

## **MEMORANDUM**

**TO:** Lance Miller  
**FROM:** Seth Hulkower  
**RE:** Comments on Draft NJ Energy Master Plan  
**DATE:** May 8, 2008

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I am following up on our conference call of today and briefly summarizing my high level comments on the Draft New Jersey Energy Master Plan (EMP). Let me begin by applauding you, your staff and all your colleagues throughout state government and academia who worked on the EMP. The plan is comprehensive and thorough while being sensitive to the political realities of New Jersey and the region. I also applaud your willingness to open the report and yourselves up to comment (which sometimes sounds like criticism) from a broad range of outsiders. I've been involved in the development of a few of these types of documents and they are more often done behind closed doors with great pride of authorship.

Now, in no particular order, here are my thoughts:

1. One of the key goals of the EMP is a 20% reduction in electricity consumption. This is an editorial comment. I was 20 or 30 pages into the document before it was clear to me that the 20% was measured against future growth in a business as usual case and that the objective here is a flat demand line. That needs to be stated clearly early in the document.
2. The presentation needs to make clear what level of scenario analysis has been done. Preferably it has been a monte carlo analysis that looks at the probability distribution of different outcomes. The biggest drivers will be real growth of the economy and success rates of the efficiency programs. I'm particularly concerned about what happens to the model if only half the efficiency is realized over the study period
3. A clear discussion of the costs of conventional generation, renewable energy, and efficiency measures is essential to informing the public discourse. The public has virtually no understanding of the differences in delivered cost of energy from solar versus conventional generation and it would be helpful to educate on the areas covered by the price ranges.

4. The cost impacts of the efficiency and demand management programs should also be spelled out. You may have seen that the Long Island Power Authority (LIPA) recently announced an efficiency initiative that could total \$1 billion. While this is intended to achieve goals similar to the efficiency goals in the EMP, there has already been strong public criticism of the 2% to 3% increases that customers will see in their bills. I think it's very important to manage expectations.
5. Along with a discussion of costs of resources there should be a discussion of the reliability impacts of various measures. I know that you and your team are aware of the challenges that intermittent resources pose for system operators but I don't believe that comes through strongly in the document.
6. I would caution against being overly optimistic about the benefits of distributed resources and efficiency to defer transmission and distribution upgrades. Some of these distributed resources can be shut down over time or be moved to another location. The host entity can also go out of business or a new tenant moves in who doesn't like or have need for the distributed resource or efficiency measure. My experience is that the most that any of these measures buys is the deferral for one or two years of upgrades that the T&D system will require.
7. The drafters of the EMP appear to recognize the value of a diverse portfolio of supply and demand management resources to meet load but this is one of those areas that really bears emphasizing for the public. It's especially important to explain why the plan may not be least cost under the base case scenario but is most resilient to reasonable changes in assumptions. I believe that you will need to use everything (solar, wind, efficiency, demand management, nuclear, interstate transmission) to meet both your carbon and supply goals and you should explain the plan in those terms.
8. Along those lines, an editorial comment on Action Item 2 on page 78 of the EMP: "Invest in *cost-effective* energy projects" (emphasis added). From a public policy viewpoint, one hopes that the State is always using public dollars in a cost-effective manner. I think the point here is to invest in projects that meet the balanced need of low life-cycle cost, plan flexibility and carbon reduction. That's a mouthful and I'm sure you've got someone who can better word that action item.
9. Speaking of carbon, you might want to consider making it clear that the goal is to reduce carbon. Employing a renewable portfolio standard (RPS) or reducing the megawatt-hours consumed are merely tools to that objective and not ends in themselves. If New Jersey could cut its carbon production in half without building a single wind turbine or installing one compact fluorescent bulb I think we'd all call it a day. I realize that there are state enacted mandates for the RPS but this document has the opportunity to influence the debate if new options present themselves to meet the state's environmental goals at lower cost than the available renewable technologies.

10. New Jersey is a coastal state but the plan does little to take advantage of the access that this can provide to LNG. I think it's worth a more detailed discussion, especially if you would like to convert older gas and coal fired plants to something cleaner.
11. As discussed on the call, the 1500 MW of combined heat and power seems to be an ambitious goal in light of the lack of construction that has occurred in recent years. The subsidies necessary to promote new CHP plants could be significant and should be measured against investments in efficiency, renewables and other carbon reduction strategies on a dollars invested per ton of carbon reduced basis.
12. Consider including an incentive for geothermal heating and cooling. This technology can help customers avoid burning fossil fuels for heat in the winter and consuming electricity for cooling in the summer. You might even consider classifying geothermal as a renewable since it's actually a form of solar energy; the constant ground temperatures in the subsurface are the result of absorption of infrared energy striking the earth's surface.
13. Somewhere in the document, you might consider talking about continued investment in the delivery infrastructure. Having a robust delivery system is essential to the economic well-being of the State. The BPU and the utilities may also want to consider implementing some storm-hardening programs to strengthen vulnerable parts of the transmission system against a hurricane strike. We've been very fortunate over the past few years but that luck won't hold forever and a proactive plan to invest in strengthening the system can reap huge dividends when disaster strikes.
14. On page 54, there is no cause and effect of decoupling and low per capita energy consumption in New York and California. Decoupling is a recent innovation that hasn't really taken hold yet in either state. Those two states have low consumption rates for two very different reasons. New York has a very dense population center with extensive mass transportation. Many residents also live in apartments that are smaller than homes in other parts of the country and the buildings themselves are more energy efficient. California has instituted numerous efficiency measures, much of the state has a mild climate and, a great deal of heavy industry has left the state in recent years.
15. On page 55, I would suggest adding cable TV set-top boxes to the list of appliances that should be made more energy efficient. The work that I've seen tells me that three set-top boxes are equivalent in load to half of a refrigerator. The cable company has no incentive to make these units more efficient so they need to be pushed by government.
16. On page 61, I would suggest emphasizing that whatever move is made to advanced metering infrastructure be done through an open architecture programming platform such as the Intelligrid standard being promoted by EPRI. This is the best way to keep pressure on the equipment vendors to hold prices down and avoid stranded investments in the future.

Lance Miller  
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Please let me know if you have any questions regarding the above and please let me know how I can continue to help.