APPENDIX G

Supporting Documentation for the Regulatory Alternatives Analysis

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Appendix G
Supporting Documentation for the Regulatory Alternatives Analysis

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Appendix G1

Details of GHG and Criteria Pollutant Emissions

In this section, ARB staff presents the estimates of the GHG impacts associated with the 20 percent RPS, proposed RES, and an in-state only alternative that evaluates the use of in-state resources only to fill the incremental difference between 20 and 33 percent renewable energy levels. The GHG emission estimates include all areas interconnected within the WECC.

Table G1-1 compares the GHG emissions in 2020 under the 20 percent RPS scenario ("no project") to the GHG emissions under the 33 percent RES alternative for the WECC-wide regions that supply power to California. This table shows the GHG emissions in 2020 would be reduced by 13 $MMTCO_2e$ under the 33 percent alternative RES scenario for high load and by 12 $MMTCO_2e$ for the low load scenario.

Table G1-1
WECC-Wide GHG Emissions and Emission Reductions in 2020
20 Percent RPS vs. 33 Percent RES Alternative

Scenario	$MMTCO_2e/yr$	
	High Load	Low Load
20% RPS	88	67
33% RES Alternative	75	55
Emission Reductions	13	12

Table G1-2 compares the GHG emissions in 2020 under the 33 percent RES alternative to the emissions under the proposed RES. This table shows the GHG emissions for both scenarios are identical, so the 33 percent RES alternative would provide no additional GHG benefits relative to the proposed RES.

Table G1-2
WECC-Wide GHG Emissions and Emission Reductions in 2020
33 Percent RES Alternative vs. Proposed RES

Scenario	$MMTCO_2e/yr$	
	High Load	Low Load
33% RES Alternative	75	55
Proposed RES	75	55
Emission Reductions	0	0

Tables G1-3 and G1-4 show the details of GHG emission estimates for the 33 percent RES alternative, high load and low load, respectively. Appendix D shows the GHG emission factors (Table D1-3) and the formula used to estimate the GHG emissions. In addition, Appendix D presents the details of GHG emissions for the 20 percent RPS and proposed RES scenarios.

Table G1-3
2020 WECC-Wide GHG Emissions
33 Percent RES Alternative, High Load

Resource	Emission Factors (lb CO_2e/MWh)		Electricity Generation (GWh/yr)		GHG Emissions (MMTCO_2e/yr)		
	In-State	Out-Of-State	In-State	Out-Of-State	In-State	Out-Of-State	Total
EXISTING:							
Traditional Sources							
NG Peaker	1,133	1,133	8,340	6,410	4.3	3.3	7.6
NG Baseload	833	833	42,700	35,100	16.1	13.3	29.4
Nuclear	0	0	32,600	8,490	0.0	0.0	0.0
Large Hydro	0	0	40,000	2,630	0.0	0.0	0.0
Coal	2,224	2,027	1,300	19,300	1.3	17.8	19.1
Renewable Sources							
Wind	0	0	5,720	504	0.0	0.0	0.0
Solar Thermal	0	0	724	0	0.0	0.0	0.0
Solar PV	0	0	0	0	0.0	0.0	0.0
Geothermal	310	310	12,900	740	1.8	0.1	1.9
Solid-Fuel Biomass	70	70	5,720	536	0.2	0.0	0.2
Landfill/Digester Gas	0	-670	0	0	0.0	0.0	0.0
Small Hydro	0	0	3,730	688	0.0	0.0	0.0
NEW:							
Traditional Sources							
NG Peaker	1,123	1,123	11,400	3,150	5.8	1.6	7.4
NG Baseload	810	810	20,900	9,930	7.7	3.6	11.3
Renewables Sources							
Wind	0	0	18,100	5,860	0.0	0.0	0.0
Solar Thermal	0	0	14,300	2,440	0.0	0.0	0.0
Solar PV	0	0	3,430	22	0.0	0.0	0.0
Geothermal	310	310	18,100	680	2.5	0.1	2.6
Solid-Fuel Biomass	70	70	1,150	12	0.0	0.0	0.0
Landfill/Digester Gas	0	-670	1,310	16	0.0	0.0	0.0
Small Hydro	0	0	214	543	0.0	0.0	0.0
OTHER:							
REC GHG Credits		873		-12,041		-4.8	-4.8
		Total	**243,000**	**97,000**[a]	**39.8**	**35.0**	**74.8**

[a] Total excludes out-of-state generation associated with the 'REC GHG Credits.'

Table G1-4
2020 WECC-Wide GHG Emissions
33 Percent RES Alternative, Low Load

Resource	Emission Factors (lb CO_2e/MWh)		Electricity Generation (GWh/yr)		GHG Emissions ($MMTCO_2e/yr$)		
	In-State	Out-Of-State	In-State	Out-Of-State	In-State	Out-Of-State	Total
EXISTING:							
Traditional Sources							
NG Peaker	1,133	1,133	5,760	4,400	3.0	2.3	5.2
NG Baseload	833	833	27,300	22,300	10.3	8.4	18.7
Nuclear	0	0	32,600	8,490	0.0	0.0	0.0
Large Hydro	0	0	40,000	2,630	0.0	0.0	0.0
Coal	2,224	2,027	1,300	19,300	1.3	17.8	19.1
Renewable Sources							
Wind	0	0	5,720	504	0.0	0.0	0.0
Solar Thermal	0	0	724	0	0.0	0.0	0.0
Solar PV	0	0	0	0	0.0	0.0	0.0
Geothermal	310	310	12,900	740	1.8	0.1	1.9
Solid-Fuel Biomass	70	70	5,720	536	0.2	0.0	0.2
Landfill/Digester Gas	0	-670	0	0	0.0	0.0	0.0
Small Hydro	0	0	3,730	688	0.0	0.0	0.0
NEW:							
Traditional Sources							
NG Peaker	1,123	1,123	4,260	2,240	2.2	1.1	3.3
NG Baseload	810	810	20,900	6,600	7.7	2.4	10.1
Renewables Sources							
Wind	0	0	17,300	5,860	0.0	0.0	0.0
Solar Thermal	0	0	14,300	2,440	0.0	0.0	0.0
Solar PV	0	0	3,420	22	0.0	0.0	0.0
Geothermal	310	310	6,490	680	0.9	0.1	1.0
Solid-Fuel Biomass	70	70	1,150	0	0.0	0.0	0.0
Landfill/Digester Gas	0	-670	1,310	0	0.0	0.0	0.0
Small Hydro	0	0	214	478	0.0	0.0	0.0
OTHER:							
REC GHG Credits		873		-11,948		-4.7	-4.7
		Total	**205,000**	**77,800[b]**	**27.4**	**27.5**	**54.9**

[b] Total excludes out-of-state generation associated with the 'REC GHG Credits.'

Table G1-5 presents the detailed 2020 statewide criteria pollutant emission estimates for the 33 percent RES alternative and the high load forecast. Total 2020 statewide criteria pollutant emissions for the 33 percent RES alternative for the high load are compared to the 20 percent RPS scenario in Table G1-6. When compared to the 20 percent RPS scenario, the emission reductions achieved by the 33 percent RES alternative are similar to those attained by the 33 percent proposed RES presented in Chapter IX.

Table G1-5
2020 Statewide Criteria Pollutant Emissions from Electricity Generation: 33 Percent RES Alternative, High Load Forecast

Resource	CA Power Generation (GWh)	Emissions (tons/yr)				
		ROG	NO_x	SO_x	CO	$PM_{2.5}$
EXISTING:						
Traditional Sources	**125,000**					
Natural Gas Peaker	8,340	292	1,670	83	1,670	250
Natural Gas Baseload	42,700	854	2,140	214	2,140	854
Nuclear	32,600	0	0	0	0	0
Large Hydro	40,000	0	0	0	0	0
Coal	1,300	13	2,530	778	4,600	324
Renewable Sources	**28,800**					
Wind	5,720	0	0	0	0	0
Solar Thermal	724	11	72	1	15	11
Solar PV	0	0	0	0	0	0
Geothermal	12,900	194	19	6	5	194
Solid-Fuel Biomass	5,720	572	5,150	1,140	21,500	1,140
Landfill/Digester Gas	0	0	0	0	0	0
Small Hydro	3,730	0	0	0	0	0
NEW:						
Traditional Sources	**32,300**					
Natural Gas Peaker	11,400	114	570	114	1,140	342
Natural Gas Baseload	20,900	209	730	104	1,040	313
Renewable Sources	**56,500**	0	0	0	0	0
Wind	18,100	0	0	0	0	0
Solar Thermal	14,300	71	29	6	36	43
Solar PV	3,430	0	0	0	0	0
Geothermal	18,100	18	27	1	2	181
Solid-Fuel Biomass	1,150	6	231	58	115	231
Landfill/Digester Gas	1,310	262	196	0	1,240	20
Small Hydro	214	0	0	0	0	0
TOTAL	**243,000**	**2,620**	**13,400**	**2,510**	**33,500**	**3,910**

Table G1-6
2020 Statewide Criteria Pollutant Emissions and Emission Reductions from Electricity Generation: 20 Percent RPS vs. 33 Percent RES Alternative, High Load Forecast

Scenario	Emissions and Emission Reductions (tons/yr)				
	ROG	NO_x	SO_x	CO	$PM_{2.5}$
20% RPS	2,920	14,700	2,650	35,100	4,230
33 % RES Alternative	2,620	13,400	2,510	33,500	3,910
Emission Reductions	**300**	**1,300**	**140**	**1,600**	**320**
Percent Reduction	**10%**	**9%**	**5%**	**5%**	**8%**

Table G1-7 shows the detailed 2020 statewide criteria pollutant emission estimates in tons per year for the 33 percent RES alternative and the low load forecast. Total 2020 statewide criteria pollutant emissions for the 33 percent RES alternative for the low load are compared to the 20 percent RPS scenario in Table G1-8.

Table G1-7
2020 Statewide Criteria Pollutant Emissions from Electricity Generation: 33 Percent RES Alternative, Low Load Forecast

Resource	CA Power Generation (GWh)	Emissions (tons/yr)				
		ROG	NO_x	SO_x	CO	$PM_{2.5}$
EXISTING:						
Traditional Sources	**107,000**					
Natural Gas Peaker	5,760	202	1,150	58	1,150	173
Natural Gas Baseload	27,300	545	1,360	136	1,360	545
Nuclear	32,600	0	0	0	0	0
Large Hydro	40,000	0	0	0	0	0
Coal	1,300	13	2,530	778	4,600	324
Renewable Sources	**28,800**					
Wind	5,720	0	0	0	0	0
Solar Thermal	724	11	72	1	15	11
Solar PV	0	0	0	0	0	0
Geothermal	12,900	194	19	6	5	194
Solid-Fuel Biomass	5,720	572	5,150	1,140	21,500	1,140
Landfill/Digester Gas	0	0	0	0	0	0
Small Hydro	3,730	0	0	0	0	0
NEW:						
Traditional Sources	**25,100**					
Natural Gas Peaker	4,260	43	213	43	426	128
Natural Gas Baseload	20,900	209	730	104	1,040	313
Renewable Sources	**44,100**	0	0	0	0	0
Wind	17,300	0	0	0	0	0
Solar Thermal	14,300	71	29	6	36	43
Solar PV	3,420	0	0	0	0	0
Geothermal	6,490	6	10	0	1	65
Solid-Fuel Biomass	1,150	6	231	58	115	231
Landfill/Digester Gas	1,310	262	196	0	1,240	20
Small Hydro	214	0	0	0	0	0
TOTAL	**205,000**	**2,130**	**11,700**	**2,330**	**31,500**	**3,190**

Table G1-8
2020 Statewide Criteria Pollutant Emissions and Emissions Reductions from Electricity Generation: 20 Percent RPS vs. 33 Percent RES Alternative, Low Load Forecast

Scenario	Emissions (tons/yr)				
	ROG	NO_x	SO_x	CO	$PM_{2.5}$
20% RPS	2,380	12,700	2,440	32,700	3,540
33% RES Alternative	2,130	11,700	2,330	31,500	3,190
Emission Reductions	**250**	**1,000**	**110**	**1,200**	**350**
Percent Reduction	**11%**	**8%**	**5%**	**4%**	**10%**

Appendix G2

Environmental-Dynamic Revenue Analysis Model Inputs and Results

This section presents results from EDRAM which was used to estimate the macroeconomic impacts of the RES alternative. The RES Calculator was used to estimate the revenue requirement for a mix of renewables sufficient to meet the 33 percent target in 2020 for a high load and a low load scenario. The revenue requirement and resource mix results from the RES Calculator were used as inputs to EDRAM.

A. High Load Scenario

1. Scenario Details

Tables G2-1 and G2-2 show data from the RES Calculator for the 20 percent RPS in 2020 and 33 percent alternative RES 2020 scenario runs. This cost and resource mix information is translated into inputs for EDRAM based on resource type and expenditure in 2020. Table G2-1 contains the data used for the 20 percent RPS baseline scenario in EDRAM and Table G2-2 has the data used for the alternative 33 Percent RES scenario in EDRAM.

Table G2-1
EDRAM Inputs for 20 Percent RPS Baseline in 2020,
High Load (Billion 2008 $)

		Expenditure by Industry Sector			
Renewable Resources	**Total Expenditure**	**Agriculture**	**Construction**	**Manufacturing**	**Fuel Extraction**
Landfill/Digester Gas	0.112	0.029	0.027	0.056	0
Solid-Fuel Biomass	1.136	0.307	0.261	0.568	0
Geothermal	1.800	0	0.630	1.170	0
Small Hydro (< 30 MW Capacity)	0.504	0	0.177	0.328	0
Solar PV	0.199	0	0.070	0.129	0
Solar Thermal	0.594	0	0.148	0.445	0
Wind	1.197	0	0.299	0.898	0
New Transmission	5.542	0	0.039	0.117	0
Gas-Fuel	0.157	0	0	0	(1.794)
Gas-Capital, O & M[c]	(1.794)	0	(0.213)	(1.427)	0
Total	(1.641)	0.336	1.438	2.285	(1.794)

[c] O & M means operations and maintenance

Table G2-2
EDRAM Inputs for 33 Percent Alternative RES in 2020,
High Load (Billion 2008 $)

		Expenditure by Industry Sector			
Renewable Resources	**Total Expenditure**	**Agriculture**	**Construction**	**Manufacturing**	**Fuel Extraction**
Landfill/Digester Gas	0.112	0.029	0.027	0.056	0
Solid-Fuel Biomass	1.136	0.307	0.261	0.568	0
Geothermal	2.966	0	1.038	1.928	0
Small Hydro (< 30 MW Capacity)	0.504	0	0.177	0.328	0
Solar PV	0.640	0	0.224	0.416	0
Solar Thermal	2.737	0	0.684	2.053	0
Wind	2.065	0	0.516	1.549	0
New Transmission	1.187	0	0.297	0.891	0
Gas-Fuel	(2.779)	0	0	0	(2.779)
Gas-Capital, O & M	(2.792)	0	(0.363)	(2.429)	0
Total	5.777	0.336	2.861	5.359	(2.779)

EDRAM assumes since there is more money being spent in the industry sectors related to renewables there is less money being spent in the sector representing conventional electricity generation. This translates to less spending from the conventional electricity sector to its supply source: California's fossil fuel extraction sector, mainly natural gas.[d] Tables G2-3 and G2-4 show the economic transactions between industrial sectors. This is the amount of money that is no

[d] California imports much of its natural gas supply from out of state. It is likely that less demand for natural gas will result in decreased imports, rather than less in-state production, resulting in a small impact on California's fossil fuel extraction sector.

longer being spent in the conventional electricity sector and in which sectors it is now being spent for the baseline and 33 percent RES scenario.

Table G2-3
Aggregate Impacts in the 20 Percent RPS Baseline Scenario as Input to EDRAM, High Load

To-Sector	From-Sector	Aggregate Impacts (Billion $)
Agriculture	Conventional Electricity	0.336
Construction	Conventional Electricity	1.438
Manufacturing	Conventional Electricity	2.285
Fuel Extraction	Conventional Electricity	-1.794

Table G2-4
Aggregate Impacts in the 33 Percent RES Scenario as Input to EDRAM, High Load

To-Sector	From-Sector	Aggregate Impacts (Billion $)
Agriculture	Conventional Electricity	0.336
Construction	Conventional Electricity	2.861
Manufacturing	Conventional Electricity	5.359
Fuel Extraction	Conventional Electricity	-2.779

2. Sector Results

Once the flow of money through the different economic sectors is assigned, EDRAM can be run. The results derived from running EDRAM, for scenario year 2020 and in 2008 dollars, are summarized below.

EDRAM estimated the impacts of the policy on individual economic sectors. Tables G2-5 through G2-9 presents the potential impacts of the alternative RES on the economic sectors which are closely related to the implementation of the alternative RES. EDRAM estimates the impacts on all 120 sectors included in the model, however many sectors will have minor impacts (e.g., well under one percent increase or decrease). These results are illustrative and provide the impacts from a sample of sectors where the impact is at a least a few percent.

Table G2-5 shows the impact of 33 percent RES alternative on the construction sector. Production goes up in this sector, as expected, because this sector will benefit as more renewable electricity resources are built.

Table G2-5
EDRAM Results for Industrial Building Construction Sector, High Load

	20% RPS	33% RES	Incremental Impact	Percent Impact
Real Output (Billion $)	22.6	23.4	0.9	3.8%
Employment (Thousand)	101.0	104.9	3.9	3.9%

Table G2-6 presents the impacts on the conventional electricity sector. The modeled scenarios assume renewable electricity displaces output from the conventional electricity sector; therefore its production goes down, as expected.

Table G2-6
EDRAM Results for Conventional Electricity Supply Sector, High Load

	20% RPS	33% RES	Incremental Impact	Percent Impact
Real Output (Billion $)	33.0	28.9	-4.1	-12.5%
Employment (Thousand)	19.9	17.4	-2.5	-12.8%

Table G2-7 shows, as expected, production in the metal manufacturing sector goes up. This is because this sector will benefit as more renewable electricity resources are built.

Table G2-7
EDRAM Results for Fabricated Structural Metal Manufacturing Sector, High Load

	20% RPS	33% RES	Incremental Impact	Percent Impact
Real Output (Billion $)	40.4	42.6	2.2	5.5%
Employment (Thousand)	181.8	192.1	10.3	5.7%

Table G2-8 shows the impacts of the alternative RES on the agricultural sector of the state. Despite the fact some of the investment in renewable resources will go to agriculture we see a small negative impact on this sector. This is because the alternative RES increases the price of electricity, because it requires the expenditure of more money on construction, agriculture, and manufacturing than it saves in avoided fossil fuel purchases. Because the price of electricity goes up, so does the price of many goods that use electricity as an input, for instance agriculture. Without a price increase, these goods would sell at a loss. With the price increase, these goods just break even. So the price increase in electricity is just offset by the price increase in the good and there is no incentive to supply

more of the good. On the demand side the price increase decreases demand and therefore less is sold.

Table G2-8
EDRAM Results for Agriculture Sector, High Load

	20% RPS	33% RES	Incremental Impact	Percent Impact
Real Output (Billion $)	94.8	94.1	-0.7	-0.7%
Employment (Thousand)	377.1	374.7	-2.4	-0.6%

Table G2-9 shows the impacts of the alternative RES on California's domestic fossil fuel extraction sector. EDRAM assumes when California's demand for fossil fuels (mainly natural gas) goes down, the import of fossil fuels is cut accordingly and its production stays almost constant.[e] The table shows the fuel extraction sector will reduce its imports by almost four percent in the 33 percent RES alternative high load growth scenario.

Table G2-9
EDRAM Results for the Fossil Fuel Extraction Sector, High Load

	20% RPS	33% RES	Incremental Impact	Percent Impact
Real Output (Billion $)	7.3	7.5	0.2	2.2%
Employment (Thousand)	2.3	2.4	0.1	2.3%
Import (Billion $)	94.7	92.7	-2.02	-2.1%
Export (Billion $)	39.3	39.3	-0.03	-0.1%

B. Low Load Scenario

1. Modeling Inputs

The EDRAM analysis was also conducted using the RES Calculator results for the low load scenario. This section shows the analysis for the low load scenarios. The same percentage allocation for the related sectors was used to derive the expenditures input for EDRAM.

2. Scenario Details

Tables G2-10 and G2-11 show data from the RES Calculator for the 20 percent RPS in 2020 and 33 percent alternative RES 2020 scenario runs. This cost and resource mix information is translated into inputs for EDRAM based on resource

[e] This is consistent with how the California market has historically reacted to marginal changes in demand for fossil fuels.

type and expenditure in 2020. Table G2-10 contains the data used for the 20 percent RPS baseline scenario in EDRAM and Table G2-11 has the data used for the proposed 33 percent RES Alternative scenario in EDRAM.

Table G2-10
EDRAM Inputs for 20 Percent RPS Baseline in 2020,
Low Load (Billion 2008 $)

		Expenditure by Industry Sector			
Renewable Resources	**Total Expenditure**	**Agriculture**	**Construction**	**Manufacturing**	**Fuel Extraction**
Landfill/Digester Gas	0.112	0.029	0.027	0.056	0
Solid-Fuel Biomass	1.136	0.307	0.261	0.568	0
Geothermal	1.796	0	0.628	1.167	0
Small Hydro (< 30 MW Capacity)	0.504	0	0.177	0.328	0
Solar PV	0.187	0	0.065	0.121	0
Solar Thermal	0.468	0	0.117	0.351	0
Wind	0.762	0	0.190	0.571	0
New Transmission	0.053	0	0.013	0.040	0
Gas-Fuel	(1.544)	0	0	0	(1.544)
Gas-Capital, O & M	(1.475)	0	(0.192)	(1.283)	0
Total	1.999	0.336	1.288	1.920	(1.544)

Table G2-11
EDRAM Inputs for 33 Percent RES Alternative in 2020,
Low Load (Billion 2008 $)

		Expenditure by Industry Sector			
Renewable Resources	**Total Expenditure**	**Agriculture**	**Construction**	**Manufacturing**	**Fuel Extraction**
Landfill/Digester Gas	0.112	0.029	0.027	0.056	0
Solid-Fuel Biomass	1.136	0.307	0.261	0.568	0
Geothermal	1.796	0	0.628	1.167	0
Small Hydro (< 30 MW Capacity)	0.504	0	0.177	0.328	0
Solar PV	0.638	0	0.223	0.415	0
Solar Thermal	2.726	0	0.682	2.045	0
Wind	2.006	0	0.501	1.504	0
New Transmission	0.768	0	0.192	0.576	0
Gas-Fuel	(2.305)	0	0	0	(2.305)
Gas-Capital, O & M	(2.387)	0	(0.310)	(2.077)	0
Total	4.949	0.336	2.381	4.582	(2.305)

Tables G2-12 and G2-13 show the flow of money through the industry sectors most related to the renewable electricity sector as explained in the previous section.

Table G2-12
Aggregate Impacts in the 20 Percent RPS Baseline Scenario as Input to EDRAM, Low Load

To-Sector	From-Sector	Aggregate Impacts (Billion $)
Agriculture	Conventional Electricity	0.336
Construction	Conventional Electricity	1.288
Manufacturing	Conventional Electricity	1.920
Fuel Extraction	Conventional Electricity	-1.544

Table G2-13
Aggregate Impacts in the 33 Percent RES Alternative as Input to EDRAM, Low Load

To-Sector	From-Sector	Aggregate Impacts (Billion $)
Agriculture	Conventional Electricity	0.336
Construction	Conventional Electricity	2.381
Manufacturing	Conventional Electricity	4.582
Fuel Extraction	Conventional Electricity	-2.350

3. Sector Results

This section shows the results of the EDRAM analysis for the low load scenario. Tables G2-14 through G2-18 present the potential impacts of the RES alternative on the economic sectors which are closely related to the implementation of the proposed RES.

Table G2-14 shows the impact of the 33 percent RES alternative on the construction sector. Production goes up in this sector, as expected, because this sector will boom to assist in generating renewable electricity.

Table G2-14
EDRAM Results for Industrial Building Construction Sector, Low Load

	20% RPS	33% RES	Incremental Impact	Percent Impact
Real Output (Billion $)	22.5	23.1	0.7	3.1%
Employment (Thousand)	100.5	103.6	3.1	3.1%

Table G2-15 presents the impacts on the conventional electricity sector. The model assumes no renewable electricity comes from the conventional electricity sector; therefore its production goes down, as expected.

Table G2-15
EDRAM Results for Conventional Electricity Supply Sector, Low Load

	20% RPS	33% RES	Incremental Impact	Percent Impact
Real Output (Billion $)	33.4	29.8	-3.6	-10.7%
Employment (Thousand)	20.1	17.9	-2.2	-10.9%

Table G2-16 shows, as expected, production in the metal manufacturing sector goes up. This is because this sector will boom to assist in generating renewable electricity.

Table G2-16
EDRAM Results for Fabricated Structural Metal Manufacturing Sector, Low Load

	20% RPS	33% RES	Incremental Impact	Percent Impact
Real Output (Billion $)	40.0	42.0	2.0	5.1%
Employment (Thousand)	180.4	189.7	9.4	5.2%

Table G2-17 shows the impacts of the RES alternative on the agricultural sector of the state. Despite the fact some of the investment in renewable resources will go to agriculture we see a small negative impact on this sector. The reasons for the small negative impact are explained in the high load section and apply to the low load scenario as well.

Table G2-17
EDRAM Results for Agriculture Sector, Low Load

	20% RPS	33% RES	Incremental Impact	Percent Impact
Real Output (Billion $)	94.8	94.3	-0.6	-0.6%
Employment (Thousand)	377.4	375.3	-2.1	-0.6%

Table G2-18 shows the impacts of the RES alternative on California's domestic fossil fuel extraction sector. EDRAM assumes when California's demand for fossil fuels (mainly natural gas) goes down, the import of fossil fuels is cut accordingly and its production stays almost constant.[f] The table shows the fuel extraction sector will reduce its imports by four percent in the high load growth

[f] This is consistent with how the California market has historically reacted to marginal changes in demand for fossil fuels.

scenario and the negative impact in the fossil fuel sector will be felt outside California.

Table G2-18
EDRAM Results for the Fossil Fuel Extraction Sector, Low Load

	20% RPS	33% RES	Incremental Impact	Percent Impact
Real output (Billion $)	7.4	7.5	0.1	2.0%
Employment (Thousand)	2.4	2.4	0.05	2.1%
Import (Billion $)	95.0	93.2	-1.8	-1.8%
Export (Billion $)	39.3	39.3	-0.03	-0.1%

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