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on
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The Energy Future Coalition is a non-partisan U.S.-focused public policy initiative that was launched 10 years ago to address three principal energy challenges:

- The political and economic security threat posed by the world's dependence on oil.
- The risk to the global environment from climate change.
- The lack of access of the world's poor to the modern energy services they need for economic advancement.

The Coalition seeks to connect these challenges with a vision of the vibrant economic opportunities that will be created by a transition to renewable energy, energy efficiency, and the smart grid – three areas where electric utilities play a dominant role – and it has sought to shift the nation's energy policy conversation toward concrete, actionable solutions that can win broad support from business, labor, and the environmental community.

The Energy Future Coalition applauds the progress that Maryland has made in reducing peak electricity demand but notes that reductions in overall consumption have not kept pace. It supports extending and strengthening the two goals beyond 2015, but as elaborated further below, would argue that the root cause of underperformance is a failure to align utilities' economic incentives with the efficiency goal. This must be addressed in a much more fundamental way if Maryland is to optimize end-use energy efficiency and provide power to consumers at least cost.

In the delivery of energy efficiency services – like other areas such as reliability, distributed generation, the use renewable energy, and the smart grid – the state's utilities are not providing the optimal mix of benefits to consumers. In ordinary commerce, that would be called a market failure, and at least in theory, competitive firms would step in to provide what customers want. There is, however, a natural monopoly in the distribution of electricity under the hub-and-spoke utility model, and regulation exists to protect consumers from predatory behavior by their utilities. Yet regulation is not optimizing consumer benefit – a regulatory failure that is the mirror image of performance failure. The state should consider changes to the regulatory structure that will yield broader long-term benefits to consumers and to the state's economic vitality – by rewarding performance, not investment, measuring outputs, not inputs.

The most fundamental goal of investor-owned utilities, like most businesses, is pretty simple – maximizing shareholder value. State regulatory structures have sought to provide utilities with a reasonable rate of return on investment while minimizing the cost to consumers, as reflected in electric rates. That formula, now a century old, was wildly successful in building a system that delivered reliable, affordable electricity to consumers. Recent efforts to bring market forces more strongly into play have

led to some economic efficiencies but have not adequately considered their impacts on the system as a whole.

One of those objectives, clearly recognized for many years, is to minimize unnecessary energy use in the generation, transmission, and consumption of electricity. More than any other area, this has been the subject of relentless experimentation by state regulators – but with only partial success. The key, as recognized in the widely supported National Action Plan for Energy Efficiency, is aligning the financial incentives of utilities with the delivery of cost-effective energy efficiency. The Action Plan notes three undesirable financial effects that energy efficiency spending can have on a utility:

- Failure to recover program costs in a timely way has a direct impact on utility earnings.
- Reductions in sales due to energy efficiency can reduce utility financial margins.
- As a substitute for new supply-side resources, energy efficiency reduces the earnings that a utility would otherwise earn on the supply resource.

Regulators have responded to this problem through various combinations of program cost recovery, lost margin recovery, and performance incentives. By and large, however, these changes have been grafted onto the pre-existing financial model and have met with limited success. Addressing energy efficiency alone might make sense if that was the only outcome sought. However, such a piecemeal approach ignores the dramatic transition in utility practices that will unfold in coming years:

- Innovative smart technologies will allow consumers to produce and store electricity as well as use it, creating a massive increase in digital information that can be used to optimize the security and economics of the system.
- Utilities will be required to meet stricter standards for air pollution, water use, vegetation maintenance, and, well within planning time horizons, carbon emissions.
- Utility business models must adjust to their customers' increased ability to respond to price signals, third-party entrants in utility services (including energy efficiency), and flat or declining overall power demand.
- Most relevant to this discussion, the importance of electricity to an increasingly digital economy will increase pressure for "nine nines" reliability.

Utilities and regulators should work together to prepare for this transition – by transforming the way they do business, away from an investment-based, rate-of-return model toward one that is based on specific performance metrics that are carefully negotiated and agreed in advance – and Maryland can take a lead role in this nationally.

Utilities should only do well for their shareholders if they also do well for their customers; it is disconnecting the two that leads to consumer outrage. Maryland consumers should see a correlation between their satisfaction and their utility's profitability. Of course, utilities must not be put at risk for decisions already made and approved, and their revenues must allow them to service their debt, as a minimum starting point. Additional compensation, however, should reward good performance – and even provide superior returns for superior performance.

Performance-based contracting is common in many fields. For example, the stated policy of the U.S. Department of Defense is that "in order to maximize performance, innovation and competition, often at a savings, performance based strategies for the acquisition of services are to be used wherever possible." Clear, attainable, objective performance standards and metrics, carefully negotiated and agreed in advance, are to determine compensation under award-fee contracts.

If it's good enough for the military, it certainly should be possible to apply it to utilities through performance metrics for key consumer benefits such as reliability and efficiency. For example, utilities should be rewarded for reducing their customers' costs – e.g., by investing in cost-effective efficiency and conservation measures that reduce monthly bills while delivering the same level of energy services – even if rates do not go down. (Californians have high rates but low bills.) Utilities that welcome cost-effective distributed generation and other demand reduction measures should also benefit. If these steps end up reducing the net cost of acquired power for the entire system, as they should, utilities and consumers should share the benefit. Customer service and satisfaction is another area that can be objectively measured – e.g., by J.D. Power and Associates – where utilities should be rewarded for good performance.

Performance-based ratemaking is not a new concept – indeed, an entire issue of *the Electricity Journal* was devoted to it in 1996 – but its adoption may have been hindered by the difficulty of grafting it onto traditional rate-of-return models when a wholesale change is needed instead to change utility DNA. According to a July 2012 report by the Edison Foundation's Institute for Electric Efficiency, 23 states currently have performance incentives in place, with six other states awaiting regulatory approval. This progress on energy efficiency alone needs to be applied more generally to the way utilities are compensated.

This shift to a performance-based model will require a significant culture shift within utilities, but it is certainly possible. Roland Risser, now Director of the Building Technologies Program at the U.S. Department of Energy, says that when he was at Pacific Gas & Electric, decoupling and performance incentives for energy efficiency turned what had been a compliance function into a vital piece of the company's business.

As Scott Hempling, a noted expert on regulatory law, told us recently, "The central question is not 'What is the right "utility business model"?' but 'What are the market structures and regulatory structures that will best produce the services customers need – both service presently provided by utilities and potentially provided by others?'" A high-level expert workshop convened by the Energy Future Coalition in July provided us guidance that has informed this presentation; a summary of key points from the workshop is attached at the end of this statement.

The 2007 report of the National Action Plan for Energy Efficiency, *Aligning Utility Incentives with Investment in Energy Efficiency*, offers a useful set of seven lessons, also attached at the end of this statement. The first is particularly relevant to this discussion:

- **Set cost recovery and incentive policy based on the direction of the market's evolution.** The rapid development of technology, the likely integration of energy efficiency and demand

response, continuing evolution of utility industry structure, the likelihood of broader action on climate change, and a wide range of other uncertainties argue for cost recovery and incentive policies that can work with intended effect under a variety of possible futures.

We recommend using one or more pilots to facilitate the electric utility's transition to a new regulatory model, and Maryland is well suited to take this on – it has enlightened political leadership, decoupled utilities, and disgruntled consumers ready for a change. A wholesale transition is too complex to take on all at once, however. Geographically representative areas of perhaps 100,000 customers each, involving both Pepco and BGE, could be designated as test beds of new incentive structures for the utilities. A year of negotiation and preparation, followed by a year of demonstration, would go a long way toward providing the answers needed for transformation of the state's utility sector. The pilots would provide needed information to state policymakers and other stakeholders, illustrating via a real-world experiment the questions, challenges, and new capabilities they must confront to move towards a different industry structure. Ultimately, the pilots would give confidence to state policymakers, utilities, and investors that these changes can be accomplished without jeopardizing the reliability or cost of electricity in the state – and indeed, could provide utilities with an opportunity to significantly enhance shareholder value.

The Energy Future Coalition would welcome the chance to work with Maryland to help design a transition toward a new national model of a reinvented electric sector that produces gain for consumers, not pain.

Aligning Utility Incentives with Investment in Energy Efficiency, a resource of the National Action Plan for Energy Efficiency, December 2007: Executive Summary, "Final Thoughts":

- **Set cost recovery and incentive policy based on the direction of the market's evolution.** The rapid development of technology, the likely integration of energy efficiency and demand response, continuing evolution of utility industry structure, the likelihood of broader action on climate change, and a wide range of other uncertainties argue for cost recovery and incentive policies that can work with intended effect under a variety of possible futures.

- **Apply cost recovery mechanisms and utility performance incentives in a broad policy context.** The policies that affect utility investment in energy efficiency are many and varied and each will control, to some extent, the nature of financial incentives and disincentives that a utility faces. Policies that could impact the design of cost recovery and incentive mechanisms include those having to do with carbon emissions reduction; non-CO2 environmental control, such as NOX cap-and-trade initiatives; rate design; resource portfolio standards; and the development of more liquid wholesale markets for load reduction programs.

- **Test prospective policies.** Complex mechanisms that have many moving parts cannot easily be understood unless the performance of the mechanisms is simulated under a wide range of conditions. This is particularly true of mechanisms that rely on projections of avoided costs, prices, or program impacts. Simulation of impacts using financial modeling and/ or use of targeted pilots can be effective tools to test prospective policies.

- **Policy rules must be clear.** There is a clear link between the risk a utility perceives in recovering its costs, and disincentives to invest in energy efficiency. This risk is mitigated in part by having cost recovery and incentive mechanisms in place, but the efficacy of these mechanisms depends very much on the rules governing their application. While state regulatory commissions often fashion the details of cost recovery, lost margin recovery, and performance incentive mechanisms, the scope of their actions is governed by legislation. In some states, significant expenditures on energy efficiency by utilities are precluded by lack of clarity regarding regulators' authority to address one or more of the financial impacts of these expenditures. Legislation specifically authorizing or requiring various mechanisms creates clarity for parties and minimizes risk.

- **Collaboration has value.** The most successful and sustainable cost recovery and incentive policies are those that are based on a consultative process that, in general, includes broad agreement on the aims of the energy efficiency investment policy.

- **Flexibility is essential.** Most of the states that have had significant efficiency investment and cost recovery policies in place for more than a few years have found compelling reasons to modify these policies at some point. These changes reflect an institutional capacity to acknowledge weaknesses in existing approaches and broader contextual changes that render prior approaches ineffective. Policy stability is desirable, and policy changes that have significant impacts on earnings or prices can be particularly challenging. However, it is the stability of impact rather than adherence to a particular model that is important in addressing financial disincentives to invest.

- **Culture matters.** One important test of a cost recovery and incentives policy is its impact on corporate culture. A policy providing cost recovery is an essential first step in removing financial disincentives associated with energy efficiency investment, but it will not change a utility's core business model. Earnings are still created by investing in supply-side assets and selling more energy. Cost recovery plus a policy enabling recovery of lost margins might make a utility indifferent to selling or saving a kilowatt-hour or therm, but still will not make the business case for aggressive pursuit of energy efficiency. A full complement of cost recovery, lost margin recovery, and performance incentive mechanisms can change this model, and likely will be needed to secure sustainable funding for energy efficiency at levels necessary to fundamentally change resource mix.

Piloting the Coming Transition in the Electric Utility Industry: Key points from the July 11, 2012, high-level workshop

Background and Questions for Discussion

The electricity sector must change – it must decarbonize its generation, convert its system management and monitoring to digital technology, embrace smart consumer appliances and electric vehicles, integrate a myriad of distributed and renewable sources, and interact with customers who have the ability to respond to time-sensitive power costs. Other factors are converging on utilities at the same time: stagnant electricity sales, energy efficiency improvements, and distributed generation – all of which reduce utility revenues – even as the need for reliability, power quality, and price stability, and related capital investments, is increasing. What is the electric sector doing to anticipate and respond to these forces? Can a planned and managed transition can be designed and tested – e.g., with a pilot project of ~100,000 customers – that shows how to deliver these benefits without the "creative destruction" of the utilities?

The Transition Can Be Cost-Effective

The estimated national cost of grid unreliability ($150 billion per year), system inefficiency ($100 billion per year), and productivity penalties ($500+ billion per year) can be addressed for much less – ~$25 billion per year. However, utilities will not invest in critical infrastructure unless they can recover their investments. Regulators can only help utilities recover their investments, while protecting ratepayers, if they recognize the value of these benefits. They currently cannot do so.

Encouraging Innovation is Essential

Utilities by nature are typically not innovators; we need a regulatory model that gives innovators and entrepreneurs the chance to compete and serve consumers. Government and regulatory agencies should set the rules, but we are not going to get the energy equivalent of the iPhone and BlackBerry until we open up the industry to innovation. Whether such competition from new entrants would leave utilities a sufficient basis for viability, much less growth, is an open question.

Alternate Regulatory Business Models Are Needed

Peter Fox-Penner outlined two paths forward for electric utilities in his book, *Smart Power* – the "Smart Integrator" model, where utilities operate a smart distribution network that is open to many other providers of products and services, and the "Energy Service Utility" model, where utilities provide energy services (e.g., lighting and air conditioning) instead of just kilowatt-hours. Either business model could integrate such emerging technologies as distributed generation, microgrids, underground transmission and distribution lines, time-of-use or dynamic pricing, cybersecurity standards, community power acquisitions, and/or delivered voltage monitoring.

Utilities Must Be Engaged in Designing Solutions

Many innovative technologies need a utility to implement them, and others – especially microgrids and distributed electricity generation – rely on utilities for backup power. Utilities must be an integral part of any pilot project, and any new business model must allow them to recover their fixed costs and reasonable returns while they deploy energy efficiency and new end-use technologies, including solar, despite the effects of those technologies on electricity demand.

Why Maryland?

Maryland's decoupled utilities are positioned to benefit from a new business model. They know a very different future is inevitable. Maryland's recent regulatory innovations give the state a head start toward a new utility business model. Recent events have made Maryland's consumers particularly anxious for improved reliability. The state has strong leadership from an actively engaged governor and Public Service Commission and the innovative Maryland Energy Administration in pursuing and implementing ambitious energy efficiency and renewable energy goals.