

ORIGINAL



MEMORANDUM

30

TO: Docket Control Center
Arizona Corporation Commission

FROM: Ernest G. Johnson
Director
Utilities Division

DATE: April 6, 2007

RE: STAFF REPORT ANALYZING THE MERITS OF TUCSON ELECTRIC
POWER COMPANY'S PROPOSED CONDITIONS MODIFICATION
REGARDING AN EXTENSION OF TIME ON THE CERTIFICATE OF
ENVIRONMENTAL COMPATIBILITY GRANTED IN
DOCKET NO. L-00000C-95-0084

Attached is the Staff Report that considers the merits of modifying proposed Staff conditions as requested by Tucson Electric Power Company ("TEP") with regard to a time extension for the completion of a 138 kV transmission line Certificate of Environmental Compatibility ("CEC"). Utilities Division Staff ("Staff") concludes that a reasonable presumption of need continues to exist for the certificated Phase Two 138 kV transmission line and conditional approval of a time extension is still warranted as described in Staff's October 13, 2006 Report. TEP's argument of February 28, 2007, for substantive modification of one of the conditions has merit; however, Staff believes an additional reliability measure will be necessary in conjunction with granting TEP's request for change. Staff also finds that TEP is compliant with its CEC conditions for the transmission facilities currently constructed and with Decision No. 68799.

Therefore, Staff recommends the Commission conditionally grant TEP's requested extension of the expiration date of its CEC to June 27, 2013. Staff further recommends that the Commission approve amendment of the CEC with conditions provided in Exhibit B of this report. Such conditions are necessary to achieve the original purpose of the CEC certificated transmission facilities given TEP's system service capability prevailing today and projected to exist in the foreseeable future.

Originator: Steve Taylor

Arizona Corporation Commission
DOCKETED
APR -6 2007

DOCKETED BY	NR
-------------	----

AZ CORP COMMISSION
DOCUMENT CONTROL

2007 APR -6 11:03

RECEIVED

**STAFF REPORT
UTILITIES DIVISION
ARIZONA CORPORATION COMMISSION**

**TUCSON ELECTRIC POWER COMPANY
DOCKET NO. L-00000C-95-0084**

APPLICATION FOR CEC EXPIRATION EXTENSION

APRIL 6, 2007

STAFF ACKNOWLEDGMENT

This Staff Report was prepared by Steve Taylor of the Arizona Corporation Commission ("ACC") Utilities Division. Previous Staff Reports by other ACC Utilities Division representatives form the foundation of this Report. This latest Staff Report considers the merits of Tucson Electric Power Company's argument to amend conditions proposed by Staff in an October 13, 2006 Staff Report concerning an extension of time to complete a 138 kV transmission line in the Green Valley area south of Tucson. Staff finds merit with the Applicant's argument and in the Conclusion of this report suggests an extension of the CEC expiration date with a modified set of conditions including a new reliability measure.

A handwritten signature in black ink that reads "Steve Taylor". The signature is written in a cursive, slightly slanted style.

Steve Taylor
Electric Utility Engineer

TABLE OF CONTENTS

	<u>PAGE</u>
PURPOSE OF STAFF REPORT	1
TEP COMPLIANCE STATUS	2
PRESUMPTION OF NEED	3
GREEN VALLEY SUBSTATION:	4
CANOA RANCH SUBSTATION:	4
CYPRUS RAW WATER SUBSTATION:	5
CANOA SUBSTATION:	5
CYPRUS ESPERANZA SUBSTATION:	5
CYPRUS SIERRITA SUBSTATION:	5
UNISOURCE ELECTRIC KANTOR SUBSTATION:	6
MODIFICATION OF ACC STAFF'S OCTOBER 13, 2006 CONDITIONS	7
RELIABILITY MEASURE	8
STAFF CONCLUSIONS AND RECOMMENDATION	12

EXHIBITS

TEP'S GREEN VALLEY AREA 138 KV AND 46 KV SYSTEM	EXHIBIT A
PROPOSED NEW AND AMENDED TRANSMISSION CONDITIONS	EXHIBIT B

PURPOSE OF STAFF REPORT

This Staff Report considers the merits of Tucson Electric Power's ("TEP") latest request for extension of the Certificate of Environmental Compatibility ("CEC") expiration date to June 27, 2013, and modification of Staff's October 13, 2006 proposed conditions. Staff's October 13, 2006 Report serves as the foundation for this latest Report and, for purposes of compiling one complete record, the history outlined in the October 13, 2006 Report is repeated herein. Additional information is then included to make this record current.

On December 21, 2005, TEP filed a request for a time extension (to June 27, 2013) to construct a portion of the transmission facilities approved by the subject CEC. TEP's authorization to construct those transmission facilities was originally granted by the Arizona Corporation Commission ("ACC" or "Commission") in Decision No. 59221. TEP offered two reasons for its requested time extension. First, TEP was in condemnation proceedings with Marley Cattle Company for an easement needed to complete construction of the certificated project. Secondly, TEP stated load growth in the vicinity of its Green Valley Substation was actually lower than anticipated a decade ago. TEP indicated that a time extension would facilitate consideration of alternative system solutions more suited to currently prevailing conditions.

On June 27, 2006, the Commission extended the expiration date of TEP's CEC to December 31, 2006 via Decision No. 68799. This time extension was expressly for the purpose of allowing sufficient time for conclusion of TEP's condemnation proceedings with Marley Cattle Company and allowing TEP sufficient time to perform due diligence regarding possible alternative system improvements. It also allowed Staff sufficient time to ascertain the level of CEC compliance already achieved by TEP and to file a responsive Staff Report.

On October 13, 2006, Staff filed a Staff Report addressing the merits of extending the CEC expiration date to June 27, 2013 (as requested in TEP's December 21, 2005 filing) and further addressing the conclusions of TEP's August 31, 2006 Compliance filing as required by Decision No. 68799.

On February 28, 2007, TEP filed comments (per Procedural Order dated February 6, 2007) on the October 13, 2006 ACC Staff Report proposing a substantive modification of Staff's Condition 4 and other minor modifications.

Staff's assessment considers the presumption of need for the CEC authorized facilities, reasonableness of the modified Condition Number 4 and the status of TEP's compliance with the CEC and subsequent Commission Decisions.

In the conclusions of this report, Staff recommends extending the CEC expiration date to June 27, 2013 with TEP's substantively modified Condition Number 4, other minor modifications and one additional new Staff condition to provide a performance metric for

monitoring electric service reliability in the affected area. The performance metric condition will also require TEP actions if predefined performance levels are not met.

If the Commission approves the requested extension with Staff's recommended conditions, TEP's failure to comply with such new and pre-existing CEC conditions could be considered grounds for the Commission to take appropriate action concerning TEP's CEC, including but not limited to revocation.

TEP COMPLIANCE STATUS

The CEC granted by Decision No. 59221 authorizes construction of a new 138 kV transmission line from TEP's South Substation to the Cyprus Sierrita Substation via an expanded 138 kV Green Valley Substation. The portion of the new transmission line between Green Valley Substation and Cyprus Sierrita Substation is defined by the CEC as Phase Two. Condition No. 3 of the CEC imposed a deadline for completing Phase Two of the project. Construction of Phase Two was to commence no later than June 27, 2005 (ten years from the date the CEC was granted). In addition, Phase Two was to be completed within one year of the date that construction was started.

TEP reports that it began construction on 4.7 miles of the Phase Two transmission line between Green Valley Substation and the existing Cyprus Raw Water Substation on June 27, 2005. Construction of that portion of the Phase Two line is now complete. The remaining portion of the Phase Two line (8.5 miles) has been stalled by condemnation proceedings with Marley Cattle Company for an easement needed to complete construction of the Phase Two line. For this reason, TEP knew it could not fulfill the requirements of CEC Condition No. 3 by June 27, 2006. Furthermore, prevailing and forecasted load conditions in the Green Valley area have influenced TEP's view of when the line now needs to be completed. Therefore, TEP chose to request a time extension for its CEC until June 27, 2013.

The Commission granted a temporary CEC time extension until December 31, 2006, in Decision No. 68799. That Decision also required TEP to file a report with Staff by August 31, 2006 that addressed: 1) the status of its condemnation proceeding with Marley Cattle Company; 2) forecasts when additional Phase Two facilities are now needed; and 3) the findings of any and all system improvements considered as an alternative to the portion of the certificated Phase Two Project not yet constructed. TEP filed the required report with the Commission on August 31, 2006.

TEP reported in its August 31, 2006 compliance filing that a Notice of Settlement and Notice of Dismissal concerning the condemnation proceeding with Marley Cattle Company was filed with the Court on June 15, 2006. Additionally, TEP provided an internal Planning Memo recommending the completion of the 138 kV line between Canoa Ranch and Cyprus Sierrita be postponed until 2013 with interim reliance on the existing 46 kV backup system.

On October 13, 2006, Staff filed a Staff Report addressing the merits of extending the CEC expiration date to June 27, 2013 (as requested in TEP's December 22, 2005 filing) and further addressing the conclusions of TEP's August 31, 2006 Compliance filing as required by Decision No. 68799. Staff concluded that there was still a reasonable presumption of need for the certificated Phase Two 138 kV transmission line and prior to the 138 kV transmission loop completion, reliance on the area's 46 kV system as back up would require additional conditions. Staff recommended revision of the CEC Condition No. 3 regarding the time extension and new CEC conditions 4 through 8 regarding operational characteristics of the area system and associated reporting.

On February 6, 2007, the ACC issued a Procedural Order to TEP to file its response to Staff's October 13, 2006 report on or before February 28, 2007.

On February 28, 2007, TEP filed Comments on the October 13, 2006 ACC Staff Report. TEP reiterated the lower growth rate than expected in the Green Valley area as described in its December 21, 2005 filing and resultant delay of need for completion of the 138 kV transmission loop until 2013. TEP reported that customers in the Green Valley area supplied via the presently constructed 138 kV transmission line can be served alternatively by the 46 kV system for all but a small number of hours following a transmission line outage. TEP requested a modification of Staff's proposed Condition 4 to delete the prescriptive requirements of that condition and rely instead on TEP annually prepared and submitted reports (as required in Staff's proposed Condition 4) to the ACC detailing TEP's plan to adequately meet load requirements of the area. The other Staff proposed Conditions 3 and 5 through 8 were acceptable to TEP with minor modifications.

PRESUMPTION OF NEED

Exhibit A of this report is the latest system diagram of the Green Valley Area 138 kV and 46 kV transmission system reported by TEP. TEP plans to begin using the newly constructed portion of the Phase Two 138 kV line between Green Valley and Cyprus Raw Water Substation to serve a new Canoa Ranch Substation in 2009. Then TEP plans to commence construction of the remainder of the Phase Two 138 kV line between Canoa Ranch and Cyprus Sierrita Substation in 2012 with project completion expected in 2013.

Cyprus Sierrita Substation will continue to be served via a radial 138 kV line from South Substation until Phase Two construction is completed. Similarly, Green Valley and Canoa Ranch Substations will continue to be served via a second radial 138 kV line from South until the Phase Two construction is completed. TEP's 46 kV system provides a means of restoring service to customers for the loss of either radial 138 kV line. Two radial 46 kV lines connected at South Substation provide this system restoration capability at Green Valley, Cyprus Raw Water, Cyprus Esparanza, and Canoa Substations.

There are five existing and one planned substations that serve Green Valley and the surrounding area. They are Green Valley, Canoa Ranch (proposed), Cyprus Raw Water, Canoa,

Cyprus Esperanza and Cyprus Sierrita Substations. Additionally there is a consideration for the TEP Green Valley 46 kV system to supply backup power to Unisource Electric ("UNSE") Kantor Substation in Santa Cruz County located south of Green Valley. A discussion of the reliability issues at each of these substations follows.

Green Valley Substation:

TEP reports that, as early as 2010 peak load, its 46 kV system lacks sufficient capacity to meet the full backup requirements of the Green Valley Substation for loss of the radial 138 kV line from South Substation. Four hours of insufficient capacity exposure are projected in the summer of 2010 increasing to fifty seven hours of exposure in the summer of 2012. Green Valley Substation presently has two 46/13.8 kV transformers (rated 25 MVA normal and 30 MVA emergency) operated in parallel and configured to automatically restore service to the 13.8 kV bus upon an outage of the 138 kV transmission line. Customers would experience a momentary interruption of service (approximately 3 seconds) during this automatic switching. During the insufficient capacity periods described earlier, a portion of the substation's load exceeding the capability of the 46 kV system backup would have to be switched off manually via SCADA (the remote controlled supervisory control and data acquisition system) resulting in a portion of the substation not supplying load until such time as the 138 kV was restored or load levels reduced or distribution field ties could be made. A portion of the customers served from Green Valley Substation could therefore be subject to longer than momentary outages up to the time periods of insufficient capacity exposure under this scenario. TEP believes the likelihood of a 138 kV line outage occurring during a time period of limited 46 kV system backup capability is remote. Therefore, TEP concludes that for Green Valley Substation reliability, completion of the Phase Two line is not required until June 27, 2013.

Canoa Ranch Substation:

TEP reports that land acquisition is under way for the new Canoa Ranch Substation and this station is expected to be in service by summer 2009. It will supply new load in the immediate area and also relieve load on other Green Valley area substations. Canoa Ranch will be supplied by the recently constructed 138 kV transmission line from Green Valley Substation and will be radially supplied until the Phase Two 138 kV construction is completed. Canoa Ranch Substation will supply customer load through one 138/13.8 kV transformer until such time as load growth warrants a second station transformer. Provisions have been made for connection of a mobile 138/13.8 kV transformer in the event of a failure of the single substation transformer which will provide substation transformer backup although the time required for this change out would generally require in excess of one day. There is no 46 kV backup system planned for this substation, however, TEP plans for adequate distribution field ties on the 13.8 kV system to pick up load from other Green Valley area substations in the event of a 138 kV transmission outage or outage of the substation transformer. The adjoining Green Valley area substations similarly affected by a 138 kV transmission outage will maintain service through their individual 46 kV backup systems. Field ties, however, as a normal matter of service restoration, require crews to report on site to perform the necessary switching and this can take

approximately two hours. Customers at the future Canoa Ranch Substation will therefore be subject to outages of approximately 2 hours during outage of the 138 kV transmission line or failure of the single substation transformer when distribution field ties may be used to restore service. Also, similarly to Green Valley Substation, customers of Canoa Ranch Substation may be without service during a 138 kV transmission line outage (or Canoa Ranch Substation transformer outage) when the 46 kV system backup capability is exceeded for area substations that supply the distribution field ties. TEP believes the likelihood of a 138 kV line outage occurring during a time period of limited 46 kV system backup capability is remote. Additionally the restoration of service through distribution field ties is an acceptable utility practice enhanced in this area by the availability of field crews. TEP concludes that for the future Canoa Ranch Substation reliability, completion of the Phase Two line is not required until June 27, 2013.

Cyprus Raw Water Substation:

TEP reports that this substation is supplied by the area 46 kV system and provides service to mining water facilities and residential customers. Some of these residential customers may be transferred to the adjacent Canoa Ranch Substation when it is completed in 2009. Residential customers on the Cyprus Raw Water system are not connected through the 138 kV system and consequently are generally unaffected by the 138 kV issues discussed until such time as some of them may be transferred to the future Canoa Ranch Substation.

Canoa Substation:

Canoa Substation is similar in function to the Cyprus Raw Water Substation discussed above. Conclusions are also similar to those of Cyprus Raw Water Substation. Of particular note, there is a newly constructed 46 kV line out of Canoa Substation and terminating at Kantor Substation in Santa Cruz County which is further discussed below in the Kantor Substation section.

Cyprus Esparanza Substation:

Cyprus Esparanza Substation is similar in function to the Cyprus Raw Water Substation discussed above. Conclusions are also similar to those of Cyprus Raw Water Substation.

Cyprus Sierrita Substation:

TEP reports that this substation provides load to Phelps Dodge mining facilities only. Although there is no curtailable load agreement in place, TEP advises that its long term understanding with Phelps Dodge is that this load served from Cyprus Sierrita Substation is subject to outages due to the nature of the 138 kV single source supply; however, approximately 40 percent of the mining load can be restored through the 46 kV system backup during outage of the 138 kV supply. TEP advises that this has been an acceptable arrangement with Phelps

Dodge and therefore TEP concludes that for Cyprus Sierrita Substation reliability, completion of the Phase Two line is not required until June 27, 2013.

Unisource Electric Kantor Substation:

Kantor Substation supplies residential customer load in northern Santa Cruz County through TEP's affiliate company UNSE. This substation is normally supplied from the UNSE Nogales Tap to Valencia Substation 115 kV transmission line. During an outage of this single 115 kV transmission line and depending on the location of the outage, Kantor Substation is restored via the reenergized line portion to the north (if that portion is restorable) or from Valencia Substation stand-by generation to the south (if that portion is restorable). Additionally, a new 46 kV tap to UNSE's Kantor Substation from TEP's Canoa Substation provides additional backup capability to Kantor Substation from the Green Valley 46 kV system backup. This additional backup is warranted due to load scenarios in which the Valencia stand-by generation is not capable of fully restoring the entire load between Valencia Substation and Kantor Substation. Also, similarly to Green Valley Substation, customers of Kantor Substation may be without service during a 115 kV transmission line outage when the 46 kV system backup capability is exceeded for Green Valley area substations. TEP believes the likelihood of a 115 kV line outage occurring during a time period of limited 46 kV system backup capability is remote. TEP concludes that for the Kantor Substation reliability, completion of the Phase Two line has no bearing on reliability for customers in northern Santa Cruz County.

A presumption of need still exists for a new 138 kV line from South Substation to Cyprus Sierrita Substation through an expanded 138 kV Green Valley Substation as proposed by TEP in their original CEC application. The line as originally certificated served two purposes: 1) it provided 138 kV transmission service to a growing Green Valley area and 2) it increased service reliability by providing looped 138 kV transmission service for both the Green Valley Substation and the Cyprus Sierrita Substation. Looped transmission service pre-empts the need to rely on possibly time consuming restoration of service via the 46 kV or 138 kV systems following a transmission line outage.

The first purpose of the certificated transmission project was achieved by the initial construction of the 138 kV line from South Substation to Green Valley Substation. That purpose will be bolstered when Canoa Ranch Substation is placed in service in 2009. Canoa Ranch Substation will make use of that portion of the Phase Two line that was completed in 2006.

Achievement of the second purpose of the certificated project can only be accomplished by completion of the Phase Two construction to implement a looped and thereby redundant 138 kV source of supply to the Green Valley area. TEP proposes to defer construction of the portion of the Phase Two line between Canoa Ranch Substation and Cyprus Sierrita Substation until 2013. Staff believes there is merit to this proposal in consideration of the lower than anticipated load growth of the Green Valley area, backup capability of the 46 kV system, low probability of simultaneous adverse events (concurrent 46 kV outages/limitations and 138 kV or 115 kV outages, for example) and minimization of capital expenditures until required. Staff however is

cognizant of the complexity of predicting and analyzing the various outage scenarios that might occur without reliance on a complete 138 kV loop supply of the area, and the resultant design and implementation of effective restoration schemes to minimize customer outage impact.

MODIFICATION OF ACC STAFF'S OCTOBER 13, 2006 CONDITIONS

In Staff's Report of October 13, 2006, Staff concluded that a presumption of need still existed for the certificated 138 kV line and the practice of relying on the backup 46 kV system until completion of the 138 kV loop was not desirable. Staff at that time recommended extension of the CEC until 2013 with the revision of one existing CEC condition and inclusion of five new conditions. Those conditions are briefly summarized as follows:

- Revised Condition #3 extends the original CEC to 2013,
- New Condition #4 requires summer preparedness reports in April of each year and requires prescriptive megawatt 46 kV supply requirements for certain substations,
- New Condition #5 requires continuation of part of #4 until 138 kV loop complete,
- New Condition #6 requires continuation of part of #4 until a second UNES transmission line is complete serving Santa Cruz Co.,
- New Condition #7 requires completion of the 138 kV loop prior to 46 kV system capacity being exceeded,
- New Condition #8 stated that the Certificate was considered to be a package of inter related requirements and conditions that all must remain in force in order to merit Commission approval.

TEP responded to Staff's report on February 28, 2007, and concurred with the intent of Staff's report, however, suggested wording changes and deletion of the prescriptive megawatt requirements. TEP's proposed changes to the conditions contained in the Staff Report of October 13, 2006 are briefly summarized as follows:

- Revised Condition #3 not changed,
- New Condition #4 deletes the prescriptive requirements and corrects several acronyms,
- New Condition #5 not changed,
- New Condition #6 changed with minor acronym corrections,
- New Condition #7 not changed,
- New Condition #8 deleted through administrative error. TEP does not object to inclusion.

The significant change in TEP's proposed conditions is the deletion of the 20 MW prescriptive requirement in part 4(b) "... restore service to 20 megawatts of UNSE customers via the Canoa to Canez 46 kV tie for a 115 kV outage..." and part 4(c) "... restore service to 20

megawatts of UNSE customers for concurrent 138 kV and 115 kV outages...". TEP has replaced the 20 megawatt references in its latest proposal with "applicable load".

TEP believes it can best supply customers' load without being held to a prescriptive requirement which may not consider all operating and design factors of the area's electric system. TEP reports it will describe and document how it will supply all customers in its summer preparedness report, which is also part of that same condition.

Staff has reviewed the earlier rationale for the prescriptive requirement and finds that TEP discussions of last year did lead to a presumption that the 46 kV supply circuits and associated transformers were capable of this 20 megawatt rating. An argument then could be made for using these circuits to their maximum capability although this may not take into account various other operating factors that must be considered in the overall operation of an electrical system.

In further reviewing the issue in light of TEP's February 28, 2007 proposal, Staff believes TEP is in the best position to define operational characteristics of its 46 kV backup system and determine the optimal design to reliably serve all customers. This documented assurance will be part of the summer preparedness report TEP will annually submit to the ACC.

Staff believes a performance oriented approach to service reliability, as TEP is proposing, is appropriate. There is, however, an element of risk in presuming the desired performance will be attained especially in an area where reliability concerns have been an issue and the preferred solution, completion of the 138 kV loop, is still several years away. In such cases, Staff believes a reliability measure (or measures) should be devised and implemented so that the actual performance may be monitored and any necessary corrective action initiated. This is different than Staff's earlier prescriptive approach where specific engineering or operating conditions are imposed which tends to put a portion of the burden on the designer (ACC Staff) of those specific conditions for the success or failure of the resultant system.

In consideration of TEP's latest proposal and totality of the various design and operating issues of the area's electric system, Staff believes the performance approach is superior to the prescriptive approach in this case and, therefore, concurs with TEP's proposed modifications to Staff's condition #4 with the addition of a new reliability condition as discussed below.

RELIABILITY MEASURE

Arizona's statutes and rules are silent in regard to defining a specific measure of reliable service. However, the Commission has adopted a North American Reliability Council ("NERC") definition of reliability for Staff's use in the Biennial Transmission Assessment. Reliability is comprised of two components: adequacy and security. Adequacy is the ability of an electric system to supply the aggregate electrical demand and energy requirements of its customers at all times, taking into account scheduled and reasonably expected unscheduled outages of system elements. Security is the ability of an electric system to withstand sudden disturbances such as electric short circuits or unanticipated loss of system elements. These

components of reliability are subjective, are not easily measured and leave much to interpretation.

Many utilities use numerical indices as a measure of an average customer's distribution service reliability. Such reliability indices are typically computed on an annual basis and may be viewed on a system wide basis or more focused on a specific area basis. It is important to note that a system wide view is a good overall measure; however an overly large view can mask problems in a particular area.

Once an area is identified for review, a utility may then set reliability targets based upon benchmarked data from its own system and also utilize Institute of Electrical and Electronic Engineers ("IEEE") benchmark data for comparison. The IEEE has adopted a standard definition for several reliability indices for electric distribution systems and established a national benchmark database via a 1995 survey of the electric utility industry presented in IEEE Standard 1366-2003, IEEE Guide for Electric Power Distribution Reliability Indices. The most commonly used reliability indices are System Average Interruption Frequency Index ("SAIFI"), System Average Interruption Duration Index ("SAIDI"), Customer Average Interruption Duration Index ("CAIDI") and Momentary Average Interruption Frequency Index ("MAIFI").

SAIFI is the average number of sustained interruptions experienced by customers per year where a sustained interruption is generally defined as more than 5 continuous minutes. SAIDI is the average number of sustained interruption minutes experienced by customers per year. CAIDI is the average duration of a sustained interruption and is equal to SAIDI divided by SAIFI. MAIFI is the average number of momentary interruptions experienced by customers per year where a momentary interruption is generally defined as 5 minutes or less and is associated with the normal function of electric system restorative devices such as circuit breakers and reclosures. Per Rural Utilities Service ("RUS") Bulletin 161-5, the RUS considers a SAIDI of five hours (300 minutes) or more per consumer as unacceptable except under very unusual circumstances, such as a natural disaster. The MAIFI statistic is a lesser used measure in the industry as it is not indicative of longer outages; however, it does measure an "annoyance factor" with customers when short interruptions (5 minutes or less) are excessive causing the frequent resetting of many electronic devices in the home or business. The IEEE 1995 Survey (IEEE Standard 1366-2003) established typical reliability index values for the electric utilities in the United States as displayed in the Table 1 below.

Table 1
Typical Reliability Index Values for US Utilities

Average	SAIFI	SAIDI	CAIDI	MAIFI
Top quartile	0.90	54	55	1.5
Second quartile	1.10	90	76	5.4
Average	1.26	117	88	6.6
Third quartile	1.45	138	108	11.1
Bottom quartile	3.90	423	197	13.7

Staff proposes to initially use the commonly accepted indices SAIFI, SAIDI and CAIDI in TEP's Green Valley area of Pima County and UNSE's Kantor Substation area of Santa Cruz County and compare the combined area metric to those in Table 1. The results will be tabulated in Table 2 to show the corresponding IEEE quartile of the TEP/UNSE performance. The TEP/UNSE data utilized for this comparison is the average of the last four years reliability indexes for TEP/UNSE in each of the 3 measured indexes. These four year statistics will be used for subsequent year comparisons to determine if the overall reliability metric is improving, remaining constant or deteriorating. MAIFI is not utilized for this review since the focus of restorative initiatives in this project through 2013 (or completion of Phase Two) is prevention of sustained outages for which some momentary outages may be introduced (the automatic 46 kV throw over scheme at Green Valley for example). Additionally, these TEP/UNSE measures in Table 2 will exclude "Major Event Days" generally associated with major storms and scheduled outages generally associated with maintenance or construction work activities prearranged to minimize customer impact. This adjustment, in Staff's view, provides a fairer outside comparison to the IEEE 1995 data which was not collected with the degree of specificity to differentiate all outages included in the Survey.

On this basis, Staff can make an objective assessment of the quality of service being provided to TEP/UNSE distribution system customers in the combined Green Valley and Kantor Substation areas on an initial basis (2003 through 2006 data average) and on a subsequent year basis (2007 compared to the 2003 through 2006 average, for example).

Table 2
TEP Reliability Index Values Compared to Typical for US Utilities

Ranking	SAIFI	SAIDI	CAIDI
Top quartile		50	47.6
Second quartile	1.05		
Third quartile			
Bottom quartile			

Based on the outcome of the initial review performed above and summarized each year in Table 2 (shown with illustrative examples), additional review may be required to further determine validity of the data. An additional comparison that may be useful to gauge the improvement or degradation trends over the last 5 years of these reliability statistics will be performed. This is a useful predictor of future trends. The TEP's Green Valley area of Pima County and UNSE's Kantor Substation area of Santa Cruz County combined statistics by year and without "Major Event Days" will be noted in Table 3 (shown with illustrative examples).

Table 3
TEP Reliability Index without “Major Event Days”

Year	SAIFI	SAIDI	CAIDI
2003	1.05	50	47.6
2004	1.10	55	50.0
2005	1.00	50	50.0
2006	1.15	60	52.2
Each subsequent year	1.10	65	59.0

“Major Event Days” are associated with major storms and other unusual events and are normally not included in comparisons to other utilities due to the unique nature of events that utilities must prepare for in different geographic areas. They are nonetheless a measure of performance that can be used in year to year comparisons in any particular utility to discern any trends that should be addressed. The TEP Green Valley area of Pima County and UNSE Kantor Substation area of Santa Cruz County combined statistics with “Major Event Days” will be noted below in Table 4 (shown with illustrative examples).

Table 4
TEP Reliability Index with “Major Event Days”

Year	SAIFI	SAIDI	CAIDI
2003	1.20	60	50.0
2004	1.15	65	56.5
2005	1.30	65	50.0
2006	1.40	70	50.0
Each subsequent year	1.20	65	54.2

Staff proposes that an initial review of the combined Green Valley area of Pima County and Kantor Substation area of Santa Cruz County as demonstrated in Table 2 be performed in 2007 utilizing data from 2003 through 2006. This will establish benchmark data for future years and indicate the present state of reliability for this combined area.

Beginning in 2008, Staff proposes that TEP/UNSE calculate the similar reliability statistic for the previous year (2007 in the 2008 reporting year) and then show how the latest metric is performing against the 2003 through 2006 average as demonstrated in Table 2. If the metric in any single category is maintaining its position relative to the 4 year average, then no further action beyond reporting is required. If the metric in all 3 categories (SAIFI, SAIDI and CAIDI) are declining by one or more quartiles, then TEP will be required to perform the more extensive analysis as demonstrated in Tables 3 and 4 and advise the ACC of the reasons for the decline and corrective action proposed including the advancement of the 138 kV Phase 2 completion before 2013. Staff believes a decline in all 3 categories is a reasonable measure for initiating additional action as all three metrics are related to some degree and a “borderline”

decline into a lower category through normal statistical variation will not unfairly distort the overall conclusions.

STAFF CONCLUSIONS AND RECOMMENDATION

Staff concludes that a reasonable presumption of need continues to exist for the certificated Phase Two 138 kV transmission line. Staff recommends extending the CEC expiration date to June 27, 2013, with TEP's modification to Condition Number 4 and Staff's new condition to provide a performance metric for monitoring electric service reliability in the affected area. The performance metric condition will also require TEP actions if predefined performance levels are not met. Staff believes performance related conditions are appropriate to ensure reliable service levels and the inclusion of a metric reliability standard provides an annual test to confirm performance levels are met and if not, provides a mechanism to initiate corrective action prior to any significant deterioration of service. Therefore, Staff proposes conditions detailed herein to assure adequate quality of service is timely achieved and maintained for all consumers in the area.

Staff further concludes TEP has been compliant with its CEC conditions for transmission facilities currently constructed. TEP is also compliant with Decision No. 68799. To ensure continued compliance with an extension of time for completion of the 138 kV Phase Two project, Staff offers revisions to the original CEC conditions as a remedy.

Staff recommends the Commission conditionally grant TEP's requested extension of the expiration date of its CEC to June 27, 2013. Staff further recommends that the Commission approve amendment of the CEC with conditions provided in EXHIBIT B of this report. Such conditions are necessary to achieve the original purpose of the CEC certificated transmission facilities given TEP's system service capability prevailing today and projected to exist in the foreseeable future.

Tucson Electric Power Company
Docket No. L-00000C-95-0084
STAFF Exhibit A

Tucson Electric Power Company
Docket No. L-00000C-95-0084
STAFF Exhibit A

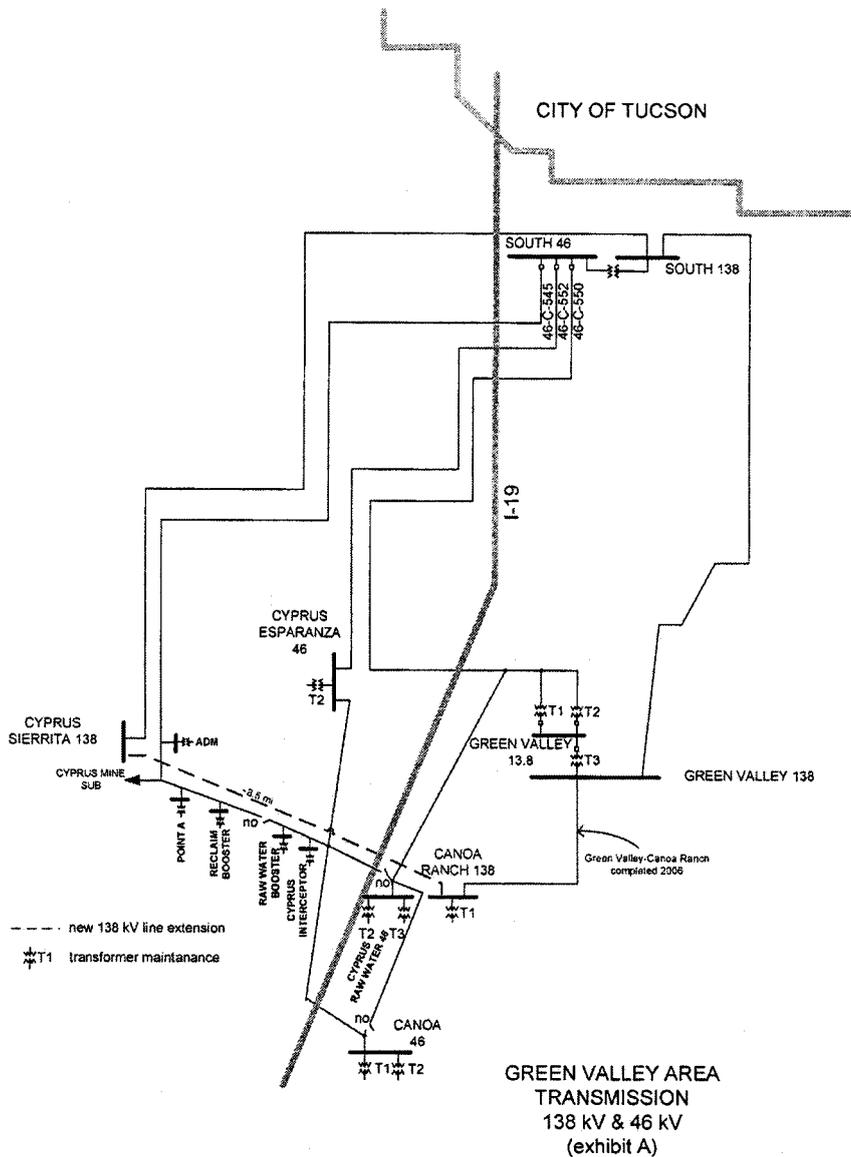


EXHIBIT A

EXHIBIT A

TUCSON ELECTRIC POWER COMPANY
PROPOSED NEW AND AMENDED CEC CONDITIONS
DOCKET NO. L-00000C-95-00084
April 4, 2007

Staff recommends Commission adoption of the following language concerning amended and new conditions for TEP's South Substation to Cyprus Sierrita Substation 138 kV Transmission CEC:

Replace the language of Condition 3 as follows:

3. That the Applicant: a) must complete construction of Phase Two of said transmission line, being that portion between Green Valley and Cyprus Sierrita Substations, no later than June 27, 2013, and b) start construction of that portion of the Phase Two line between Canoa Ranch Substation and Cyprus Sierrita Substation no later than November 1, 2012 to ensure a June 27, 2013 completion. The Applicant shall have the right to apply to the Commission for an extension of these time limitations, to be exercised at any time at the Applicant's option.

In extending the expiration date of the existing CEC approved in Decision No. 59221 the Commission add the following six new conditions:

4. The Applicant shall annually submit by April 30, commencing in April 2007 (or within 30 days of a Commission decision), a summer preparedness report to Docket Control that documents the ability of TEP's Green Valley area 46 kV system to timely restore service to: a) all customers served from Green Valley Substation and Canoa Ranch Substation following outage of the 138 kV South to Green Valley line outage, b) applicable load of UNSE customers via the 46 kV tie from Canoa Substation to Cañez Substation for an outage of the UNSE 115 kV line to Nogales, and c) all TEP customers and applicable load of UNSE customers for the concurrent outage of the South to Green Valley 138 kV line and the UNSE 115 kV line to Nogales.
5. Condition 4(a) shall remain in effect until the 138 kV line is operational between Canoa Ranch Substation and Cyprus Sierrita Substation.
6. Condition 4(b) shall remain in effect until a second UNSE transmission line is operational in Santa Cruz County.
7. Combined performance metrics (SAIFI, SAIDI and CAIDI) will be developed for the Green Valley area of Pima County and the Kantor supplied area of Santa Cruz County. For the 2007 reporting period, a four year average benchmark of the metrics will be compiled and compared to IEEE benchmark data for corresponding quartile determination. For each subsequent year, a comparison of the prior year's metric results will be made to the Four Year (2003-2006) metric and a decline in the three metrics by one or more quartiles will require additional

TUCSON ELECTRIC POWER COMPANY
PROPOSED NEW AND AMENDED CEC CONDITIONS
DOCKET NO. L-00000C-95-00084
April 4, 2007

analysis and reporting (per Condition 4) as discussed in Staff's April 6, 2007 report.

8. TEP must complete construction of the Canoa Ranch to Cyprus Sierrita portion of the Phase Two 138 kV line prior to the date that the summer preparedness report required in Condition 4 would indicate TEP's 46 kV system is no longer capable of assuring full restoration of service following a transmission outage.
9. The Commission considers the Certificate to be a package of inter-related requirements and conditions that must all remain in force to merit Commission approval.