JNT 000030

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of Docket No. 52-016

Calvert Cliffs-3 Nuclear Power Plant
Combined Construction and License Application

REBUTTAL TESTIMONY OF SCOTT SKLAR, PRESIDENT OF THE STELLA GROUP, LTD., ON CONTENTION 10

Q.1. Please state your name and describe your professional qualifications to give this testimony.

My name is Scott Sklar and I am The President of The Stella Group, Ltd. which is a strategic technology optimization and policy firm for clean distributed energy users and companies, with a focus on system standardization, modularity, and web-enabled diagnostics. My professional qualifications were submitted October 28, 2011 as JNT000002.

Q.2. What documents or information have you reviewed to prepare your testimony?

In addition to the documents reviewed in preparing my initial testimony, I have reviewed the testimony of NRC staff and Applicants filed October 21, 2011, and additional documents cited below and being submitted as exhibits with this rebuttal testimony.

Q.3. Do you agree with NRC staff and Applicants testimony that the EIS for the proposed Calvert Cliffs-3 nuclear power plant adequately considers the potential for solar power as a source for electricity in Maryland?

Emphatically not. As shown in my initial testimony, the EIS dramatically understates the potential for solar power in Maryland.

Globally, solar power is growing rapidly. Analysts at CleanTechnica, for example, state that new solar PV installations more than doubled from 2009-2010, from 7.1 GW of new solar PV in 2009 to 15.6 GW in 2010.[1] A similar growth rate is eminently feasible for Maryland.

As pointed out in my initial testimony, Maryland state law requires that 20% of the state's electrical generation come from renewables by 2022. At least 2%, or approximately 250 MW(e) of functional capacity, of that must be generated by solar power. This type of government incentive is key to solar development. As noted recently by Rhone Resch, President of the Solar Energy Industries Association,

"Germany, for example, has yearly sunlight similar to Anchorage, Alaska, but has more than ten times the installed solar PV capacity of the entire American desert southwest.

Why?

It is because Germany made the use of PV a top priority in its national energy policy years ago, giving generous government incentives for individuals and businesses to install and use their own systems. Since the United States federal government has

[1] JNT000026

yet to implement a comprehensive national policy that provides long-term market signals for solar and other renewables, as it did for oil, coal and gas this past century, the solar industry's growth today tends to concentrate in states whose legislatures have enacted policies and programs that attract solar investment….

For example, the Garden State, New Jersey, has less sunlight than other places in the United States (NM, AZ, CO), but it offers solar energy incentives for residential systems that can pay for themselves in as little as three years. As previously mentioned, the state is second only to California in the amount of solar installed."[2]

While Maryland could, should, and still may do more to encourage solar development, by adopting a Renewable Portfolio Standard with a clear minimum carve-out for solar generation, Maryland has taken the kind of step necessary to encourage speedy and large solar power development in the state. And Maryland certainly has greater solar potential, per acreage, than either Germany or New Jersey.

Q.3. Do you agree with NRC staff and Applicants testimony that the EIS for the proposed Calvert Cliffs-3 nuclear power plant adequately considers the potential for wind power as a source for electricity in Maryland?

Again, emphatically not. The projections in the EIS for anemic wind power growth in Maryland fly in the face of present-day reality. Wind is the fastest growing electricity source in the United States and is second only to natural gas in absolute growth in terms of megawattage installed.

[2] JNT000029

For example, according to the Rocky Mountain institute, the most well known analytical non-profit on energy efficiency, renewable energy and micropower, "In 2009, wind and other renewables accounted for 42.2 percent of all new U.S. generating capacity, while gas accounted for 43.3 percent and coal for only 12.6 percent. The U.S. installed 10 GW of windpower in 2009 alone—nearly twice the 6 GW of coal added during the entire decade of 2000–2009."[3]

The rapid growth of wind power is occurring for similar reasons as the rapid growth in solar power: it is cost-effective, reliable, and government policies, such as Maryland's Renewable Portfolio Standard (RPS), provide incentives for its deployment.

As documented in my original testimony of October 28, Maryland has substantial wind resources and there is serious interest in developing these resources. While other renewable resources, such as biomass electric (based on biodegradable wastes, only, not incineration) can and should play a part in meeting the requirements of the RPS, it is inconceivable that wind will not become the leading component of the RPS mix.

Q.3. Do you agree with NRC staff and Applicants testimony that the EIS for the proposed Calvert Cliffs-3 nuclear power plant indicates that solar and wind

[3] JNT000027. We note that new nuclear power plants have accounted for zero new capacity in the U.S. since 2000.

power cannot provide "baseload" power and thus cannot serve as effective alternatives to the proposed Calvert Cliffs-3 reactor?

No. As discussed in my original testimony, the notion that Calvert Cliffs-3 itself would be an effective "baseload" power plant for Maryland is questionable at best. While solar and wind power can be intermittent power sources, off-shore wind has an extremely high capacity factor of around 40% and solar electric production has a high-degree of generation--matching the midday electric load. Coupled with other renewables scarcely examined in the EIS, such as biopower including landfill gas, marine energy including tidal, wave, ocean currents and thermal, and of course, combined heat and power (using waste heat of off industrial processes to generate electricity), it is certainly possible for renewables to provide the functional equivalent of "baseload" power—a reliable supply of electricity.

In a March 2010 study, Dr. John Blackburn, Ph.D., Professor of Economics Emeritus, Duke University, used North Carolina (close to Maryland) daily and seasonal load data, adjusted for improvements in efficiency, and joining it to measured and estimated wind and solar data for North Carolina. As he notes, the partition of wind and solar, which together make up 76 percent of the annual generation in his model is not optimized; rather an initial assumption was made that wind and solar would contribute equal amounts. This report shows that with modest amounts of resources such as hydropower (both normal and pumped storage), some natural gas generation, and some purchased power, loads can be met even at times of low

renewable supply.[4]

I also point again to the paper "The Nuclear Illusion," by the Rocky Mountain Institute's Amory Lovins and Imran Sheikh, quoted by Joint Intervenors in their Rebuttal Statement of Position, which explains how "renewables' electrical supplies will be *more* reliable than current arrangements." (emphasis in original)[5]

Conclusion

Maryland has the rooftop and parking lot area to meet conservatively half of the output of a 1600 MW nuclear reactor with solar photovoltaics during the days on a fairly consistent basis. Wind, including onshore and offshore, can also meet conservatively half of a 1,600 MW output of the proposed Calvert Cliffs-3 reactor on a fairly consist3nt basis. The State of Maryland has ample biomass electric (based on biodegradable wastes, only, not incineration), water energy technologies, and waste heat to meet a 1,600 MW load 24 hours a day--and thus can "firm" the solar and wind output.

These technologies and applications can provide electric power at levelized costs, and except for solid resource biogas plants have no wastes, and those wastes are economic coproducts including animal feed, fertilizer, building materials and road-bedding.

[4] JNT000028
[5] JNT000018

The benefits of small, more agile, generation is being seriously endorsed in a third of the United States by the Public Utility Commissions, and we urge the NRC to take into account the changing marketplace, the advanced of commercial technologies in the renewable energy and high-value energy efficiency arena in their considerations.