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**IN THE MATTER OF RESOURCE
PLANNING AND PROCUREMENT
FOR 2011 AND 2012**

**DOCKET NO.
E-00000A-11-0113**

**COMMENTS OF THE
INTERSTATE RENEWABLE
ENERGY COUNCIL, INC.**

"The Interstate Renewable Energy Council, Inc. ("IREC") appreciates the opportunity to comment on the 2012 Integrated Resource Plans ("IRPs") of Arizona Public Service ("APS") and Tuscon Electric Power ("TEP").

About IREC

IREC enables greater use of clean energy in a sustainable way by (i) introducing regulatory policy innovations that empower consumers and support a transition to a sustainable energy future, (ii) removing technical constraints to distributed energy resource integration, and (iii) developing and coordinating national strategies and policy guidance to provide consistency on these policies centered on best practices and solid research. The scope of IREC's work includes:

- Expanding programs that facilitate consumers' ability to host a renewable energy system to directly self-supply energy needs or sell energy
- Updating interconnection processes to facilitate deployment of distributed energy resources under high deployment scenarios
- Incorporating renewable energy resource growth into utility distribution system planning and operations
- Ensuring realistic assumptions about the growth and cost effectiveness of renewable energy resources are reflected in resource and transmission planning

Overview of Comments

The most basic criterion for any IRP is that the resources selected must meet future needs in terms of total energy to serve load, as well as total capacity to meet peak load. IREC has analyzed the information in both APS' and TEP's 2012 IRPs and concludes that renewable energy contributes significant to both of these needs. For APS, we also find that the Enhanced Renewables portfolio minimizes risks associated with future costs to ratepayers. We present our findings below.

IREC Finding 1: Renewable energy resources, including distributed energy, make significant contributions to the long-term capacity needs of both APS and TEP.

According to APS (see APS 2012 IRP, Attachment F.9(b), p ATT-164), existing and future renewable resources (including distributed energy) contributed to 2% of APS' overall capacity needs in 2012. This contribution increases to 9% in 2027. For TEP, renewable resources contribute 1% to capacity needs in 2012, increasing to 6% in 2027 (see TEP 2012 IRP, Table 5, p 34).

During the IRP workshops, there was much discussion about the capacity contribution of renewable energy and how this capacity contribution may diminish over time due to an increasing need to provide additional back-up capacity. IREC wants to clarify that there are actually two separate capacity needs embedded in this conversation -- total capacity needs and flexible capacity needs. Renewable resources affect each of these capacity needs differently.

- *Total capacity needs:* Both TEP and APS acknowledge that renewable resources can be depended upon to provide energy during peak hours thereby contributing to total capacity. In the case of distributed renewable resources, this capacity value is magnified by the additional reduction of planning reserve margins associated with customer-sited resources.¹ Some stakeholders voiced concerns that over time, conventional resources will increasingly need to be procured alongside renewables in order to meet peak load. IREC notes that the practice of procuring “capacity-centric” resources (such as combustion turbines) to complement “energy-centric” resources (such as combined cycle gas turbines) was already prevalent before the advent of renewables. Furthermore, the addition of renewable resources will tend to displace energy production from existing conventional resources, however the capacity of these conventional resources will still be available to help meet system peak load. Incremental capacity resources will only be necessary to accommodate incremental load growth or resource retirement. At present, both APS and TEP have a variety of options, including market purchases, for procuring new capacity that does not require building expensive new power plants. Each IRP shows how APS and TEP plan to use these market resources, in combination with other resources, to meet peak load well into the future.
- *Flexible capacity needs:* While variable energy resources, such as wind or solar PV, do not increase total capacity needs, they may increase the need for flexible capacity to respond to intermittent output. APS illustrated this concept on Slide 5 of their August 22, 2012 presentation by showing how a gas-fired combustion turbine can respond quickly to instantaneous fluctuations in demand, thereby providing flexible capacity. IREC notes that this is not a new concept either; flexible capacity has long been necessary for utilities to handle unpredictable intermittencies in demand, which can be as large as intermittencies in renewable energy output. Furthermore, there are multiple low-cost options for providing flexible capacity besides building new combustion turbines. Some of these

¹ For example, in 2022, TEP anticipates its total firm load obligation to be 2532 MW (which takes into account EE and DE), thereby leading to a reserve margin of 386 MW. If the utility were obligated to provide this capacity, the reserve margin would increase to 445 MW.

options include, increasing intra-hour scheduling and dynamic transfers, moving to sub-hourly dispatch, and participating in an energy imbalance market. In general, these options increase the ability for utilities to pool resources and better utilize the transmission system. This provides a more efficient, cost-effective and flexible system, regardless of any renewable resource additions.

IREC Finding 2: For APS, fuel costs (not capacity costs) are the largest driver of customer costs over the long term

An analysis of the major components of future revenue requirements in APS’ IRP reveals that fuel costs, not capacity costs, are anticipated to be the largest source of future expenses that could lead to customer rate increases (Figure 1). Similar information on future revenue requirements was not provided in TEP’s IRP so a comparable analysis was not possible.

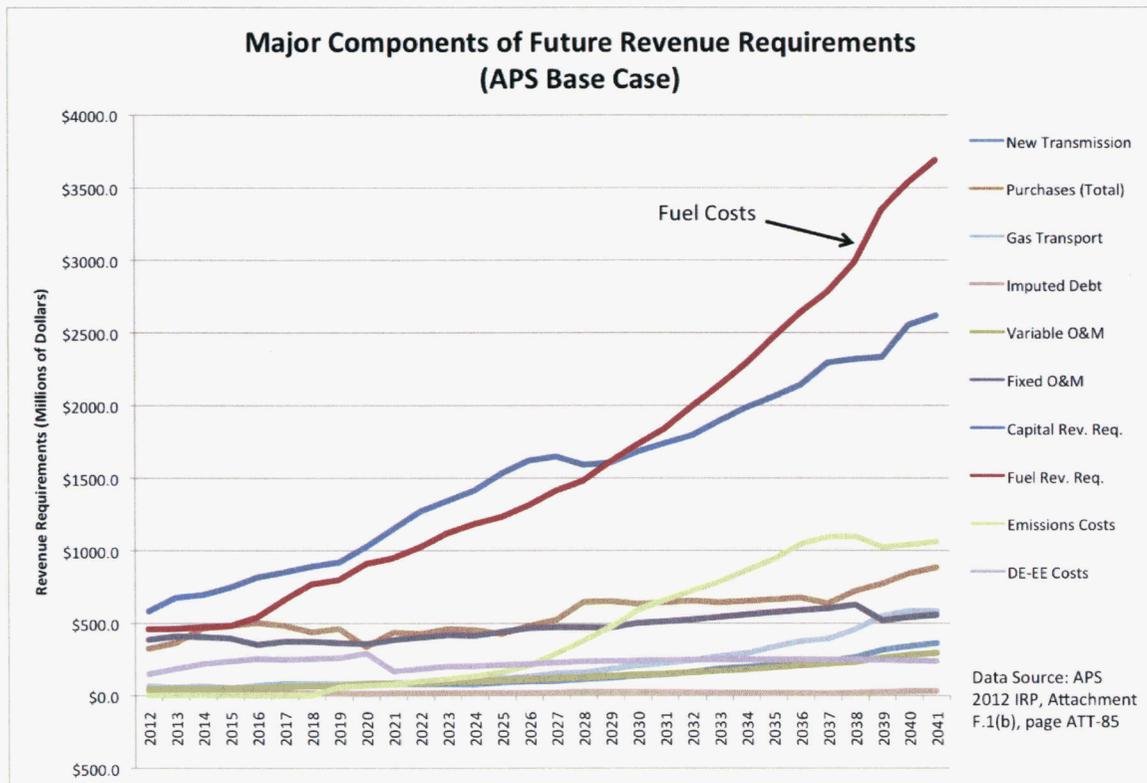


Figure 1. Each line in the chart above represents the trajectory of one component in APS’ future revenue requirement assuming the base case resource portfolio. The largest components of total future costs are fuel and capital costs.

APS performed a series of sensitivity analyses to investigate the impact changes in certain assumptions would have on future costs and other key indicators. This analysis is summarized in Table 5, on page 60. IREC has reviewed this information to understand which variables produce the most uncertainty on future ratepayer costs. As shown in Figure 2, the gas price sensitivity analysis shows the largest range of future revenue requirements. We interpret this to mean that natural gas fuel prices are the biggest source

of uncertainty in future customer costs. As such, any procurement strategy that minimizes reliance upon natural gas to provide energy will minimize risk to ratepayers.

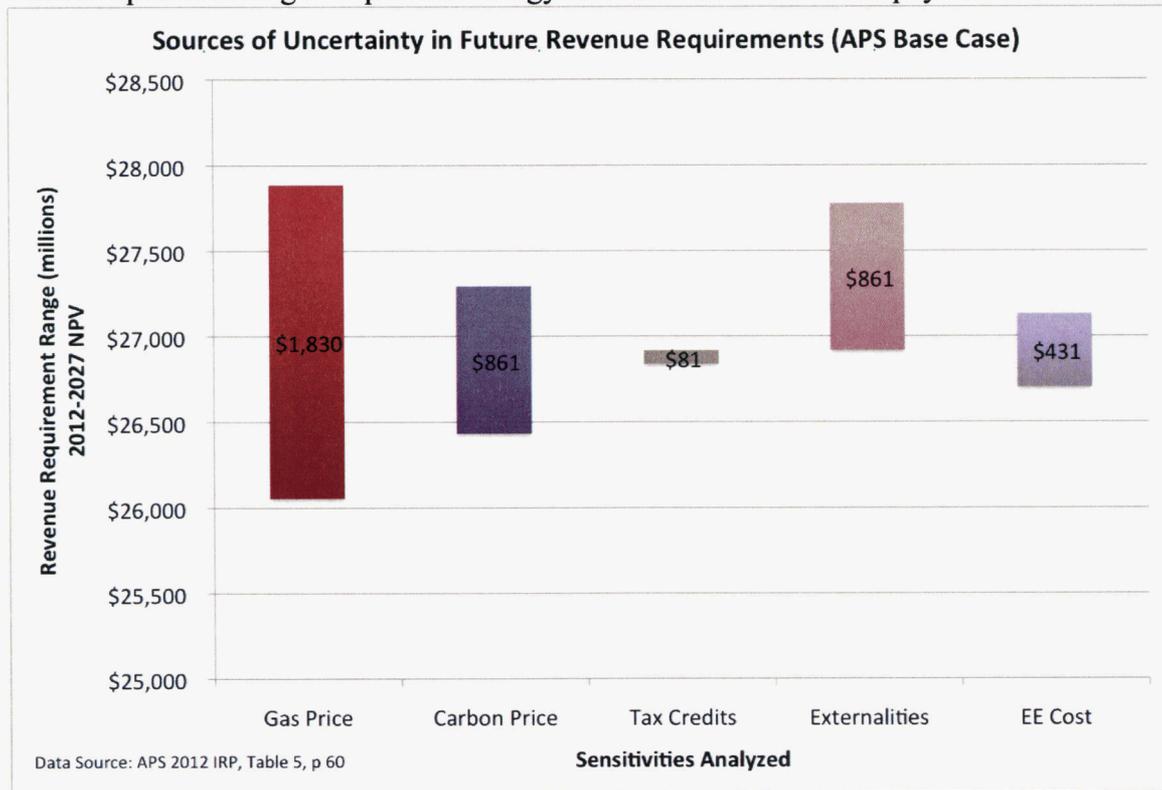


Figure 2. The length of each bar in the chart above reflects the range of future revenue requirements possible from the range of each variable assumed by APS in its sensitivity analysis.

IREC Finding 3: APS’ Enhanced Renewables portfolio minimizes the uncertainty in future costs more than any other portfolios

In addition to its Base Case portfolio, APS analyzed three other resource portfolios. Having identified fuel prices as a large source of uncertainty and a major cost driver. IREC studied the portfolios to determine the fuel price risks associated with each. Based on our analysis, IREC concludes that the Enhanced Renewables portfolio presents the least uncertainty in terms of future fuel costs (see Figure 3), as well as overall revenue requirements. From a ratepayer risk perspective, pursuing the Enhanced Renewables case could be considered the most prudent option.

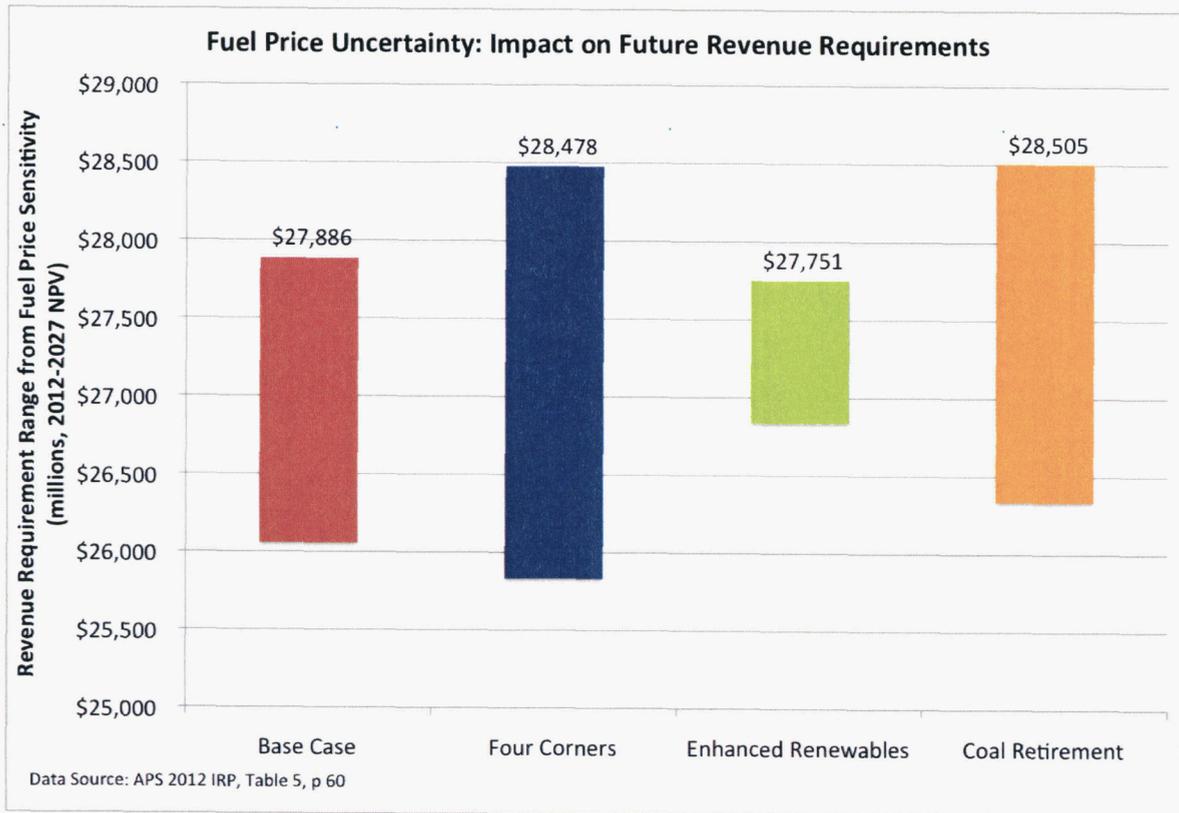


Figure 3. The length each bar in the chart above represents the range of possible future revenue requirements for each resource portfolio in APS' 2012 IRP according to the gas price sensitivity analysis. The Enhanced Renewables portfolio has both the narrowest range and the lowest upper bound of future revenue requirements.

Respectfully submitted on behalf of the Interstate Renewable Energy Council, Inc. this 1st day of May 2013 by:

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