

JULY 20, 2020



CCAIE

# PRC EXAMINERS' RECOMMENDED SJGS REPLACEMENT PLAN: A BETTER ECONOMIC DRIVER FOR THE FOUR CORNERS

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Prepared for the Coalition for Clean Affordable Energy

# INTRODUCTION

This report describes the replacement resources recommended by the New Mexico Public Regulation Commission's Hearing Examiners (the "CCAIE Portfolio") after hearing evidence and considering alternatives for replacing resources upon the closure of the San Juan Generating Station.

The Coalition for Clean Affordable Energy ("CCAIE") engaged a team of experts to conduct modeling of Public Service Company of New Mexico's ("PNM's) system and recommend a reliable portfolio of resources that would maximize investment in the Central Consolidated School District ("CCSD") and greater affected community, consisting of renewable generation, battery storage, and demand-side management. The CCAIE Portfolio of clean energy resources would be emission-free, and help preserve clean air and a natural environment for the people who live in the four-corners while also delivering an important revenue stream to the area that would provide benefits for decades.

The report was created by Kelly O'Donnell, PhD. Kelly used the best available information and reasonable, informed assumptions. Neither Kelly nor CCAIE claim that to have perfect information, but believe on the whole, this accurately represents the benefits of CCAIE's portfolio to the affected communities in the Four Corners region of New Mexico.

Kelly O'Donnell is an Economist, Senior Research Fellow, and Research Assistant Professor of the University of New Mexico. Kelly has a PhD in economics and over 20 years of experience in New Mexico public policy. She has consulted with a broad range of public and private sector clients in New Mexico and nationally on innovative approaches to sustainable economic development. Prior to academia, she held a series of leadership roles in New Mexico state government including Director of State Tax Policy, Deputy Cabinet Secretary for Economic Development, and Superintendent of the New Mexico Regulation and Licensing Department.

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# FINDINGS

CCAIE's Scenario 1 (CCAIE-1) distributes replacement assets across three counties affected by the closure of San Juan Generating Station (SJGS), locating 430 MW of solar generation and storage in the Central Consolidated School District (CCSD), 450 MW of solar and storage in McKinley County, and 70 MW of solar and storage on Jicarilla tribal lands in Rio Arriba County.

The four projects that comprise CCAIE-1 will invest over \$1 billion in northwest New Mexico - \$500 million in McKinley County, \$80 million in Rio Arriba County, and \$447 million in the CCSD.

Construction of the projects in CCAIE-1 will add over half a billion dollars to New Mexico's gross state product (GSP) and support the creation of 3,545 jobs<sup>1</sup> paying \$170.4 million in wages, salaries, and other employee compensation. The construction phase of CCAIE-1 will also generate \$52.3 million in new tax revenue for state and local taxing jurisdictions in New Mexico.

During operations, the projects in CCAIE-1 will contribute \$14 million to gross state product annually and support 55 permanent full-time jobs paying \$4.3 million in wages, salaries, and other employee compensation. Operation and maintenance of the projects in CCAIE-1 will generate an annual average of \$8.1 million in new tax revenue for state, local, and tribal jurisdictions.

## BACKGROUND

The abandonment of San Juan Generating Station (SJGS) in 2022 will remove 497 MW of capacity from PNM's portfolio of generating resources. Closure of the plant-mine complex will also diminish the property tax base for local jurisdictions including the County, San Juan Community College, and the Central Consolidated School District (CCSD). As a condition of the abandonment, PNM must secure generating resources to replace the capacity lost at SJGS. The Energy Transition Act (ETA), enacted in 2019, sets forth the terms of the abandonment, establishes priorities for replacement assets, and directs PNM to site at least some replacement resources in the CCSD to offset the closure's impact on property tax recipients.

PRC Case No. 19-00195-UT sought to identify the portfolio of replacement assets most consistent with the priorities established in the ETA. A number of stakeholders submitted portfolios of SJGS replacement resources for consideration by the hearing officers appointed to the case. The hearing officers evaluated the submissions on the basis of criteria that included location in the CCSD, environmental impacts, system reliability, and cost.

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<sup>1</sup> Employment is expressed in job-years. For example, one individual employed in the same job for 2 years would count as two job years

On June 24, 2020 the hearing examiners issued their Recommended Decision, which included their three highest-ranked replacement portfolios. The portfolio with the highest overall ranking was CCAE’s preferred portfolio (“CCA-1”), which includes 430 MW of solar and storage in the Central Consolidated School District (CCSD), 450 MW of solar and storage in unincorporated McKinley County, and 70 MW of solar and storage in Jicarilla Apache tribal lands in Rio Arriba County.

Adoption of CCAE-1 by the PRC will result in significant capital investments that will create jobs, income, and tax revenue in three economically depressed counties of New Mexico, all within 100 miles of the SJGS.

Table 1 shows the components, location, and capacity of the projects that comprise CCAE-1.

TABLE 1 CCAE-1 REPLACEMENT CAPACITY BY LOCATION		
RESOURCE	LOCATION	CAPACITY (MW)
Bidder 2 solar		200
Bidder 2 battery	San Juan County - CCSD	100
Bidder 5 solar		100
Bidder 5 battery		30
Arroyo solar	McKinley County	300
Arroyo battery		150
Jicarilla solar	Rio Arriba County - Jicarilla Apache Nation	50
Jicarilla battery		20
<b>Total</b>		<b>950</b>

CCA-1 invests over \$1 billion in northwest New Mexico - \$500 million in McKinley County, \$80 million in Rio Arriba County, and \$447 million in the CCSD (Table 2).

**TABLE 2 CAPITAL INVESTMENT BY LOCATION**

RESOURCE	LOCATION	CAPITAL INVESTMENT (MM)*
Bidder 2 Solar		\$211
Bidder 2 Battery	San Juan County - CCSD	\$100
Bidder 5 Solar		\$106
Bidder 5 Battery		\$30
Arroyo Solar	McKinley County	\$300
Arroyo Storage		\$200
Jicarilla Solar	Rio Arriba County - Jicarilla	\$55
Jicarilla Storage	Apache Nation	\$25
Demand Response	Statewide	N/A
<b>Total</b>		<b>\$1.027 billion</b>

\*Estimated

## METHODOLOGY

IMPLAN Pro 3.1 was used to estimate the impact of CCAE-1 on the New Mexico economy. IMPLAN® is a widely used software package and database for estimating regional economic impacts<sup>2</sup> using input-output (I-O) analysis. I-O analysis is based on the premise that regional economies are composed of interconnected households, industries, and institutions. These sectors purchase each other’s outputs and supply inputs to each other in a complex web of interdependencies. A significant change to one sector will therefore impact the many other sectors to which it is connected.

In an I-O model, the initial economic change is called the "direct" effect. As the initial change travels outward through the regional economy it produces "indirect" and "induced" effects. Multipliers represent the mathematical relationship between the initial change in one sector of the economy and the changes in employment, income, and productivity it catalyzes in other sectors.

**Direct effects** represent the initial change to the industry in question.

**Indirect effects** result when the industries that supply the industry in question respond to the change in demand.

**Induced effects** reflect changes in local spending that result from income changes in the directly and indirectly affected industry sectors.

<sup>2</sup> IMPLAN Professional Version 3.1. Minnesota IMPLAN Group, Inc. <http://www.implan.com>.

## DATA & ASSUMPTIONS

Inputs to the I-O model were derived from testimony and documents submitted by PNM as part of PRC Case No. 19-00195-UT and the Hearing Officers' Recommended Decision. Additional data and insight were obtained through discussions with solar project developers.

The economic impact estimate assumes that construction of replacement resources commences in 2021. The estimated allocation of construction and operations expenditures was derived from data published by the U.S. Energy Information Administration and the National Renewable Energy Laboratory (NREL).<sup>3</sup> All results are presented in 2020 dollars.

## ECONOMIC IMPACTS

Utility-scale PV projects support thousands of jobs during their often lengthy construction phases. The large capital investments in CCAE Scenario 1 will therefore provide substantial benefits to the economies of San Juan, Rio Arriba, and McKinley Counties. PV plant operations, on the other hand, are much less labor-intensive than construction, supporting an average of one full-time on-site job per 60 MW of installed generating capacity.<sup>4</sup> Figure 1 shows combined construction and operations employment impacts by location for CCAE-1.

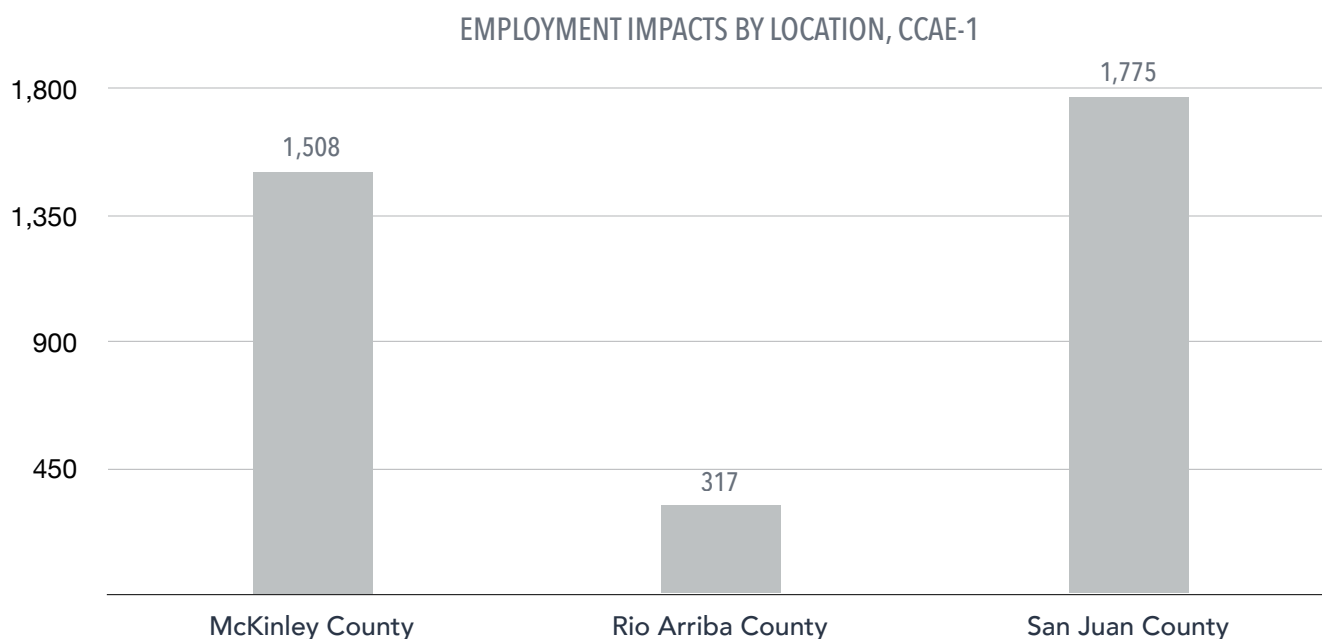


Figure 1.

<sup>3</sup> Fu, Ran, Timothy Remo, and Robert Margolis. 2018. 2018 U.S. Utility-Scale Photovoltaics-Plus-Energy Storage System Costs Benchmark. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-71714. <https://www.nrel.gov/docs/fy19osti/71714.pdf>; and Cole, W. & Frazier, A.W.(2019). Cost Projections for Utility-Scale Battery Storage. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-73222. Retrieved from: <https://www.nrel.gov/docs/fy19osti/73222.pdf>; and U.S. Energy Information Administration, Form EIA-860, Annual Electric Generator Report

<sup>4</sup> Fallgren Direct, P.12

Economic impacts for the projects' construction and operations phases are presented separately in the sections that follow.

## CONSTRUCTION PHASE ECONOMIC IMPACTS

During construction, the four projects that comprise CCAE-1 will add over half a billion dollars to New Mexico's gross state product (GSP) and support the creation of 3,545 jobs<sup>5</sup> paying \$170.4 million in wages, salaries and other employee compensation (Table 3).

**TABLE 3 ECONOMIC IMPACT OF PROJECT CONSTRUCTION – CCAE-1**

Project & Location	Impact Type	Employment (Job years)	Labor Income (MM)	Output (MM)
CCSD San Juan County	Direct Effect	1,181	\$61.58	\$165.39
	Indirect Effect	178	\$7.72	\$31.18
	Induced Effect	391	\$14.82	\$51.04
	<b>Total Effect</b>	<b>1,750</b>	<b>\$84.12</b>	<b>\$247.61</b>
ARROYO McKinley County	Direct Effect	1,000	\$52.13	\$140.00
	Indirect Effect	151	\$6.54	\$26.39
	Induced Effect	331	\$12.54	\$43.20
	<b>Total Effect</b>	<b>1,482</b>	<b>\$71.21</b>	<b>\$209.60</b>
JICARILLA Rio Arriba County	Direct Effect	211	\$11.02	\$29.60
	Indirect Effect	32	\$1.38	\$5.58
	Induced Effect	70	\$2.65	\$9.13
	<b>Total Effect</b>	<b>313</b>	<b>\$15.06</b>	<b>\$44.32</b>
<b>Total</b>		<b>3,545</b>	<b>\$170.4</b>	<b>\$501.5</b>

## ECONOMIC IMPACTS DURING PROJECT OPERATIONS

Operations and maintenance (O&M) costs are the annual expenditures required to operate and maintain a power plant or storage facility, including insurance, taxes, lease payments, the annualized cost of replacing large components, as well as scheduled and unscheduled maintenance of facilities and equipment. O&M costs will be incurred throughout the lifespan of the replacement assets. PNM will enter into 20-year power purchase agreements (PPAs) and energy storage agreements (ESAs) with the third-party operators of generation and storage assets. Utility PV modules have useful lives of up to 40 years. Therefore, solar PV

<sup>5</sup> Employment is expressed in job-years. For example, one individual employed in the same job for 2 years would count as two job years

replacement generation is likely to retain significant value and continue operations beyond the expiration of the initial PPAs.

During operations, the four projects that make up CCAE-1 will contribute \$14 million to annual gross state product and support 56 permanent full-time jobs paying \$4.3 million in wages, salaries and other employee compensation (Table 4).

**TABLE 4. ECONOMIC IMPACT OF THE OPERATIONS AND MAINTENANCE OF CCAE-1 REPLACEMENT ASSETS**

Project & Location	Impact Type	Employment (Job years)	Labor Income (MM)	Output (MM)
CCSD San Juan County	Direct Effect	7	\$1.30	\$3.91
	Indirect Effect	9	\$0.31	\$1.22
	Induced Effect	9	\$0.35	\$1.19
	<b>Total Effect</b>	<b>25</b>	<b>\$1.96</b>	<b>\$6.32</b>
ARROYO McKinley County	Direct Effect	8	\$1.36	\$4.09
	Indirect Effect	9	\$0.33	\$1.27
	Induced Effect	10	\$0.36	\$1.25
	<b>Total Effect</b>	<b>27</b>	<b>\$2.05</b>	<b>\$6.61</b>
JICARILLA Rio Arriba County	Direct Effect	1	\$0.21	\$0.64
	Indirect Effect	1	\$0.05	\$0.20
	Induced Effect	2	\$0.06	\$0.19
	<b>Total Effect</b>	<b>4</b>	<b>\$0.32</b>	<b>\$1.03</b>
<b>Total</b>		<b>56</b>	<b>\$4.34</b>	<b>\$13.96</b>

## FISCAL IMPACTS

Implementation of the projects in CCAE-1 will increase state and local tax revenue during both the construction and operations phases. Fiscal impacts are presented by tax type and broad taxing jurisdiction. For purposes of Table 5, “local” jurisdictions include tribal governments, municipalities, counties, and property tax beneficiaries including, but not limited to, school districts, water districts, and community colleges.



## Fiscal Impacts During Construction

Construction of the projects included in CCAE-1 will generate a total of \$52.3 million in new tax revenue for state and local taxing jurisdictions in New Mexico (Table 5 and Figure 2).

Most utility-scale renewables projects in New Mexico receive Industrial Revenue Bonds (IRBs) from the local taxing jurisdiction in which they are located. IRBs typically eliminate property tax liability and exempt the holder from the compensating tax on equipment imported from outside the state. Industrial Revenue Bonds do not, however, exempt construction services or materials from tax.

The analysis of construction phase fiscal impacts assumes that the projects in McKinley and Rio Arriba County both receive IRBs, but that the owners of these projects make annual payments in lieu of taxes (PILTs) of \$1 million to the property tax jurisdiction(s) in which the projects are located. **Because restoration of the local property tax base is a primary objective of locating replacement resources in the CCSD, it is assumed that the San Juan County projects do not receive IRBs and therefore remain subject to property taxes and compensating tax on imported equipment.**<sup>6</sup>

Fiscal impacts during the construction phase arise from gross receipts taxation of construction services, compensating taxes on equipment imported from outside New Mexico (for non-IRB projects), and taxation of the additions to income and expenditures attributable

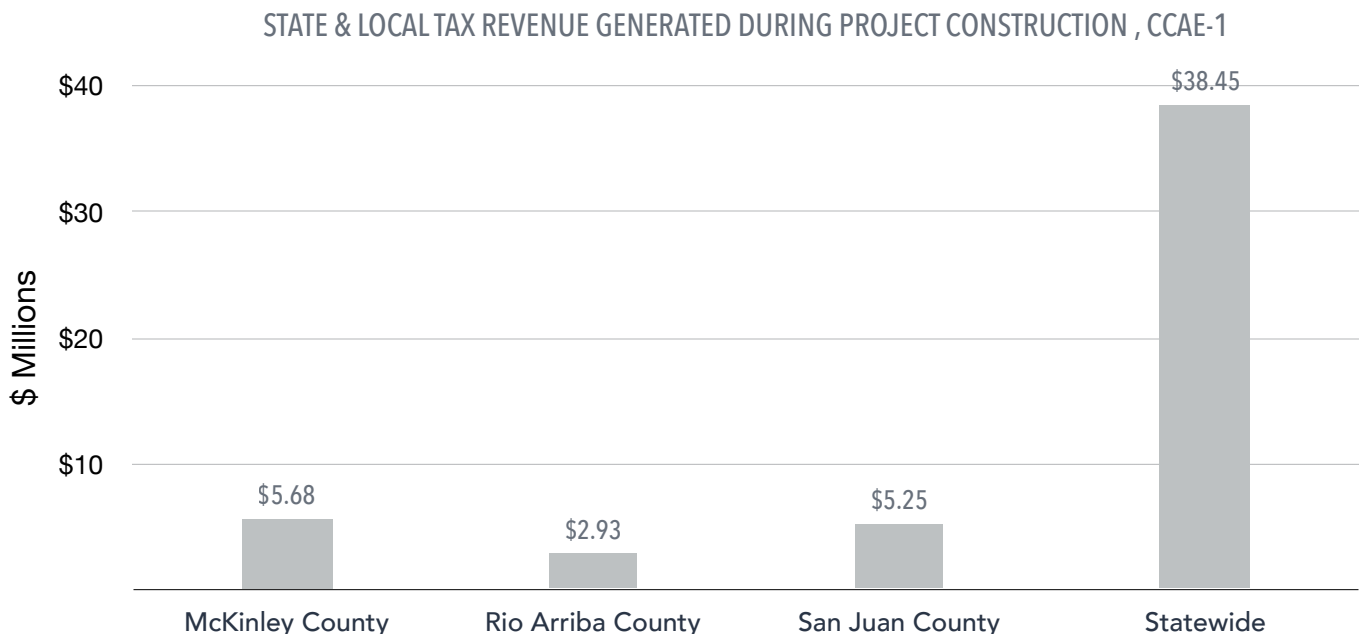


Figure 2.

<sup>6</sup> Section 3(E) of the Energy Transition Act provides for replacement resources that are subject to local property taxes or a binding commitment to make an equivalent payment in lieu of taxes (see: <https://www.nmlegis.gov/Sessions/19%20Regular/bills/senate/SB0489.pdf>)

to the project construction. Construction phase fiscal impacts are for the full construction period, which may extend over one or more years.

**TABLE 5. CCAE-1 CONSTRUCTION PHASE FISCAL IMPACTS (\$ MILLIONS)**

Project & Location	Tax	Local	State	Total
CCSD San Juan County	Income tax	\$0.00	\$0.76	\$0.76
	Gross receipts tax (GRT)	\$3.51	\$24.72	\$28.23
	Other excise taxes	\$0.00	\$0.42	\$0.42
	Property taxes	\$1.74	\$0.11	\$1.85
	<b>Total</b>	<b>\$5.25</b>	<b>\$26.01</b>	<b>\$31.25</b>
ARROYO McKinley County	Income tax	\$0.00	\$0.64	\$0.64
	Gross receipts tax (GRT)	\$3.20	\$9.93	\$13.13
	Other excise taxes	\$0.00	\$0.36	\$0.36
	Property taxes	\$2.47	\$0.09	\$2.57
	<b>Total</b>	<b>\$5.68</b>	<b>\$11.02</b>	<b>\$16.70</b>
JICARILLA Rio Arriba County	Income tax	\$0.00	\$0.14	\$0.14
	Gross receipts tax (GRT)	\$1.62	\$1.19	\$2.81
	Other excise taxes	\$0.00	\$0.08	\$0.08
	Property taxes	\$1.31	\$0.02	\$1.33
	<b>Total</b>	<b>\$2.93</b>	<b>\$1.42</b>	<b>\$4.35</b>
<b>Total</b>		<b>\$13.85</b>	<b>\$38.45</b>	<b>\$52.30</b>

### *Fiscal Impacts During Operations*

Operation and maintenance of the projects in CCAE-1 will generate an annual average of \$8.1 million in new revenue for state, local, and tribal jurisdictions (Table 6). Fiscal impacts during the operations phase arise from property taxes and PILTs, gross receipts taxation of energy storage capacity payments, and taxes of the additions to income and expenditures attributable to project operations. Operations-phase fiscal impacts are expressed as annual averages.

**TABLE 6. CCAE-1 OPERATIONS PHASE ANNUAL FISCAL IMPACTS (\$ MILLIONS)**

Project & Location	Tax	Local	State	Total
CCSD San Juan County	PIT	\$0.00	\$0.02	\$0.02
	GRT	\$0.27	\$0.80	\$1.06
	Other Excise	\$0.00	\$0.01	\$0.01
	Property	\$3.69	\$0.00	\$3.69
	<b>Total</b>	<b>\$3.96</b>	<b>\$0.83</b>	<b>\$4.78</b>
ARROYO McKinley County	Income tax	\$0.00	\$0.02	\$0.02
	Gross receipts tax (GRT)	\$0.26	\$0.78	\$1.03
	Other excise taxes	\$0.00	\$0.01	\$0.01
	Property taxes	\$1.04	\$0.00	\$1.05
	<b>Total</b>	<b>\$1.30</b>	<b>\$0.81</b>	<b>\$2.11</b>
JICARILLA Rio Arriba County	Income tax	\$0.00	\$0.00	\$0.00
	Gross receipts tax (GRT)	\$0.05	\$0.14	\$0.19
	Other excise taxes	\$0.00	\$0.00	\$0.00
	Property taxes	\$1.01	\$0.00	\$1.01
	<b>Total</b>	<b>\$1.05</b>	<b>\$0.14</b>	<b>\$1.20</b>
<b>Total</b>		<b>\$6.31</b>	<b>\$1.78</b>	<b>\$8.09</b>

## CONCLUSION

The four projects that comprise CCAE-1 will invest over \$1 billion in three northwest New Mexico counties. These large capital investments will create much-needed jobs and income for area residents and generate substantial one-time and recurring tax revenue for the State of New Mexico as well as jurisdictions, including the Central Consolidated School District, in San Juan, Rio Arriba, and McKinley counties.