

EL PASO ELECTRIC COMPANY  
RESERVE MARGIN PLANNING TARGET COMPARISON  
RESOURCE & DELIVERY PLANNING  
October 30, 2009

## **Executive Summary**

El Paso Electric Company (EE) uses a planning reserve margin target of Largest Single Hazard (LSH) plus 5% of total load responsibility. The planning target is used in planning resource additions to meet load growth and to replace older generating units that are retired. A comparison with other utilities was conducted to determine if it is still appropriate to continue using this criterion. Based on the analysis conducted, it is recommended that EE use a 15% reserve margin instead of the current LSH plus 5% of total peak load as EE's planning reserve margin target. EPE's target is slightly above the average reserve target used by other utilities in the Southwest and the WECC. However, EE's reserve margin target is appropriate considering the size of EE and its location in a remote corner of the WECC with limited transmission import capability. EE can import its remote generation from the Palo Verde and Four Corners generating units but cannot import any additional power that may be available from other utilities in the WECC. In addition, power supplies from the SPP are not readily available.

## **Analysis**

EE uses a planning reserve margin target of Largest Single Hazard (LSH) plus 5% of total load responsibility. A planning reserve margin is defined as the amount of available resource capacity (including firm purchases) in excess of peak load requirements. The planning reserves provide capacity that is available to utilities during unexpected outages of generating units or transmission lines. The planning reserves allow the utility to provide uninterrupted service to its customers during the outage situations. In the year 2010, EE's planning target is equivalent to 263MW or 17% in excess capacity above expected peak loads. By 2016, the reserve planning target is equivalent to 15%. In prior years, the LSH plus 5% of total load criteria was equivalent to a planning reserve margin target in the 18-20% range. However, with the load growth in the EE service area, the Table below shows that the equivalent reserve margin criteria over the period 2010 – 2019 based on the LSH plus 5% of total load responsibility has decreased to 15.8%.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg
NET RESOURCES	1781	1836	1893	1962	2025	2053	2091	2137	2184	2232	
SYSTEM DEMAND (adjusted for interruptible load and load management)	1518	1570	1624	1690	1750	1777	1813	1857	1901	1947	
MARGIN OVER TOTAL DEMAND (MW)	263	266	269	272	275	276	278	280	283	285	
MARGIN OVER TOTAL DEMAND (PCT)	17%	17%	17%	16%	16%	16%	15%	15%	15%	15%	15.8%
LARGEST HAZARD (RG 8 + 50MW)	188	188	188	188	188	188	188	188	188	188	
FIVE PERCENT OF TOTAL DEMAND	76	78	81	84	87	89	91	93	95	97	
TOTAL RESERVE REQUIREMENTS	264	266	269	272	275	277	279	281	283	285	

The net resources do not represent the exact resources EE will have on its system but rather those resources that would be added to exactly match the planning reserve criterion. In reality, resource additions are added in blocks and reserve margins tend to exceed the criterion when first added but then decrease over a few years to the criterion. This initial excess is called “lumpiness” and actually results in lower costs since utilities take advantage of economies of scale. As can be seen in the table above, EE’s planning criteria is equivalent to a planning reserve margin of 17% in 2010 and gradually decreases to 15% by 2016. A survey of other utility planning reserve margin criteria was performed to compare with EE’s planning reserve margin.

Comparison of Reserve Margin Targets of Other Utilities			
	Reserve Margin Target %	Total System MW	Peak Load
Arizona Public Service Company	15	8,200	7,300
Nevada Power	15 (north) 12 (south)	5,685	7,152
Salt River Project	12	5,706	6,614
Public Service Company New Mexico	15	2,134	1,895
Southwest Public Service Company	13.6	4,273	5,168
Tucson Electric	15	2,737	2,417
Arizona Electric Power Coop	15	613	652
ERCOT	12.5	72,712	63,400
PSCo	16	7,738	6,566
Average	14.1		

The average planning reserve margin criteria is approximately 14.1% as compared to EPE's planning reserve margin criteria that ranges from a high of 17% in 2010 down to 15% by 2016.

The Western Electricity Coordinating Council (WECC) also performs a resource adequacy study. The table below shows the reserve margin utilized by WECC to assess the adequacy of power supply in the region. These margin is used to determine if there adequate resources in the WECC.

Sub-Region	SAM Zones Included in Sub-Region	Summer Margin	Winter Margin
Canada	British Columbia, Alberta	11.5%	13.2%
Northwest	Pacific Northwest, COB, Montana	18.6%	20.0%
Basin	Idaho, Northern Nevada, Utah, Intermountain Power Project	12.0%	11.5%
Rockies	Colorado East, Colorado West, Wyoming	12.3%	13.5%
Desert Southwest	Arizona, New Mexico, Southern Nevada, Imperial Irrigation District, Four Corners, Palo Verde	13.6%	13.0%
Northern California	Northern California, Central California, San Francisco, SMUD	14.6%	10.5%
Southern California/Mexico	Southern California Edison, San Diego Gas & Electric, LADWP, Comision Federal de Electricidad (CFE)	14.8%	11.4%
WECC Total		14.3%	13.9%

*SAM = Supply Adequacy Model developed by the California Energy Commission. CFE is Northern Baja California.*

WECC uses these reserve margins to determine if there adequate resources in the WECC to meet expected loads. It should be noted that the reserve margin values used by the WECC are not values used by utilities, regulators or local governing boards to evaluate resource adequacy. The WECC margins are based on a building block approach that was developed from an evaluation of uncertainties faced by load serving entities and utilities such as contingency reserves, regulating reserves, reserves for forced outages and reserves for weather events. But these do not represent recommended reserve margins, since each utility has its own set of uncertainties or concerns. While not a recommended reserve margin, the values used by the WECC provide a basis to compare against the planning reserve margin target used by EPE.

While there may be excess power in the WECC, EE is not able to import these supplies due to EE's transmission system limitations. Currently, EE has 645MW of transmission rights on the 345kV lines coming into the Southern New Mexico area. In addition, EE has an exchange agreement with Phelps Dodge that provides an

additional 125 MW of import capability through 2010 and 100 MW through 2021. This gives EE a total import capability of 770 MW in 2010 and 745MW thereafter. Thus, EE is able to import all 737 MW of its remote power from Palo Verde and Four Corners plus an additional 33 MW in 2010 and 8 MW thereafter. This limits EE's options in the event there is a forced outage of one of its larger local generating units.

EE's access to the east is dependent on a DC tie that has had recent reliability issues and there is currently no firm resource secured from the east.

If EE is importing all of its remote power supplies, EE cannot import additional power from the WECC or SPP during emergency situations and must instead rely on its local generation.

### **Recommendation**

EE's equivalent planning reserve criteria based on its largest single hazard plus 5% of total load responsibility is currently equivalent to a 17% planning reserve criteria. This decreases to 15% by 2016. As EE's load grows, the equivalent planning criteria will continue to decrease through time. Based on a survey of other utilities, EE's planning reserve should be set at 15%. This criteria is appropriate given EE's geographic location in the WECC and limited options available in the event of local unit outages.