| Submitted by: | | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|---|
| 1 | elmya@pjm.com | In reviewing the in-state generation expansion on page 2, I'm unable to duplicate the numbers of MWs shown for 2007/2010/2020. (Electricity) Looking at the 07 RTEP report, all queued projects only total 3691 MW. How were those numbers derived, and what is meant by cumulative? Is that intended to include previous queue projects that have already gone into service? | The almost 1200 MW difference is accounted for in the two Linden plants that came online in 2006. They are included as "planned generation" because the base year is 2004. Cumulative refers to the total amount of generation that is scheduled to come online in that year compared to the base year. The cumulative value was chosen so that one could quickly see the amount of new generation in a given year compared to the baseline year without having to sum the individual years. |
| 2 | Colin.Loxley@pseg.com | 1. In the Electricity Base Case, there is a reference to "on-site use" being estimated at 749 GWH for 2004. What is this? It would appear to translate to about 100MW of capacity, which is perhaps 10-15% of actual on-site generation in New Jersey. | The on-site estimate is intended to represent unaccounted for commercial and industrial non-merchant generation used by the facility which is not sold. The estimate was derived from the EIA's 2004 nonutility generation source and disposition report. After a closer look at the list of nonutility generators in NJ, this data is being revised from 749 GWH to 1,227 GWH. |
| 3 | Colin.Loxley@pseg.com | 2. The projected total electric energy sales of about 100,000GWH for 2020, being a compound annual growth rate of 1.5%, is not in itself unreasonable as a trend. However, it needs to be shown as internally consistent with a specific employment, income and price scenario that would produce this result. | This is being done. |
| 4 | Colin.Loxley@pseg.com | 3. In the RPS assumptions, for Class 1 Wind and Biomass, reference is made to some specific projects. Are these the only NJ projects? What capacity factors are assumed? (i.e., how much energy do they produce?) Presumably the rest will have to be imported? If so, show this assumption explicitly. How does this correspond to the later assumption that there will be zero new imports? Please show the capacities and $/kw being assumed. Is some of the wind and biomass being included in the capacity data shown as "In State Generation"? Currently PJM allows for about a 20% capacity credit for wind. | Both scenarios identify a certain amount of wind and biomass that could be generated in NJ. The rest of the RPS requirement would have to be imported. The zero new imports refer to new infrastructure capacity that would be built to import electricity. The existing and planned import capacity would be able to import what is needed to meet the RPS requirement. The capacity factors for these generation sources will be presented as part of the modeling results. The cost assumptions have been posted separately at http://nj.gov/emp/home/docs/pdf/EMP%20Generation%20Cost%20Assumptions%203-27-07.pdf. |

| | | | |
|---|---|---|---|
| 5 | Colin.Loxley@pseg.com | 4. Similarly for Solar PV, presumably all of this is a reduction in total energy use. Please show the assumptions for kw and $/kw, and the peak reduction effect. | Solar generation is based on curves available at NREL's website: http://rredc.nrel.gov/solar/codes_algs/PVWATTS/version1. Cost assumptions are posted at http://nj.gov/emp/home/docs/pdf/EMP%20Generation%20Cost%20Assumptions%203-27-07.pdf |
| 6 | Colin.Loxley@pseg.com | For Class 2, since these are existing plants, are they included in the "Generation" values also? Some of these contracts expire before 2020, what are you assuming about the cost of electricity? Where does the increase in output come from? | We assume that the existing plants will run through 2020 and that their going forward costs will be covered by market prices. The increase in output, as necessary, comes from new Class 2 resources. |
| 7 | Colin.Loxley@pseg.com | 5. Nuclear: Hope Creek and Salem uprates should definitely be included. | They are included. |
| 8 | Colin.Loxley@pseg.com | 6. Exports: For completeness, should have a MWH assumption also- likely that these merchant transmission lines will have a high utilization for base load power. For modeling purposes this capacity and energy should be subtracted from the supply available to New Jersey. | Both items are being done. |
| 9 | Colin.Loxley@pseg.com | 7. "Transmission Imports" – do not know what zero means in this case. The PJM Market and Dispatch will produce the import level —it is not a policy variable. | The assumptions were amended to include 670 MW that would offset the Bergen to 49th St. NYC export. |
| 10 | Colin.Loxley@pseg.com | 8. Transmission (Import) Capability: Without knowing other assumptions, the 9,500MW capability by 2011 looks optimistic. Also, is the assumption being made that there is a perfect 1:1 correspondence between import capability and capacity value? The PJM test is deliverability. | The assumption is based upon several public meetings with input from stakeholders and PJM. The electricity modeling makes sure that resources are deliverable to NJ subject to transmission constraints. |
| 11 | Colin.Loxley@pseg.com | 9. Please show the details of the calculations for the In –State capacity change from 17,367MW to 17,917MW. Nominally the 25,000MW peak would require (25,000X1.15) = 28,750MW Capacity. Plus Neptune and Linden would require about 1,015MW, for a total capacity of 29,765MW to be deliverable to New Jersey load. | Modeling results will be provided this summer. It is anticipated that there will be 1,953MW of retirements through 2008. This is based on what PJM has listed. Further, it was assumed that sufficient new capacity would be constructed to meet projected demand. This resulted in 2,503MW of new capacity by 2020. Combining the retirements and new capacity results in the change in in-state capacity from 17,367MW to 17,917MW. |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|

| | | | |
|---|---|---|---|
| 12 | Colin.Loxley@pseg.com | Lack of cost information. This lack of cost data is a consistent problem throughout the document, including things such as cost of CO2 for RGGI, cost of imposing appliance and building standards, cost of white tags for EE and the administration costs of such a program, marginal cost of renewable energy that will come from in-state vs. out of state, cost of REC and SREC, cost of CHP projects, and the "congestion adder" for white tags in congested areas. | These assumptions are under review and will be made publicly available when finalized over the summer. |
| 13 | Colin.Loxley@pseg.com | Building standards - the proposed Aggressive Building Codes call for new homes to be built to a HERS rating of 90. Currently, the state's Energy Star Home program offers incentives for builders to construct homes to a HERS rating of 86. This program currently is voluntary and gets about 20% of the new homes to qualify, roughly 5400 per year. The 30,000 homes stated in the model appear to represent all of the new construction within NJ. Whether such a program is voluntary or mandated (they should clarify), there will be a cost, it is a question of how it is collected and its impact. | The building standards are assumed to be mandated and the additional cost will be included in the price of the home. |
| 14 | Colin.Loxley@pseg.com | AMI infrastructure - there is nothing in the scenario that indicates they are evaluating the impact of time differentiated rates on demand or energy reductions. Most utilities have submitted strategies for AMI to support such rate structures. This should be included in the scenario. | The funding mechanism that is being modeled at this point is white tags. This is being modeled as a proxy for other Energy Efficiency mechanisms and does not represent a preference for this EE proposal over others. Other alternative approaches, including AMI, will be considered before a final decision is made. Rutgers CEEEP is performing a cost-benefit analysis of Energy Efficiency options. |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|

| | | | |
|---|---|---|---|
| 15 | james.hough@pseg.com | PSEG questions the assumption of "zero new imports" for transmission. As described in the modeling assumptions, New Jersey's Participation in the Regional Greenhouse Gas Initiative (RGGI) will also be included in the "base case". RGGI will impose caps on emissions of carbon dioxide (CO2) from power plants within the RGGI region. Most states within PJM, however, are not expected to implement RGGI. The implementation of a carbon cap on in-region power plants is expected to increase the cost of electricity generation in the RGGI region. In a competitive power market, this will have the effect of shifting generation outside of New Jersey to uncontrolled, and presumably cheaper, fossil fuel-fired generation not subject to a carbon cap. Modeling performed for RGGI indicates a significant potential for increased electric imports as a result of RGGI. Given the results of previous modeling efforts and a broad based acceptance that leakage is a potential problem, it is unclear why the model assumes "zero new imports". Given that PJM is structured as a competitive power market, PSEG believes that it is appropriate to allow the model to seek the most economic solution (i.e. balance between imports and NJ generated electricity) to serve New Jersey's electrical load. In the context of RGGI, this will likely lead to increases in electric imports. | As stated in the response to Comment #9 above, the assumptions were amended to include 670 MW that would offset the Bergen to 49$^{th}$ St. NYC export.<br><br>The RGGI modeling also indicates that energy efficiency (EE) will reduce leakage. Given that the amount of EE proposed in the alternative scenario is greater than that modeling in RGGI, the initial modeling runs are being done without any new imports other than those specified in the assumptions. Other alternative scenarios will be modeled with proposed import alternatives. |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|

| | | | |
|---|---|---|---|
| 16 | james.hough@pseg.com | New Jersey's Renewable Portfolio Standard (RPS) uses a market-based approach for compliance, which involves the trading of renewable energy credits (RECs). A REC represents the environmental attributes of 1 MWh of generation from a qualifying renewable energy source and is separate from the underlying energy. These RECs can be sourced from anywhere within the PJM RTO and do not require the physical delivery of the underlying energy into New Jersey. This means that for compliance purposes, the RPS is indifferent as to where within PJM a REC is created. New Jersey adopted a market-based RPS as a means of achieving its renewable energy goals at the lowest possible cost to ratepayers. In theory, the free market should find the lowest cost solution to meeting the RPS.<br>In both the "base case" and "alternative scenario", the model proposes to presuppose that a significant amount of in-state renewable generation capacity is developed. Most notably, the base case assumes the construction of 300 MW of offshore wind capacity by 2012 and the Alternative Scenario assumes the total construction of 1,000 MWs of offshore wind in New Jersey. Given the challenges associated with the construction of offshore wind, and the fact that no U.S. based offshore wind is currently in place, assuming that 300 MWs of offshore wind capacity are in place by 2012 appears very aggressive.<br>In addition, given the market-based structure of the current REC market, it is also unclear why the model presupposes the construction of certain renewable energy sources. Modeling performed in support of the Regional Greenhouse Gas Initiative (RGGI) by the RGGI States, indicate that no offshore wind would be constructed through 2024 under a market-based RPS system. The modeling also indicated that the RPS would be largely met by onshore wind located outside of New Jersey, where the wind resources are most plentiful and wind projects have the potential to generate the most economic RECs.<br>PSEG recommends the base case assumptions reflect current renewable energy policy in New Jersey, by allowing the model to find the most economic solution to meeting New Jersey's RPS targets. This includes the sourcing of RECs from anywhere within PJM on a non-discriminatory basis. Any renewable energy capacity built "off cost" (i.e. different from or beyond what a market based REC system would support), should be modeled in sensitivity runs and the additional cost to ratepayers should be identified. | Adders to RECs will be calculated to locate the assumed amount of wind in NJ.<br><br>The Blue Ribbon Panel on Development of Wind Turbine Facilities in Coastal Waters in its Final Report dated April 2006 recommended that the state facilitate development of an offshore wind turbine test project not to exceed 350MW or 80 turbines, Without a specific pilot project proposed, an assumption of 300 MWs is being used for modeling purposes. We agree that the goal is optimistic but believe it is a worthwhile goal to pursue and it will be reevaluated as we go forward.<br><br>Any costs of off-shore wind above the cost of a Class 1 REC are being calculated as part of the modeling effort. |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|
| 17 | David.Varga@pseg.com | I have two comments on the basic electric assumptions:<br>The 2010 in-state generation capacity projection is the 2004 base year less retirements in 2004through 2008 plus 2010 expansion MWs, but it doesn't appear to account for the addition of Linden CC (1218 MWs). Or is the net MW change at the station somehow reflected in the 603 MWs? If so the 603 should be 756 (1186 new - 430 old) to account for Linden only.<br>Capacity Ret Exp<br>2004 17367 536 0<br>2005 16831 309 0<br>2006 16522 220 0<br>2007 16302 52 0<br>2008 16250 836 0<br>2010 16017 0 603<br>While the modeling of the Neptune line in 2007 will properly account for 685 MWs of additional demand in the energy market, from a capacity standpoint one or more PJM units will need to be de-listed from the capacity market in PJM to satisfy NYISO's UDR requirements. Is this being accounted for in the modeling?<br>I also wanted to know if modeling assumptions outside NJ (rest of PJM) are to be vetted in a process similar to this. | Linden is being modeled.<br><br>Explicit NJ generation assumptions by year will be provided with the results of the model.<br><br>Generation modeling assumptions outside NJ will be made available when they are finalized over the summer. |
| 18 | doug@bluewaterwind.com | As the New Jersey Project Director for Bluewater Wind, a New Jersey-based offshore wind power developer, and member of the Class I Renewables Subgroup of the Energy Master Plan (EMP), I would like to submit comment on the assumptions proposed for the EMP.<br>First, the "base case" for electricity includes 300 MW of offshore wind power by 2012, making reference to the "pilot project" proposed by the NJ Blue Ribbon Panel on offshore wind. The Panel, however, actually proposed 350 MW. Why was the smaller figure used?<br>Second, what is the timing of the 700 MW of additional offshore wind power proposed under the "alternative scenario"? And what is the rationale for this figure, given that a 2004 report commissioned by the NJ BPU found that more than 20,000 MW -- 30 times the proposed additional amount -- exist offshore New Jersey?<br>Thank you for your attention. | See response to #16.<br>The Blue Ribbon Panel on Development of Wind Turbine Facilities in Coastal Waters in its Final Report dated April 2006 recommended that the state facilitate development of an offshore wind turbine test project not to exceed 350MW or 80 turbines, Without a specific pilot project proposed, an assumption of 300 MWs is being used for modeling purposes.<br>The timing of the 700 MW of wind in the Alternative Case is installed in equal amounts of approximately 140MW per year starting in 2015 and continuing through 2019. |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|

| | | | |
|---|---|---|---|
| 19 | Rate Counsel | RPS: Our understanding is that the renewable portfolio standard ("RPS") target of 22.5% is expressed as a percentage of "electricity consumed in the state." As such, we would expect that one of the effects of an aggressive energy efficiency program (e.g., a 20% EE target) would be to decrease electricity consumption in the state and thereby decrease the absolute amount of renewable GWH required to meet the RPS target. The 22.5% RPS policy is included in the "base case," which is described as a "business as usual" scenario. It is important that this does not mean that the costs and benefits of the RPS will not be analyzed as part of the EMP. The costs and benefits of the 22.5% RPS and variations on it should, in our view, be analyzed as part of the EMP. | The modeling accounts for the fact that any energy efficiency reduces the amount of RPS.<br><br>Previous study by CEEEP articulated the implications of the proposed "20%" RPS. Please see links to the report, *Economic Impact Analysis of a 20% New Jersey Renewable Portfolio Standard*, and its appendices at http://www.policy.rutgers.edu/ceeep/events_03-04_new.html#pub scrolling down to December 2004. |
| 20 | Rate Counsel | In-state Solar: The assumptions seem to assume that all of the solar energy will be in-state. We are concerned that there may be out-of-state interest in developing solar resources, with economic and legal implications. | Solar is modeled as being in NJ. |
| 21 | Rate Counsel | EE: We understand energy efficiency targets for electricity and for heating fuels are based on a 20% reduction target applied to projected future usage in the absence of the energy efficiency efforts. It is not clear, however, where the "demand reduction goal" in the table of 19,946 GWh comes from or how it relates to the total of 21,451 GWh listed at the bottom of page 3.<br>In any case, these are very aggressive goals for energy efficiency, and the EMP should include analysis of how New Jersey could achieve these goals (technologies, programs, costs) and not simply assume that a policy declaration and the use of trading "white tags" will accomplish the goal.<br>It is not clear whether and to what extent energy efficiency is already accounted for in the base case forecast of 1.52% annual growth to 99,728 GWH in 2020. This could have implications for the feasibility and cost of achieving the "demand reduction goal." This is also true in the space heating assumptions where gas demand is forecasted to be reduced to 0.72 TBtu by 2020. It is not clear to what extent current trends in decreases in use per customer are maintained on a forward going basis and how those impact space heating related energy efficiency estimates. | The demand reduction goal is 2,200 MW or approximately 9% of the projected 2020 demand under business-as-usual. The total potential savings is what is estimated to be saved if all the demand reduction policies were implemented and shows that the goal could be exceeded by these policies. The August 2004 KEMA study on EE, among others, is being used to support the EE proposals.<br><br>The RECON model accounts for past trends in EE in the business as usual case.<br><br>The EMP is examining the impacts of policy on environmental and economic factors. The specific approach to achieve the specified energy efficiency targets will be developed in BPU proceedings that will analyze how best to achieve the EMP targets and that will include cost-benefit analyses. |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|

| | | | |
|---|---|---|---|
| 22 | Rate Counsel | The energy efficiency assumptions are presented in very abstract and general terms. This is particularly true for the industrial sector. | The August 2004 KEMA study on EE and the Summit Blue EE Report (draft available at http://www.state.nj.us/bpu/cleanEnergy/KemaReport.pdf and http://www.state.nj.us/bpu/cleanEnergy/KemaA-F.pdf) prepared for the NJBPU Office of Clean Energy are being used to support the EE proposals. |
| 23 | Rate Counsel | The energy efficiency and demand response will be "targeted in congested areas to the extent possible." It is not clear how this will be done, and what the implications are for the costs and benefits. Also, since the overall targets are so aggressive, it would seem that the EE and DR measures will have to be implemented throughout the State, and the opportunities for "targeting" may be limited. | The DAYZER model will be used to identify areas to target EE and peak load reductions. |
| 24 | Rate Counsel | Transmission Exports: The current transmission exports to New York should include the following schedule:<br>Neptune DC -- 685 MW in June 2007<br>Linden VFT -- 330 MW in Dec 2009<br>Bergen DC -- 670 MW in June 2009<br>Bergen DC -- 1200 MW in June 2010<br>For a total of 2885 MW<br>The Linden VFT has been postponed from 2007 to 2009. The first phase of the Bergen DC is scheduled for June 2009. These are both already considered in PJM's RTEP. The last portion of the Bergen DC is estimated for 2010, and will be addressed in the next PJM RTEP.<br>If these transmission upgrades to New York are understated, as seems to be the case in the "base assumptions" table, then the EMP modeling could understate the need for capacity resources for reliable electricity in New Jersey, and could understate the electricity prices that New Jersey customers will bear with and without the policies. | DAYZER will model the Bergen DC 670 MW transmission line and it has been included as a transmission export. |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|

| | | | |
|---|---|---|---|
| 25 | Rate Counsel | Transmission Imports: With regard to transmission for imports, it appears that the import limits listed in the table are those associated with the Eastern MAAC Load Deliverability Area ("LDA"), which explicitly includes both the Delmarva Peninsula and the PECO load area, both outside of the state of New Jersey. This may have an effect on New Jersey specific outcomes of the modeling process, as actual New Jersey import limits are less than these values. | See the response to #10. |
| 26 | Rate Counsel | Modeling transmission congestion - Also, it is our understanding that the electricity model being employed in the EMP analysis can provide rather detailed information on transmission congestion on a geographic basis. We hope that the transmission constraints that cause high locational marginal energy prices ("LMPs") in New Jersey will be simulated within the model, and that the costs and benefits of investments to reduce congestion will be explored. This is a problem particularly for Northern New Jersey, and the new lines into New York could exacerbate the problem. | DAYZER models transmission constraints. |
| 27 | Rate Counsel | Retirements: While a number of New Jersey units have retired, the last 836 MW of the approximately 2,000 MW of retirements in New Jersey are currently under contract as RMR resources (Hudson 1 and Sewaren 1-4). These are gas-fired steam units which could be ideal candidates for repowering as combined cycle units. This consideration should be present in the modeling. | Repowering of plants scheduled for retirement may be considered as another alternative scenario. This decision will be made after the initial results are obtained and reviewed. If we decide to examine repowering, DAYZER's assumptions can be adjusted to improve the heat rate of the repowered unit and reflect associated costs. |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|

| | | | |
|---|---|---|---|
| 28 | Rate Counsel | Natural Gas: It is not indicated in these tables, but we expect that natural gas for new electricity power generation is one of the options to be considered in the EMP modeling analysis. For any new natural gas-fired capacity (assuming that some new capacity will be natural-gas fired which is unclear from these tables of assumptions) we believe it is very important to examine whether there is adequate pipeline capacity or any other source to supply the gas to users in the State at the higher levels of gas consumption.<br>In addition to planning with "expected" values for the various input assumptions, we believe that prudent planning often depends upon understanding the exposure of plans to risks. Volatility and uncertainty in natural gas prices, is in our view, one of the key risks that New Jersey's energy planning should consider. This can be done as "sensitivity analysis" or by other methods. | The issue of pipeline capacity was discussed by the Conventional Supply: Natural Gas Working Group; however, most of the discussion focused on capacity needs for firm service customers during the winter months when demand is at its highest. There was less emphasis on capacity needs for electric generation. The consensus was that electric generation needs generally peak during the summer months when load factors on the interstate pipelines are at their lowest and capacity constraints are not an issue. In other words, the working group felt that the critical need and critical period for natural gas capacity in the northeast is for residential and commercial space heating during the winter peak months.<br><br>The modeling will consider different forecasts for the price of natural gas. |
| 29 | Rate Counsel | Other Policies: The "other policies" listed in the table include additional renewable energy generation, combined heat and power ("CHP"), and aggressive peak load reduction. These seem like reasonable things to analyze as part of the EMP, but it is not clear to us whether these will be analyzed individually, in groups, or as part of a single "alternative scenario." We are concerned that lumping policies together could hide important information about which policies and technologies are cost-effective or not on a stand alone basis.<br>It is not clear how the "other policies" might (or might not) influence the rest of the system. For example, would the "additional" wind or biomass displace some of the base case capacity additions, and if so in which quantities and types?<br>Time frames are not specified for the "other policies." For example, when would the "additional 700 MW of off-shore wind be added to the system? | Initial modeling efforts will examine the Alternative Case as a single scenario. We will do individual analyses as needed.<br><br>See the Response to #18:<br><br>When modeling a combination of options/policies, you cannot just look at the output of a particular plant because that output depends on all of the other options being modeled. DAYZER will identify which facilities will run and for how many hours under each scenario, which will allow a determination to be made as to which units would be displaced by the addition of renewable facilities.<br><br>The timing of the 700 MW of wind in the Alternative case is installed in equal amounts of approximately 140MW per year starting in 2015 and continuing through 2019. |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|

| | | | |
|---|---|---|---|
| 30 | Rate Counsel | Other Policies CHP: Also, there is no basis provided for the CHP target of 1500 MW. Which industries or facilities would be involved? What sizes of CHP applications? | The initial assumption is based on internal BPU staff discussions. The details of this policy option are being developed and will be presented in the draft plan. See the links to the August 2004 *New Jersey Energy Efficiency and Distributed Generation Market Assessment (KEMA Report)* and its appendices at http://www.policy.rutgers.edu/ceeep/events_03-04_new.html and scroll down to Publications August 2004. |
| 31 | leibod@optonline.net<br>dleibowitz@energysolve.com | The space heating charts examine natural gas oil and propane as the fuels for space heating. There are significant users of electric base board heat and electric heat pump systems. I have spent a great deal of time with older retirement communities (1970s), whose space heating is accomplished by baseboard electric systems and some with older heat pump systems. There are thousands of condo type retirement communities in New Jersey. I wonder whether they have been included among the electric use components. Changes in the methods of reducing these very inefficient heating systems can only be accomplished if we understand these systems as space heating. There may be solar or modern more advanced heat pump solutions to reduce the inefficient electric use.<br>In one community, the average electric use for a 1200 square foot condo is 19,000 kwh per year of which over 50% is space heating.<br>They should be included in the survey as space heating and separated from other electric use. | Electric space heating is included in the electricity forecasts. |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|
| 32 | jdonohue@peca.net | Alternate Fuels: Infusion of 5% Bioheat into energy demand matrix by 2020 is a reasonable and conservative estimate. World energy demand and corresponding petroleum prices and distribution mechanisms will dictate timing and supply of biofuel. Equipment technology and greater availability of data on blends of biofuel greater than 5% may offer the potential for a greater percentage of biofuel blends. Bio-blended distillates are not currently available at NJ terminals and it is unclear how facilities will react to provide needed storage to make the product available to the large number of retail dealers who do not own storage. Currently, even with federal blender tax credits, bio-distillates begin to be competitive with petroleum when the market is at about $60./bbl or greater. This does not include the cost of segregated storage. | At this point, we believe a 5% infusion of biofuels into heating oil is a realistic assumption. Future EMP efforts will consider increasing the 5% level post-2020. |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|

| | | | |
|---|---|---|---|
| 33 | jdonohue@peca.net | Energy Efficiency: The backbone of the energy demand reduction is weighted to increased equipment efficiency and conservation mechanisms. Reliance on this equates to reliance that all consumers will take ownership of the initiative and participate through infrastructure investment. Even with significant consumer outreach and consumer education on the inherent return on investment' benefits realized through energy savings, this premise sets forth an objective which may be difficult to achieve regardless of energy sector.<br>The model looks at 20% reduction by sector with 'white tag' price differentials funded through societal benefits components of energy pricing. While the model notes 'method selection by Board process", the issue of white tags presents several challenges to the oil heat industry. These include measurement mechanisms, customer acceptance, incenting effectiveness and program administration process and overhead costs. The oil heat industry has presented some conceptual strategies in support of the EMP process specifically for incenting customer participation in equipment upgrade and increased efficiency. Review of the CEEEP model indicates additional strategies designed to encourage consumer participation may be necessary to achieve the stated goals. Straight line analysis tells us 8.3% of consumers need to participate annually to reach the energy demand goal over the next 12-13 years.<br>If the model is evaluated from the prospective of target energy demand reduction, it projects a demand reduction requirement of approximately 9 million gallons per year for the residential oil heat sector. Based on the average per household fuel consumption, 58,000 households per year will need to invest in the infrastructure upgrade of their heating system.<br>The most recent 10 year trend for replacement of oil fire heating systems, developed by the national Oil heat Manufacturers Association, indicates approximately 2.3% of consumer oil fired heating units are replaced annually. Suggested strategies provide incenting for an approximated additional of 4.6%. This leaves a minimal anticipated shortfall approaching 11.4% of consumers. | Energy efficiency includes building shell improvements as well as improvements to heating equipment. We recognize that a specific program for the oil heat industry and oil heat customers would need to be developed and that legislation authority would be needed to establish a program. |

| | | | |
|---|---|---|---|
| 34 | jdonohue@peca.net | The EMP non-conventional supply workgroup reports set forth energy efficiency as offering the greatest potential for achieving the 20% energy demand reduction. However, the reports contained numerous strategies beyond incenting through the societal benefit components of energy pricing. The CEEEP model should factor in the effect of these additional strategies if the EMP target is to be achieved as it appears the 'white tag differential' strategy alone may be under funded and consumer ownership may be overly optimistic. | This is an important issue of program design that will be examined at the appropriate time and all strategies will be considered. |
| 35 | Paul.Bralczyk@pseg.com | The gas EDC working group has reviewed the space heating document and cannot understand the numbers shown. They do not look like anything that we supplied to the BPU and also discussed at our meeting and conference calls.<br>First, we thought 2004 would not be used as a base year, but the utility forecast for 2007 would replace that as the starting point.<br>Second, the numbers shown are about half of the numbers we supplied and if they include oil and propane usage, they really don't make sense. They should be larger than the utility numbers.<br>Please see Attachment C which was supplied to the BPU as a summary. It shows, for gas only, 606 for year 2007 and 703 for 2020. Then, the 20% reduction is calculated based on the heating sensitive portion of residential and commercial and the result is 63. | Initially, BPU staff projected a reduction goal of 77.24 Trillion Btu for all space heating fuels in order to meet the 20% requirement by 2020. This projection uses 2004 as the based year. For natural gas, the Working Group projected 63 Trillion Btu as the reduction goal in the residential and commercial sectors. A comparison of the projected residential and commercial growth rates shows that the Working Group's natural gas projections for 2020 are in line with Staff's initial estimate. The 63 Trillion Btu was therefore used as the base case reduction goal for natural gas with the remaining 14.2 Trillion Btu going to the other space heating fuels (i.e., heating oil and propane). |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|

| | | | |
|---|---|---|---|
| 36 | Tom Ryan [tryan@pfisterenergy.com] | From the Space Heating Assumptions chart on the EMP website it is clear that the greatest growth in space heating will come form the industrial section – six times that of residential and commercial combined.<br>1) On what basis is this projected? Increasing manufacturing in the state? How solid is that projection so' as to define policy goals?<br>2) The only policy that the plan defines as touching this [industrial] segment is the "Aggressive Building Codes" method, although the results show effect on only residential and commercial. Similarly the 20% EE for existing buildings is shown as targeting only the two smaller categories.<br>3) Will Combined Heat and Power (CHP) play a major role in reducing the 5.78% increase in space heating forecast by 2020?<br>Please reply to my questions, especially the basis for the 5.78% increase in the industrial sector, which swamps the other categories. | The 5.78% industrial growth number was incorrectly listed as a positive growth rate. The projected growth should have been listed as negative 5.78%. The negative 5.78% is based on historical sales data (2000-2004) for both heating oil and natural gas which shows a projected decline out to 2020. All space heating sectors were projected using historical sales data. Question 3 is rendered moot with the above corrected expression of 5.78% as a negative rather than positive growth rate. |
| 37 | Science@cleanoceanaction.org | We have been actively participating in the Energy Master Plan process, including participation in several workgroups. We are writing to question some of the values being utilized for wind energy. Specifically, assumptions regarding the timeline and energy production value for wind turbines (especially offshore) are incorrect.<br><br>Timeline: Gov. Corzine's 2008 Budget requests 4.5 million dollars to conduct an 18-month baseline study off the NJ coast to collect data on the abundance, distribution and migratory patterns of birds, marine mammals, marine turtles and other aquatic organisms to determine the appropriateness of siting offshore wind facilities. Considering this is a part of NEXT year's budget, the money still needs to be approved, followed by the development and approval of a research plan, which must then be executed and finally, analyzed. In addition, no new offshore wind facilities can be proposed until U.S. Minerals Management Service develops a regulatory framework and completes an Environmental Impact Statement. Therefore, the assumption that a 300MW offshore facility will be up and operating off the coast of NJ by 2012 is beyond ambitious, it is incorrect. | The 300 MW pilot is on a different timeline than the analysis being conducted in the baseline study. DEP's Division of Science, Research and Technology issued a Solicitation for Research Proposals, Ocean/Wind Power Ecological Baseline Studies on 4/19/07 with a deadline of 5/25/07 and anticipates awarding the contract(s) for the 18-month studies in August 2007. The commencement of the baseline studies does not preclude commencement of any studies related to the pilot project, however, the pilot studies will still need to meet criteria or analysis that arise from the baseline studies. |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|

| | | | |
|---|---|---|---|
| 38 | Science@cleanoceanaction.org | Energy Production: We also question the use of nameplate capacity when determining the energy production contribution of windmills (on or off-shore). This will result in a gross overestimation of actual energy produced by these facilities. On and off-shore facilities in operation around the world, currently achieve an average of less than 30% of their nameplate capacity. In order to provide a realistic model of NJ's future energy production capabilities, the model should be using the actual electricity produced. This number can be estimated by multiplying the nameplate capacity by the average capacity factor currently being achieved. For example, a 100MW Wind Turbine Facility (nameplate) with a capacity factor of 30% will actually produce 30MW of electricity. Not only is it more accurate to use the actual energy production values for wind, it is also a matter of consistency as it appears the model is using "behind the meter" or actual electricity produced by solar energy systems, not the inflated value of the system's nameplate capacity. | The model accounts for the capacity factor of wind, which avoids the issue mentioned in this comment. The capacity factors being used for wind are dependent on season as follows:<br>October through May – 35%<br>June through September – 15%. |
| 39 | Science@cleanoceanaction.org | In addition, considering the substantial outstanding ecological and legal issues surrounding the continued operations of Oyster Creek Nuclear Power Generator for an additional 20 years, Clean Ocean Action requests that future models consider the real possibility that the plant is not re-licensed in 2009. | This will be modeled as an alternative scenario. |
| 40 | kenneth.parker@atlanticcityelectric.com | The sales forecast for New Jersey and the PJM load forecast being used do not accurately reflect growth of customers, energy sales and power requirements in Atlantic City beginning in 2008. The problem occurs because these are trend models that do not account for the construction of new casino/hotels and their associated commercial and residential development. | CEEEP has requested that ACE provide the suggested sales forecasts. |
| 41 | kenneth.parker@atlanticcityelectric.com | The base case does not assume that a nationwide greenhouse gas initiative would replace the Regional Green House Gas Initiative (RGGI). It is more reasonable to assume that a national program initiated during the next decade will include emissions from all sources in all states instead of New Jersey power plants only, as proposed in the RGGI. | We will consider modeling a national proposal as an alternative scenario. |

| | | | |
|---|---|---|---|
| 42 | kenneth.parker@atlanticcityelectric.com | The 300 MW offshore wind pilot cost and completion schedule is very aggressive. In addition, the assumptions that lie behind this development (ownership, cost, operation) are unclear. Most important of all, we respectfully submit that a 300 MW offshore wind facility is an order of magnitude too large to be described as a "pilot." | We agree that the goal is optimistic but believe it is a worthwhile goal to pursue and it will be reevaluated as we go forward. Also see the response to #16. |
| 43 | kenneth.parker@atlanticcityelectric.com | The assumptions related to the "Carbon Scenario" are unclear. We are interested in the assumed value for carbon related taxes or rate adders. We are understandably concerned by early reports that the Carbon Scenario shows no economic impact on New Jersey, since carbon remediation is known to be expensive and a New Jersey-only program would probably cause electricity production to move west, with resulting down-wind impacts on New Jersey. | As these assumptions are finalized, they will be made publicly available. |
| 44 | kenneth.parker@atlanticcityelectric.com | What transmission projects (imports and exports) are included in the model? It appears that the base case does not include any of the three (3) major new transmission projects being considered by PJM. It is highly likely that one or more of these projects will go forward. | The transmission assumptions were developed in conjunction with stakeholders and under an initial assumption that in the base case the additional supply would come from in-state generation. Additional alternative scenarios will be run that reflect proposed transmission projects. |
| 45 | kenneth.parker@atlanticcityelectric.com | Please provide details on the 9,500 MW transmission import capacity. It appears that transmission import capacity is being modeled in a very static framework, and that required transmission exports merit further attention. | The assumptions were amended to include 670 MWs that would offset the Bergen to 49th St. NYC export. |
| 46 | kenneth.parker@atlanticcityelectric.com | The PJM generation expansion data in queue should be adjusted to recognize some lesser percentage of the actual build. It's my understanding that CEEEP states that this scenario is designed to illustrate an extreme case in which everything that can be built is built, in order to show an upper bound case. Since the queue includes many proposed plants that are not likely to receive serious development funds, the inventory of projects in the queue provides for a potentially misleading scenario. Specifically, it causes wholesale electricity prices (LMPs) to be much lower than they would otherwise be, because of excess capacity. | The generation expansion plan does not assume that every project in the queue is built, but that only those needed to meet projected capacity requirements are built. |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|
| 47 | sliou@environmentnewjersey.org | Environment NJ is urging the Energy Master Plan and the Governor's Global Warming Action Plan to use the following assumptions, which assume a 2020 timeline:<br><br>1) No increase of in-state generation from coal-fired power plants.<br>2) Oyster Creek, Salem 1 and 2 nuclear power plants retired at the end of their current operating licenses. No uprate at the Hope Creek plant.<br>3) At least 1,750 MW of offshore wind capacity and 1,500 MW of solar capacity. Additionally, we welcome your assumptions for on-shore wind and biomass (barring that biomass generation is sustainable Tier 1)<br>4) Zero imports/exports to/from New York ISO.<br>5) Current imports (6,000 MW) from Pennsylvania 500 KV line remain constant.<br>6) Declining import capacity from other eastern Pennsylvania utility lines, reaching zero by 2018.<br>7) Scheduled in-state generation retirements (roughly 1,200-1,900 MW) -- including BL England.<br>8) Electricity and natural gas demand reduction of 10% below current levels. This demand reduction will come from 2,100 MW of CHP, 4,186 MW of efficiency from building codes, appliance standards, energy efficiency portfolio standards, and 850 MW of demand response programs. Your estimate for demand response programs is closer to 2200 MW -- we don't necessarily oppose that, but it is unclear where 2200 MW is coming from. | The assumptions essentially suggest an analysis of the electricity requirements in 2020, both for meeting the peak load (MW) and the energy requirements (mWh) over all hours of the year, treating New Jersey as an island to itself, with no imports and exports. The assumptions also require retirement of Oyster Creek, Salem I and II and no uprating of Hope Creek nuclear plant as well as no increase in coal-fired power plants. Additionally, it is suggested that a peak load reduction of 5036 MW could be achieved through building codes and demand response measures. A preliminary analysis, which does not consider internal New Jersey transmission constraints, just to meet peak load requirement necessitates construction of some 4500 MW of new gas fired generation, all combined cycle (CC) to meet the anticipated peak load with a 15% reserve margin. However, to meet the same reliability as presently modeled, an isolated New Jersey may require a reserve margin in the order of 30 % above peak load increasing the need for additional capacity in the order of some 2500 MW for a total additional 7000 MW of natural gas fired CC. With the inclusion of 1500 MW of natural gas based CHP, additional natural gas delivery to the state can have significant negative consequences on prices and deliverability on existing natural gas infrastructure. We believe that assuming the occurrence of all of these contingencies would have unacceptable results in terms of system reliability and cost." Our sensitivity analysis of the alternative scenario will model contingencies that may have a probability of materializing, such as retirement of Oyster Creek or Hudson 2 Coal Unit. The sensitivity analysis assumptions will be posted separately for comments. |

| | | | |
|---|---|---|---|
| 48 | JWTARPEY@oru.com | We applaud the outreach that has been conducted since the commencement of the NJEMP process. Unfortunately, the process for developing the NJEMP has not been communicated clearly enough for stakeholders to be comfortable that their input will receive due consideration.<br><br>In prior meetings with CEEEP and various working groups, there were indications that numerous scenarios would be examined in the process of developing the EMP. Now, it appears from the assumptions posted on the NJEMP website that only two scenarios are being prepared: a "business-as-usual" base case and an "alternative" case that reflects a mix of potential initiatives. It is difficult to envision how the NJBPU or any other stakeholder will be able to make judgments about the policies that should comprise the NJEMP from this very limited set of results. If further scenarios are envisioned, then such plans should be posted as well. | After the first two scenarios are analyzed, various sensitivity and other cases will be examined. |
| 49 | JWTARPEY@oru.com | According to the NJEMP website, results of the two scenarios are expected by April 20 and a draft report is to be produced by July 10. It is not clear where in the schedule there will be an opportunity for stakeholders to review and comment on the modeling results, especially if there should be a need to run additional scenarios. A thorough stakeholder review process is essential to producing a sound and robust EMP. | Stakeholders will have opportunities to review and comment on preliminary results. |
| 50 | JWTARPEY@oru.com | With regard to the specific modeling assumptions that CEEEP plans to use, the generation and transmission assumptions in the base case should reflect the most likely projects. For transmission, the planned Bergen exports to New York City should be included. For generation, aside from projects currently under construction, it is not reasonable to assume that all projects in the PJM queue will be built. Instead, it should be possible to develop a generic expansion plan based on need within each zone established under the PJM Reliability Pricing Model. The queued generation projects could be used as proxies for the types of generation that would fulfill the projected needs. | See the response to #24.<br><br>Generic expansion plans are being developed. We are not assuming that all projects in the PJM queue are being built, only those needed to meet projected capacity requirements. |
| 51 | JWTARPEY@oru.com | Finally, the base case should assume that some form of greenhouse gas regulation is present in all the states being modeled. In the interest of simplicity and equity, the base case should assume a uniform carbon tax and/or cap is applied to all regions. | We will consider modeling a national proposal as an alternative scenario. |

| Submitted by: | Comments on EMP Electricity & Heating Assumptions | CEEEP/BPU Response |
|---|---|---|
| 52 | jeffbrownnj@verizon.net | Local opposition to Oyster Creek Nuclear Generating Station will continue even if the NRC approves its license renewal application, including a commitment to fight them in federal court.<br><br>If the NJDEP requires them to install a closed cooling system, Exelon just might decide to close the plant because they won't be able to make as much profit as they'd like.<br><br>Thus there are 2 likely reasons to think Oyster Creek will not operate for another 20 years, regardless of what the NRC does.<br><br>The Energy Master Plan should not assume all 4 nukes in NJ will be relicensed. Working with the assumption that 1 or 2 will close will require the EMP to be more creative and robust by having to account for these shut downs. This will only lead to a better plan. | This will be modeled as an alternative scenario. |