STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

In the Matter of the System Benefits Charge III. Case 05-M-0090

Cornell University is pleased to have the opportunity to comment on New York State's Systems Benefit Charge. We are a large institution with over 10,000 employees and 20,000 students in Ithaca with operations throughout New York State. Almost every activity we are engaged in is subjected to intense competition from outside New York and, in some cases, outside the U.S. Our facilities, our staff, and our students and other constituents are reliant on energy to achieve their goals in their respective fields.

The System Benefits Charge has proved to be an innovative and highly effective mechanism to spur technological improvements in energy generation, efficiency, and conservation and to encourage adoption of proven methods to improve the efficiency and reliability of energy and energy services to the end users. It is the new ideas and the improvements to existing knowledge from System Benefits Charge programs that we benefit from the most because our competition is constantly developing new services and new ideas in the realm of energy usage, distribution, and generation. The current price of a unit of energy is one of the last considerations that the System Benefits Charge should address. The larger the institution the more competitive their environment and the more they are concerned about the future energy supply and mix of sources and the impacts of that energy used on the quality of life of our employees and customers across the state.

The State of New York and the people and organizations here are benefiting from the improvements made in procuring energy and energy services as a result of the SBC, and these benefits will continue to accrue for many years in most cases. The SBC programs have been very successful and can be made more so by directing additional expertise and resources to other areas where the State and its constituents are in long-term competition with others. By continuing to improve our energy future we will make New York a stronger competitor and enhance our economic base and quality of life.

Our responses to the questions asked are below and limited (#1, 2, 3, 4, 5, and 12) to topics we are familiar with, but we are enthusiastic about the current SBC and urge you to expand the program as explained below.

1) The Commission should be very proud of the accomplishments to date. The design of the current SBC has resulted in private investments in energy efficiency

that would not have existed otherwise. And the benefits from these public and private investments are real. At Cornell we have used the SBC programs to make improvements in energy use in over 1 million square feet of building space and 2 million square feet of lighting space with the potential annual savings in the 8 million kWh range. This year we have begun building studies of an additional 1.2 million square feet of building space. All of these improvements come after a decade at Cornell when we reduced energy use campuswide by 9% per square foot by applying direct digital controls, expanding the use of electronic ballasts and variable speed drives for air and hydronic systems, and investing in a large scaled chilled water generation system (Lake Source Cooling). We are not done improving the campus and the environment outside the campus. We plan to reduce energy use in our existing buildings by 20% and our new and planned facilities (400,000 square feet) will be the target of demand based clean room filtration, laboratory variable volume ventilation, laboratory and general space demand controlled ventilation, and high-performance HVAC systems.

These investments are just illustrations of the much greater impacts the SBC is having in New York. These SBC funds are leveraging other public and private investments to reduce overall economic and environmental costs in the short and long term. The reduction of environmental impacts is especially important to institutions such as ours where we have large constituencies demanding that we be at the forefront of environmental stewardship and energy awareness. The real reductions in emissions are the most significant benefits from these SBC programs and the prime beneficiaries are all the inhabitants of our region, though we happily take credit for these results.

The economic effects of the SBC are also compelling. We have more people employed in the energy services field at Cornell and in NYS as a result of the SBC – and to the extent that there is a transfer of investment from energy to energy services we are all better off. The bulk of expenditures for energy rapidly leave the state and the nation and, therefore, have a low multiplier effect on our economy. Expenditures for energy conservation and efficiency are predominantly for domestic services and equipment. When these services and devices are used elsewhere and proven effective, we benefit from a growing industry in these technical areas. And New York gains a growing set of innovating companies supplying this expertise and, hopefully, is known as a location to establish clean energy resources and energy service firms.

1) The System Benefits Charge should be continued for at least another ten years because it is in this time frame where many large energy-related investments are considered. Large organizations that plan ahead are looking to make investments 5-10 years hence. The experience that New York had with the federal Petroleum Overcharge Recovery funds in the late 1980s and early 1990s indicates that making successful medium and long-term investments requires medium and long-term funding to ensure that improvements are completed and maintained and that

all programs are evaluated so that the highest and best uses can be taken full advantage of.

The annual funding levels for the SBC should be related to the future price of energy in New York. As the futures on energy rise the state should increase its commitment (and investment) accordingly to avoid these anticipated increased costs/prices. The current level of annual funding has been an excellent investment and should be increased substantially if only to react rationally to the recent increases in energy prices.

2) Many changes have taken place in the energy world as a result of changes in the real world, as well as in the world of science.

   Without recounting these changes, suffice it to say that there is increased interest from every quarter to increase our domestic supply of environmentally acceptable energy for economic, political, and even security-related reasons. The blackouts, terrorism, and foreign instability, as well as the continuing demand for more energy all increase risks to our existing energy infrastructure and system, and hence, to our economy. The SBC is clearly more valuable now than it was when first implemented.

3) The current System Benefits Charge program priorities appear to be sensible and we will suggest expanding into more research later in these comments.

4) The Commission's order establishing the Renewable Portfolio Standard is a logical development given long-term and short-term trends. The System Benefits Charge, along with other initiatives, should be directed to contribute to the RPS goals. This would require an enhancement of duties and expansion in capacity. Just as the state designated a new Center for Advanced Technology in Future Energy Systems and Advanced Lighting last year (a research center based at RPI with Cornell involvement) in part because of the RPS and the direction of state policy, the SBC should be expanded to support these goals. In the next response we describe the issues we recommend be addressed and a mechanism to do this.

12) The System Benefits Charge is a highly effective means of inducing prudent investments in energy systems and services and disseminating valuable information about cost-effective and desirable actions others can and should take. Over the last several years important developments have made it imperative that we direct expertise and resources to fix what we now know is broken. Cornell faculty are currently working on electric market competitiveness issues and the economics and engineering of transmission and distribution of energy resources in our Power Systems Engineering Research Center funded by the National Science Foundation, universities, and industry. We believe the SBC should be expanded to establish a $5 million annual research center administered jointly by NYSERDA and Cornell to address these issues as they relate specifically to New York.

Deregulated electricity supply, transacted through markets, is under attack in the U.S. from every perspective: too much greed, violations of states' rights, blackouts and environmental degradation. New York State has the most advanced electricity market in the nation, that is soon to be coupled with the state's renewable portfolio standards, while the current design and operation of this market and the reliable delivery of market-based electricity through the transmission grid are together still in their adolescence. And because electricity is like no other commodity ever traded - it can't be inventoried; its transport obeys the laws of physics, not of commerce; and when supply doesn't precisely match demand in real time, the system collapses - lessons learned in other successful exchanges for different commodities frequently cannot be applied. The world's financial capital (and innovation capital, as well) deserves equally solid and redundant physical support systems, and the electricity system combines that neural and cardiovascular support.

Yet if NYS is to rely on the market-based evolution of new sources of electricity supply, including renewables whose optimal location is frequently far from their users, and of evermore- efficient end-use equipment acquired by informed buyers, the incentives derived from market-priced electricity must be improved. And those supplies must be delivered over an adequate, commercially-viable, environmentally acceptable transmission system. An efficient market and adequate transmission grid are the essential prerequisites for the future evolution of electricity supply, but we have a long way to go. If we are to unlock the research and development potential of new supply and user technologies, we must first unlock through further research and experimentation the bottlenecks in the coordinating market and transmission systems (electricity's interstate highway system, but with an efficient dispatcher). And to avoid the inordinate cost of "experiments of the whole", like those inflicted earlier on California, researchers at Cornell have established an experimental platform to test how humans (buyer, sellers and operators) react to different market structures and operating practices where the transactions are governed by a numerically-simulated, complex power network that is subject to the laws of physics. This is a low cost way to improve the neural network of New York's electricity supply system, and to test the effectiveness of alternative measures to improve its environmental condition. It is at the core of sustaining innovation in New York's financial and population center. In addition to protecting us it could markedly improve our competitive position vis-à-vis our competitors for quality of life, environmental quality, energy independence, standard of living, security, etc..

We urge you to continue this highly successful and forward looking set of programs and ask that you consider increasing the size and scope of the System Benefits Charge with, among other things, a research center devoted to New York State's electricity markets and systems.

Respectfully Submitted,

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