IMPLICATIONS OF THE ENERGY ACT OF 1992 FOR UTILITY DEMAND-SIDE MANAGEMENT EFFORTS

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Paper prepared for the 6th National DSM Conference, Miami, March 1993

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ABSTRACT

The Energy Policy Act of 1992 was passed by the Congress and signed into law in October, 1992. The purpose of this paper is to briefly describe the energy efficiency provisions in the Act that are most relevant to electric utility DSM efforts, estimate the electricity savings that could result, and discuss how utilities, regulators, and DSM advocates should respond. We estimate that the Act could reduce national electricity demand by 107 billion kWh per year (3.3 percent) by 2000 and 274 billion kWh per year (6.9 percent) by 2010. Utilities and the DSM community should get involved in implementing the Act, adjust their DSM programs where appropriate, and take the Act into account when forecasting energy demand.

INTRODUCTION

Comprehensive national energy legislation known as the Energy Policy Act of 1992 was passed by the Congress and signed into law in October, 1992. The Act contains approximately 30 provisions, some major and some minor, designed to increase the efficiency of America's utilities, buildings, equipment, and factories. Implementation of the Act will affect utilities, regulators, and many of the technologies that utilities are promoting as part of their demand-side management (DSM) programs. The purpose of this paper is to briefly describe the energy efficiency provisions that are most relevant to electric utility DSM efforts, estimate the electricity savings that could result, and discuss how utilities, regulators and DSM advocates should respond.

DESCRIPTION OF ENERGY EFFICIENCY PROVISIONS

Electric Utility Regulatory Reform

The Act amends the PURPA legislation and require states to at least consider adopting integrated resource planning and regulatory changes that would make investments in both power supply efficiency and end-use efficiency at least as profitable as investments in new power plants. The Act also authorizes DOE to provide grants to states for conducting rulemakings on these issues. States that have already adopted IRP and financial incentives along these lines do not have to hold new rulemakings. These provisions should result in some states reforming their regulations sooner than they otherwise would, which in turn should result in both more aggressive DSM programs and efficiency improvements in power supply. However, the Act only requires consideration of these objectives -- states or PUCs can reject regulatory reform and maintain the status quo if they desire.

Least-Cost Planning at TVA and WAPA

The Act requires TVA to perform least-cost integrated resource planning and implement programs to acquire cost-effective energy efficiency resources through its electricity distributors. Since TVA has largely abandoned its energy efficiency programs in recent years, this provision should have a significant impact if it is carried out in good faith.

The Act also contains provisions that require and support least-cost integrated resource planning by the customers of the Western Area Power Administration (WAPA). Customers that fail to comply can be assessed a surcharge by WAPA or have their power allocation cut.

Equipment Efficiency Standards

The Act contains new minimum efficiency standards on certain types of lamps, motors, commercial heating and air conditioning equipment, and plumbing fixtures (showerheads, faucets, and toilets). These standards were agreed to by conservation

advocates and equipment manufacturers; they are described and analyzed elsewhere (Geller and Nadel, 1992). In addition, DOE is directed to set standards on other types of lamps, small motors, and utility distribution transformers if such standards will result in significant energy savings and are found to be technically and economically feasible.

Testing and Ratings for Office Equipment, Luminaires and Windows

The Act calls for the development of test procedures and efficiency ratings for office equipment (i.e., personal computers, printers, copiers, etc.), luminaires (i.e., fluorescent light fixtures), and windows. Providing efficiency ratings will help purchasers who are interested in conserving energy. It also will enable utilities and others to promote the manufacture and purchase of energy-efficient equipment.

Building Energy Efficiency Standards

The Act requires DOE to establish initial federal building energy standards that meet or exceed the CABO Model Energy Code for residential buildings and the ASHRAE 90.1 standard for commercial buildings. New federally-owned buildings would then have to meet the federal building standards as would new public housing and new homes financed through FHA, VA, and FmHA loans. DOE is instructed to promote the adoption of the federal building energy standard at the state and local levels and provide grants to states for upgrading and implementing building energy codes. The Act also requires that states adopt standards within two years that meet or exceed the ASHRAE 90.1 standard for commercial buildings. If the ASHRAE 90.1 standard is revised in a way that improves energy efficiency, states again must meet or exceed the revised standard. States are encouraged but not required to meet or exceed the CABO Model Energy Code for residential buildings.

Regional Lighting and Building Centers

DOE is directed to demonstrate and promote energy-efficient lighting and building technologies by providing matching funds

for ten regional centers throughout the country. The lighting and building centers could facilitate the implementation of more stringent building codes, labeling and education programs, and utility demand-side management programs.

Industrial Energy Efficiency Programs

The Act authorizes grants to states for information, training, and assistance programs related to promoting energy efficiency in the industrial sector. Such efforts are to be conducted in conjunction with utility conservation programs. In order to be eligible for a grant, a state must encourage its utilities to provide process-oriented energy efficiency assessments and financial incentives for energy efficiency improvements by industries.

The Act also authorizes grants for industry associations for programs to promote energy efficiency improvements by industries. In order to be eligible for a grant, an industry association must establish voluntary energy efficiency improvement targets for its members.

Federal Energy Management

The subtitle on Federal energy management contains a wide range of provisions intended to stimulate the implementation of cost-effective energy conservation measures in federal buildings. It requires agencies to itemize their energy costs and conservation investments in their annual budgets, authorizes $60 million for an energy efficiency fund, allows agencies to retain 50 percent of energy cost savings they achieve, creates financial incentives for facility energy managers who do an outstanding job, establishes a demonstration program for new energy-conserving technologies, encourages Federal procurement of energy-efficient products, and authorizes performance contracting and participation in utility rebate programs.

Tax Treatment of Utility Rebates

The Act excludes from taxable income a large portion of the

rebates that utilities provide to consumers to promote the adoption of energy efficiency measures. The Act makes 100 percent of rebates non-taxable for residential consumers starting in 1993. For commercial and industrial consumers, 40 percent of the value of rebates is excluded from taxable income starting in 1995, 50 percent is excluded in 1996, and 65 percent is excluded after 1996. Unless further changes are made, a portion of rebates paid to commercial and industrial customers is supposed to be reported to the IRS as taxable income.

Energy Efficiency R,D&D

The Act authorizes approximately $850 million for energy efficiency and renewable energy research, development, and demonstration (R,D&D) during fiscal year 1994, about a 48 percent increase compared to funding in 1993. Energy efficiency and renewable energy programs are combined in a number of areas, and some specific new program initiatives are called for. One such program is an effort to increase the efficiency of electric drive systems. If this R,D&D authorization is supported by the Appropriations Committees, it should accelerate the development and promotion of new energy efficiency technologies.

Other Provisions

Other provisions in the legislation -- including national least-cost energy planning requirements and promotion of home energy ratings -- could indirectly affect utility DSM efforts.

ENERGY SAVINGS ESTIMATES

ACEEE along with the Alliance to Save Energy has estimated the energy savings that could result from the various energy efficiency provisions in the Act (Geller, Nadel, and Hopkins, 1992). Our estimates pertain to the incremental impacts; i.e., they are adjusted to exclude savings from efficiency improvements that are expected to occur without the national legislation (due to market forces, state or utility initiatives, etc.). For example, it is assumed that 30 percent of large motors are energy efficient in the absence of national efficiency standards; thus

standards only result in energy savings in the remaining 70 percent of the market.

It should be realized that some of our savings estimates are educated guesses due to the difficulty in projecting savings from encouraging regulatory reform, research and development, adopting voluntary guidelines, providing technical assistance and training, and the like. In these cases, we made conservative assumptions regarding response and savings (see Geller, Nadel, and Hopkins, 1992 for details). Also, in some cases, interactions between different policy proposals were not explicitly taken into account. For these reasons, the savings estimates should be viewed as approximate.

We estimate that all of the energy efficiency provisions in the Act combined could reduce total primary energy use in the United States by about 2.0 Quads (quadrillion Btus) per year in 2000 and 5.6 Quads per year by 2010, compared to 85 Quads of energy consumption in 1991. The savings are weighted towards electricity since the legislation contains very few provisions pertaining to the transport sector.

The major energy efficiency provisions could save around 107 billion kWh per year by 2000 and 274 billion kWh per year by 2010 (see Table 1). The equipment efficiency standards should save the most electricity, accounting for 43 percent of the total electricity savings in 2000 and 29 percent of the electricity savings in 2010. The commercial building standards and electric utility regulatory reform provisions also should contribute a substantial amount of electricity savings according to our analysis.

Based on DOE's most recent projections of growth in electricity demand (EIA, 1992), the efficiency provisions would reduce projected national electricity consumption by 3.3 percent in 2000 and 6.9 percent in 2010. The savings by 2010 are equivalent to the electricity typically supplied from approximately 104 large (500 MW) coal-fired power plants. DOE's forecast and data base also show national electricity consumption growing from 2,759 billion kWh in 1991 to 3,996 billion kWh in 2010; thus the

efficiency provisions could eliminate about 22 percent of projected load growth nationwide over the next 18 years.

IMPLICATIONS FOR DSM EFFORTS

The energy efficiency provisions in the 1992 Act will affect utilities, regulators, and DSM professionals in a number of ways. First, the DSM community can play a critical role in implementation. The legislation only goes so far in mandating efficiency improvements. In the case of IRP and financial incentives for utilities, the legislation only requires consideration of these goals and offers co-funding for regulatory proceedings. As always, energy efficiency advocates will need to argue for reforms on a state-by-state basis.

Utilities and energy efficiency advocates also can support strong building codes and equipment efficiency standards as these portions of the Act are implemented. Unfortunately, utilities have played a rather limited role in advocating strong yet cost effective federal standards on residential appliances and other types of mass-produced equipment. Utilities should consider taking a more active position either on their own or through their associations given the energy savings potential and the fact that the savings are "free" to utilities.

Second, funding will be required to implement the Act. Utilities, states, and regulators could help to advocate full funding for the efficiency provisions. Full funding implies a significant increase in DOE's energy efficiency budget -- at least a doubling in DOE's IRP program, for example. Such increases could be offset if needed by a small reduction in DOE's nuclear and fossil fuels programs.

Third, utility DSM programs should be adjusted as the Act is implemented. For example, certain energy-efficient products such as energy-saving lamps, energy-efficient motors, and low-flow faucets and showerheads will become the norm once the new equipment standards take effect. Utilities should then remove these products from their incentive programs, or at least ensure that the products they are promoting are significantly more

efficient than the minimum standards. Likewise, many states will revise their commercial building code if the Act works as intended. If so, utilities should revise their DSM programs for new construction so that they are promoting building practices that significantly exceed minimum code.

In other areas, the Act should help utilities to expand or improve their DSM programs. Once efficiency ratings of office equipment, luminaires and windows become available, utilities should be able to add these products to their incentive and promotion programs. Also, utilities could use the regional building and lighting centers for demonstrations and training. And the industrial energy efficiency provisions should open up new opportunities for cooperation between utilities, states, industry associations and the federal government.

Fourth, utilities and regulators should take the energy efficiency provisions into account as they forecast electricity and natural gas demand and plan new facilities. As noted above, the Act should enable utilities to avoid or defer many new power plants. In fact, society will not realize the full economic benefits of the legislation unless these plants are avoided.

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Table 1

ESTIMATED ELECTRICITY SAVINGS FROM THE ENERGY EFFICIENCY PROVISIONS IN THE ENERGY POLICY ACT OF 1992

Proposal	ELECTRICITY SAVINGS (BILLION KWH PER YEAR) 2000	2010
Building standards		
Residential	2.0	5.2
Commercial	11.8	35.5
Home energy ratings and mortgages	1.4	3.5
Electric utility regulatory reform	9.6	52.2
Least-cost planning at TVA	7.2	21.2
Least-cost planning at WAPA	2.7	8.0
Equipment efficiency standards	46.3	80.2
Luminaire and office equipment testing and ratings	9.1	16.8
Energy efficiency in industrial facilities	2.2	5.1
State industrial efficiency programs	2.2	3.9
Federal energy management	6.3	17.2
Tax treatment of utility rebates	2.6	15.6
Energy efficiency R,D&D	3.5	9.4
TOTAL	106.9	273.8

Note: Additional small electricity savings will result from several other provisions.