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Marshall Magruder
PO Box 1267
Tubac, Arizona 85646

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Arizona Corporation Commission
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Arizona Corporation Commission
Chairman Kristan K. Mayes
Commissioner Gary Pierce
Commissioner Paul Newman
Commissioner Sandra D. Kennedy
Commissioner Bob Stump
1200 West Washington Street
Phoenix, Arizona 85007

Subject: Impact of the Feasibility Study on SSVEC's V-7 Feeder Area (preliminary)

Re: ACC Dockets Nos. ~~E-01-0575A-08-0328~~ E-01575A-09-0453

Dear Commissioners:

As an Energy Commissioner in Santa Cruz County between 2001 and 2008, I have worked to help resolve various energy issues in this county.

The long standing issues concerning the feeder line to the Santa Cruz County communities of Patagonia, Sonoita, Elgin, and Canelo Hills has been discussed in several proceedings before this Commission in the past two years. I am not a party to these proceedings but have followed them closely due to my interest in ensuring reliability and satisfactory service in my county.

This letter provides a few preliminary facts uncovered while reading the Feasibility Study for this area.

The local utility company for this area is Sulphur Springs Valley Electric Cooperative (SSVEC) was ordered to delay starting construction of a 23-mile 69 kV subtransmission line to Sonoita. This is one of the two elements of the SSVEC proposed Sonoita Reliability Project (SRP). The second element is for a distribution substation to be installed in Sonoita with four feeders from each cardinal direction to improve reliability. This distribution substation was approved for construction by the Santa Cruz County Board of Adjustment last spring as its interconnection to the 69 kV line could be added later. There is no reason why that construction has not started which will also include a local 750 kW solar array. The Feasibility Study found that "new supply alternatives which reduce line exposure by creating new feeder segments would improve reliability by 15 to 30 percent beyond current levels" [p. 2]

In the decision by the Commission to delay the first element, due to over 200 letters and comments received during public comments in Sierra Vista last spring, at the SSVEC Rate

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Case hearings, and via various dockets requesting a review of the first element of the SRP, the 69 kV line, a Feasibility Study was requested by the Commission to be conducted by an independent third-party to be completed by the end of 2009, then to reviewed during public forums in these local communities during six months, followed by a meeting of the Commission to then decide which of the options would be fair and reasonable for the SSVEC customers in these communities. This decision is expected to occur in the summer of 2010. The overall result, if the proposed 69 kV line were determined to be the best for SSVEC's ratepayers, would be a one-year delay from its original schedule.

Confidence in SSVEC's "facts". There are many statements in the resultant Feasibility Study that do not support the company's rationale for the proposed 69 kV line element of the SRP. When reading the below, suggest considering is the "69 kV line" going to impact this statement, in most cases the answer is no. Some more glaring include:

1. The Average Customer Lost Electricity 3.0 hours per year based on the past 10 years of data. [see Feasibility Study at Fig 2, p. 11] The standard for rural areas used by the USDA for RUS loans in 5.0 hours of outage per year per customer. The Company seems to believe that some 240 (or 270) hours of customer outage per year and keeps promoting that number which the Feasibility Study does NOT support. In fact, if one windstorm in 1999 were deleted, then the average outage would have been 2.4 hours per customer. This is very good for rural areas, where the distances are much longer than urban area for repair crews to travel. As also noted in other data, the V-7 feeder area is also not SSVEC's worst.

2. Voltage Anomalies may continue Even if Upgrades are implemented. [Pp. 2-3] Resolution of voltage anomalies were beyond the scope of this study but should be addressed if the V-7 feeder remains in its current configuration.

3. Long Lines can create Power Quality Events [p. 2] Mostly voltage sags can occur in long lines and even protective devices may have difficulties as "end of line" currents approach normal trip settings. Local or Distributed Generation (DG) within the V-7 feeder area thus should reduce voltage sags and improve reliability since these lines are much shorter.

4. SSVEC should address Current Performance and Capacity Issues. [p. 3] No one disagrees with this comment; however, the erroneous "customer requests for new or expanded service" has been erroneous in the data proved by SSVEC to the study team and to the Commission. The "Urgency" of the frantic calls by this company has NO basis.

5. Cost of Mitigating Reliability and Performance Issues was NOT included in the Feasibility Study. [p. 5, footnote 3] This study did not consider the cost to mitigate reliability and performance issues. Unfortunately, "cost" is a key determinate when decisions are involved. This condition was established by SSVEC when it provided study constraints to the Feasibility Study Contractor.

6. Present "reliability" in the V-7 feeder area is better than average. [Table 1, p. 11] Based on the data in this study, during 2008, the three most common distribution line reliability indices (SAIFI, SAIDI, CAIDI) were in the second quartile, compared to national averages for reliability in the IEEE Standard for these indices.

7. The Number of Outages in the V-7 Area is Decreasing. [Fig. 3, p. 12] In general, the number of outages in this area shows a decreasing trend during the past ten years. This is one of the three largest distribution areas for SSVEC, thus it's "total" number of outages will be high compared to most other 25 or so much smaller SSVEC feeder areas.

8. The Cause of Outages in the V-7 area is mostly Natural Causes. [Fig. 4, p. 13] The six most common causes for outages in the past ten years has been lightning, birds, animals, and wind other than "unknown" or "other". The company's increasing use of lightning arrestors is reducing the highest cause. The 69 kV line may have minor, if any, impacts on reducing outages.

9. The Number of Customers impacted by Outages is Low. [Fig. 5, p. 13]. Over 90% of the outages in the V-7 area involved three or fewer customers. As stated on page 20, full feeder outages have been very low. Less than 1 such outage a year has been experienced.

10. The Equipment Failures were Mostly Non-Distribution Line Failures. [Fig. 6, p. 14] Fuse failures for Transformer and Line/Riser dominated equipment failures, which was unexpected. Footnote 8 indicated that SSVEC standard for line transformer arrester placement does not agree with industry research for industry placement. This anomaly might be a major cause of failures, as distribution line overloading was insignificant.

11. Techniques could reduce Lightning Failures. [Figs 7 and 8, p. 15] Since lightning failures peak during the summer and early morning/late afternoon, pre-positioning crews was suggested as a way that might reduce travel time to correct outages. Some additional equipment were recommended [p. 16]. Further, replacement utility poles by SSVEC on several V-7 sections have installed lightning protection and "have been effective in the decline in number of outages over the past 10 years." [p. 16]

12. Cost of Mitigating Reliability and Performance Issues was NOT included in the Feasibility Study. [p. 5, footnote 3] This study did not consider the cost to mitigate reliability and performance issues. Unfortunately, "cost" is a key determinate when decisions are involved. This condition was established by SSVEC when it provided study constraints to the Feasibility Study Contractor.

13. New Construction is Minimal in the V-7 Area. [Table 5, p. 26] As shown, only ONE pre-meter construction customer was in this area. SSVEC has used unrealistic numbers to account for new customers, including 222 in three bankrupt developments in foreclosure, without buyers.

14. SSVEC does NOT have Realistic Time of Use (TOU) Programs. [Table 5, p. 26] Only ONE residential customer has TOU rates out of over 1,675 residential customers. This is one area where peak demand can be significantly decreased. Obviously, an effective Demand Side Management (DSM) program would have been stressing TOU for this area.

15. About 30% of the Feeder Load was due to Line and Equipment Losses. [Pp. 3, 27] Some $230,000 annually cost is required for excess electricity power to compensate for line losses to this area. Local distributed generation would greatly reduce this wasted electricity and its resultant generation impacts on the environment.

16. Line and Equipment Losses Increase at Higher Customer Demands. [Fig. 13, p. 27] As the customer load increases, then there are more losses.

17. Most of this Feeder load is Less than 5 MW. [Fig. 13, p. 27] If the desired maximum loading limit is 4.5 MW, then use of Distributed Resources or Demand Response would need to be operated or enabled for a minimum of about 500 hours.

18. Peak Loads are Predictable in the V-7 Area. [Fig. 14, p. 27-28] There is a high degree of consistency among peak load days that allows system planners to design programs to reduce daily peaks by targeting load reduction programs, e.g., DSM programs.

19. Peak Demand Forecasts in the Study appear Highly Optimistic. [Pp. 28-30] Unfortunately, the 2006 data were old and did not reflect the present very slow growth and failed to account for limitations on growth that water resources require for these areas.

20. Weather Adjusted Transformer Rating are Higher than Nameplate Data. [p. 31] The Study did not calculate higher winter ratings used by many companies; however, the existing 7.0 MW upper limit for the transformer maybe actually higher that its stated nameplate data.

21. By Removing Losses, then total Capacity Deficits will be 1.5 MW in 10 years and 3.5 MW in 20 years. [p. 32] IF SSVEC actively removed demand 10 to 15 percent to reasonable levels, then an additional 1.5 MW of local distribution in 2019 and 3.5 MW in 2029 would meet the capacity demands for this area.

22. Demand Side Management for Space Heating/Fuel Switching with Resolve Capacity Issues. [p. 42] MANY ways to remove demand were in this study, such as having 100 customers switch from electric heat to gas (propane or natural gas) would alleviate today's problems, and 50 to 75 per year to offset load growth.

23. Solar Photovoltaic was Not Really Considered in the Study. [Pp. 43-44] Apparently due to winter peak issues, the study did not go into PV options; however, several excellent storage devices were discussed that would resolve this issue. [Pp. 48-50] A Sodium-Sulfur (NaC) was recommended for this area that is compact, and as shown in Fig. 21 (p. 50) would "fill in" the valley between the winter peaks. Due to "lead time" to order such a device was this option not considered; and its popularity should also drive down its future costs.

24. Distributed Generation with Generator Sets is a Viable Option. [Pp. 51-52] This is a relatively inexpensive option, and can easily meet the 1.5 MW demand for 2019 at minimal capital costs (1MW = $700,000). Unfortunately, the study team did not contact UNS Gas, the natural gas distributor for Santa Cruz County that could develop a substation on the El Paso Natural Gas line that runs through Patagonia and very close to the Sonoita substation location.

25. Analysis for Renewable Energy or Solar Technical or Economic Analysis were NOT in this Study. [p. 33, footnote 19] As noted, this analysis was not conducted as a part of this study nor provide by SSVEC to the study contractor. Without such details, then additional work is necessary to properly evaluate renewable energy options and solar installations.

26. Support to Patagonia from UNS Electric. [p. 36] The study stated that UES does not have "sufficient capacity on the Valencia feeder to provide firm capacity to serve Patagonia load. This is confusing as two UNSE feeders from Valencia and Cañez stations are "tied" so there are two sources, the UNSE-SSVEC tie is to provide "backup" or additional power, and not to be a full-time provider meeting a firm delivery requirement. Somehow the study team was misled.

27. Only 3 MW is required to Unload the V-7 Feeder to Acceptable Levels. [p. 38] There are several plans for 1 to 3 MW solar arrays that could support the V-7 feeder area, including one that could be near the UNSE-SSVEC tie. Obviously, a peaker generator set would met this requirement, maybe at the Sonoita or Patagonia areas, at much less cost than for the 69 kV line.

These are only very preliminary comments on the Feasibility Study that is still being digested; however, in general, it is an excellent point of departure for some stimulating Forums expected in the next six months.

Recommendations.

1. That evidentiary hearings with a Recommended Opinion and Order (ROO) be held to review this study before reviewing the prior decisions concerning the 69 kV line.

2. That the recent Staff proposed schedule be seriously considered.

3. That the forums be held in an 'informative' atmosphere, without the high-pressures and misleading influences of SSVEC, as discussed in the following paragraph.

These forums need to be led by an impartial person/team, and would suggest that SSVEC NOT be the one who controls inputs to these forums. I would like to suggest that the Feasibility Study team be the ones who lead the "town hall" type of forum. Further, would suggest that two such forum be held in each community (Patagonia, Elgin, Sonoita) with the first primarily being a presentation of the study to these customers with some questions and answers, and that the second being Questions and Answers with the Public and SSVEC using the Study Team as moderators.

I hope this letter has provided some additional information in this very important matter. If additional information is requested, please feel free to contact me.

Sincerely,

Marshall Magruder

Marshall Magruder
marshall@magruder.org

[Note: corrected in the mailed version several insignificant typos in an emailed version]

CC.

Santa Cruz County Board of Supervisors
County Complex
2150 N. Congress Drive
Nogales, Arizona 85621

Mayor and Town Council
Town of Patagonia
310 McKeown Avenue
Patagonia, Arizona 85624