National Standard Practice Manual Case Study: Arkansas' Current Practices

Prepared for:

Arkansas Public Service Commission

Prepared by:

The Parties Working Collaboratively (PWC),
the Independent Evaluation Monitor (IEM) and
E4TheFuture

FINAL REPORT

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Glossary

APSC or Commission: Arkansas Public Service Commission

Avoided costs: An estimation of the future value of avoided market purchases of electric and gas energy resources that is applied to the amount of energy that did not need to be generated or purchased due to an installed energy efficiency (EE) measure that reduced the energy need. The energy efficiency resources are evaluated for cost-effectiveness. The avoided costs are what make up the utility system benefits of EE resources.

AOG: Arkansas Oklahoma Gas Company

BHEA: Black Hills Energy Arkansas, Inc.

C&EE Rules: Rules for Conservation and Energy Efficiency Programs

CNP: CenterPoint Energy Arkansas Gas

EAI: Entergy Arkansas Inc.

Energy efficiency resource: Energy efficient technologies, services, measures, or programs funded by, and promoted on behalf of, electric and gas utility customers.

E4TheFuture: E4TheFuture promotes residential clean energy and sustainable resource solutions to help build a resilient and vibrant energy efficiency and clean energy sector.

Free Riders: Customers who received a rebate or incentive to participate in a program, but would have participated in the program without the rebate or incentive.

IEM: Independent Evaluation Monitor

NEBs: Non-Energy Benefits

NSPM: National Standard Practice Manual

Price Suppression: Price suppression refers to a potential decrease in the wholesale price of energy or capacity resulting from an aggregate reduction in demand.

PWC: Parties Working Collaboratively

OG&E: Oklahoma Gas & Electric Company

SARP: Standard Annualized Reporting Packet

SWEPCO: Southwestern Electric Power Company

Executive Summary

On November 2, 2017, the Arkansas Public Service Commission directed the Parties Working Collaboratively (PWC) to consider the findings and recommendations of the National Standard Practice Manual (NSPM).[1] The PWC formed an NSPM Working Group which has been meeting on a regular basis. The PWC NSPM Working Group collaborated with E4TheFuture to develop a Case Study regarding the NSPM in Arkansas.[2]

The overall goal of this case study was to document Arkansas' progress in adhering to the six NSPM underlying principles. Specifically, this case study:

- Summarizes the status of six of the seven Arkansas Investor-Owned Utilities (IOUs) [3] regarding incorporating the NSPM principles into their current energy efficiency policies and programs' cost-effectiveness analysis*; and*
- Identifies specific areas in which additional review, discussion, and consideration may be needed to fully meet these underlying principles.

This case study provides a snapshot of current IOU cost-effectiveness practices during Program Year 2017 and Program Year 2018. However, the energy efficiency landscape in Arkansas is constantly evolving. Where possible, we have also identified those areas that are undergoing current review as well as areas that may require additional guidance from the Commission. It is important to note that there are several areas of overlap between the various NSPM principles which are identified in this case study as appropriate.

Conclusions

Arkansas has demonstrated ongoing leadership and commitment to sound energy efficiency programs and policies for a number of years. This is evident in its long history of establishing policies that promote energy efficiency programs and its commitment to measuring the overall effectiveness in both program planning and implementation through annual EM&V and transparent reporting.

With respect to assessing cost-effectiveness of ratepayer funded efficiency program, review and consideration of the NSPM suggests that there are both many aspects of Arkansas' current approach that are consistent with NSPM principles and some areas where refinement may be warranted.

The case study documented that the APSC's current guidance on cost-effectiveness analyses addresses all of the biggest utility system impacts (avoided energy, avoided capacity, avoided T&D and marginal line losses); it also addresses most of the state's key policy objectives.

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[1] Order No. 27, Docket No. 10-100-R and Order No. 40, Docket No. 13-002-U.

[2] *See* General Staff's Status Report Concerning the National Standard Practice Manual Case Study filing on May 30, 2018, in Docket Nos. 10-100-R and 13-002-U.

[3] Due to its uniquely small and rural service territory and corresponding waiver of certain C&EE Rules and requirements as recognized by the Commission in Docket No. 07-076-TF, Order No. 62, The Empire District Electric Company was not used in the NSPM study group.

However, the NSPM case study uncovered both some inconsistencies in application of the APSC's guidance on application of the Total Resource Cost Test (TRC) and several additional areas in which Arkansas' cost-effectiveness analyses are inconsistent with NSPM principles:

- Some utilities are using different approaches to quantify utility system impacts (e.g., not accounting for avoided T&D costs and using average rather than marginal line loss rates) than the APSC directed them to use.
- There are also inconsistencies in the treatment of incentives paid to free riders in the TRC test, the choice of discount rates, and the incorporation of assumptions regarding carbon costs.
- Several categories of utility system impacts have not been addressed by APSC guidance on cost-effectiveness and are not being included in cost-effectiveness analyses by the six IOUs (e.g. avoided ancillary service costs, avoided credit and collection costs and the risk mitigating value of efficiency resources);
- Asymmetrical application of participant impacts – specifically inclusion of all participant costs, but exclusion of some participant non-energy benefits (NEBs).
- Impacts associated with some state policy objectives for efficiency programs are not currently included in the current definition of the Arkansas cost-effectiveness test. Specifically, Environmental, Economic Development, and Energy Security impacts are not quantified as part of the cost-effectiveness testing. However, these NEBs were only noted in the initial energy conservation orders in 2007 and have not been addressed in subsequent orders.

The following table summarizes these findings.

Table E- 1 : Summary of Arkansas' Consistency with the NSPM Principles

	NSPM Principles					
Utility Status	**#1: Treat Efficiency as a Resource**	**# 2: Policy Goals**	**#3: Hard-to-Quantify Impacts**	**# 4: Symmetry**	**#5: Forward-Looking Analysis**	**# 6: Transparency**
Overall Portfolio	◕	●	◑	◑	◕	●
AOG	◕	●	◑	◑	●	●
BHEA	◕	●	◑	◑	●	●
CenterPoint	◕	◕	◑	◑	●	●
EAI	◕	●	◑	◑	◑	◑
OG&E	◕	●	◑	◑	◕	●
SWEPCO	◕	●	◑	◑	◕	●
Fully Met = ● Mostly Met = ◕ Partially Met = ◑ Did Not Meet = ○						

Recommendations

This case study has also identified several areas that merit further consideration by the Commission with input from the PWC.

- The Commission may want to review the areas of inconsistency identified in the case study (e.g., in the development of utility system impacts such as avoided T&D costs and the use of marginal line losses, the selected discount rates, and the handling of incentives to free riders) and develop more clarity regarding the inputs and calculations for the cost-effectiveness calculations in Arkansas.
- The Commission may want to seek additional guidance regarding carbon cost pricing as the NSPM does not provide specific guidance on this topic. Appendix B summarizes the additional resources and approaches for addressing the issue.
- The Commission may want to consider expanding the current approved NEBs to include those specific to low-income programs that are consistent with the criteria set forth by the Commission in its order approving the inclusion of NEBs in the TRC test of cost-effectiveness, if a Low-Income Pilot Program is launched.
- The Commission may want to consider requiring the six Arkansas utilities to document which other utility system and non-utility impacts are being included in cost-effectiveness analysis (e.g., wholesale price suppression effects; avoided other regulatory costs) in the SARP workbooks in order to reveal any areas of inconsistency.
- Besides participant NEBs directly attributable to low-income programs, there is a long list of potential participant impacts that the Arkansas PSC could consider adding to the cost-effectiveness testing to address current asymmetry in treatment of participant costs and benefits (i.e. current inclusion of all participant costs, but only some participant benefits).[4] The current Commission approach has been to focus on those NEBs that are quantifiable, material, and relevant to the analysis of a specific utility program or program portfolio." [5] Analysis of some NEBs actually produced by the state's efficiency programs would address the current inconsistencies used in Arkansas as well as affirm Arkansas' commitment to focus on quantifiable, Arkansas-specific NEBs going forward.
- The Commission may want to consider whether previously stated policy interest in the environmental, energy security and economic development impacts of efficiency programs is of sufficient magnitude to warrant future inclusion of these impacts in the state's cost-effectiveness test and if so, provide appropriate guidance.

[4] C&EE Rules, Section 2, as amended by Orders 15 and 18 of APSC Docket No. 06-004-R, effective April 12, 2007 and May 25, 2007, respectively.

[5] APSC Docket No. 13-002-U, Order No. 30, p. 16; Order No. 7, p. 88.

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1. Introduction

On November 2, 2017, the Arkansas Public Service Commission directed the Parties Working Collaboratively (PWC) to consider the findings and recommendations of the National Standard Practice Manual (NSPM).[6] The PWC formed an NSPM Working Group which has been meeting on a regular basis. The PWC NSPM Working Group collaborated with E4TheFuture to develop a Case Study regarding the NSPM in Arkansas.

The NSPM provides a comprehensive framework to determine cost-effectiveness of energy efficiency resources. This approach presents an objective and neutral Resource Value Framework that can be used to define a jurisdiction's *primary* cost-effectiveness test (e.g. the Resource Value Test). The Resource Value Framework is based on six underlying principles that embody the perspective of a jurisdiction's applicable policy objectives, and it includes and assigns value to all relevant impacts (costs and benefits) related to those objectives (NSPM 2017, p. 1). These six principles are the focus of this case study.

Table 1: Summary of the Universal Principles Articulated in the NSPM

Efficiency as a Resource	Energy efficiency is one of many resources that can be deployed to meet customers' needs, and therefore should be compared with other energy resources (both supply-side and demand-side) in a consistent and comprehensive manner.
Policy Goals	A jurisdiction's primary cost-effectiveness test should account for its energy and other applicable policy goals and objectives. These goals and objectives may be articulated in legislation, commission orders, regulations, advisory board decisions, guidelines, etc., and are often dynamic and evolving.
Hard-to-Quantify Impacts	Cost-effectiveness practices should account for all relevant, substantive impacts (as identified based on policy goals,) even those that are difficult to quantify and monetize. Using best-available information, proxies, alternative thresholds, or qualitative considerations to approximate hard-to-monetize impacts is preferable to assuming those costs and benefits do not exist or have no value.
Symmetry	Cost-effectiveness practices should be symmetrical, where both costs and benefits are included for each relevant type of impact.
Forward-Looking Analysis	Analysis of the impacts of resource investments should be forward-looking, capturing the difference between costs and benefits that would occur over the life of the subject resources as compared to the costs and benefits that would occur absent the resource investments.
Transparency	Cost-effectiveness practices should be completely transparent, and should fully document all relevant inputs, assumptions, methodologies, and results.

(Source: NSPM 2017, p. viii)

[6] The Commission issued the directive as part of its Findings and Rulings on Issue B - Inclusion of a Common Annual Forecasted Value of Carbon Costs of the Planning Period in Future Analyses (Docket No. 10-100-R, Order No. 27; Docket No. 13-002-U, Order No. 40) p. 3 of 4).

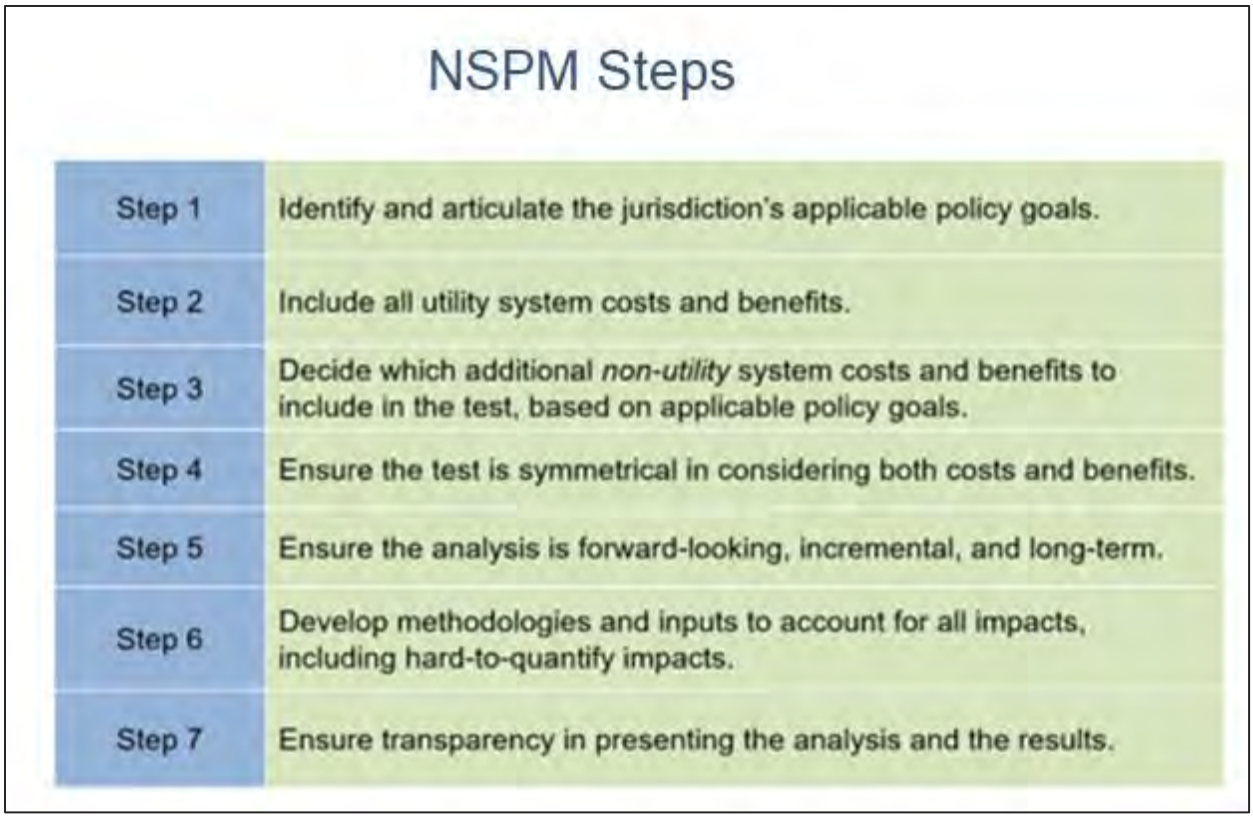
The overall goal of this case study was to assess and document the consistency of current practice in Arkansas with the six NSPM principles. Specifically, this case study:

- Provides an assessment of the current cost-effectiveness testing procedures used by six of the Investor-Owned Utilities (IOUs) with the NSPM principles*; and*
- Identifies specific areas in which additional review, discussion, and consideration may be warranted to determine potential revisions to current cost-effectiveness practice pertaining to energy efficiency program planning and implementation.

This case study provides a snapshot of current IOU cost-effectiveness practices during Program Year 2017 and Program Year 2018. However, the energy efficiency landscape in Arkansas is constantly evolving. Where possible, we have also identified those areas that are undergoing current review as well as areas that may require additional guidance from the APSC in the future.

2. Methodology

The Arkansas Public Service Commission directed that the PWC. with assistance from Staff, the Independent Evaluation Monitor (IEM), and E4theFuture, develop a case study assessing the current status of Arkansas' energy efficiency policies and cost-effectiveness testing relative to the best practices described in the NSPM. The seven steps used to conduct the study are summarized in the following figure.



(Source: NSPM 2017, p. ix)

Figure 1: NSPM Steps

The next section summarizes the ways in which this information was collected, reviewed, and documented to prepare this case study.

A. PWC Working Group Discussions

The PWC formed a specific Working Group to assist in providing and assessing the information required to complete the requested case study. This Working Group was comprised of representatives from the Arkansas electric and gas utilities, Staff, Intervenors (Audubon), and IEM team members. From March through September 2018, the Working Group members met monthly to discuss the development of the Arkansas Case Study, gather the information required from the Arkansas utilities, and reviewed progress on developing the case study. The Working Group discussed this Case Study in person during the July 2018 PWC meeting and a follow-up meeting on September 18, 2018.

B. Review of Arkansas' Current Practices

Commission Staff provided invaluable assistance in developing this case study. They conducted a thorough review of the Arkansas Commission Dockets and summarized all of the relevant information regarding the Commission's historical polices on energy conservation and related topics since 1977.

This comprehensive review identified additional impacts that could be quantified and included in future cost-effectiveness testing for the Arkansas utilities. There was a total of 31 instances in which the Commission Orders matched specific impacts described in the NSPM. Table 2 summarizes these findings.[7]

Table 2: Summary of Occurrences of NSPM Impacts in the Docket Review

Policy	Number of Orders Referenced	Currently in TRC?	Notes
Utility System			
Utility System Impacts	9	Y	Captured in utility EE portfolio costs and in the system avoided costs reported by the utilities
Reliability Impacts	1	N	Not quantified in current cost-effectiveness tests
Participants			
Other Fuels	5	Y	Part of NEBs
Water Impacts	2	Y	Part of NEBs
Low-Income Impacts	2	TBD	Will be addressed in the Low-Income Pilot Program currently in development by the PWC if approved
Other Participant Impacts	4	Limited	Besides other fuels and water, the only participant NEB currently in cost-effectiveness tests is reduced O&M costs
Society			
Equitable Access Impacts	2	NA	Not quantified in current cost-effectiveness tests
Carbon Impacts	3	Partially, in some cases	Some utilities include value for avoided carbon emissions; others do not. Those that do base the value on estimate of avoided future carbon regulation costs (utility system impact) rather than societal value.
Other Environmental Impacts	1	N	Not quantified in current cost-effectiveness tests
Economic Development Impacts	1	N	Not quantified in current cost-effectiveness tests
Energy Security Impacts	1	N	Not quantified in current cost-effectiveness tests

(Source: Summary from Energy Efficiency Policy Docket Review 2018)

The summary of the Commission's Energy Efficiency Policies is provided in Appendix A.

[7] Section 3 of this case study explores more fully Arkansas' policy approach of viewing energy efficiency "as a resource."

C. Cost-Effectiveness[8] Review by Utility Staff

All of the Arkansas IOUs are also required to provide detailed information each year in the Standard Annual Reporting Packet (SARP) workbooks. These workbooks record the current assumptions used to determine each utility's costs and benefits by program and across the portfolio.

As part of this review, each utility provided details regarding which costs are included in its avoided cost assumptions. Reviewing the individual utility responses identified a few discrepancies regarding the utilities' assumptions for several Utility System Impacts which are related directly to Principles 1 and 4 of the NSPM. These discrepancies focused on the ways in which the electric utilities currently report the following system impact costs:

- Avoided Transmission & Distribution (T&D) Capacity Costs;
- Transmission and distribution (T&D) Line Losses for both energy and peak KW;
- Wholesale Price Suppression Effects; and
- Environmental Regulatory Costs, particularly avoided future carbon regulation costs.

These findings are discussed more fully as this issue also relates to Principle 4: Symmetry in Section 3 of this case study.

[8] The C&EE Rules, Section 3, defines "cost-effective" to mean [a] standard used to describe a 'net beneficial' result for programs to be implemented, determined through a process that includes a review of relevant benefit/cost tests. A 'cost-effective' program would be one that has a high probability of providing aggregate ratepayer benefits to the majority of utility customers."

3. Comparison of NSPM Principles to Arkansas Current Practices

This section summarizes the current status of Arkansas' energy efficiency program policies relative to the six NSPM principles. It is important to note that there are several areas of overlap between the various NSPM principles which are identified in this case study as appropriate.

Principle #1: Treat Efficiency as a Resource

NSPM's first guiding principle is that efficiency should be considered a resource. As the NSPM explains,

> "*Energy Efficiency (EE) is one of the resources that can be deployed to meet customers' needs, and therefore should be compared with other energy resources (both supply-side and demand-side) in a consistent and comprehensive manner."* (NSPM 2017, p. 9)

The key research question for this principle is:

- Are all utility system impacts – costs and benefits – included in cost-effectiveness test?

Background

Arkansas has clearly demonstrated its intention to treat efficiency as a resource through a variety of policies including its energy savings goals and the rigor through which it evaluates performance to ensure claimed savings are verifiable. Indeed, the state is widely regarded as an energy efficiency leader in the Southeast. According to the Program Year (PY) 2017 evaluations, all but one of the six reporting Arkansas utilities exceeded its energy savings goals with the exception of CenterPoint Energy Arkansas Gas, which achieved 97 percent of its goal, as summarized in the following table.

Table 3: Summary of Total 2017 Gas and Electricity Primary Savings

Utility	Planned Therm Savings	Net Evaluated Therm Savings	Planned kWh Savings	Net Evaluated kWh Savings	Percent of Planned Savings Achieved
AOG	444,944	536,208	-	-	121%
BHEA	1,180,976	1,261,851	-	-	107%
CenterPoint	3,536,126	3,423,918	-	-	97%
EAI	-	-	238,130,000	264,991,920	111%
OG&E	-	-	18,062,811	21,130,663	117%
SWEPCO	-	-	32,381,870	33,666,826	104%
Total Gas	**5,162,550**	**5,221,977**	**-**	**-**	**101%**
Total Electric	**-**	**-**	**288,574,681**	**319,812,165**	**111%**

Source: 2017 EM&V Reports and Evaluator-provided summary workbooks

The APSC has articulated benefits and objectives for energy efficiency initiatives to pursue in Section 2 of the Commission's C&EE Rules. "*When providing information on these objectives, utilities are directed to describe, in quantitative terms, the benefits and costs of these different aspects of the program, standard, or code, and to comment on the barriers that impede accomplishment of these energy efficiency objectives and how to overcome these barriers."*

Arkansas' commitment to "Efficiency as a Resource" is also evident in Order No. 43 of Docket 13-002-U, establishing energy savings targets for achieving performance incentives during the next program cycle.

> *"For PY 2020-2022, the utility energy savings targets shall be 1.20% of 2018 baseline sales as adjusted for Self-Direct customers for electric utilities and 0.50% of 20l8 baseline sales as adjusted for Self-Direct customers for natural gas utilities.*" (Docket No. 13-002-U, Order No. 43, page 11 of 12)

The Commission noted that the establishment of these savings targets *"is consistent with the policy goal of capturing all cost-effective, achievable savings; promotes the policy objective of program comprehensiveness; provides ratepayers with increased opportunity to achieve substantial economic benefits that will be forgone if targets are set to maintain lower levels of savings; and provides for the payment of shareholder incentives that are commensurate with the level of achievement of potential economic benefits returned to ratepayers."(Id*. at 10)

These are just a few examples of how Arkansas is fostering "*Efficiency as a Resource"* and providing concrete guidance to ensure that energy efficiency initiatives will achieve specific energy savings goals and cost-effective energy efficiency programs for its ratepayers, while promoting the state's policy objectives.

Efficiency as a Resource in Cost-Effectiveness Analyses

The APSC has also endeavored to treat efficiency as a resource in its guidance on cost-effectiveness analyses. For example, it requires the state's utilities to include the biggest categories of utility system benefits in their analyses, including avoided energy, avoided capacity, avoided Transmission & Distribution (T&D) and line losses. In the case of line losses, the APSC has instructed the utilities to use marginal line loss rates, which is a national best practice.

However, this case study has revealed that not all utilities are uniformly following the APSC's guidance on cost-effectiveness analyses. Further, there are several categories of utility system impacts on which the APSC has not yet issued guidance and which are not included in any utility's cost-effectiveness analyses (e.g. avoided ancillary services costs, the value of risk mitigation, and avoided credit and collection costs). The inconsistencies and omissions in the utility system impacts are discussed more fully in Principle 4.

Principle #2: Policy Goals

Principle #2 is closely aligned with Principle #1 in that the commitment to *"efficiency as a resource"* is articulated through the policy goals in a specific jurisdiction. The NSPM provides the following explanation of this principle:

> "***Applicable Policy Goals**. A jurisdiction's primary cost-effectiveness test should account for its energy and other applicable policy goals. These goals may be articulated in legislation, commission orders, regulations, advisory board decisions, guidelines, etc., and are often dynamic and evolving."* (NSPM 2017, p. 9)

For the purposes of this analysis, Principle #2 focuses on examining the following two questions:

- What does the state's policy goals suggest about the categories of non-utility system impacts that should be included in its test? Are all of those categories of impacts included?
- Is the discount rate consistent with the policy objectives of the state?

Implications of Policy Goals for Categories of Impacts Included in Arkansas Cost-Effectiveness Test

The review of Arkansas' policy objectives, as shown in Table 2 and Appendix A, indicate that most of the policy goals are currently intended to be reflected in the cost-effectiveness testing conducted by the six IOUs under guidance from the APSC. This issue is discussed more fully in Principles #3 and #4.

In addition, there are some potential state policy objectives for efficiency programs for which impacts are not currently included in the current definition of the Arkansas cost-effectiveness test. Specifically, Environmental, Economic Development, and Energy Security impacts are not yet quantified as part of the cost-effectiveness testing. However, these societal NEBs were only noted in the initial energy conservation orders in 2007 and have not been addressed in subsequent orders. Clarity on the importance of these objectives is necessary to determine whether they should be reflected in the state's cost-effectiveness test in the future.

Implications of Policy Goals for Discount Rates Used in Arkansas Cost-Effectiveness Test

The NSPM has an entire chapter devoted to discount rates (Chapter 9), noting that:

> *"The discount rate reflects a particular pattern of 'time preference,' which is the relative importance of short- versus long-term impacts. A higher discount rate gives more weight to short-term impacts, while a lower discount rate gives more weight to long-term impacts. The choice of discount rate is a policy decision that should be informed by the jurisdiction's energy and other applicable policies—and thus should reflect the regulatory perspective."* (p. 73)

As Table 4 shows there is substantial inconsistency in the selected discount rates that the utilities currently use as part of their TRC tests: four of the utilities use weighted average cost of capital (WACC), one utility (CNP) uses a societal discount rate (based on long-term treasury bond yields), while another

utility (AOG) uses a blend of WACC and societal discount rates. In addition, the assumed rate of inflation differs between the utilities.[9]

Table 4: Discount Rates Used in the Benefit Cost Tests

	Electric Utilities			Gas Utilities		
Utility	EAI	SWEPCO	OG&E	AOG	BHEA	CNP
Rate for BC Tests	6.36%	6.1%	5.4%	5.0%	5.3%	2.6%
Basis for the Rate	WACC	After-tax WACC	WACC	Blend of WACC and Societal	WACCC approved in last rate case	U.S. Department of the Treasury's 20-year Constant Maturity Rate (CMT) Rate, averaged from January 2, 2015 to December 31, 2015
Real or Nominal Rate	Nominal	Nominal	Nominal	Nominal	N/A	Nominal

These differences suggest that there is a need for guidance from the APSC on discount rates. As shown in Table 2 and discussed above, statutes and APSCs order suggest efficiency programs are intended to address a wide range of policy objectives.

Principle #3: Hard-to-Quantify Impacts

This principle is defined in the NSPM as follows:

> ***"Hard-to-Quantify Impacts****. Cost-effectiveness practices should account for all relevant, substantive impacts (as identified based on policy goals,) even those that are difficult to quantify and monetize. Using best-available information, proxies, alternative thresholds, or qualitative considerations to approximate hard to-monetize impacts is preferable to assuming those costs and benefits do not exist or have no value."* (NSPM 2017, p. 9)[10]

The key research question for Principle #3 is:

- Does the difficulty in quantifying some impacts prevent the state from including all relevant utility and non-utility impacts?

The APSC has identified several hard-to-quantify benefits associated with energy efficiency programs. Commission Order No. 30 of Docket 13-002-U reflects a thorough analysis of how Non-Energy Benefits (NEBs) should be treated in Arkansas, including the following information submitted by the PWC:

[9] While the use of real vs. nominal discount rates vary between the utilities, the varying rates are not an issue as long as the avoided costs are also in similar real or nominal dollars

[10] While the NSPM promotes the use of hard-to-quantify NEBs, it provides no specific guidance in this regard on the carbon pricing issue and therefore the PWC requests additional guidance from the Commission concerning how to address the carbon cost issue.

"The PWC indicate that it researched and analyzed the quantification of NEBs in cost-effectiveness testing for the next three-year EE planning cycle, with the facilitation and technical assistance of the Independent Evaluation Monitor (IEM). The PWC submit a report developed by the IEM, Dr. Katherine Johnson: *An Examination of Non-Energy Benefits: Definitions, Approaches and Values Used in Other Jurisdictions* (June 17, 2014) at 3 (IEM Report), which includes a review of the literature on NEBs. Joint Comments at 3, Appendix A to Attachment A, Document 204 in Docket No. 13-002-U. The PWC report that, while some jurisdictions rely on adders of 10 to 15 percent to the value of EE programs to account for the additional value of NEBs, rather than trying to quantify specific values for a variety of NEBs, many PWC participants agreed that such an adder does not fit the Commission's definition of well-defined NEBs. *Id.* at 4. The PWC state that they agreed to focus on a few of the most important and most quantifiable NEBs, including:

- Avoided "other fuels" consumption;
- Avoided water/sewerage consumption;
- Avoided and deferred equipment replacement; and
- Avoided utility cost of service.

Id. at 4-5. The PWC indicate that they decided early on not to further investigate methods of quantifying avoided utility cost of service because it would require significant research and would be difficult to quantify and because such avoided costs are comprehended in cost of service updates in general rate proceedings.[11] *Id.* at 5. Regarding savings of 'other' fuels," the PWC indicate that for programs that save both natural gas and electricity, most Arkansas utilities already account for the benefit of saving both of these fuels, but not propane, if the benefit is not accounted for by another utility. *Id.*"[12]

After noting difficulties in quantifying avoided utility cost of service items and equipment, the Commission directed that the following three NEBs should be used in the TRC cost-effectiveness tests provided they meet the Order No. 7 standards:[13]

- Benefits of electricity, natural gas, and liquid propane energy savings;
- Benefits of public water and wastewater savings; and
- Benefits of avoided and deferred equipment replacement costs.[14]

At the Commission's direction, the IEM has provided guidance on calculating the value of these NEBs in the EM&V Protocols-which were reported in annual reports starting in PY2017. Protocol L in Volume 1

[11] During the course of the NSPM case study, it was suggested that the fact that some avoided costs are included in cost of service upgrades in general rate proceedings may not be relevant to the question of whether such avoided costs should be included in cost-effectiveness analyses. Due to time limitations, this issue did not get resolved as part of the work on this case study.

[12] Docket 13-002-U, Order No. 30, pp. 2-3.

[13] Docket 13-002-U, Order No. 7, p. 88, stating "that the TRC test shall include well-defined NEBs which (a) measurably reduce scarce resources, add significant value or reduce costs; (b) have a quantifiable economic value; and (c) are clearly applicable to the specific program or measure at: issue."

[14] Docket 13-002-U, Order No. 30, pp. 20-21.

of Arkansas' Technical Reference Manual (TRM) provides detailed information, examples, and reporting templates for each of the approved NEBs.

Low-Income NEBs

More recently, the Arkansas General Assembly passed Act 1102 of 2017 which provided guidance to the Commission regarding energy efficiency programs for utility customers who are sixty-five (65) years of age or older or who meet the income eligibility qualifications of the Low Income Home Energy Assistance Program (LIHEAP) administered by the Department of Human Services.[15]

Currently, the six IOUs are working to develop pilot programs that will specifically target the LIHEAP-eligible population for the next program cycle.

Offering dedicated low-income programs also expands the potential NEBs that could result from this program design. As identified in the NEB Literature Review (Johnson & Eisenberg 2014, p. 10), low-income programs also provide a variety of Non-Energy Benefits specific for low-income customers. These include helping utilities reduce the effects of termination of service (i.e., reduced "uncollectibles," reduced termination of service costs, other administrative cost savings) (Johnson & Eisenberg 2014, pp. 6-7).

In addition, low-income participants receive many additional NEBs through the installation of weatherization including improved overall health, comfort, and safety.

States have taken different approaches to quantify the NEBs related to low-income programs. One approach is to use an adder designed to capture all of the benefits associated with a low-income program. Another strategy has been to gather specific data from the utilities, weatherization agencies, and other institutions to quantify these improvements in health, comfort, and safety. These NEBs can be broken down further into specific quantifiable metrics such as: reductions in the number of asthma cases, length of hospital stays, number of missed school or work days, etc.

Quantifying the NEBs associated with Arkansas' low-income pilot program is an emerging area that has not yet been addressed in any Commission Orders.

Carbon Impacts

Another goal of this case study, in response to PSC Order No. 40, was to determine whether the NSPM can provide guidance concerning the inclusion of a common annual forecasted value of carbon costs in program cost-effectiveness testing. Currently, the electric utilities assign different values of carbon ranging from zero to $15/ton; the gas utilities do not include carbon costs in their cost-effectiveness testing.[16]

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[15] The applicable parts of Act 1102, sections 1 and 2, are codified at Arkansas Code § 23-2-304(a) (11) and § 23-3-405(a).

[16] *See generally* APSC Docket No. 13-002-U, Order No. 7, September 9, 2013, pp. 31-39 and 87-88, and Docket No. 13-002-U, Order No. 40, November 2, 2017, pp. 3-4.

The NSPM views carbon as one part of a jurisdiction's overall policy goals, along with other policy goals such as those related to low-income programs or reducing price volatility (NSPM 2017 p. 77). The NSPM does not provide specific guidance on the best approaches to quantify the cost of carbon across a specific jurisdiction. Therefore the question of the use of a common annual forecasted value of carbon costs in program cost-effectiveness testing remains unresolved among the members of the PWC. Appendix B provides a summary of recent carbon pricing trends used in other states as a way to provide additional information to the Arkansas Commission.

Other Hard-to-Quantify Impacts

This review also identified several areas in which the current avoided cost benefits reported by the utilities that are not consistent with the Commission guidance provided by the C&EE Rules, Section 2. Specifically, this analysis identified several impacts associated with energy efficiency programs that are not currently included in the cost-effectiveness testing uniformly across the six IOUs:

- **Avoided other environmental regulatory costs**: Only EAI[17] includes a cost assumption for this impact while the other two electric utilities and none of the gas utilities currently quantify this system impact.
- **Energy Security Impacts and Benefits:** This category is not included in any of the utility cost-effectiveness testing. This is likely due to its difficulty in quantifying these costs and benefits.
- **Economic Development Impacts and Benefits**: This category is not included in any of the utility cost-effectiveness testing. This is likely due the challenge of quantifying these costs and benefits. However, several states have taken an incremental approach to begin quantifying specific economic impacts such as direct and indirect job creation and increased tax revenues.[18]
- **Costs and Benefits of Low-Income Energy Efficiency Programs:** As mentioned earlier, the launch of a Low-Income Pilot Program could expand the list of potential NEBs to include health, safety, and comfort impacts as well as reduced administrative costs associated with improved payment rates and lower overall energy bills for program participants.[19]

Summary

Arkansas currently includes a number of costs and benefits in its cost-effectiveness test that are hard to quantify. Others – such as low income NEBs and the avoided cost of future carbon emission regulation – are currently under discussion. The current Arkansas cost-effectiveness test does not fully adhere to the NSPM principle of assigning some value to hard-to-quantify impacts, which are discussed more fully in NSPM Principle #4 – Symmetry.

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[17]EAI adds the following clarification: *The cost for Seasonal NOx is included as an adder to fuel cost which is avoided as a result of the implementation of energy efficiency. Fuel cost is a component of the avoided energy value in the TRC test. This is the same as CO2 cost."*

[18] This is the approach used in Illinois under the Stipulation and Future Energy Jobs Act (FEJA) legislation.

[19] Note, the Arkansas IOUs are currently capturing these administrative costs through rate cases. However, this system impact could be explored more fully to be sure it is capturing all of the costs and benefits associated with low-income programs, once the pilot program has been launched.

Principle #4: Symmetry

Symmetry means that the cost-effectiveness analysis should capture both costs and benefits in a balanced way. As the NSPM explains, this assures that the cost-benefit test is not skewed or misleading (NSPM 2017, p. 12). Specifically, the NSPM defines symmetry as:

> ***"Symmetry.*** *Efficiency assessment practices should be symmetrical, for example by including both costs and benefits for each relevant type of impact."* (NSPM 2017, p. 9)[20]

This need for symmetry applies to all type of impacts, including both utility system impacts and non-utility system impacts deemed important by state policies (as discussed in NSPM Principle #2). In this case study, we have identified two areas where there is asymmetry in Arkansas' application of cost-effectiveness analyses:

- Utility system impacts
- Participant impacts

Each of these is discussed further below.

Asymmetry in Treatment of Utility System Impacts

As described previously, Principle #1 shows Arkansas utilities are including all of the utility system costs, and most of the larger utility benefits in most cases, but not all utility system benefits. The result is some asymmetry in the treatment of utility system impacts.

As part of this case study, all six utilities provided a summary of the current avoided cost benefit assumptions they use in developing their cost-effectiveness tests. The case study also revealed a number of areas in which the utilities use differing assumptions regarding utility system benefits, or do not claim several categories of utility system benefits at all. Figure 2 summarizes these findings by utility and system impacts.

	Electric Utilities			Gas Utilities		
Catetory of Utility System Impacts	**EAI**	**SWEPCO**	**OG&E**	**AOG**	**BHEA**	**CNP**
Avoided Energy Costs	Yes	Yes	Yes	Yes	Yes	Yes
Avoided Generating Capacity Costs	Yes	Yes	Yes	N/A	N/A	N/A
Avoided T&D Capacity Costs	Yes	No	No	N/A	N/A	N/A
Avoided T&D Line Losses						
energy kWh	Yes (Marginal)	Yes (Average)	Yes (Average)	Yes	Yes	Yes
peak kW	Yes (Marginal)	No	Yes (Average)	N/A	N/A	N/A
Avoided Ancillary Services	No	No	No	N/A	N/A	N/A
Wholesale price suppression effects						
energy kWh	Yes	No	No	N/A	N/A	N/A
peak kW	Yes	No	No	N/A	N/A	N/A
Avoided carbon emission regulatory costs	Yes	Yes	No	No	No	No
Avoided other environmental regulatory costs	Yes	No	No	No	No	No
Avoided credit & collection costs	No	No	No	No	No	No
Changes to Risk Profile (e.g. fuel diversity)	No	No	No	N/A	N/A	N/A

Figure 2: Summary of Utility System Impacts Reported by Utility and Category

[20] We also note that symmetry overlaps with Principle #2: Policy Goals regarding cost and benefit analysis. See Principle #2 for a discussion of Arkansas' cost-effectiveness policy goals.

Inconsistent Reporting of Utility System Impacts[21]

- **Avoided Transmission & Distribution Capacity Costs:** This cost category is treated differently by each Arkansas electric utility. For example, EAI includes this information based on an internal study which has been classified as "Highly Sensitive Protected Information (HSPI). In contrast, SWEPCO does not include these costs, noting that, "*AEP does not believe that energy efficiency alone creates a measurable level of avoided T&D costs.*" OG&E also does not include these avoided costs.

  Commission Order No. 7 of Docket No. 13-002-U described two recommended approaches for calculating these system impacts. The electric utility could base its avoided capacity cost on the cost of a combustion turbine (CT) as modified to account for market conditions and as applied to the year in which the utility or relevant market do not have surplus capacity. Alternatively, the Commission suggested that this cost be based on available market data and account for any "significant, foreseeable changes to marginal capacity costs."[22]None of the gas utilities includes avoided T&D costs in their cost-effectiveness analyses. Though such benefits tend to be smaller for gas utilities, their omission from gas cost-effectiveness analyses also constitutes a lack of alignment with the NSPM symmetry principle.

- **Avoided Transmission & Distribution Line Losses**: The three electric IOUs also have different approaches to quantifying the T&D peak kW line losses. EAI and OG&E use assumptions based on external (EAI) and internal (OE&E) studies, while SWEPCO excludes avoided peak kW T&D line losses in its cost-benefit calculations. Furthermore, SWEPCO and OG&E use average line loss rates – rather than more accurate marginal loss rates – for both energy and peak T&D line losses. Note the use of average line loss rates is inconsistent with APSC Docket No. 13-002-U, Order No. 7, p. 39, which states "*The Commission adopts the use of marginal, rather than average line losses, to quantify EE's incremental effects, which is unopposed by any party, to quantify EE's incremental effects."* which is inconsistent with the NSPM recommendations.[23] The NSPM states:

  > *"A portion of all electricity produced at electric generating facilities is lost as it travels from the generating facilities to the homes and businesses that ultimately use the power… Another key characteristic of line losses is that they expand exponentially as the system experiences higher volumes. For this reason, it is important that calculations account for marginal loss rates for energy savings and peak savings.*" (NSPM 2017, p. 52).

- **Wholesale Price Suppression Effects**: Both SWEPCO and OG&E do not include these system impacts. However, EAI assumes effects are built into its AURORA model through a reduction in usage from energy efficiency, but it is not calculated separately.[24]

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[21] The six utilities completed individual worksheets regarding utility system impacts using a template developed by E4theFuture. The information in this section is summarized from the individual utility responses.

[22] Order No. 7, Docket No. 13-002-U, p. 38.

[23] National Standard Practice Manual, p. 13.

[24] EAI does include wholesale price suppression effects. The EAI load is reduced by the energy efficiency which lowers the LMPs for energy in the market.

- **Avoided Carbon Emission Regulatory Costs**: The three electric utilities have differing cost assumptions regarding carbon. EAI assumes a cost of $2.73/ton beginning in 2028, while SWEPCO assumes a cost of $15.08/ton for carbon beginning in 2022. OG&E sets its carbon price to zero. Currently, none of the gas utilities provide a cost for carbon.[25]
- **Other Environmental Regulatory Costs**: EAI assumes a cost of $528/ton for nitrogen oxide (NOx) beginning in 2018 and then decreasing annually, while the other utilities (electric and gas) do not include Other Environmental Regulatory Costs.[26]

Omitted Utility System Impacts

Several categories of utility system benefits were not included by any utilities, including:

- Value of risk mitigation (e.g. reduced exposure to future fuel price volatility);
- Avoided ancillary services costs; and
- Avoided credit and collection costs.[27]

Asymmetry in Treatment of Participant Impacts

As described more fully in Principles #2 and #3, the six Arkansas utilities include all participant costs, but only a portion of participant NEBs. The result is that there is asymmetry in the way participant impacts are treated in cost-effectiveness analyses.

Principle #5: Forward-Looking Analysis

The fifth NSPM principle focuses on ensuring that the cost-benefits analysis remain dynamic and reflect changing market conditions. As defined in the NSPM,

> ***"Forward-Looking**. Analysis of the impacts of efficiency investments should be forward-looking, capturing the difference between costs and benefits that would occur over the life of efficiency measures and those that would occur absent the efficiency investment."* (NSPM 2017, p. 9)

Principle #5 focuses on the following key research questions:

- Key question #1: does the analysis include only future costs and benefits (i.e., excluding sunk costs)?
- Key question #2: does the analysis cover a period sufficiently long to capture all EE impacts?
- Key question #3: does the analysis treat free rider costs as "baseline" (and therefore not an incremental cost) if it includes participant impacts?
- Key question #4: does the analysis value marginal utility system impacts?

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[25] Links to the individual utility SARP workbooks can be located at the following website: http://www.apscservices.info/eeAnnualReports.aspx

[26] EAI further explains, "*The cost for Seasonal NOx is included as an adder to fuel cost which is avoided as a result of the implementation of energy efficiency."*

[27] Note that while Cost of Service rate structures may capture reduced credit and collection costs, they are not currently being captured as part of the benefit cost test screening (i.e., while the benefits may be realized through reduced customer collection costs and thus passed on as reduced rates, they are not being assigned to measure and program screening as a benefit).

Ultimately, this principle recommends that the cost-benefit analyses for energy efficiency portfolios should focus on "what would have happened in the absence of the program" and capture the full lifecycle cost for the installed measures.

Arkansas meets the first two criteria by:

- Appropriately including only future costs and benefits (i.e., excluding sunk costs); and
- Appropriately including the full lifecycle costs and benefits of its approved energy efficiency measures in its Technical Reference Manual (i.e., there is no truncation of the lifetime benefits, as is done in some states).

However, the analysis did identify an area of inconsistency regarding capturing free ridership costs.

- **Incentives to Free Riders**: Only EAI[28] includes incentives to free riders as an administrative cost in its TRC calculation, which is consistent with the current guidance from the Commission. The other five utilities do not include this incentive as an administrative cost. The NSPM notes "*Financial incentives paid to free riders are a cost only if the cost-effectiveness test excludes participant impacts; otherwise the value of the financial incentive to the participant offsets the cost of the financial incentive to the utility system. In other words, the net cost of free riders is zero under any test that includes participant impacts."* (NSPM 2017, p. 99)
- **Average vs. Marginal Costs:** In addition, there is inconsistency in the use of average vs. marginal costs, with EAI using marginal rates for the avoided line losses, SWEPCO using average rates, and OG&E using a blend. The NSPM notes that, "*Cost-effectiveness analyses should consider only marginal impacts. These are defined as the incremental changes that will occur because of the EE resource, relative to a scenario where the resource is not in place.*" (NSPM 2017, p. 13)

This analysis suggests that additional Commission guidance may be required to ensure that the cost-benefit analysis across all the utilities is fully forward-looking and properly assessing what would happen in absence of energy efficiency programs.

Principle #6: Transparency

The NSPM definition of transparency is:

> ***"Transparency.*** *Efficiency assessment practices should be completely transparent and should fully document all relevant inputs, assumptions, methodologies, and results.*" (NSPM 2017, p.9)

Principle #6 focuses on the following key research questions:

- Key question #1: Is the rationale for what impacts are included in the Arkansas test clear?
- Key question #2: Is it clear what impacts the Arkansas utilities are including in their tests?

[28] EAI Staff reported that they are following the previous guidance regarding the California Standard Practice Manual, which has since been updated by the five other utilities. However, this update has not yet been reflected in any Commission orders.

- Key question #3: Is the methodology used to estimate values for efficiency costs and benefits clear and publicly reviewable (except for cases where confidentiality is absolutely necessary)?

Basically, the NSPM wants to ensure that all stakeholders understand the "rules of the road" regarding cost-effectiveness testing. The second premise is to ensure that the assumptions used and the results are clearly defined.

Arkansas has developed a transparent energy efficiency reporting process in both documenting the cost-effectiveness analysis and reporting the energy savings across all the entire energy efficiency program portfolio. For example, the development of Arkansas' energy efficiency program portfolio has been conducted in a straightforward and transparent manner.

The PWC was initially designed to only focus on launching energy efficiency programs through the IOUs. However, the PWC has evolved into a highly effective group that now discusses energy efficiency program planning, policy issues, and evaluation matters. The Commission has repeatedly looked to the PWC to sort out various policy options and make recommendations for future programs (Li & Bryson 2015, p. 14). A large measure of the PWC's success is due to the fact that each stakeholder is given ample opportunity to provide input and feedback, decisions are made in a fully transparent manner, and participants are able to "disagree without being disagreeable." (Li & Bryson 2015, p. 14)

The PWC has contributed to the significant progress made in Arkansas' energy efficiency portfolio from developing a leading TRM to establishing criteria for quantifying non-energy benefits and requiring annual EM&V activities to track program success and document program progress towards energy savings goals.

One example of this transparency that directly benefits the cost-effectiveness testing is the updating process for the TRM. The steps are fully described in Volume 1 of the TRM. The annual updating process includes opportunities for input from all the parties and prescribed paths to discuss or escalate concerns, as appropriate (Li & Bryson 2015, p. 18).

Arkansas also has embedded EM&V into the architecture of its program planning and design process. Annual impact evaluations must be conducted by independent third-party evaluators and annual process evaluations must include progress reports regarding the status of previous recommendations.

The IEM provides another layer of review and oversight to ensure that the findings from these individual evaluations are accurate, appropriate, and comply with the established EM&V protocols. The IEM summarizes the progress of Arkansas' overall energy efficiency portfolio in an annual report submitted to the Commission each year.

Table 5: Description of Arkansas' Comprehensiveness Checklist Factors

Commission Checklist Factor	Criteria
Factor One: Adequate Education, Training and Marketing	Whether the programs or portfolio provide, directly or through identification and coordination, the education, training, marketing, or outreach needed to address market barriers to the adoption of cost-effective energy-efficiency measures.
Factor Two: Adequate Budgetary, Management, and Program Delivery Resources	Whether the program and/or portfolio have adequate budgetary, management, and program delivery resources to plan, design, implement, oversee, and evaluate energy-efficiency programs.
Factor Three: Reasonably Addresses All Major End-Uses	Whether the programs and/or portfolio reasonably address all major end-uses of electricity or natural gas, or electricity and natural gas, as appropriate.
Factor Four: Addresses the Needs of Customers Comprehensively	Whether the programs and/or portfolio, to the maximum extent reasonable, comprehensively address the needs of customers at one time, in order to avoid cream-skimming and lost opportunities.
Factor Five: Addresses Comprehensive Needs of Targeted Customer Sectors	Whether such programs take advantage of opportunities to address the comprehensive needs of targeted customer sectors or to leverage non-utility program resources.
Factor Six: Enables the Delivery of All Achievable, Cost-Effective Energy Efficiency	Whether the programs and/or portfolio enable the delivery of all achievable, cost-effective energy efficiency within a reasonable period of time and maximize net benefits to customers and the utility system.
Factor Seven: Evaluation, Measurement, and Verification	Whether the programs and/or portfolio have EM&V procedures adequate to support program management and improvement, calculation of energy, demand, and revenue impacts, and resource planning decisions.

(Source: IEM PY2017 Annual Approach, pp. 47-52)

These evaluations must also include a progress report for each utility's performance based on seven criteria established by the Commission. The "Commission's Comprehensiveness Checklist" Factors are summarized next.

Each EM&V contractor reports on the progress each energy efficiency program portfolio has made compared to the seven comprehensiveness factors identified by the APSC. Table 5 summarizes these findings from the comprehensive checklist as reported in the individual EM&V reports. Using the following legend, energy organizations have been evaluated as having either fully met, partially met, or failed to meet the criteria associated with each factor as set forth in the Commission's Comprehensiveness Checklist (IEM PY2017 Annual Report, p. 48).

Fully Met Criteria = ●	Utilities or third–party administrators are fully meeting the criteria established by the Commission Comprehensive Checklist.
Partially Met Criteria = ◑	Utilities or third party administrators are partially meeting the criteria established by the Commission Comprehensive Checklist.
Did Not Meet Criteria = ○	Utilities or third–party administrators did not meet the criteria established by the Commission Comprehensive Checklist.
Not Applicable = ■	Identifies those cases where the Commission Comprehensive Checklist cannot be assessed.

Table 6: Summary of the Commission's Comprehensiveness Checklist Factors by Utility

Utility	Factor 1: Education/ Training/ Outreach	Factor 2: Provide Adequate Resources	Factor 3: Address Major End Uses	Factor 4: Comprehensively Address Customer Needs to Avoid "Cream Skimming"	Factor 5: Target All Customer Sectors	Factor 6: Are Cost-Effective	Factor 7: Have Appropriate EM&V Procedures in Place
AOG	●	●	●	●	●	●	●
BHEA	●	●	●	●	●	●	●
CenterPoint	●	◑	●	◑	●	●	●
EAI	●	●	●	●	●	●	●
OG&E	●	●	●	◑	◑	●	●
SWEPCO	●	●	●	●	●	●	●
Fully Met = ● Partially Met = ◑ Did Not Meet = ○ Not Applicable = ■							

(Source: Analysis of PY2017 EM&V Reports, IEM PY2017 Annual Report, p. ix)

This case study has further illuminated the ways in which the six Arkansas utilities conduct their cost-effectiveness testing, serving as an exercise to both document what impacts should be included in the Arkansas cost-effectiveness tests, as well as which impacts the utilities are currently including. This transparency has also extended to the specific assumptions and rationale for the impacts that are captured in the utility cost-effectiveness analysis testing. Furthermore, five of the six utilities include details of their avoided cost assumptions for public review.

4. Conclusions and Recommendations

Conclusions

The Case Study for Arkansas has documented the consistency of the current cost-effectiveness practices in Arkansas relative to the six underlying principles of the NSPM. However, the case study uncovered a number of inconsistencies in application of the APSC's guidance on the application of the Total Resource Cost Test (TRC):

- Some utilities are using different approaches to quantify utility system impacts (e.g., not accounting for avoided T&D costs and using average rather than marginal line loss rates) than the APSC directed them to use.
- There are also inconsistencies in the treatment of incentives paid to free riders, the choice of discount rates, and the incorporation of assumptions regarding carbon costs.
- Several categories of utility system impacts have not been addressed by APSC guidance on cost-effectiveness and are not being included in cost-effectiveness analyses by the six IOUs (e.g. avoided ancillary service costs, avoided credit and collection costs and the risk mitigating value of efficiency resources);
- Asymmetrical application of participant impacts – specifically inclusion of all participant costs, but exclusion of some participant non-energy benefits (NEBs);
- Impacts associated with some state policy objectives for efficiency programs are not currently included in the current definition of the Arkansas cost-effectiveness test. Specifically, Environmental, Economic Development, and Energy Security impacts are not quantified as part of the cost-effectiveness testing. However, these NEBs were only noted in the initial energy conservation orders in 2007 and have not been addressed in subsequent orders.

The following table summarizes these findings.

Table 7: Summary of Arkansas' Consistency with the NSPM Principles

	NSPM Principles					
Utility Status	**#1: Treat Efficiency as a Resource**	**# 2: Policy Goals**	**#3: Hard-to-Quantify Impacts**	**# 4: Symmetry**	**#5: Forward-Looking Analysis**	**# 6: Transparency**
Overall Portfolio	◕	●	◑	◑	◕	●
AOG	◕	●	◑	◑	●	●
BHEA	◕	●	◑	◑	●	●
CenterPoint	◕	◕	◑	◑	●	●
EAI	◕	●	◑	◑	◑	◑
OG&E	◕	●	◑	◑	◕	●
SWEPCO	◕	●	◑	◑	◕	●
Fully Met = ● Mostly Met = ◕ Partially Met = ◑ Did Not Meet = ○						

Overall, Arkansas continues to demonstrate ongoing leadership and commitment to sound energy efficiency programs and policies. This is evident in its long history of establishing policies that promote energy efficiency programs and its commitment to measuring the overall effectiveness in both program planning and implementation through annual EM&V and transparent reporting.

Recommendations

This case study has also identified several areas that merit further consideration by the Commission with input from the PWC.

- The Commission may want to review the areas of inconsistency identified in the case study, specifically:
    a. Avoided T&D costs;
    b. Use of marginal line losses:
    c. The selected discount rates; and
    d. The handling of incentives to free riders.

The Commission may want to consider providing clarity regarding the inputs and calculations for the cost-effectiveness calculations in Arkansas.

- The Commission may want to seek additional guidance regarding carbon cost pricing as the NSPM does not provide specific guidance on this topic. Appendix B summarizes the additional resources and approaches for addressing the issue.
- The Commission may want to consider expanding the current approved NEBs to include those specific to low-income programs that are consistent with the criteria set forth by the Commission in its order approving the inclusion of NEBs in the TRC test of cost-effectiveness, if a Low-Income Pilot Program is launched.

- The Commission may want to consider requiring the six Arkansas utilities to document which other utility system and non-utility impacts are being included in cost-effectiveness analysis (e.g., wholesale price suppression effects; avoided other regulatory costs) in the SARP workbooks in order to reveal any areas of inconsistency.
- Besides participant NEBs directly attributable to low-income programs, there is a long list of potential participant impacts that the Arkansas PSC could consider adding to the cost-effectiveness testing to address current asymmetry in treatment of participant costs and benefits (i.e. current inclusion of all participant costs, but only some participant benefits).[29] The current Commission approach has been to focus on those NEBs that are quantifiable, material, and relevant to the analysis of a specific utility program or program portfolio." [30] Analysis of some NEBs actually produced by the state's efficiency programs would address the current inconsistencies used in Arkansas as well as affirm Arkansas' commitment to focus on quantifiable, Arkansas-specific NEBs going forward.
- The Commission may want to consider whether previously stated policy interest in the environmental, energy security and economic development impacts of efficiency programs is of sufficient magnitude to warrant future inclusion of these impacts in the state's cost-effectiveness test and if so, provide appropriate guidance.

[29] C&EE Rules, Section 2, as amended by Orders 15 and 18 of APSC Docket No. 06-004-R, effective April 12, 2007 and May 25, 2007, respectively.

[30] APSC Docket No. 13-002-U, Order No. 30, p. 16; Order No. 7, p. 88.

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