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INDIANA ELECTRIC DSM INVESTIGATION: PHASE II REPORT

IURC CAUSE NO. 42693

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EXECUTIVE SUMMARY

The Indiana Utility Regulatory Commission (the Commission) has contracted with the Energy Center of Wisconsin (the Energy Center) to support the Commission's investigation into Indiana's demand-side management (DSM) activities (Cause 42693). During Phase I of the proceeding, the Energy Center prepared a report summarizing the status of current DSM efforts in the state, and submitted its analysis to the Commission in April 2007.[1] The Energy Center's primary findings were that, compared with other states, Indiana showed relatively low levels of energy savings, low levels of spending on DSM initiatives, and an inconsistent patchwork of program offerings.

Phase II of the proceeding considers approaches for addressing key issues discussed in the Energy Center's assessment, and pertains only to electricity and steam providers in Indiana. The goal of Phase II is to develop a path for improving existing approaches to electric DSM in Indiana. Among other objectives, the Commission's Order directs that Phase II of the proceeding address Indiana's relatively low level of DSM spending and relatively high energy consumption, as compared with other states; evaluate alternative mechanisms for addressing the inconsistent patchwork of DSM programs in Indiana; and consider the formation of an oversight board to oversee development of a more uniform statewide approach to electric DSM.

During Phase II of the proceeding, the Commission contracted with the Energy Center to facilitate a process for obtaining stakeholder input on how the issues set forth above should be addressed in Indiana. From November 2008 through February 2009, the Energy Center facilitated a series of three technical workshops to address these topics and provide a forum for obtaining stakeholder input.

It is important to acknowledge that, since the Energy Center's 2007 report was completed, a number of electric utilities in Indiana have completed energy efficiency potential studies, and several utilities have filed proposals for new DSM initiatives before the Commission. If approved, these proposals would significantly increase Indiana utility investments in DSM, and expand the scale and scope of energy efficiency resources available to Indiana consumers. Despite this progress, it remains essential to establish a consistent, statewide framework to guide electric DSM initiatives and ensure the cost-effective and equitable use of ratepayer resources.

This analysis sets forth the Energy Center's findings in its investigation of electric DSM initiatives in Indiana. These findings support the following actions:

- Establishing a set of overarching policy objectives to shape the direction of electric DSM initiatives in Indiana.
- Ensuring that DSM offerings are available to all customer classes and market segments.
- Establishing utility-specific DSM goals, as well as a clear process and consistent guidelines for how such goals should be determined, and how progress toward goals should be measured.

[1] Energy Center of Wisconsin (April 2007). *Indiana DSM Investigation Report: Report on Current Programs and Future Directions*. Cause No. 42693. Conducted on behalf of the Indiana Utility Regulatory Commission.

- Leveraging existing program efforts and administrative systems to support expansion of DSM programs.
- Establishing a core set of programs for all companies targeting mass market energy efficiency opportunities.
- Building on existing DSM efforts by retaining the utility-led administrative model for delivery of DSM programs that is currently in place, and allowing flexibility so that program offerings can be tailored to meet the needs of individual utility service territories.
- Establishing an oversight body to ensure a desirable level of statewide consistency, to identify and replicate successful program strategies, to coordinate core program offerings, and to provide a forum for stakeholder input.
- Developing a framework for evaluation of DSM initiatives that provides guidance on how evaluation should be situated within the program planning and implementation cycles, how evaluation resources should be allocated across the DSM portfolio, and what the relative role of net versus gross savings estimates should be.
- Convening a working group to consider key issues pertaining to development of a statewide DSM database, including definition of the goals of such a resource, and agreement on information it should contain.
- Establishing guidelines under which large energy users may opt out of financial contributions to utility-administered energy efficiency programs in favor of self-directed energy efficiency projects.
- Supporting broader deployment of smart grid technologies and wider availability of dynamic rate designs that facilitate energy savings and demand reduction objectives.

CHAPTER 1: INTRODUCTION

BACKGROUND

The Commission opened an investigation into Indiana DSM activities in 2004 (Cause 42693), and in 2006 directed Commission staff to assess the current state of DSM activities in the state through a phased proceeding. During the first phase of Cause 42693, the Commission contracted with the Energy Center to review the status of current DSM efforts in Indiana, present information on alternative models for DSM program administration and delivery, and to make initial recommendations to assist the Commission in its consideration of strategies for enhancing Indiana DSM efforts. The Energy Center's report was presented to the Commission in April 2007.[2] Parties to the proceeding filed responsive testimony in May 2007 and reply testimony in June 2007.

The Commission issued its Order in Phase I of Cause 42693 in April 2008, with the decision to commence a second phase of the proceeding. The objective of Phase II is to develop a path for improving existing approaches to DSM in Indiana. Specifically, the Commission's Order directs that Phase II consider approaches for addressing key issues discussed in the Energy Center's assessment, focusing on the following areas:[3]

- Assess the benefits of increased DSM efforts and determine policy priorities to guide DSM activities in Indiana.
- Address Indiana's relatively low level of DSM spending and relatively high energy consumption, as compared with other states.
- Evaluate alternative mechanisms to address the inconsistent patchwork of DSM programs in Indiana, including possible development of a core group of "best practices" programs.
- Evaluate alternative administrative models for DSM program delivery, including utility-administered and third party-administered DSM programs.
- Consider the formation of an oversight board to oversee development of a more uniform statewide approach to electric DSM.
- Address key issues related to DSM program evaluation, including creation of a statewide database to support DSM initiatives.

[2] Energy Center of Wisconsin (April 2007). *Indiana DSM Investigation Report: Report on Current Programs and Future Directions*. Cause No. 42693. Conducted on behalf of the Indiana Utility Regulatory Commission.

[3] The Phase II proceeding only applies to electricity and steam providers in Indiana. In the Phase I Order, the Commission limited the scope of the Phase II proceeding, as other rulings and the creation of natural gas DSM oversight boards have shown promise as establishing a foundation for a more consistent statewide approach to natural gas DSM in Indiana.

- Consider issues identified in the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007, including deployment of "smart grid" technologies, as well as DSM cost recovery and incentive mechanisms to motivate utility investment in energy efficiency.

In its April 2008 Order, the Commission expressed that Phase II of this proceeding should result in "the development of a critical path forward for the overall improvement of DSM programs in Indiana."

Since the Energy Center's 2007 report was completed, there have been shifts in the national energy landscape that are likely to have a significant effect on the future value of DSM initiatives in Indiana. To provide just a few examples: the U.S. Supreme Court ruled that carbon dioxide emissions could be subject to regulation under the Clean Air Act;[4] applications to build 45 coal-fired power plants in the U.S. were either denied or withdrawn in 2007 alone;[5] and nearly 14,000 megawatts (MW) of wind generating capacity were added—with the U.S. now surpassing Germany as the country with the largest amount of wind generating capacity.[6]

It is likely that federal legislation governing greenhouse gas (GHG) emissions will be passed in the near future. A recent analysis sponsored by Midwest energy suppliers analyzed a variety of scenarios for GHG allowance prices and carbon credit allocation mechanisms, estimating the effect that alternative regulatory approaches would have on ratepayers in Midwestern states. This analysis, completed in March 2009, estimates that Indiana ratepayers will see cost increases between 15 and 45 percent under a low-cost scenario, and increases between 85 and 140 percent under a high-cost scenario.[7] These projections indicate the essential role that DSM initiatives will play in mitigating the impact of future energy cost increases on Indiana residents and businesses.

In addition, a number of Indiana electric utilities have proposed new DSM initiatives in proceedings currently under review at the Commission. If approved, these proposals would significantly increase Indiana utility investments in DSM, and expand the scale and scope of energy efficiency resources available to Indiana consumers. Despite this progress, it remains essential to establish a consistent, statewide framework to guide electric DSM initiatives and ensure the cost-effective and equitable use of ratepayer resources.

SCOPE OF TECHNICAL WORKSHOPS

During Phase II of the proceeding, the Commission contracted with the Energy Center to facilitate a process for obtaining stakeholder input on how the issues set forth above should be addressed in Indiana.

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[4] *Massachusetts v. Environmental Protection Agency*, 549 U.S. 497 (2007).

[5] M. Clayton (March 4, 2008). "U.S. Coal Power Boom Suddenly Wanes." *The Christian Science Monitor*.

[6] American Wind Energy Association (2009). *Annual Wind Industry Report: Year Ending 2008.*

[7] Energy Policy Group, LLC (2009). *Analysis of the Electricity Price Impacts of Alternative Carbon Emission Cap-and-Trade Programs in the Midwest*. Prepared on behalf of Indiana Municipal Power Agency, Madison Gas and Electric Company, Missouri Joint Municipal Electric Utility Commission, Missouri River Energy Services, Southern Minnesota Municipal Power Agency, and WPPI Energy.

From November 2008 through February 2009, the Energy Center facilitated a series of three technical workshops to address these topics and provide a forum for obtaining stakeholder input.

The purpose of the three technical workshops was to engage the parties to this proceeding in a frank and open exchange regarding the key issues identified above. As an important outcome from this process, the Energy Center sought to identify emerging areas of consensus, as well as areas where significant differences of opinion exist among stakeholders. However, opinions expressed by technical workshop participants were characterized as preliminary and were generally recorded without attribution. The parties will have the opportunity to present their recommendations on these issues in testimony. The Commission plans to issue an Order in Phase II of Cause 42693 by the end of 2009.

PURPOSE OF THIS ANALYSIS

This analysis summarizes key outcomes from the technical workshop process, and sets forth the Energy Center's findings for developing a framework that promotes a more consistent, statewide approach to electric DSM in Indiana.

Each chapter addresses one or more of the key issue areas outlined above, summarizes views expressed by participants in the technical workshops, and presents the Energy Center's findings for how this issue should be addressed in Indiana. In framing its recommendations, the Energy Center sought to craft an approach that leverages existing laws and regulations to the greatest extent possible, that achieves the broadest area of consensus among the viewpoints expressed by technical workshop participants, and that offers the opportunity for a timely transition from existing DSM initiatives. The Energy Center's goal is to provide a roadmap for implementation that addresses all market sectors and maximizes collaborative opportunities across utility-specific DSM initiatives.

CHAPTER 2: ESTABLISHING POLICY OBJECTIVES AND DSM GOALS

POLICY OBJECTIVES

Articulating a clear set of policy objectives is critical for establishing a successful framework for DSM program delivery in Indiana. A recent study by the American Council for an Energy Efficient Economy (ACEEE) cited strong legislative and regulatory requirements in support of energy efficiency as two of the most important factors contributing to the success of top-performing utility sector energy efficiency initiatives.[8] Without the guidance of clear policy objectives, utility-specific initiatives may pursue competing goals, or fail to accomplish the state's greatest needs cost-effectively.

Policy objectives help to determine whether DSM programs should be geographically uniform across the state, or whether utilities have the ability to tailor DSM offerings for individual service territories. Such objectives also guide decisions around market coverage—namely, whether DSM programs should be available to all sectors, or whether there are opt-out provisions available to certain market segments such as large industrial facilities. Policy objectives can address the criteria used to determine the scale and scope of energy efficiency efforts over time. They may also guide the relative allocation of DSM program resources toward achieving peak demand reduction versus energy savings, and the relative emphasis on procuring immediate energy savings (resource acquisition) versus engaging in longer-lasting market interventions (market transformation).

At several points during the technical workshop discussions, participants noted the importance of establishing clear, consistent rules to guide DSM efforts in the state. A straw poll was conducted to elicit participant opinions on what they viewed as the most important policy objectives to guide Indiana DSM efforts. The policy priorities that received the greatest number of participant votes were as follows:

- Reduce energy costs for Indiana consumers.
- Ensure cost-effectiveness of DSM efforts—both in terms of maximizing cost-effective DSM potential, and also ensuring that DSM efforts represent a cost-effective use of ratepayer resources.
- Allow balance and flexibility in DSM program delivery over time.

To shape the direction of DSM initiatives and provide a strong foundation for future expansion, the Energy Center recommends that the Commission articulate a set of overarching policy objectives. Given the stakeholder input received during the technical workshops, the Commission may wish to emphasize the importance of ensuring that DSM offerings are available to all customer classes and market segments, ensuring that all Indiana energy consumers have the opportunity to benefit from the energy cost reductions that can be achieved through energy efficiency improvements.[9]

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[8] ACEEE (March 2009). *Meeting Aggressive New State goals for Utility-Sector Energy Efficiency: Examining Key Factors Associated with High Savings*. ACEEE Report Number U091. Available at: http://www.aceee.org/pubs/u091.htm.

[9] It is important to note that approximately 30 percent of the state is served by non-jurisdictional electric utilities. The recommendations for Commission action contained in this analysis are intended to address jurisdictional

Given the importance of wise use of ratepayer resources to the Commission and to Indiana stakeholders, the Energy Center recommends that such policy objectives also address how cost-effectiveness determinations are to be made. The Energy Center's 2007 analysis noted that Indiana utilities that relied heavily on the Ratepayer Impact Measure test (one of the most restrictive cost-effectiveness tests) tended to have fewer DSM offerings than utilities that employed a variety of benefit-cost tests, such as the Total Resource Cost test, the Utility Cost Test, and the Participant Cost Test. The Commission could use the statement of policy objectives to encourage utilities to assess the cost-effectiveness of DSM initiatives using a variety of analytical approaches. It is also important to acknowledge that cost-effectiveness determinations are affected by subjective decisions around discount rates and benefits horizons. For example, a high discount rate can effectively devalue the future savings benefits associated with long-lived measures such as insulation. The Commission may wish to use overarching policy objectives to provide guidance on whether cost-effectiveness determinations should be shaped by a short-term or long-term perspective.

While the Commission's goal may be to ensure that energy efficiency resources are available to all customer classes and market segments, there is also value in tailoring DSM offerings to meet the unique needs of a given utility service territory. For example, a utility that has a large industrial customer base may devote relatively greater resources to DSM programs targeting that market than a utility with a more rural or residential customer base. The Commission could use its statement of policy objectives to acknowledge that utilities should have the flexibility to tailor DSM offerings to meet the unique needs of their service territory, and to adapt DSM strategies as conditions warrant.

DSM GOALS

Establishing measurable energy savings goals is critical for addressing two of the major issues raised in the Energy Center's initial report on the status of DSM programs in Indiana—namely, the state's relatively low spending on DSM and relatively high energy consumption, as compared with other states. Beyond helping to ensure accountability to state policy objectives, goal-setting is also a necessary component of incentive mechanisms that reward utilities for attaining specified levels of energy savings.

Participants in the technical workshops were generally in favor of establishing utility-specific goals, rather than single statewide goal that would be consistent across utilities. This approach is reasonable given that, in Indiana, the current level of DSM funding and program scale/scope varies by utility. There was also general consensus around establishing energy savings targets rather than DSM spending targets, as savings targets represent a more effective approach to ensuring that the state's policy objectives are achieved.

In formulating a goal-setting process for Indiana utilities, it is essential to establish clear guidelines for how progress toward goals should be measured, and to use a consistent methodology for determining the baseline against which progress toward goals can be evaluated. For example, should goals be established

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utilities. However, customers of non-jurisdictional utilities would certainly benefit from the energy cost reductions and other benefits associated with increased energy efficiency.

in terms of gross energy savings or net energy savings?[10] Given the increasing complexities and costs associated with accurate measurement of program attribution, some states are moving toward establishing gross savings goals, or using a hybrid approach that establishes net and gross savings targets.

Energy savings targets should take into account findings from empirical assessments of energy efficiency potential. In Indiana, a number of utilities have completed energy efficiency potential studies within the last two years. However, most of those studies exclude large industrial customers from the assessment. Such an approach is problematic if the policy objective is to ensure that all market segments have access to DSM offerings. Even in states like Wisconsin which have had comprehensive programs for the industrial market for many years, researchers are finding significant reservoirs of untapped cost-effective energy efficiency potential in this market.

In establishing goal-setting procedures, Indiana also has the opportunity to avoid pitfalls experienced in other states. For example, one Midwest state disallows cost recovery once a utility reaches its specified energy savings target. This approach effectively puts a cap on energy savings, and could lead to interruptions in program implementation which disrupt the effectiveness of market interventions. Clearly multiyear flexibility on goals and savings merits strong consideration.

A number of technical workshop participants cited the importance of aligning goal-setting processes with existing utility integrated resource planning (IRP) processes which are completed every two years.[11] The process flow shown in Figure 1 presents an idealized alignment between IRP processes, potential studies, goal-setting, DSM planning and program design, program implementation, and evaluation.

[10] Gross energy savings refers to impacts resulting from program-promoted actions taken by program participants regardless of the influence the energy efficiency program had on such actions. Net energy savings refers to the portion of gross savings that is attributable to energy efficiency program influence. Net savings are determined by making adjustments for free ridership (people who would have taken the energy efficiency action anyway without program intervention), and spillover (savings resulting from non-participant actions that occurred as a result of program influence).

[11] Utility IRPs address a 20 year time horizon and are filed in odd-numbered years.

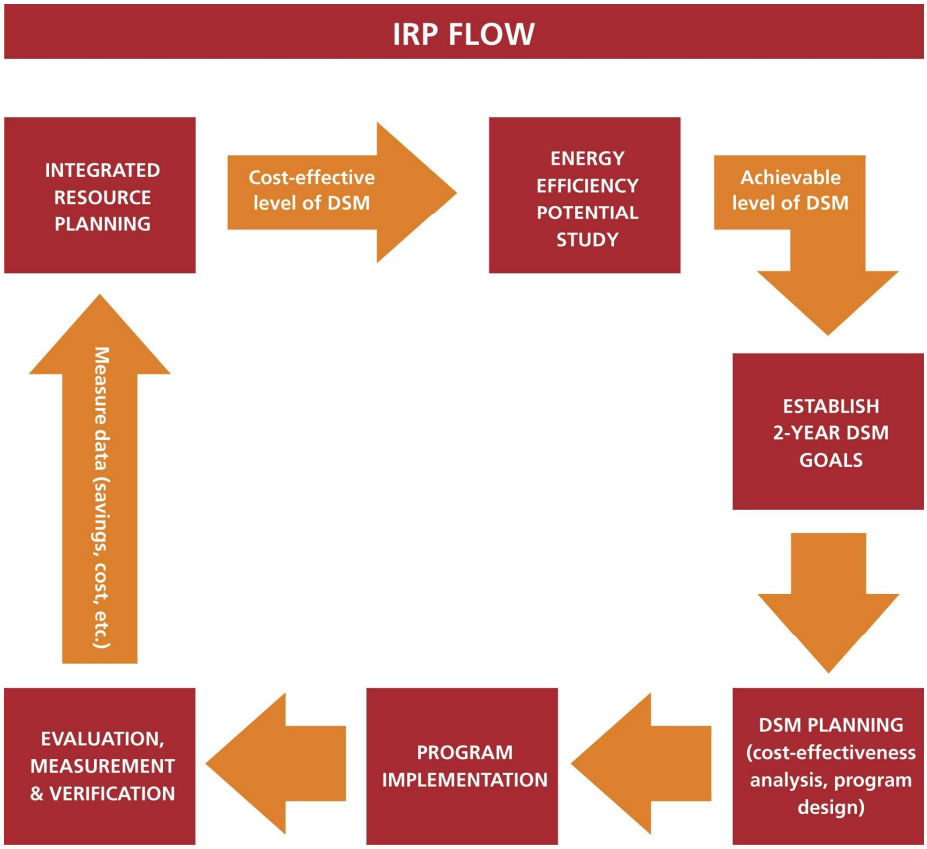

Figure 1: Relationship between integrated resource planning and key components of DSM program planning, delivery, and evaluation

As shown in the diagram, IRP modeling is ideally used to determine the cost-effective or economic level of DSM as an integrated component of the utility's least-cost strategy for meeting future energy needs. This approach serves ratepayer interests and ensures the cost-effective use of DSM resources, which a number of workshop participants noted as an important consideration. In IRP modeling, DSM should not be treated as a pre-determined input that reduces projected load but, instead, should represent an output from the modeling process. It is also important to consider the risks associated with DSM resources *vis-à-vis* the risks associated with large-scale supply-side resources. Such considerations are particularly important given the uncertain, but likely significant, cost impacts that future carbon regulation would have on fossil fuel generation resources.

Energy efficiency potential studies represent another critical step in the process, determining the **achievable** level of cost-effective energy savings and demand reduction potential within a specified time frame. IRP outputs and potential study results can then be used in establishing DSM goals. In depth DSM planning and program design follows the goal-setting process, and cost-effectiveness is again assessed at the measure, program, and portfolio levels. Program implementation is the next stage in the process, followed by evaluation, measurement, and verification (EM&V). Data on the costs and load impacts of demand-side measures obtained through EM&V are then fed into the next round of integrated resource planning to improve modeling accuracy.

The Energy Center recommends that the Commission develop consistent guidelines for establishing utility-specific DSM goals. At a minimum, such guidelines should include the following requirements:

- DSM goal setting process is conducted every two years, aligning with the timeline for Indiana's existing IRP process.
- Two-year energy savings goals are established for each utility, with requirements for annual reporting of progress toward goals.
- Goal-setting takes into account the results of IRP analyses, energy efficiency potential studies that address all market sectors, and historical program results, as well as any other relevant research and analysis.
- Commission review and approval of utility goals is required.
- Following establishment of the two-year goals, utilities file DSM plans specifying program plans and budgets. Commission review and approval of DSM plans is required.

CHAPTER 3: DEVELOPING A CONSISTENT STATEWIDE APPROACH TO DSM

One of the main conclusions from the Energy Center's 2007 report was that Indiana's current DSM approach "provides an inconsistent patchwork that excludes some customers (geographically and by sector) from the benefits of energy efficiency services." In its Phase I Order, the Commission responded to this finding with the following assertion:[12]

> This determination is perhaps the most troubling finding contained in the Stratton Report as it is unmistakable that the current procedure, in which jurisdictional utilities consider DSM as part of their IRPs, and propose DSM programs to the Commission at their discretion, has failed to lead to the creation and implementation of creative, effective, predictable, and comprehensive DSM Programs throughout the State.

During the technical workshops, several discussions addressed the issue of developing a more consistent, statewide approach to electric DSM. Stakeholders pointed out the need to ensure equitable program offerings on a statewide basis, and to ensure that a minimum level of program effort is undertaken by all utilities. At the same time, a number of participants felt it is critical to avoid overly-standardized approaches, and allow utilities the flexibility to customize DSM program offerings according to geography, customer base, the timing and magnitude of capacity needs, and historical program offerings that affect the magnitude of specific energy efficiency opportunities within their service territories.

There are multiple levels at which the issues of consistency and flexibility can be addressed. At the DSM planning and oversight level, there should be a consistent policy framework governing DSM initiatives, in which utilities follow the same protocols for integrated resource planning, conducting technology research and market assessments, analyzing cost-effectiveness, evaluating program results, and regulatory reporting. In general, technical workshop participants were in favor of consistent statewide approaches at this level.

At the program management and implementation level, consistency can be achieved through administration of a single statewide DSM program, or though a core set of consistent programs that are individually administered by utilities within their own service territories. Alternatively, a certain degree of consistency can be achieved through collaborative processes where utilities work together to design and implement consistent program offerings, incentives, marketing initiatives, or education and training efforts. There are also opportunities to achieve consistency by leveraging national initiatives such as the Change the World, Start With ENERGY STAR® campaign (formerly Change a Light, Change the World) which provide a cooperative platform for program marketing and implementation. For these types of activities, a straw poll conducted during the second technical workshop showed that many participants favored a mix of consistent approaches and utility-specific offerings. In particular, participants cited the following functions as representing good opportunities for collaborative approaches:

- Efficiency standards for incentive-eligible equipment. For example, in developing incentive offerings, utilities could jointly agree to specify ENERGY STAR qualified products for the residential market, adopt CEE specifications for high performance T8 lighting for commercial and institutional applications, and require NEMA Premium™ motors for industrial applications.

[12] State of Indiana, Indiana Utility Regulatory Commission (April 2008). *Phase I Order*, Cause 42693.

- Offerings for retailers and trade allies (equipment suppliers, home builders, contractors, architects/engineers, etc.).
- Advertising and promotional strategies.
- Education and training efforts.

Consistency in these areas will increase the effectiveness of market interventions, as many retailers, equipment suppliers, and other upstream market actors operate in multiple utility service territories across Indiana and would benefit from consistent incentive offerings and program requirements. Such collaborations can also lead to program design improvements as utilities exchange information and replicate successful program strategies. Such collaborations could even involve instances where a group of utilities elect to jointly administer a program or set of programs across multiple service territories. Particularly for smaller utilities, the administrative efficiencies that would result from joint program administration may represent an attractive opportunity to reduce the cost and increase effectiveness of DSM programs.

Given the inconsistent patchwork of program offerings that has historically existed in Indiana, the Energy Center believes that it is appropriate to establish a core set of programs that are available in all areas served by jurisdictional utilities. Non-jurisdictional utilities would also have the option to offer core programs their service territories. This core set of programs would target mass market opportunities such as compact fluorescent light bulbs (CFLs) and high efficiency fluorescent lighting for commercial and industrial (C&I) applications. These core programs would employ consistent incentive offerings and marketing strategies, but could be individually administered within each utility service territory. Alternatively, the utilities could elect, through a collaborative process, to jointly administer the programs by hiring a single implementation contractor.

The following programs represent key mass market opportunities that would benefit from a consistent program approach:

- **Residential lighting and appliance program**: Incentives for CFLs, light fixtures/ceiling fans, and home appliances such as water heaters, refrigerators, clothes washers, dish washers, dehumidifiers, and room air conditioners.

- **Residential audit program**: Home energy audits in combination with direct installation of low-cost energy saving measures such as CFLs, draft stoppers for light switches and outlets, faucet aerators, and low flow showerheads.

- **C&I rebate program**: Prescriptive incentives for common energy-efficient technologies such as T-8 or T-5 lighting, high efficiency motors and pumps, and HVAC equipment.

The Energy Center recommends that the programs listed above be included in core offerings which are consistent across all jurisdictional utilities in Indiana. Such programs would provide savings opportunities for a broad cross-section of Indiana residents and businesses.

Additional energy efficiency programs which are good candidates for consistent statewide approaches or joint administration include the programs listed below. The Energy Center believes that the Commission

should strongly encourage jurisdictional utilities to pursue a coordinated strategy for offering these programs:

- **Energy efficient schools program**: Information and energy savings kits for K-12 schools.
- **Residential heating and cooling program**: Incentives for energy-efficient air conditioners and heat pumps. Could also include HVAC contractor training and incentives to promote right-sizing and proper installation practices (optimizing air flow; proper refrigerant charge).
- **ENERGY STAR Homes program**: Offers builder training and incentives for energy efficient new homes that meet efficiency guidelines established by the federal ENERGY STAR program.

The programs listed above are standard components of most DSM portfolios.[13] Recent DSM plans filed by Duke Energy Indiana (Cause 43374), Indiana-Michigan Power (Cause 43306), and Vectren Energy (Cause 43427) include many of the program elements listed above, so it is clear that Indiana utilities view these types of programs as attractive opportunities for their customers. However, the Energy Center recommends that a more formal degree of coordination be pursued to ensure that mass market program offerings benefit from a consistent, statewide approach, and that standard DSM offerings are available to all Indiana residents and businesses.

Indiana utilities have a successful track record of coordinating through informal collaborative processes. Developing a consistent approach for implementing core program offerings would ideally involve a more formal collaborative process with oversight by the Commission. Chapter 5 includes a proposal for developing a formal oversight collaborative, and provides more detailed discussion of roles and responsibilities for this body. This oversight body could provide a forum for reaching agreement on the mechanics of incentive offerings, retailer/trade ally coordination, marketing approaches, and evaluation protocols. Each utility would conduct its own analysis to evaluate the cost-effectiveness of individual measures included in the core program offerings, so some measures may not qualify for incentives in all participating utility service territories, or incentive levels could vary by utility. Utilities would have the option of individually branding core program offerings, or pursuing a co-branded marketing approach.

[13] Though low income weatherization programs are not included in this list, the Energy Center urges that such programs be part of any DSM portfolio approved by the Commission. However, because such programs typically leverage local service organizations and are not in the category of "mass market" programs that require a consistent statewide approach, the Energy Center has not included low income weatherization in the core program list.

CHAPTER 4: ADMINISTRATIVE MODELS FOR DSM PROGRAM DELIVERY

Another critical component of Phase II of Cause 42693 is to consider alternative models for administration and delivery of DSM programs. Within the context of this proceeding, an administrative model is defined by the entity (or entities) with primary responsibility for meeting DSM targets. The primary administrative model types include:

- **Utility model**: Primary responsibility for administering DSM programs resides with the utility (investor-owned, municipal, or cooperative). States with utility models include California, Minnesota, and Iowa.
- **Third party model**: Primary responsibility for administering DSM programs resides with an independent, non-governmental organization under contract to a state agency or other entity administering funding for DSM initiatives. States with third party models include Wisconsin, Oregon, and Vermont.
- **Public sector model**: Primary responsibility for administering DSM programs resides with a government agency. States with public sector models include New York and New Jersey.

In practice, the distinctions between these models are less clear. A number of states employ a hybrid structure where multiple entities (utilities, third parties, and government agencies) have responsibility for administering different components of the DSM portfolio. Technical workshop participants noted that administrative models are rarely static, and responsibilities may shift from one type of entity to another in response to changing policy priorities.

Research has demonstrated that any administrative model can successfully deliver cost-effective energy efficiency programs, provided the appropriate policies, oversight mechanisms, and administrative structures are in place. In just one example of the research that has been done on this issue, a recent analysis by ACEEE examined fourteen top-performing states in terms of energy efficiency achievement, and concluded that the administrative model for DSM program delivery is not an important factor in determining success.[14]

The majority of technical workshop participants expressed support for retaining the utility-led administrative model currently in place in Indiana, with one party expressing support for the third party model. During a straw poll conducted in the second workshop, participants voted on which entity/entities they thought should have primary responsibility for performing the key functions associated with DSM program planning and oversight, program management, program delivery, and program evaluation. In general, participants indicated support for utilities playing a key role in terms of integrated resource and DSM portfolio planning; collecting and administering DSM funds; conducting technology research, potential studies, and market assessments; conducting processes to obtain stakeholder input; designing programs; selecting and managing implementation contractors; managing DSM budgets; developing quality assurance and tracking protocols; and reporting results. Participants were also in favor of utilities having primary responsibility for the nuts and bolts of program delivery, from managing call centers to

[14] ACEEE (March 2009). *Meeting Aggressive New State goals for Utility-Sector Energy Efficiency: Examining Key Factors Associated with High Savings*. ACEEE Report Number U091.

marketing and outreach to "boots on the ground" program implementation, with the caveat that utilities could contract with third parties to perform key support functions as needed, either individually or as a group.

Given stakeholder support for utility administration as evidenced through technical workshop discussions and the fact that Indiana natural gas conservation programs are administered by utilities, the Energy Center believes that the utility model represents the best approach for expansion of electric DSM initiatives in Indiana. A utility-administered model allows flexibility in terms of program design, so that offerings can be tailored to meet the needs of individual service territories. A utility-administered model will also effectively leverage past efforts and successful existing programs.

At the same time, it is important to ensure a degree of consistency in terms of program strategy and incentive offerings. As discussed in the previous chapter, it is important to ensure that DSM offerings are available to all Indiana consumers and businesses. Consistent messaging minimizes confusion among consumers and other market actors. Consistent offerings for retailers and trade allies will facilitate engagement of market actors that operate across multiple service territories. The core program strategy discussed in the previous chapter is one mechanism for accomplishing these objectives. The Energy Center further finds that Indiana utilities should consider opportunities to jointly administer core programs across multiple service territories. At a minimum, multiple utilities could outsource program implementation services by hiring a common contractor, and work collaboratively to develop consistent program strategies. The oversight mechanisms proposed in Chapter 5 also serve to promote a desirable level of statewide consistency.

CHAPTER 5: DSM PROGRAM OVERSIGHT

Oversight functions are critical to supporting the development of a consistent, statewide approach to electric DSM in Indiana. The Commission's Phase I Order defined oversight as involving: "… the broad range of responsibilities for the portfolio of programs with particular emphasis on ensuring that policy objectives for the programs are accomplished."

Key oversight objectives include ensuring that programs are cost-effective, that funding is used prudently, that corrective actions are taken in a timely manner, and that program administration is transparent. Perhaps most importantly for states with utility-administered DSM programs, oversight structures can be developed to promote a desirable level of statewide consistency in DSM offerings. They can provide a forum for coordinating statewide DSM offerings that are consistent across utility service territories, and facilitate information-sharing on effective program strategies so that successes can be replicated across multiple utilities. They can also provide opportunities for stakeholder input.

As discussed during the second technical workshop, Indiana has seen preliminary success with collaborative oversight boards that monitor the progress and effectiveness of natural gas conservation programs. The natural gas boards (one for each of the three major gas utilities) bring together diverse perspectives and expertise. The boards use a consensus process in making key decisions regarding funding, program design, and evaluation. Monthly conference calls are used to review a "dashboard" of program results, monitoring expenditures to date, participation levels, call volume, and other key performance metrics. Such processes ensure that problems are identified in a timely manner, and provide a mechanism for program design adjustments and reallocation of resources as needed.

The Energy Center's 2007 report noted that Indiana's historical reliance on stakeholder input provides a strong foundation for future DSM collaboratives. This spirit of collaboration was evidenced by the broad participation in the technical workshops. Participants discussed a number of informal collaborative approaches that are already in place and working well, such as coordination between electric and gas utilities on energy efficiency program design.

Notwithstanding the benefits of such informal processes, the Energy Center recognizes that greater benefits would result from establishing a collaborative oversight body to perform key oversight functions for electric DSM initiatives. This body would provide a forum for reaching agreement on contentious issues, or at a minimum provide key stakeholders an opportunity to engage in constructive dialog regarding opposing viewpoints. The oversight body would work to identify and replicate successful program strategies, and also serve as a forum for coordinating multi-utility initiatives such as the core programs discussed in Chapter 3. If the oversight body had funding and contracting authority, through formation of a non-profit organization for example, it could deliver joint services to multiple utilities, such as contracting, evaluation, or program implementation functions. Establishing an oversight body would support the goal of developing a more consistent approach to electric DSM in Indiana, without duplicating formal oversight and ratemaking responsibilities that reside with the Commission.

Other states have experienced success with formal collaborative oversight bodies that perform coordination, oversight, and advisory functions for DSM initiatives. Two examples from leading states with utility-administered programs—Connecticut and California—illustrate the range of roles and responsibilities and level of authority that such oversight bodies can have.

In Connecticut, the Energy Conservation Management Board (ECMB) advises the state's utilities on developing and implementing cost-effective energy efficiency and load management programs. With members appointed by the Department of Public Utility Control (DPUC), the ECMB facilitates regulatory approval of utility-administered programs, budgets, goals, incentives, and evaluation activities.[15] It also works to coordinate statewide offerings which are consistent across utility service territories.[16] Each year the ECMB holds formal, uncontested hearings to review DSM plans and annual goals proposed by the utilities. Plans and goals are then approved by the DPUC. The ECMB also has fiduciary responsibilities, guiding the distribution of ratepayer funding for energy efficiency programs collected through the Connecticut Energy Efficiency Fund (CEEF), once CEEF disbursements have been approved by the DPUC. On an annual basis, the ECMB updates the legislature on the status of DSM initiatives in Connecticut, reporting on expenditures, CEEF balances, and benefit-cost results for the prior year's programs.[17]

In California, utility-specific advisory groups "provide guidance to the IOUs regarding region-specific customer and program needs, and provide a forum for input and collaboration with the local interests and stakeholders served by the programs."[18] Each utility appoints technical experts and other stakeholders to its advisory group, and staff members from the CPUC Energy Division and the Division of Ratepayer Advocates serve as *ex officio* members. The advisory groups do not have independent decision-making or contracting authority, but rather serve as an informational resource for the Commission, and advise the IOUs on technical and policy matters related to DSM program design and implementation.

In California, advisory group objectives include promoting transparency in decision-making, providing a forum for obtaining technical expertise from stakeholders and outside experts, and encouraging stakeholder collaboration. In addition to addressing program needs within the IOU's service territory, the advisory groups are charged with coordinating "activities that secure both short- and long-term energy savings and peak demand reductions by providing a consistent and recognizable program presence throughout the state," including coordinating statewide marketing and outreach activities, education and training efforts, and utility efforts on building codes and equipment efficiency standards.[19]

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[15] ACEEE (March 2009). *Meeting Aggressive New State goals for Utility-Sector Energy Efficiency: Examining Key Factors Associated with High Savings*. ACEEE Report Number U091. Available at: http://www.aceee.org/pubs/u091.htm.

[16] C. Goldman (February 8, 2007). *Energy Efficiency Program Administration*. Presentation at the Colorado DSM Informational Workshop. Colorado Public Utilities Commission. Available at: http://www.oe.energy.gov/DocumentsandMedia/Goldman_colorado_puc_ee_admin.pdf.

[17] ACEEE (March 2009). *Meeting Aggressive New State goals for Utility-Sector Energy Efficiency: Examining Key Factors Associated with High Savings*. ACEEE Report Number U091. Available at: http://www.aceee.org/pubs/u091.htm.

[18] California Public Utilities Commission (August 2008). *Energy Efficiency Policy Manual, Version 4.0*. Applicable to Post-2005 Energy Efficiency Programs.

[19] California Public Utilities Commission (August 2008). *Energy Efficiency Policy Manual, Version 4.0*. Applicable to Post-2005 Energy Efficiency Programs.

In Indiana, each natural gas utility has its own conservation oversight board. However, the Energy Center believes that a single oversight body for electric DSM initiatives is appropriate. This approach would reduce administrative burdens and maximize opportunities for facilitating information-sharing and collaboration among the state's electric utilities. At a minimum, the oversight body would include representatives from each jurisdictional utility as well as staff from the Commission and the Indiana Office of the Utility Consumer Counselor (OUCC). Consumer group representatives should also have the opportunity to participate and provide input on programs. The Energy Center also believes that non-jurisdictional utilities that want to participate in offering core programs would benefit from joining and participating in the oversight body. Such participation should be encouraged. Given the level of operational coordination that would be necessary to ensure consistency across core program offerings, as well as the coordination necessary to promote consistent approaches in other key areas, the Energy Center finds that the oversight body should meet at least quarterly.

The Energy Center further recommends that the Commission set forth clear objectives and guidelines defining roles and responsibilities for the oversight body. We envision the primary goal as creating a forum for information-sharing and obtaining technical input, and also for coordinating in key operational areas such as delivery of core programs. Utilities would retain the final decision-making authority in the areas of program design, allocation of DSM funds, selection and management of implementation contractors, and other components of program delivery within their service territory. The Commission would retain its statutory authority to approve DSM goals, cost recovery, lost revenue recovery, and performance incentives for successful DSM program administration.

Functions that a formal oversight body could perform or coordinate include the following:

- **Technology research, market assessments, and potential studies**: To date, energy efficiency potential studies have been performed on a utility-specific basis. The oversight body could review completed studies to identify what has been done well, what could be improved upon in future studies, and research gaps to be addressed in future studies. It could also maintain a web site or other mechanism for sharing study results, facilitating information-sharing and transparency. The oversight body could work to identify standard elements/approaches that should be consistent across future potential studies in Indiana. It could also provide a forum for discussing shared research objectives and collaborating on future studies.

- **DSM goals**: The oversight body could provide a forum for discussing some of the key mechanical issues associated with establishing utility-specific DSM targets. In particular, it is important to develop standardized measurement protocols to ensure statewide consistency in evaluating program results.

- **Program design and implementation**: As previously discussed, the oversight body could help to define and coordinate a core set of programs that are consistent across jurisdictional utilities. By providing a forum for sharing lessons learned and exchanging best practices, the oversight body could promote or coordinate other opportunities for increased consistency across utility-specific program offerings (e.g., marketing, trade ally coordination, training). The oversight body could also be used for coordinating any program efforts that utilities elect to administer jointly through use of a shared implementation contractor or other mechanism.

- **Program evaluation**: The oversight body could provide technical input during the formulation of evaluation protocols discussed in Chapter 6. It could review evaluation plans with an eye to ensuring a general level of statewide consistency. In cases where multiple utilities are administering similar programs, the oversight body could coordinate joint evaluations across multiple service territories, promoting consistency as well as the cost-effective use of evaluation resources. The oversight body could also provide a mechanism for sharing evaluation results.

Though the Energy Center's primary recommendation is to create an oversight body that would serve in an advisory and coordinating role, we believe the idea of creating an entity with contracting and funding authority warrants further consideration. Such an entity would be formed for the express purpose of providing joint services to utilities under coordinated initiatives. One example would be in the area of program evaluation, where this entity would provide a mechanism for participating utilities to jointly hire a single evaluator to assess the performance of similar programs across multiple service territories. Similar arrangements could be beneficial for implementation of core programs, and also in conducting technology research, market assessments, and potential studies. Formation of such an entity would likely create administrative efficiencies, and also facilitate coordination and consistency across participating utility service territories.

CHAPTER 6: DSM PROGRAM EVALUATION

EVALUATION FRAMEWORK

Evaluation of DSM program results is critical to ensuring the cost-effective use of program resources and measuring performance against goals. Evaluation also provides valuable information to program implementers, indicating potential areas of opportunity as well as areas where adjustments to program strategy are needed. In cases where incentive payments to utilities are contingent upon meeting DSM targets, evaluations can be "high stakes" endeavors. In such cases it is particularly important that program impacts are estimated as accurately as possible, and that evaluation approaches are consistent across similar types of programs offered by different utilities.

There are three primary types of evaluations:[20]

- **Impact**: Measures the benefits (energy savings, emissions reductions, economic development) that directly result from program activities.
- **Process**: Assesses program administration and delivery to identify what is working well and potential areas of improvement.
- **Market effects**: Estimates the extent to which a program has influenced fundamental shifts in the energy marketplace that drive higher levels of energy efficiency (most commonly used to evaluate progress toward market transformation objectives).

Indiana administrative rules require that utilities seeking Commission approval for cost recovery, DSM incentives, or lost revenue recovery develop plans for conducting load impact and process evaluations and, on an annual basis, submit a document to the Commission that summarizes information, data, and results from evaluation studies.[21] In connection with such proceedings, the Commission has the authority to review evaluation plans and metrics submitted by the utilities. However, the Energy Center's 2007 report found that current evaluation practices in Indiana vary greatly by utility. Evaluation activities ranged from simple tracking of program participation and estimated costs/benefits, to process and impact studies conducted by independent third parties.

To ensure a greater degree of statewide consistency in evaluation of DSM programs, the Energy Center finds that the Commission should develop a formal framework to guide future evaluation activities in Indiana. The goal of the framework would be to ensure that evaluation activities accomplish the following objectives:

- **Accountability**: Including evaluation as a key component of program oversight functions.
- **Effectiveness**: Ensuring that evaluation activities lead to better programs (i.e., program implementers take action in response to evaluation findings).

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[20] National Action Plan for Energy Efficiency (November 2007). *Model Energy Efficiency Program Impact Evaluation Guide*. Available at: http://www.epa.gov/cleanenergy/documents/evaluation_guide.pdf.

[21] 170 IAC 4-8-4.

- **Independence**: Ensuring that evaluations are conducted by a third party with no involvement in program design or delivery.
- **Consistency**: Developing mechanisms to ensure that similar programs are evaluated in the same way, using similar metrics to measure performance.
- **Accuracy**: Conducting research to vet key inputs and assumptions used in program evaluation.
- **Efficiency**: Allocating evaluation and research resources according to the areas of greatest savings and associated uncertainty/risk.

During the technical workshops, participants discussed a number of issues that should be taken into account in developing an evaluation framework for Indiana DSM programs. One of the issues discussed was the frequency with which DSM programs should be evaluated. Participants noted that it is particularly valuable to conduct thorough evaluations early in the program cycle (within the first two years of implementation) to inform adjustments to program design and strategy. Ideally, evaluation cycles should align with the cycle for goal-setting, funding approval, program planning, and implementation. At the same time, programs need time to establish themselves in the marketplace before impacts can be estimated through evaluation.[22]

Another critical issue discussed during the technical workshops was the level of funding that should be allocated to evaluation activities. Participants felt that allocating around five percent of DSM budgets to evaluation efforts would represent an appropriate spending level for Indiana utilities. Evaluation funding is typically not evenly distributed across the DSM portfolio. In general, a relatively greater share of evaluation resources should allocated to programs associated with a large fraction of projected savings within the DSM portfolio, and to evaluating pilot initiatives that test innovative program concepts with potential for future expansion.[23] Once a program has undergone one evaluation, relatively fewer evaluation dollars are generally allocated to that program in the future.

As discussed in Chapter 2, in some states a significant share of evaluation resources has historically been devoted to estimating net savings impacts, or the portion of gross savings that is attributable to energy efficiency program influence. The primary approach for estimating net savings involves making adjustments for free ridership (people who would have taken the energy efficiency action anyway), and spillover (savings resulting from non-participant actions that occurred as a result of program influence). During the technical workshops, participants discussed the fact that it is becoming increasingly complicated to measure program attribution given the myriad factors that motivate energy efficiency decision-making, and such estimation will be even more challenging in future given the passage of the American Recovery and Reinvestment Act.

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[22] California Public Utilities Commission (2004). *The California Evaluation Framework*. Available at: http://www.tecmarket.net/ca_eval_framework.htm.

[23] California Public Utilities Commission (2004). *The California Evaluation Framework*. Available at: http://www.tecmarket.net/ca_eval_framework.htm.

Technical workshop participants also discussed establishing deemed savings values[24] that are used in estimating program savings and demand reduction impacts. Participants expressed interest in developing deemed savings values that could be used by multiple Indiana utilities. An alternative approach would be to develop utility-specific deemed savings values, with mechanisms to facilitate information-sharing among utilities. Deemed savings provide a starting point for estimating program impacts, and savings estimates should be revised based on data from measurement and verification of actual projects. Given that utilities across Indiana will be ramping up DSM planning and implementation activities, it would be useful to provide some mechanism for sharing information on deemed savings values. Such an exchange would also help to ensure a general level of consistency in values and approaches used across the state. It is important to note that deemed savings are just one of the approaches used to estimate program impacts, and it is not possible to develop deemed values for all energy-saving measures. The other primary approaches used in measuring impacts include measurement and verification of savings associated with a sample of projects, and statistical analysis of large volumes of metered energy usage data.[25]

In light of participant input received during the technical workshops, the evaluation framework for Indiana DSM initiatives should, at a minimum, provide guidance in the following areas:

- Guidance on how evaluation should be situated within the program planning and implementation cycle (e.g., when and how often evaluations should be conducted).
- Guidance on general level of funding for evaluation within the DSM portfolio, and how allocation of funding resources should be made.
- Determination on the role of net versus gross savings estimates, and recommended approaches for estimating both.
- Guidance on determining the baseline against which energy savings and peak demand reduction impacts should be estimated.
- General guidance on how specific types of programs should be evaluated (e.g., resource acquisition programs versus information/education programs) and how the evaluation scope and level of rigor should be determined.
- Guidance on how risk and uncertainty should be addressed within evaluations.

In developing a framework to guide future DSM evaluation activities in Indiana, the Commission can take advantage of existing resources such as the guide developed as part of the National Action Plan for

[24] Deemed savings are stipulated values for energy and peak demand savings associated with a given energy efficiency measure, based on historical savings values from typical projects employing that measure.

[25] National Action Plan for Energy Efficiency (November 2007). *Model Energy Efficiency Program Impact Evaluation Guide.* Available at: http://www.epa.gov/cleanenergy/documents/evaluation_guide.pdf.

Energy Efficiency.[26] In addition, states such as California have developed detailed frameworks and protocols for conducting program evaluations.[27]

The Energy Center also recognizes that the oversight body described in Chapter 5 can play a role with respect to DSM program evaluation. This forum could provide technical input during the formulation of evaluation protocols. It could review evaluation plans with an eye to ensuring a general level of statewide consistency. In cases where multiple utilities are administering similar programs, the oversight body could coordinate joint evaluations across multiple service territories, promoting consistency as well as the cost-effective use of evaluation resources. It could also develop a web site or other mechanism for sharing evaluation results.

DSM DATABASE

One of the other evaluation-related topics discussed during the technical workshops was the proposal to develop a statewide DSM database. Participants expressed interest in developing a resource to support program design and planning, and also to serve as a repository for program results. However, there was not sufficient time during the technical workshops to address the key questions that need to be answered before such a resource can be developed, including: what objectives should the database be designed to achieve; what information should the database contain; who should have responsibility for building the database; who should have responsibility for populating the database; what quality assurance protocols should be in place to ensure data quality and integrity; who should have access to the database; and what security mechanisms should be in place to ensure confidentiality of any sensitive information.

Participants suggested a collaborative process would be the best way to address these questions, and cited the success of a similar collaborative that developed a GIS resource for maintaining information on service territory boundaries. Depending on the goals agreed to by stakeholders, other states provide models that could be reviewed and adapted. If the objective is to create an online "program dashboard" that summarizes information on energy efficiency program savings and expenditures, one model is California's Energy Efficiency Groupware Application (EEGA).[28] If the goal is to develop a shared repository for deemed savings values, the Deemed Savings Database developed by NYSERDA is one example of a similar resource used by program planners, implementers, and evaluators.[29] There may also

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[26] National Action Plan for Energy Efficiency (November 2007). *Model Energy Efficiency Program Impact Evaluation Guide*. Available at: http://www.epa.gov/cleanenergy/documents/evaluation_guide.pdf.

[27] California Public Utilities Commission (2004). *The California Evaluation Framework*. Available at: http://www.tecmarket.net/ca_eval_framework.htm.

California Public Utilities Commission (2006). *California Energy Efficiency Evaluation Protocols: Technical, Methodological, and Reporting Requirements for Evaluation Professionals*. Available at: http://www.tecmarket.net/ca_eval_framework.htm.

[28] Information available at: http://eega2006.cpuc.ca.gov/.

[29] The NYSERDA Deemed Savings Database is an Access database that is available upon request to NYSERDA staff.

be opportunities to develop a regional technical forum to leverage or learn from similar efforts that could be underway in other states where DSM activities are ramping up, such as Illinois and Ohio.

Based on the consensus which emerged during the workshops, the Energy Center recommends that the Commission convene a working group to reach agreement on the objectives parameters of the DSM database. Participants would ideally include utilities, Commission and OUCC staff, and other interested stakeholders. Alternatively, the oversight body proposed in Chapter 5 could be charged with developing recommendations on the contents and approach for developing a DSM database resource for Indiana.

CHAPTER 7: RATEMAKING AND COST RECOVERY ISSUES

RATEPAYER EQUITY CONSIDERATIONS

The technical workshops addressed three key questions involving ratepayer equity:

- Whether DSM offerings should be available to all market sectors—residential, commercial, industrial, and agricultural.
- How the relative allocation of DSM resources across market sectors should be determined.
- Whether participation in DSM initiatives and associated ratepayer contributions should be voluntary or mandatory for all market sectors.

As noted in Chapter 2, in order to ensure that all Indiana energy consumers have the opportunity to benefit from the energy cost reductions that can be achieved through energy efficiency improvements, it is important to offer programs and resources to all customer classes and market segments.

Technical workshop participants were supportive of the approach for allocating DSM funding by sector in accordance with the magnitude of energy savings and demand reduction opportunity, determined through empirical assessments of energy efficiency potential. As previously discussed, a number of recent potential studies in Indiana have excluded large industrial customers from the assessment. A common argument against funding industrial energy efficiency programs is that for economic reasons, large industrial facilities have already maximized all cost-effective energy efficiency opportunities. However, program experience in states with long-running programs and a number of empirical studies have demonstrated this is not the case. For example, a 2006 analysis by ACEEE compared the results of industrial efficiency potential studies conducted in California, New York, the Pacific Northwest, and the Southwest. In these studies, estimates of achievable energy efficiency potential in the industrial sector ranged from 10 to 33 percent of base sales.[30] The same study reviewed data from 1980 through 2005 compiled by the U.S. Department of Energy's Industrial Assessment Center (IAC), which showed that on average, facilities participating in the program implemented approximately half of the cost-effective energy savings recommendations made by IAC auditors (generally those recommendations with paybacks of one year or less). In establishing energy savings targets for Indiana utilities, it will be important to conduct assessments of efficiency potential in the industrial market. Such studies will also be useful in determining the appropriate allocation of DSM funding to each market sector.

Though technical workshop participants supported the inclusion of all sectors in DSM offerings, a number of participants recommended that participation and associated ratepayer contributions be voluntary for large C&I customers. Under an opt-out scenario, a large customer could apply funding that would have gone to support utility-administered programs to energy efficiency improvement projects in their own facilities. Applying such funds directly would avoid the administrative costs associated with funding that is routed through a utility program.

[30] ACEEE (April 2006). *Ripe for the Picking: Have We Exhausted the Low-Hanging Fruit in the Industrial Sector?* Report No. IE061.

Participants discussed establishing requirements that large energy users would have to meet in order to opt out of utility-administered programs in favor of self-directed efficiency efforts. Generally, opt-out requirements seek to provide sufficient documentation so that policy makers can be confident the funding is applied to actual energy-saving projects. In cases where a customer opts out of utility-administered programs in favor of a self-directed initiative, the utility's energy savings target is reduced accordingly.

Other states provide models for how such opt-out provisions could be structured. For example, Wisconsin Administrative Code establishes the provisions whereby large customers may elect to pursue self-directed energy efficiency programs, forgoing contributions that would otherwise have been collected for the customer's participation in statewide energy efficiency programs.[31] A "large customer" is defined as having an energy demand of at least 1,000 kilowatts (kW) per month or at least 10,000 decatherms of natural gas per month, with monthly energy bills of at least $60,000 (for electric service, natural gas service, or both). At least six months prior to the start of a given program year, a customer meeting the "large customer" definition can file a request with the Public Service Commission of Wisconsin (PSCW) that includes the following information:

- Explanation of the proposed self-directed program, including descriptions of the targeted buildings, equipment and operations; descriptions of eligible energy efficiency measures; estimates of expected energy savings, itemized by technology.
- Performance targets that are consistent with PSCW goals, policies, and priorities.
- A program-level cost-effectiveness analysis.
- An administrative and program delivery budget for each year of operation.
- A tracking and reporting system, as specified by the PSCW.
- A measurement and verification plan.
- Other information as requested by the PSCW.

Approved self-directed programs are subject to evaluation conducted by an independent third party, and large customers must file quarterly activity reports and annual performance results, using a reporting format provided by the PSCW.

The Energy Center believes that the Commission may want to consider establishing guidelines under which large customers may opt out of utility-administered energy efficiency programs. Based on the workshop discussions, such guidelines should address the following:

- Opt-out provisions are only available to customers with peak electric demand of 500 kW and above.
- Opt-out requests can only be submitted for future energy efficiency projects, not for projects that have already been implemented.

[31] Wisconsin Administrative Code, Chapter PSC 137, Section PSC 137.09, *Large Energy Customer Self-Directed Energy Efficiency Programs*.

- Projects must be completed within the timeframe of the current the two-year energy efficiency program cycle. (As discussed in Chapter 2, utility goal-setting and program implementation cycles should align with existing IRP processes, with IRPs filed every two years in odd-numbered years.)
- Customer must provide documentation of proposed project(s), including information on the applicable facility(ies), descriptions of proposed technologies to be installed, projected energy savings and demand reductions, and projected costs.
- Customer must evaluate the cost-effectiveness of the project using formulas specified by the Commission.
- Projects are subject to *ex post* evaluation of energy savings and peak demand reduction conducted by an independent third party.

It will also be important to provide guidance on the question of how efficiency projects affecting multiple energy sources (electricity as well as natural gas and/or purchased steam) should be addressed. For example, the total savings from an opt-out project could be calculated in terms of Btus in order to determine the relative share of total savings from electric efficiency versus natural gas efficiency. Using this ratio, the incremental cost of the project could be allocated between electric efficiency and gas efficiency. Accordingly, the customer's contribution to electric DSM initiatives could be reduced by the share of the incremental cost associated with electric efficiency improvement.

UTILITY COMPENSATION AND INCENTIVE MECHANISMS

In the Order issued in Phase I of this proceeding, the Commission found that while the primary focus of Phase II should be on refining DSM policy, consideration of DSM program cost recovery and related ratemaking issues such decoupling and shareholder incentives should play a secondary role in the discussion. Under the federal Energy Independence and Security Act of 2007 (EISA), states are required to consider modification of rate designs to align utility incentives with the delivery and promotion of energy efficiency resources. Consideration of ratemaking and cost recovery issues within the context of this proceeding achieves compliance with this statutory requirement.

In terms of approaches used to compensate utilities for the financial impacts associated with DSM initiatives, there are three primary mechanisms to consider:

- Compensation for direct program expenditures, addressed through cost recovery mechanisms.
- Compensation for reduced earnings due to reductions in volumetric sales, addressed through decoupling mechanisms.
- Compensation for erosion of shareholder value due to reduced spending on supply-side assets, addressed through performance incentive mechanisms.

From the perspective of a utility investor, the preferred compensation strategy (or strategies) will depend on a number of factors, including the relative importance of maximizing short-run rate of return or long-run asset growth, as well as other considerations such as minimizing risk.

Indiana Administrative Code provides guidelines for demand-side cost recovery by electric utilities, as well as lost revenue recovery and demand-side management incentives.[32] According to technical workshop participants, the DSM tracker mechanisms currently in use for the purposes of cost recovery are working well, and participants did not indicate a need for modifying cost recovery approaches. In addition, there are currently proceedings before the Commission involving decoupling (e.g., Cause 43427, Petition of Vectren Energy Delivery for approval of an Alternative Regulatory Plan) and performance incentives (e.g., Cause 43374, Petition of Duke Energy Indiana for approval of an Alternative Regulatory Plan). As the Commission has the authority to approve decoupling and performance incentive mechanisms, and will consider individual utility proposals within the contexts of the relevant proceedings, the Energy Center does not find a need to make further recommendations on these issues within the context of this proceeding.

[32] 170 IAC 4-8-5 through 170 IAC 4-8-7.

CHAPTER 8: SMART GRID TECHNOLOGIES AND ADVANCED RATE DESIGN

The technical workshops included discussions of the role that smart grid technologies and advanced rate design can play in supporting a more consistent statewide approach to electric DSM in Indiana.

The term "smart grid" encompasses a broad array of technologies that offer enhanced grid reliability and security through improvements to electric transmission and distribution infrastructure. In addition, smart grid technologies include communications infrastructure that allows better control of on-site generation resources as well as improved energy management at the customer site. Examples of smart grid technologies include digital information and control systems; real-time, automated, interactive technologies that optimize the physical operation of appliances, equipment, and consumer devices; communications systems that provide real-time information on grid operations and status; distribution automation equipment; advanced electricity storage and peak-shaving technologies; distributed generation resources, including renewables; and devices that provide timely information and energy control options to consumers.[33]

"Advanced rate design" refers to dynamic electricity pricing structures that support energy savings and/or peak demand reduction objectives by providing better price signals to energy consumers. Common examples include time of use (TOU) rates, real time pricing (RTP), and critical peak pricing (CPP). Other rate structures that support DSM objectives include inclining block rates and interruptible/curtailable tariffs. (See the Glossary for definitions of these rate structures).

Technical workshop participants acknowledged that smart grid technologies will likely play an important role in DSM strategies of the future. A number of participants are launching pilots to test selected technologies, or are making infrastructure investments to support future smart grid applications. However, many smart grid technologies are still in the early stages of development, and in some cases the impacts on energy consumption and peak demand are still relatively untested. Given the high cost and unproven nature of some smart grid technologies, and potential ratepayer impacts associated with large-scale investments in smart grid infrastructure, a strategic approach is advisable. Participants felt it will be important to ensure that those who bear the cost of investments in such technologies achieve commensurate benefits. In promoting any energy savings benefits associated with smart grid technologies, such claims should be based on demonstrated, measured results.

In the discussion of advanced rate design, participants noted that rates based on average costs provide a poor price signal to motivate energy conservation. Declining block rates (where successive blocks of electricity use are priced at increasingly lower per-unit prices) are still available in Indiana. Providing better price signals to energy consumers is an important component of ensuring that Indiana achieves its DSM goals. Technical workshop participants noted that RTP rates and CPP rates are particularly effective options in this regard. Though interruptible/curtailable rates are widely available to large customers, industrial customers have expressed interest in innovative rate offerings. Participants cited the uncertainty of residential customer response to dynamic pricing signals and communications infrastructure challenges as two areas where further attention is needed.

[33] Energy Independence and Security Act of 2007.

To facilitate a strategic approach to smart grid development and broader deployment of advanced rate designs in Indiana, the workshop participants reached general consensus on the following:

- Continue to pilot-test smart grid applications, with rigorous field testing and evaluation to verify results.
- Continue to phase out declining block rates, which encourage customers to use more energy, rather than less.
- Pursue broader deployment of dynamic pricing structures, particularly approaches like TOU rates that can be implemented without large-scale technology investments.
- Conduct research to evaluate customer responses to dynamic pricing.

CHAPTER 9: TIMELINE FOR FUTURE ACTIONS

If the Commission elects to implement the DSM framework proposed in this analysis, the critical steps in the process will unfold over the next few years. Workshop participants discussed current processes and reached consensus on the major components of the proposed DSM framework.

- Formation of oversight collaborative for electric DSM
- Potential study updates, particularly assessments of industrial energy efficiency potential
- Establishing utility goals
- DSM planning, including utility coordination on core program offerings
- Development of evaluation plans
- Program launch

The concluding stages of Phase II of this proceeding will likely continue through much of 2009. 2009 is also a year in which utilities file IRPs. For this reason, a full transition to the framework proposed in this analysis would not be completed until the following IRP cycle in 2011. The graphic below shows a potential timeline for deployment of the key elements listed above, based on workshop discussions.

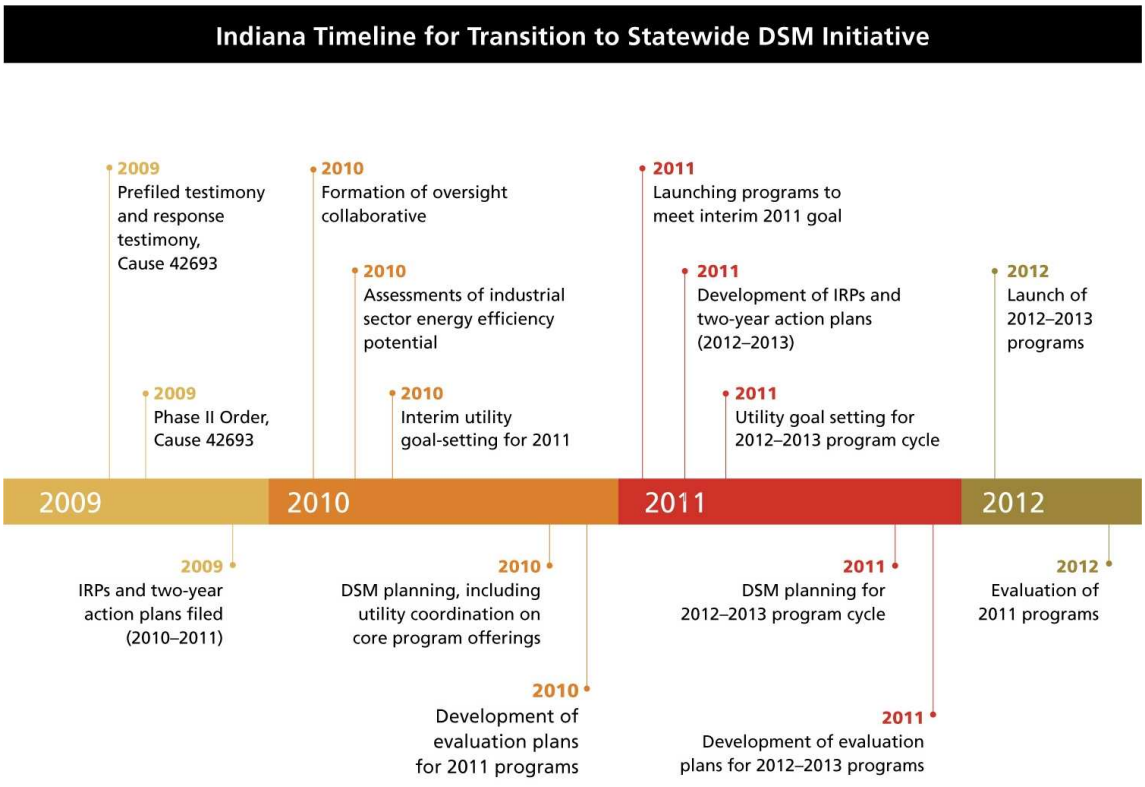

Figure 2: Proposed timeline for deployment of electric DSM framework in Indiana

GLOSSARY

Following are definitions of key terminology as referenced in this analysis.

Administrative model: Structure underlying the delivery of DSM programs, determined by the entity (or entities) with primary responsibility for ensuring energy savings targets and other policy objectives are met. The primary administrative models are:

> **Utility model**: Primary responsibility for administering DSM programs resides with the utility (investor-owned, municipal, or cooperative). States with utility models include California, Minnesota, and Iowa.
>
> **Third party model**: Primary responsibility for administering DSM programs resides with an independent, non-governmental organization under contract to a state agency or other entity administering funding for DSM initiatives. States with third party models include Wisconsin, Oregon, and Vermont.
>
> **Public sector model**: Primary responsibility for administering DSM programs resides with a government agency. States with public sector models include New York and New Jersey.

Advanced metering: Metering devices with the capability of recording more detailed energy consumption data than standard meters. Typically also includes related networks, communications hardware and software, data management, billing systems, and other infrastructure necessary to support communications between the meter and the utility business systems. Advanced metering is one type of "smart grid" technology (see below).

Advanced rate design: Utility rate structures that employ dynamic pricing, where the retail cost of electricity varies according to time of use and/or electric demand, providing better price signals to energy consumers. Common examples include:[34]

> **Time of use (TOU) rates**: Rate structures that employ standard differentiated prices for electricity consumed during on-peak and off-peak periods, which are consistent throughout the year. In some cases TOU rates also include seasonal price differentiation.
>
> **Real time pricing (RTP)**: Rate structures that vary continuously according to the wholesale price of electric power.
>
> **Critical peak pricing (CPP):** Rate structures that employ a high price that comes into effect during "critical peak" periods of high electric demand, typically with some advance notice to the customer (as much as one day ahead or in some cases only a few hours ahead).

Cost recovery: Rate making mechanism that allows a utility to recoup the direct costs associated with administering DSM programs.

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[34] U.S. Department of Energy and the U.S. Environmental Protection Agency. *National Action Plan for Energy Efficiency* (2006) Available at: www.epa.gov/eeactionplan.

Declining block rates: Successive blocks of electricity use are priced at increasingly lower per-unit prices, so customers using a large amount of energy pay a lower average cost.

Decoupling: Rate making mechanism that seeks to motivate utility investment in energy efficiency by eliminating or reducing the dependence of utility revenues on system throughput.

Deemed savings: Stipulated values for energy and peak demand savings associated with a given energy efficiency measure, based on historical savings values from typical projects employing that measure.

Demand response (DR): Initiatives that shift consumption from periods of peak electric demand to off-peak periods. Includes direct load control approaches as well as pricing structures that

Demand-side management (DSM): Any activity or program that is designed to modify the amount or timing of energy consumption, including energy efficiency and demand response.

Energy efficiency: Using less energy to achieve the same or improved level of performance in an economically efficient way. Energy efficiency can be achieved through installation of energy-efficient technologies, construction practices, operational and maintenance improvements, and behavior change.

Inclining block rates: Successive blocks of electricity use are priced at increasingly higher per-unit prices, so customers using a large amount of energy pay a higher average cost.

Integrated resource plan (IRP): A long term strategic plan for meeting future energy demand that includes demand-side (e.g., energy efficiency) as well as supply-side resources (e.g., power plants).

Interruptible/Curtailable rates: Tariffs for large commercial and industrial customers, where a utility offers discounted rates or incentives for interruption or voluntary curtailment of electric service during periods of peak demand.

Market transformation: Program strategy that emphasizes market interventions designed to "induce lasting structural and behavioral changes in the marketplace, resulting in increased adoption of energy-efficient technologies."[35]Typically focuses on influencing upstream market actors such as manufacturers, retailers, equipment suppliers, contractors, or builders.

Performance incentives: Financial rewards to utilities or other energy efficiency program administrators for meeting specified performance targets and/or achieving defined policy objectives.

Resource acquisition: Program strategy that promotes end user adoption of energy-efficient products and practices through incentives or other subsidies.

Smart grid: Improvements to electric transmission and distribution infrastructure that offer enhanced reliability and security for meeting future demand. Components include: digital information and controls; distributed generation resources, including renewables; demand response and energy-efficiency resources;

[35] Consortium for Energy Efficiency. *Market Transformation Primer*. Available at: http://www.cee1.org/cee/mt-primer.php3.

‘‘smart’’ technologies (real-time, automated, interactive technologies that optimize the physical operation of appliances, equipment, and consumer devices); communications systems that provide real-time information on grid operations and status; distribution automation; advanced electricity storage and peak-shaving technologies; and devices that provide timely information and energy control options to consumers.[36]

[36] Energy Independence and Security Act of 2007.

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