



PRELIMINARY TECHNICAL STUDY RESULTS

Counties of Santa Cruz, Monterey and San Benito

February 11, 2016

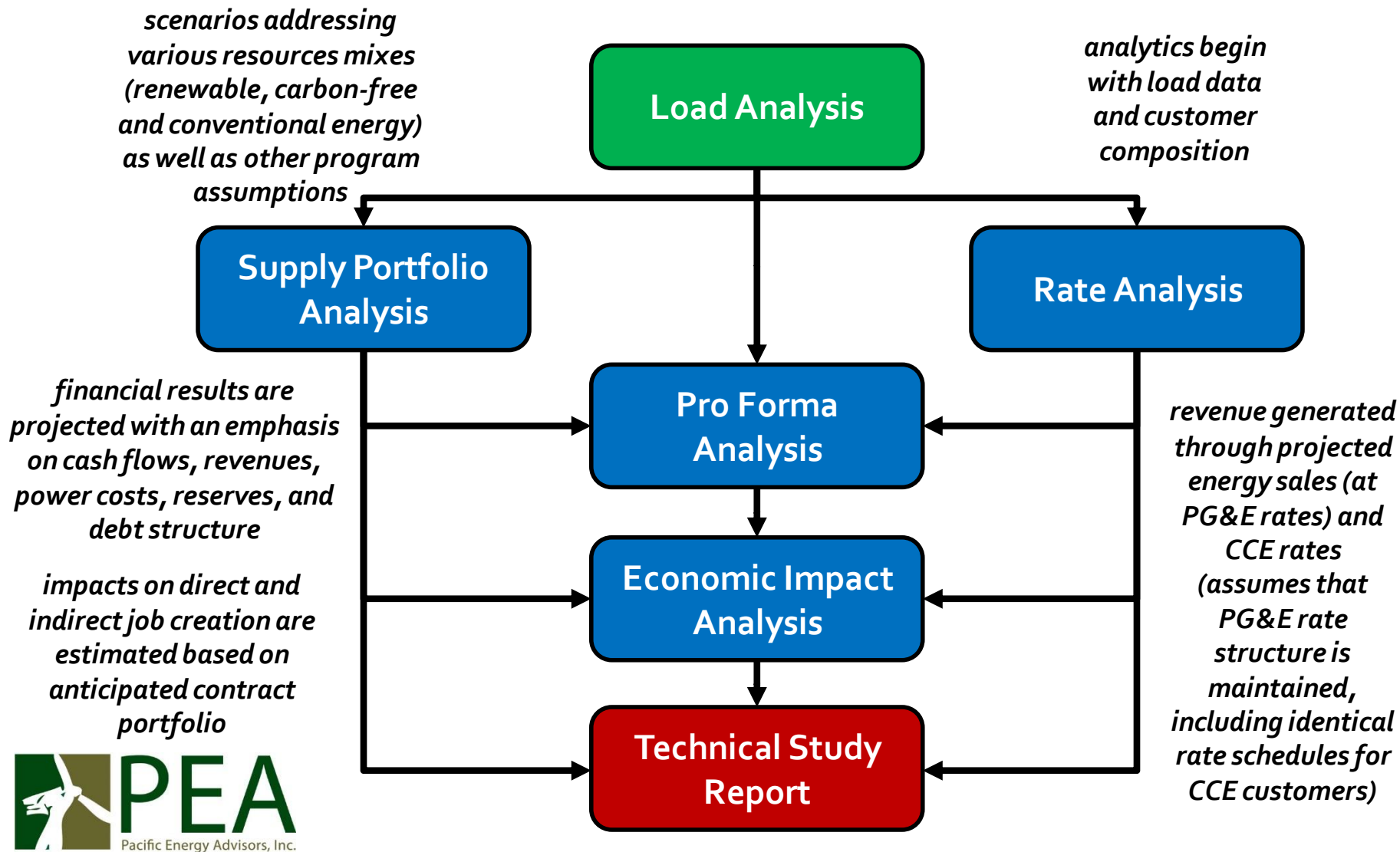


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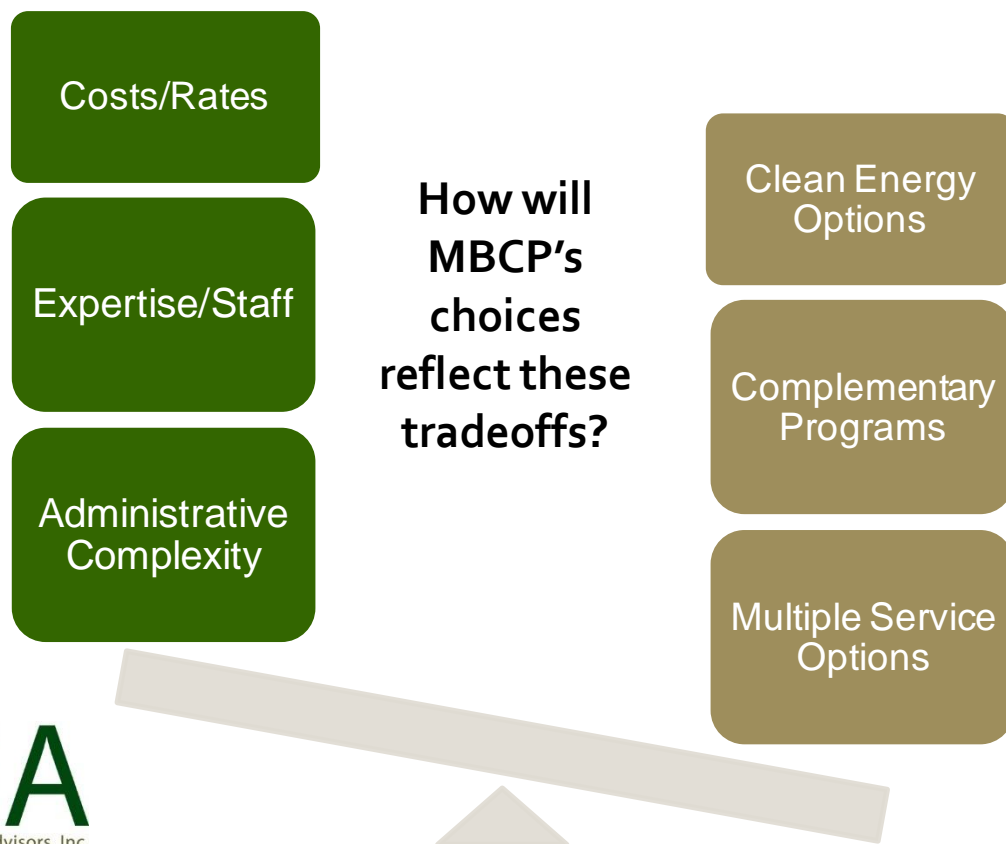
Technical Study Methodology

Technical Study Methodology



MBCP – Identification of Priorities

- Tradeoffs are inherent in CCE program development
- Generally, “program enhancements” will increase costs/rates, etc.



Load Study Results - Recap

MBCP Load Composition

MBCP: Electric Energy Overview

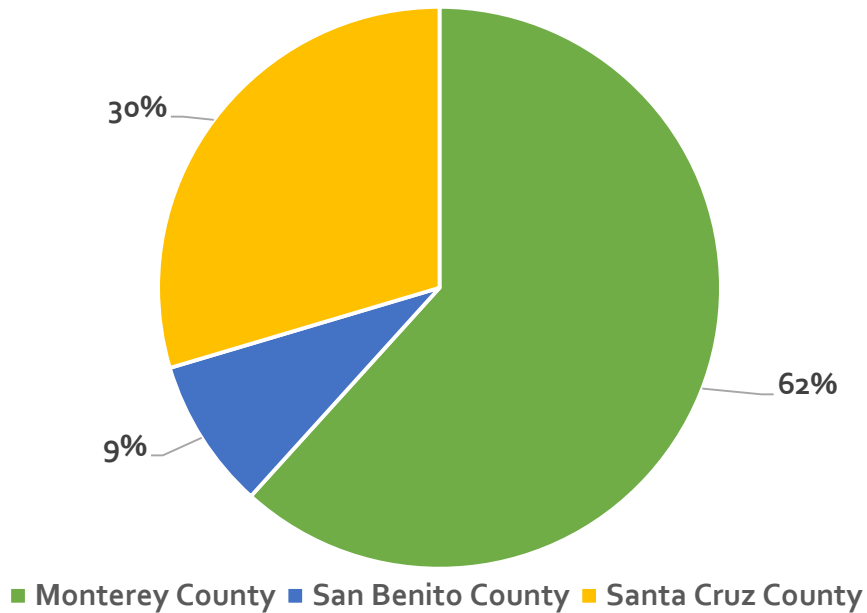
Current Service Provider	Customer Accounts	Customer Accounts (% of Total)	Energy Use (MWh)	Energy Use (% of Total)
PG&E ("Bundled" electric accounts)	284,944	99.8%	3,701,593	92.6%
Direct Access electric accounts	565	0.2%	296,708	7.4%
Total – MBCP Study Partners	285,509	100.0%	3,998,301	100.0%

Bundled Energy Use by Customer Classification

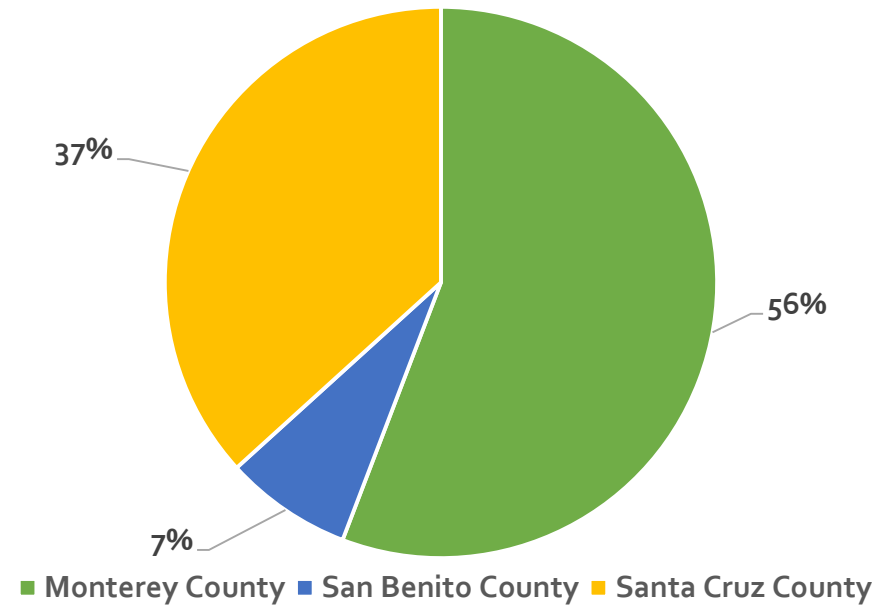
Customer Classification	Customer Accounts	Customer Accounts (% of Total)	Energy Use (MWh)	Share of Energy Use (%)
Residential	245,638	86%	1,315,876	36%
Small Commercial	28,795	10%	457,547	12%
Medium Commercial	2,374	1%	391,890	11%
Large Commercial	1,096	<1%	481,004	13%
Industrial	41	<1%	388,677	11%
Ag and Pumping	4,940	2%	648,468	18%
Street Lighting	2,060	1%	18,129	<1%
TOTAL	284,944	100.0%	3,701,593	100%
Peak Demand (MW)	661	September		

MBCP: Tri-County Summary

Proportion of Electricity Consumption by County

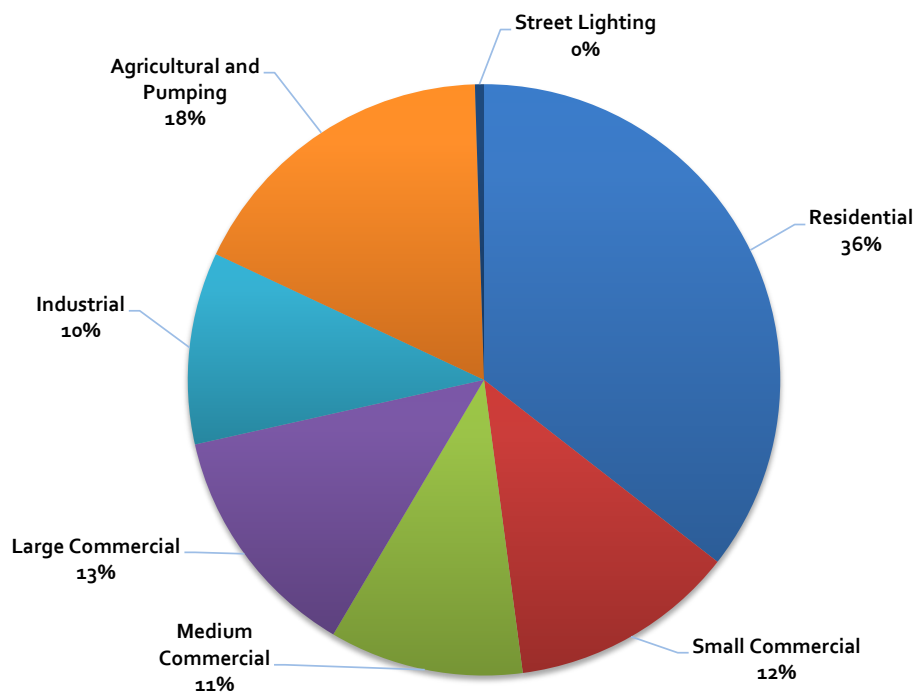


Proportion of Total Accounts by County

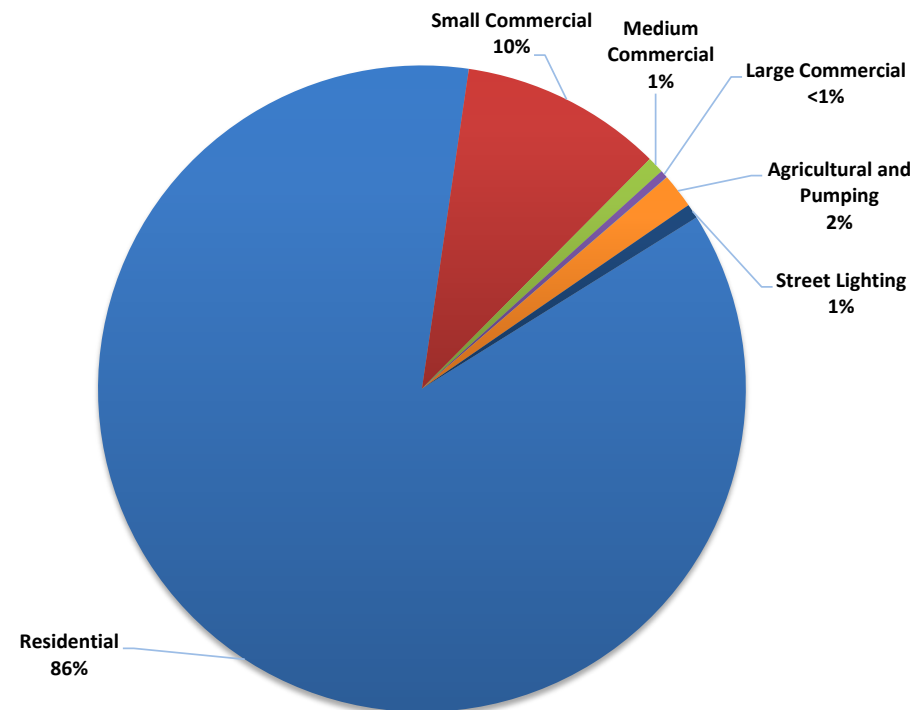


MBCP Customer Overview

Proportion of Electricity Consumption by Customer Class



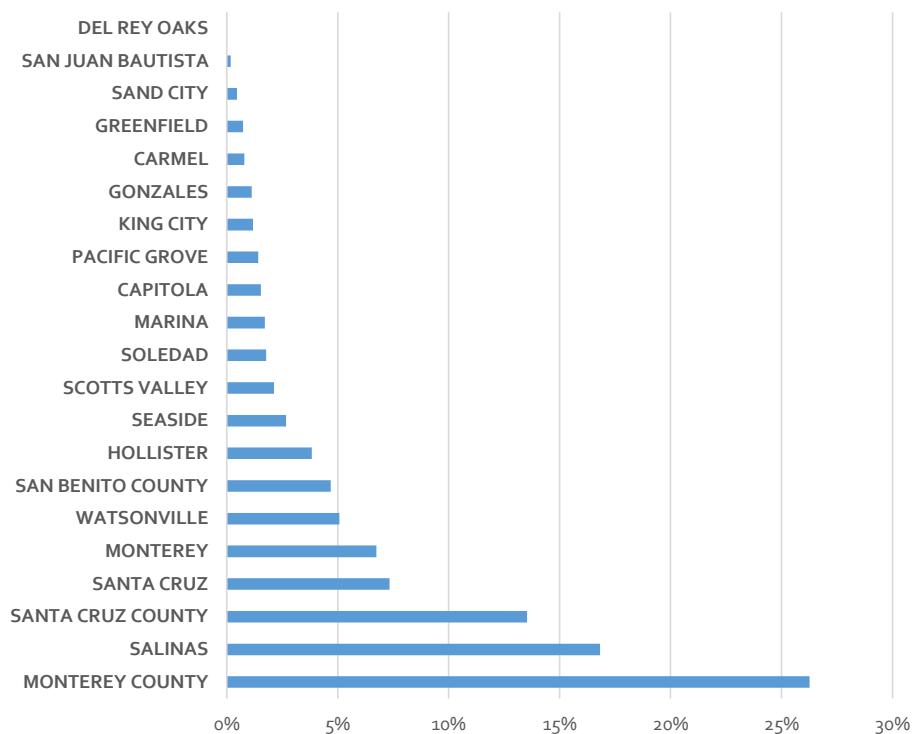
Proportion of Total Accounts by Customer Class



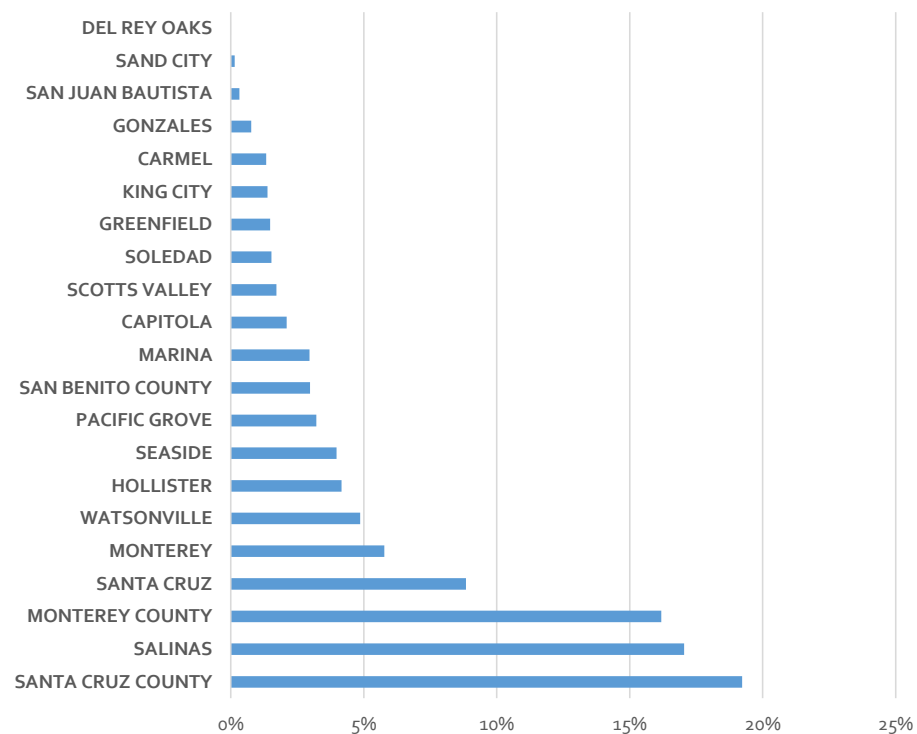
Load Composition by Jurisdiction

Top five cities account for almost 71% of total MBCP electric consumption and 67% of total MBCP customer accounts

Geographic Distribution of Electric Consumption



Geographic Distribution of Customers



Supply Portfolio Scenarios: Overview and Summary of Results

Current Electric Resource Mix: PG&E 2014

Energy Resources	2014 PG&E Power Mix ¹	2014 California Power Mix ²
Eligible Renewable	27%	20%
--Biomass & Waste	5%	3%
--Geothermal	5%	4%
--Small Hydroelectric	1%	1%
--Solar	9%	4%
--Wind	7%	8%
Coal	0%	6%
Large Hydroelectric	8%	6%
Natural Gas	24%	45%
Nuclear	21%	9%
Unspecified Sources of Power	21%	14%
Total ³	100%	100%

56% GHG-free

¹Source: PG&E 2014 Power Source Disclosure Report; ²Source: California Energy Commission; ³Numbers may not add due to rounding

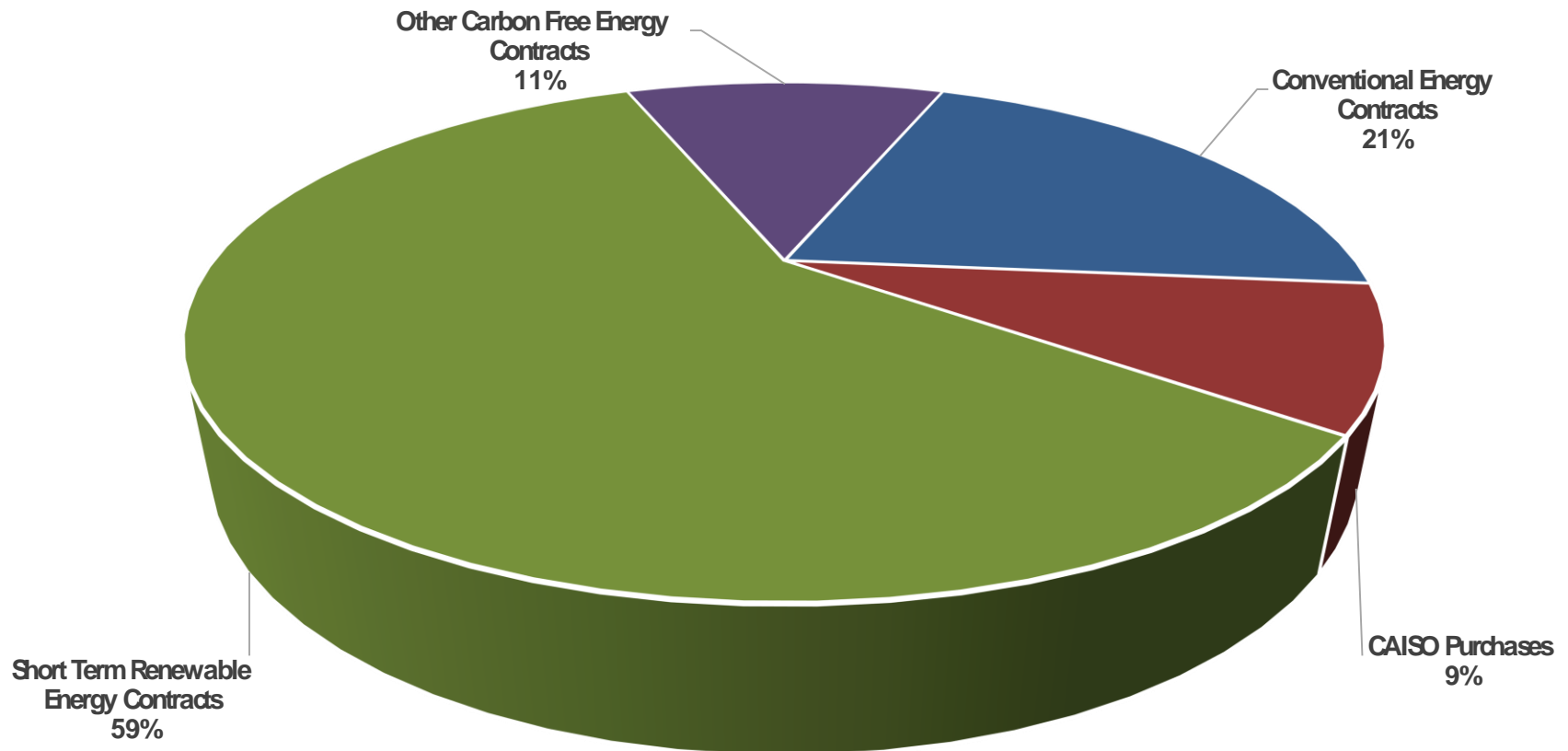
MBCP Prospective Supply Scenarios

- Unbundled renewable energy certificates excluded from all scenarios
- Nuclear- and coal-based energy also excluded from all scenarios
- Indicative contract portfolio reflects significant new resource development
- **Scenario 1**: Maximize renewable energy and GHG emissions reductions while not exceeding PG&E's projected rates (PCC1 & minimal Hydro)
- **Scenario 2**: Maximize renewable energy and GHG emissions reductions while not exceeding PG&E's projected rates (PCC1 & PCC2 only)
- **Scenario 3**: Maximize rate competitiveness while achieving a 25% annual reduction in GHG emissions (PCC1, PCC2 and Hydro)

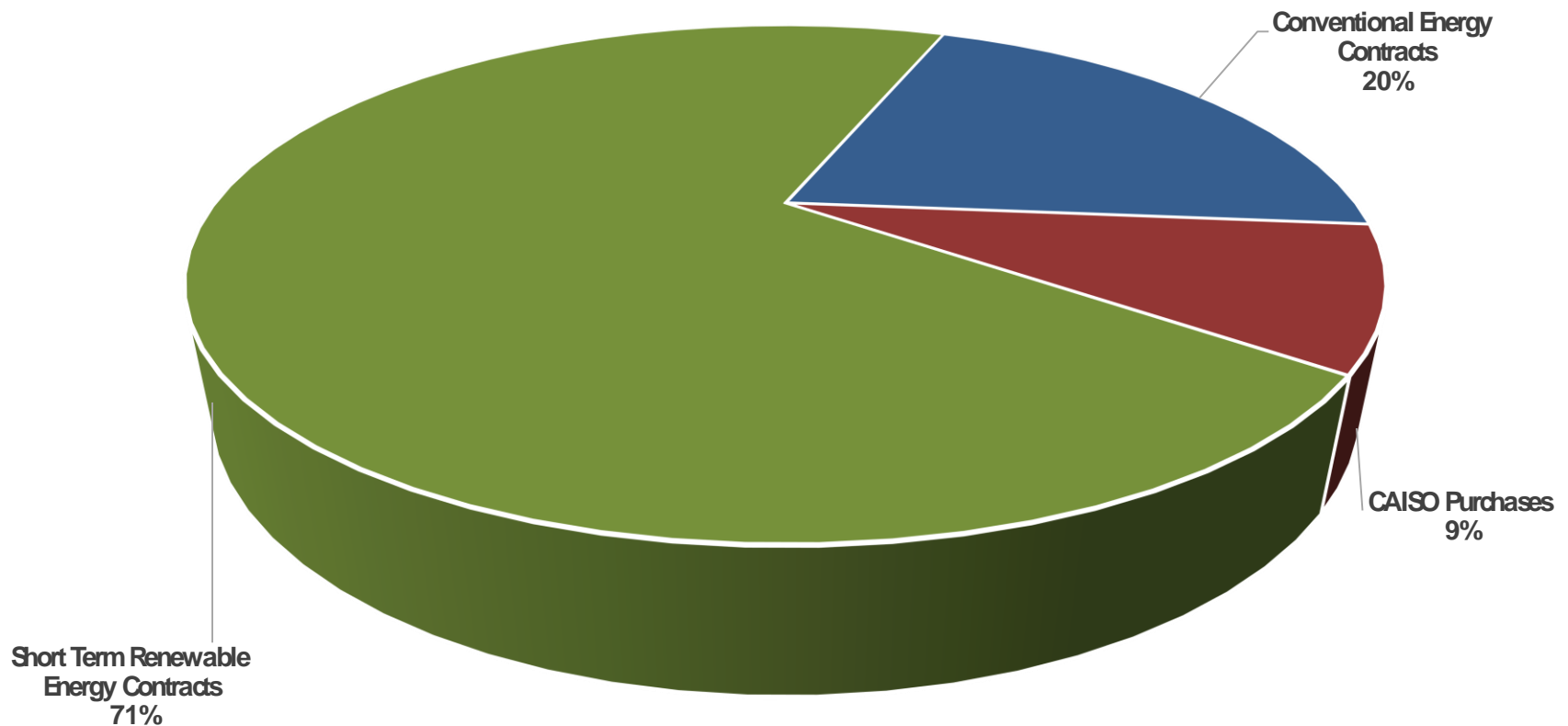
MBCP – Energy Resource Selection

Resource Type	Key Characteristics	Cost	Availability
Conventional Energy/ Market Purchases	Electric power produced via combustion of fossil fuels; significant GHG impacts	\$	Readily available
Bucket 1 RE (PCC ₁)	“Bundled” renewable energy typically produced w/in or delivered directly to California	\$\$\$\$	Readily available at present; 50% RPS may increase competition amongst buyers
Bucket 2 RE (PCC ₂)	“Bundled” renewable energy typically produced out of state – “firmed/shaped resources”	\$\$\$	Readily available at present; 50% RPS may increase competition amongst buyers
Bucket 3 RE (PCC ₃)	“Unbundled” renewable energy; physical energy not delivered to buyer	\$\$	Readily available; abundant supply
Non-renewable, GHG-free	Typically entails electric power produced by hydroelectric generators	\$\$	Readily available in short-term subject to seasonal production; longer-term availability may be affected by competition amongst CCA and IOU buyers
Nuclear	GHG-free resource for purposes of emissions accounting	N/A	All supply owned/contracted by IOUs – Not Available

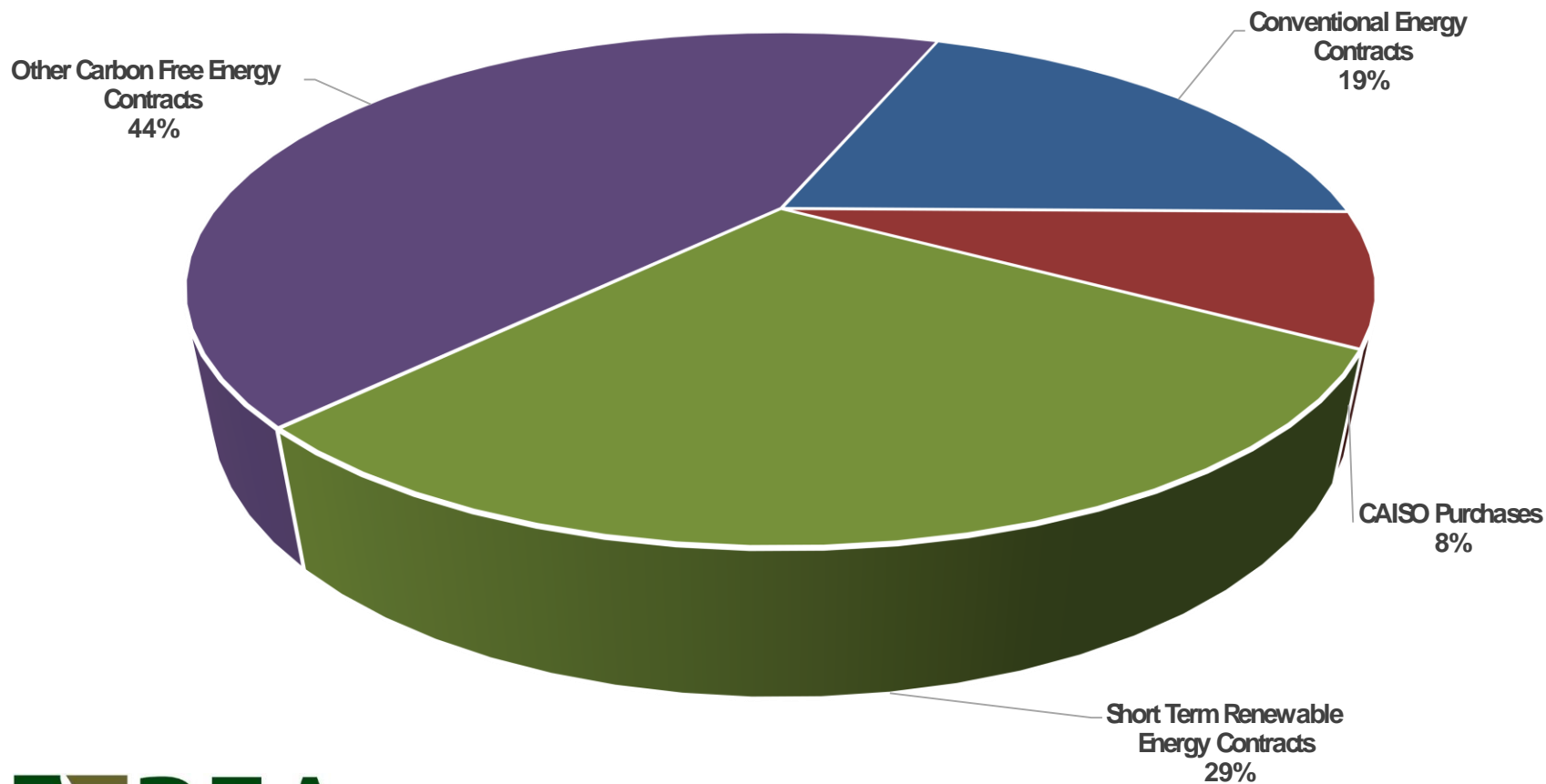
MBCP Supply Portfolio: Scenario 1, Year 1



MBCP Supply Portfolio: Scenario 2, Year 1



MBCP Supply Portfolio: Scenario 3, Year 1



MBCP Indicative Contract Portfolio

Resource Type	Year of First Delivery	Capacity (MW)	Capacity Factor	Assumed Price (\$/MWh)
Solar PV, utility scale	2019	100*	30%	\$65
Solar PV, utility scale	2023	100*	30%	\$65
Wind	2020	100*	35%	\$70
Landfill Gas to Energy	2020	10*	90%	\$80
Landfill Gas to Energy	2025	10*	90%	\$80
Geothermal	2018	50	100%	\$80
Solar PV, multiple FIT (local) projects	2018	5*	22%	\$100
Solar PV, multiple FIT (local) projects	2020	5*	24%	\$90
Solar PV, multiple FIT (local) projects	2021	5*	24%	\$90
Solar PV, multiple FIT (local) projects	2022	5*	24%	\$90
Total		390 MW		

*340 MW of potential new, California-based renewable generating capacity.

Summary of Scenario Results: Year 1

Key Considerations	Scenario 1	Scenario 2	Scenario 3
<u>General Environmental Benefits</u>	59% Renewable 70% GHG-Free	71% Renewable 71% GHG-Free	28% Renewable 72% GHG-Free
<u>Rate Competitiveness</u>	≈rate parity relative to PG&E projections	≈rate parity relative to PG&E projections	Average 3% <u>savings</u> relative to PG&E rate projections
<u>Projected Residential Customer Cost Impacts</u> ¹ ¹ Average monthly usage for MBCP residential customers ≈ 446 kWh	Projected MBCP & PG&E costs are equivalent	Projected MBCP & PG&E costs are equivalent	Average \$3.01 monthly cost <u>savings</u> relative to PG&E projections
<u>Assumed MBCP Participation</u>	85% customer participation rate assumed across all customer groups	85% customer participation rate assumed across all customer groups	85% customer participation rate assumed across all customer groups
<u>Comparative GHG Emissions Impacts</u>	0.126 metric tons CO ₂ /MWh emissions rate; ≈35,660 metric ton <u>GHG emissions reduction</u> in Year 1 (≈20% reduction)	0.126 metric tons CO ₂ /MWh emissions rate; ≈36,301 metric ton <u>GHG emissions reduction</u> in Year 1 (≈20% reduction)	0.119 metric tons CO ₂ /MWh emissions rate; ≈44,573 metric ton <u>GHG emissions reduction</u> in Year 1 (≈25% reduction)

Summary of Scenario Results: Year 10

Key Considerations	Scenario 1	Scenario 2	Scenario 3
<u>General Environmental Benefits</u>	85% Renewable 85% GHG-Free	90% Renewable 90% GHG-Free	44% Renewable 81% GHG-Free
<u>Rate Competitiveness</u>	Average 1% <u>savings</u> relative to PG&E rate projections	Average 1% <u>savings</u> relative to PG&E rate projections	Average 5% <u>savings</u> relative to PG&E rate projections
<u>Projected Residential Customer Cost Impacts</u> ¹ ¹ Average monthly usage for MBCP residential customers ≈ 446 kWh	Average \$1.57 monthly cost <u>savings</u> relative to PG&E rate projections	Average \$1.79 monthly cost <u>savings</u> relative to PG&E rate projections	Average \$6.23 monthly cost <u>savings</u> relative to PG&E rate projections
<u>Assumed MBCP Participation</u>	85% customer participation rate assumed across all customer groups	85% customer participation rate assumed across all customer groups	85% customer participation rate assumed across all customer groups
<u>Comparative GHG Emissions Impacts</u>	0.063 metric tons CO ₂ /MWh emissions rate; ≈163,559 metric ton <u>GHG emissions reduction</u> in Year 10 (≈42% reduction)	0.042 metric tons CO ₂ /MWh emissions rate; ≈237,857 metric ton <u>GHG emissions reduction</u> in Year 10 (≈62% reduction)	0.082 metric tons CO ₂ /MWh emissions rate; ≈96,594 metric ton <u>GHG emissions reduction</u> in Year 10 (≈25% reduction)

Pro Forma Financial Projections

	Scenario 1	Scenario 2	Scenario 3
MBCP Account Total (following phase-in)	≈250,000	≈250,000	≈250,000
Annual energy sales (following phase-in)	≈3.2 million MWh	≈3.2 million MWh	≈3.2 million MWh
Annual operating costs	≈\$240 million	≈\$239 million	≈\$213 million
Annual contribution to reserves	≈\$9.6 million	≈\$9.5 million	≈\$8.5 million
Annual MBCP Revenue Requirement	≈\$250 million	≈\$248 million	≈\$221 million
Annual Change in MBCP Customer Charges*	<\$1 million	<(\$1) million	≈(\$28) million

*Negative amounts reflect the potential for customer savings (or complementary program funding, rebate distribution, additional reserve accrual, etc.); positive amounts reflect MBCP's need to impose comparatively higher generation rates.

Summary of MBCP Environmental Impacts: 10-Year Average

GHG Impact	Scenario 1	Scenario 2	Scenario 3
Annual Change in GHG Emissions (Tons CO ₂ /Year)	-142,415	-224,617	-97,869
GHG Equivalency Impact (EPA)	-29,982 cars/year	-47,288 cars/year	-20,604 cars/year
Change in Electric Sector CO ₂ Emissions w/in MBCP service territory (%)	-36%	-57%	-25%
Projected MBCP Portfolio Emissions Factor (metric tons/MWh)	0.084	0.059	0.096
Projected PG&E Portfolio Emissions Factor (metric tons/MWh)	0.128	0.128	0.128

Risks and Uncertainties

- PG&E rate uncertainty (generation rates and exit fees)
- Length of current wholesale energy price trough
- Availability of large hydro resources to meet carbon-free content goals
- Opt-out rate uncertainty
- Overall program size given participation of specific jurisdictions
- Credit structure for power supply
- Future CCA specific legislation
- Regulatory changes around renewable and capacity mandates

Conclusions

Key Findings and Conclusions

- Scenario 1 highlights MBCP's prospective ability to significantly increase renewable energy (all PCC₁ + minimal hydro) and reduce GHG emissions w/general rate parity
- Scenario 2 highlights MBCP's prospective ability to significantly increase renewable energy (PCC₁ & PCC₂) and reduce GHG emissions w/general rate parity
- Scenario 3 highlights MBCP viability on a rate competitive basis with projected 25% annual GHG emissions reductions
- General: a broad range of environmental objectives appear to be achievable for MBCP while offering competitive electric rates – optimal combination to be decided by MBCP leadership

Questions & Discussion