

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

**IN THE MATTER OF THE COMMISSION'S)
DETERMINATION OF THE REASONABLE)
COST THRESHOLD FOR RENEWABLE)
ENERGY)**

Utility Case No. 04-00253-UT

REBUTTAL TESTIMONY OF BEN LUCE

ON BEHALF OF CCAE

OCTOBER 21, 2004

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

**IN THE MATTER OF THE COMMISSION'S)
DETERMINATION OF THE REASONABLE) Utility Case No. 04-00253-UT
COST THRESHOLD FOR RENEWABLE)
ENERGY)**

REBUTTAL TESTIMONY OF BEN LUCE

ON BEHALF OF CCAE

1 I. STATEMENT OF QUALIFICATIONS

2 Q. Please state your name and business address.

3 A. My name is Benjamin P. Luce, and my business address is 135 Harvard Drive SE,
4 Albuquerque, NM 87106.

6 Q. What is your occupation?

7 A. I am the Policy Director for the Coalition for Clean Affordable Energy (CCAЕ), a New
8 Mexico based alliance of nine consumer interest and environmental groups working to
9 promote clean energy policies in New Mexico (see www.CFCAE.org for more
10 information on CCAЕ). I analyze policy proposals for the CCAЕ and participate in a
11 variety of energy policy stakeholder working groups, including the group that crafted
12 Senate Bill 43, the Renewable Energy Act ("Act"). I have participated directly and
13 indirectly in proceedings of the Legislature and the Public Regulation Commission
14 related to renewable energy since 1997. I hold a Ph.D. in physics, and have extensive
15 experience and knowledge of both renewable energy technologies and their economic
16 and environmental attributes.

1 **II. PURPOSE OF TESTIMONY**

2 **Q. What is the purpose of your testimony in this proceeding?**

3 **A.** The purpose of my testimony is to discuss CCAE’s proposal for a reasonable cost
4 threshold (“RCT”) for renewable energy, and to respond to testimony submitted by James
5 D. Cotton on the behalf of the New Mexico Attorney General, and to testimony submitted
6 by NMPRC Staff, regarding the RCT.

7
8 **III. SUMMARY OF CONCLUSIONS**

9 **Q. Please summarize your conclusions**

10 **A.** CCAE does not agree with the RCT proposal from the Attorney General. The Attorney
11 General's recommendation for an RCT based on least cost is inconsistent with the Act.
12 The Attorney General's recommendations would also limit the diversity of technologies
13 that can be used to meet the Renewable Portfolio Standard ("RPS") and underestimate the
14 economic and environmental benefits that would accrue to New Mexicans under the RPS.

15 CCAE's approach to the RCT is consistent with Staff's recommendations for
16 utilities that do not have fuel cost pass throughs. Both set forth a fixed amount of costs
17 that can be added to rates. CCAE expresses its cap in terms of a cap on the costs of the
18 resources acquired while Staff expresses it in terms of a percent rate increase. However,
19 Staff's recommendation falls apart for utilities that do have a fuel cost pass through.
20 CCAE's proposal works in both instances. Furthermore, because Staff's recommendation
21 does not acknowledge the statutory provision that allows for deferral of costs from one
22 year to the next, CCAE believes that Staff's approach too closely ties the procurement of

1 renewable energy to the year to year costs of conventional generation, especially for
2 utilities that have fuel cost pass throughs.

3 CCAE's recommendation for an RCT is based on different thresholds for
4 different source types, scaled with the three credit multipliers as proposed in NMPRC
5 Rule 572. CCAE believes this is a better approach than what was proposed by the
6 Attorney General and Staff for a variety of reasons.

8 **IV. DISCUSSION OF THE ISSUES**

10 **TESTIMONY OF THE ATTORNEY GENERAL**

11 **Q. Does CCAE agree with the Attorney General's conclusion that societal benefits are**
12 **not a basis for charging a premium for renewable energy?**

13 **A.** The Attorney General concluded, on line 8 of page 5, that

14 "There is no justification for charging ratepayers a premium for
15 renewable energy on the basis of societal benefits, as these have
16 not been documented by PNM, EPE, SPS, TNMP, they may be
17 offset by societal detriments, and the expected benefits may not
18 occur in New Mexico."

19 CCAE disagrees with the Attorney General's conclusion and notes that these
20 issues were hashed out in the legislative process. The legislature outlined the purposes of
21 the Renewable Energy Act and included their findings about societal benefits:
22

23 "the generation of electricity through the use of renewable energy
24 presents opportunities to promote energy self-sufficiency, preserve
25 the state's natural resources and pursue an improved environment
26 in New Mexico; the use of renewable energy by public utilities
27 subject to commision oversight in accordance with the Renewable
28 Energy Act can bring significant economic benefits to New
29 Mexico."
30

1 The Act includes a provision in its findings and purposes to protect consumers. This
2 provision allows for a cost increase up to a "reasonable cost threshold":

3 "protect public utilities and their ratepayers from renewable energy
4 costs that are above a reasonable cost threshold."
5

6 If the legislature had wanted to protect consumers from any increase in rates resulting
7 from the RPS they would have done so.
8

9 **Q. What are some of the societal benefits that CCAE feels the Commission should
10 consider in its determination of an RCT?**

11 **A.** The benefits that CCAE feels the Commission should consider, include:

- 12 • Income to local communities associated with renewable energy development due to land
13 leases or purchases;
- 14 • Jobs created by renewable energy development,
- 15 • Benefits associated with the enhancement of forest thinning projects, such as reduced
16 fire, flood, and air pollution danger;
- 17 • Benefits associated with the reduction of farm and municipal organic waste, including
18 reduced water pollution;
- 19 • Long term rate hedging benefits associated with increasing natural gas prices and water
20 shortages;
- 21 • Long term rate hedging benefits associated with likely future regulation of mercury and
22 carbon dioxide, or more stringent regulation of emissions already under regulation;
- 23 • The long term benefit to New Mexico's environment and economy if New Mexico's
24 development of renewable energy substantially helps the overall reduction of greenhouse
25 gas emissions by the US. The Attorney General acknowledged the concern for

1 greenhouse gas emissions in an October 23, 2003 press release joining eleven other states
2 in challenging the US Environmental Protection Agency for failing to regulate
3 greenhouse gases; and

- 4 • The benefits to New Mexico of increased local manufacturing of renewable energy
5 system components, such as photovoltaic modules and other components.

6
7 **Q. What is CCAE's response to the AG's claims that some benefits will not accrue to**
8 **New Mexico ratepayers?**

9 **A.** CCAE believes that many benefits will accrue to New Mexicans as a result of the RPS,
10 regardless of whether projects are developed within the state or in other states. For
11 example a utility that purchases renewable energy can receive stable-priced electricity no
12 matter where the facility is located. The benefits of this stable-price are passed on to
13 ratepayers.

14
15 **Q. What is CCAE's response to the Attorney General's claims that some societal**
16 **detriments will occur as a result of renewable energy development, such as "wind**
17 **farms require considerable land area, are considered unsightly by some" and "there**
18 **may be no advantages in air pollution emissions in the case of generation plants that**
19 **rely on the combustion of biomass sources"?**

20 **A.** It is a simple fact that all energy development has impacts of some kind or another.
21 CCAE suggests the impacts of renewable energy generation development must be
22 weighed in relation to equivalent development of conventional generation development
23 and resource extraction, and also to the many direct benefits of renewable energy

1 development (e.g. local economic development, reduced fire danger, mitigation of global
2 climate change, etc). The Attorney General has not presented such comparisons, but
3 CCAE would like to point out that these issues are more appropriately dealt with in the
4 siting process for such facilities and are not relevant to this RCT proceeding. CCAE does
5 not support poorly sited or poorly planned energy development - renewable or otherwise.
6

7 **Q. What other reasons does the Attorney General cite for arguing that the Commission**
8 **should not enforce the source diversity required by the Act, and what is CCAE's**
9 **response?**

10 **A.** A further reason for deferring the enforcement of diversity that the Attorney General's
11 testimony cites in line 19 of page 17, states that "Much of the testimony relates to the
12 RECs weighting of the kWh value of wind, biomass, and solar. No mention is made of
13 the fact that this weighting implies that biomass at two time wind credits, and solar at
14 three times wind credits, are considerably less economic than wind energy at this point in
15 time."

16 CCAE believes that the Attorney General's statement that solar and wind with
17 credits taken into account are "considerably less economic than wind energy at this point
18 in time" is not correct, and moreover, cannot be deemed correct on the basis of the
19 Attorney General's testimony because they submitted no data to support this claim.

20 On the contrary, the wholesale cost of biomass is widely quoted to be
21 approximately 6-7 cents/kWh, which is in fact approximately twice the widely quoted
22 typical costs of wind power (3-6 cents/kWh). Secondly, commercial scale solar power is
23 quoted in recent DOE studies to cost between 12-15 cents/kWh (for smaller scale projects

1 of the type likely in New Mexico), and possibly much less if widely developed, which is
2 approximately three times the widely quoted costs of wind power. Thirdly, the cost to the
3 utility of small scale, locally sited photovoltaics (20-25 cents/kWh on a total system cost
4 basis) can be reduced in principle if credits are purchased from system owners who bear a
5 significant fraction of the cost. And finally, the Attorney General's conclusion does not
6 take into account the general possibility that RECs might be purchased by utilities at a
7 cost which is significantly less than the cost per kilowatt hour of actual power sales
8 (because the RECs separate the green attributes from the actual power). This issue is
9 being dealt with in the Rule 572 rulemaking process.

10 As another part of the Attorney General's discounting of source diversity, the
11 Attorney General states on line 6, page 11, that "No specific testimony regarding the
12 availability of solar power has been offered but it is clear that it is intermittent and cannot
13 therefore be deemed a reliable source of supply at this time".

14 The Attorney General's testimony fails to mention that fact that even non
15 dispatchable renewable sources such as grid-tied PV do have capacity value. For
16 example, Arizona Public Service found that for up to 100 MW of PV, tracking systems
17 contribute about 80% of nameplate capacity value to the system and that fixed position
18 PV contributes about 60% ("Value of Solar Thermal and Photovoltaic Power Plants to
19 Arizona Public Service Company," Paul Smith, ASME International Solar Energy
20 Conference, March 1994).

21 Finally, CCAE disagrees to this conclusion on the basis that several commercial
22 scale solar power technologies, including both "parabolic trough" and "power tower"
23 plants, can in fact incorporate storage to an extent that makes them dispatchable over a

1 diurnal period, such that coal generation can be directly offset, and that peak shaving can
2 also be accomplished. PNM has referenced this generation technology explicitly in their
3 procurement plan filings. In this context the Attorney General failed to mention the
4 manifest dispatchability of both biomass and geothermal sources.

5
6 **Q. What did the Attorney General conclude with respect to interest of ratepayers in**
7 **paying a premium for renewable energy, and how does CCAE respond?**

8 **A.** In response to the question “Do the ratepayers perceive a benefit from the use of
9 renewable fuels?” the AG’s testimony replied “I can only rely upon the experience of the
10 voluntary program and have concluded that, if given the choice, few customers choose to
11 participate in green energy at a premium price”.

12 CCAE disagrees with this conclusion for several reasons. First, the results of a
13 broad, scientific study of New Mexico residents (the conclusions of which are available
14 at <http://www.sric.org/NRDCNM022503m2.pdf>) demonstrates that there is a strong
15 majority support for a mandatory renewable energy standard in New Mexico, even if this
16 were to raise rates. (This study was presented to the Commission previously in its
17 original rulemaking for NMPRC Rule 572.) The legislature adopted the Renewable
18 Energy Act, in part, because of broad public support for an RPS.

19 Second, the voluntary program in question (PNM’s Sky Blue Program) is still
20 very new, very well subscribed for its age compared to similar programs in the US, and
21 still growing rapidly.

22 Finally, subscription to PNM’s voluntary program, which raises rates by more
23 than 20% (PNM’s voluntary tariff is 1.8 cents/kWh), cannot reasonably be deemed

1 directly relevant to gauging ratepayer interest in an RPS that leads to significant
2 renewable energy development with costs spread among all ratepayers. If anything, the
3 relatively strong participation in PNM's program (now exceeding 6300 customers)
4 should be interpreted as a strong sign of public support.

5
6 **PRC STAFF'S TESTIMONY**

7 **Q. What is CCAE's response to Staff's RCT proposal?**

8 **A.** Staff recommends an RCT that is essentially equal to the cap for large industrial
9 consumers, and that is based on the percentage impact to rates. CCAE's approach to the
10 RCT is consistent with Staff's recommendations for utilities that do not have fuel cost
11 pass throughs. Both set forth a fixed amount of costs that can be added to rates. CCAE
12 expresses its cap in terms of a cap on the costs of the resources acquired while Staff
13 expresses it in terms of a percent rate increase. However, Staff's recommendation falls
14 apart for utilities that do have a fuel cost pass through. CCAE's proposal works in both
15 instances. Furthermore, because Staff's recommendation does not acknowledge the
16 statutory provisions that allow for deferral of costs from one year to the next, CCAE
17 believes that Staff's approach too closely ties the procurement of renewable energy to the
18 year to year costs of conventional generation, especially for utilities that have fuel cost
19 pass throughs. CCAE also has concerns about whether Staff's proposal is adequate to
20 promote a diversity of resources.

21 First, in line 17, page 6, staff claims that their RCT recommendation is adequate
22 to "promote a reasonable development of renewables". But staff provides evidence that
23 its proposed RCT would cover a 20 MW biomass plant. No consideration is made of

1 whether some photovoltaics, geothermal, and/or commercial scale solar power could be
2 accommodated. The Act includes specific language regarding diversity "the renewable
3 portfolio shall be diversified as to the type of renewable energy resource..." Staff's
4 considerations are therefore incomplete.

5 As described at the beginning of these remarks, CCAE believes that the
6 RCT should not be tied to the short-term costs of fossil resources. For example, suppose
7 a utility (with a fuel cost pass through) enters into a long-term contract to buy wind
8 energy for \$0.04 per kWh and in most years this price is sufficiently low to meet Staff's
9 cost cap (which is based on the annual difference in prices between renewable energy and
10 conventional generation). However in some years, fossil fuel prices might be very low
11 and the utility could not meet the annual cost cap in those years at the price of \$0.04 per
12 kWh. If the utility has the contractual power to reduce purchases during such years,
13 developers will not be willing to enter into contracts because they will not be able to
14 recover their fixed costs. If the contract had no provision for not taking the renewable
15 energy in years when conventional generation is cheap, the utility would be in a position
16 of not recovering its costs or requesting to defer its costs. CCAE's cost cap approach
17 avoids putting either the developer or the utility in a precarious financial position as a
18 result of the portfolio standard. The Commission should avoid making implementation
19 of the portfolio standard financially hazardous to developers and utilities.

20 The RPS provides the Commission with an opportunity to establish a new
21 subclass of generation sources with extremely certain energy costs. This is highly
22 desirable from the standpoint of long-term rates, and the Commission should create a

1 clearly defined process for handling these new sources as distinct from conventional
2 generation.

3
4 **Q. What is CCAE's recommendation for an RCT?**

5 A. CCAE has proposed a reasonable cost threshold (RCT) approach that we feel fully
6 reflects the intents and purposes of the ACT. Specifically, CCAE's RCT
7 recommendation suggests different cost caps for different sources (wind: \$0.05/kWh,
8 geothermal and biomass: \$0.10/kWh, and solar: \$0.15/kWh), where these caps including
9 the total cost of transmission, interconnection, and other costs directly incurred as a
10 consequence of this development.

11 CCAE agrees that an overall RCT for combined renewable energy purchases may
12 also suffice, if it reflects long-term cost projections. CCAE would not support an overall
13 RCT that was based on short term variability in fossil fuel costs. CCAE would also
14 recommend that any such overall RCT be set high enough to allow true source diversity.

15
16 **Q. What are the advantages of CCAE's RCT approach?**

17 A. CCAE's source based approach would satisfy several different goals simultaneously:

- 18
- 19 • That the Commission, and ratepayers, have reasonable certainty as to what the maximum
20 impact on rates will be from the addition of renewables. This is clearly the reason for the
21 statutory requirement of a reasonable cost threshold. This is largely accomplished by
22 scaling the RCT to the credit multipliers for the various sources according to Rule 572, as

1 CCAE proposes, combined with the overall targets (5% in 2006, etc) that the statute
2 imposes for the amount of renewable energy.

- 3
- 4 • That utilities can commit to spend a clearly defined amount for a particular resource, on a
5 long term contractual basis, for renewable energy from a variety of sources. There are
6 several advantages in this regard to having a source based RCT, as opposed to an RCT
7 based on the percentage increase in rates. First, the cost of fossil resources, especially
8 natural gas, is increasingly uncertain. It would be highly undesirable if a utility (with a
9 fuel cost pass through) could break its long term commitment in years where the cost
10 threshold test is not met due to low fossil resource cost, and possibly to over invest in
11 years when fossil resources spike for some unexpected and short lived reason. Under
12 such conditions, investment by developers will diminish or disappear. Likewise, it is
13 desirable for reasons of simplifying the procurement process that costs for a particular
14 resource are not strongly dependent on the portfolio mix.

- 15
- 16 • That utilities, and the Commission, have maximal flexibility in structuring renewable
17 energy procurements, such that particular sources are not completely disallowed a priori.
18 CCAE's proposed mechanism, which fully utilizes the credit multipliers to obtain
19 adequate cost allowances for solar and other sources, clearly accomplishes this, while
20 some of the other RCT proposals do not. For example Southwestern Public Service's
21 proposed RCTs, would effectively prohibit any real promotion of solar energy, for
22 example, which is clearly contrary to the intent of the statute.

23

1 • That the rate impact of this RCT approach is not too large: CCAE has previously
2 submitted testimony in this case that demonstrates that its recommended cost caps will
3 not incur an unreasonably large increase in rates (less than 1% in all likelihood), even if
4 an extremely diversified portfolio was adopted.

5

6 **Q. Does this conclude your testimony?**

7 **A. Yes.**