

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF PUBLIC SERVICE)
COMPANY OF NEW MEXICO’S CONSOLIDATED)
APPLICATION FOR APPROVALS FOR THE)
ABANDONMENT, FINANCING AND RESOURCE) **CASE NO. 19-00195-UT**
REPLACEMENT FOR SAN JUAN GENERATING)
STATION PURSUANT TO THE ENERGY)
TRANSITION ACT)

DIRECT TESTIMONY

Tyler Comings

On behalf of

Coalition for Clean Affordable Energy (CCAЕ)

December 13, 2019

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I. Introduction

Q. Please state your name, occupation and business address.

A. My name is Tyler Comings. I am a Senior Researcher at Applied Economics Clinic, located at 1012 Massachusetts Avenue, Arlington, Massachusetts.

Q. Please describe Applied Economics Clinic.

A. The Applied Economics Clinic is a 501(c)(3) non-profit consulting group housed at Tufts University’s Global Development and Environment Institute. Founded in February 2017, the Clinic provides expert testimony, analysis, modeling, policy briefs, and reports for public interest groups on the topics of energy, environment, consumer protection, and equity, while providing on-the-job training to a new generation of technical experts.

Q. Please summarize your work experience and educational background.

A. I have 14 years of experience in economic research and consulting. At Applied Economics Clinic, I focus on energy system planning, costs of regulatory compliance, wholesale electricity markets, utility finance, and economic impact analyses. I have provided testimony on these topics in Colorado, the District of Columbia, Hawaii, Indiana, Kentucky, Maryland, Michigan, New Jersey, Ohio, Oklahoma, West Virginia, and Nova Scotia (Canada). I am also a Certified Rate of Return Analyst (CRRRA) and member of the Society of Utility and Regulatory Financial Analysts (SURFA).

I have provided expertise for many public-interest clients including: American Association of Retired Persons, Appalachian Regional Commission, Citizens Action Coalition of Indiana, City of Atlanta, Consumers Union, District of

1 Columbia Office of the People’s Counsel, District of Columbia Government,
2 Earthjustice, Energy Future Coalition, Hawaii Division of Consumer Advocacy,
3 Illinois Attorney General, Maryland Office of the People’s Counsel, Massachusetts
4 Energy Efficiency Advisory Council, Michigan Agency for Energy, Montana
5 Consumer Counsel, Mountain Association for Community Economic
6 Development, Nevada State Office of Energy, New Jersey Division of Rate
7 Counsel, New York State Energy Research and Development (NYSERDA), Nova
8 Scotia Utility and Review Board Counsel, Rhode Island Office of Energy
9 Resources, Sierra Club, Southern Environmental Law Center, U.S. Department of
10 Justice, Vermont Department of Public Service, West Virginia Consumer Advocate
11 Division, and Wisconsin Department of Administration.

12 I was previously employed at Synapse Energy Economics, where I provided
13 expert testimony and reports on coal plant economics and utility system planning.
14 Prior to that, I performed research on consumer finance and behavioral economics
15 at Ideas42 and conducted economic impact and benefit-cost analysis of energy and
16 transportation investments at Economic Development Research Group (EDRG).

17 I hold a B.A. in Mathematics and Economics from Boston University and
18 an M.A. in Economics from Tufts University.

19 My full resume is attached as Exhibit TFC-1.

20 **Q. For whom are you testifying?**

21 A. I am testifying on behalf of the Coalition for Clean Affordable Energy (“CCAEE”).

1 **Q. Have you testified in front of the New Mexico Public Regulation Commission**
2 **before?**

3 A. No.

4 **Q. Have you testified in other jurisdictions?**

5 A. I have testified before public utility commissions in Colorado, the District of
6 Columbia, Hawaii, Indiana, Kentucky, Maryland, Michigan, New Jersey, Ohio,
7 Oklahoma, West Virginia, and Nova Scotia (Canada).

8 **Q. What is the purpose of your testimony?**

9 A. The purpose of my testimony is to discuss some of the merits of CCAE's
10 portfolios as an alternative to Public Service Company of New Mexico's (PNM)
11 preferred portfolio. First, I summarize PNM's initial request for proposals (RFP)
12 for supply-side resources, the supplemental RFP for utility-owned storage
13 resources and the evaluation process used to choose PNM's preferred portfolio of
14 replacement resources. Second, I discuss the value of PNM's supply-side RFP
15 and the competitive group of bids that resulted from the RFP process. Third, I
16 discuss the limitations of PNM's RFP, primarily its exclusion of demand-side
17 resources, and flaws in PNM's evaluation of the supply-only bids. Fourth, I
18 explain how CCAE's portfolios both harness the value of the competitive bids
19 received and addresses flaws in PNM's decision-making process. Finally, I
20 discuss the limitations of PNM's supplemental RFP for energy storage which
21 resulted in the selection of the Sandia and Zamora stand-alone battery projects.
22 Relative to the first supply-side RFP, this was an uncompetitive process by
23 excluding Energy Storage Agreements (ESA) bids from contention. Moreover,

1 CCAE finds in its preferred portfolio that removal of the Sandia and Zamora
2 standalone batteries and replacement with more battery capacity at Arroyo (using
3 the original bid) is a lower-cost option. However, if the Commission still
4 determines that further standalone batteries are needed, a new solicitation should
5 be issued to allow for ESAs to bid, in order to encourage a competitive pool of
6 options.

7 **II. Summary of PNM’s RFP and Evaluation Process**

8 **Q. Please summarize PNM’s process of finding replacement resources for its**
9 **planned abandonment of the San Juan coal plant.**

10 A. PNM issued two separate RFP’s: one soliciting “supply resources,”¹ and a
11 supplemental RFP that sought stand-alone battery storage projects for PNM to
12 own and operate.² PNM and its contractor, HDR, evaluated many supply-side
13 resource replacement projects including new natural gas generation, solar
14 photovoltaic, wind, battery storage, and solar/battery hybrids. Based on this
15 evaluation process, PNM developed four portfolios (which it calls “scenarios”)
16 and then conducted modeling of those portfolios. Ultimately, PNM chose to
17 pursue one of the four portfolios (which it calls “Scenario 1”) that includes two
18 solar and battery hybrid projects (Arroyo and Jicarilla), seven natural gas units
19 (Pinon), and two stand-alone batteries (Sandia and Zamora). A brief timeline of
20 events in this process is presented below:³

- 21
- October 2017: PNM issued an RFP for supply-side resources

¹ Direct Testimony of Roger W. Nagel, PNM Exhibit RWN-5, p. 5.

² Direct Testimony of Roger W. Nagel, PNM Exhibit RWN-6

³ Direct Testimony of Roger W. Nagel provides further detail on the timeline, e.g. Figure RWN-1.

- 1 • January 2018: PNM received 345 bids for supply-side resources
- 2 • March through July 2018: PNM and HDR evaluated bids, communicated
- 3 with bidders and developed a “short list” of bids
- 4 • July and August 2018: PNM asked those “short list” bidders to update
- 5 their bids
- 6 • November 2018: A final shortlist of bids is selected
- 7 • March 2019: Energy Transition Act (ETA) is enacted
- 8 • April 2019: PNM issued a Supplemental RFP for energy storage
- 9 • May 2019: PNM received Responses to supplemental RFP
- 10 • June 2019: PNM and HDR evaluate supplemental battery storage bids.
- 11 PNM executes contracts with all bidders.⁴
- 12 • Mid-June 2019: PNM imposes a limit of 40 MW of storage per project
- 13 after bids are received.⁵

14 **Q. Are you discussing the modeling processes used by PNM and CCAE?**

15 A. Not in detail. CCAE Witnesses Sommer and Milligan discuss PNM’s Encompass
16 and SERVVM modeling, respectively. These witnesses also conducted their own
17 modeling, using the same platforms as PNM, to address separate concerns with
18 PNM’s assumptions and methodology.

19 **Q. What policies did PNM claim to consider in determining its preferred**
20 **portfolio?**

⁴ Direct Testimony of Thomas G. Fallgren. p.51, lines 9-10.

⁵ PNM response to CCAE Interrogatory 2-5.

1 A. First, PNM considered the Energy Transition Act (ETA) which defines
2 “replacement resources” for the San Juan coal plant as up to 450 MW of capacity
3 located in the Central Consolidated School District (CCSD), where the San Juan
4 plant is currently located.⁶ The ETA also specifies that the Commission should
5 prefer resources that have the “least environmental impacts” and “higher ratios of
6 capital costs to fuel costs”—among other considerations. Second, while the ETA
7 requires that utilities in the state produce 100 percent clean energy by 2045, PNM
8 has stated that it will become a zero-carbon utility by 2040.⁷

9 **III. CCAE’s Preferred Portfolio Provides a Viable Alternative and Invests**
10 **Significantly More in the CCSD than PNM’s Preferred Portfolio**

11 **Q. Did CCAE develop its own replacement portfolios as alternatives to PNM’s**
12 **preferred portfolio?**

13 A. Yes. CCAE developed alternative portfolios (“CCAIE 1” and “CCAIE 2”) that in
14 part overlapped with PNM’s preferred portfolio by including the Arroyo and
15 Jicarilla solar and battery hybrid projects, as these were undeniably low-cost
16 resources. Apart from those projects, CCAE’s portfolios differ from PNM’s in
17 several critical ways.

18 First, both of CCAE’s portfolios include two solar and battery hybrid
19 projects instead of the seven gas units in PNM’s portfolio. These hybrid projects
20 were bids received by PNM and are located in the CCSD, thus they are eligible
21 “replacement resources” as that term is used in the ETA and the Commission may

⁶ In this testimony, Energy Transition Act (ETA) refers to New Mexico Senate Bill 489. Available at:
<https://www.nmlegis.gov/Sessions/19%20Regular/final/SB0489.pdf>

⁷ See: Direct Testimony of Ronald N. Darnell. p.12-13.

1 approve them as “alternatives” to PNM’s resource choices.⁸ The two hybrid
2 projects in both CCAE portfolios total 430 MW of capacity (300 MW solar and
3 130 MW of associated batteries). Second, both of CCAE’s portfolios choose more
4 capacity from the Arroyo battery instead of being limited to PNM’s adjusted 40
5 MW configuration. Finally, CCAE included an additional 24 MW of demand
6 response by 2022 in both portfolios.

7 In this section, I discuss the benefits of both of CCAE portfolios, including
8 that:

- 9 1. Both of CCAE’s portfolios rely on PNM’s initial supply-resource
10 RFP process which yielded a robust, competitive set of
11 resources—including the Arroyo and Jicarilla projects.
- 12 2. Both of CCAE’s portfolios do not impose PNM’s arbitrary
13 limitations on battery storage capacity or PNM’s limit for all
14 battery storage, as a percentage of system capacity. PNM imposed
15 these limitations after the bidding processes for both RFPs had
16 concluded.
- 17 3. Both of CCAE’s portfolios prioritize resources that are located in
18 the CCSD, including substantially more capital investment in the
19 district than in PNM’s preferred portfolio.

⁸ “The commission shall grant all necessary approvals for replacement resources; provided that the commission may determine that the particular resource proposed by the qualifying utility should not be approved and that, instead, an alternative replacement resource that meets the conditions of this section should be approved. The commission shall not disallow recovery of reasonable costs associated with requirements as to where the resources are located.” NMSA 1978 § 62-18-3(D) (2019).

1 4. Both of CCAE’s portfolios include demand response, instead of
2 limiting the portfolio to supply-side resources as PNM did in its
3 “all resources” solicitation.

4 CCAЕ witnesses Brant, Desu, Milligan, and Sommer also discuss these and other
5 details involving the development of CCAЕ’s portfolios.

6 **Q. Please explain the differences between the two CCAЕ portfolios and why**
7 **CCAЕ 1 is preferred.**

8 A. The CCAЕ 1 portfolio is lower-cost than the CCAЕ 2 portfolio after replacing the
9 Sandia and Zamora stand-alone batteries with the equivalent amount of battery
10 capacity at Arroyo—utilizing the original 150 MW battery bid for that project.
11 CCAЕ 2 includes 80 MW of battery capacity at Arroyo, still higher than PNM’s
12 40 MW limitation which was applied after the original bid of 150 MW of battery
13 at Arroyo was received. CCAЕ 2 also includes the Sandia and Zamora projects
14 (70 MW of combined capacity) that were the result of PNM’s supplemental RFP.
15 However, I found that the supplemental RFP which led to Sandia and Zamora
16 being selected by PNM to be too restrictive by excluding Energy Storage
17 Agreements (ESAs) from contention (as I explain in detail later in my testimony).
18 Thus, CCAЕ 1 tested the removal of Sandia and Zamora batteries (70 MW of
19 battery) and adding an equivalent increase at Arroyo (from 80 MW of battery to
20 150 MW). CCAЕ finds that CCAЕ 1, which replaces Sandia and Zamora with
21 Arroyo battery capacity, is lower-cost; thus it is the preferred portfolio between
22 the two. CCAЕ witnesses Milligan and Sommer explain the analytical steps that
23 were taken to develop these two portfolios.

1 **Q. Were the projects CCAE added to its portfolios also on PNM’s “short-list”**
2 **and thus already screened by PNM and HDR?**

3 A. Yes. The two solar and battery hybrid projects in the CCSD that CCAE included
4 in both of its portfolios were taken from PNM’s “short list” of bids. Thus, these
5 projects were already vetted by PNM and HDR using their own quantitative and
6 qualitative criteria.

7 **Q. Does either CCAE portfolio invest substantially more in the CCSD than**
8 **PNM’s preferred portfolio?**

9 A. Yes. Either of CCAE’s portfolios invests approximately \$447 million in capital
10 investment in the CCSD compared to \$210 million from PNM’s preferred
11 portfolio. Both CCAE portfolios include the same projects in the CCSD.

12 *A. PNM’s Supply-Resource RFP Provided a Competitive Pool of Bids*

13 **Q. Did CCAE develop its own portfolios based on the bids received by PNM?**

14 A. Yes. CCAE developed alternative portfolios that, in part, overlapped with PNM’s
15 preferred plan by including the Arroyo and Jicarilla solar and battery hybrid
16 projects. However, both of CCAE’s portfolios also included two solar and battery
17 hybrid projects in the CCSD—totaling 430 MW of capacity (300 MW solar, 130
18 MW of battery)—instead of PNM’s plan to build seven gas units in the CCSD.
19 Both CCAE portfolios also allowed for more Arroyo battery capacity after
20 removing PNM’s 40 MW limitation on battery bid size, which was imposed after
21 bids were received.

1 **Q. Did the supply-resource RFP issued by PNM lead to a robust sample of low-**
2 **cost bids?**

3 A. Yes. While I have some concerns with PNM's RFP process and its evaluation of
4 those bids, I generally find the supply-resource RFP to be encouraging of
5 competition and variety of resources. This is shown in the results of that RFP.
6 PNM received 345 bids for a wide variety of supply-side resources—including
7 engineering, procurement and construction (EPC), build-transfer (BT) and power
8 purchase agreement (PPA) options. Most notably, some of the bids received for
9 solar and battery hybrid projects were among the lowest values in the U.S of
10 which I am aware.

11 I have more reservations about the supplemental battery storage RFP than
12 the supply-resource RFP, because the supplemental storage RFP did not allow for
13 bids for Energy Storage Agreements (ESAs). I discuss this later in my testimony.

14 **Q. What materials did you review in order to determine that PNM's supply-**
15 **resource RFP was a reasonable sample of bids?**

16 A. I reviewed the testimony of Roger Nagel (including the RFP's themselves), the
17 bid evaluation workpapers provided in attachments to Confidential WRA 1-12
18 and 1-13, as well as communications between bidders and PNM throughout the
19 evaluation process (provided on the Power Advocate site). I also relied on past
20 experience in reviewing other utilities RFPs and evaluations of resource options.

21 **Q. Have you criticized other utilities for issuing RFP's that were too restrictive**
22 **and non-competitive?**

1 A. Yes. I have reviewed many RFPs issued by utilities and, in several instances,
2 criticized those RFP's for preventing competition through the parameters set by
3 the utility. Two examples of this are provided below:

4 In 2018, Vectren in Indiana petitioned the Indiana Utility Regulatory
5 Commission (IURC) for the approval to build a new natural gas combined cycle
6 plant (NGCC)—justifying that decision based on an RFP that was biased towards
7 a self-build, natural gas plant. First, the parameters listed in Vectren's RFP
8 discouraged non-gas resources from bidding. I testified in that case that Vectren's
9 RFP was limiting in that it was "tailored towards natural gas bids by the criteria
10 listed, despite the Company failing to adequately justify that this type of resource
11 was required."⁹ Second, Vectren's RFP was written with a strong bias towards
12 ownership that discouraged power purchase agreements (PPA).¹⁰ Finally, Vectren
13 limited projects to only those with a capacity between 600 and 800 MW.¹¹ The
14 Indiana Commission ultimately agreed with these criticisms, and in denying the
15 application, stated that Vectren's RFP was "unduly restrictive" and "foreclosed
16 consideration of combinations of smaller resources that might have offered
17 greater resource diversity, flexibility and cost efficiencies than reliance on the
18 acquisition of a single large natural-gas facility."¹²

19 In 2017, Monongahela Power Company and Potomac Edison (both
20 subsidiaries of FirstEnergy) petitioned the West Virginia Public Service

⁹ Direct Testimony of Tyler Comings. Indiana Utility Regulatory Commission (IURC), Cause No. 45052. On behalf of Citizens Action Coalition, Sierra Club, and Valley Watch. August 10, 2018. p.45, lines 14-15. Available at: <https://aeclinic.org/publicationpages/2018/8/14/testimony-on-vectrens-proposed-natural-gas-plant-and-coal-retrofits>

¹⁰ Id. p.45, lines 18-23.

¹¹ Id. p.45, lines 9-11.

¹² Indiana Utility Regulatory Commission (IURC), Cause No. 45052. Final Order. April 24, 2019. p.21.

1 Commission for approval to purchase the Pleasants coal plant. The utilities had
2 issued an RFP that was restricted to a dispatchable resource, located in the area,
3 and would have to be sold (100 percent) to the utilities.¹³ The utilities also gave
4 bidders one week to pre-qualify for the solicitation. I testified that the RFP
5 included “unnecessarily stringent criteria”¹⁴ and that allowing for other resources
6 and/or non-utility ownership “would open up a much larger pool of competition
7 and a lower-cost option for ratepayers”¹⁵ In that case, the utilities were not
8 required to issue a new RFP; but the Commission took issue with the value of the
9 project which was raised by myself and other intervenor witnesses.¹⁶ Ultimately,
10 the West Virginia Commission approved the transaction, but it imposed stringent
11 enough economic conditions that led the utilities to abandon their petition.¹⁷

12 **Q. Have you ever used an RFP issued by a utility as a positive example?**

13 A. Yes. In several instances, I have referred to Northern Indiana Public Service
14 Company’s (NIPSCO) RFP issued in 2018 as an example of other utilities
15 (including Vectren) should do.¹⁸ NIPSCO’s 2018 RFP considered all
16 technologies, allowed for small or large capacity projects, and did not show a

¹³ Direct Testimony of Tyler Comings. West Virginia Public Service Commission (WVPSC), Case No. 17-0296-E-PC. On behalf of Sierra Club. August 25, 2017. p.4, lines 9-18. Available at:

<https://aeclinic.org/comings-past-publications>

¹⁴ Id. p.39, line 15.

¹⁵ Id. p.38, lines 20-21.

¹⁶ West Virginia Public Service Commission (WVPSC), Case No. 17-0296-E-PC. Commission Order. January 26, 2018. p.67

¹⁷ FirstEnergy Corp. “FirstEnergy to Deactivate Pleasants Power Station in West Virginia”. Available at: https://www.firstenergycorp.com/content/fecorp/newsroom/news_articles/firstenergy-to-deactivate-pleasants-power-station-in-west-virgin.html

¹⁸ Direct Testimony of Tyler Comings. Indiana Utility Regulatory Commission (IURC), Cause No. 45052. On behalf of Citizens Action Coalition, Sierra Club, and Valley Watch. August 10, 2018. p.46, line 18 through p.47, line 5. Available at: <https://aeclinic.org/publicationpages/2018/8/14/testimony-on-vectrens-proposed-natural-gas-plant-and-coal-retrofits>

1 preference for ownership. As a result, NIPSCO received many bids for low-cost,
2 clean resources and found that replacing its coal fleet with these resources was the
3 lowest-cost-option. (CCAЕ witness Desu also refers to the NIPSCO 2018 RFP.)

4 **Q. Is the number of bids an indicator of how well an RFP elicited a competitive**
5 **pool of bids?**

6 A. Yes, it is an important indicator of how much competition was fostered by the
7 solicitation. Looking at the example utilities I have cited above, as well as PNM’s
8 initial, supply-resource RFP, the linkage between encouraging competition and
9 number of bids is readily apparent. For the two utilities where competition was
10 stifled: Vectren received nine bids that met their requirements;¹⁹ and
11 Monongahela Power Company and Potomac Edison only received three
12 qualifying bids (two PPA bidders were disqualified).²⁰ In contrast, NIPSCO
13 received 90 bids for its 2018 RFP and PNM received 345 bids for its supply-
14 resource RFP used in this filing. These results are not a coincidence but rather by
15 design. Both NIPSCO and PNM in its initial RFP actively sought a variety of
16 resources, sizes, and levels of ownership.

¹⁹ Indiana Utility Regulatory Commission (IURC), Cause No. 45052. Final Order. April 24, 2019. p.21.

²⁰ Direct Testimony of Tyler Comings. West Virginia Public Service Commission (WVPSC), Case No. 17-0296-E-PC. On behalf of Sierra Club. August 25, 2017. p.4, lines 9-18. Available at:

<https://aeclinic.org/comings-past-publications>

1 ***B. CCAE’s Portfolios Address Limitations of PNM’s RFP and a Key Flaw in the***
2 ***Evaluation Process***

3 **Q. Were there important limitations imposed by PNM at the RFP stage?**

4 A. Yes. Demand-side resources can also contribute to the capacity shortfall created
5 by PNM abandoning San Juan. While the sample of PNM’s bids was indeed large
6 and robust, it only requested supply side resources and unsurprisingly, PNM only
7 received bids for supply-side resources. The RFP should have invited demand-
8 side resources to participate and to bid, such as demand response.

9 **Q. Did CCAE include demand-side resources as part of its proposed alternative**
10 **portfolios?**

11 A. Yes. CCAE witness Brant developed assumptions for demand response that was
12 included in CCAE’s modeling—conducted by Mr. Milligan and Ms. Sommer—to
13 determine the chosen portfolio. This addresses PNM’s omission of demand-side
14 resources from consideration.

15 **Q. Do you have a key concern with PNM’s evaluation of supply-resource bids?**

16 A. Yes. PNM placed a limit on the size of battery storage projects (40 MW each) and
17 total amount of battery storage that could be procured (130 MW). I address this
18 briefly, but CCAE witness Desu discusses this issue in more detail.

19 **Q. Did PNM adequately justify placing these limitations on battery storage**
20 **projects?**

21 A. No. PNM witness Kemp recommended the limitations on storage size for
22 individual projects (between 10 and 40 MW) and that total storage capacity on

1 PNM's system should not exceed 5 percent of PNM's peak load.²¹ How he came
2 up with those specific limits, however, is not clear. He cites to two other utilities
3 that were planning for higher rates of battery storage as a percentage of peak load:
4 Arizona Public Service (10 percent) and NV Energy (7.5 percent). But he
5 dismisses the relevance of these examples, stating that "PNM is approximately
6 one-third the size of these utilities." Stating battery capacity as a percentage of
7 peak load, however, controls for the size of the utility already. Therefore, it is
8 unclear why PNM's size relative to other utilities comes into play when
9 discussing storage as a percentage of peak load.

10 **Q. Were bidders aware of the limitations of battery storage procurement**
11 **imposed by PNM?**

12 A. No. These limitations discussed by PNM witness Kemp were imposed in June of
13 2019, more than six months after the supply-resource RFP process ended.²²
14 Moreover, there were no prior communications with bidders about imposing such
15 limitations.²³ Therefore, bidders could not have known of the limitation until after
16 submitting their initial bids.

17 **Q. Do CCAE's portfolios include battery projects above 40 MW?**

18 A. Yes, two sites in CCAE's portfolio include battery projects that are above 40
19 MW. One of the solar and battery hybrid projects in CCAE's portfolio includes a

²¹ Direct Testimony of William Kemp. p.13, line 13 through p.14, line 2.

²² PNM response to CCAE Interrogatory 2-5.

²³ PNM response to CCAE Interrogatory 2-4.

1 100 MW battery located in the CCSD. Also, CCAE included either 150 MW or
2 80 MW of battery at Arroyo in CCAE 1 and 2 portfolios, respectively.

3 **Q. Does PNM’s supply-side RFP process directly address the ETA?**

4 A. No. PNM evaluated its four portfolios (which it calls “scenarios”) using the
5 ETA’s criteria, which includes cost, economic development opportunity and
6 ability to provide jobs with comparable pay and benefits to those lost due to the
7 abandonment of a qualifying generation facility. But due to the timing of the law
8 and the RFP, PNM did not select bids to include in these portfolios on this basis,
9 as it did not have the data with which to do so. Ideally, bidders would have had
10 knowledge of the ETA and tailored bids to the law’s criteria; then PNM would
11 have evaluated all bids using the ETA’s criteria after requesting ETA-specific
12 data from the bidders (e.g. job impacts in the district). However, the bidding
13 process ended several months before the ETA was enacted.

14 **Q. Given that the ETA was enacted after the supply-resource RFP process, why
15 are you not recommending that the supply-side RFP be re-issued?**

16 A. Put simply: there is not likely to be enough time to re-issue an all resource or
17 supply-only RFP. This concern particularly applies to the low-cost renewable and
18 hybrid projects, chosen by both PNM and CCAE, which incorporate tax credits
19 that are sunseting in the near future. A delay in these projects would result in
20 lower tax credits and thus higher project costs. The bids we have from the supply-
21 resource RFP are the best data available. CCAE witness Mihir Desu will testify,
22 however, that there is still time to issue an RFP for battery storage resources and
23 meet the in-service date requirements.

1 *C. CCAE's Portfolios Prioritize Projects in the CCSD*

2 **Q. Did CCAE prefer resources that meet the definition of “Replacement**
3 **Resources” to be cited in the CCSD to help replace the tax base in the**
4 **affected community?**

5 A. Yes. In consideration of the ETA, CCAE sought to include resources that were in
6 the CCSD. We also limited our view to projects that were on PNM’s vetted “short
7 list” of bids. There were four solar and battery hybrid projects that fit both criteria
8 (from two different bidders) and all four projects were very close in cost.²⁴ One
9 project from each bidder was modeled and selected as part of CCAE’s portfolio.
10 As mentioned previously, CCAE also included more battery storage at Arroyo as
11 well as demand response in its portfolios.

12 **Q. Do the CCAE portfolios have a higher ratio of capital to fuel costs than**
13 **PNM’s portfolio?**

14 A. Yes. One of the criteria in the ETA is that the Commission prefer replacement
15 resources with “higher ratios of capital costs to fuel costs.”²⁵ The higher this ratio,
16 the less there is fuel price risk from a portfolio. CCAE’s replacement portfolios
17 resources contain zero fuel costs; thus it is clearly superior to PNM’s portfolio
18 using this metric.

²⁴ Confidential PNM Exhibit WRA 1-13F(8-2-19 Supplemental)

²⁵ ETA p. 10. Available at: <https://www.nmlegis.gov/Sessions/19%20Regular/final/SB0489.pdf>

1 **Q. Were you able to estimate the local tax impacts of CCAE's portfolio in the**
2 **CCSD?**

3 A. Not in full. CCAE asked PNM how it estimated gross receipts taxes (GRT) and
4 property taxes but, for PPA projects, PNM only provided the method for
5 calculating the battery storage PPA's GRT taxes.²⁶ Apart from those projects,
6 PNM directed us to the websites that provided GRT and property tax rates by
7 geography.²⁷ The battery storage GRT can be calculated from the demand charge
8 (\$/kW-month) for battery PPAs and the applicable city, county, and state RT
9 rate.²⁸ The GRT from solar PPA's, however, was not provided and CCAE was not
10 provided with information for estimating it. Estimating this GRT for the solar
11 projects is complicated by not knowing the dollar basis for each solar PPA's
12 GRT, including if and how tax deductions or credits would be applied. For
13 estimating property taxes, one would need to know the taxable value for these
14 projects or if a PILOT (payment in lieu of taxes) amount had been agreed upon.
15 PNM made estimates of property taxes for its four portfolios but only at the
16 portfolio level; and it did not provide supporting calculations for these estimates.
17 Even if the data is unavailable to PNM, CCAE and other parties should have
18 access to all of PNM's assumptions and methodology in developing its tax impact
19 estimates so that we can compare those impacts across portfolios.

20

²⁶ PNM response to CCAE Interrogatory 9-6.

²⁷ PNM response to CCAE Interrogatories 9-8 and 9-9.

²⁸ See: <http://www.tax.newmexico.gov/forms-publications.aspx>

1 **Q. Is the estimated amount of capital investment in the CCS D higher for**
2 **CCA E’s portfolios than for PNM’s preferred portfolio?**

3 A. Yes, considerably higher. Shown below in Table 1, I estimate that the capital
4 investment for either CCA E portfolio in the Consolidated School District is
5 approximately \$447 million, while PNM’s preferred portfolio invests less than
6 half this amount: \$210 million.

7 **Table 1: CCA E and PNM Capital Investment in the CCS D** ²⁹

	CCA E Portfolio 1 or 2	PNM Scenario 1
Bidder 1 Solar PV (200 MW)	\$211	-
Bidder 1 Battery (100 MW)	\$100	-
Bidder 2 Solar PV (100 MW)	\$106	-
Bidder 2 Battery (30 MW)	\$30	-
Pinon gas (7 units)	-	\$210
Total \$mil in CCS D	\$447	\$210

8
9 The estimates for CCA E’s portfolios use the National Renewable Energy
10 Laboratory (NREL) Annual Technology Baseline (ATB) “low” range of costs.
11 These costs were also adjusted using PNM’s estimated capital costs for the
12 Arroyo and Jicarilla projects.

13 **Q. Given the magnitude of investment in the CCS D from either CCA E portfolio,**
14 **is it highly likely that they would generate more tax revenue in the district**
15 **than PNM’s preferred portfolio?**

²⁹ CCA E portfolio: NREL ATB 2019. Available at: <https://atb.nrel.gov/electricity/2019/data.html>. Dollars were adjusted for inflation to 2021 using a 2% rate. Costs of solar PV were also adjusted to AC using a 1.3 DC to AC ratio. Finally, costs were adjusted downward after comparison with PNM’s capital costs for Arroyo and Jicarilla (see Fallgren Direct, Table TGF-3). PNM portfolio: \$190 million for Pinon gas units from Fallgren Supplemental and Direct Errata, p.2, line 2; and \$20 million for pipeline from Fallgren Direct, Table TGF-3.

1 A. Yes. Either CCAE portfolio invests an estimated \$237 million more than what
2 PNM is planning in the CCSD. While we do not have sufficient information to
3 estimate all of the tax impacts, it is highly likely that CCAE's plan would produce
4 more tax revenue in the district.

5 **Q. Would either CCAE portfolio produce more jobs in the CCSD than PNM's**
6 **preferred portfolio?**

7 A. It is highly likely given PNM's reported job impacts. PNM estimated 375
8 construction jobs and 5 long-term jobs in the CCSD from the Pinon gas units.³⁰
9 While not in the CCSD, PNM's estimates for the Arroyo project (300 MW of
10 solar and 40 MW of battery) are 500 construction jobs and 5 long-term jobs.³¹
11 CCAE's two projects in the CCSD (300 MW of solar and 100 MW of battery,
12 combined) are building more capacity than PNM's Arroyo project. Therefore,
13 using PNM's job estimates for Arroyo, one would conclude that CCAE's plan
14 would generate at least 500 construction jobs and 5 long-term jobs in the CCSD.

15 ***D. CCAE's Preferred Portfolio (CCAIE 1) Provides a Lower-Cost Alternative to Sandia***
16 ***and Zamora Projects***

17 **Q. Did PNM issue a supplemental RFP after the ETA was enacted that targeted**
18 **stand-alone batteries?**

19 A. Yes. PNM issued a supplemental RFP in response to the enactment of the ETA.
20 This RFP targeted stand-alone battery projects and required ownership by PNM.

³⁰ Fallgren Direct, TGF-3

³¹ Id.

1 The selection of the Sandia and Zamora stand-alone battery projects resulted from
2 this RFP.

3 **Q. Do you have concerns with the supplemental RFP issued by PNM for stand-**
4 **alone battery projects?**

5 A. Yes. PNM's supplemental RFP was restrictive by requiring PNM ownership of
6 the projects, preventing stand-alone battery ESAs from bidding. Therefore, this
7 RFP excluded potentially lower-cost, feasible alternatives. PNM received 45
8 stand-alone battery bids in response from only 4 bidders.³² But after assessing
9 compliance with the RFP, the number of bids was reduced to 41 bids from only 2
10 bidders.³³

11 **Q. Do both of CCAE's portfolios include the Sandia and Zamora projects?**

12 A. No. With the initial, supply-resource RFP, CCAE had a robust, low-cost set of
13 resources to work with. CCAE's choices were limited only by the exclusion of
14 demand-side eligibility. As a result, both CCAE portfolios included low-cost bids
15 from the supply-resource and added demand response. However, because the
16 supplemental RFP was so restrictive, that sample of bids is much more limited.
17 There could be lower cost ESA alternatives to Sandia and/or Zamora projects, but
18 such alternatives were not sought by PNM. Thus, CCAE tested replacing Sandia
19 and Zamora with additional capacity at Arroyo, per the original bid amount. This
20 portfolio (CCAЕ 1) was ultimately chosen because it was lower-cost than the
21 other CCAE portfolio (CCAЕ 2).

³² Nagel Direct. PNM Exhibit RWN-4, p.4

³³ Confidential PNM Exhibit WRA 1-13B(8-2-19 Supplemental), Bid-List 20-Yr Summary tab. Note that the number of bids varies depending on the stage of evaluation.

1 **Q. Does your concern over the limit of storage projects also apply to the**
2 **supplemental RFP?**

3 A. Yes. The 40 MW capacity limitation for storage was not communicated to bidders
4 in the Supplemental RFP. PNM did not impose its 40 MW size limit until after the
5 initial supplemental RFP bids were received. As with the supply-resource RFP,
6 stand-alone battery bidders were unaware that such a limit would be imposed
7 when they bid initially. Indeed, almost all of the initial bids to the supplemental
8 RFP were for projects over 40 MW in size.³⁴ This was the result of PNM's
9 instructions to bidders as part of the supplemental RFP:

10 PNM is seeking up to 450 MW of battery energy storage
11 resources with either 2 or 4 hour storage durations. Projects are
12 to be quoted with a 50 MW (AC) base proposal with pricing
13 for additional 50 MW (AC) increments of storage offered, up
14 to a total of 450 MW.³⁵

15 Thus, bids were only allowed for 50 or more MW of storage, increased in 50 MW
16 increments up to 450 MW.

17 **Q. What if PNM continues to claim that its Sandia and Zamora projects are the**
18 **best options?**

19 A. Given the substantial cost savings from their removal, shown in the comparing the
20 costs of CCAE 1 to CCAE 2 (see witness Sommer's results), PNM would have to
21 show that Sandia and Zamora provided at least that much value in order to justify

³⁴ Id. Bid List 20-yr tab. Note that HDR adjusted some bids to 40 MW after bids were received: see Nagel Direct. PNM Exhibit RWN-4, p.17.

³⁵ PNM Exhibit RWN-6, p.4

1 their selection. Otherwise, PNM ratepayers would be better off with locating that
2 70 MW of battery capacity at Arroyo.

3 **Q. If it is determined that new stand-alone batteries should be pursued, should**
4 **PNM re-issue the supplemental RFP to allow for ESAs to bid?**

5 A. Yes. If these types of projects must be pursued and PNM needs to control battery
6 operations, such terms can be included in an ESA. Ownership by PNM is not
7 required, nor has PNM demonstrated that ownership of stand-alone storage is the
8 most cost-effective among feasible alternatives. A new, competitive RFP with a
9 variety of storage sizes, ownership and ESA options would permit a determination
10 of the most cost-effective options for stand-alone storage at those sites.

11 **Q. You were concerned that re-issuing the supply-resource RFP could limit the**
12 **availability of tax credits, does that concern also apply to the supplemental**
13 **RFP?**

14 A. No. My concern was over the investment tax credit (ITC) for solar resources and
15 for batteries that charge from adjacent solar resources. The ITC contributes to the
16 low cost of solar and battery hybrid projects. However, this concern does not
17 apply to stand-alone battery projects because they are ineligible for the ITC.
18 Because there is less urgency regarding tax credits, battery storage could become
19 cheaper and ESAs with PNM control could be actively encouraged. Thus, if
20 pursuit of stand-alone batteries is determined to be the best option, I recommend
21 that PNM re-issue the supplemental RFP for stand-alone battery storage to foster
22 more competition.

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IV. Summary

Q. Please summarize your testimony.

A. My testimony finds the following:

1. The supply-resource RFP issued by PNM resulted in a robust sample from which to choose a replacement portfolio. The bids produced many low-cost alternatives, most notably from solar/battery hybrid projects.
2. PNM’s RFP process was flawed by not allowing for demand-side resources and its evaluation process was flawed in limiting the size of storage procured.
3. CCAE’s preferred portfolio (CCAIE 1) provides a viable alternative to PNM’s preferred portfolio. CCAE’s approach takes advantage of the benefits of the low-cost bids provided by the supply-resource RFP, addresses flaws in the supply-resource RFP and evaluation process, and addresses the lack of justification for the Sandia and Zamora stand-alone batteries.
4. Both of CCAE’s portfolios (CCAIE 1 and 2) address the ETA by focusing on location within the CCSD. As a result, either CCAE portfolio generates substantially more capital investment in the district compared to PNM’s preferred portfolio. CCAE’s plan is also likely to generate more taxes and employment in the CCSD due to the magnitude of investment.
5. If stand-alone batteries are deemed necessary, PNM should re-issue the supplemental storage RFP to allow for Energy Storage Agreements (ESAs) to bid, within the parameters set by the ETA.

1 Q. Does this conclude your testimony?

2 A. Yes

CCAЕ Exhibit TC-1

Resume of Tyler Comings

Tyler Comings, Senior Researcher

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PROFESSIONAL EXPERIENCE

Applied Economics Clinic, Arlington, MA. Senior Researcher, June 2017 – Present.

Provides technical expertise on electric utility regulation, energy markets, and energy policy. Clients are primarily public service organizations working on topics related to the environment, consumer rights, the energy sector, and community equity.

Synapse Energy Economics Inc., Cambridge, MA. Senior Associate, July 2014 – June 2017, Associate, July 2011 – July 2014.

Provided expert testimony and reports on energy system planning, coal plant economics and economic impacts. Performed benefit-cost analyses and research on energy and environmental issues.

Ideas42, Boston, MA. Senior Associate, 2010 – 2011.

Organized studies analyzing behavior of consumers regarding finances, working with top researchers in behavioral economics. Managed studies of mortgage default mitigation and case studies of financial innovations in developing countries.

Economic Development Research Group Inc., Boston, MA. Research Analyst, Economic Consultant, 2005 – 2010.

Performed economic impact modeling and benefit-cost analyses using IMPLAN and REMI for transportation and renewable energy projects, including support for Federal stimulus applications. Developed a unique web-tool for the National Academy of Sciences on linkages between economic development and transportation.

Harmon Law Offices, LLC., Newton, MA. Billing Coordinator, Accounting Liaison, 2002 – 2005.

Allocated IOLTA and Escrow funds, performed bank reconciliation and accounts receivable. Projected legal fees and costs.

Massachusetts Department of Public Health, Boston, MA. Data Analyst (contract), 2002.

Designed statistical programs using SAS based on data from health-related surveys. Extrapolated trends in health awareness and developed benchmarks for performance of clinics for a statewide assessment.

EDUCATION

Tufts University, Medford, MA
Master of Arts in Economics, 2007

Boston University, Boston, MA

Bachelor of Arts in Mathematics and Economics, Cum Laude, Dean's Scholar, 2002.

AFFILIATIONS

Society of Utility and Regulatory Financial Analysts (SURFA)

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CERTIFICATIONS

Certified Rate of Return Analyst (CRR), professional designation by Society of Utility and Regulatory Financial Analysts (SURFA)

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