STATE OF NEW MEXICO
BEFORE THE ENVIRONMENTAL IMPROVEMENT BOARD

IN THE MATTER OF PROPOSED REGULATION
20.2.350 NMAC – *GREENHOUSE GAS CAP AND TRADE PROVISIONS*

No. EIB 10-04 (R)

REBUTTAL TESTIMONY OF KARL HAUSKER

As noted in my direct testimony, the WCI Economic Modeling Team (EMT) engaged and directed ICF International and Systematic Solutions, Inc. (SSI) in modeling the effects of the WCI's regional plan to reduce greenhouse gas (GHG) emissions. Subsequently, the New Mexico Environment Department (NMED) engaged ICF to examine and present the projected effects specific to New Mexico, based on the WCI regional modeling. Various witnesses in this proceeding have questioned aspects of the modeling concerning: 1) the joint modeling of complementary policies (CPs) with cap-and-trade; 2) the inclusion of all WCI partners in the modeling; and 3) the consistency of some elements of the NMED proposal with the WCI design recommendations (e.g., scope of the cap, and limits on allowance and offset purchasing). It is my understanding that NMED witness Sandra Ely will address these questions in her rebuttal testimony, and Dr. Adam Rose will address questions concerning the macroeconomic modeling that he performed in his rebuttal testimony.

My rebuttal testimony focuses on certain other issues raised by Dr. Anne Smith with respect to the ENERGY 2020 modeling conducted by ICF and SSI. I also offer brief comments on the testimony of Mr. Jack Ihle and Dr. Darek Nalle.

Comments on Section IV of Dr. Anne Smith's Testimony

Section IV of Smith's testimony is titled **"Extracting the Cap-and-Trade only portion of costs shows significant costs."** On p. 17, Smith asserts that Table 3 in my prepared testimony contains arithmetic errors that lead to an underestimation of the costs to New Mexico of the WCI regional plan to reduce GHG emissions (hereafter, "the plan"). This is incorrect. In footnote 21, she encourages the reader to "confirm this by simply adding up the values in all the rows above the total line", and implies that I have removed $1.2 billion in costs. It appears that Smith did not take into account the first footnote to Table 3, which clearly explains that the table entries for Energy Intensive Industry are subtotals of the seven energy-intensive sectors listed beneath it. Smith mistakenly asserts (p. 17, line 17) that the correct total cost is $640 million, rather than the negative $547 million in my original. The reader can arrive at her $640 million number by, as she says, "simply adding up the values in all the rows," but this results in double-counting the costs in the seven energy-intensive sectors.

Smith also criticizes my testimony for not presenting estimates of the amount of out-of-state allowance purchases and offset purchases made by New Mexico emitters. With regard to offset purchases, I specifically stated on p. 18 of my testimony that the cost of offset purchases is not included in the estimate of negative $440 million in abatement cost. The reason is explained in Table 2 where offset quantities and costs were labeled "N/A" (Not Available) and an explanatory note stated: "Use of offsets was modeled at the WCI-wide level, not at the state level...."

With regard to allowance purchases, Smith's testimony presents an opportunity to clarify an aspect of the New Mexico results as well as the underlying WCI modeling. In

footnote 22, Smith expresses desire for information on the assumed emission "caps in each WCI jurisdiction and each of the other states' allowance trading balances and associated financial flows." This information is not available because the WCI modeling was conducted with the assumption of a single regional cap. The modeling did not make assumptions on partner-specific caps, nor on how partners would distribute allowances (allocation and/or auction). This aspect of the modeling is implicit in the discussion on allowance budgets in the WCI *Updated Economic Analysis* report (pp. 34-35), but could have been more explicit. As the WCI Economic Modeling Team noted in that discussion (p. 34): "Recommendations to the WCI Partners on setting allowance budgets are under development by the WCI Cap Setting and Allowance Distribution (CSAD) Committee. However, for purposes of completing this economic modeling, the EMT had to make reasonable assumptions about the allowance budget and based these assumptions on the WCI Design Recommendations."

Similarly, the modeling did not make assumptions on how WCI partners would choose between allocating and auctioning allowances: "The model does not distinguish between freely allocated allowances and auctioned allowances. Rather, it determines the change in energy use and the costs associated with that change. These abatement costs are the same regardless of whether allowances are freely allocated or auctioned. The allocation method, instead, determines who benefits from the market value of the allowances" (p. 34).

Comments on Section V of Dr. Anne Smith's Testimony

Section V of Smith's testimony is titled **"The models and assumptions used generally overstate the benefits of complementary policies and understate their costs."** In this section, Smith presents general criticisms of *any* modeling framework that concludes that complementary policies (CPs) can generate costs savings to an economy. She believes that the analyses of the impact of CPs using ENERGY 2020 in New Mexico, WCI, and California are all flawed for the same basic reasons, as are analyses using "other models" that make similar assumptions (p. 25, line 19). She takes the traditional economic perspective which asserts that, in general, private markets operate efficiently. A strong embrace of this perspective leads one to conclude that *any intervention in markets other than use of a price signal* (e.g., to correct for a market failure such as an environmental externality) will be more costly than relying solely on a price signal. Therefore, CPs are by Smith's definition, inefficient and costly, and any model that shows benefits from CPs is underestimating the cost of implementing the WCI plan of CPs combined with cap-and-trade.

There is a more nuanced economic perspective that asserts that markets vary widely in the efficiency of their operation, and that well-designed public policies can improve the operation of some markets. A large body of economic research indicates that consumers, in particular, make many sub-optimal decisions due to "market failures" such as non-zero information and transaction costs, bounded rationality, problems of agency, etc. Adopting this perspective, economists and policy analysts can conclude that CPs can produce benefits, i.e., GHG reductions at negative cost (cost savings). This is the conclusion stated in the testimony of Mr. Jack Ihle (see pp. 10-11), as well as the 2006

report of the New Mexico Climate Change Advisory Group. The notion of negative cost options is presented prominently in a series of analyses conducted by McKinsey & Co.[1] and also is featured in the work of the National Commission on Energy Policy.[2]

All analysis and modeling involves assumptions and simplifications, and neither of the two perspectives noted above can claim to be superior in every context. To her credit, Smith acknowledges that the energy modeling community continues to wrestle with these issues: "Debate about the extent to which these assumptions and simplifications match the real world has continued for decades, and remains unresolved" (p. 24, lines 25-26). She notes that the California Air Resources Board (ARB) asked an expert panel to review ARB's modeling of the effects of AB32 (using ENERGY 2020) and compare it to modeling conducted by CRA (Smith's consulting firm). With respective to the treatment of CPs, the panel concluded: "Empirical work has not yet advanced far enough to determine whether the assumptions of the ARB models, or those of the CRA model, are closer to the truth" (Smith's Exhibit 2, p. 13). The expert panel also commented on the impact of this debate on the bottom line: "It is important to note that, even with the strong assumption that no market failures exist other than the emissions externality, the CRA model does not yield very high costs of AB 32 relative to the rest of the California economy" (Smith's Exhibit 2, p. 14). The panel further commented: "Both models predict annual growth rates of gross state product of about 2.4 percent over this decade in the absence of AB 32. In the presence of AB32, the predicted annual growth rate is about 2.3 percent under the main CRA scenarios and between 2.3

[1] www.mckinsey.com/clientservice/sustainability/Costcurves.asp.

[2] National Commission on Energy Policy, *Ending the Energy Stalemate,* December 2004, www.energycommission.org. p.32ff. See also the National Action Plan for Energy Efficiency available at http://www1.eere.energy.gov/office_eere/pdfs/napee_vision_2025.pdf.

and 2.4 percent in the ARB's analysis. Despite significant differences in model assumptions, both analyses reach the finding that the net impact of AB 32 on the California economy is very small" (Smith's Exhibit 2, p. 19). In other words, in the case of California, the argument over how to model CPs has very little effect on projections of the macroeconomic impacts.

Smith shows a strong dislike for the CPs in the WCI plan (and presumably for the specific CPs that New Mexico has implemented and is planning to implement), as well as antipathy towards regulation and mandates in general (see her discussion on p. 26). Several times she applies the disparaging label "command-and-control regulation" to the CPs, even though only some of the CPs fall under the category of a traditional "command-and-control" regulation. The Clean Car Standards are one such CP in the "command-and-control" category that she apparently opposes in principle. The same reasoning would likely lead her to oppose the new federal CAFÉ standards finalized this year, and also to oppose New Mexico's existing Renewable Portfolio Standard.

Other CPs do not merit the label "command-and-control regulation" (unless that term is defined extremely broadly as *any* policy other than creation of a price signal). Utility energy efficiency programs can take many forms: rebates, loans, audits, promotional campaigns, and other incentives. Transportation demand management policies include promotion of a wide variety of alternatives to driving (e.g., walking, biking, flex-time, and telecommuting) or single-occupancy vehicles (e.g., HOV lanes, and ride-sharing). Smart growth policies, transit-oriented development, and form-based zoning codes can promote more compact, walkable urban landscapes as an alternative to more sprawling development patterns.

Smith levels a specific criticism at the assumption in the WCI modeling that policies to reduce Vehicle Miles Traveled (VMT) would have negligible net cost. This assumption reflects a review of the literature that indicates that more compact development patterns generate large savings in infrastructure costs and operating costs for government.[3] The WCI Economic Modeling Team concluded that these savings would likely offset various program costs for transportation demand management.

Smith suggests that consumers necessarily "lose" when government policies aim to decrease VMT, and that the consumer welfare loss associated with a 2% reduction in VMT must be at least as large as that associated with a 10% increase in gasoline prices (p. 28, lines 16-24). I strongly disagree with this view; it reflects again Smith's view that any policy except a price signal is likely to be inefficient.

Comments on the Testimony of Mr. Jack Ihle

Most of the issues raised by Ihle are addressed in the rebuttal testimony of NMED and Dr. Rose. I would like to comment on two issues raised by Ihle. First, I want to observe that Ihle presents an accurate summary of several modeling efforts conducted at the national, regional, and state levels, including work done by ICF using its IPM® model. The macroeconomic impacts have typically been negative but quite small, i.e., impacts measured in tenths of a percentage of future GDP, income, or employment. As noted earlier, Ihle also endorses the conclusion that CPs can produce GHG reductions at a savings to the economy, in contrast to the position of Dr. Smith.

[3] For example, see: Mark Muro and Robert Puentes, *Investing in a Better Future: A Review of the Fiscal and Competitive Advantages of Smarter Growth Development Patterns*, Brookings Institution, March 2004, http://brookings.edu/metro/publications/200403_smartgrowth.htm.

The second issue that merits comment is Ihle's concern regarding electricity rates. Let me explain in more detail how fuel and electricity prices are modeled in ENERGY 2020. As noted on p. 25 of the WCI *Updated Economic Analysis* report, all fuel prices except electricity are exogenous inputs; and electricity prices are modeled endogenously. In cap-and-trade modeling runs, ENERGY 2020 increases all fuel prices by a factor determined by the allowance price and the carbon content of the fuel. These increased fuel prices then feed into the electricity sub-model and help determine projected electricity prices. This simplifying assumption of a full "pass-through" of allowance prices is common in modeling cap-and-trade proposals and is made independently of whether allowances are auctioned or allocated free-of-charge. However, in the regulated utility sector, free allowances *do* matter because they result in a lower overall revenue requirement, hence lower rates. Hence, we know that the New Mexico plan to allocate allowances free-of-charge would result in electricity prices significantly lower than would be the case if utilities had to purchase allowances.

For these reasons, the projected electricity prices for New Mexico in Table C-5 are higher than what one would actually expect because they implicitly contain allowance costs. In contrast, the projected fuel expenditures (across all fuels plus electricity) that appear in Table C-6 do not contain allowance costs. The pattern of electricity prices that would emerge from New Mexico's implementation of the WCI design is hard to predict and will depend in a significant way on choices yet to be made by the state's Public Regulatory Commission. These choices include how to allocate costs across customer classes and whether and how to use non-linear (block) pricing to signal the new, higher marginal cost of electricity under cap-and-trade. The ultimate impact on consumers will

depend in part on the success of the energy efficiency programs. There are circumstances in which overall electricity prices can increase while total bills decrease, leaving consumers better off. In the main policy case, ENERGY 2020 projects that residential fuel expenditures (mostly electricity and natural gas bills) would increase about 1.5 percent by 2020, indicating that the total impact on those bills will be relatively small.

Comments on the Testimony of Dr. Darek Nalle

Most of the issues raised by Nalle are addressed in the rebuttal testimony of NMED and Dr. Rose. I would like to establish some additional context for Nalle's conclusions. As he describes it, he used the EMSI input-output model to evaluate cap-and-trade as applied only to New Mexico and California and without CPs (p.10). The projected impacts in 2020 on both Gross State Product and employment were decreases of 0.3 to 0.6 percent. Dr. Rose's results were slightly more optimistic, ranging from slight gains in macro indicators to slight decreases. This small difference is similar to that between the ARB and CRA modeling in California noted above. Even when making the more conservative assumptions used in the Nalle modeling, he finds only small negative impacts.