

**NEW ERA ENERGY**  
P.O. Box 121 Lightfoot, Virginia 23090

13 July 2007  
Mr. David Eichenlaub  
State Corporation Commission  
P.O. Box 1197  
Richmond, Virginia 23218

Dear Mr. Eichenlaub:

ConsumerPowerline (CPLN) and New Era Energy, Inc. (NEE) appreciate the opportunity to provide our joint comments for State Corporation Commission (SCC) Case PUE-2007-00049. CPLN provides services to large property owners and managers to develop and implement integrated energy management strategies to reduce on-going energy costs, secure the highest incentives for energy management and to generate new sources of revenue from the energy markets. NEE is a licensed aggregator in Virginia and supports CPLN in the mid-Atlantic region.

CPLN, with 775 MW of client load under management, assists its clients in identifying opportunities for permanent efficiency improvements, peak load management and short-term demand response. A portion of these energy use changes may be permanent reductions in consumptions and some will represent shifting of load to off-peak times.

We believe the workgroup should begin with the end in mind. The workgroup should look beyond the precise words of the legislative tasking and consider the ultimate objectives of the legislation.

We do not see a reason for the government to attempt to influence consumption of a legal commodity, such as electricity, except for customer health or safety concerns. The act of consuming electricity does not, in itself, create any such health or safety impact. We believe that a goal to reduce consumers's consumption of electricity is more precisely intended to reduce the need to build new generation and transmission capacity. That, in turn, supports a broader goal of reducing environmental impacts and enhancing our energy independence

Electricity cannot be cost-effectively stored in large quantity. More specifically, it cannot be warehoused to meet critical peak loads. Generation and transmission capacity has to be built to supply peak loads that only occur a limited number of hours a year. Most commodity markets accept the notion that there will be occasional shortages during peak demand times and some people simply have to wait. Electricity is too vital to our life style and safety to accept the notion that as a commodity there will be occasional shortages. Brown-outs and black-outs are not acceptable as a matter of our life style and public safety. Therefore, the reliability of the electric power delivery to the consumers demands building capacity requisite to assure an acceptable, very minimal risk of shortage. The short-term peak electricity demand drives the amount of capacity that is required and thus the generation and transmission that must be built to meet it.

The legislation specifically includes reference to demand side management, load management and real-time pricing. While these may lead to permanent consumption reduction, they are primarily associated with shifting of demand to off-peak times. The legislation, literally interpreted, appears to eliminate these programs with respect to the strategic goal of reducing consumption. They do, however, reduce the need for construction of new generation and transmission capacity. As such, demand side management, load management and real-time pricing clearly are relevant to the broader goal and strategic intent of the legislation. We believe the report that the SCC submits to the Governor should address all the programs listed in the legislation if they reduce the need for new capacity, regardless of whether they reduce consumption.

If the goal were to be restated as "to reduce the need for new generation and transmission capacity in an amount equal to 10% of 2006 capacity," then load shifting from peak to off peak time can accomplish a significant portion of this goal, if not all of it.

In a presentation to the PJM Demand Side Response Working Group on 12 July, 2007, Synapse Energy Economics Incorporated indicated that New York plans to reduce load by 15 percent by 2015 and Pennsylvania plans to reduce load by 20% by 2020. Their plans call for the use of distributed resources that include demand side management, load management, demand response and distributed generation. Clearly, these states consider load shifting an integral element of their plans to meet their stated load reductions.

On the question regarding whether a ten percent reduction in consumption can be cost-effectively achieved by 2022, CPLN and NEE believe that this goal can be achieved. Incorporating distributed resources that would reduce the need for new capacity by ten percent (of the capacity existing in 2006) would be a very conservative, reasonable expectation. As such, all means available to achieve this electric power capacity reduction should be considered, whether the specific program operates to reduce end user consumption or not.

The Annual Energy Outlook 2007, published by the Department of Energy (DOE), forecasts that electricity consumption will grow by 1.3% per year for residential and 2.0% per year for commercial over the next 25 years. Assuming residential use is at about half of total consumption, then the total consumption would increase by approximately 30% by 2022. Assuming that the 30% growth will occur without the benefit of the programs envisioned by this legislation, the megawatts of electricity consumption reduction that would be needed to meet the goals of this legislation, 10% of the 2006 total, would only be a reduction of 7.7% of the new 2022 level.

Regarding the mix of programs, we believe it would be appropriate to separate the programs into at least four categories. The first would be consumption reduction by the use of more efficient equipment (lighting, HVAC, motors, refrigeration, etc.) or building envelopes. The second would be consumption reduction resulting from manual or automated user operating changes in response to signals and/or price. The third would be manual or automated consumption shifting in response to signals and/or price. The

fourth is consumption shifting to otherwise idle distributed generation, such as the short-term use of back-up emergency generators to reduce a facility's need for power from the grid. These four categories will be discussed in more detail below.

### **1. More efficient appliances and better building processes will achieve significant reductions in the consumption of electricity.**

As part of CPLN services, we help our clients find opportunities to reduce consumption by operating decisions and improving infrastructure. Our clients are primarily large office and apartment buildings, large retail facilities, hotels and universities. Customer education efforts alerting users of the significant benefits that are available to them from attention to this area would likely increase the number of users availing themselves of these services from CPLN or other companies providing similar services.

The DOE Annual Energy Outlook 2007 indicates that residential per household and per capita energy consumption has fallen over time and is expected to continue to do so. This reduction results from the routine replacement of aging appliances and the fact that newer equipments being sold are more efficient. In addition, new home and building construction is using more efficient appliances, windows, construction products and building techniques. The Federal Zero Energy Homes and ENERGY STAR Homes programs promote these improvements. Federal and State governments have established policies for their buildings to improve their energy efficiency. Facilities owners are placing more emphasis on energy efficiency as design parameters. Local building codes have added to the energy consumption reductions. The Annual Energy Outlook 2007 states, "In the best available technology case, use of the most efficient building envelope components available can reduce heating requirements in the average home by nearly 30 percent." Heating and cooling can represent up to 50% of the total energy demand of a home, so more efficient envelopes alone can have a substantial effect. Hot water heaters consume another approximately 25% of the typical residential electricity use. There has been continual improvement in the energy efficiency of these devices. Action to reduce electricity consumption by homes should focus on ways to improve the efficiency of heating and cooling, hot water heaters and clothes dryers. Supplementing federal actions, the most effective action the state can do is to influence building codes and to encourage consumers to select more efficient options. Consumer education is an important element. Other cash or tax incentives could be effective, such as incentives for the transition to more efficient lighting.

### **2. Consumption reduction from signal and/or price**

Consumers are generally aware that they can be more efficient in their use of electricity, such as by turning off lights when leaving a room. They are generally not aware of the time value of electricity. Where time-of-use rates are used, they are generally for such long periods of time that it becomes relatively inconvenient to pay attention to the time and its impact on their price at that hour. But there are consumers who are willing to adjust their use of electricity at peak times simply because they know it is good for everyone, regardless of being compensated for it. During the recent period of

competitive supply in Virginia, there were consumers that purchased more expensive “green power” for the same reason. CPLN has offered a Home Joule device that provides consumers with a visual signal, via pager network, when there is peaking demand in their location. This facilitates their taking action to reduce unnecessary electricity use. Much of this reduction is permanent, not a shift to later times. The key to expanding programs of this kind is customer education with respect to the options available and why they are important to all of us.

There are many thousands of commercial and residential users in Virginia on Time-Of-Use (TOU) and demand based rate structures that are using automated demand controllers that manage the operation of heating and cooling, hot water heaters, clothes dryers, pool heaters and pumps and hot tubs. These demand controllers operate in the background to reduce the operation of these equipments. The business owner or homeowner is generally not aware that their electrical consumption is being reduced. Some portion of this reduction during peak time is a permanent reduction and some portion is shifting.

### **3. Consumption shifting from signal and/or price**

There is very large untapped potential for demand shifting from demand response action by customers that would defer electricity usage in response to an external pricing signal, automated or otherwise. There have been a large number of pilot programs around the country that have all confirmed that customers want more control over their electricity cost and that they are willing to make adjustments in their usage to save money. A very recent study by Lawrence Berkeley National Laboratory confirmed this and has resulted in a major automated demand response program (Auto DR) being rolled out throughout California. This program will integrate with the simultaneous deployment of Advanced Metering Infrastructure (AMI) to all customers, including residential. Pennsylvania is also deploying advanced meters. PJM is developing a model for utilities incorporating Meter Data Management and AMI. We recommend that the SCC consider the implementation of this technology to Virginia, especially Northern Virginia.

The challenge in designing a demand response program that will meet the objectives of residential and small to medium size business customers involves a number of key factors:

- a. Most customers will want life style change, discomfort or inconvenience to be minimal.
- b. Peak times need to be moderate in length, the shorter the better.
- c. The process needs to be as automated as possible. Customers do not want to have to be involved in any hour-to-hour process.
- d. The level of savings from participation has to be adequate relative to the impact of using the program.
- e. The savings to the user needs to reasonably correlate with the utility’s valuation of the demand reduction achieved.
- f. Customer education is required to overcome the fact that medium size commercial and residential customers are unaware of the time value of

electricity. We believe that the percentage of Dominion customers that even know that there is a Schedule 1S or GS-2T rate available, let alone what it means to use it, is a fraction of one percent.

- g. Smaller customers are not aware that their consumption of electricity is primarily for a few 220v loads in their home or business (and lighting for business). They will need education or technical support to understand how to participate most effectively.

There are thousands of Virginia residential customers of Dominion that are using an energy management systems today that meet all of the above criteria, using Dominion Virginia Power's Schedule 1S demand based TOU rate. These currently operate based upon on-peak times established in the rate with on-peak times that we believe are longer than necessary. For residential, these are over 2,200 hours a year and for commercial, they vary from about 50% to 100% of the year. Technology now exists to affordably deploy these devices and provide real-time signals only when there is a shortage in the wholesale distribution in that region. For larger consumers, numerous communications options are available to advise them on a real-time basis that curtailment is needed. CPLN and other Curtailment Service Providers (CSPs) have demonstrated conclusively in New England, New York and California that significant demand reductions are feasible. The programs being deployed in those areas would be just as effective in Virginia. These programs could substantially mitigate, at least temporarily deferring, the projected transmission constraints in Northern Virginia.

The restructuring of the wholesale electricity markets has resulted in Independent System Operators (ISOs) developing programs to provide demand response of essentially equivalent value to generation in meeting reliability requirements. In 2005, Congress established, for the first time, that demand response was a national policy. Subsequent events have reinforced this policy and the Federal Energy Regulatory Agency (FERC) has been working with ISOs to encourage adoption of DR programs. From capacity programs, day-ahead programs and day-of programs, CSPs are rapidly growing the megawatts (MW) of load available to the ISO for reduction when needed. The available MWs have doubled in the PJM area in the last year, which we believe only scratches the surface of what is feasible. We anticipate that the PJM Demand Side Response Working Group will develop programs that will ultimately be approved for use throughout the PJM region. With marketing by utilities and CSPs, these will dramatically expand the MWs available from demand response to meet system needs. The CSPs that are operating in this market elsewhere in the country can assist the SCC in quantifying the magnitude of the potential demand reductions that are achievable.

#### **4. Distributed Generation**

The lowest hanging fruit in avoiding the need for new generation and transmission to meet short-term peaks on the grid in a region is to call upon otherwise idle back-up emergency generators.

Although this represents substitute supply, rather than consumption reduction or shifting, it reduces the need for both new generation and transmission because generation is at the point of use. Although consideration needs to be given to the environmental impact of the individual generator, limits can be placed on the hours it can operate or it can be modified, if necessary, to reduce its air quality impact. For users with existing back-up generator installations that are capable of supporting critical peak time demand response, there is minimal cost to participate. The original purchase decision for the generator was based on the need for an emergency power source in the event of power failure. The cost of the generator is sunk cost. The marginal cost to the customer to participate in demand response using their generator may be the least expensive new source of supplemental power available. The ability of the customer to bid their generation capacity into Capacity Markets partially offsets their investment cost for the emergency generator. This could increase the business case for the purchase of emergency generators in the future, further increasing their availability for emergencies. The potential exists for aggregation of larger small business and residential emergency generators, especially those powered by natural gas. This would be a valuable approach, even if this use of emergency generators was considered a stop-gap approach where needed for reliability, while waiting to bring other new generation or transmission on line.

### **Planning for Implementation**

We believe that the plan for development of implementation should include programs in all the segments discussed above. Priority should be given to those programs that have the highest impact on reducing peak demand and at the lowest cost. Customer education programs should be implemented to reinforce existing federal and state energy efficiency programs and PJM demand response programs.

We recommend that the major Virginia utilities jointly develop a residential and small commercial rate to provide a real-time capability. We recommend a three-tier structure, off-peak, on-peak and critical-peak. The on-peak TOU should be limited, such as 1000 hours or less. The critical-peak hours should be limited to periods of high wholesale spot prices in the customer's zone (such as 200 hours or less a year) and would be signaled on a real-time basis. This could be replacement for Schedule 1S and GS-2T for Dominion. A common structure for such a rate creates a critical mass that facilitates manufacturers of enabling technology to develop an affordable product that would help these customers take best advantage of such a rate.

PJM is expected to approve a demand response program for deployment later this year that will be applicable throughout Virginia. There are numerous companies, such as CPLN and NEE, that will be marketing to customers under this program. The primary obstacle to rapid growth in the level of demand available to offset critical peak demand is lack of customer awareness of the program and how to take advantage of them. We believe that the SCC should implement a Customer Education Program (CEP) to inform Virginia customers about this PJM program. We will address the CEP in more detail later. In the current deployment of demand response in California, the utilities offer a Technical Assistance/ Technical Incentives Program. The Technical Assistance Program

provides a cash incentive to subsidize the cost of the analysis to determine what needs to be done by the customer to achieve demand reduction. The Technical Incentive Program provides a cash incentive to subsidize the purchase and installation of enabling technology. A program of this kind should be adopted for Virginia in order to encourage customers to participate in the PJM Program. As is the case in California, Curtailment Service Providers (demand response aggregators) and utilities would both market this program directly to customers.

A controversial issue in the development of demand response markets is the value to the utility of a kW of demand response. This is an on-going debate throughout the country, regardless of how far along they are in deployment. This is a significant issue in the deliberations of the PJM Demand Side Response Working Group. We believe that the SCC or the Attorney General should be taking an active part in those proceedings as the consumer's representative.

We recommend that the SCC establish a Consumer Education Program (CEP), similar to that started for the initial market restructuring. Most of the information is common across all utilities. A combination of on-line education, literature and media releases should be included. Information should be provided on how to contact CSPs. Individual utilities should supplement that with their own on-line education, providing utility unique content, and including links to the SCC site. Customers should be able to request printed literature. Quarterly meetings should be held in different parts of the state, sponsored by the SCC, for utilities and CSPs to present their programs. These programs should also be conducted at major trade shows that attract the appropriate customer class. This needs to continue for many years to overcome the existing customer ignorance.

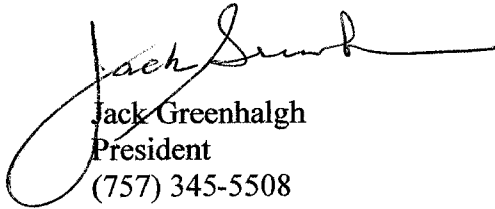
Consideration should be given to developing a simple self-audit that medium to small customers could use to assess the energy efficiency of their home or business. It should explain the difference between energy and demand. It can provide some rules of thumb about typical levels of consumption and demand. It can include suggestions on how to save money. For example, most smaller business users do not understand the implication when they are using demand-based rates and they open for business on a winter morning and turn on all the heating to warm the building. By doing this slightly earlier in off-peak time can make a huge difference in their electricity cost.

The rules for cost recovery in the existing legislation prevent the Virginia utilities from recovering their cost for planning and deploying these programs in 2008. The urgency for these programs is great. There should be no disincentive for utilities to work aggressively on their implementation. We urge the SCC to include in their recommendations for legislation a provision for the utilities to be allowed to recover their cost for planning and implementing approved programs, effective 1 January 2008. The costs could be rolled forward with interest until they can be incorporated in their future rates. The utilities should submit their proposed programs, with budgets, to the SCC for review and approval.

In summary, the benefits of reduced consumption and reduced peak demand are substantial. We believe that achieving the goal specified in the legislation is achievable and can be accomplished cost-effectively. The value of this will accrue to all customers in reduced expansion of capacity, which provides environmental benefits, and in increased reliability. Therefore, we believe that the cost of the Technical Assistance and Technical Incentives Program and the Consumer Education Program that we have recommended are appropriately recovered by the use of a Public Benefits Fund.

We appreciate the opportunity to share our views on this critical topic and we look forward to working closely with the SCC during the workgroup process. We can provide more detail at that time on the specific programs that we are delivering in other states and the results we are achieving for the customer and for the applicable utility.

Sincerely,



Jack Greenhalgh  
President  
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