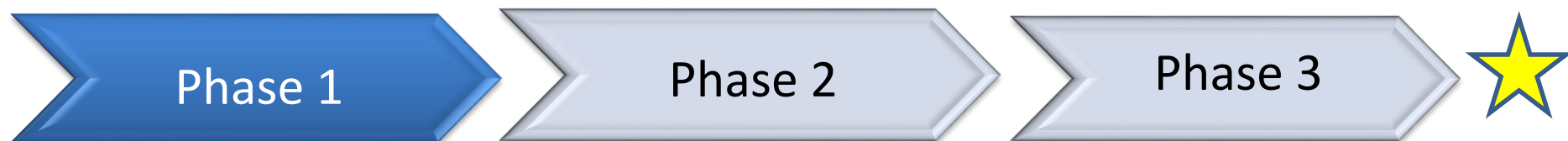


Peninsula Clean Energy could launch a CCE by Fall 2016.



January 2015 - October 2015	October 2015 – February 2016	March 2016 – October 2016
Pre-Planning & Due Diligence	Community Outreach; CCE Planning & Development	Preparing for Launch
<ul style="list-style-type: none"> • Internal planning team • Initial outreach to cities and key stakeholders • Workshops & education • CCE technical study • Formation of CCE advisory committee 	<ul style="list-style-type: none"> • CCE Program design, JPA formation • Public outreach • Local ordinances • Implementation Plan • RFP for Energy Services • JPA staffing/working capital 	<ul style="list-style-type: none"> • Energy supply and other service contracts • Utility Service Agreement • Regulatory registrations • Call Center & Customer Enrollment

CCE Technical Study

- Overall size of the program (megawatt hours and peak demand levels)
- Forecasted demand into the future
- Resource availability and other compliance issues
- Ability to be rate competitive
- Development of different power supply scenarios
- Robust risk analysis

San Mateo Load Composition

Energy Use by Customer Classification

Customer Classification	Customer Accounts	Customer Accounts (% of Total)	Energy Use (MWh)	Share of Energy Use (%)
Residential	269,061	90%	1,457,637	37%
Small Commercial	23,072	8%	469,021	12%
Medium Commercial	2,665	1%	613,398	16%
Large Commercial	1,333	<1%	933,305	24%
Industrial	43	<1%	378,422	10%
Ag and Pumping	275	<1%	25,095	1%
Street Lighting	1,432	<1%	24,052	1%
TOTAL	297,881	100.0%	3,900,930	100%
Peak Demand (MW)	682			

Supply Portfolio Scenarios

- Unbundled renewable energy certificates ***excluded*** from all scenarios. Only use of Bucket 1 and Bucket 2* RECs considered.
- **Scenario 1**: Baseline, minimum 35% renewable energy content scaling up to 50% by 2030.
- **Scenario 2**: Minimum 50% renewable energy content scaling up to 75% by 2030
Large hydro resources to be used for GHG-free supply
- **Scenario 3**: 100% renewable energy content

**Bucket 2 consists of renewable energy generated out-of-state that may be used by the out-of-state grid as it is generated, and then later an equal amount of energy from a different resource is delivered into California. This type of arrangement is referred to as “firming and shaping” the resource’s output. Both Bucket 1 and Bucket 2 are considered bundled products because the RECs (the environmental attributes associated with the energy that was generated) are packaged with an equivalent amount of physical energy when they are sold.*

Summary of Scenario Results: Year 1

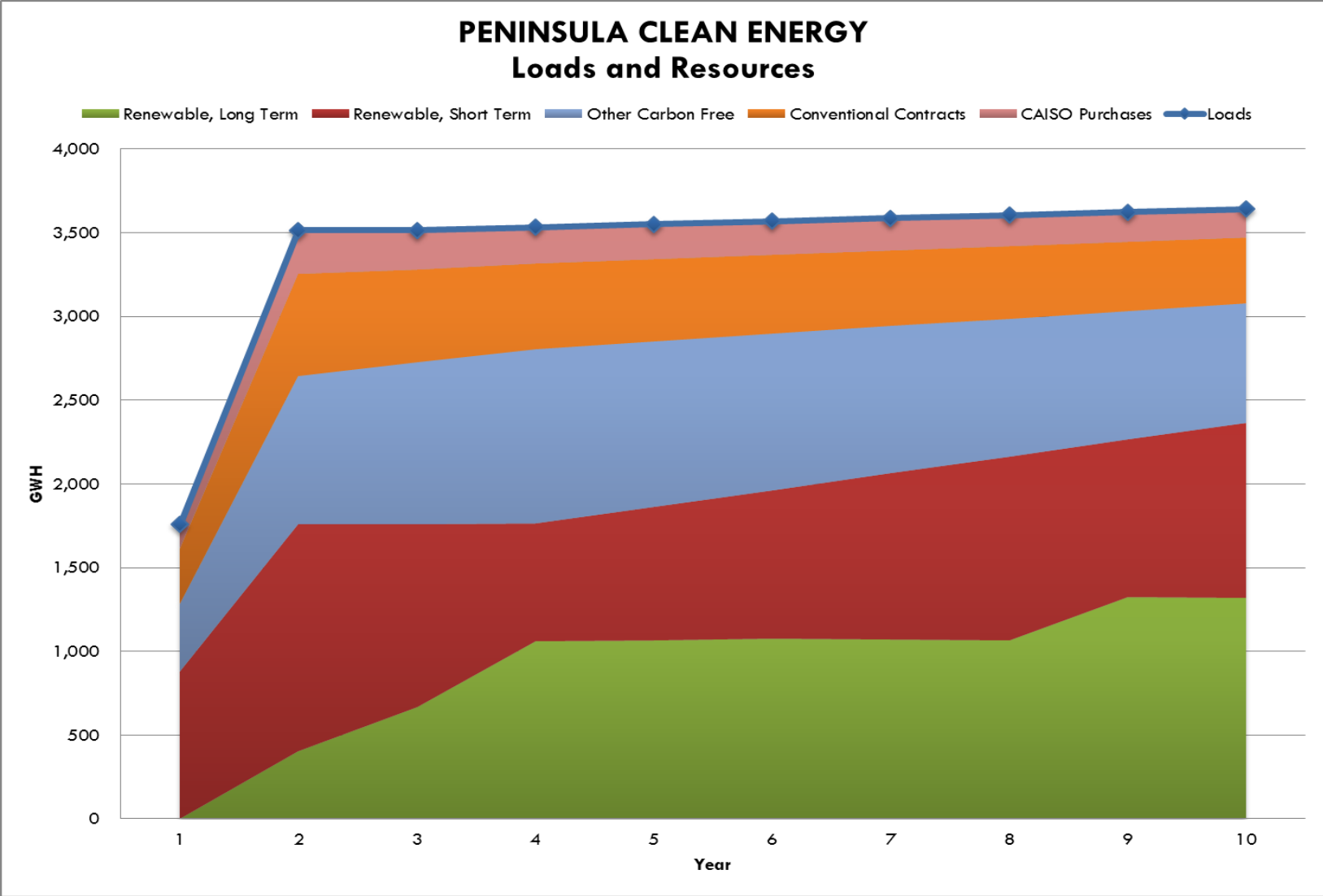
Key Considerations	Scenario 1	Scenario 2	Scenario 3
<u>General Environmental Benefits</u>	35% Renewable 35% GHG-Free	50% Renewable 63% GHG-Free	100% Renewable 100% GHG-Free
<u>Rate Competitiveness</u>	Average 6% <u>savings</u> relative to PG&E rate projections	Average 4% <u>savings</u> relative to PG&E rate projections	Average 2% <u>increase</u> relative to PG&E rate projections
<u>Projected Residential Customer Cost Impacts</u> ¹ ¹ Average monthly usage for PCE residential customers ≈ 450 kWh	Average \$5.40 monthly cost <u>savings</u> relative to PG&E rate projections	Average \$4.05 monthly cost <u>savings</u> relative to PG&E rate projections	Average \$1.80 monthly cost <u>increase</u> relative to PG&E rate projections
<u>Assumed PCE Participation</u>	85% customer participation rate assumed	85% customer participation rate assumed	75% customer rate assumed for residential and small commercial customers; 50% for all other groups
<u>Comparative GHG Emissions Impacts</u>	0.278 metric tons CO ₂ /MWh emissions rate; <u>additional GHG emissions</u> of ≈211,000 metric tons in Year 1	0.115 metric tons CO ₂ /MWh emissions rate; ≈75,000 metric ton <u>GHG emissions reduction</u> in Year 1	Zero emissions rate; ≈204,000 metric ton <u>GHG emissions reduction</u> in Year 1

Scenario 2 Detail

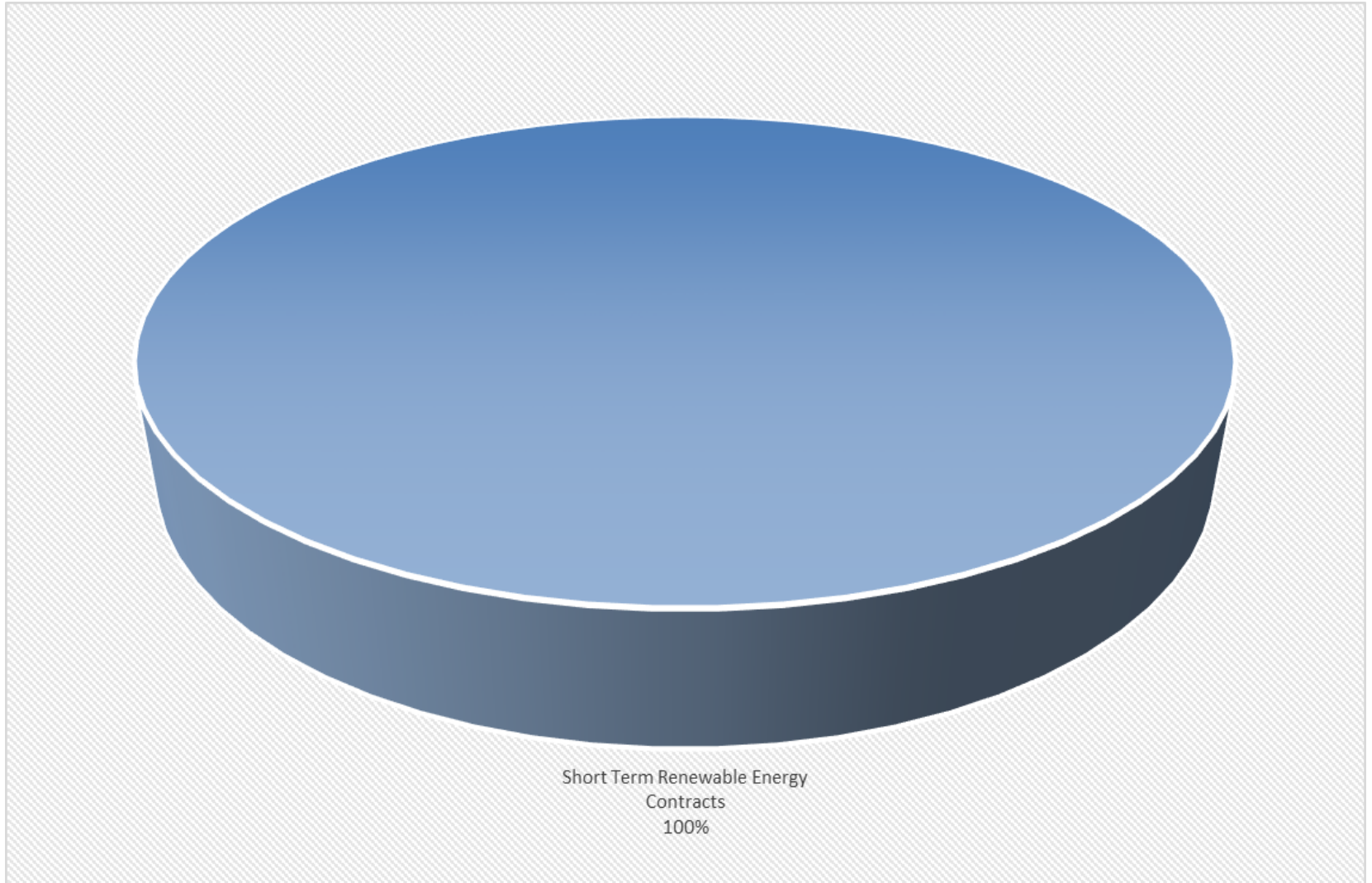
	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10
PCC* 1 Supply	38%	38%	38%	44%	45%	46%	46%	46%	54%	54%
PCC 2 Supply	13%	13%	13%	6%	8%	9%	11%	14%	8%	11%
PCC 3 Supply	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Renewable Energy Supply	50%	50%	50%	50%	53%	55%	58%	60%	63%	65%
Additional GHG-Free Energy Supply	23%	25%	28%	29%	28%	26%	25%	23%	21%	20%
Total Clean Energy Supply	73%	75%	78%	79%	80%	81%	82%	83%	84%	85%
Conventional Energy Supply (including CAISO market purchases)	27%	25%	22%	21%	20%	19%	18%	17%	16%	15%

**Portfolio Content Categories*

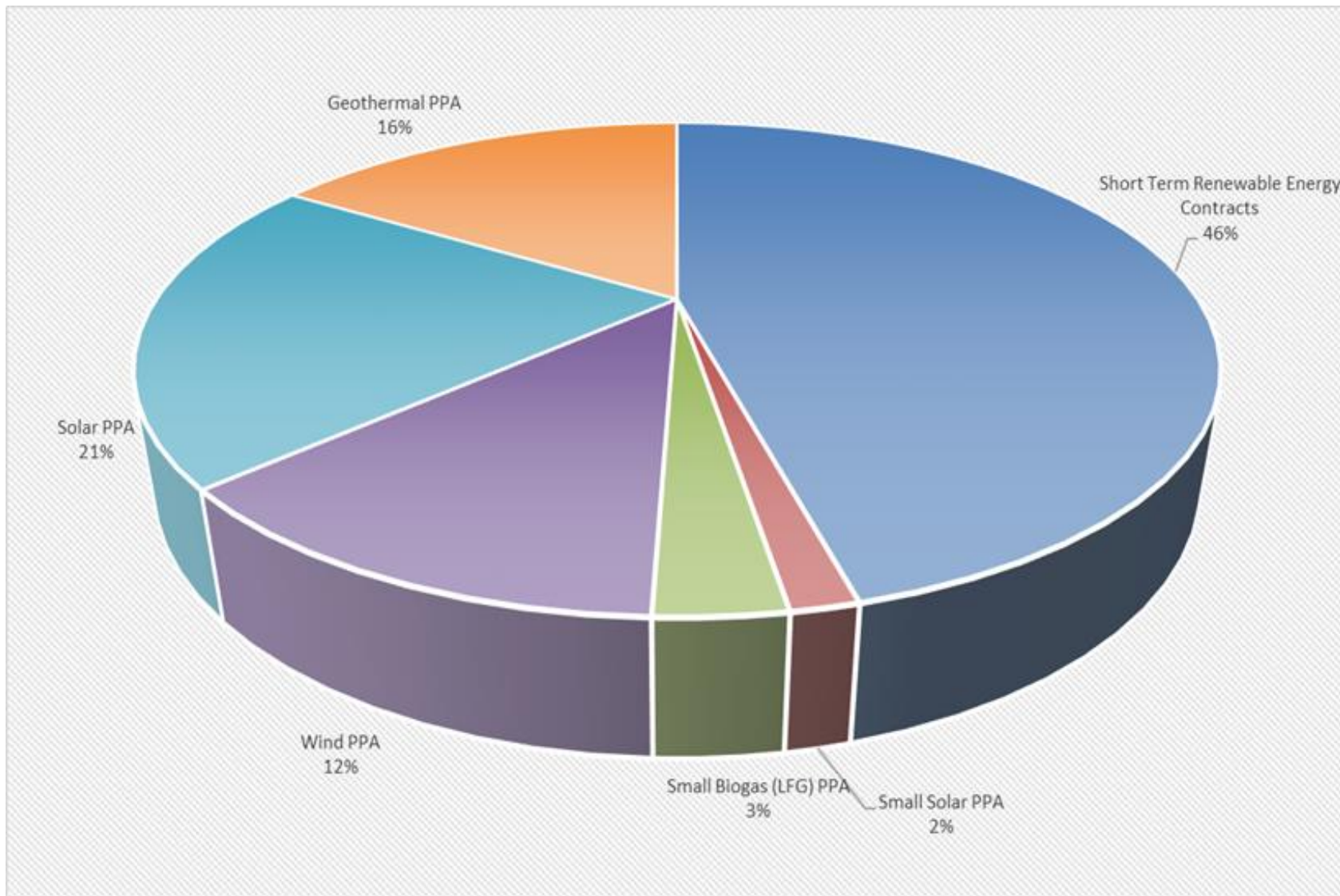
Scenario 2 Resources Over Time



Scenario 3, Year 1



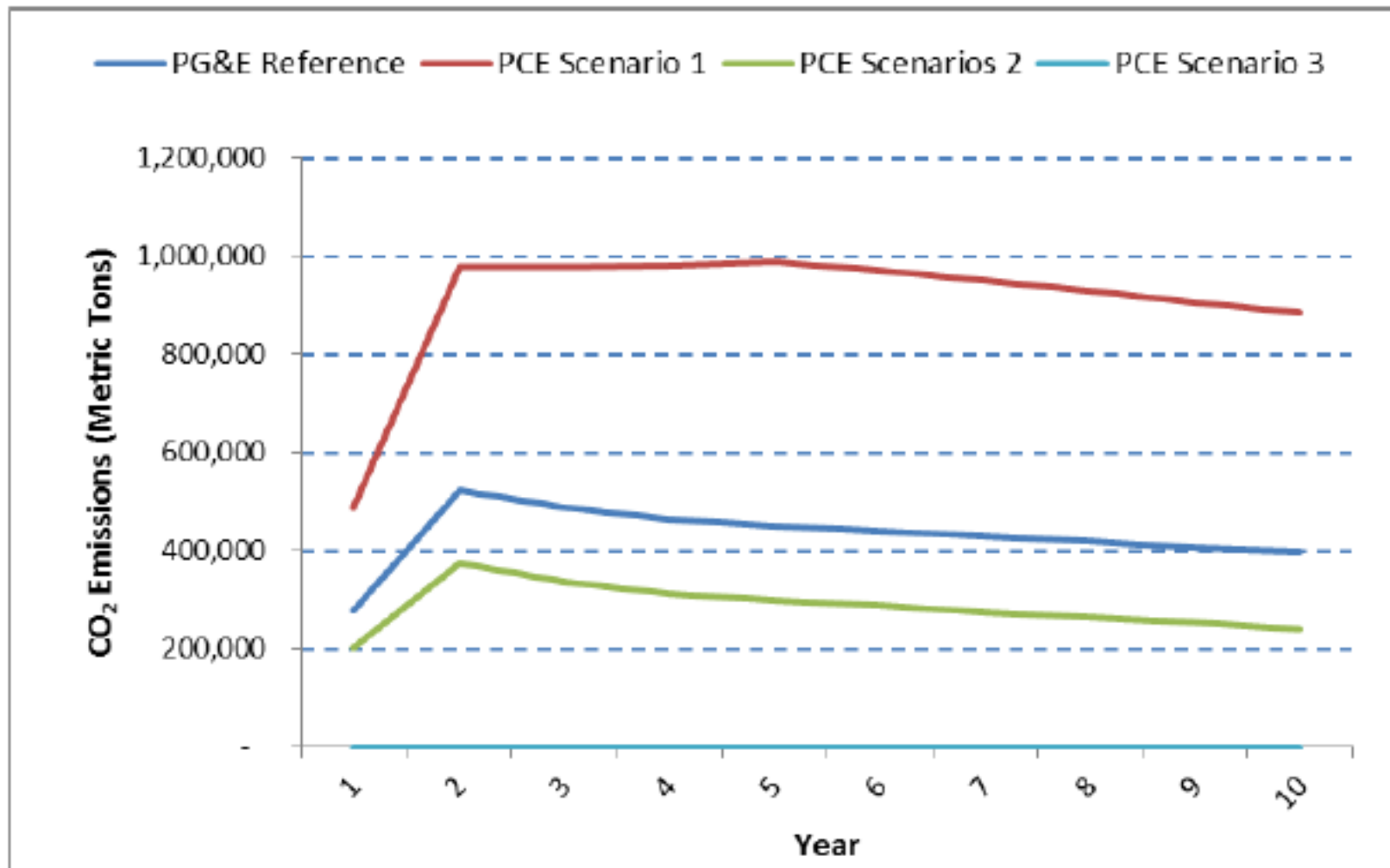
Scenario 3, Year 10



Assumptions for Local/In-State Build

Resource Type	Year of First Delivery	Capacity (MW)	Capacity Factor	Assumed Price (\$/MWh)*	Annual Capacity Degradation
Solar PV, utility scale	2019	100	30%	\$65	1%
Solar PV, utility scale	2025	100	30%	\$65	1%
Wind	2020	100	35%	\$70	0%
Landfill Gas to Energy	2020	10	90%	\$80	1%
Geothermal	2018	45	100%	\$80	0%
Solar PV, multiple FIT (local) projects	2018	5	22%	\$100	1%
Solar PV, multiple FIT (local) projects	2020	5	24%	\$90	1%
Solar PV, multiple FIT (local) projects	2021	5	24%	\$90	1%
Solar PV, multiple FIT (local) projects	2022	5	24%	\$90	1%

Emission Rates





Thank you!

Download the full study at...

<http://green.smcgov.org/community-choice-energy>

Appendix: Portfolio Content Categories

- PCC1, or Bucket 1, renewable products are produced by RPS-certified renewable energy generators located within the state or by out-of-state generators that can meet strict scheduling requirements, ensuring deliverability to California.
- PCC2, or Bucket 2, renewable products are generally “firmed/shaped” transactions through which the energy produced by an RPS-certified renewable energy generator is not necessarily delivered to California, but an equivalent quantity of energy from a different, non-renewable generating resource is delivered to California and “bundled” (or associated via an electronic transaction tracking system) with the renewable attribute produced by the aforementioned RPS-certified renewable generator. As noted, PCC2 products rely on electronic transaction tracking systems to substantiate the delivery of specified quantities of RPS-eligible renewable energy.
- PCC3, or Bucket 3, renewable products refer to unbundled renewable energy certificates, which are sold separately from the associated electric energy (with no physical energy delivery obligations imposed on the seller of such products).

PG&E Rate Forecasts

