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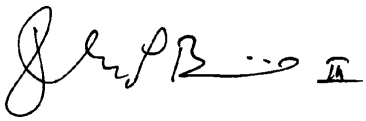
RE: Input about the NJ Draft Energy Master Plan

Dear New Jersey Energy Planning Leaders,

I am very pleased to see New Jersey pushing such a bold statement for energy leadership in the country. We stand a chance to have this energy leadership also tie into our economic development in the state: We can be at the forefront of developing new technologies (and the associated industry base) that will *supply* these technologies to other states when they finally follow suit. Our economic development can dovetail nicely with improving our energy self-sufficiency.

I've written more specific comments below about how we can stimulate "green collar jobs" and to help strengthen the energy-associated economic development as this plan is finalized and launched.

Sincerely,



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NJ Energy Master Plan Comments
Dunbar P. Birnie, III
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Generally speaking there are two areas that I find that could be strengthened in the draft Energy Master Plan (EMP): (1) more emphatic stimulation of clean-tech economic development in NJ, and (2) stronger encouragement of the green-collar jobs at a broader range of levels than it currently suggests. I'll comment on both of these specifically.

The EMP provides an excellent "Alternative Scenario" whereby we strategically improve our energy use and generation in the state. Goals one through four already highlight important steps in achieving this scenario, including energy conservation strategies, energy efficiency improvement, leveling fluctuations in energy demand, switching toward renewable energy sources, and increasing low-carbon-emission energy generation capability. Goal 5 of this

scenario is particularly important – that of investing in clean energy businesses and technologies in the state, leading to sustainable economic development in the long run.

Achievement of goals one through four depend on the adoption of existing technologies to a greater degree as well as the development and improvement of technologies that are at the cutting edge. Goal 5 dovetails with the other goals by recognizing that our state should not be a simple consumer and user of these technologies; we must be proactive about our involvement in the development and improvement of these technologies to allow us to prosper as a result of our EMP adoption and implementation.

The two bullet points under Goal 5 express two key aspects of how we can stimulate the state's energy industry: "invest in innovative clean energy technologies" and to "develop a 'Green Collar' jobs program". Both of these bullet points need to be broadened in scope, clarified, and made more emphatic. Taken together these strategies are the only way we'll be able to prosper as our state, nation, and planet converts energy usage and generation habits.

The text of Goal 5a encourages an expansion of the Edison Innovation Fund to stimulate "innovative clean energy technologies". This is good, but the present scale discussed is far too small. We live in a highly educated and densely populated state. We have many clever people here with great ideas. These ideas need to be nurtured and these bright people should be put to work in this clean energy area. The Clean Energy Technology strategy suggests that $4M will be invested through the "Edison Innovation Research and Development Fund." This would stimulate "about 8" companies. If we really expect to establish regional leadership as a hub of new energy technology then our impact needs to be substantially higher than 8 companies a year. Similarly, there is $11M budgeted for a "Manufacturers Incentive Program" with the comment that "about 10" projects could be funded annually. Again, this is just a drop in the bucket if we really expect to become a manufacturing hub in the clean-energy field. Together these would be funded through the BPU's Societal Benefits Charge. In comparison to this, it should be noted that the "Customer On-Site Renewable Energy (CORE)" program at the NJ Office of Clean Energy (covering home and business grid-connected PV systems) was budgeted for over $150M for 2007 and the demand for these installations had grown so high that the program had to be capped. No new submissions were being accepted as of April 1st, 2008. The popularity of the solar installations has grown substantially since the program was introduced in 2001 and has resulted in a total of over 54MW of photovoltaic-based generating capacity in the state. In terms of state economic development, though, it is probable that the only industry stimulated by this subsidy has been the expansion in number and size of *installer companies*. There has not, to my knowledge, been any increase in solar cell, or electrical component manufacturing in parallel.

Based on the scale and success of the CORE program, we suggest that $150M annual investment be made for stimulating NJ industry for research, development, and manufacturing growth in the energy technology areas. This would be a 10-fold increase over what is proposed in the present EMP and would result in business development that would enable us to be suppliers of solar cells, inverters, power monitoring systems, biomass conversion, fuel cells, wind generators, carbon-sequestration processes, as well as expertise to that broad industry sector. The investment in our business base would create "green collar" jobs at all levels, from installers and energy efficiency consultants, to green building experts, to advanced technology developers working on future generations of advanced energy products.

The text of the *second* bullet point in Goal 5 speaks directly to the development of "Green Collar" jobs programs. This works in tandem with the large investment in "innovative clean

energy technologies". It is highly laudable that the EMP will draw on information apparently being gathered now by the NJ Department of Labor through an Industry Workforce Advisory Council (IWAC) representing the broad energy sector. The EMP strategy presently identifies three specific levels of green collar job training: energy auditors, energy system installers, and BS-level energy engineers. Unfortunately, this set of training goals is too narrow and tilted far too heavily to service sector jobs, whereas our economic future depends on NJ being a hub of activity in new technology development that leads to local design and manufacturing.

Very important jobs sectors have been inadvertently left out – areas where substantial economic benefit could be gained within the NJ region. All graduate (MS and PhD) level job categories have been missed. This graduate-level category is very important since many of the cutting-edge technologies still require substantial high-tech creative input to reach a point when manufacturing scale-up would be warranted. Critical developments are needed in photovoltaics, biofuels, catalysis, carbon sequestration, systems/network management algorithms, and many other areas. Research universities play a role in developing these technologies – and in the process they train graduate students who become leaders in these high-tech areas after they graduate. In many cases, these new graduates become the NJ brain-trust of creative talent who are starting new ventures in energy business and will ensure a long-term economic viability of our region.

This concern about graduate-level training in a number of fields also impacts the BS "energy engineer" topic that is already contained in the strategy document. It is likely that BS level graduates will be needed in a wider range of fields, not only those who would carry a title of "Energy Engineer". Chemists, chemical engineers, mechanical engineers, materials scientists, biochemists, agricultural engineers and numerous other fields can play very important roles in critical energy business sectors of importance to NJ. Therefore, we strongly urge that the strategy document be expanded to encompass a much broader range of jobs – and be ambitious about stimulating the R&D sector as well.

Presently the strategy document now recommends "that the IWAC focus on energy efficiency as the core for Green Jobs development in New Jersey." However, based on the discussion above, I hope that the final EMP will recommend that the IWAC provide input about energy-related jobs in <u>all fields</u> and look for ways to stimulate educational programs that strategically enhance areas where energy efficiency can be achieved as well as long-term economic strength can be maintained in key energy fields. In order to provide a trained, diverse, and energy-talented workforce in NJ and to attract new energy-related business to NJ then it is likely that education program investment should be substantially greater than presently envisioned.