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**ORIGINAL**

**MEMORANDUM**

TO: Docket Control

FROM: Steven M. Olea  
Director  
Utilities Division

DATE: September 4, 2009

RE: REVISED DRAFT PROPOSED RESOURCE PLANNING RULES FOR THE  
PROPOSED RULEMAKING ON RESOURCE PLANNING RULES (DOCKET  
NO. RE-00000A-09-0249)

Attached is Staff's revised draft proposed Resource Planning and Procurement Rules. Also attached is a letter from Commissioner Newman and a copy of Staff's draft proposed rules with Commissioner Newman's suggested changes. Staff encourages all interested parties to provide written comments (separately) on both Staff's draft proposed rules and on Commissioner Newman's letter with proposed rule changes.

Please file an original and 13 copies of your comments with the Commission's Docket Control Center, 1200 West Washington Street, Phoenix, Arizona 85007, on or before September 18, 2009. A new docket has been opened for the purpose of this resource planning and procurement rulemaking. Please reference Docket No. RE-00000A-09-0249 on all comments.

Parties who wish to be added to the service list in this docket should send notice of their interest including a mailing address and an e-mail address to Docket Control. Staff welcomes and appreciates the input of all interested parties in the development of these rules.

SMO:BEK:tdp

Originator: Barbara Keene

Arizona Corporation Commission  
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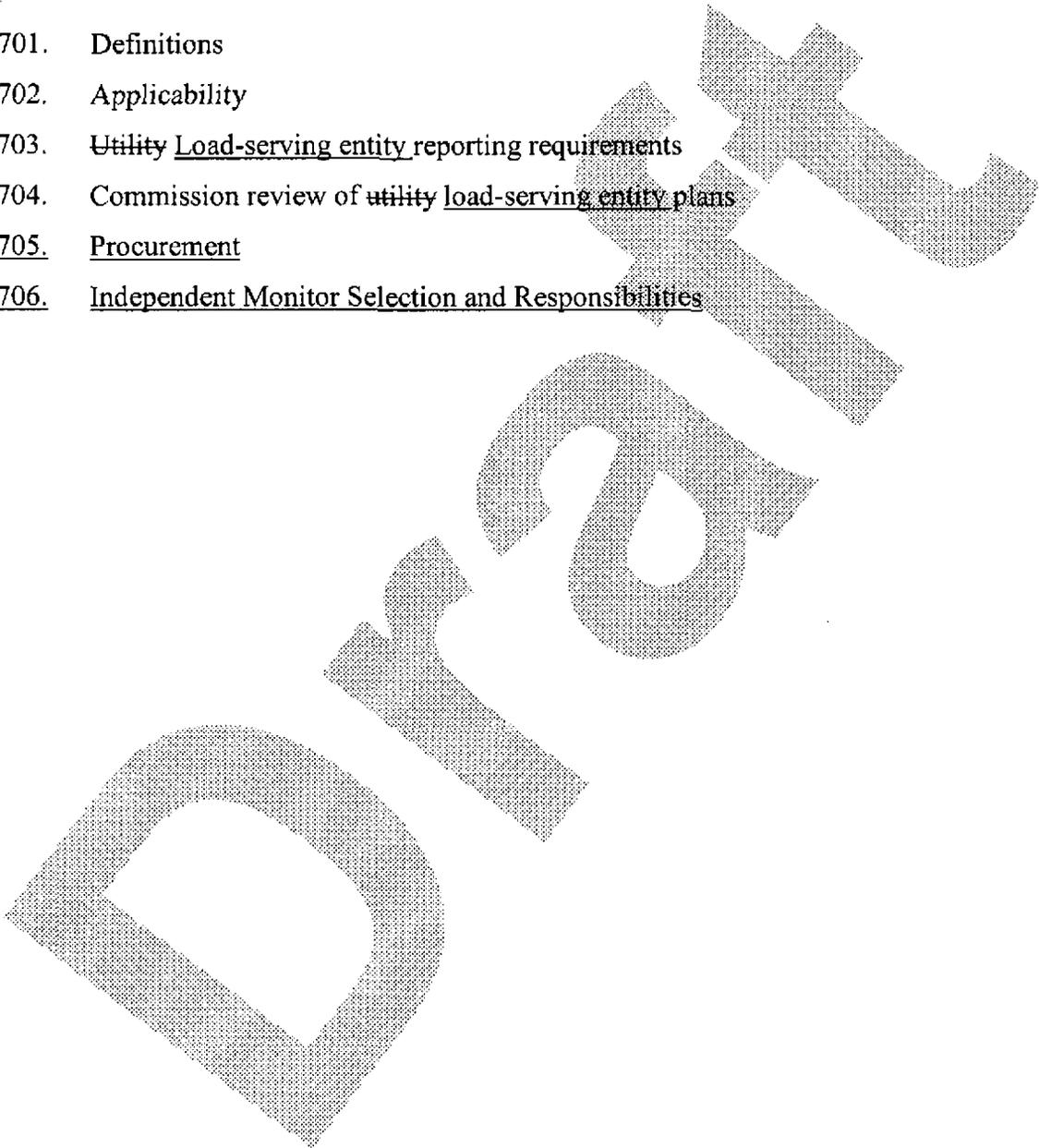
CHAPTER 2. CORPORATION COMMISSION

FIXED UTILITIES

ARTICLE 7. RESOURCE PLANNING AND PROCUREMENT

Section

- R14-2-701. Definitions
- R14-2-702. Applicability
- R14-2-703. Utility Load-serving entity reporting requirements
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## ARTICLE 7. RESOURCE PLANNING AND PROCUREMENT

### R14-2-701. Definitions

The following definitions shall apply unless the context otherwise requires In this Article, unless otherwise specified:

1. ~~“Appliance efficiency” the energy usage per unit of output of a particular type of energy using equipment.~~
2. ~~“Appliance saturation” the proportion of customers in a given customer class who have a particular type of energy using equipment.~~
3. ~~“Average price” revenue from the customer class divided by the number of kilowatt hours sold to that customer class.~~
4. ~~“Baseload demand” demand for energy that is insensitive to temperature.~~
1. “Acknowledgment” means a Commission determination, under R14-2-704, that a plan meets the basic requirements of this Article.
2. “Affiliated” means related through ownership of voting securities, through contract, or otherwise in such a manner that one entity directly or indirectly controls another, is directly or indirectly controlled by another, or is under direct or indirect common control with another entity.
- 5.3. “Benchmark” – means to calibrate against a known set of values or standards.
- 6.4. “Book life” – means the expected time period over which a power supply source will be available for use by the utility a load-serving entity.
5. “Btu” means British thermal unit.
- 7.6. “Capacity” – means the amount of electric power, measured in megawatts, which that a power source is rated to provide, either by the user, the supplier, or the manufacturer.
- 8.7. “Capital costs” – means the construction and installation cost of facilities, including land, land rights, structures, and equipment.
9. ~~“Cogeneration” the sequential production of electricity and heat, steam, or useful work from the same fuel source.~~
8. “Coincident peak” means the sum of two or more peak demands that occur in the same demand interval, which demand interval may be established on an annual, monthly, or hourly basis.
- 10.9. “Customer class” – means a group subset of customers categorized according to with similar characteristics, such as amount of energy consumed; amount of demand placed on the energy supply system at the system peak; hourly, daily, or seasonal load pattern; primary type of activity engaged in by the customer, including residential, commercial, industrial, agricultural,

~~and governmental; and location. Customer classes may include residential, commercial, industrial, agricultural, municipal, and other categories.~~

- ~~11.10. “Decommissioning” – means the process of safely and economically removing a unit from service.~~
- ~~12. “Degree-day” – the difference in degrees Fahrenheit between the reference temperature and the average temperature for a particular day. The average temperature is the high temperature plus the low temperature divided by 2. If a day’s average temperature exceeds the reference temperature, the day is a cooling degree day; if the day’s average temperature is less than the reference temperature, the day is a heating degree day.~~
- ~~13.11. “Demand management” – means beneficial reduction in the total cost of meeting electric energy service needs by reducing or shifting in time the demand for electricity usage.~~
- ~~14.12. “Derating” – means a reduction in a unit’s capacity.~~
- ~~15.13. “Discount rate” – means the interest rate used to calculate the present value of a cost or other economic variable.~~
- ~~14. “Docket Control” means the office of the Commission that receives all official filings for entry into the Commission’s public electronic docketing system.~~
- ~~15. “Emergency” means an unforeseen and unforeseeable condition that:~~
- ~~a. Does not arise from the load-serving entity’s failure to engage in good utility practices,~~
  - ~~b. Is temporary in nature, and~~
  - ~~c. Threatens reliability or poses another significant risk to the system.~~
- ~~16. “End use” – means the final application of electric energy, for such as heating, cooling, running a particular an appliance, or lighting.~~
- ~~17. “Energy losses” – means the quantity of electric energy generated or purchased that is not available for sale to end users, for resale, or for use by the utility load-serving entity, attributable to transmission, conversion, distribution, and unaccounted for losses.~~
- ~~18. “Escalation” – means the change in costs due to inflation, changes in manufacturing processes, changes in availability of labor or materials, or other factors.~~
- ~~19. “Forced outage rate” – the proportion of hours in a period, excluding those hours set aside for planned outages, in which a power source, such as a generating unit, suffers unplanned outages due to unplanned component failures or other conditions requiring that the source be removed from service immediately or before the next planned outage.~~

- 20.19. “Heat rate” – means a measure of generating station thermal efficiency expressed in ~~British thermal units~~ (Btus) per net kilowatt-hour and computed by dividing the total Btu content of fuel used for electric generation by the kilowatt-hours of electricity generated.
- ~~21. “Household income pattern” – the proportion of households falling in each of several income ranges.~~
- ~~22. “Interchange” – electric energy received by the electric utility from another provider of electricity or supplied by the electric utility to another provider of electricity which is not purchased or sold under the terms of a long-term agreement.~~
20. “Independent monitor” means a company or consultant that is not affiliated with a load-serving entity and that is selected to oversee the conduct of a competitive procurement process under R14-2-706.
21. “Integration” means methods by which energy produced by intermittent resources can be incorporated into the electric grid.
22. “Intermittent resources” means electric power generation that is non-dispatchable because of its variability.
23. “Interruptible power” – means power made available under ~~agreements which~~ an agreement that permit permits curtailment or cessation of delivery by the supplier.
25. “In-service date” – means the date a power supply source becomes available for use by ~~the utility,~~ a load-serving entity.
26. “Load-serving entity” means a public service corporation that provides electricity generation service and operates or owns, in whole or in part, a generating facility or facilities with capacity of at least 5 megawatts combined.
27. “Long term” means having a duration of three or more years.
- ~~25.28.~~ “Maintenance” – means the repair of generation, transmission, distribution, ~~and~~ administrative, and general facilities; replacement of minor items; and installation of materials to preserve the efficiency and working condition of ~~the~~ facilities.
- ~~26. “Maintenance schedule” – the specific days during which a power production unit is removed from service for inspection or overhaul of one or more major components; such work is planned well in advance.~~
- ~~27.29.~~ “Mothballing” – means the temporary removal of a unit from active service and accompanying storage activities.

- ~~28.30.~~ “Operate” – means to manage or otherwise be responsible for the production of electricity from by a generating facility, whether that facility is owned by the operator, in whole or in part, or whether that facility is owned by another entity.
- ~~29.~~ “Operating costs” – ~~the power production costs that are directly related to producing electricity.~~
- ~~30.31.~~ “Participation rate” – means the proportion of customers who take part in a specific program.
- ~~31.32.~~ “Probabilistic analysis” – means a systematic evaluation of the effect, on costs, reliability, or other measures of performance, of the range of possible events affecting factors which that influence performance, considering the chances likelihood that the events will occur.
- ~~32.33.~~ “Production cost” – means the variable operating costs and maintenance cost (including fuel-cost) costs of producing electricity through generation and plus the cost of purchases of power sufficient to meet demand.
- ~~33.34.~~ “Refurbish” – means to make major changes, more extensive than maintenance or repair, in the power production, transmission, or distribution characteristics of a component of the power supply system more extensive than maintenance or repair, such as by changing the fuels which that can be used in a generating unit or changing the capacity of a generating unit.
- ~~34.35.~~ “Reliability” – means a measure of the ability of the utility’s a load-serving entity’s generation, transmission, and or distribution systems system to provide power without failures. Reliability should be measured separately for generation, transmission, and distribution systems. Measures may to reflect the proportion of time that each a system is unable to meet demand or the kilowatt-hours of demand that could not be supplied.
- ~~36.~~ “Renewable energy resource” means an energy resource that is replaced rapidly by a natural, ongoing process and that is not nuclear or fossil fuel.
- ~~35.37.~~ “Reserve requirements” – means the capacity which the utility load-serving entity must maintain in excess of its peak load to provide for scheduled maintenance, forced outages, unforeseen loads, emergencies, system operating requirements, and power pool requirements reserve sharing arrangements.
- ~~38.~~ “Reserve sharing arrangement” means an agreement between two or more load-serving entities to provide backup capacity.
- ~~36.39.~~ “Resource planning” – means integrated supply and demand analysis for the purpose of identifying the means of meeting electric energy service needs at the lowest total cost, taking into account uncertainty analyses completed as described in this Article.
- ~~40.~~ “RFP” means request for proposals.

- ~~37.41. “Self generation” – means the production of electricity by an end user by any means.~~
- ~~42. “Utility” the entity providing electric service to the public.~~
- ~~38.42. “Sensitivity analysis” – means a systematic assessment of the degree of response of costs, reliability, or other measures of performance to changes in assumptions about factors which that influence performance.~~
- ~~43. “Short term” means having a duration of less than three years.~~
- ~~39.44. “Spinning reserve” – means the capacity which the utility a load-serving entity must maintain connected to the system and ready to deliver power promptly. The capacity may be expressed as a percentage of peak load, as a percentage of the largest unit, or as in fixed megawatts.~~
- ~~45. “Staff” means individuals working for the Commission’s Utilities Division, whether as employees or through contract.~~
- ~~46. “Third-party independent energy broker” means an entity, such as Prebon Energy or Tradition Financial Services, that facilitates an energy transaction between separate parties without taking title to the transaction.~~
- ~~47. “Third-party on-line trading system” means a computer-based marketplace for commodity exchanges provided by an entity that is not affiliated with the load-serving entity, such as the Intercontinental Exchange, California Independent System Operator, or New York Mercantile Exchange.~~
- ~~40.48. “Total cost” – means all capital, operating, maintenance, fuel, and decommissioning costs, plus the costs associated with mitigating any adverse environmental effects, incurred, borne by end users, load-serving entities, or others, in the provision or conservation of electric energy services borne by end users, utilities, or others, and any adverse environmental effects.~~
- ~~41.49. “Unit” – means a specific device or set of devices that converts one form of energy (such as heat or solar energy) into electric energy, such as a turbine and generator or a set of photovoltaic cells; a power plant may have multiple units.~~

**R14-2-702. Applicability**

- A. ~~All electric utilities under the jurisdiction of the Commission pursuant to Arizona Constitution Art. XV and Arizona Revised Statutes Title 40 which operate or own (in part or in whole) generating facilities, whether the power generated is for sale to end users or is for resale, are subject to the provisions of this Article. This Article applies to each load-serving entity, whether the power generated is for sale to end users or is for resale.~~

- ~~B. Any other electric utility under the jurisdiction of the Commission pursuant to Arizona Constitution Art. XV and Arizona Revised Statutes Title 40 is subject to the provisions of this Article upon two years' notice by the Commission. An electricity public service corporation that becomes a load-serving entity by increasing its generating capacity to at least 5 megawatts combined shall provide written notice to the Commission within 30 days after the increase and shall comply with the filing requirements in this Article within two years after the notice is filed.~~
- ~~C. The Commission may, by Order, exempt a utility load-serving entity from these requirements complying with any provision in this Article, or the Article as a whole, upon a demonstration by the utility determining that:~~
- ~~1. the The burden of compliance with this the provision, or the Article as a whole, exceeds the potential for cost savings resulting that would result from its participation the load-serving entity's compliance with the provision or Article; and~~
  - ~~2. The public interest will be served by the exemption.~~
- ~~D. A load-serving entity that desires an exemption shall submit to Docket Control an application that includes, at a minimum:~~
- ~~1. The reasons why the burden of complying with the Article, or the specific provision in the Article for which exemption is requested, exceeds the potential cost savings that would result from the load-serving entity's compliance with the provision or Article;~~
  - ~~2. Data supporting the load-serving entity's assertions as to the burden of compliance and the potential cost savings that would result from compliance; and~~
  - ~~3. The reasons why the public interest would be served by the requested exemption.~~
- ~~E. A load-serving entity shall file with Docket Control, within 120 days after the effective date of these rules, the documents that would have been due on April 1, 2010, under R14-2-703(C), (D), (E), (F), and (H) had the revisions to those subsections been effective at that time.~~

**R14-2-703. Utility Load-serving entity reporting requirements**

- ~~A. Demand side data. Each utility shall provide the Commission staff the demand data in subsections (A)(1) through (9) below, within 90 days of the effective date of these rules and shall provide staff with updated and revised data by April 1 of each year thereafter. If records are not maintained for any item, the utility shall provide its best estimates, such as sample survey data, application of factors from one year's data to another year, or other methods, and fully describe how such estimates were made. A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of demand-side data, including for each~~

item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:

1. Hourly demand for the previous calendar year, disaggregated by:
  - a. Sales to end users;
  - b. Sales for resale;
  - c. Energy losses; and
  - d. Other disposition of energy, such as energy furnished without charge and energy used by the utility. load-serving entity.
- ~~2. If available, hourly demand for the previous calendar year disaggregated by:~~
  - ~~a. Residential customers,~~
  - ~~b. Nonresidential customers by customer class and by type of business,~~
  - ~~c. Entities purchasing power for resale.~~
- ~~3.2. Coincident peak demand (megawatts) and energy demand consumption (megawatt-hours) by month for the previous 10 years, disaggregated by customer class and, for nonresidential customers, if available, disaggregated by type of business;~~
- ~~4.3. Number of customers by customer class by year for each of the previous 10 years; and~~
- ~~5. Heating and cooling degree days by month for the previous 10 years. The utility may provide these data by climatic region at its option.~~
- ~~6. Residential customer characteristics and end use data collected in the last 10 years which the utility has available, including:~~
  - ~~a. Mix of dwelling unit types (single family, multi-family, mobile homes),~~
  - ~~b. Household income patterns,~~
  - ~~c. Appliance saturation by types of appliance,~~
  - ~~d. Appliance saturation by household income pattern and dwelling unit type,~~
  - ~~e. End use metering data,~~
  - ~~f. Appliance efficiency data,~~
  - ~~g. Appliance connected load data, and~~
  - ~~h. Data relating customer usage and heating and cooling degree days or temperature.~~
- ~~7. Nonresidential customer characteristics and usage data collected in the last 10 years which the utility has available, including:~~
  - ~~a. Number of customers by type of business,~~
  - ~~b. Number of employees by type of business,~~

- e. ~~Electricity usage by major end use of power including space cooling, and~~
- d. ~~Hourly demand for major types of industrial and commercial customers for baseload, heating, and cooling uses.~~

8.4. ~~Reduction in load (kilowatt and kilowatt-hours) in the previous calendar year due to existing demand management measures, by type of demand management measure, in the previous calendar year.~~

9. ~~Annual average prices of electricity charged to each nonresidential customer class, by type of business, and to residential customers, for the previous 10 years.~~

**B.** ~~Supply side data. Each utility shall provide the Commission staff the supply data indicated in subsection (B)(1) through (4) within 90 days of the effective date of these rules and shall provide staff with updated and revised data by April 1 of each year thereafter. If records are not maintained for any item, the utility shall provide its best estimates and fully describe how those estimates were made. A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:~~

1. For each generating unit and purchased power contract for the previous calendar year:
  - a. ~~In-service date and book life or contract period;~~
  - b. ~~Book life or contract period~~ Type of generating unit or contract;
  - c. ~~Capacity~~ The load-serving entity's share of the unit's capacity or of capacity under the contract, in megawatts (utility share);
  - d. ~~Maximum unit or contract capacity by hour, day, or month, if such capacity varies over during the year;~~
  - e. ~~Forced-outage rate~~ Annual capacity factor (generating units only);
  - f. ~~Average heat rate of generating units and, if available, heat rates at selected output levels;~~
  - g. ~~Fuel~~ Average fuel cost for generating units in dollars per million Btu for each type of fuel;
  - h. ~~Other variable operating and maintenance costs for generating units,~~ in dollars per megawatt hour;
  - i. ~~Purchased power energy costs for contract purchases~~ long-term contracts, in dollars per megawatt-hour;

- j. Fixed operating and maintenance costs of generating units, in dollars per megawatt for the year;
  - k. Demand charges for purchased power;
  - l. ~~Fuel types for generating units,~~ Fuel type for each generating unit;
  - m. Minimum capacity at which the unit would be run or power must be purchased;
  - n. Whether, under standard operating procedures, the generating unit must be run if it is available to run;
  - o. ~~Maintenance schedules for generating units,~~ Description of each generating unit as base load, intermediate, or peaking.
  - p. ~~Other data related to generation units and purchased power contracts which the utility uses in its production, planning, and supply models.~~ Environmental impacts, including air emission quantities (in metric tons or pounds) and rates (in quantities per megawatt-hour) for carbon dioxide, nitrogen oxides, sulfur dioxide, mercury, particulates, and other air emissions subject to current or expected future environmental regulation; and
  - q. Water consumption quantities and rates;
2. For the power supply system for the previous calendar year:
    - a. A description of unit commitment procedures;
    - b. Production cost;
    - c. Reserve requirements;
    - d. Spinning reserve;
    - e. Reliability of generating, transmission, and distribution systems;
    - f. ~~Interchange purchase~~ Purchase and sale prices, averaged by month, for the aggregate of all purchases and sales related to short-term contracts; and
    - g. Energy losses;
  3. ~~The level of cogeneration and other forms of self generation in the utility's load-serving entity's service area for the previous calendar year;~~ and
  4. ~~As available, a description and map of the utility's transmission system, including the capacity of each segment of the transmission system. An explanation of any resource procurement processes used by the load-serving entity during the previous calendar year that did not include use of an RFP, including the exception under which the process was used.~~

C. Demand forecasts. Each utility shall provide the following data and analyses to the Commission by December 31, 1989, and every three years thereafter. If no changes are forecast for any item, the utility may refer to previous filings for that item. A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following items of load data and analyses, including a reference to the last filed report for each item for which there has been no change in forecast since the last report:

1. ~~Ten-year~~ Fifteen-year forecast of system coincident peak load (megawatts) and energy demanded consumption (megawatt-hours) by month and year, expressed separately for residential, commercial, industrial, interruptible, and other customers, customer classes; for interruptible power; for resale; and for energy losses;
2. ~~Hourly demand forecasts for 10 years, if requested by staff.~~
- 3.2. Disaggregation of the demand load forecast of subsection (C)(1) into a component in which no additional demand management measures are assumed, and a component indicating assuming the change in load due to additional forecasted demand management measures;
4. ~~Descriptions of demand management programs and measures included in the demand forecast, including:~~
  - a. ~~Plans for implementing the demand management measures;~~
  - b. ~~The participation rate of customers by customer class with regard to each demand management measure,~~
  - c. ~~The expected change in demand resulting from each of the measures, and~~
  - d. ~~The life of each program.~~
5. ~~Description of each demand management program which was considered but rejected and the reasons for rejecting each program.~~
6. ~~The capital and operating and maintenance costs of each demand management measure considered, including practical measures which were rejected.~~
- 7.3. Documentation of all sources of data, analyses, methods, and assumptions used in making the demand load forecasts, including:
  - a. A description of how the forecasts were benchmarked,
  - b. Justifications for selecting the methods and assumptions used, and
  - c. ~~If requested by the staff, data used in the analyses.~~

4. Staff will request additional information, including the data used in a load-serving entity's analyses, if Staff is unable to analyze fully a load-serving entity's submission for compliance with this Article.

D. Supply plans. Each utility shall provide the following data and analyses to the Commission by December 31, 1989, and every three years thereafter. If no changes are forecast for any item, the utility may refer to previous filings for that item. A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing.

1. Ten-year A 15-year resource plan, providing for each year:

- a. The data required in subsection (B)(1)(a) through (p) of this Section Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment; and
- b. the data required in subsection (B)(2)(a) through (g) of this Section. Projected data for each of the items listed in subsection (B)(2), for the power supply system;
- b.c. For The capital cost, construction time, and construction spending schedule for each generating unit that is expected to be new or refurbished during the period;:
  - i. The data required in subsection (B)(1) of this Section for applicable years, and
  - ii. The capital cost, construction time, and construction spending schedule.
- e.d. The escalation levels assumed for each component of cost for each generating unit and purchased power source;:
- d.e. For the If discontinuation, decommissioning, or mothballing of any power source and or permanent deratings derating of any generating facility is expected:
  - i. Identification of the each power sources source or units unit involved;:
  - ii. The costs and spending schedule of such for each discontinuation, decommissioning, mothballing, or derating; and

- iii. The reasons for each discontinuation, decommissioning, mothballing, or derating;
  - e.f. The capital costs and operating and maintenance costs of all new or refurbished transmission and distribution facilities expected during the 15-year period; and;
  - g. ~~a description~~ An explanation of the need for and purpose of such all expected new or refurbished transmission and distribution facilities, which explanation shall incorporate the load-serving entity's most recent transmission plan filed under A.R.S. § 40-360.02(A) and any relevant provisions of the Commission's most recent Biennial Transmission Assessment decision regarding the adequacy of transmission facilities in Arizona; and
  - h. Cost analyses and cost projections;
2. Documentation of the data, assumptions, and methods or models used to forecast production costs and power production ~~in subsection (D)(1) of this Section~~ for the 15-year resource plan, including the method by which the forecast was ~~calibrated or~~ benchmarked;
  3. ~~Description~~ A description of each potential power source which that was rejected; the capital costs, and operating costs, and maintenance costs of each rejected source; and an explanation of the reasons for rejecting each source;
  4. ~~Ten-year~~ A 15-year forecast of ~~co~~generation and ~~other~~ self generation by customers of the utility load-serving entity, in terms of annual peak production (megawatts) and annual energy production (megawatt-hours);
  5. Disaggregation of the forecast of subsection (D)(4) ~~of this Section~~ into ~~a component in which~~ two components, one reflecting the self generation projected if no additional efforts are made to encourage such generation self generation, and a component consisting of one reflecting the change in supply due to self generation projected to result from the load-serving entity's institution of additional forecasted cogeneration and self generation measures;
  6. ~~Ten-year~~ A 15-year forecast of annual capital costs and operating and maintenance costs by year of all ~~the co~~generation and ~~other~~ self generation ~~included in subsection (D)(5) of this Section.~~ identified under subsections (D)(4) and (D)(5);
  7. Documentation of the analysis of ~~the co~~generation and ~~other~~ self generation ~~in subsection under subsections (D)(4) through (6) of this Section;~~

8. A plan to consider generation using a diverse range of fuels and technologies, including nuclear and renewable energy resources;
9. A calculation of the benefits of generation using renewable energy resources;
10. Analysis of integration costs for intermittent resources;
11. A plan to increase the efficiency of the load-serving entity's generation using fossil fuel;
12. Data to support technology choices for supply-side resources;
13. A description of the demand management programs or measures included in the 15-year resource plan, including for each demand management program or measure:
  - a. How and when the measure will be implemented;
  - b. The projected participation rate by customer class for the measure;
  - c. The expected change in demand resulting from the measure;
  - d. The expected reductions in air emissions and water consumption attributable to the program;
  - e. The expected life of the measure; and
  - f. The capital costs, operating costs, and maintenance costs of the measure; and
14. For each demand management measure that was considered but rejected:
  - a. A description of the measure;
  - b. The capital costs, operating costs, and maintenance costs of the measure; and
  - c. The reasons for rejecting the measure.

E. Analyses of uncertainty. Each utility shall provide to the Commission the following information by December 31, 1989, and every three years thereafter: A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following analyses and plan:

1. Analyses to identify and assess errors, risks, and uncertainties in the following, completed using appropriate methods such as sensitivity analyses analysis and probabilistic analyses analysis, to assess errors and uncertainty in:
  - a. Demand forecasts;
  - b. The costs of demand management measures and power supply;
  - c. The availability of sources of power;
  - d. The costs of compliance with existing and expected environmental regulations;
  - e. Any analysis by the load-serving entity in anticipation of potential new or enhanced environmental regulations;
  - d.f. Changes in fuel prices, and availability;

- g. Construction costs, capital costs, and operating costs; and
- e.h. Other factors which the utility wishes to consider;
- 2. ~~Identification of those options which enable the utility to best respond to significant changes in conditions whose future characteristics are uncertain, including:~~
  - a. ~~Continual monitoring of critical variables and making commensurate changes in plans if those variables deviate significantly from the forecast,~~
  - b. ~~Building several smaller units instead of one large unit,~~
  - e. ~~Sharing capacity with other utilities, and~~
  - d. ~~Conducting well monitored pilot programs.~~
- 2. A description and analysis of available means for managing the errors, risks, and uncertainties identified and analyzed in subsection (E)(1), such as obtaining additional information, limiting risk exposure, using incentives, creating additional options, incorporating flexibility, and participating in regional generation and transmission projects; and
- 3. A plan to manage the errors, risks, and uncertainties identified and analyzed in subsection (E)(1).

- F. ~~Integrated resource plan. Each utility shall provide the Commission with an integrated resource plan by December 31, 1989, and every three years thereafter containing:~~
- 1. ~~The 10 year plan or flexible set of plans which, on the basis of the analyses required in this Article, including the uncertainty analysis, will tend to minimize the present value of the total cost of meeting the demand for electric energy services.~~
  - 2. ~~Complete description and documentation of the least cost plan, including supply and demand side conditions, costs, and discount rates utilized.~~
  - 3. ~~An action plan indicating the supply and demand related actions to be undertaken by the utility over the next three years in furtherance of the ten year plan.~~

A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:

- 1. Selects a portfolio of resources based upon comprehensive consideration of a wide range of supply- and demand-side options;
- 2. Will result in the load-serving entity's reliably serving the demand for electric energy services;

3. Will minimize the adverse environmental impacts of power production, including the emission of greenhouse gases;
4. Will include renewable energy resources so as to meet the greater of the Annual Renewable Energy Requirement in R14-2-1804 or the following annual percentages of retail kWh sold by the load-serving entity:

<u>Calendar Year</u>	<u>Percentage of Retail kWh sold during calendar Year</u>
<u>2010</u>	<u>2.5%</u>
<u>2011</u>	<u>3.0%</u>
<u>2012</u>	<u>3.5%</u>
<u>2013</u>	<u>4.0%</u>
<u>2014</u>	<u>4.5%</u>
<u>2015</u>	<u>5.0%</u>
<u>2016</u>	<u>6.0%</u>
<u>2017</u>	<u>7.0%</u>
<u>2018</u>	<u>8.0%</u>
<u>2019</u>	<u>9.0%</u>
<u>2020</u>	<u>10.0%</u>
<u>2021</u>	<u>11.0%</u>
<u>2022</u>	<u>12.0%</u>
<u>2023</u>	<u>13.0%</u>
<u>2024</u>	<u>14.0%</u>
<u>after 2024</u>	<u>15.0%</u>

5. Will include energy efficiency so as to meet any requirements set in rule by the Commission;
6. Will effectively manage the uncertainty and risks associated with costs, environmental impacts, load forecasts, and other factors;
7. Will achieve a reasonable long-term total cost, taking into consideration the objectives set forth in subsections (F)(2)-(6) and the uncertainty of future costs; and
8. Contains all of the following:
  - a. A complete description and documentation of the plan, including supply and demand conditions, availability of transmission, costs, and discount rates utilized;

- b. A comprehensive, self-explanatory load and resources table summarizing the plan;
- c. A brief executive summary;
- d. An index to indicate where the responses to each filing requirement of these rules can be found; and
- e. Definitions of the terms used in the plan.

G. A load-serving entity shall, by April 1 of each odd year, file with Docket Control a work plan that includes:

- 1. An outline of the contents of the resource plan the load-serving entity is developing to be filed the following year as required under subsection (F);
- 2. The load-serving entity's method for assessing potential resources;
- 3. The sources of the load-serving entity's current assumptions; and
- 4. An outline of the timing and extent of public participation and advisory group meetings the load-serving entity intends to hold before completing and filing the resource plan.

H. With its resource plan, a load-serving entity shall include an action plan, based on the results of the resource planning process, that:

- 1. Includes a summary of actions to be taken on future resource acquisitions;
- 2. Includes details on resource types, resources capacity, and resource timing; and
- 3. Covers the three-year period following the Commission's acknowledgment of the resource plan.

I. The Commission may request that a load-serving entity complete additional analyses to improve specified components of the load-serving entity's filings.

**R14-2-704. Commission review of utility load-serving entity resource plans**

A. Within 120 days of the submission of demand forecasts, supply plans, uncertainty analyses, and integrated resource plans by the utilities, the Commission shall schedule a hearing or hearings to review utility filings and to determine the degree of consistency between these filings and analyses conducted by the staff and information provided by other parties. By April 1 of each odd year, Staff shall file a report that contains its analysis and conclusions regarding its statewide review and assessments of the load-serving entities' filings made under R14-2-703(C), (D), (E), (F), and (H).

B. The Commission may request additional analyses to be conducted by the utilities to improve specified components of the utilities' analyses.

- C.B.** In making its consistency determination, the Commission shall consider the following factors: By July 1 of each odd year, the Commission shall determine whether to issue an order acknowledging the resource plans. The Commission shall order an acknowledgment of the resource plan if the Commission determines that the resource plan complies with the requirements of this Article and that the load-serving entity's resource plan is reasonable and in the public interest, based on the information available to the Commission at the time and considering the following factors:
1. The total cost of electric energy services;
  2. The degree to which the factors which ~~that~~ affect demand, including demand management, have been taken into account;
  3. The degree to which ~~non-utility~~ supply alternatives, such as ~~cogeneration and self~~ generation, have been taken into account;
  4. Uncertainty in demand and supply analyses, forecasts, and plans, and ~~the flexibility of plans enabling response~~ whether plans are sufficiently flexible to enable the load-serving entity to respond to unforeseen changes in supply and demand factors;
  5. The reliability of power supplies, including fuel diversity and non-cost considerations;
  6. The reliability of the transmission grid;
  7. The degree to which the load-serving entity considered all relevant resources, risks, and uncertainties;
  8. The degree to which the load-serving entity's plan for future resources is in the best interest of its customers;
  9. The best combination of expected costs and associated risks for the load-serving entity and its customers; and
  10. The degree to which the load-serving entity's resource plan allows for coordinated efforts with other load-serving entities.
- D.** While no particular ratemaking treatment shall be implied nor inferred by the Commission's acknowledgement, The the Commission may subsequently shall consider its consistency determination in its review of financing applications, in general rate cases, and in other matters in which the supply of or demand for energy services is a significant factor a load-serving entity's filings made under R14-2-703 when the Commission evaluates the performance of the load-serving entity in subsequent rate cases and other proceedings.
- E.** A load-serving entity may seek Commission approval of specific resource planning actions.

F. A load-serving entity may file an amendment to an acknowledged resource plan if changes in conditions or assumptions necessitate a material change in the load-serving entity's plan before the next resource plan is due to be filed.

**R14-2-705. Procurement**

A. Except as provided in subsection (B), a load-serving entity may use the following procurement methods for the wholesale acquisition of energy, capacity, and physical power hedge transactions:

1. Purchase through a third-party on-line trading system;
2. Purchase from a third-party independent energy broker;
3. Purchase from a non-affiliated entity through auction or an RFP process;
4. Bilateral contract with a non-affiliated entity;
5. Bilateral contract with an affiliated entity, provided that non-affiliated entities were provided notice and an opportunity to beat the proposed contract before the contract was executed; and
6. Any other competitive procurement process approved by the Commission.

B. A load-serving entity shall use an RFP as the primary acquisition process, unless one of the following exceptions applies:

1. The load-serving entity is experiencing an emergency;
2. The load-serving entity needs to make a short-term acquisition to maintain system reliability;
3. The load-serving entity needs to acquire other components of energy procurement, such as fuel, fuel transportation, and transmission projects;
4. The load-serving entity's planning horizon is two years or less;
5. The transaction presents the load-serving entity a genuine, unanticipated opportunity to acquire a power supply resource at a clear and significant discount, compared to the cost of acquiring new generating facilities, and will provide unique value to the load-serving entity's customers;
6. The transaction is necessary for the load-serving entity to satisfy an obligation under the Renewable Energy Standard rules; or
7. The transaction is necessary for the load-serving entity's demand-side management or demand response programs.

C. A load-serving entity shall engage an independent monitor to oversee all RFP processes for procurement of new resources.

**R14-2-706. Independent Monitor Selection and Responsibilities**

A. When a load-serving entity contemplates engaging in an RFP process, the load-serving entity shall consult with Staff regarding the identity of companies or consultants that could serve as independent monitor for the RFP process.

B. After consulting with Staff, a load-serving entity shall create a vendor list of three to five candidates to serve as independent monitor and shall file the vendor list with Docket Control to allow interested persons time to review and file objections to the vendor list.

C. An interested person shall file with Docket Control, within 30 days after a vendor list is filed with Docket Control, any objection that the interested person may have to a candidate's inclusion on a vendor list.

D. Within 60 days after a vendor list is filed with Docket Control, Staff shall issue a notice identifying each candidate on the vendor list that Staff considers to be qualified to serve as independent monitor for the contemplated RFP process. In making its determination, Staff may consider the experience of the candidates, the professional reputation of the candidates, and any objections filed by interested persons.

E. A load-serving entity may retain as independent monitor for the contemplated RFP process and for its future RFP processes any of the candidates identified in Staff's notice.

F. A load-serving entity shall file with Docket Control a written notice of its retention of an independent monitor.

G. A load-serving entity is responsible for paying the independent monitor for its services and may charge a reasonable bidder's fee to each bidder in the RFP process to help offset the cost of the independent monitor's services. A load-serving entity may request recovery of the cost of the independent monitor's services, to the extent that the cost is not offset by bidder's fees, in a subsequent rate case. The Commission shall use its discretion in determining whether to allow the cost to be recovered through customer rates.

H. One week prior to the deadline for submitting bids, a load-serving entity shall provide the independent monitor a copy of any bid proposal prepared by the load-serving entity or the load-serving entity's affiliated entity and of any benchmark or reference cost the load-serving entity has developed for use in evaluating bids. The independent monitor shall take steps to secure the

load-serving entity's bid proposal and any benchmark or reference cost so that they are inaccessible to any bidder, the load-serving entity, and the load-serving entity's affiliated entity.

- I.** The independent monitor shall provide reports to Staff, on at least a monthly basis, throughout the RFP process.

Draft

**COMMISSIONERS**  
 KRISTIN K. MAYES - Chairman  
 GARY PIERCE  
 SANDRA D. KENNEDY  
 PAUL NEWMAN  
 BOB STUMP



**ARIZONA CORPORATION COMMISSION**

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September 2, 2009

Steve Olea  
 Director  
 Utilities Division  
 1200 W. Washington Street  
 Phoenix, Arizona 85007

Dear Mr. Olea:

This letter is to comment on the proposed draft Integrated Resource Plan (IRP) rules that will amend Title XIV of the Arizona Administrative Code.

First of all, I want to thank the Commission staff, Chairman Mayes and Commissioner Pierce for their diligent work on these rules. I realize that dozens of meetings and many hundreds of hours of work and research went into drafting these rules. I can appreciate the fact that Chairman Mayes and staff both want this process to wrap up as quickly as possible to finish this process, which began years ago.

However, I also believe strongly that we are at a crossroads in electrical generation, and that we should take the extra time to look into these common-sense additions to the IRP rules. Chairman Mayes made the important point in staff meeting today that we should not let "the perfect be the enemy of the good." I could not agree more. But the opportunity we have to craft more forward-thinking rules and I believe we should seize the day.

The additions to the rules are detailed below, and include:

1. A requirement to evaluate each type of electrical generation in terms of "life-cycle" analysis. For each type of generation, this means considering both costs and emissions for (a) production and transportation (b) water use and water pollution (c) air pollution and a range of costs for health effects from air pollution;
2. Analyzing future fuel supplies for coal and natural gas every three years; and
3. A ten-year rather than fifteen-year planning horizon.

I believe that we can address these issues in a way that does not add to staff's work load. There are a number of experts who would be happy to help us with these issues free of charge.

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<sup>1</sup> Title XIV Public Service Corporations, Corporations and Associations, Securities Regulation, Chapter 2 Corporation Commission Fixed Utilities, Article 7. Resource Planning

I also believe that we should **give the public 45 days to comment** and actively solicit input by making a simple email address available just for IRP comments.

Following are the rule changes that refer to specific sections of the draft rules; followed by a detailed analysis and supporting documentation on why these changes are important and necessary.

## **I. Rule Changes In Chronological Order**

### **Proposed Changes to R14-2-701 Definitions**

- 1) **R14-2-701 Definitions - see new number 18 (replacing existing number 18 “escalation”** added definition for “environmental externalities,”<sup>2</sup> and states that if an exact monetized value cannot be agreed upon, a range of costs may be used. A 1994 study by NREL<sup>3</sup> discusses other approaches such as weighting or ranking, cost of control or percentage adders.
- 2) **R14-2-701 Definitions – addition to number 42 “sensitivity analysis.”** Please add the following: “Sensitivity analysis shall include a range of values for the discount rate, a range of values for environmental externalities, a range of values for future water costs and a range of values for future fossil fuel costs.”
- 3) **R14-2-701 Definitions – addition to definition of “total cost.”** Please add “and environmental externalities” following the phrase “adverse environmental effects” and prior to the word “incurred.”

### **Proposed Changes to R14-2-703 Utility Load-serving entity reporting requirements.**

- 4) Please make the following additions to B.1. by adding new subsections **h, i, and j**:
  - h. Fuel supply study for coal, natural gas and uranium every five years, starting 2010.
  - i. Estimated v. actual costs for natural gas and coal for the past five year; and estimated costs for natural gas and coal for the next 30 years;
  - j. Estimated annual increase in cost of natural gas and coal for the next 30 years;

<sup>2</sup> “Environmental Externalities” – means currently uncounted costs including water use water use and water contamination; coal ash (bottom and fly) storage, monitoring and disposal; health effects from burning coal; and emissions from transportation and production of fuels. If an exact monetized value cannot be determined, a range of costs may be used.

<sup>3</sup> *Issues and Methods in Incorporating Environmental Externalities into the Integrated Resource Planning Process*, by Jeffery M. Fang and Paul S. Galen, November 1994, NREL/TP-461-6684

- 5) Please add to the current **section B.1.h** "Other variable operating and maintenance costs for generating units, in dollars per megawatt hour" the words "with fuel costs broken out."
- 6) Please add to the current **section B.1** a new subsection m: "Costs for sorbents and other chemicals used in pollution control devices."
- 7) Please add to the current **section B.1** a new subsection r: "Estimated amount of coal ash produced by each power plant, location for disposal, and governing regulations."
- 8) Change all references to require a ten-year rather than a fifteen-year forecast; changes to be made to: **Section C.1, Section D.1, D.2, D.4, D.6, and D.13.**
- 9) Add back in **section C.2**, which states "Hourly demand forecasts for 10 years, if requested by staff."
- 10) Add back in **Section C.3**, which states "If requested by staff, data used in the analysis."
- 11) Add to the first paragraph in **Section D**, after the words "environmental impacts" and before the words "and water consumption" the phrase "environmental externalities and life-cycle costs."
- 12) Add to **Section D.9**, after the phrase "A calculation of the benefits of generation using renewable energy resources;" the words "including environmental benefits from reduced water, reduced pollution, reduced fossil fuel wastes such as coal ash, reduced transportation and production emissions."
- 13) Add to **Section E.1.a** after the phrase "Demand forecast" the words "including the effects of hotter temperatures and higher peak demands as projected by the latest government climate change research;"
- 14) Add to **Section E.1.f** after the phrase "Changes in fuel prices, and availability," the words "and a comparison of estimated v. actual fuel costs."
- 15) Do not delete **Section E.2**, subsections a through d, and add a new subsection e to read "Consider the benefits of hybridizing existing power plants."

**Proposed Changes to R14-2-704. Commission review of load-serving entity resource plans**

- 16) New **Section B** (formerly **Section C**) that starts with "By July 1 of each odd year, the Commission shall determine whether to issue an order acknowledging the resource plans." In **Section B.6** after the phrase "The reliability of the transmission grid," add the phrase, "taking consideration future increases in temperature."

## II. Background Information on Proposed Rule Changes

This section is meant to give some background to the proposed changes, in response to objections from staff and other Commissioners that the changes:

- are too difficult to quantify, and
- will take too much staff time and effort to accomplish.

There are many experts willing to consult with us at no cost to the taxpayer. Some experts are available to meet with Commissioners and staff in person, while others can meet via conference call. I am happy to provide a more complete list of potential experts, who include the Regulatory Assistance Project [www.raponline.org](http://www.raponline.org) – retired former regulators, paid by grants or the U.S. government who do not have a vested interest in the outcome; and the National Renewable Energy Lab.

The changes I've proposed fall into three general categories:

- 1) Life-cycle analysis, including externalities
- 2) Fuel supply analysis, and a
- 3) Ten-year rather than fifteen-year planning horizon.

Each is described in detail below.

### 1. Life-Cycle Analysis Including Externalities

The National Renewable Energy Lab (NREL) is a research arm of the U.S. Department of Energy, and specializes in life-cycle analyses, which it defines as: a systematic, cradle-to-grave process that evaluates the environmental impacts of products, processes, and services.<sup>4</sup>

NREL set up a Life Cycle Inventory (LCI) database to carefully evaluate the cradle-to-grave impacts of everything from windows to power plants. Experts and topics include such as *Life Cycle Assessment of a Natural Gas Combined-Cycle Power Generation System*,<sup>5</sup> biomass,<sup>6</sup> solar PV,<sup>7</sup> and coal.<sup>8</sup>

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<sup>4</sup> See NREL LCI web page: <http://www.nrel.gov/lci/assessments.html> (accessed 9/01/09)

<sup>5</sup> *Life Cycle Assessment of a Natural Gas Combined-Cycle Power Generation System*, by Pamela Spath and Margaret K. Mann, September 2000, NREL/TP-570-27715; See page 15 of the document for a clear graphic which shows that 25% of the greenhouse emissions from a natural gas combined-cycle plant come from production and transportation – a significant amount. <http://www.nrel.gov/docs/fy00osti/27715.pdf>

<sup>6</sup> See NREL web page: [http://www.nrel.gov/analysis/tech\\_bio\\_analysis.html](http://www.nrel.gov/analysis/tech_bio_analysis.html) (accessed 9/01/09)

<sup>7</sup> This study is a life-cycle analysis of solar PV at Tucson Electric Power's PV plant in Springerville, *Life Cycle Analysis of a Field, Grid-Connected, Multi-Crystalline PV Plant: A Case Study of Tucson Electric Power's Springerville PV Plant*, Final Report Prepared for Tom Hansen, Tucson Electric Power November 5, 2004, by James Mason, Ph.D., Solar Hydrogen Education Project.

A two-page summary of NREL's energy and electricity database, from expertise on national and regional grids to state- and power plant-specific data; production and transportation data; and pre-and-post-combustion emissions data can be found here:  
[http://www.nrel.gov/lci/pdfs/no2\\_energy\\_tptd\\_bse.pdf](http://www.nrel.gov/lci/pdfs/no2_energy_tptd_bse.pdf)

### *Environmental Externalities*

There are many scientifically sound, peer-reviewed studies that have quantified externalities such as health effects and lost work days. Many studies have looked extensively at the health costs of coal combustion in terms of the number of heart attacks, asthma hospitalizations and missed school days. The Environmental Protection Agency (EPA) regularly reports on the environmental effects of rules in and monetizes these public health effects.<sup>9</sup>

There are dozens of similar government and non-profit groups with of studies providing a range of monetized values. A comprehensive study was completed by the Energy Information Administration in 1995 that summarized studies around the U.S.<sup>10</sup>

An interesting study was commissioned by the Ontario Ministry of Energy. The Ontario government owned *both* a coal plant and a hospital, and wanted to see how much the coal plant was costing at the hospital. The study showed that while the Ontario Power Authority was selling coal-fired power wholesale for 3 cents per kilowatt-hour (kWh), the health costs were triple that amount – over 9 cents/kWh.<sup>11</sup> The study looked at

### *Coal Ash Costs and Potential Liability*

On December 22, 2008, one billion gallons of coal ash was spilled adjacent to the Kingston coal plant in Harriman, TN, owned and operated by the Tennessee Valley Authority (TVA). Three hundred acres were flooded when a coal ash pond collapsed, destroying homes and property and poisoning surrounding water and wildlife. According to the TVA's Office of the Inspector General's June 23, 2009 Inspection Report, (Inspection 2007-11399), cleaning up

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<sup>8</sup> See Life Cycle Assessment of Coal-Fired Power Production, by Pamela Spath, Margaret K. Mann and Dawn R. Kerr, June 1999, NREL/TP-570-25119, at: <http://www.nrel.gov/docs/fy99osti/25119.pdf>

<sup>9</sup> For example, see *Reducing Power Plant Emissions for Cleaner Air, Healthier People and a Strong America, Office of Air and Radiation*, March 2005; reporting, for example, that this rule would provide \$85-\$100 billion in health benefits each year by 2015, preventing 17,000 premature deaths, 22,000 non-fatal heart attacks, 12,300 hospital admissions, 1.7 million lost work days and 500,000 lost school days:  
[http://www.epa.gov/CAIR/charts\\_files/cair\\_final\\_presentation.pdf](http://www.epa.gov/CAIR/charts_files/cair_final_presentation.pdf)

<sup>10</sup> See *Electricity Generation and Externalities: Case Studies*, September 1995, Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels, Coal and Electric Analysis Branch, DOE/EIA-0598, located at: [http://www.osti.gov/bridge/product.biblio.jsp?osti\\_id=108206](http://www.osti.gov/bridge/product.biblio.jsp?osti_id=108206)

<sup>11</sup> See *Executive Summary, Cost-Benefit Analysis: Replacing Ontario's Coal-Fired Electricity Generation*, prepared for the Ontario Ministry of Energy by DSS Management Consultants Inc. and RWDI Air Inc., April 2005:  
<http://www.energy.gov.on.ca/english/pdf/electricity/Cost%20Benefit%20Analysis%20DSS%20Report%20-%20Executive%20Summary.pdf>

this spill will exert significant financial pressure on TVA. Initial clean-up costs are estimated at \$675 to \$975 million, and may reach as high as \$1.2 billion.

The TVA spill highlighted the fact that there are hundreds of coal ash impoundments around the U.S., and on March 9, the EPA sent letters to hundreds of U.S. power plants requesting information about coal ash surface impoundments. The EPA letter, which at: <http://www.epa.gov/osw/nonhaz/industrial/special/fossil/breen-facility.pdf>

The EPA determined that Arizona has 9 of 44 of the most hazardous coal ash sites in the U.S., many of them in rural Cochise County. I believe that we have an obligation as responsible regulators to know exactly what the risks are in these coal ash ponds both in terms of public health and utilities' financial exposure to potential liability.

#### *The Costs of Mercury Contamination*

Methyl mercury is a development neurotoxicant – meaning that it kills brain cells. Exposure results primarily from consumption by pregnant women of seafood contaminated by mercury from anthropogenic sources; with power plants accounting for 42% of mercury emissions nationally.<sup>12</sup> In Minnesota, power plants account for 50% of mercury emissions, and the legislature took the lead in requiring the three largest coal plants in the state to reduce mercury emissions 90% by 2014, ahead of the federal schedule for mercury reduction.<sup>13</sup>

The state of Minnesota estimated mercury damage costs ranging from \$1,429 to \$4,359 per pound of mercury.<sup>14</sup> The Minnesota Center for Environmental Advocacy (MCEA) released a study in June 2006 that quantified environmental-related childhood disease.<sup>15</sup> The study uses data from studies by Kate Davies for Washington state and states:

*“These cost estimates are very conservative, so the impacts on individuals, society and taxpayers are likely much greater. This information has value for public policy because it requires we account for long-term costs to society, a perspective too often left out of policy analyses. Since environmental contributors to childhood diseases are largely preventable, public policies that prevent exposures and pollution provide significant benefits for individuals and for society. We recommend the implementation of policies to reduce or eliminate some of the key environmental*

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<sup>12</sup> *Id.*, p. 13.

<sup>13</sup> *Id.*, p. 13.

<sup>14</sup> Attached are relevant pages of the entire study, pages 78-79. These three pages, including the cover page, are at the end of Attachment A.

<sup>15</sup> *The Price of Pollution: Cost Estimates of Environment-Related Childhood Disease in Minnesota*, Minnesota Center for Environmental Advocacy, June 2006. [www.mncenter.org](http://www.mncenter.org)

contributors to childhood illnesses in Minnesota, such as: *phasing out remaining products with mercury...*" (emphasis added)<sup>16</sup>

The study points out that we have a moral obligation to protect our children from preventable disease, and that it makes good economic sense as well.<sup>17</sup>

The enormous economic costs from environmental pollution include not only health care, but cancer treatments, lost productivity, and estimates are:

- certain childhood environmental diseases cost the U.S. as a whole an estimated \$54.9 billion/year in 1997 dollars;
- Washington state estimated environmental diseases cost \$1.875 billion;
- Massachusetts estimated \$1.6 billion for childhood diseases; and
- Montana, which included adults, estimated \$404.6 million/year.<sup>18</sup>

Finally, a report issued this month by the U.S. Department of Interior and conducted by the United States Geological Survey reported that every fish tested in 291 streams contained mercury.<sup>19</sup> One quarter of the fish had mercury levels above the safety limit set by the EPA.

#### *Water Use by Power Plants*

According to the U.S. Geological Survey (U.S.G.S.), thermoelectric power uses 48% of all U.S. water withdrawals,<sup>20</sup> nearly as much water as irrigation.<sup>21</sup> The average person in the U.S. uses:

- 100 gallons/day for direct water use (bathing, laundry, lawns),
- 510 gallons/day for food production (irrigation and livestock), and
- 465 gallons per day for electricity.<sup>22</sup>

## 2. Fuel Supply Studies

The cost of fossil fuels has seen increasing volatility since 2000. From 1980 to 2000, the increase in the cost of fossil fuels was generally slow and steady. However, since 2000 – and especially since 2005 – the costs coal, natural gas and uranium have had wide swings.

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<sup>16</sup> *The Price of Pollution: Cost Estimates of Environment-Related Childhood Disease in Minnesota*, Minnesota Center for Environmental Advocacy, June 2006, p. 3.

<sup>17</sup> *Id.*, p. 3.

<sup>18</sup> *Id.*, p. 4, citing other studies too numerous to list.

<sup>19</sup> [http://www.nytimes.com/2009/08/20/science/earth/20brfs-MERCURYFOUND\\_BRF.html?\\_r=1](http://www.nytimes.com/2009/08/20/science/earth/20brfs-MERCURYFOUND_BRF.html?_r=1)

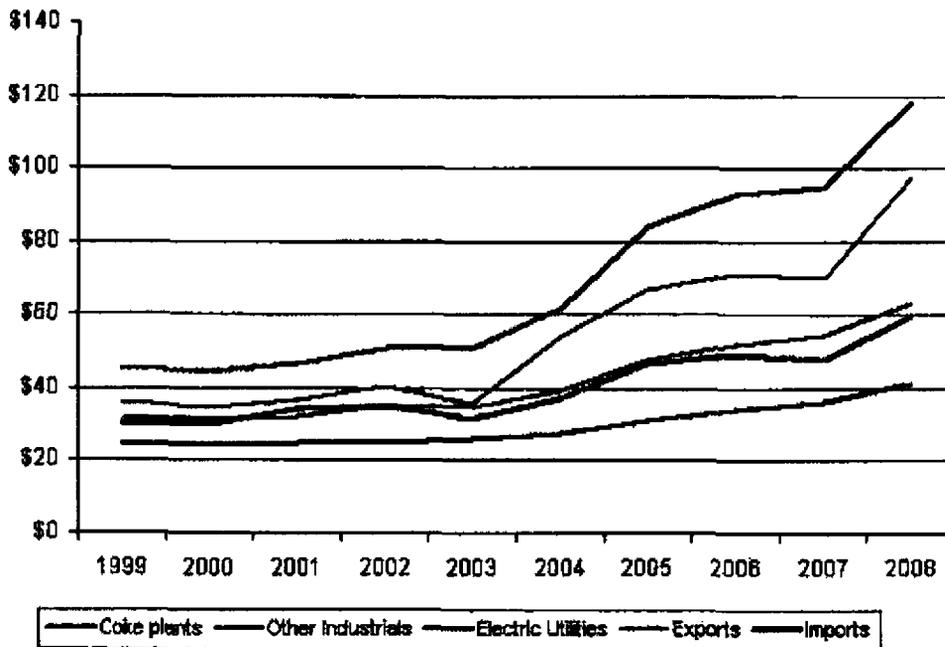
<sup>20</sup> See *USGS Circular 1268*, 15 figures, 14 tables (released March 2004 and revised April and May 2004), at: <http://water.usgs.gov/pubs/circ/2004/circ1268/index.html>

<sup>21</sup> *Id.*

<sup>22</sup> See *The Wind/Water Nexus*, U.S. Department of Energy, Wind Powering America Fact Sheet, DOE/GO-102006-2218, April 2006, p. 2

Arizona is currently benefitting from low natural gas prices. But with over 30% of our generation from natural gas, and nearly all of our natural gas imported from out of state, we are vulnerable to future fuel increases.

The cost of coal has increased 1998 to 2009, according to the U.S. Department of Energy's Energy Information Administration (EIA):<sup>23</sup>



The simple truth is that it's better to be over-prepared in our business than under-prepared. Prudence requires that if a utility wishes to build a coal, natural gas or nuclear project, it must have a ready supply of fuel. As demand for fossil fuel grows around the country and around the world, we can expect the price to rise.

### 3. Ten-year v. Fifteen-year Planning Horizon

For many of the same reasons given above, prudence requires that we look at a shorter planning horizon. Technology is changing quickly, and federal laws that would put a price on carbon will affect power plant economics. We must be flexible and a 10-year planning horizon provides this needed elasticity.

<sup>23</sup> <http://www.eia.doe.gov/cneaf/coal/page/special/fig7.html>

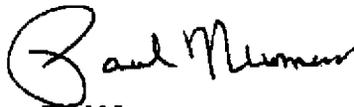
Mr. Steve Olea  
September 2, 2009  
Page 9

### III. Conclusion

For the reasons outlined above, I hope that the Commission and staff will seriously consider these rule changes. Again, I believe these changes will benefit the citizens and ratepayers of Arizona, and represent a new way of looking at the costs and benefits of different types of electrical generation. Only when we consider *all* the costs and benefits will we make apples-to-apples comparisons.

Please do not hesitate to call me to discuss.

Sincerely,

A handwritten signature in black ink that reads "Paul Newman". The signature is written in a cursive style with a large initial "P".

Paul Newman  
Commissioner

cc: Ernest G. Johnson, Executive Director  
Chairman Kristin K. Mayes  
Commissioner Gary Pierce  
Commissioner Sandra D. Kennedy  
Commissioner Bob Stump

**TITLE 14. PUBLIC SERVICE CORPORATIONS; CORPORATIONS AND ASSOCIATIONS; SECURITIES REGULATION**

**CHAPTER 2. CORPORATION COMMISSION**

**FIXED UTILITIES**

**ARTICLE 7. RESOURCE PLANNING AND PROCUREMENT**

**Section**

- R14-2-701. **Definitions**
- R14-2-702. **Applicability**
- R14-2-703. **Utility Load-serving entity reporting requirements**
- R14-2-704. **Commission review of utility load-serving entity plans**
- R14-2-705. **Procurement**
- R14-2-706. **Independent Monitor Selection and Responsibilities**

## ARTICLE 7. RESOURCE PLANNING AND PROCUREMENT

### R14-2-701. Definitions

The following definitions shall apply unless the context otherwise requires In this Article, unless otherwise specified:

- ~~1. "Appliance efficiency" the energy usage per unit of output of a particular type of energy using equipment.~~
- ~~2. "Appliance saturation" the proportion of customers in a given customer class who have a particular type of energy-using equipment.~~
- ~~3. "Average price" revenue from the customer class divided by the number of kilowatt hours sold to that customer class.~~
- ~~4. "Baseload demand" demand for energy that is insensitive to temperature.~~
1. "Acknowledgment" means a Commission determination, under R14-2-704, that a plan meets the basic requirements of this Article.
2. "Affiliated" means related through ownership of voting securities, through contract, or otherwise in such a manner that one entity directly or indirectly controls another, is directly or indirectly controlled by another, or is under direct or indirect common control with another entity.
- ~~5-3.~~ "Benchmark" – means to calibrate against a known set of values or standards.
- ~~6-4.~~ "Book life" – means the expected time period over which a power supply source will be available for use by the utility a load-serving entity.
5. "Btu" means British thermal unit.
- ~~7-6.~~ "Capacity" – means the amount of electric power, measured in megawatts, which that a power source is rated to provide, either by the user, the supplier, or the manufacturer.
- ~~8-7.~~ "Capital costs" – means the construction and installation cost of facilities, including land, land rights, structures, and equipment.
- ~~9.~~ "Cogeneration" the sequential production of electricity and heat, steam, or useful work from the same fuel source.
8. "Coincident peak" means the sum of two or more peak demands that occur in the same demand interval, which demand interval may be established on an annual, monthly, or hourly basis.
- ~~10-9.~~ "Customer class" – means a group subset of customers categorized according to with similar characteristics, such as amount of energy consumed; amount of demand placed on the energy supply system at the system peak; hourly, daily, or seasonal load pattern; primary type of activity engaged in by the customer, including residential, commercial, industrial, agricultural.

~~and governmental; and location. Customer classes may include residential, commercial, industrial, agricultural, municipal, and other categories.~~

- ~~14.10. "Decommissioning" – means the process of safely and economically removing a unit from service.~~
- ~~12. "Degree day" the difference in degrees Fahrenheit between the reference temperature and the average temperature for a particular day. The average temperature is the high temperature plus the low temperature divided by 2. If a day's average temperature exceeds the reference temperature, the day is a cooling degree day; if the day's average temperature is less than the reference temperature, the day is a heating degree day.~~
- ~~13.11. "Demand management" – means beneficial reduction in the total cost of meeting electric energy service needs by reducing or shifting in time the demand for electricity usage.~~
- ~~14.12. "Derating" – means a reduction in a unit's capacity.~~
- ~~15.13. "Discount rate" – means the interest rate used to calculate the present value of a cost or other economic variable.~~
- ~~14. "Docket Control" means the office of the Commission that receives all official filings for entry into the Commission's public electronic docketing system.~~
- ~~15. "Emergency" means an unforeseen and unforeseeable condition that:~~
- ~~a. Does not arise from the load-serving entity's failure to engage in good utility practices,~~
  - ~~b. is temporary in nature, and~~
  - ~~c. Threatens reliability or poses another significant risk to the system.~~
- ~~16. "End use" – means the final application of electric energy, for such as heating, cooling, running a particular an appliance, or lighting.~~
- ~~17. "Energy losses" – means the quantity of electric energy generated or purchased that is not available for sale to end users, for resale, or for use by the utility load-serving entity, attributable to transmission, conversion, distribution, and unaccounted for losses.~~
- ~~18. "Environmental externalities" – means currently uncounted costs including water use and water contamination; coal ash (bottom and fly) storage, monitoring and disposal; health effects from burning coal; and emissions from transportation and production of fuels. If an exact monetized value cannot be determined, a range of costs may be used.~~
- ~~18. "Escalation" – means the change in costs due to inflation, changes in manufacturing processes, changes in availability of labor or materials, or other factors.~~

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19. ~~“Forced outage rate” – the proportion of hours in a period, excluding those hours set aside for planned outages, in which a power source, such as a generating unit, suffers unplanned outages due to unplanned component failures or other conditions requiring that the source be removed from service immediately or before the next planned outage.~~
20. ~~19. “Heat rate” – means a measure of generating station thermal efficiency expressed in British thermal units (Btus) per net kilowatt-hour and computed by dividing the total Btu content of fuel used for electric generation by the kilowatt-hours of electricity generated.~~
21. ~~“Household income pattern” – the proportion of households falling in each of several income ranges.~~
22. ~~“Interchange” – electric energy received by the electric utility from another provider of electricity or supplied by the electric utility to another provider of electricity which is not purchased or sold under the terms of a long-term agreement.~~
20. “Independent monitor” means a company or consultant that is not affiliated with a load-serving entity and that is selected to oversee the conduct of a competitive procurement process under R14-2-706.
21. “Integration” means methods by which energy produced by intermittent resources can be incorporated into the electric grid.
22. “Intermittent resources” means electric power generation that is non-dispatchable because of its variability.
23. “Interruptible power” – means power made available under agreements which an agreement that permit permits curtailment or cessation of delivery by the supplier.
25. “In-service date” – means the date a power supply source becomes available for use by the utility, a load-serving entity.
26. “Load-serving entity” means a public service corporation that provides electricity generation service and operates or owns, in whole or in part, a generating facility or facilities with capacity of at least 5 megawatts combined.
27. “Long term” means having a duration of three or more years.
- 25.28. “Maintenance” – means the repair of generation, transmission, distribution, and administrative, and general facilities; replacement of minor items; and installation of materials to preserve the efficiency and working condition of the facilities.

- ~~26. "Maintenance schedule" – the specific days during which a power production unit is removed from service for inspection or overhaul of one or more major components; such work is planned well in advance.~~
- 27-29. "Mothballing" – means the temporary removal of a unit from active service and accompanying storage activities.
- ~~28-30.~~ "Oper ate" – means to manage or otherwise be responsible for the production of electricity from by a generating facility, whether that facility is owned by the operator, in whole or in part, or ~~whether that facility is owned by another entity.~~
- ~~29. "Operating costs" – the power production costs that are directly related to producing electricity.~~
- 30-31. "Part icipation rate" – means the proportion of customers who take part in a specific program.
- 31-32. "Probabilistic analysis" – means a systematic evaluation of the effect, on costs, reliability, or other measures of performance, of the range of possible events affecting factors which that influence performance, considering the ~~chances~~ likelihood that the events will occur.
- ~~32-33.~~ "Pro duction cost" – means the variable operating costs and maintenance ~~cost~~ cost ~~(including fuel cost)~~ costs of producing electricity through generation and plus the cost of purchases of power sufficient to meet demand.
- 33-34. "Refurb ish" – means to make major changes, more extensive than maintenance or repair, in the power production, transmission, or distribution characteristics of a component of the power supply system ~~more extensive than maintenance or repair~~, such as by changing the fuels which that can be used in a generating unit or changing the capacity of a generating unit.
- 34-35. "Reliabili ty" – means a measure of the ability of ~~the utility's~~ a load-serving entity's generation, transmission, and or distribution systems system to provide power without failures. ~~Reliability should be measured separately for generation, transmission, and distribution systems. Measures may to reflect the proportion of time that each a system is unable to meet demand or the kilowatt-hours of demand that could not be supplied.~~
- ~~36. "Renewable energy resource" means an energy resource that is replaced rapidly by a natural, ongoing process and that is not nuclear or fossil fuel.~~
- ~~35-37.~~ "Reser ve requirements" – means the capacity which the utility load-serving entity must maintain in excess of its peak load to provide for scheduled maintenance, forced outages, unforeseen loads, emergencies, system operating requirements, and ~~power pool requirements~~ reserve sharing arrangements.

- ~~36.~~ 38. "Reserve sharing arrangement" means an agreement between two or more load-serving entities to provide backup capacity.
- ~~36-39.~~ 39. "Resource planning" – means integrated supply and demand analysis for the purpose of identifying the means of meeting electric energy service needs at the lowest total cost, taking into account uncertainty analyses completed as described in this Article.
- ~~40.~~ 40. "RFP" means request for proposals.
- ~~37-41.~~ 41. "Self generation" – means the production of electricity by an end user by any means.
- ~~42.~~ 42. "Utility" – the entity providing electric service to the public.
- ~~38-42.~~ 42. "Sensitivity analysis" – means a systematic assessment of the degree of response of costs, reliability, or other measures of performance to changes in assumptions about factors which that influence performance. Sensitivity analysis shall include a range of values for the discount rate, a range of values for environmental externalities, a range of values for future water costs and a range of values for future fossil fuel costs.
- ~~43.~~ 43. "Short term" means having a duration of less than three years.
- ~~39-44.~~ 44. "Spinning reserve" – means the capacity which the utility a load-serving entity must maintain connected to the system and ready to deliver power promptly. The capacity may be expressed as a percentage of peak load, as a percentage of the largest unit, or as in fixed megawatts.
- ~~45.~~ 45. "Staff" means individuals working for the Commission's Utilities Division, whether as employees or through contract.
- ~~46.~~ 46. "Third-party independent energy broker" means an entity, such as Prebon Energy or Tradition Financial Services, that facilitates an energy transaction between separate parties without taking title to the transaction.
- ~~47.~~ 47. "Third-party on-line trading system" means a computer-based marketplace for commodity exchanges provided by an entity that is not affiliated with the load-serving entity, such as the Intercontinental Exchange, California Independent System Operator, or New York Mercantile Exchange.
- ~~40-48.~~ 48. "Total cost" – means all capital, operating, maintenance, fuel, and decommissioning costs, plus the costs associated with mitigating any adverse environmental effects, and environmental externalities incurred, borne by end users, load-serving entities, or others, in the provision or conservation of electric energy services borne by end users, utilities, or others, and any adverse environmental effects.

41-49. "Unit" – means a specific device or set of devices that converts one form of energy (such as heat or solar energy) into electric energy, such as a turbine and generator or a set of photovoltaic cells; a power plant may have multiple units.

**R14-2-702. Applicability**

- A. ~~All electric utilities under the jurisdiction of the Commission pursuant to Arizona Constitution Art. XV and Arizona Revised Statutes Title 40 which operate or own (in part or in whole) generating facilities, whether the power generated is for sale to end users or is for resale, are subject to the provisions of this Article. This Article applies to each load-serving entity, whether the power generated is for sale to end users or is for resale.~~
- B. ~~Any other electric utility under the jurisdiction of the Commission pursuant to Arizona Constitution Art. XV and Arizona Revised Statutes Title 40 is subject to the provisions of this Article upon two years' notice by the Commission. An electricity public service corporation that becomes a load-serving entity by increasing its generating capacity to at least 5 megawatts combined shall provide written notice to the Commission within 30 days after the increase and shall comply with the filing requirements in this Article within two years after the notice is filed.~~
- C. The Commission may, by Order, exempt a utility load-serving entity from ~~these requirements complying with any provision in this Article, or the Article as a whole, upon a demonstration by the utility determining that:~~
  - 1. ~~the~~ The burden of compliance with this the provision, or the Article as a whole, exceeds the potential for cost savings resulting that would result from its participation the load-serving entity's compliance with the provision or Article; and
  - 2. The public interest will be served by the exemption.
- D. A load-serving entity that desires an exemption shall submit to Docket Control an application that includes, at a minimum:
  - 1. The reasons why the burden of complying with the Article, or the specific provision in the Article for which exemption is requested, exceeds the potential cost savings that would result from the load-serving entity's compliance with the provision or Article;
  - 2. Data supporting the load-serving entity's assertions as to the burden of compliance and the potential cost savings that would result from compliance; and
  - 3. The reasons why the public interest would be served by the requested exemption.

E. A load-serving entity shall file with Docket Control, within 120 days after the effective date of these rules, the documents that would have been due on April 1, 2010, under R14-2-703(C), (D), (E), (F), and (H) had the revisions to those subsections been effective at that time.

**R14-2-703. Utility Load-serving entity reporting requirements**

**A. Demand side data.** ~~Each utility shall provide the Commission staff the demand data in subsections (A)(1) through (9) below, within 90 days of the effective date of these rules and shall provide staff with updated and revised data by April 1 of each year thereafter. If records are not maintained for any item, the utility shall provide its best estimates, such as sample survey data, application of factors from one year's data to another year, or other methods, and fully describe how such estimates were made. A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of demand-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:~~

1. ~~Hourly demand for the previous calendar year, disaggregated by:~~
  - a. ~~Sales to end users;~~
  - b. ~~Sales for resale;~~
  - c. ~~Energy losses;~~ and
  - d. ~~Other disposition of energy, such as energy furnished without charge and energy used by the utility.~~ load-serving entity;
2. ~~If available, hourly demand for the previous calendar year disaggregated by:~~
  - a. ~~Residential customers;~~
  - b. ~~Nonresidential customers by customer class and by type of business;~~
  - c. ~~Entities purchasing power for resale.~~
3. ~~2. Coincident peak demand (megawatts) and energy demand consumption (megawatt-hours) by month for the previous 10 years, disaggregated by customer class and, for nonresidential customers, if available, disaggregated by type of business;~~
4. ~~3. Number of customers by customer class by year for each of the previous 10 years; and~~
5. ~~Heating and cooling degree days by month for the previous 10 years. The utility may provide these data by climatic region at its option.~~
6. ~~Residential customer characteristics and end use data collected in the last 10 years which the utility has available, including:~~
  - a. ~~Mix of dwelling unit types (single family, multi-family, mobile homes);~~

- b. ~~Household income patterns;~~
  - c. ~~Appliance saturation by types of appliance;~~
  - d. ~~Appliance saturation by household income pattern and dwelling unit type;~~
  - e. ~~End-use metering data;~~
  - f. ~~Appliance efficiency data;~~
  - g. ~~Appliance connected load data; and~~
  - h. ~~Data relating customer usage and heating and cooling degree days or temperature.~~
7. ~~Nonresidential customer characteristics and usage data collected in the last 10 years which the utility has available, including:~~
- a. ~~Number of customers by type of business;~~
  - b. ~~Number of employees by type of business;~~
  - c. ~~Electricity usage by major end use of power including space cooling; and~~
  - d. ~~Hourly demand for major types of industrial and commercial customers for baseload, heating, and cooling uses.~~
- 8.4. ~~Reduction in load (kilowatt and kilowatt-hours) in the previous calendar year due to existing demand management measures, by type of demand management measure, in the previous calendar year.~~
9. ~~Annual average prices of electricity charged to each nonresidential customer class, by type of business, and to residential customers, for the previous 10 years.~~
- B. ~~Supply-side data. Each utility shall provide the Commission staff the supply data indicated in subsection (B)(1) through (4) within 90 days of the effective date of these rules and shall provide staff with updated and revised data by April 1 of each year thereafter. If records are not maintained for any item, the utility shall provide its best estimates and fully describe how those estimates were made. A load-serving entity shall, by April 1 of each year, file with Docket Control a compilation of the following items of supply-side data, including for each item for which no record is maintained the load-serving entity's best estimate and a full description of how the estimate was made:~~
- 1. ~~For each generating unit and purchased power contract for the previous calendar year:~~
    - a. ~~In-service date and book life or contract period;~~
    - b. ~~Book life or contract period Type of generating unit or contract;~~
    - c. ~~Capacity The load-serving entity's share of the unit's capacity or of capacity under the contract, in megawatts (utility share);~~

- d. Maximum unit or contract capacity by hour, day, or month, if such capacity varies over during the year;
- e. ~~Forced outage rate~~ Annual capacity factor (generating units only);
- f. Average heat rate of generating units and, if available, heat rates at selected output levels;
- g. ~~Fuel~~ Average fuel cost for generating units in dollars per million Btu for each type of fuel;
- ~~h. Fuel supply study for coal, natural gas and uranium every five years, starting 2010.~~
- ~~i. Estimated v, actual costs for natural gas and coal for the past five year; and estimated costs for natural gas and coal for the next 30 years;~~
- ~~j. Estimated annual increase in cost of natural gas and coal for the next 30 years;~~
- h. Other variable operating and maintenance costs for generating units, in dollars per megawatt hour, with fuel costs broken out;
- i. Purchased power energy costs for ~~contract purchases~~ long-term contracts, in dollars per megawatt-hour;
- j. Fixed operating and maintenance costs of generating units, in dollars per megawatt ~~for the year~~;
- k. Demand charges for purchased power;
- l. ~~Fuel types for generating units, Fuel type for each generating unit.~~
- ~~m. Costs for sorbents and other chemicals used in pollution control devices;~~
- m. Minimum capacity at which the unit would be run or power must be purchased;
- n. Whether, under standard operating procedures, the generating unit must be run if it is available to run;
- o. ~~Maintenance schedules for generating units, Description of each generating unit as base load, intermediate, or peaking;~~
- p. ~~Other data related to generation units and purchased power contracts which the utility uses in its production, planning, and supply models. Environmental impacts, including air emission quantities (in metric tons or pounds) and rates (in quantities per megawatt-hour) for carbon dioxide, nitrogen oxides, sulfur dioxide, mercury, particulates, and other air emissions subject to current or expected future environmental regulation; and~~

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- q. Water consumption quantities and rates;
- r. Estimated amount of coal ash produced by each power plant, location for disposal, and governing regulations.

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- 2. For the power supply system for the previous calendar year:
  - a. A description of unit commitment procedures;
  - b. Production cost;
  - c. Reserve requirements;
  - d. Spinning reserve;
  - e. Reliability of generating, transmission, and distribution systems;
  - f. Interchange purchase Purchase and sale prices, averaged by month, for the aggregate of all purchases and sales related to short-term contracts; and
  - g. Energy losses;
- 3. The level of cogeneration and other forms of self generation in the utility's load-serving entity's service area for the previous calendar year; and
- 4. As available, a description and map of the utility's transmission system, including the capacity of each segment of the transmission system. An explanation of any resource procurement processes used by the load-serving entity during the previous calendar year that did not include use of an RFP, including the exception under which the process was used.

C. Demand forecasts. Each utility shall provide the following data and analyses to the Commission by December 31, 1989, and every three years thereafter. If no changes are forecast for any item, the utility may refer to previous filings for that item. A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following items of load data and analyses, including a reference to the last filed report for each item for which there has been no change in forecast since the last report:

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- 1. Ten-year Ten-year forecast of system coincident peak load (megawatts) and energy demanded consumption (megawatt-hours) by month and year, expressed separately for residential, commercial, industrial, interruptible, and other customers, customer classes; for interruptible power, for resale; and for energy losses;
- 2. Hourly demand forecasts for 10 years, if requested by staff;
- 3.2. Hourly demand forecasts for 10 years, if requested by staff;

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Disaggregation of the demand load forecast of subsection (C)(1) into a component in which no additional demand management measures are assumed, and a component indicating assuming the change in load due to additional forecasted demand management measures;

4. ~~Descriptions of demand management programs and measures included in the demand forecast, including:
  - a. ~~Plans for implementing the demand management measures,~~
  - b. ~~The participation rate of customers by customer class with regard to each demand management measure,~~
  - c. ~~The expected change in demand resulting from each of the measures, and~~
  - d. ~~The life of each program.~~~~
5. ~~Description of each demand management program which was considered but rejected and the reasons for rejecting each program.~~
6. ~~The capital and operating and maintenance costs of each demand management measure considered, including practical measures which were rejected.~~
- 7.2. Documentation of all sources of data, analyses, methods, and assumptions used in making the demand load forecasts, including:
  - a. A description of how the forecasts were benchmarked,
  - b. Justifications for selecting the methods and assumptions used, and
  - c. ~~If requested by the staff, data used in the analyses.~~
  - c. If requested by the staff, data used in the analyses.

4. Staff will request additional information, including the data used in a load-serving entity's analyses, if Staff is unable to analyze fully a load-serving entity's submission for compliance with this Article.

- D. Supply plans. Each utility shall provide the following data and analyses to the Commission by December 31, 1989, and every three years thereafter. If no changes are forecast for any item, the utility may refer to previous filings for that item. A load-serving entity shall, by April 1 of each even year, file with Docket Control the following prospective analyses and plans, which shall compare a wide range of resource options and take into consideration expected duty cycles, cost projections, other analyses required under this Section, environmental impacts, environmental externalities and life-cycle costs, and water consumption and may include a reference to the last filing made under this subsection for each item for which there has been no change since the last filing:

1. ~~Ten-year~~ A 10-year resource plan, providing for each year:
  - a. ~~The data required in subsection (B)(1)(a) through (p) of this Section~~ Projected data for each of the items listed in subsection (B)(1), for each generating unit and purchased power source, including each generating unit that is expected to be new or refurbished during the period, which shall be designated as new or refurbished, as applicable, for the year of purchase or the period of refurbishment; and
  - b. ~~the data required in subsection (B)(2)(a) through (g) of this Section.~~ Projected data for each of the items listed in subsection (B)(2), for the power supply system;
  - b.c. ~~For~~ The capital cost, construction time, and construction spending schedule for each generating unit that is expected to be new or refurbished during the period;
    - i. ~~The data required in subsection (B)(1) of this Section for applicable years,~~  
and
    - ii. ~~The capital cost, construction time, and construction spending schedule.~~
  - d. ~~The escalation levels assumed for each component of cost for each generating unit and purchased power source;~~
  - d.e. ~~For the~~ If discontinuation, decommissioning, or mothballing of any power source and or permanent deratings derating of any generating facility is expected:
    - i. ~~Identification of the each power sources source or units unit involved;~~
    - ii. ~~The costs and spending schedule of such for each discontinuation, decommissioning, mothballing, or derating;~~ and
    - iii. ~~The reasons for each discontinuation, decommissioning, mothballing, or derating;~~
  - e.f. ~~The capital costs and operating and maintenance costs of all new or refurbished transmission and distribution facilities expected during the 15-year period; and;~~
  - g. ~~a description~~ An explanation of the need for and purpose of such all expected new or refurbished transmission and distribution facilities, which explanation shall incorporate the load-serving entity's most recent transmission plan filed under A.R.S. § 40-360.02(A) and any relevant provisions of the Commission's most recent Biennial Transmission Assessment decision regarding the adequacy of transmission facilities in Arizona; and
  - h. Cost analyses and cost projections;

2. Documentation of the data, assumptions, and methods or models used to forecast production costs and power production ~~in subsection (D)(1) of this Section for the 10-year resource plan~~, including the method by which the forecast was calibrated or benchmarked;
3. ~~Description A description of each potential power source which that was rejected;~~ the capital costs, and operating costs, and maintenance costs of each rejected source; and ~~an explanation of the reasons for rejecting each source;~~
4. ~~Ten-year A 10-year forecast of eogeneration and other self generation by customers of the utility load-serving entity~~, in terms of annual peak production (megawatts) and annual energy production (megawatt-hours);
5. Disaggregation of the forecast of subsection (D)(4) of this Section into a component in which ~~two components, one reflecting the self generation projected if no additional efforts are made to encourage such generation self generation~~, and a component consisting of ~~one reflecting the change in supply due to self generation projected to result from the load-serving entity's institution of additional forecasted eogeneration and self generation measures;~~
6. ~~Ten-year A 10-year forecast of annual capital costs and operating and maintenance costs by year of all the eogeneration and other self generation included in subsection (D)(5) of this Section, identified under subsections (D)(4) and (D)(5);~~
7. Documentation of the analysis of ~~the eogeneration and other self generation in subsection under subsections (D)(4) through (6) of this Section;~~
8. ~~A plan to consider generation using a diverse range of fuels and technologies, including nuclear and renewable energy resources;~~
9. ~~A calculation of the benefits of generation using renewable energy resources; including environmental benefits from reduced water, reduced pollution, reduced fossil fuel wastes such as coal ash, reduced transportation and production emissions.~~
10. ~~Analysis of integration costs for intermittent resources;~~
11. ~~A plan to increase the efficiency of the load-serving entity's generation using fossil fuel;~~
12. ~~Data to support technology choices for supply-side resources;~~
13. ~~A description of the demand management programs or measures included in the 10-year resource plan, including for each demand management program or measure:~~
  - a. ~~How and when the measure will be implemented.~~

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- b. The projected participation rate by customer class for the measure;
- c. The expected change in demand resulting from the measure;
- d. The expected reductions in air emissions and water consumption attributable to the program;
- e. The expected life of the measure; and
- f. The capital costs, operating costs, and maintenance costs of the measure; and

14. For each demand management measure that was considered but rejected:

- a. A description of the measure;
- b. The capital costs, operating costs, and maintenance costs of the measure; and
- c. The reasons for rejecting the measure.

E. Analyses of uncertainty. Each utility shall provide to the Commission the following information by December 31, 1989, and every three years thereafter. A load-serving entity shall, by April 1 of each even year, file with Docket Control a compilation of the following analyses and plan:

1. Analyses to identify and assess errors, risks, and uncertainties in the following, completed using appropriate methods such as sensitivity analyses analysis and probabilistic analyses analysis, to assess errors and uncertainty in:

- a. Demand forecasts, including the effects of hotter temperatures and higher peak demands as projected by the latest government climate change research;
- b. The costs of demand management measures and power supply;
- c. The availability of sources of power;
- d. The costs of compliance with existing and expected environmental regulations;
- e. Any analysis by the load-serving entity in anticipation of potential new or enhanced environmental regulations;
- d-f. Changes in fuel prices, and availability, as well as a comparison of estimated v. actual fossil fuel costs;
- g. Construction costs, capital costs, and operating costs; and
- e-h. Other factors which the utility wishes to consider;

2. Identification of those options which enable the utility to best respond to significant changes in conditions whose future characteristics are uncertain, including:

- a. Continual monitoring of critical variables and making commensurate changes in plans if those variables deviate significantly from the forecast;
- b. Building several smaller units instead of one large unit;

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- ~~e. Sharing capacity with other utilities, and~~
- ~~d. Conducting well-monitored pilot programs.~~

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~~2. Identification of those options which enable the utility to best respond to significant changes in conditions whose future characteristics are uncertain, including:~~

~~a. Continual monitoring of critical variables and making commensurate changes in plans if those variables deviate significantly from the forecast;~~

~~b. Building several smaller units instead of one large unit.~~

~~c. Sharing capacity with other utilities.~~

~~d. Conducting well-monitored pilot programs, and~~

~~e. Consider the benefits of hybridizing existing power plants.~~

~~2. A description and analysis of available means for managing the errors, risks, and uncertainties identified and analyzed in subsection (E)(1), such as obtaining additional information, limiting risk exposure, using incentives, creating additional options, incorporating flexibility, and participating in regional generation and transmission projects; and~~

~~3. A plan to manage the errors, risks, and uncertainties identified and analyzed in subsection (E)(1).~~

F. ~~Integrated resource plan. Each utility shall provide the Commission with an integrated resource plan by December 31, 1989, and every three years thereafter containing:~~

~~1. The 10 year plan or flexible set of plans which, on the basis of the analyses required in this Article, including the uncertainty analysis, will tend to minimize the present value of the total cost of meeting the demand for electric energy services.~~

~~2. Complete description and documentation of the least cost plan, including supply and demand side conditions, costs, and discount rates utilized.~~

~~3. An action plan indicating the supply and demand related actions to be undertaken by the utility over the next three years in furtherance of the ten-year plan.~~

~~A load-serving entity shall, by April 1 of each even year, file with Docket Control a 15-year resource plan that:~~

~~1. Selects a portfolio of resources based upon comprehensive consideration of a wide range of supply- and demand-side options;~~

~~2. Will result in the load-serving entity's reliably serving the demand for electric energy services;~~

3. Will minimize the adverse environmental impacts of power production, including the emission of greenhouse gases;
4. Will effectively manage the uncertainty and risks associated with costs, environmental impacts, load forecasts, and other factors;
5. Will achieve a reasonable long-term total cost, taking into consideration the objectives set forth in subsections (F)(2)-(4) and the uncertainty of future costs; and
6. Contains all of the following:
  - a. A complete description and documentation of the plan, including supply and demand conditions, availability of transmission, costs, and discount rates utilized;
  - b. A comprehensive, self-explanatory load and resources table summarizing the plan;
  - c. A brief executive summary;
  - d. An index to indicate where the responses to each filing requirement of these rules can be found; and
  - e. Definitions of the terms used in the plan.

G. A load-serving entity shall, by April 1 of each odd year, file with Docket Control a work plan that includes:

1. An outline of the contents of the resource plan the load-serving entity is developing to be filed the following year as required under subsection (F);
2. The load-serving entity's method for assessing potential resources;
3. The sources of the load-serving entity's current assumptions; and
4. An outline of the timing and extent of public participation and advisory group meetings the load-serving entity intends to hold before completing and filing the resource plan.

H. With its resource plan, a load-serving entity shall include an action plan, based on the results of the resource planning process, that:

1. Includes a summary of actions to be taken on future resource acquisitions;
2. Includes details on resource types, resources capacity, and resource timing; and
3. Covers the three-year period following the Commission's acknowledgment of the resource plan.

I. The Commission may request that a load-serving entity complete additional analyses to improve specified components of the load-serving entity's filings.

**R14-2-704. Commission review of utility load-serving entity resource plans**

- A. ~~Within 120 days of the submission of demand forecasts, supply plans, uncertainty analyses, and integrated resource plans by the utilities, the Commission shall schedule a hearing or hearings to review utility filings and to determine the degree of consistency between these filings and analyses conducted by the staff and information provided by other parties. By April 1 of each odd year, Staff shall file a report that contains its analysis and conclusions regarding its statewide review and assessments of the load-serving entities' filings made under R14-2-703(C), (D), (E), (F), and (H).~~
- B. ~~The Commission may request additional analyses to be conducted by the utilities to improve specified components of the utilities' analyses.~~
- C.B. ~~In making its consistency determination, the Commission shall consider the following factors: By July 1 of each odd year, the Commission shall determine whether to issue an order acknowledging the resource plans. The Commission shall order an acknowledgment of the resource plan if the Commission determines that the resource plan complies with the requirements of this Article and that the load-serving entity's resource plan is reasonable and in the public interest, based on the information available to the Commission at the time and considering the following factors:~~
1. ~~The total cost of electric energy services;~~
  2. ~~The degree to which the factors which that affect demand, including demand management, have been taken into account;~~
  3. ~~The degree to which non-utility supply alternatives, such as cogeneration and self generation, have been taken into account;~~
  4. ~~Uncertainty in demand and supply analyses, forecasts, and plans, and the flexibility of plans enabling response whether plans are sufficiently flexible to enable the load-serving entity to respond to unforeseen changes in supply and demand factors;~~
  5. ~~The reliability of power supplies, including fuel diversity and non-cost considerations;~~
  6. ~~The reliability of the transmission grid; taking into consideration future increases in temperature;~~
  7. ~~The degree to which the load-serving entity considered all relevant resources, risks, and uncertainties;~~
  8. ~~The degree to which the load-serving entity's plan for future resources is in the best interest of its customers;~~

9. The best combination of expected costs and associated risks for the load-serving entity and its customers; and

10. The degree to which the load-serving entity's resource plan allows for coordinated efforts with other load-serving entities.

D. While no particular ratemaking treatment shall be implied nor inferred by the Commission's acknowledgement, The the Commission may subsequently shall consider its consistency-determination in its review of financing applications, in general rate cases, and in other matters in which the supply of or demand for energy services is a significant factor a load-serving entity's filings made under R14-2-703 when the Commission evaluates the performance of the load-serving entity in subsequent rate cases and other proceedings.

E. A load-serving entity may seek Commission approval of specific resource planning actions.

F. A load-serving entity may file an amendment to an acknowledged resource plan if changes in conditions or assumptions necessitate a material change in the load-serving entity's plan before the next resource plan is due to be filed.

#### R14-2-705. Procurement

A. Except as provided in subsection (B), a load-serving entity may use the following procurement methods for the wholesale acquisition of energy, capacity, and physical power hedge transactions:

1. Purchase through a third-party on-line trading system;

2. Purchase from a third-party independent energy broker;

3. Purchase from a non-affiliated entity through auction or an RFP process;

4. Bilateral contract with a non-affiliated entity;

5. Bilateral contract with an affiliated entity, provided that non-affiliated entities were provided notice and an opportunity to beat the proposed contract before the contract was executed; and

6. Any other competitive procurement process approved by the Commission.

B. A load-serving entity shall use an RFP as the primary acquisition process, unless one of the following exceptions applies:

1. The load-serving entity is experiencing an emergency;

2. The load-serving entity needs to make a short-term acquisition to maintain system reliability;

3. The load-serving entity needs to acquire other components of energy procurement, such as fuel, fuel transportation, and transmission projects;
4. The load-serving entity's planning horizon is two years or less;
5. The transaction presents the load-serving entity a genuine, unanticipated opportunity to acquire a power supply resource at a clear and significant discount, compared to the cost of acquiring new generating facilities, and will provide unique value to the load-serving entity's customers;
6. The transaction is necessary for the load-serving entity to satisfy an obligation under the Renewable Energy Standard rules; or
7. The transaction is necessary for the load-serving entity's demand-side management or demand response programs.

C. A load-serving entity shall engage an independent monitor to oversee all RFP processes for procurement of new resources.

**R14-2-706. Independent Monitor Selection and Responsibilities**

A. When a load-serving entity contemplates engaging in an RFP process, the load-serving entity shall consult with Staff regarding the identity of companies or consultants that could serve as independent monitor for the RFP process.

B. After consulting with Staff, a load-serving entity shall create a vendor list of three to five candidates to serve as independent monitor and shall file the vendor list with Docket Control to allow interested persons time to review and file objections to the vendor list.

C. An interested person shall file with Docket Control, within 30 days after a vendor list is filed with Docket Control, any objection that the interested person may have to a candidate's inclusion on a vendor list.

D. Within 60 days after a vendor list is filed with Docket Control, Staff shall issue a notice identifying each candidate on the vendor list that Staff considers to be qualified to serve as independent monitor for the contemplated RFP process. In making its determination, Staff may consider the experience of the candidates, the professional reputation of the candidates, and any objections filed by interested persons.

E. A load-serving entity may retain as independent monitor for the contemplated RFP process and for its future RFP processes any of the candidates identified in Staff's notice.

F. A load-serving entity shall file with Docket Control a written notice of its retention of an independent monitor.

- G. A load-serving entity is responsible for paying the independent monitor for its services and may charge a reasonable bidder's fee to each bidder in the RFP process to help offset the cost of the independent monitor's services. A load-serving entity may request recovery of the cost of the independent monitor's services, to the extent that the cost is not offset by bidder's fees, in a subsequent rate case. The Commission shall use its discretion in determining whether to allow the cost to be recovered through customer rates.
- H. One week prior to the deadline for submitting bids, a load-serving entity shall provide the independent monitor a copy of any bid proposal prepared by the load-serving entity or the load-serving entity's affiliated entity and of any benchmark or reference cost the load-serving entity has developed for use in evaluating bids. The independent monitor shall take steps to secure the load-serving entity's bid proposal and any benchmark or reference cost so that they are inaccessible to any bidder, the load-serving entity, and the load-serving entity's affiliated entity.
- I. The independent monitor shall provide reports to Staff, on at least a monthly basis, throughout the RFP process.