eastern environmental law center

Comments On Two Aspects Of The Draft New Jersey Energy Masterplan:

Public Sector Energy Efficiency And The Need To Fully Transition To Renewable Energy Sources

Introduction

The Eastern Environmental Law Center has prepared these comments on two aspects of the Draft New Jersey Energy Masterplan ("EMP") on behalf of Beyond Nuclear, Inc. and Grandmothers Mothers and More For Energy Safety (collectively, the "Clients"). The Clients reserve the right to submit comments on other aspects of the plan separately, and individual members of the Clients also reserve the right to comment on their own behalf.

These comments address the need to rapidly improve energy efficiency in the public sector and the need to fully transition to renewable generation technologies. On the first issue, the State can use the public sector to show that energy efficiency is not only good for the environment, it is also financially prudent and good for the economy as a whole. The EMP proposals fail to fully account for the present economic conditions and the need for an economic stimulus, particularly in the construction industry. Rapid investment in energy efficiency in the public sector could not only provide such a stimulus, it would also bring a host of long-term benefits, including lower taxes and an improved environment. The State should therefore invest heavily in energy efficiency at State and municipal facilities in the short-term.

On Monday, Mayor Bloomberg expressed similar sentiments by announcing New York City's plan to reduce greenhouse gases emitted from municipal buildings and operations by 30% below 2006 by 2017 using cost-effective measures.[1] The City will increase efficiency using a wide range of measures including improving air and heating systems, fixing methane leaks at water treatment plants and using that gas to run electric generation equipment, and using more fuel efficient vehicles. On a cash flow basis, the City will break even in 2013 and by 2015, it will have saved more on its energy bills that it will have spent by that time.

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[1] http://www.nyc.gov:80/portal/site/nycgov/menuitem.c0935b9a57bb4ef3daf2f1c701c789a0/index.jsp?pageID=mayor_press_release&catID=1194&doc_name=http%3A%2F%2Fwww.nyc.gov%2Fhtml%2Fom%2Fhtml%2F2008b%2Fpr264-08.html&cc=unused1978&rc=1194&ndi=1

Moving on to the second issue, if the goals of the EMP concerning energy efficiency, renewable generation, and combined heat and power are met, there is no need for other additional generation capacity before 2020. Furthermore, after 2020, it is likely that solar power will be able to supply cost-competitive electricity without subsidy and local and imported wind-power may also be option. Therefore, there is no need for the State to promote nuclear power as a long-term option. Instead, the State should continue to foster the transition to renewable energy sources.

Issue 1: Rapid Investment In Public Sector Energy Efficiency Has Major Benefits

EELC has found that a number of states around the country have established mechanisms to borrow money to invest in energy efficiency measures that then save more money than the cost of borrowing. The idea behind this approach is that public entities should be encouraged to become as energy efficient as possible, but there is a danger that the current tight fiscal environment will lead to under-investment in energy efficiency retrofits for public buildings and other efficiency measures. Establishing an Energy Efficiency Fund to borrow money and then lend to public entities to allow such investments to occur would mitigate that danger. The Fund would provide an economic stimulus, including the development of green jobs, save taxpayers money, and improve the expertise in energy efficiency within the state government. By acting as a model for enlightened self-interest, this approach would also encourage cost effective energy efficiency in the private sector.

BACKGROUND

A number of states have successfully taken this approach. New Mexico's Energy Efficiency and Renewable Energy Bonding Act authorizes up to $20 million in bonds to finance energy efficiency and renewable energy improvements in state and school district buildings. See N.M. Stat. Ann. § 6-21D-2 et seq. (2008). The Bonding Act created a special "energy efficiency and renewable energy bonding fund" that pays the principal and interest on bonds issued pursuant to the act. N.M. Stat. Ann. § 6-21D-5(B). To repay the fund, the estimated energy cost that will annually be achieved as result of the efficiency measures is first calculated. N.M. Stat. Ann. § 6-21D-6(A). Ninety percent of that cost is then deducted by the Public Education Department, see N.M. Stat. Ann. § 6-21D-6(B) (school district buildings), or from the budget of the agency responsible for paying the utilities of a state building, see N.M. Stat. Ann. § 6-21D-6(E) (state buildings). The deductions stop when the cumulative deductions equal the amount necessary to service the bonds issued for the improvements. See N.M. Stat. Ann. § 6-21D-6(C) (school district buildings); N.M. Stat. Ann. § 6-21D-6(F) (state buildings).

Like New Mexico, Montana's program uses energy savings to repay bonds issued to fund a state projects used for state-owned buildings, structures, and facilities. See

Mont. Code Ann. § 90-4-602 et seq. (2007). The State Building Energy Conservation Bond Program requires that the total amount of energy costs saved as a result of the efficiency improvements be placed into an energy conservation payment account until the total cost of the project is paid off. Mont. Code Ann. § 90-4-615(2)(a). This account is also responsible for providing the funds necessary to issue the bonds. Mont. Code Ann. § 90-4-613.

Two other states, California and Texas have similar programs that are constructed around the issuance of loans, not bonds. Under California's statute, loans are provided to local jurisdictions for the purchase of energy efficient equipment or small power production systems, and to improve the operating efficiency of existing transportation systems, among others. See Cal. Pub. Res. Code § 25442 (2007). Similarly, Texas has enacted LoanSTAR (Loans to Save Taxes and Resources), a state energy efficiency demonstration program using a revolving loan mechanism. Loan recipients repay the principal and interest from the accrued value of energy savings realized as a result of the energy conservation measures implemented with the borrowed money. Tex. Gov't Code Ann. § 2305.032(d) (2007). Though the financing from these two programs is not achieved through bonds, the improvements soon pay for themselves, and save large amounts of money after that. Thus, energy savings are driving further efficiency.

CASE STUDY

Two examples from a recent energy audit conducted for a municipality in New Jersey show how a similar program would benefit the state. In one building, the audit estimated a replacement cost of $30,000 for an old air handling system that had poor duct insulation and poor temperature control. The energy savings from the more efficient replacement were estimated at $6,779 per year, quickly making up for the initial cost. In a second building owned by the municipality, retrofitting the lighting system would save a substantial amount of money. The audit estimated that replacing existing lights with T8 lamps and electronic ballasts, along with the installation of a lighting occupancy sensor, would have a total cost of $43,412 ($36,253 for the lights and $7,159 for the sensor). When looking at the total savings, including maintenance, from these retrofits the audit estimated a total savings of $15,768 per year at the second building.

Implementing these project not only saves money, it also reduces the demand for energy, benefiting the public as a whole through lower emissions and lower energy prices. Replacing the air handling system and patching up the leaks would reduce the energy consumption of the first building by an estimated 2,760 therms/yr (natural gas) and 24,800 kWh/yr. Likewise, replacing the lighting and installing the sensor in the second example would reduce electricity consumption by an estimated 143,071 kWh/yr. Thus, providing money upfront would provide not only an economic stimulus in the short run, but also reduce energy demand for the long term.

CURRENT SITUATION IN NEW JERSEY

Two programs in New Jersey encourage energy efficiency. In 2003, the New Jersey Board of Public Utilities (BPU) established the Clean Energy Council to administer the Clean Energy Program (CEP). Programs under the CEP include the Municipal Audit Program, which will pay for 75% of an energy audit for any qualifying municipality or government agency, and will pay the remaining balance of that audit if they complete all of the recommended projects. However, the State has earmarked only $800,000 for this program. Because this is insufficient to pay for audits of all municipal facilities, many municipalities will presumably be left out. In addition, to date, the program does not address implementation of the audit recommendations.

Furthermore, Governor Corzine created of the Office of Energy Savings on April 22nd, 2006 through Executive Order No. 11. This office oversees energy audits at State buildings, centers and facilities to analyze energy efficiency, Exec. Order No. 11(2)(a) (2006), and develops energy plans in conjunction with the Economic Department Authority. Exec. Order No. 11(2)(e) (2006). This demonstrates the State's recognition of its role in promoting energy efficiency.

This is further demonstrated in the EMP. The EMP included among its goals the need to redesign efficiency programs to emphasize a whole building approach and the need for a statewide building code to make construction at least 30% more efficient. Id. at 11. It did this because conservation and energy efficiency are the most economical methods of lowering New Jersey citizens' energy costs. Id. at 51. However, the majority of energy losses come from already constructed facilities, not from those to be constructed in the future. As the EMP recognizes, retrofitting these existing buildings is the best way to change the existing baseline. Id. at 52-54. In addition, the EMP recognizes that the state must lead by example. Id. at 75-79.

To enable state and municipal entities to fund cost-effective energy improvements, the EMP suggests that the law should be changed to allow long-term contracting for energy efficiency. Id. at 78-79. It is understood that a law enabling such contracting is awaiting the Governor's signature. However, while this is a reasonable approach, it is unlikely that this will be sufficient to provide the needed short term stimulus for a number of reasons. First, access to private capital is currently very tight. Second, performance contractors tend to favor large industrial-scale projects,that are seldom available because most of New Jersey's municipalities are relatively small. Moreover, public entities can generally borrow on more favorable terms than private entities making more energy saving measures cost effective.

IMPLEMENTATION METHODS

Bonds are issued with the idea that an improvement should be paid for by those who have the opportunity to benefit from it, not just those who are alive at the time the

process begins, and are often utilized in New Jersey to spread costs over time and pay for income producing assets. See N.J. Stat. Ann. § 40:11A-8 (2008) (parking authorities may issue bonds payable from income and revenues of parking projects). The State of New Jersey is not prohibited from guaranteeing bonds and obligations for a public purpose. See Behnke v. N.J. Highway Authority, 25 N.J. Super 149 (Ch. Div. 1953) (the State's guarantee of bonds was not a prohibited by the financial limitation clause, N.J. Const. art. VIII, §2, ¶ 1).

At least three options exist to create an Energy Efficiency Fund in New Jersey to promote the public purpose through bonds and obligations. One option is to create an office within an existing department to administer loans for energy efficiency projects funded directly by state debt. The main advantage of this method is the ability to centralize expertise within a state agency, which would lead to a transparent and more effective way of promoting energy efficiency in the public and private sectors. However, the State has expressed a desire not to borrow any more money in the current economic climate.

Another option is to create an independent state authority responsible for issuing bonds and maintaining the fund. The Environmental Infrastructure Trust (EIT), created in 1986, is an example of this. EIT works in partnership with DEP and combines interest-free loans from state revolving funds with market-rate loans from AAA-rated Trust bonds, granting a loan that is half of the market rate to municipalities and utility and sewerage authorities. This provides a way to distribute substantial amounts of capital for large projects in an arm's-length manner, while still enabling some centralization of expertize. Although this method avoids direct issuance of state debt, the use of independent authorities has sometimes led to a lack of accountability.

A third option is to encourage local governments to borrow to fund local improvements. Municipalities and counties in New Jersey have the authority to issue obligations up to the statutory limits of indebtedness to finance "any capital improvement…which it may lawfully make." N.J. Stat. Ann. § 40A:2-3(a) (2008). Thus, it should be possible for municipalities and counties to issue bonds for the purpose of promoting energy efficiency, with the principal and interest (if any) payable by the energy savings that accrue from the adopted energy conservation measure. Demonstating the practicality of this approach, we understand that the Bergen County Improvement Authority, has already funded energy efficiency projects. However, while this would encourage energy efficiency to a small degree, it would create a patchwork of expertise and implementation throughout the state, in place of the centralized knowledge in the previous two options. Thus, at minimum, this approach would have to be supported by technical assistance and co-ordination from the OES.

CONCLUSION

A state energy efficiency fund would have many benefits, including stimulating the state economy by creating construction activity, reducing local air pollution and greenhouse gas emissions, saving taxpayers money, and enabling the public sector to lead the private sector by example. There are a number of ways to accomplish this, but it would be ideal build upon the existing expertise in energy efficiency within the State. In our view, this would be best accomplished by establishing an Energy Efficiency Authority which would borrow wholesale and then lend to State and local entities, taking a small spread to fund its operations. In the short term, the people of New Jersey could benefit from public sector energy efficiency while conserving scarce public money. In the long term, the expertise gained by using the public sector as the first mover, would act as a model for the private sector and could be used as the basis for educational efforts.

Issue 2: The EMP Should Promote Renewable Energy, Not Nuclear Power

At present New Jersey consumes approximately 82,000 GWh of electricity each year, EMP at 17, of which approximately 75% is generated within the state. *Id.* at 35. The demand in 2020 is projected to be 80,000 GWh. *Id.* at 13. The plan calls for installing approximately 10,000 GWh of new combined heat and power before 2020. *Id.* In addition, the renewable portfolio standard increases from approximately 6% to 22.5% i.e. an increase from approximately 5,000 GWh to 18,500 GWh. *Id.* at 63. This is an increase in capacity of 13,500 GWh. Thus, state mandates will lead to an additional 23,500 GWh of generation capacity being installed, while overall demand is expected to be constant. The demand on the existing plants will therefore fall to 56,500 GWh by 2020.

It is unclear why the EMP suggests that existing plants will not be able to meet this demand prior to 2020. *Id.* at 13. Contrary to the EMP's assumption, age does not seem to be the main issue. More than half the existing capacity is under 30 years old, *id.* at 33, and power plants normally have a useful life of approximately 40 years. Indeed, some fossil fuel plants are over 50 years old. *Id.* In addition, merchant plant owners of old coal plants have shown a willingness to retrofit those plants to extend their life. Therefore, instead of planning for the retirement of old coal plants, it would make sense to encourage owners repower the plants to make them as efficient as possible, perhaps through the inclusion in air permits of standards for CO2 emissions per MWh generated and encouraging use of pipeline quality bio-methane. Because the clearing price in the system is generally set by efficient natural gas plants, this approach should not cause the price of electricity to change significantly.

Old nuclear plants present a different proposition, because their safety systems degrade over time and the current regulatory system is failing to properly address this issue. For the Oyster Creek plant (600 MW) there is currently no certainty that it meets

its safety requirements. Therefore, it should be retired before the next refueling outage in October. For other nuclear plants, the State should plan on them closing after 40 years or when they can no longer establish that they meet their safety requirements with a high degree of certainty. Currently, the license for Salem 1 (1100 MW) expires in 2015, Salem 2 (1100 MW) expires in 2020, and Hope Creek (1100 MW) expires in 2026. This shows that less than half of New Jersey's nuclear capacity is scheduled to go offline before 2020. Because nuclear plants run around 90% of the time, this amounts to around 4,700 Gwh retiring in 2008 or 2009, and another 8,700 Gwh retiring in 2015. Thus, if properly planned, short term demand reduction measures combined in the longer term with new renewable and combined heat and power capacity should replace the nuclear capacity that is scheduled to retire without incurring a major penalty in terms of greenhouse gas emissions.

Another possible cause of a generation shortage cited by the EMP is power export. *Id.* at 13. However, New Jersey's prices are already high. *Id.* at 35-36. Any generation shortage would send prices higher, curtailing exports. Thus, it is unlikely that power export will lead to a shortage of generation.

The situation after 2020 is considerably less certain, but is likely to be less constrained. Renewable energy, particularly solar power, is anticipated to become financially competitive with natural gas-fired baseload prices at around 2020.[2] McKinsey & Co., *Reducing U.S. Greenhouse Gas Emissions: How Much at What Cost*, 62-63 (December 2007). Thereafter, solar power could experience explosive growth, as seen in the electronics industry. *Id.* at 63. In addition, there are innovative storage technologies being developed, which should assist with the problem of intermittency and large scale investments in on-shore wind farms in other states are anticipated.

As the EMP acknowledges, using coal to produce baseload power is unacceptable for a host of reasons, including high emissions of many pollutants, including mercury, particulates, and greenhouse gases. *Id.* at 71. The EMP then gravitates towards the idea that a new nuclear power plant could help to lower the price of electricity. *Id.* at 71. This is incorrect, because the latest estimates are that nuclear power cannot compete with existing generation capacity in the short run, and cannot compete with the reducing cost of renewables in the long run.[3] Moody's Corporate Finance stated in its May 2008 report on nuclear power that "our concerns reside in the fact that nuclear generation has a fixed design where construction costs are rising rapidly, while other renewable technologies are

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[2] The Department of Energy has programs that aim to reach this point in 2015. http://www.energy.gov/news/4855.htm

[3] One low but somewhat realistic estimate is that nuclear power would have a cost of 8 to 11 cents/kWh delivered to the grid. http://www.keystone.org/spp/documents/FinalReport_NJFF6_12_2007(1).pdf ("Keystone Report") at 11. This compares to less than 7 cents/kWh for wind, and less than 6 cents/kWh for combined heat and power. In its May 2008 special comment Moody's Investors Service stated that the construction cost for a new nuclear plant potentially exceeds $7,000 per kW, which equates to a cost of 13 to 14 cents/kWh, after operating costs are added in. *See Keystone Report* at 42.

still experiencing significant advancements in terms of energy conversion efficiency and cost reductions." Moreover, because building a nuclear power plant would likely take more than 10 years, *id.* at 33, a new nuclear plant could only supply power after 2020, but would absorb a large amount of capital prior to that time.

As the proposal above illustrates, there are many more economically beneficial places to deploy that capital, particularly in energy conservation and development of renewable generation technologies. In addition, one major problem with nuclear power is that we would have to commit to build a plant at least 10 years before it could produce any energy. If nuclear power turns out to be more costly than renewables by the time any plants are built, as many anticipate, the State could not change course without incurring a huge penalty. On the other hand, if we stay flexible by avoiding committing large amounts of capital to nuclear power, at worst in 2020 we would be required to pay a modest premium for renewable energy compared to nuclear power. Given the major issues associated with nuclear power, such as the loss of State control over safety to a federal agency with a poor record, the inability to dispose of the nuclear waste generated, and the risk of proliferation of nuclear weapons, any small premium that may be required would be worth paying. In short, the high financial and environmental risk of building a nuclear power plant is simply not worth taking, when it is compared to the low risk alternative of transitioning to renewable energy sources.