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Before the Arizona Corporation Commission

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IN THE MATTER OF RESOURCE PLANNING AND PROCUREMENT 2015 AND 2016

Docket No. E-00000V-15-0094

Sierra Club Comments on Arizona Public Service's 2018 Load Forecast Report

1. Introduction and Summary

Sierra Club appreciates the opportunity to comment on Arizona Public Service's (APS) 2018 Load Forecast Report. These comments were prepared with the assistance of Synapse Energy Economics and build upon points made in our comments on APS's 2017 Integrated Resource Plan (IRP).

In summary, we are unconvinced by APS's latest attempt to justify the unjustifiably high base load forecast presented in its 2017 IRP. APS's explanations remain inadequate and fail to address the concerns previously raised by Sierra Club, Commission Staff, and the Commission itself. In addition, we find that APS downplays the extent to which the use of a more reasonable load forecast should affect its near-term procurement actions.

Based on our findings, we recommend that the Commission:

- Reassert its rejection of the IRP load forecast as fundamentally unreasonable;
- Adopt either the "No-Growth" or "Low-Growth" load forecast as the basis upon which APS should make near-term decisions;
- Require more detailed presentation of load forecast methodologies in the future, including the provision of all quantitative underpinnings to interested parties; and
- Reject future APS attempts to recover the costs of new capacity built to meet APS's projected load increases that do not materialize.

2. APS'S DEFENSE OF ITS IRP LOAD FORECAST IS INADEQUATE

In the face of the Commission's conclusion that the load forecast presented in APS's 2017 IRP was "too aggressive" and failed to comply with prior orders requiring it to present more reasonable load forecasts,[1] APS continues to assert that its IRP forecast was reasonable. APS defends its original load forecast primarily with claims about the importance of future population growth. However, APS provides neither evidence of the purported primacy of population growth nor support for its claim that future population growth will be sufficient to drive APS's forecasted load growth.

2.1. APS Overstates the Effect of Population Growth on Load Growth

In its load forecast report, APS declares that the "largest single determinant of energy demand growth over extended timeframes (five years or more) is the service territory's population growth over that period of time."[2] However, APS does not provide concrete evidence to support this claim. It is certainly true that population growth is related to load growth. All else equal, one would expect that higher population growth will result in higher load growth. But this does not mean that positive population growth necessitates positive load growth, much less that moderate population growth will result in rapid load growth.

In fact, APS's experience over the past decade contradicts its claims about the relationship between population growth and load growth. Between 2007 and 2017, APS sales and peak demand declined slightly even as the population of Maricopa County increased by 12.5 percent and APS's own customer base increased by more than 10 percent (see Figure 1).[3] The obvious explanation for this is that electricity *usage per customer* has declined enough to more than offset recent population increases in APS's service territory. This is not an isolated phenomenon. The U.S Energy Information Administration (EIA) has found that across the United States declines in per-capita residential electricity sales have outweighed population increases since at least 2010.[4] APS's load forecast appears to ignore, or at least understate, this important and widespread trend.

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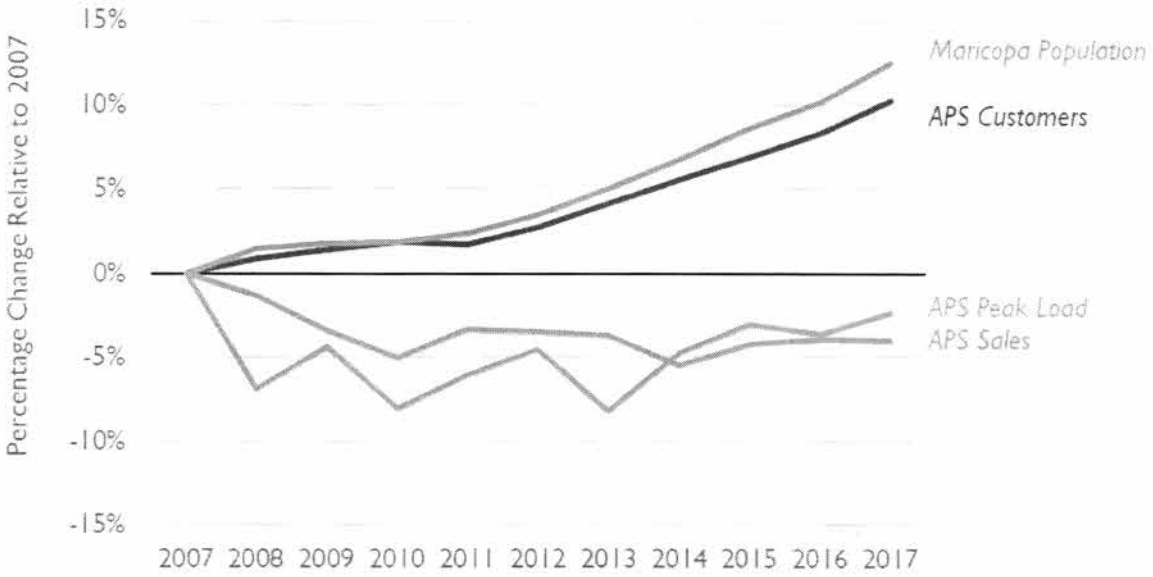
[1] Arizona Corporation Commission Decision No. 76332. P. 47, lines 22-24.

[2] APS. 2018 Load Forecast Report. P. 1.

[3] U.S. Energy Information Administration (EIA). Form EIA-861 energy efficiency, sales, and operational data; Arizona Office of Economic Opportunity. Population Estimates. https://population.az.gov/population-estimates.

[4] U.S. EIA. July 26,2017. "Per capita residential electricity sales in the U.S. Have Fallen Since 2010." https://www.eia.gov/todayinenergy/detail.php?id=32212.

Figure 1. APS Peak Demand, APS Sales, APS Customer Count, and Maricopa County Population, Relative to 2007



Sources: Form EIA-861, Arizona Office of Economic Opportunity

Ultimately, econometric models such as the ones that APS evidently uses to construct its load forecasts are only as good as the data they include. In order to remain useful, these models must be updated regularly based on recent trends. It appears that APS's model assumes that 20th century relationships between economic, population, and load growth still hold. This would miss important recent developments whereby electricity demand has become increasingly de-linked from both economic growth and population growth.[5]

2.2. APS Presents Misleading Picture of Population Growth Trends in Arizona

APS's latest load forecast report suggests that recent low load growth has been a result of an unusual pause in population growth. APS argues that the 2008 recession put a "hard stop" to Arizona's population growth, and that it would be inappropriate to develop a load forecast assuming the continuation of recent low population growth rates.[6] These claims are misleading at best.

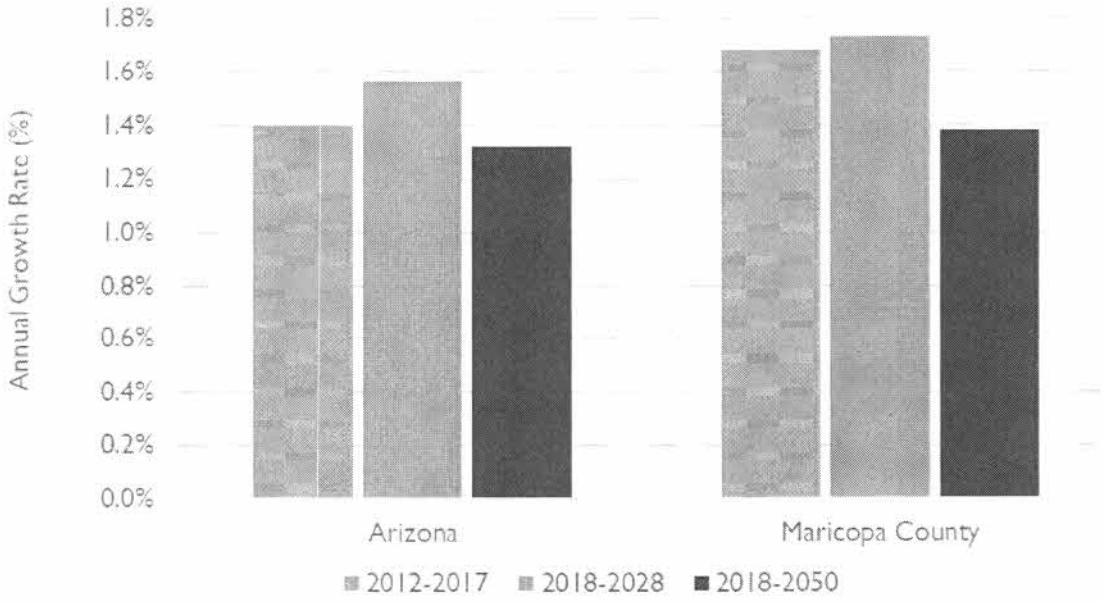
While Arizona's population growth slowed dramatically in the years immediately following the 2008 recession, it has certainly not remained at a "hard stop" ever since then. Instead, Arizona's

[5] See, e.g., Walton, Robert. July 18, 2018. "As technology upends grid fundamentals, is load forecasting a crapshoot?" Utility Dive. https://www.utilitydive.com/news/as-technology-upends-grid-fundamentals-is-load-forecasting-a-crapshoot/527969/.

[6] APS. 2018 Load Forecast Report. P. 1.

population has continued to increase every year, and averaged annual growth of 1.4 percent over the five years from 2012 through 2017.[7] In APS's home county of Maricopa, population growth averaged 1.7 percent per year over that period.[8] The Arizona Office of Economic Opportunity projects that the next decade will bring average annual population growth rates of 1.6 percent for the state as a whole and 1.7 percent for Maricopa County.[9] Under the same medium case projection, annual population growth rates from 2018 through 2050 average 1.3 percent for Arizona and 1.4 percent for Maricopa County. In other words, near-term population growth will likely be *very similar* to recent growth rates in APS's service territory, and long-term growth rates are likely to be *lower* than recent levels, as shown in Figure 2. APS's claims to the contrary, which are the foundation of its load forecast defense, are unsupported.

Figure 2. Historical and Projected Population Growth Rates, Arizona and Maricopa County



Source: Arizona Office of Economic Opportunity

Furthermore, APS's statement that previous criticisms of its load forecast were made "without a quantitative analysis or consideration of the projected growth rates in population" is plainly false.[10] Sierra Club comments on APS's IRP explicitly assessed APS's justifications for its load

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[7] Arizona Office of Economic Opportunity. Population Estimates. https://population.az.gov/population-estimates.

[8] *Id.*

[9] Arizona Office of Economic Opportunity. Population Projections: Medium Series, All Areas, 2015-2050 Population Projections. Available at https://population.az.gov/sites/default/files/documents/files/pop-prj-sumtable-medium-series2015 xlsx.

[10] APS. 2018 Load Forecast Report. P. 1.

growth projection, including projected population growth rates.[11] Those comments in turn informed the Commission's statement that APS's forecasted load growth "appears too aggressive."[12] It is therefore surprising that APS continues to focus on the effect of future population growth on load growth without addressing the comments and concerns raised previously during the IRP cycle.

2.3. APS Overstates Differences Between Historical and Future Demand-Side Management Savings

In addition to its focus on population growth, APS appears to argue that changes in its demand-side management (DSM) programs will lead to greater load growth in the future. APS claims that criticisms of its load forecast stem from comparing historical energy demand growth rates including the effects of major DSM policies to future growth rates that exclude additional policy interventions.[13] As an initial matter, Sierra Club's comments on APS's 2017 IRP consistently compared historical actual energy demand to future energy demand *after* the effects of DSM and distributed generation, to create an "apples to apples" comparison. We found that one of the factors contributing to APS's forecasted net load growth was that APS assumed that its cost-effective energy efficiency programs would be cut dramatically following the expiration of Arizona's Energy Efficiency Standard (EES) in 2020.[14] We find this assumption to be even less reasonable today given the Commission's proposal to initiate a process to implement a new energy efficiency policy to succeed the EES.[15]

Nonetheless, even if one were to assume that APS's DSM programs will evaporate tomorrow, that would not fully explain APS's projected load growth. We estimate that in the absence of its DSM programs, APS would have experienced average annual growth rates of 1.6 percent for sales and 1.7 percent for peak demand from 2012 through 2017.[16] For the period from 2017 through 2032, APS is projecting annual growth rates of 1.8 percent for sales and 2.6 percent for peak demand *after* accounting for DSM programs.[17] This projection for load growth—even assuming the sunset of all future DSM policy—is unreasonable and should be rejected.

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[11] Sierra Club Comments on Arizona Public Service's 2017 IRP. September 27, 2017. Pp. 5-7.

[12] Arizona Corporation Commission Decision No. 76332. P. 47, lines 22-24.

[13] APS. 2018 Load Forecast Report. P. 3.

[14] Sierra Club Comments on Arizona Public Service's 2017 IRP. September 27, 2017. Pp. 10-12.

[15] Letter and Proposed Energy Modernization Plan from Commissioner Andy Tobin. January 30, 2018. Docket No. E-00000Q-16-0289.

[16] Sierra Club analysis based on Form EIA-861 energy efficiency, sales, and operational data.

[17] APS 2017 IRP, Attachment C.1(A).

3. APS Understates Effect of Load Forecast on Near-Term Actions

As required by the Commission, APS's load forecast report discusses the impact of alternative "No-Growth" (0% per year) and "Low-Growth" (0.9% per year) load forecast scenarios on its IRP action plan. APS acknowledges that each of these scenarios results in much less need for peak capacity over the IRP planning period. [18] However, APS argues that neither of these scenarios "would materially impact the nine Action Plan Items" from its IRP.[19]

Strictly speaking, it may be true that an alternative load forecast would not require that APS add, delete, or rename an action plan item. The action plan items were worded vaguely enough that each may make sense to pursue even under a "No-Growth" forecast. But APS ignores the fact that the load forecast has (or at least ought to have) major implications for the implementation of certain action items.

Most notably, Action Item 1 states that APS will conduct a procurement process "to meet future summer season peak capacity needs for 2021 and beyond."[20] APS argues that contract expirations necessitate this procurement even in the absence of near-term load growth, and that it will be able to "calibrate its procurement activities to meet changing load needs."[21] But the summer of 2021 is less than three years away, and APS will have limited options for "calibrating" its procurement once it signs a contract with sufficient lead time to allow the development of new resources. And APS's statement severely understates the difference in the quantity of new capacity to be procured under alternative load forecasts. By 2021, APS's IRP load growth plan would result in the development of 810 megawatts (MW) of additional capacity relative to the "No-Growth" plan, and 521 MW more than under the "Low-Growth" plan.[22]

If APS were to move forward with three-year-ahead procurement to meet its IRP load forecast, it would likely end up wasting money on unnecessary resources. Even if APS were to only over-procure through 2021, it would take an additional four or five years for the resources procured for 2021 to be needed, assuming recent load growth trends persist.[23] And given that this is the third IRP cycle in a row in which APS has proposed to rely on an unreasonably high load forecast, the over-procurement is likely to continue in the absence of clear guidance from the Commission. It is therefore important that the Commission indicate that it will not allow future rate recovery for capacity built to meet optimistically projected load increases that do not materialize.

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[18] APS. 2018 Load Forecast Report. P. 5.

[19] APS. 2018 Load Forecast Report. P. 6.

[20] APS 2017 IRP. P. 24.

[21] APS. 2018 Load Forecast Report. P. 6.

[22] *Ibid.*, Appendices A-C.

[23] *Ibid.*, Appendices A-C.

RESPECTFULLY SUBMITTED this 10th day of August, 2018.

Respectfully submitted,

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Certificate of Service

I hereby certify that I have this day served the foregoing **Sierra Club Comments on Arizona Public Service's 2018 Load Forecast Report** via email or U.S. Mail to all parties of record in the proceeding listed below.

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