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To: DSR Working Group Participants

Re: Demand Response Programs

Fr: Chris King, Advisory Board Member, American Energy Institute

I write on behalf of the American Energy Institute, a non-partisan, non-profit public interest organization dedicated to educating consumers and policymakers about energy efficiency technologies.

In responding to the request for comments on DRP for Pennsylvania, our overriding comment is to urge the Working Group to take advantage of the extensive research on demand-side programs carried out by utilities and research institutes such as the Electric Power Research Institute over the past two decades. The AEI is developing a bibliography that will be posted on its website (www.americanenergyinstitute.org) later this month..

This research suggests several promising opportunities among the programs listed by Staff:

- A recent study by the Pace Law School Energy Project found that the value of load reductions generally exceed the market price of electricity at the time of reduction. This is because the reductions result in a lowering of wholesale prices to all customers. The study found summer 2000 savings of 24 cents per kWh during peak hours.¹
- Generally, small commercial establishments are not very responsive to time-of-use pricing. However, for some subgroups (such as those with neither electric heating nor air conditioning), significant responsiveness occurs given a sufficiently short peak period and a sufficiently large peak/off-peak price differential.²

¹ - *Mid-Atlantic States Cost Curve Analysis*, Marcus, William B. and Greg Ruzsovan. Pace Law School Energy Project. December 2000.

² - *Time-of-Use Prices and Electricity Demand: Allowing for Selection Bias in Experimental Data*. Ham, John C. and Dean C. Mountain, and M.W. Luke Chan. Rand Journal of Economics. 28.0 (1997): S113-S141.

- Pacific Gas & Electric Company has had a highly successful residential time-of-use program going back nearly 20 years. Over 100,000 customers participate voluntarily and have reduced on-peak usage – peak is noon to six p.m. weekdays – by an average of 20 percent.³
- Over 300,000 residential customers are being served on a time-of-use rate program in Washington state by Puget Sound Energy as of May 1, 2001, seen by the Washington Utilities and Telecommunications Commission as a key component of solving the energy crisis precipitated by California.⁴
- American Electric Power recorded load reductions approaching 50% during critical peak hours for customers on “dispatchable” time-of-use pricing combined with communicating thermostats. This pricing included three time-of-use periods each day plus a critical peak price dispatched only a few days when reserve margins dropped below a critical threshold. This rate design appears very effective and appropriate as a variant of real-time pricing for residential and small commercial customers.
- The San Francisco Bay Area Economic Council documented results from various utilities and research that showed that smaller customers have greater price elasticity; *i.e.*, their response to real-time and time-of-use prices is greater than the response of large commercial and industrial customers.⁵ This has to be weighed against the added cost of demand-side equipment, relative to the customer’s load, including time-of-use or real-time metering, communicating thermostats, and other devices.
- A Lawrence Berkeley National Laboratory study found the number and variety of real-time demand-side management technologies (those involving communications) is substantial and continues to increase rapidly.⁶

As the Working Group considers options for Pennsylvania, these and other implemented and pilot programs can provide valuable guidance, avoid the need for yet further test and pilot programs, and speed the implementation of programs for the summer of 2002.

We appreciate the opportunity to comment and look forward to further participation in this valuable effort.

³ - *Load Shifting Under Voluntary Residential Time-of-Use Rates*. Caves, Douglas W., Joseph A. Herriges, and Kathleen A. Kuester. Energy Journal 10.4. International Association for Energy Economics, 1989.

⁴ - *UTC Approves Time-of-Use Rates for Some of Puget Sound Energy’s Residential Customers*, Washington Utilities and Telecommunications Commission Press Release. 27 April 2001.

⁵ - Appendix B5, *The Bay Area – A Knowledge Economy Needs Power, A Report on California’s Energy Crisis and Its Impact on the Bay Area Economy*. April 2001.

⁶ - *Impact of Information and Communications Technologies on Residential Customer Energy Services*, Charles Goldman *et al.*, Lawrence Berkeley National Laboratory. LBNL-39015. January 1997.