# OPEN MEETING

ORIGINAL

**MEMORANDUM**



TO: THE COMMISSION

FROM: Utilities Division

DATE: July 11, 2008

RE: CONSIDERATION OF THE ADOPTION OF ENERGY POLICY ACT OF 2005 STANDARDS REGARDING FUEL DIVERSITY AND FOSSIL FUEL GENERATION EFFICIENCY (DOCKET NO. E-00000E-05-0431)

## Introduction

The Energy Policy Act of 2005 ("EPACT") requires each state regulatory authority to consider certain PURPA[1] standards, including ones on Fuel Diversity and Fossil Fuel Generation Efficiency. The Commission may decline to implement the standard or adopt a modified standard. The Commission was required to begin its consideration by August 8, 2007, and must complete its consideration by August 8, 2008. On May 12, 2006, Staff filed a memo in Docket Control that the standards of Fuel Diversity and Fossil Fuel Generation Efficiency would be addressed in the docket on Resource Planning (Docket No. E-00000E-05-0431).

The standards were discussed in a Resource Planning workshop held on January 11, 2008. Participants in the workshop included representatives from utilities, government agencies, environmental advocacy groups, advocates for renewable resources, consumers, advocates for merchant generation, and others. Staff provided a list of questions concerning the two PURPA standards, and parties were asked to file written responses to the questions. Responses were received by Arizona Electric Power Cooperative, Inc. ("AEPCO"), Arizona Public Service Company ("APS"), Grand Canyon State Electric Cooperative Association, Inc.[2] ("Cooperatives"), and Tucson Electric Power Company and UNS Electric, Inc. ("TEP/UNSE").

## Consideration of the PURPA Standards on Fuel Diversity and Fossil Fuel Generation Efficiency

EPACT requires each state regulatory authority to consider PURPA standards on Fuel Diversity and Fossil Fuel Generation Efficiency. The standards would apply to utilities with greater than 500,000 MWh in annual retail sales. The Commission may decline to implement the standards or adopt modified standards.

---

[1] Public Utility Regulatory Policies Act of 1978.

[2] Grand Canyon State Electric Cooperative Association filed comments on behalf of Duncan Valley Electric Cooperative, Inc.; Graham County Electric Cooperative, Inc.; Mohave Electric Cooperative, Inc.; Navopache Electric Cooperative, Inc.; Sulphur Springs Valley Electric Cooperative, Inc.; and Trico Electric Cooperative, Inc.

The standard on Fuel Diversity is as follows:

*Each electric utility shall develop a plan to minimize dependence on 1 fuel source and to ensure that the electric energy it sells to consumers is generated using a diverse range of fuels and technologies, including renewable technologies.*

The standard on Fossil Fuel Generation Efficiency is as follows:

*Each electric utility shall develop and implement a 10-year plan to increase the efficiency of its fossil fuel generation.*

The Commission is required to consider the three purposes of PURPA in its determination of whether to adopt the standards. The three purposes of PURPA are as follows:

- conservation of energy supplied by electric utilities,
- optimal efficiency of electric utility facilities and resources, and
- equitable rates for electric consumers.

Fuel Diversity is unlikely to affect the quantity of energy demanded, but it may have an impact on the efficiency with which utilities operate their generation portfolio. The use of different fuel sources would impact the cost of generation, ultimately impacting the rates paid by consumers. The rate impacts may be either positive or negative. Equity between consumer sectors is not likely to be affected.

Fossil Fuel Generation Efficiency is typically measured by a generation plant's heat rate (Btu/kWh): the amount of energy (Btu) needed to produce 1 kWh of electricity. Increasing the plant's efficiency is the ability to generate 1 kWh using less fuel (fewer Btu) than before the improvement, or lowering the heat rate. The intent of the Fossil Fuel Generation Efficiency standard is to increase the efficiency of some utility generation facilities, clearly tied to the second stated purpose of PURPA. As an electric utility uses less fuel, it could be considered to be conserving energy. If efficiency improvements are cost-effective, they could lower electric rates for consumers without necessarily affecting rate allocation among the customer classes.

**Summary of Responses to Staff's Questions**

AEPCO, APS, the Cooperatives, and TEP/UNSE filed responses to Staff's questions about the two standards. A summary table of the questions and responses is in the Appendix.

The Cooperatives supported AEPCO's comments and added that, if the standards were adopted, they should not apply to Navopache Electric Cooperative because its generation supplier, Public Service Company of New Mexico, is not Commission-jurisdictional.

AEPCO does not believe that the Fuel Diversity standard should be adopted because AEPCO and the other utilities already have a diverse plant mix and are subject to the Renewable

Energy Standard and Tariff ("REST") rules. Also, AEPCO states that initiatives, such as limiting greenhouse gases, have the effect of limiting planning for diversity of fuel mix on a going-forward basis. In regard to Fossil Fuel Generation Efficiency, AEPCO believes that the standard is not needed because the high costs of both fuel and plant operations and the siting and construction of new resources provide incentives to cost-effectively increase efficiency. AEPCO states that it has invested in, and will continue to implement, cost-effective techniques to increase fossil fuel generation efficiency. If the standards were adopted, AEPCO believes that Fuel Diversity should not be applied to cooperatives, and Fossil Fuel Generation Efficiency should not apply to AEPCO.

APS believes that the concept of Fuel Diversity should be incorporated into revised resource planning rules, and that Fuel Diversity cannot be considered in isolation of other factors. APS states that the Fossil Fuel Generation Efficiency standard is not necessary because it would duplicate the Commission's resource planning process. If the standards were adopted, APS believes that Fuel Diversity should apply to all Commission-jurisdictional, load-serving entities serving retail customers, including both traditional utility companies and competitive retail providers, and the Fossil Fuel Generation Efficiency standard should apply to generation-owning electric utilities under Commission jurisdiction.

TEP/UNSE believe that Fuel Diversity is an appropriate component of utility system planning and should be considered qualitatively in the development of an integrated resource plan. TEP/UNSE also believe that Fossil Fuel Generation Efficiency should be part of an integrated resource planning process to enable utilities to analyze the cost-effectiveness of fuel efficiency plans. TEP/UNSE believes that the applicability of Fuel Diversity should be based on criteria determined in the integrated resource planning process, including a determination of whether a load-serving entity's load or sales is significant enough to be part of the integrated resource planning discussion. In addition, TEP/UNSE states that applicability of Fossil Fuel Generation Efficiency should depend on the load-serving entity's portfolio of physical assets.

**Review of Other State Activities**

Staff reviewed the actions of several other states in regard to the PURPA standards on Fuel Diversity and Fossil Fuel Generation Efficiency. Staff found that the following states declined to adopt the Fuel Diversity standard: Arkansas (fuel diversity already practiced), California (prior state action), Colorado (rules comport with standard), District of Columbia (no generation assets), Idaho (included in resource planning), Minnesota (included in resource planning), Missouri (prior action in resource planning), Montana (included in resource planning and renewable power rules and statutes), Nevada (included in resource planning and renewable portfolio standard), Oregon (included in resource planning and renewable portfolio standard), Washington, (comparable established standards), and Wyoming (included in resource planning). Delaware will consider fuel diversity as part of its proceedings to develop rules for resource planning. Utah declined to adopt the standard because of prior state action in its resource planning order but directed its one PURPA-covered utility to include in all future resource plans

a section addressing the Fuel Diversity standard. Staff has not yet found any state that has adopted the Fuel Diversity standard.

Staff found that the following states declined to adopt the Fossil Fuel Generation Efficiency standard: Arkansas (statutes, resource planning rules, and utility practices address issue), California, (prior state action), Colorado (not in accord with rules), Delaware (no utility-owned generation), District of Columbia (no generation assets), Idaho (included in resource planning), Missouri (prior action in resource planning), Montana (independent system operator provides market incentives), Nevada (included in resource planning), Washington (comparable established standards), and Wyoming (addressed in marketplace). Georgia will consider both standards in its resource planning process. Minnesota considered the standard and has required investor-owned utilities to include fossil fuel efficiency information in their resource plans. Oregon adopted a modified standard that requires utilities to address fossil fuel generation efficiency in their resource plans. Utah adopted the standard and requires its one PURPA-covered utility to provide a 10-year Fuel Efficiency Plan in all future resource plans. Staff has not yet found any state that has adopted the Fossil Fuel Generation Efficiency standard for use outside of its resource planning process.

**Staff Analysis and Recommendations**

Fuel Diversity could provide benefits such as eliminating exposure to the price of a single fuel, improving bargaining position in fuel and fuel transportation contract negotiation, increasing reliability because some fuels can be used as replacements for others, increasing operational flexibility, and allowing switching to cleaner fuels. However, diversity could lead to an increase in fuels with more volatile prices, intermittent resources could have less availability, and environmental impacts could increase depending on the resource portfolio. Overall, Fuel Diversity could reduce the risk of reliance on any one fuel source, but the extent of diversity and the types of fuel sources would affect cost. Staff believes that a utility's resource portfolio should be evaluated in the context of a comprehensive resource planning process, where many factors can be considered. In addition, the Commission has adopted the REST rules which are increasing fuel diversity by requiring utilities to obtain a portion of their sales from renewable resources.

Improving Fossil Fuel Generation Efficiency could reduce costs if the improvements are cost-effective. The standard requires a plan for increasing efficiency, but it does not require that the increases be cost-effective. Staff believes that generation efficiency should be one factor to be considered by utilities when selecting new resources, retiring old resources, or modifying existing resources, but such decisions should be made within the context of resource planning where other factors can also be considered.

Staff recommends that the Commission decline to adopt the Fuel Diversity and Fossil Fuel Generation Efficiency standards at this time. Staff believes that, after revised or new resource planning rules are in effect, that the entities required to file resource plans should consider the fuel sources and efficiency of generation resources within their resource plans.

Ernest G. Johnson
Director
for Utilities Division

EGJ:BEK:lhm\KOT

ORIGINATOR: Barbara Keene

# Summary of Responses to Staff's Questions about PURPA Standards

| Fuel Diversity | AEPCO (comments also supported by the Cooperatives) | APS | TEP/UNSE |
|---|---|---|---|
| 1. *Should the Commission adopt the PURPA Fuel Diversity Standard? Why or why not? If so, how?* | Standard not needed because AEPCO & other utilities already have diverse plant mix and REST rules. Initiatives such as limiting greenhouse gases limit planning for diversity. | Concept of fuel diversity should be incorporated into revised resource planning rules. Fuel diversity can't be considered in isolation of other factors. | Standard is an appropriate component of utility system planning & should be considered qualitatively in development of an Integrated Resource Plan. |
| 2. *What information or studies already exist on Fuel Diversity?* | RUS-mandated resource planning process & REST Plan | Information includes FERC Form 1 filings & EIA reports, but studies have not determined optimum level of fuel diversity. | Oregon & Utah have incorporated fuel diversity into IRP requirements. |
| 3. *What are the current and foreseeable generation portfolios?* | AEPCO's fuel mix = 53% coal, 31% gas, 12% purchases, 4% hydro, <1% renewables. Expects to increase renewables & participate jointly in base load gas resources 2012-2013. | APS' Resource Alternatives Report includes available resource alternatives. | TEP's 2008 capacity = 57% coal, 26% gas, 15% purchases, 3% renewables; energy = 85% coal, 7% gas, 7% purchases, 1% renewables.<br>TEP's 2018 capacity = 45% coal, 21% gas, 20% purchases, 14% renewables; energy = 81% coal, 7% gas, 7% renewables, 5% purchases.<br>UNSE's 2008 capacity = 62% purchases, 34% gas, 4% renewables; energy = 89% purchases, 10% gas, 2% renewables.<br>UNSE's 2018 capacity = 61% purchases, 23% gas, 16% renewables; energy = 80% purchases, 13% gas, 7% renewables. |
| 4. *What are the potential benefits of Fuel Diversity?* | | Benefits and risks associated with different resources can be very unique. | |
| a. *Would fuel price and energy price risk be mitigated?* | Diversify to eliminate exposure to price of single fuel. AEPCO also has multi-year coal & rail contracts, physical gas hedging, contracts for gas storage, & renewables | | Not necessarily. Fuel & energy price risk may be somewhat mitigated, but it will vary by resource portfolio. Diversity may require increase in fuels that have more volatile prices. |
| b. *Would regulatory risk associated with individual fuels be mitigated?* | AEPCO's historic, current & prospective diversity efforts are prudent & reduce regulatory risk. | | Regulatory risk may result more from price volatility of the fuel mix rather than type of fuel. |

| | AEPCO (comments also supported by the Cooperatives) | APS | TEP/UNSE |
|---|---|---|---|
| c. *Would reliability be increased?* | Impact on reliability when other fuels can be used as replacement such as conversion of units to burn both gas & coal. Flexibility improves bargaining position in coal & rail contract negotiations. | | Not necessarily. Reliability depends on several factors. Intermittent renewable resources have less availability without storage capability. |
| d. *Would operational flexibility be increased?* | Flexibility may increase when one resource can replace another; limited during peak times when nearly all resources required. | | Not generally, but there would be greater operational flexibility if a facility is dual-fueled. |
| e. *Would environmental impacts be reduced?* | Environmental impacts may be reduced when there is excess capacity & fuel diversity allows switching to cleaner fuel; limited during peak times when nearly all resources required. | | It depends on the resource portfolio; may reduce or increase environmental impacts. |
| f. *Would there be any other benefits?* | unaware of any | | Fuel diversity is an insurance policy that moderates risk by avoiding too much reliance on any single fuel source. |
| 5. *What are the potential detriments of Fuel Diversity?* | added complexity of building & maintaining facilities to handle different fuels; higher prices if resource chosen simply for diversity reasons & its price increases significantly. | Hard targets could result in less than optimal fuel mix when other important factors, such as cost, are considered. | Benefits outweigh detriments. |
| 6. *How would the standard affect costs?* | Imposing fuel diversity standard could increase capital costs. Well-balanced portfolio over time should reduce risk of higher prices. | Cost impact of varying levels of fuel diversity need to be addressed through each utility's resource planning process. | There is a premium that must be paid to be insured. |
| 7. *What other factors need to be considered?* | availability of resources & transmission; ability and time to site & receive regulatory approvals or fight legal challenges; environmental factors & political considerations | impacts on O&M costs, capital costs, environmental impacts, availability & cost of fuel, resource development risks, & many other factors typically included in utility resource planning | Adopting the standard should be part of IRP process. |
| 8. *If adopted, to which electric utilities should the PURPA Fuel Diversity standard apply?* | not cooperatives | all jurisdictional load-serving entities serving retail customers, including traditional utility companies & competitive retail providers | Applicability should be based on criteria determined in IRP process. There should be determination of whether load-serving entity's load or sales is significant enough to be part of broader IRP discussion. Applicability should be modular for various IRP rule requirements. |

| | AEPCO (comments also supported by the Cooperatives) | APS | TEP/UNSE |
|---|---|---|---|
| **Fossil Fuel Generation Efficiency** | | | |
| 1. *Should the Commission adopt the PURPA Fossil Fuel Generation Efficiency standard? Why or why not? If so, how?* | No. High costs of fuel & plant operations, siting & construction of new resources provide incentives to increase efficiency cost-effectively. AEPCO has invested & will continue to implement cost-effective techniques to increase fossil fuel generation efficiency. | Standard is not necessary because it would duplicate Commission's resource planning process. | Standard should be part of IRP process to enable utilities to analyze cost-effectiveness of fuel efficiency plan. |
| 2. *Is there currently sufficient competitive pressure to induce generation owners to increase plant efficiency?* | Yes, for new plants. For upgrading existing plants with no capacity increase, depends on capital costs being recovered in short period of time. | Yes. Generation owners can save substantial amounts & improve competitive position by implementing cost-effective efficiency improvements to plants. | Yes. Fuel expense is largest part of production expense. Small improvements in operating efficiencies can result in significant cost savings. |
| 3. *What are the potential benefits of adopting the standard?* | | Benefits are achieved through normal business practices. | |
| a. *Would operating costs be lowered?* | Operating costs would not be reduced because AEPCO already increases efficiency if economically justified. | no | Turbine steam path upgrade could reduce operating cost, but requires significant capital investment. Significant changes to units with low operating margins may not make economic sense. |
| b. *Would environmental impacts be reduced?* | Higher efficiency reduces environmental impacts when fuel is more completely consumed. | no | Depends on type of efficiency increase; some emissions stay the same, some could increase. |
| c. *Would utility environmental compliance costs be reduced?* | Not always, higher efficiencies may cause plant to be dispatched more frequently, resulting in similar emissions compliance costs. | no | Compliance cost would increase if revised permit is required. |
| 4. *What are the potential detriments of adopting the standard?* | | Standard doesn't mention cost-effectiveness. Generation owner only implements efficiency improvements when increased expenditures for plant & equipment are more than offset by cost savings from reduced fuel consumption. | |
| a. *How would the standard affect costs?* | increased costs from preparation and approval of efficiency plan that duplicates AEPCO's planning efforts. | | Adopting a rigid standard could be detrimental given the diverse range of issues. |

| | AEPCO (comments also supported by the Cooperatives) | APS | TEP/UNSE |
|---|---|---|---|
| b. *Would there be additional plant & equipment expenditures?* | Efficiency improvements cost money. Efforts should be undertaken only when cost justified. | | Yes. Fuel efficiency improvements tend to require capital upgrades on plant equipment, pollution controls, and unit control systems. |
| c. *Would there be additional training for plant operators?* | possibly | | Yes. Plant and system control changes normally require training of operations & maintenance personnel. |
| d. *Would there be operating costs from plant improvements?* | possible increased operating costs | | It depends on the modification. |
| e. *Would there be additional environmental requirements?* | possibly | | It depends on the modification. |
| 5. *Would the standard impact reliability?* | possibly | generally not | It depends on the modification. |
| 6. *If adopted, to which electric utilities should the PURPA Fossil Fuel Generation Efficiency standard apply?* | not AEPCO | generation-owning electric utilities under Commission jurisdiction | depends on the load-serving entity's portfolio of physical assets |
| 7. *If adopted, should the timeframe be modified?* | Timeframe should be suitable for specific utility's set of resources & modified to utility's planning horizon for major maintenance & overhaul of generation units. | Any timeframe should be incorporated into resource planning rules. | No, 10-year timeframe seems reasonable. |
| 8. *If adopted, how should the plan be developed?* | Each utility should be able to develop plan for own set of unique resources, plant nature, plant age, & other factors. | Incorporate into resource planning rules. | Standard should be part of IRP process. |
| 9. *If adopted, what should the plans contain?* | Plans should contain current efficiency info by resource, what efficiency improvements might be achievable at what cost, & actual or estimated benefits of utility's efficiency program for utility's resources. | Incorporate into resource planning rules. | Plan should be similar to what other states have in their IRP requirements. It should consider cost effectiveness, environmental improvements & obligations, resource needs, and potential risks. Flexibility is needed to respond to changing market & system conditions. |

**BEFORE THE ARIZONA CORPORATION COMMISSION**

MIKE GLEASON
Chairman
WILLIAM A. MUNDELL
Commissioner
JEFF HATCH-MILLER
Commissioner
KRISTIN K. MAYES
Commissioner
GARY PIERCE
Commissioner

| | |
|---|---|
| IN THE MATTER OF CONSIDERATION OF THE ADOPTION OF ENERGY POLICY ACT OF 2005 STANDARDS REGARDING FUEL DIVERSITY AND FOSSIL FUEL GENERATION EFFICIENCY | DOCKET NO. E-00000E-05-0431<br>DECISION NO. _____<br>ORDER |

Open Meeting
July 29 and 30, 2008
Phoenix, Arizona

BY THE COMMISSION:

## FINDINGS OF FACT

**Introduction**

1. The Energy Policy Act of 2005 ("EPACT") requires each state regulatory authority to consider certain PURPA[1] standards, including ones on Fuel Diversity and Fossil Fuel Generation Efficiency. The Commission may decline to implement the standard or adopt a modified standard. The Commission was required to begin its consideration by August 8, 2007, and must complete its consideration by August 8, 2008. On May 12, 2006, Staff filed a memo in Docket Control that the standards of Fuel Diversity and Fossil Fuel Generation Efficiency would be addressed in the docket on Resource Planning (Docket No. E-00000E-05-0431).

2. The standards were discussed in a Resource Planning workshop held on January 11, 2008. Participants in the workshop included representatives from utilities, government agencies,

[1] Public Utility Regulatory Policies Act of 1978.

environmental advocacy groups, advocates for renewable resources, consumers, advocates for merchant generation, and others. Staff provided a list of questions concerning the two PURPA standards, and parties were asked to file written responses to the questions. Responses were received by Arizona Electric Power Cooperative, Inc. ("AEPCO"), Arizona Public Service Company ("APS"), Grand Canyon State Electric Cooperative Association, Inc.[2] ("Cooperatives"), and Tucson Electric Power Company and UNS Electric, Inc. ("TEP/UNSE").

**Consideration of the PURPA Standards on Fuel Diversity and Fossil Fuel Generation Efficiency**

3. EPACT requires each state regulatory authority to consider PURPA standards on Fuel Diversity and Fossil Fuel Generation Efficiency. The standards would apply to utilities with greater than 500,000 MWh in annual retail sales. The Commission may decline to implement the standards or adopt modified standards.

4. The standard on Fuel Diversity is as follows:

> *Each electric utility shall develop a plan to minimize dependence on 1 fuel source and to ensure that the electric energy it sells to consumers is generated using a diverse range of fuels and technologies, including renewable technologies.*

5. The standard on Fossil Fuel Generation Efficiency is as follows:

> *Each electric utility shall develop and implement a 10-year plan to increase the efficiency of its fossil fuel generation.*

6. The Commission is required to consider the three purposes of PURPA in its determination of whether to adopt the standards. The three purposes of PURPA are as follows:

- conservation of energy supplied by electric utilities,
- optimal efficiency of electric utility facilities and resources, and
- equitable rates for electric consumers.

7. Fuel Diversity is unlikely to affect the quantity of energy demanded, but it may have an impact on the efficiency with which utilities operate their generation portfolio. The use of

---

[2] Grand Canyon State Electric Cooperative Association filed comments on behalf of Duncan Valley Electric Cooperative, Inc.; Graham County Electric Cooperative, Inc.; Mohave Electric Cooperative, Inc.; Navopache Electric Cooperative, Inc.; Sulphur Springs Valley Electric Cooperative, Inc.; and Trico Electric Cooperative, Inc.

different fuel sources would impact the cost of generation, ultimately impacting the rates paid by consumers. The rate impacts may be either positive or negative. Equity between consumer sectors is not likely to be affected.

8. Fossil Fuel Generation Efficiency is typically measured by a generation plant's heat rate (Btu/kWh): the amount of energy (Btu) needed to produce 1 kWh of electricity. Increasing the plant's efficiency is the ability to generate 1 kWh using less fuel (fewer Btu) than before the improvement, or lowering the heat rate. The intent of the Fossil Fuel Generation Efficiency standard is to increase the efficiency of some utility generation facilities, clearly tied to the second stated purpose of PURPA. As an electric utility uses less fuel, it could be considered to be conserving energy. If efficiency improvements are cost-effective, they could lower electric rates for consumers without necessarily affecting rate allocation among the customer classes.

**Summary of Responses to Staff's Questions.**

9. AEPCO, APS, the Cooperatives, and TEP/UNSE filed responses to Staff's questions about the two standards. A summary table of the questions and responses is in the Appendix.

10. The Cooperatives supported AEPCO's comments and added that, if the standards were adopted, they should not apply to Navopache Electric Cooperative because its generation supplier, Public Service Company of New Mexico, is not Commission-jurisdictional.

11. AEPCO does not believe that the Fuel Diversity standard should be adopted because AEPCO and the other utilities already have a diverse plant mix and are subject to the Renewable Energy Standard and Tariff ("REST") rules. Also, AEPCO states that initiatives, such as limiting greenhouse gases, have the effect of limiting planning for diversity of fuel mix on a going-forward basis. In regard to Fossil Fuel Generation Efficiency, AEPCO believes that the standard is not needed because the high costs of both fuel and plant operations and the siting and construction of new resources provide incentives to cost-effectively increase efficiency. AEPCO states that it has invested in, and will continue to implement, cost-effective techniques to increase fossil fuel generation efficiency. If the standards were adopted, AEPCO believes that Fuel

. . .

Diversity should not be applied to cooperatives, and Fossil Fuel Generation Efficiency should not apply to AEPCO.

12. APS believes that the concept of Fuel Diversity should be incorporated into revised resource planning rules, and that Fuel Diversity cannot be considered in isolation of other factors. APS states that the Fossil Fuel Generation Efficiency standard is not necessary because it would duplicate the Commission's resource planning process. If the standards were adopted, APS believes that Fuel Diversity should apply to all Commission-jurisdictional, load-serving entities serving retail customers, including both traditional utility companies and competitive retail providers, and the Fossil Fuel Generation Efficiency standard should apply to generation-owning electric utilities under Commission jurisdiction.

13. TEP/UNSE believe that Fuel Diversity is an appropriate component of utility system planning and should be considered qualitatively in the development of an integrated resource plan. TEP/UNSE also believe that Fossil Fuel Generation Efficiency should be part of an integrated resource planning process to enable utilities to analyze the cost-effectiveness of fuel efficiency plans. TEP/UNSE believes that the applicability of Fuel Diversity should be based on criteria determined in the integrated resource planning process, including a determination of whether a load-serving entity's load or sales is significant enough to be part of the integrated resource planning discussion. In addition, TEP/UNSE states that applicability of Fossil Fuel Generation Efficiency should depend on the load-serving entity's portfolio of physical assets.

**Review of Other State Activities.**

14. Staff reviewed the actions of several other states in regard to the PURPA standards on Fuel Diversity and Fossil Fuel Generation Efficiency. Staff found that the following states declined to adopt the Fuel Diversity standard: Arkansas (fuel diversity already practiced), California (prior state action), Colorado (rules comport with standard), District of Columbia (no generation assets), Idaho (included in resource planning), Minnesota (included in resource planning), Missouri (prior action in resource planning), Montana (included in resource planning and renewable power rules and statutes), Nevada (included in resource planning and renewable portfolio standard), Oregon (included in resource planning and renewable portfolio standard),

Washington, (comparable established standards), and Wyoming (included in resource planning). Delaware will consider fuel diversity as part of its proceedings to develop rules for resource planning. Utah declined to adopt the standard because of prior state action in its resource planning order but directed its one PURPA-covered utility to include in all future resource plans a section addressing the Fuel Diversity standard. Staff has not yet found any state that has adopted the Fuel Diversity standard.

15. Staff found that the following states declined to adopt the Fossil Fuel Generation Efficiency standard: Arkansas (statutes, resource planning rules, and utility practices address issue), California, (prior state action), Colorado (not in accord with rules), Delaware (no utility-owned generation), District of Columbia (no generation assets), Idaho (included in resource planning), Missouri (prior action in resource planning), Montana (independent system operator provides market incentives), Nevada (included in resource planning), Washington (comparable established standards), and Wyoming (addressed in marketplace). Georgia will consider both standards in its resource planning process. Minnesota considered the standard and has required investor-owned utilities to include fossil fuel efficiency information in their resource plans. Oregon adopted a modified standard that requires utilities to address fossil fuel generation efficiency in their resource plans. Utah adopted the standard and requires its one PURPA-covered utility to provide a 10-year Fuel Efficiency Plan in all future resource plans. Staff has not yet found any state that has adopted the Fossil Fuel Generation Efficiency standard for use outside of its resource planning process.

**Staff Analysis and Recommendations**

16. Fuel Diversity could provide benefits such as eliminating exposure to the price of a single fuel, improving bargaining position in fuel and fuel transportation contract negotiation, increasing reliability because some fuels can be used as replacements for others, increasing operational flexibility, and allowing switching to cleaner fuels. However, diversity could lead to an increase in fuels with more volatile prices, intermittent resources could have less availability, and environmental impacts could increase depending on the resource portfolio. Overall, Fuel Diversity could reduce the risk of reliance on any one fuel source, but the extent of diversity and

the types of fuel sources would affect cost. Staff believes that a utility's resource portfolio should be evaluated in the context of a comprehensive resource planning process, where many factors can be considered. In addition, the Commission has adopted the REST rules which are increasing fuel diversity by requiring utilities to obtain a portion of their sales from renewable resources.

17. Improving Fossil Fuel Generation Efficiency could reduce costs if the improvements are cost-effective. The standard requires a plan for increasing efficiency, but it does not require that the increases be cost-effective. Staff believes that generation efficiency should be one factor to be considered by utilities when selecting new resources, retiring old resources, or modifying existing resources, but such decisions should be made within the context of resource planning where other factors can also be considered.

18. Staff has recommended that the Commission decline to adopt the Fuel Diversity and Fossil Fuel Generation Efficiency standards at this time. Staff believes that, after revised or new resource planning rules are in effect, that the entities required to file resource plans should consider the fuel sources and efficiency of generation resources within their resource plans.

## CONCLUSIONS OF LAW

1. The Commission has jurisdiction over the subject matter of the docket.

2. The Commission, having reviewed Staff's Memorandum dated July 11, 2008, concludes that it is in the public interest to decline to adopt the Fuel Diversity and Fossil Fuel Generation Efficiency standards.

. . .

. . .

. . .

. . .

. . .

. . .

. . .

. . .

. . .

ORDER

IT IS THEREFORE ORDERED that the Public Utility Regulatory Policies Act of 1978 standards on Fuel Diversity and Fossil Fuel Generation Efficiency are not adopted.

IT IS FURTHER ORDERED that this Decision shall become effective immediately.

**BY THE ORDER OF THE ARIZONA CORPORATION COMMISSION**

CHAIRMAN COMMISSIONER

COMMISSIONER COMMISSIONER COMMISSIONER

IN WITNESS WHEREOF, I, BRIAN C. McNEIL, Executive Director of the Arizona Corporation Commission, have hereunto, set my hand and caused the official seal of this Commission to be affixed at the Capitol, in the City of Phoenix, this _____day of _____ , 2008.

_____
BRIAN C. McNEIL
EXECUTIVE DIRECTOR

DISSENT: _____

DISSENT: _____

EGJ:BEK:lhm\KOT

SERVICE LIST FOR: Resource Planning
DOCKET NO. E-00000E-05-0431

Mr. Jeff Schlegel
Sweep
1167 West Samalayuca Drive
Tucson, Arizona 85704

Mr. Robert Annan
Annan Group
6605 East Evening Glow
Scottsdale, Arizona 85262

Ms. Deborah R. Scott
Pinnacle West Capital Corporation
400 North 5th Street
Post Office Box 53999, MS 8695
Phoenix, Arizona 85072-3999

Mr. David Berry
Western Resource Advocates
Post Office Box 1064
Scottsdale, Arizona 85252

Mr. Eric C. Guidry
Western Resource Advocates
2260 Baseline, Suite 200
Boulder, Colorado 80302

Ms. Amanda Ormond
The Ormond Group, LLC
7650 South McClintock Drive,
Suite 103-282
Tempe, Arizona 85284

Mr. Michael Grant
Gallagher & Kennedy
2575 East Camelback Road
Phoenix, Arizona 85016

Mr. C. Webb Crockett
Mr. Patrick J. Black
Fennemore Craig
3003 North Central Avenue, Suite 2600
Phoenix, Arizona 85012

Mr. Jerry Coffey
Mr. Erick Bonner
Ms. Rebecca Turner
Gila River Power, L.P.
702 North Franklin Street
Tampa, Florida 33602

Ms. Karen Haller
Southwest Gas Corporation
5421 Spring Mountain Road
Las Vegas, Nevada 89102

Mr. Paul R. Michaud
Michaud Law Firm, P.L.C.
46 Eastham Bridge Road
East Hampton, Connecticut 06424

Mr. Larry Killman
Greystone Environmental
8222 S. 48th Street, Suite 140
Phoenix, Arizona 85044-5353

Mr. Michael Patten
Ms. Laura Sixkiller
Roshka DeWulf & Patten
One Arizona Center
400 East Van Buren Street, Suite 800
Phoenix, Arizona 85004

Mr. Dave Couture
TEP
Post Office Box 711
Tucson, Arizona 85702

Mr. Jerry Payne
Cooperative International Forestry
333 Broadway SE
Albuquerque, New Mexico 87102

Ms. Donna M. Bronski
Scottsdale City Attorney's Office
3939 North Drinkwater Boulevard
Scottsdale, Arizona 85251

Mr. Brian Hageman
Ms. Caren Peckerman
Mr. Richard Brill
Deluge, Inc.
4116 East Superior Avenue, Suite D3
Phoenix, Arizona 85040

Mr. Jay Moyes
Moyes Storey
1850 North Central Avenue, Suite 1100
Phoenix, Arizona 85004

Mr. Scott S. Wakefield
Mr. Stephen Ahearn
RUCO
1110 West Washington Street, Suite 220
Phoenix, Arizona 85007

Mr. John Wallace
Grand Canyon State Electric Cooperative Association, Inc.
120 North 44th Street, Suite 100
Phoenix, Arizona 85034

Mr. Clifford A. Cathers
Sierra Southwest Cooperative Services, Inc.
1000 South Highway 80
Benson, Arizona 85602

Ms. Jana Brandt
Ms. Kelly Barr
Salt River Project
PO Box 52025, MS PAB221
Phoenix, Arizona 85072

Mr. Dan Austin
Comverge, Inc.
6509 West Frye Road, Suite 4
Chandler, Arizona 85226

Mr. Theodore Roberts
Mr. Lawrence V. Robertson, Jr.
Post Office Box 1448
Tubac, Arizona 85646

Mr. Troy Anatra
Comverge, Inc.
120 Eagle Rock Avenue, Suite 190
East Hanover, New Jersey 07936

Mr. Ernest G. Johnson
Director, Utilities Division
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

Ms. Janice M. Alward
Chief Counsel, Legal Division
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

# Summary of Responses to Staff's Questions about PURPA Standards

| Fuel Diversity | AEPCO (comments also supported by the Cooperatives) | APS | TEP/UNSE |
|---|---|---|---|
| 1. *Should the Commission adopt the PURPA Fuel Diversity Standard? Why or why not? If so, how?* | Standard not needed because AEPCO & other utilities already have diverse plant mix and REST rules. Initiatives such as limiting greenhouse gases limit planning for diversity. | Concept of fuel diversity should be incorporated into revised resource planning rules. Fuel diversity can't be considered in isolation of other factors. | Standard is an appropriate component of utility system planning & should be considered qualitatively in development of an Integrated Resource Plan. |
| 2. *What information or studies already exist on Fuel Diversity?* | RUS-mandated resource planning process & REST Plan | Information includes FERC Form 1 filings & EIA reports, but studies have not determined optimum level of fuel diversity. | Oregon & Utah have incorporated fuel diversity into IRP requirements. |
| 3. *What are the current and foreseeable generation portfolios?* | AEPCO's fuel mix = 53% coal, 31% gas, 12% purchases, 4% hydro, <1% renewables. Expects to increase renewables & participate jointly in base load gas resources 2012-2013. | APS' Resource Alternatives Report includes available resource alternatives. | TEP's 2008 capacity = 57% coal, 26% gas, 15% purchases, 3% renewables; energy = 85% coal, 7% gas, 7% purchases, 1% renewables.<br>TEP's 2018 capacity = 45% coal, 21% gas, 20% purchases, 14% renewables; energy = 81% coal, 7% gas, 7% renewables, 5% purchases.<br>UNSE's 2008 capacity = 62% purchases, 34% gas, 4% renewables; energy = 89% purchases, 10% gas, 2% renewables.<br>UNSE's 2018 capacity = 61% purchases, 23% gas, 16% renewables; energy = 80% purchases, 13% gas, 7% renewables. |
| 4. *What are the potential benefits of Fuel Diversity?* | | Benefits and risks associated with different resources can be very unique. | |
| a. *Would fuel price and energy price risk be mitigated?* | Diversify to eliminate exposure to price of single fuel. AEPCO also has multi-year coal & rail contracts, physical gas hedging, contracts for gas storage, & renewables | | Not necessarily. Fuel & energy price risk may be somewhat mitigated, but it will vary by resource portfolio. Diversity may require increase in fuels that have more volatile prices. |
| b. *Would regulatory risk associated with individual fuels be mitigated?* | AEPCO's historic, current & prospective diversity efforts are prudent & reduce regulatory risk. | | Regulatory risk may result more from price volatility of the fuel mix rather than type of fuel. |

| | AEPCO (comments also supported by the Cooperatives) | APS | TEP/UNSE |
|---|---|---|---|
| c. *Would reliability be increased?* | Impact on reliability when other fuels can be used as replacement such as conversion of units to burn both gas & coal. Flexibility improves bargaining position in coal & rail contract negotiations. | | Not necessarily. Reliability depends on several factors. Intermittent renewable resources have less availability without storage capability. |
| d. *Would operational flexibility be increased?* | Flexibility may increase when one resource can replace another; limited during peak times when nearly all resources required. | | Not generally, but there would be greater operational flexibility if a facility is dual-fueled. |
| e. *Would environmental impacts be reduced?* | Environmental impacts may be reduced when there is excess capacity & fuel diversity allows switching to cleaner fuel; limited during peak times when nearly all resources required. | | It depends on the resource portfolio; may reduce or increase environmental impacts. |
| f. *Would there be any other benefits?* | unaware of any | | Fuel diversity is an insurance policy that moderates risk by avoiding too much reliance on any single fuel source. |
| 5. *What are the potential detriments of Fuel Diversity?* | added complexity of building & maintaining facilities to handle different fuels; higher prices if resource chosen simply for diversity reasons & its price increases significantly. | Hard targets could result in less than optimal fuel mix when other important factors, such as cost, are considered. | Benefits outweigh detriments. |
| 6. *How would the standard affect costs?* | Imposing fuel diversity standard could increase capital costs. Well-balanced portfolio over time should reduce risk of higher prices. | Cost impact of varying levels of fuel diversity need to be addressed through each utility's resource planning process. | There is a premium that must be paid to be insured. |
| 7. *What other factors need to be considered?* | availability of resources & transmission; ability and time to site & receive regulatory approvals or fight legal challenges; environmental factors & political considerations | impacts on O&M costs, capital costs, environmental impacts, availability & cost of fuel, resource development risks, & many other factors typically included in utility resource planning | Adopting the standard should be part of IRP process. |
| 8. *If adopted, to which electric utilities should the PURPA Fuel Diversity standard apply?* | not cooperatives | all jurisdictional load-serving entities serving retail customers, including traditional utility companies & competitive retail providers | Applicability should be based on criteria determined in IRP process. There should be determination of whether load-serving entity's load or sales is significant enough to be part of broader IRP discussion. Applicability should be modular for various IRP rule requirements. |

| | AEPCO (comments also supported by the Cooperatives) | APS | TEP/UNSE |
|---|---|---|---|
| **Fossil Fuel Generation Efficiency** | | | |
| 1. *Should the Commission adopt the PURPA Fossil Fuel Generation Efficiency standard? Why or why not? If so, how?* | No. High costs of fuel & plant operations, siting & construction of new resources provide incentives to increase efficiency cost-effectively. AEPCO has invested & will continue to implement cost-effective techniques to increase fossil fuel generation efficiency. | Standard is not necessary because it would duplicate Commission's resource planning process. | Standard should be part of IRP process to enable utilities to analyze cost-effectiveness of fuel efficiency plan. |
| 2. *Is there currently sufficient competitive pressure to induce generation owners to increase plant efficiency?* | Yes, for new plants. For upgrading existing plants with no capacity increase, depends on capital costs being recovered in short period of time. | Yes. Generation owners can save substantial amounts & improve competitive position by implementing cost-effective efficiency improvements to plants. | Yes. Fuel expense is largest part of production expense. Small improvements in operating efficiencies can result in significant cost savings. |
| 3. *What are the potential benefits of adopting the standard?* | | Benefits are achieved through normal business practices. | |
| a. *Would operating costs be lowered?* | Operating costs would not be reduced because AEPCO already increases efficiency if economically justified. | no | Turbine steam path upgrade could reduce operating cost, but requires significant capital investment. Significant changes to units with low operating margins may not make economic sense. |
| b. *Would environmental impacts be reduced?* | Higher efficiency reduces environmental impacts when fuel is more completely consumed. | no | Depends on type of efficiency increase; some emissions stay the same, some could increase. |
| c. *Would utility environmental compliance costs be reduced?* | Not always, higher efficiencies may cause plant to be dispatched more frequently, resulting in similar emissions compliance costs. | no | Compliance cost would increase if revised permit is required. |
| 4. *What are the potential detriments of adopting the standard?* | | Standard doesn't mention cost-effectiveness. Generation owner only implements efficiency improvements when increased expenditures for plant & equipment are more than offset by cost savings from reduced fuel consumption. | |
| a. *How would the standard affect costs?* | increased costs from preparation and approval of efficiency plan that duplicates AEPCO's planning efforts. | | Adopting a rigid standard could be detrimental given the diverse range of issues. |

| | AEPCO (comments also supported by the Cooperatives) | APS | TEP/UNSE |
|---|---|---|---|
| b. *Would there be additional plant & equipment expenditures?* | Efficiency improvements cost money. Efforts should be undertaken only when cost justified. | | Yes. Fuel efficiency improvements tend to require capital upgrades on plant equipment, pollution controls, and unit control systems. |
| c. *Would there be additional training for plant operators?* | possibly | | Yes. Plant and system control changes normally require training of operations & maintenance personnel. |
| d. *Would there be operating costs from plant improvements?* | possible increased operating costs | | It depends on the modification. |
| e. *Would there be additional environmental requirements?* | possibly | | It depends on the modification. |
| 5. *Would the standard impact reliability?* | possibly | generally not | It depends on the modification. |
| 6. *If adopted, to which electric utilities should the PURPA Fossil Fuel Generation Efficiency standard apply?* | not AEPCO | generation-owning electric utilities under Commission jurisdiction | depends on the load-serving entity's portfolio of physical assets |
| 7. *If adopted, should the timeframe be modified?* | Timeframe should be suitable for specific utility's set of resources & modified to utility's planning horizon for major maintenance & overhaul of generation units. | Any timeframe should be incorporated into resource planning rules. | No, 10-year timeframe seems reasonable. |
| 8. *If adopted, how should the plan be developed?* | Each utility should be able to develop plan for own set of unique resources, plant nature, plant age, & other factors. | Incorporate into resource planning rules. | Standard should be part of IRP process. |
| 9. *If adopted, what should the plans contain?* | Plans should contain current efficiency info by resource, what efficiency improvements might be achievable at what cost, & actual or estimated benefits of utility's efficiency program for utility's resources. | Incorporate into resource planning rules. | Plan should be similar to what other states have in their IRP requirements. It should consider cost effectiveness, environmental improvements & obligations, resource needs, and potential risks. Flexibility is needed to respond to changing market & system conditions. |