016	Sunco	EM Purchases	Secondary	System	Yes	Sunco	2,699.94	4,619.15	1,001.86	2,313.86	0.00	Treat these as secondary purchases even if it's a PSE resource. The way EM works: Step 1) Actual meter read compared to base schedule (in the hour), Step 2) if meter > than base schedule, sale occurred.
3267	2016	Tanaka Power	Transmission by Others	Secondary	System	Yes	Tanaka Power	26,635.00					Our power over other lines, 3rd party sales (wholesale)
3428	2016	Tanaka Power	Sales for Resale	Secondary	System	Yes	Tanaka Power	26,984.00					This is wholesale power sales. Sales to other entities (Sales for Resale) for the purpose of balancing PSE system load.
3128	2016	Tanaka Power	Purchases - Secondary	Secondary	System	Yes	Tanaka Power	78,026.00					Secondary purchases to serve PSE load unclassified.
3429	2016	Taken Energy (PSE) Energy Plant	Sales for Resale	Secondary	System	Yes	Taken Energy (PSE) Energy Plant	41,154.00	21,553.00	1,001.86	12,890.23	0.00	This is wholesale power sales. Sales to other entities (Sales for Resale) for the purpose of balancing PSE system load.
3339	2016	Taken Energy (PSE) Energy Plant	Purchases - Secondary	Secondary	System	Yes	Taken Energy (PSE) Energy Plant	123,943.00					Secondary purchases to serve PSE load unclassified.
3430	2016	Tanaka Power Services Co	Sales for Resale	Secondary	System	Yes	Tanaka Power Services Co	17.00	162,789.00	1,001.86	83,044.46	0.00	This is wholesale power sales. Sales to other entities (Sales for Resale) for the purpose of balancing PSE system load.
3340	2016	Tanaka Power Services Co.	Purchases - Secondary	Secondary	System	Yes	Tanaka Power Services Co.	875.00	858.00	1,001.86	479.89	0.00	Secondary purchases to serve PSE load unclassified.
3388	2016	The Energy Authority	Transmission by Others	Secondary	System	Yes	The Energy Authority	217,847.00					Our power over other lines, 3rd party sales (wholesale)
3411	2016	The Energy Authority	Sales for Resale	Secondary	System	Yes	The Energy Authority	16,438.00					This is wholesale power sales. Sales to other entities (Sales for Resale) for the purpose of balancing PSE system load.
3341	2016	The Energy Authority	Purchases - Secondary	Secondary	System	Yes	The Energy Authority	979,778.00					Secondary purchases to serve PSE load unclassified.
3432	2016	TransAlta Energy Corporation LP	Sales for Resale	Secondary	System	Yes	TransAlta Energy Corporation LP	2,258.00	-2,206.00	1,001.86	138,762.88	0.00	This is wholesale power sales. Sales to other entities (Sales for Resale) for the purpose of balancing PSE system load.
3433	2016	TransAlta Energy Marketing	Sales for Resale	Secondary	System	Yes	TransAlta Energy Marketing	411,651.00					This is wholesale power sales. Sales to other entities (Sales for Resale) for the purpose of balancing PSE system load.
3389	2016	TransAlta Energy Marketing	Transmission by Others	Secondary	System	Yes	TransAlta Energy Marketing	161,098.00					Our power over other lines, 3rd party sales (wholesale)
3389	2016	TransAlta Energy Marketing	Interchange - Out	Secondary	System	Yes	TransAlta Energy Marketing	-705.00					Interchange out secondary purchases to serve PSE load unclassified.
3342	2016	TransAlta Energy Marketing	Purchases - Secondary	Secondary	System	Yes	TransAlta Energy Marketing	757,824.00					Secondary purchases to serve PSE load unclassified.
3434	2016	TransCanada Energy Sales Ltd	Sales for Resale	Secondary	System	Yes	TransCanada Energy Sales Ltd	4,932.00					This is wholesale power sales. Sales to other entities (Sales for Resale) for the purpose of balancing PSE system load.
3343	2016	TransCanada Energy Sales Ltd	Purchases - Secondary	Secondary	System	Yes	TransCanada Energy Sales Ltd	2,699.00					Secondary purchases to serve PSE load unclassified.
3435	2016	Turkock Invention District	Sales for Resale	Secondary	System	Yes	Turkock Invention District	155.00					This is wholesale power sales. Sales to other entities (Sales for Resale) for the purpose of balancing PSE system load.
3346	2016	Turkock Invention District	Purchases - Secondary	Secondary	System	Yes	Turkock Invention District	18,471.00					Secondary purchases to serve PSE load unclassified.
3446	2016	Upper Baker	EM Sales	Secondary	System	Yes	Upper Baker	18,213.31	18,516.00	1,001.86	9,275.19	0.00	Treat these as secondary purchases even if it's a PSE resource. The way EM works: Step 1) Actual meter read compared to base schedule (in the hour), Step 2) if meter > than base schedule, sale occurred.
3340	2016	Upper Baker	EM Purchases	Secondary	System	Yes	Upper Baker	18,943.73					Treat these as secondary purchases even if it's a PSE resource. The way EM works: Step 1) Actual meter read compared to base schedule (in the hour), Step 2) if meter > than base schedule, sale occurred.
3446	2016	Wah Inc	Sales for Resale	Secondary	System	Yes	Wah Inc	2,208,864.00					This is wholesale power sales. Sales to other entities (Sales for Resale) for the purpose of balancing PSE system load.
3345	2016	Wah Inc	Purchases - Secondary	Secondary	System	Yes	Wah Inc	2,131,761.00					Secondary purchases to serve PSE load unclassified.
3447	2016	Whitburn D&I	EM Sales	Secondary	System	Yes	Whitburn D&I	1,941.56					Treat these as secondary purchases even if it's a PSE resource. The way EM works: Step 1) Actual meter read compared to base schedule (in the hour), Step 2) if meter > than base schedule, sale occurred.
3343	2016	Whitburn D&I	EM Purchases	Secondary	System	Yes	Whitburn D&I	1,188.63	382.47	1,001.86	17.15	0.00	Treat these as secondary purchases even if it's a PSE resource. The way EM works: Step 1) Actual meter read compared to base schedule (in the hour), Step 2) if meter > than base schedule, sale occurred.
3342	2016	Whitburn North	EM Purchases - Secondary	Secondary	System	Yes	Whitburn North	15,834.60					Treat these as secondary purchases even if it's a PSE resource. The way EM works: Step 1) Actual meter read compared to base schedule (in the hour), Step 2) if meter > than base schedule, sale occurred.

4,166,148.76 4,256,158.91 -2,286,765.02 Sum of unclassified short ton emissions only

Unpermitted Emissions - Netting Method Debitless 4,256,158.91 Short Tons
 Unpermitted Emissions - Netting Method Sales -2,286,765.02 Short Tons
 Unpermitted Emissions - Sum of All MWh x Conversion Rate 2,069,393.27

Net Difference (Netting - Sum) -1,186,476.41 Short Tons

PSE Over - Firm Rate in 2016 1,001.86
 Conversion Rate in 2016 1,001.86
 Unpermitted Sales -26,552,154.40
 Unpermitted Purchases 26,328,283.13

Report all sales and purchases separately for each trading entity
 Net sales, company's best average emissions rate
 Net purchases, Dept. of Commerce's fuel use emissions rate

Known sources, include firm contracts
 Aggregate net system purchases and sales
 Counterparty by counterparty net system

Comparison of Emissions Using WUTC "Net Out" Methodology Recommendation

<i>Rationale for selecting</i>	2008	2012	2016
	High emissions year in the NWPP	Low emissions year in the NWPP	Current reporting year
CO2 Emission Rates			
<i>Commerce Rate, lb/MWh</i>	1,024	903	1,002
<i>PSE Owned + Firm Rate, lb/MWh</i>	814	895	1,057
Non-Firm Purchases & Sales			
<i>Unspecified Sales (MWh)</i>	-6,340,438	-7,143,982	-20,152,154
<i>Unspecified Purchases (MWh)</i>	11,781,860	14,870,988	24,318,283
<i>Net Delivered (MWh)</i>	5,441,422	7,727,006	4,166,129
CO2 Emissions - Net Purchase & Sales by Counterparty, then apply rates			
<i>Short Tons</i>	2,808,760	3,492,881	1,967,454
CO2 Emissions - Sum of all Purchase & Sales x Commerce Rate			
<i>Short Tons</i>	2,787,287	3,489,259	2,086,933
Difference (Short Tons)	21,473	3,621	-119,479
	0.8%	0.1%	-5.7%

PSE & Avista agreed to the following test years:
 2008 to represent a high emissions year, 2012 to represent a low emissions year, and the current RY (2016)

Same as above in Metric Tons			
Commerce Rate, lb/MWh	1,024	903	1,002
PSE Owned + Firm Rate, lb/MWh	814	895	1,057