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BEFORE THE ARIZONA CORPORATION COMMISSION

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

DOCKET NO. E-000004-11-0113

**SWEEP COMMENTS ON THE
2011 & 2012 RESOURCE PLANS:
SWEEP ANALYSIS OF IRPS**

**COMMENTS OF THE SOUTHWEST ENERGY EFFICIENCY PROJECT (SWEEP):
SWEEP ANALYSIS OF THE ROLE OF ENERGY EFFICIENCY
IN MEETING FUTURE RESOURCE NEEDS**

The Southwest Energy Efficiency Project ("SWEEP") appreciates the opportunity to submit these comments on the 2012 Integrated Resource Plans ("IRP" or "IRPs") and SWEEP's additional analysis and findings.

SWEEP examined the Integrated Resource Plans of the Tucson Electric Power Company and the Arizona Public Service Company to explore the role energy efficiency programs play in meeting the future electric needs of the customers of both of the utilities – based entirely on the data and documentation the utilities provided in their IRPs and in other utility documents (i.e., data from DSM plans and reports, and from the TEP rate case). SWEEP provides and summarizes its findings in three sections below:

1. The role of energy efficiency programs in the TEP Integrated Resource Plan.
2. The role of energy efficiency programs in the APS Integrated Resource Plan.
3. How energy efficiency programs meet capacity needs by building up the energy efficiency resource over time, and why this is appropriate and important.

SWEEP's analysis and findings summarized in this document are intended to provide additional information for the Commission's consideration of the APS and TEP 2012 Integrated Resource Plans. The data used in SWEEP's analysis are from the APS and TEP IRP documents and other utility documents (cited herein), and the findings and SWEEP's conclusions are based on the data and documentation included in the APS and TEP IRPs and other utility documents.

In this filing SWEEP is not proposing revisions to the APS or TEP IRPs, nor is SWEEP proposing any additional exceptions to Staff's Recommended Order and Opinion ("ROO"). Note that SWEEP filed exceptions to Staff's ROO related to Staff Proposed Amendment No. 1 on April 26, 2013. SWEEP also filed, for the record, its August 22, 2012 workshop presentation and a summary of the slides on April 24, 2013.

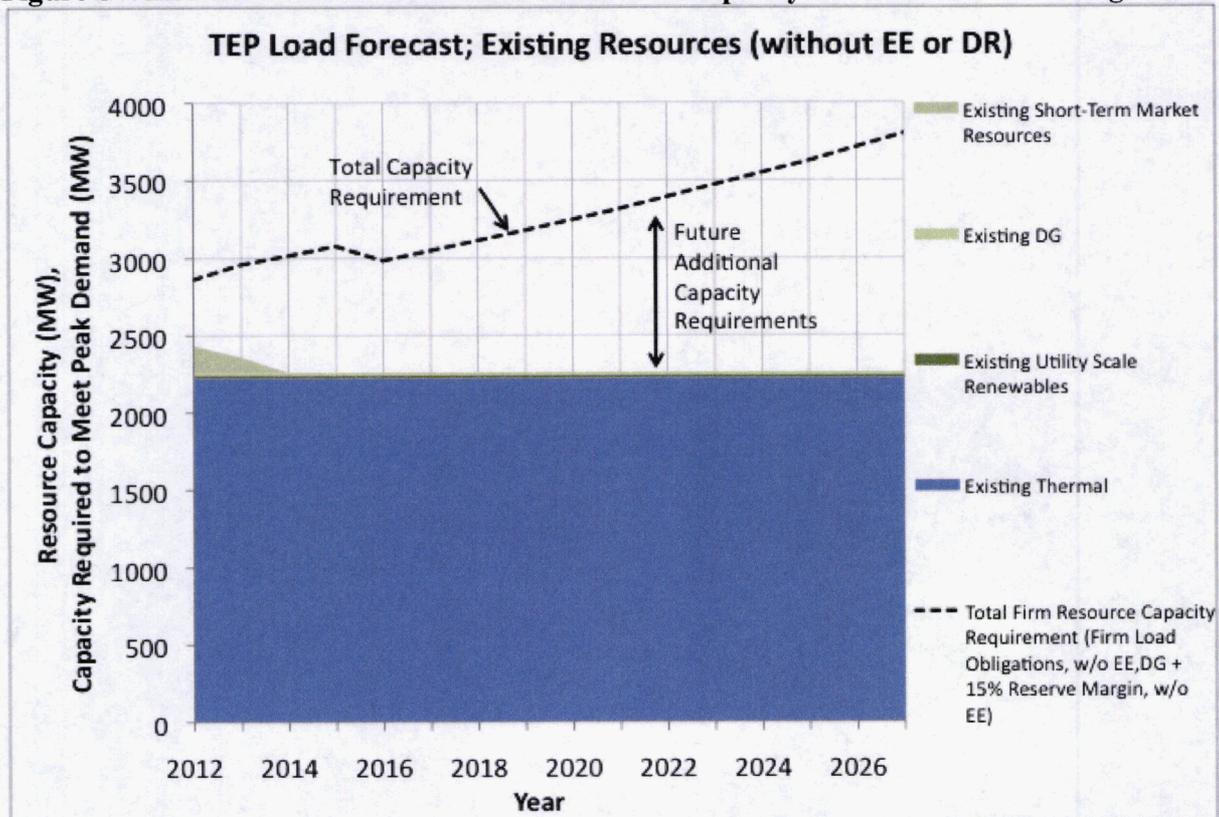
I. The Role of Energy Efficiency Programs in Tucson Electric Power Company's 2012 Integrated Resource Plan

SWEEP reviewed the Tucson Electric Power Company's (TEP) 2012 Integrated Resource Plan (IRP) to examine the role energy efficiency programs play in meeting the future electric needs of TEP customers. Below we provide a summary of our major findings for TEP.

Finding #1: TEP Needs Additional Energy Resources to Meet its Load Obligations

According to TEP's 2012 IRP, TEP will need additional energy resources to meet its load obligations. Indeed, TEP's 2012 IRP clearly shows that TEP has a shortfall in generation capacity over the coming years. Figure SWEEP-1 shows this capacity shortfall in more detail. The black dotted line represents TEP's total capacity requirement (its firm load obligations plus a 15% planning reserve margin), based on the load forecast in TEP's 2012 IRP. The colored regions below the black dotted line show the capacity contributions of TEP's existing generation resources. The gap between the black dotted line and the capacity contributions of TEP's existing generation resources represents the additional capacity that TEP will need in order to fulfill its load obligations and meet customer needs.

Figure SWEEP-1: TEP's 2012 IRP Demonstrates a Capacity Shortfall in the Coming Years



Data Sources: TEP 2012 IRP Table 4, Table 5, Table 14, and Chart 16.

Finding #2: TEP Plans to Meet this Capacity Shortfall Through a Mixed Portfolio of Resources that Include Demand-side Energy Efficiency Resources and Demand Response

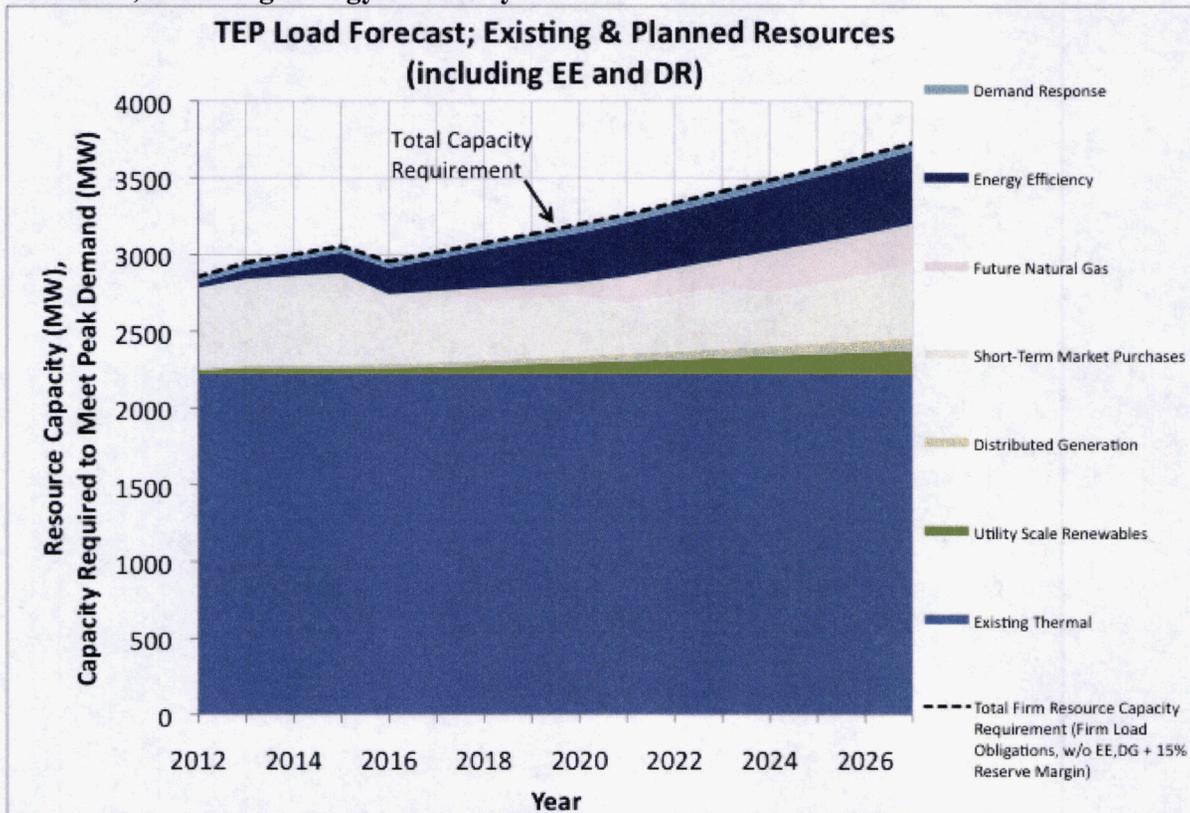
Because of this capacity shortfall, TEP will need to invest in additional energy resources and/or make additional energy purchases in order to fulfill its load obligations and meet customer needs.

According to its 2012 IRP, TEP plans to meet this capacity shortfall through a mixed portfolio of resource additions that include:

- 1) Supply-side generation resources;
- 2) Distributed generation; and
- 3) Demand-side energy efficiency resources and demand response, collectively called “Demand Side Management” or “DSM”.

See Figure SWEEP-2.

Figure SWEEP-2: TEP Plans to Meet the Capacity Shortfall Through a Mixed Portfolio of Resources, Including Energy Efficiency

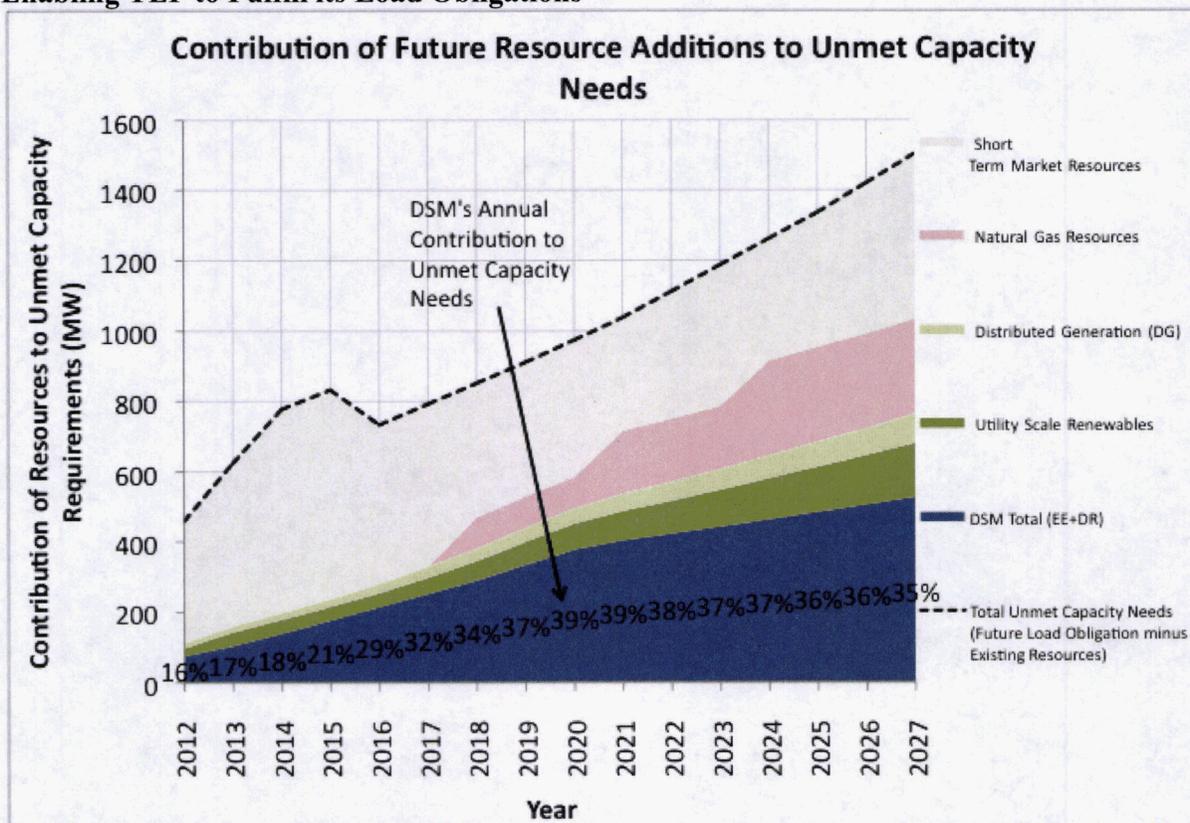


Data Sources: TEP 2012 IRP Table 4 and Table 5.

Finding #3: Energy Efficiency Programs Make Significant Contributions Toward Enabling TEP to Fulfill its Load Obligations and Address its Capacity Shortfall.

Energy efficiency programs make significant contributions toward enabling TEP to fulfill its load obligations and address its capacity shortfall. As shown in Figure SWEEP-3, during each of the fifteen years in TEP’s IRP (2012-2027), Demand Side Management (DSM) programs contribute a major share of TEP’s future additional capacity resources to meet capacity needs. Figure SWEEP-3 illustrates the fraction DSM contributes to additional capacity resources to meet the unmet capacity needs in each year over this time horizon. As you can see, DSM contributes over 30% of TEP’s future additional capacity resources in most years. In some years, such as 2020, DSM’s contribution to TEP’s additional capacity resources is as high as 39%.

Figure SWEEP-3: Energy Efficiency Programs Make Significant Contributions Toward Enabling TEP to Fulfill its Load Obligations



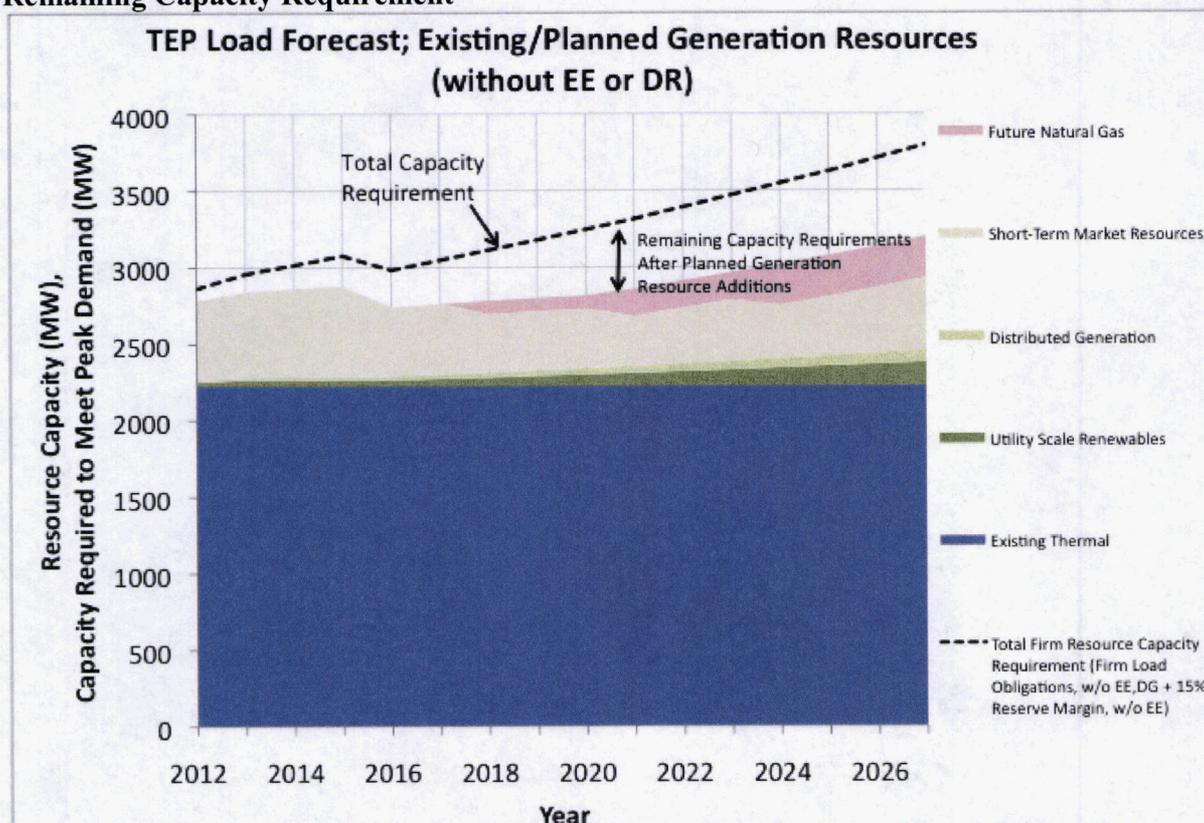
Data Sources: TEP 2012 IRP Table 3, Table 4, and Table 5.

Finding #4: Without Energy Efficiency Programs, TEP Would Have a Significant Remaining Capacity Requirement that It Would Need to Meet

Without energy efficiency programs, TEP would have a significant remaining capacity requirement that it would need to meet. This is shown in Figure SWEEP-4. TEP would need to meet this remaining capacity requirement by investing in other energy resources and/or by

making additional energy purchases. Unfortunately, these other energy resources are more expensive than energy efficiency and do not compare as favorably from a ratepayer perspective.

Figure SWEEP-4: Without Energy Efficiency Investments, TEP Would Have a Significant Remaining Capacity Requirement



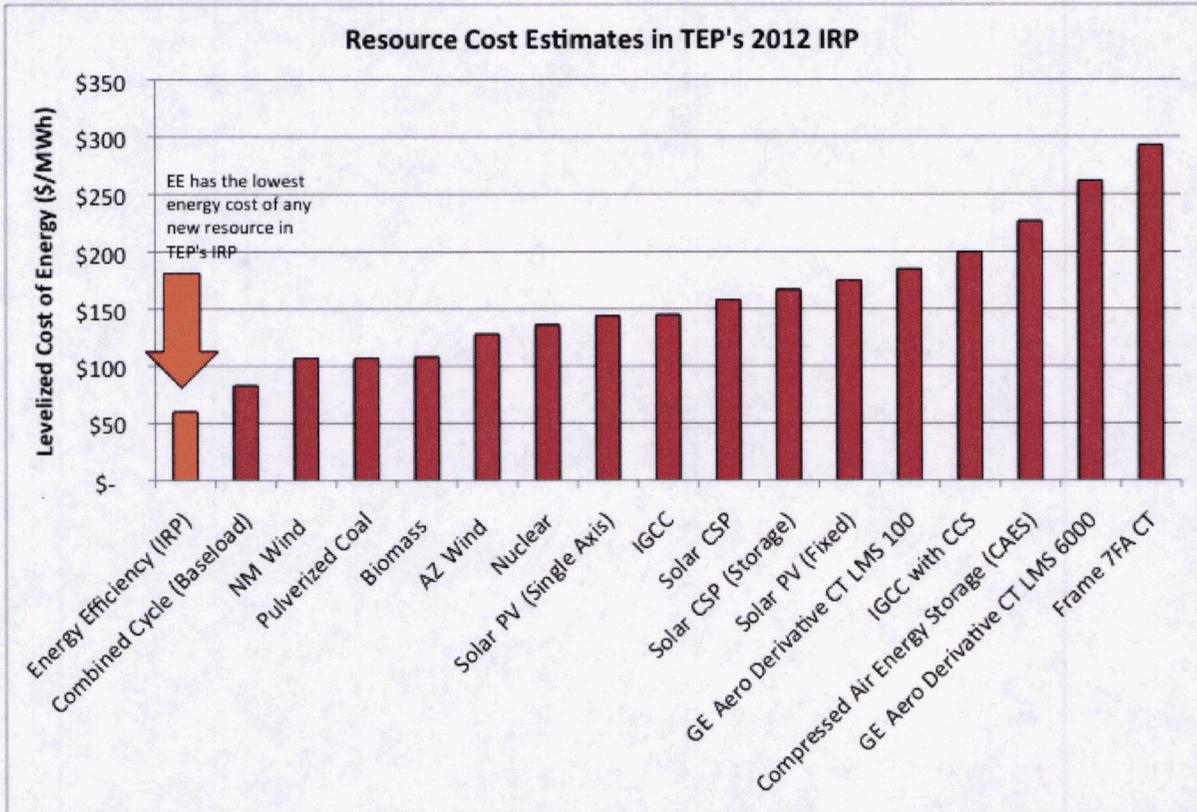
Data Sources: TEP 2012 IRP Table 4 and Table 5.

Finding #5: From a ratepayer perspective, energy efficiency is the best and lowest-cost energy resource TEP can use to meet the needs of its customers

From a ratepayer perspective, energy efficiency is the best and lowest-cost energy resource TEP can use to meet the needs of its customers. As documented in TEP’s 2012 IRP and TEP’s rate case technical conferences, cost-effective energy efficiency is the lowest cost, cleanest, least-risky, and most economy-friendly resource. As shown in Figure SWEEP-5, investing in other resources would be more costly for ratepayers. Indeed, TEP estimates its cost for energy efficiency over the 2012-2020 time horizon to be \$23/MWh.¹ Notably, the next most affordable energy resource costs \$83/MWh, which is significantly (more than 3.5 times) more expensive than energy efficiency.

¹ See TEP’s October 31, 2012 Rate Case Technical Conference presentation on its Energy Efficiency Resource Plan, which corrected the cost of energy efficiency in TEP’s 2012 IRP.

Figure SWEEP-5: Energy Efficiency is the Least Expensive Energy Resource Available to Meet Customer Needs

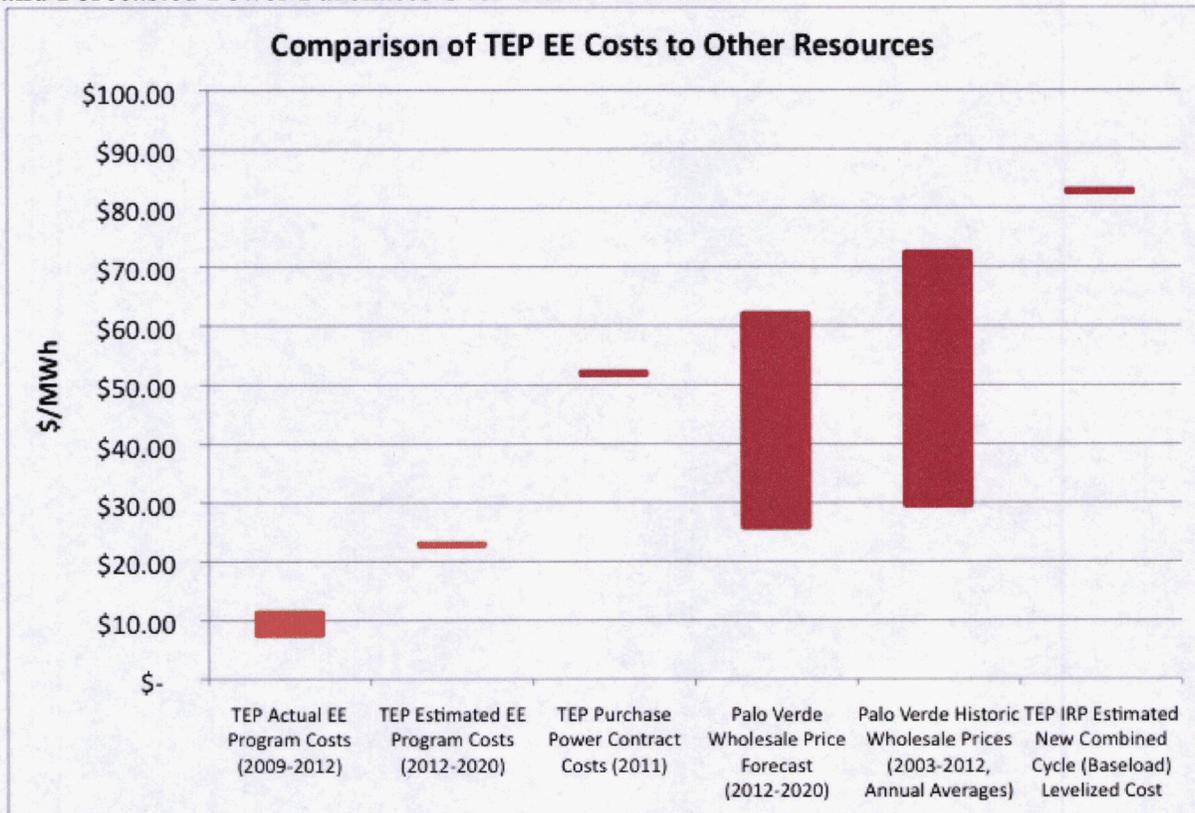


Data Sources: TEP 2012 IRP Chapter 6; TEP Rate Case Technical Conference, EERP, 10/31/2012.

Finding #6: Energy Efficiency Programs Compare Favorably to Power Purchases

According to TEP’s 2012 IRP and information provided in TEP’s rate case technical conferences, new and implemented cost-effective energy efficiency programs cost less than merchant power purchases both in recent years and in forecasts over the next decade. See Figure SWEEP-6 below.

Figure SWEEP-6: New and Implemented Energy Efficiency Programs Cost Less than New and Forecasted Power Purchases Over the Next Decade



Data Sources: TEP Rate Case Technical Conference, EERP, 10/31/2012; TEP DSM Program Progress Reports 2009-2012; TEP 2012 IRP filing for Historical Year 2011, Item B.1.i; TEP 2012 IRP, Chart 62 and page 96; and U.S. Energy Information Administration Wholesale Market Data.

Finding #7: TEP’s IRP Clearly Demonstrates the Need for Energy Efficiency Investment

The TEP 2012 IRP clearly demonstrates the need to invest in energy efficiency based on TEP’s actual customer needs as established in TEP’s 2012 IRP. If TEP under-invests in the energy efficiency resources documented in the 2012 IRP, and then has to add other resources to substitute for the energy efficiency resources identified in the TEP IRP, the total costs for TEP customers will be significantly higher.

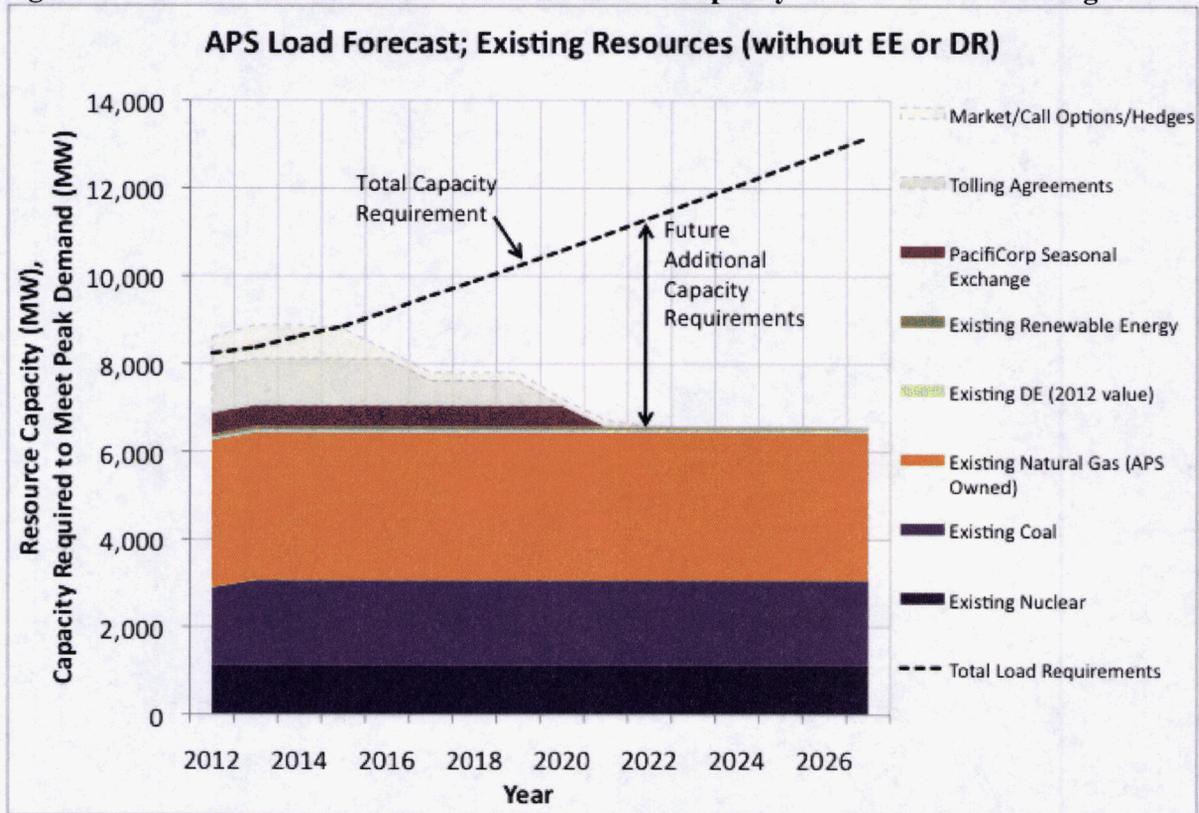
II. The Role of Energy Efficiency Programs in Arizona Public Service Company's 2012 Integrated Resource Plan

SWEEP reviewed the Arizona Public Service Company's (APS) 2012 Integrated Resource Plan (IRP) to examine the role energy efficiency programs play in meeting the future electric needs of APS customers. Below we provide a summary of our major findings for APS.

Finding #1: APS Needs Additional Energy Resources to Meet its Load Obligations

According to APS' 2012 IRP, APS will need additional energy resources to meet its load obligations over the fifteen-year planning horizon. Figure SWEEP-7 shows this capacity shortfall in more detail. The black dotted line represents APS' total capacity requirement (its firm load obligations plus a 15% planning reserve margin), based on the load forecast in APS' 2012 IRP. The colored regions below the black dotted line show the capacity contributions of APS' existing generation resources. The gray-shaded regions show the contributions of Market/Call Options and Tolling Agreements – resources that APS can optionally call upon to meet load when necessary. The gap between the black dotted line and the capacity contributions of APS's existing generation resources represents the additional capacity that APS will need in order to fulfill its load obligations and meet customer needs.

Figure SWEEP-7: APS's 2012 IRP Demonstrates a Capacity Need Over the Coming Years



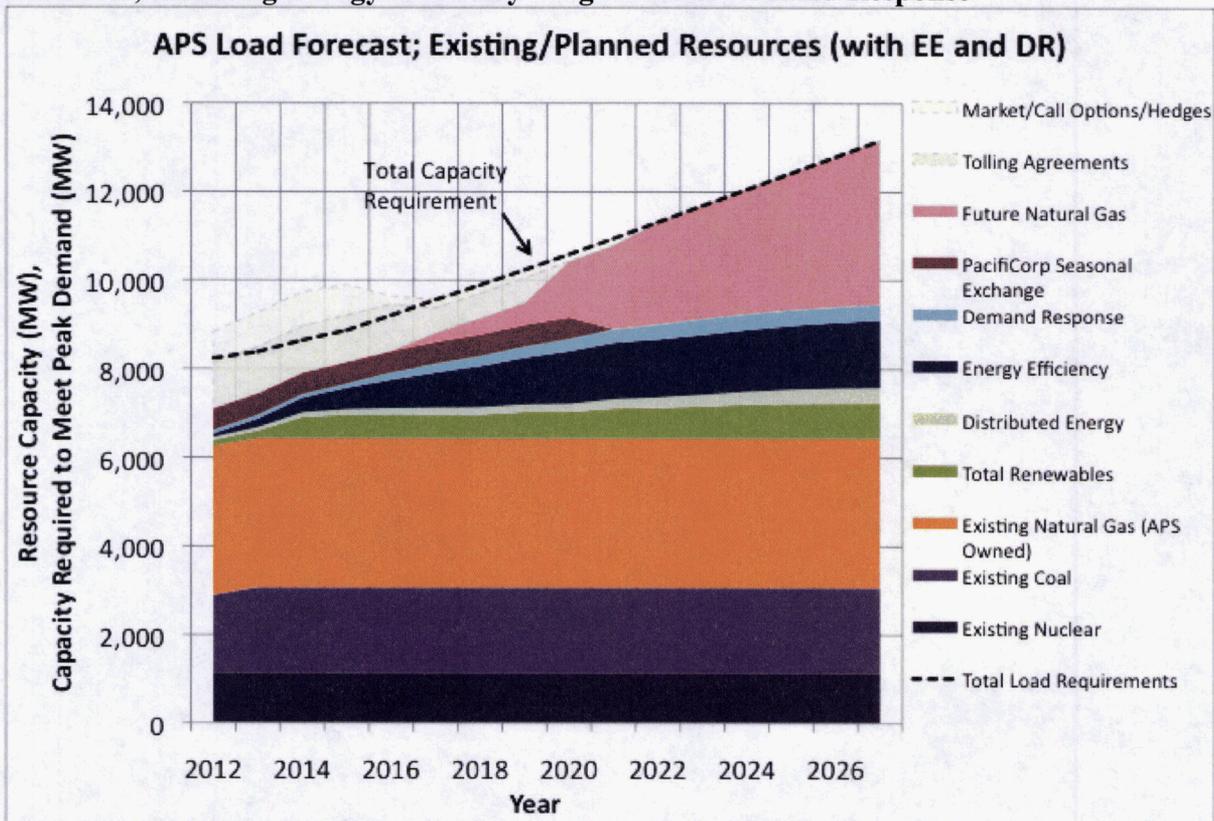
Data Source: APS 2012 IRP, ATT-77

Finding #2: APS Plans to Meet Its Capacity Shortfall Through a Mixed Portfolio of Resources that Include Demand-Side Energy Efficiency Resources and Demand Response

APS intends to invest in additional energy resources in order to fulfill its load obligations and meet customer needs. See Figure SWEEP-8. According to its 2012 IRP, APS plans to meet this capacity shortfall through a mixed portfolio of resource additions that include:

- 1) New natural gas resources (including short-term market purchases, combined cycle resources, and combustion/steam turbines)
- 2) New renewable energy resources (including utility scale wind, geothermal, and solar resources)
- 3) New distributed renewable energy resources; and
- 4) Demand-side energy efficiency resources and demand response, collectively called “Demand Side Management” or “DSM”.

Figure SWEEP-8: APS Plans to Meet the Capacity Need Through a Mixed Portfolio of Resources, Including Energy Efficiency Programs and Demand Response



Data Source: APS 2012 IRP, ATT-77

APS also has the option to call upon its Market/Call Options and Tolling Agreements to meet load when necessary. Note that in 2012-2016 it is the Market/Call Options in particular that may cause some reviewers of the APS IRP to perceive that APS has excess capacity. However,

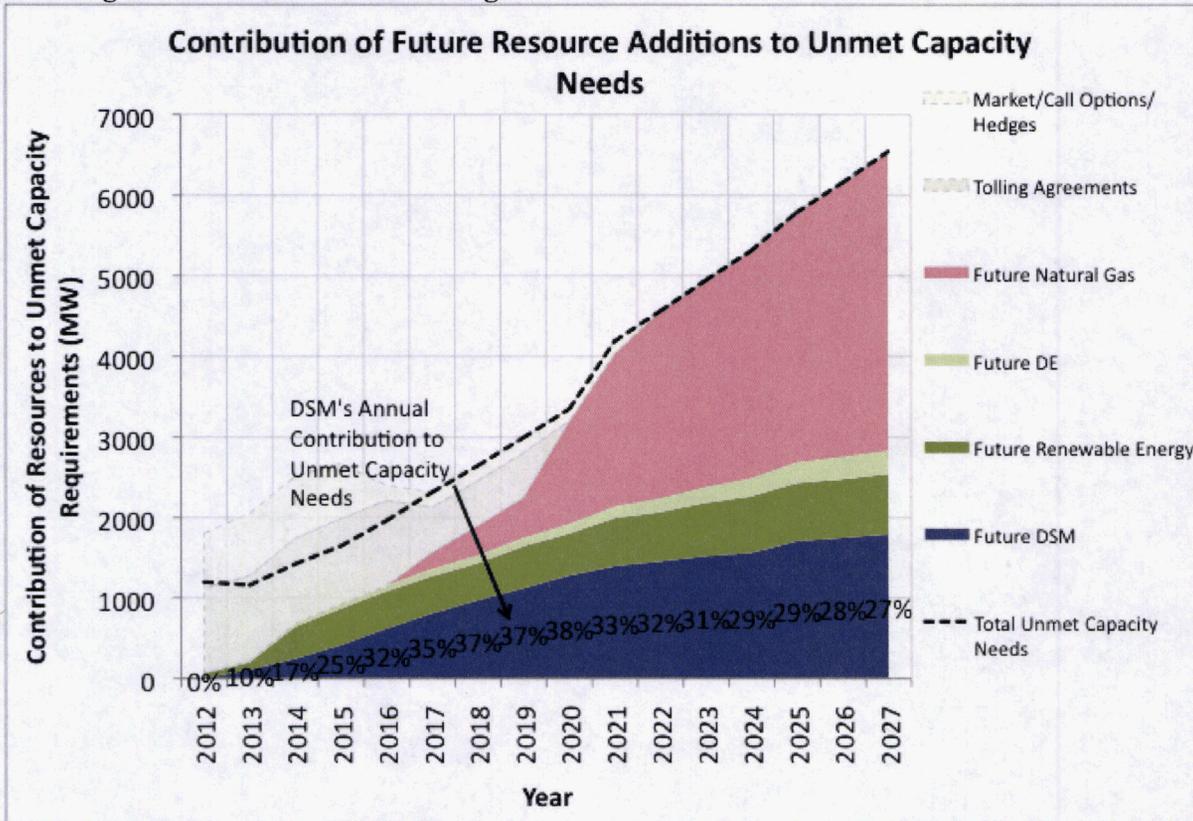
Market/Call Options, as a “resource,” are fundamentally different than a natural gas plant, energy efficiency programs, or other physical resources – based on their nature and intended purpose. Market/Call Options are intended to meet demand for electricity and to provide additional capacity to meet the demand, but usually for very short periods (hours) and often at fairly high costs per MWh, and only when APS exercises the option.

In SWEEP’s view it is useful for APS to have the Market/Call Options as a tool in the toolbox, because if, for example, the peak demand in the summer exceeds the forecast demand, then APS could exercise the Market/Call Options to meet the higher-than-expected peak demand for short periods of time. But Market/Call Options should not be perceived to be the same as physical capacity resources such as generating plants or energy efficiency programs.

Finding #3: Energy Efficiency Programs Make Significant Contributions Toward Enabling APS to Fulfill its Load Obligations

Energy efficiency programs make significant contributions toward APS being able to fulfill its load obligations. As shown in Figure SWEEP-9, Demand Side Management (DSM) programs contribute a major share of APS’ future resource additions to meet capacity needs. Figure SWEEP-9 illustrates the fraction DSM contributes each year. In some years, such as 2020, DSM’s contribution is as high as 38%. This analysis treats Market/Call Options and Tolling Agreements as optional resources that APS can call upon to meet load when necessary — which is how APS treats these resources as well.

Figure SWEEP-9: Energy Efficiency Programs Make Significant Contributions Toward Enabling APS to Fulfill its Load Obligations



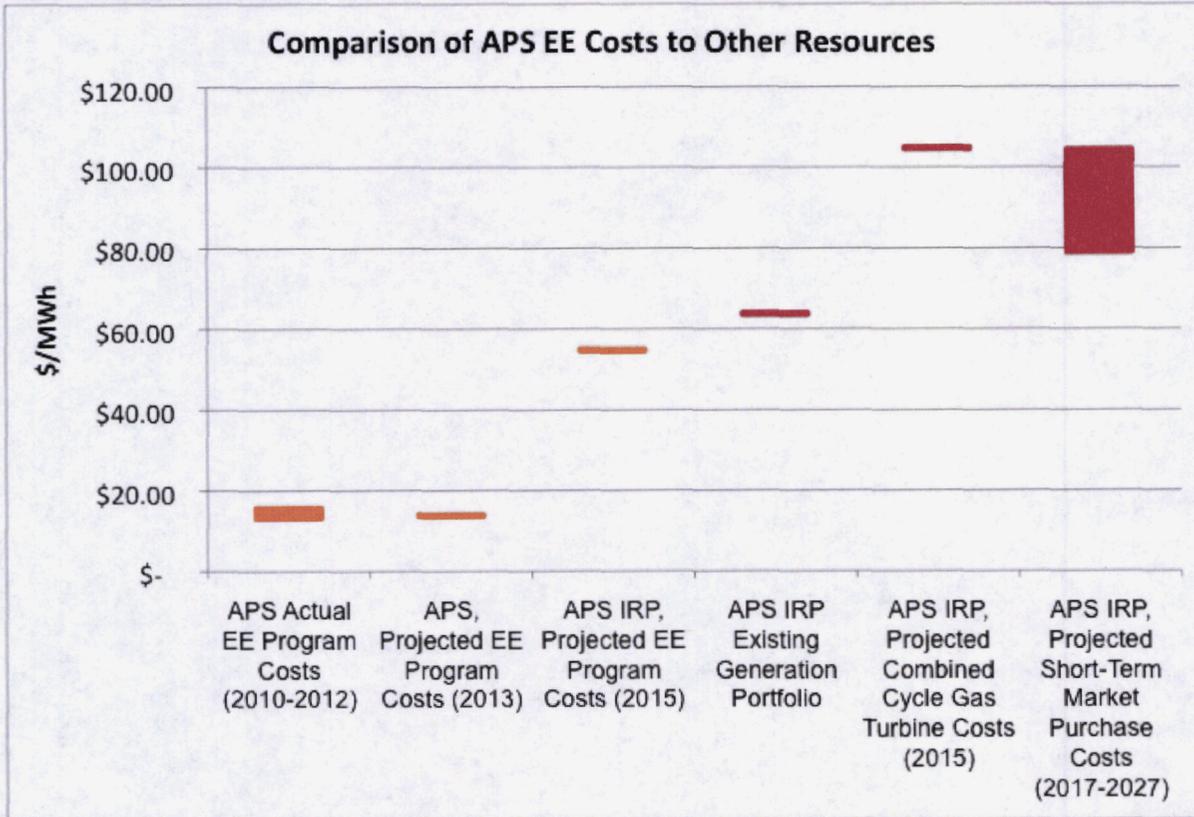
Data Source: APS 2012 IRP, ATT-77

Finding #4: From a ratepayer perspective, energy efficiency is the best and lowest-cost energy resource APS can use to meet the needs of its customers

From a ratepayer perspective, energy efficiency is the best and lowest-cost energy resource APS can use to meet the needs of its customers. As shown in Figure SWEEP-10, investing in other resources would be more costly for ratepayers. APS' costs for its existing generation portfolio are 4.5-times higher than the estimated cost of energy efficiency programs in 2013. APS' projected costs for energy efficiency programs in its IRP² are also lower than the utility's existing generation portfolio, its projected short-term market purchase costs, and its cost for a combined cycle gas turbine.

² SWEEP does not agree with APS' projected energy efficiency program costs. These costs are higher than necessary and higher than what we have observed in mature DSM portfolios in other states.

Figure SWEEP-10: Energy Efficiency is the Least Expensive Energy Resource Available to Meet Customer Needs



Data Sources: APS 2012 IRP, Figure 13 and Table 11; APS 2010, 2011, and 2012 Demand Side Management Annual Reports; APS 2013 Demand Side Management Plan

Finding #5: APS' IRP Clearly Demonstrates the Need for Energy Efficiency Investment

The APS 2012 IRP clearly demonstrates the need to invest in energy efficiency programs based on APS' actual customer needs as established in the utility's 2012 IRP. If APS under-invests in the energy efficiency documented in the 2012 IRP, and then has to add other resources to substitute for the energy efficiency resources identified in the IRP, the total costs for APS customers will be significantly higher.

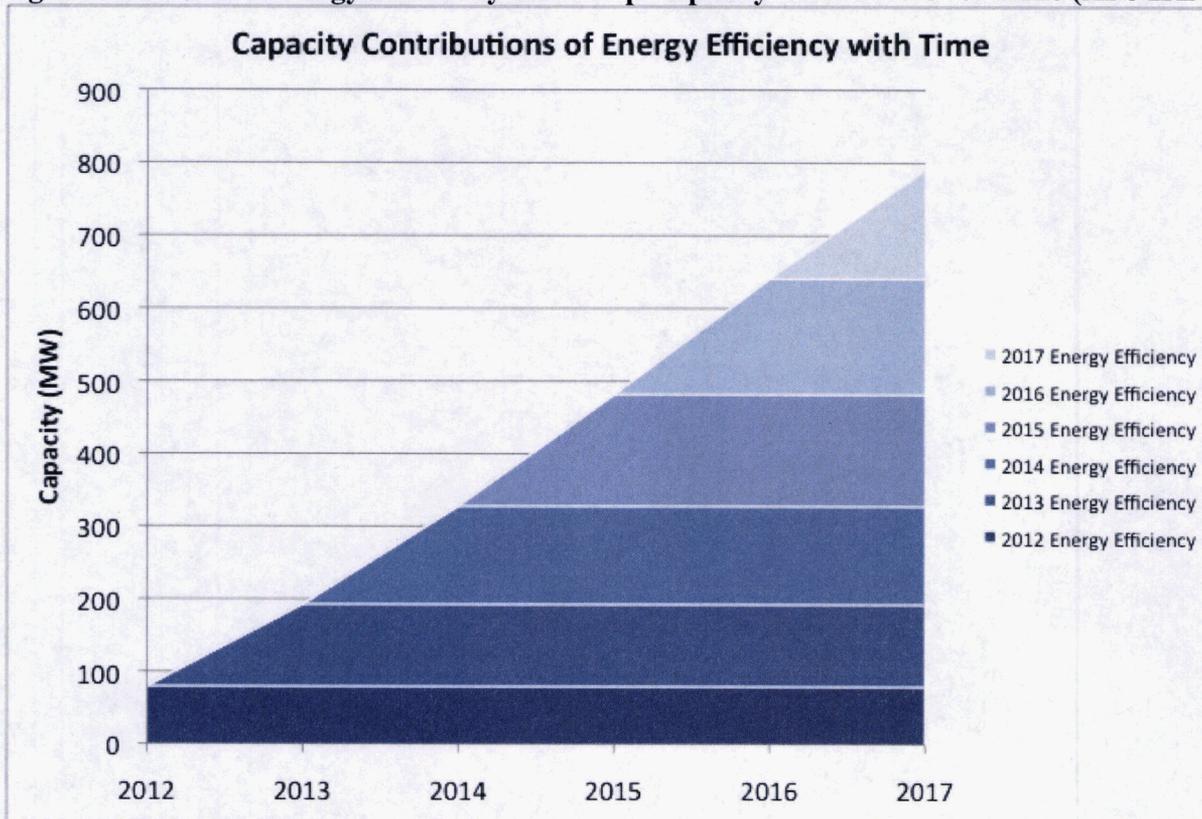
III. How Energy Efficiency Programs Meet Capacity Needs by Building Up the Energy Efficiency Resource Over Time

The 2012 IRPs of TEP and APS illustrate several key points about how energy efficiency resources meet capacity needs by building up the energy efficiency resource over time.

Point #1: Energy Efficiency Resources Build Up Capacity Over Time

Energy efficiency programs build up capacity resources over time, as customers make decisions on buildings, appliances, and equipment, and as energy efficiency measures are installed. For example, when an energy efficiency measure such as attic insulation is installed, that attic insulation will deliver capacity benefits in the year that it is installed and in subsequent years (as the insulation is not removed). In this way, energy efficiency resources implemented in any one year continue to deliver capacity benefits for multiple years. In addition, energy efficiency resources implemented in subsequent years build on the contribution of energy efficiency resources implemented earlier. See Figure SWEEP-11, which is based on data in the APS IRP.

Figure SWEEP-11: Energy Efficiency Builds Up Capacity Resources Over Time (APS IRP)



Point #2: Cost-Effective Energy Efficiency Built Up Over Time Provides Benefits Today

Cost-effective energy efficiency programs built up over time provide benefits today in addition to contributing to meet future capacity needs. Indeed, as soon as an energy efficiency measure is implemented, it will begin delivering energy, capacity, and other benefits. As a cost-effective resource, the energy efficiency programs will result in lower total costs for customers beginning the moment the energy efficiency measures are installed. Therefore it does not make economic sense to delay the implementation of cost-effective energy efficiency, because delaying the implementation would, by definition, increase the total costs for customers.

Point #3: Energy Efficiency Resources Reduce Customers' Utility Bills Today

While energy efficiency programs are reducing total costs for customers over time, as a cost-effective resource, they are also helping customers to reduce their utility bills today. Customers who install energy efficiency measures as a result of the programs receive the direct benefit of a lower utility bill.

Point #4: Energy Efficiency Resources Should Be Built Up Over Time

By design, energy efficiency programs often piggy-back on market opportunities, such as when customers buy a new home, replace an air conditioner or appliance, or change old or buy new equipment. Energy efficiency programs are designed to build on and take advantage of these natural market opportunities for two reasons. First, it is easier and more effective to encourage a customer to purchase an energy efficiency option or upgrade when they are already thinking of making a purchase. Second, and very importantly, the cost to ratepayers for financial incentives during a natural market opportunity are lower than if the programs tried to encourage customers to retrofit their buildings. This practice results in lower program costs and lower costs for ratepayers. Therefore it is important for energy efficiency programs to “be in the market” and to capture these opportunities in the natural market, in all years, which also contributes to building up the energy efficiency resource over time. Each missed opportunity in the market will result in higher utility bills for that customer, and ultimately higher total costs for ratepayers.

Thank you for the opportunity to provide these comments on the 2012 Integrated Resource Plans of APS and TEP, and SWEEP's additional analysis and findings.

RESPECTFULLY SUBMITTED this 30th day of April 2013.

Jeff Schlegel & Ellen Zuckerman
Southwest Energy Efficiency Project

ORIGINAL and 13 COPIES of the foregoing filed this 30th day of April, 2013, with Docket Control, and electronically mailed to All Parties of Record