2005 Transmission Proxy Costs

Introduction

On May 13, 2005, PG&E published the 2005 Transmission Proxy Costs for Peak Load Period, dated May 12, 2005. The transmission proxy costs in the May 12, 2005 report are based on 2003 dollars and does not include the costs for the off peak period. This report supersedes the May 12, 2005 report in that the costs are updated to current year (2005) dollars and to reflect the change of a less expensive proxy facility for Cottonwood and Round Mountain Substations and includes the transmission proxy costs for the off peak period.

The 2005 Transmission Proxy Costs were developed at the request of PG&E's Power Contracts and Electric Resource Development group to update the transmission proxy costs developed in 2004 for the 2004 Long Term RFO. The link to the 2004 transmission proxy costs report is http://www.pge.com/docs/pdfs/biz/transmission_services/transmission_forum/Transmission%20Proxy%20Costs%20Report.pdf. The 2005 transmission proxy costs reflect the effects of the any changes in transmission network, load forecast and generation as of April 2005.

The 2005 transmission proxy costs were determined based on the method used in the 2004 transmission proxy costs study, except for the base cases. The base cases used for the peak period study were derived from the power flow case that was developed for the 2005 PG&E Expansion Plan Study. The 2005 Expansion Plan base case, which was reviewed and approved by the CAISO, was modified to include new generation projects that have completed System Impact Study (SIS) and Facility Study (FS). As requested by the Power Contracts and Electric Resource Development group this base case was then modified for the 2005 study by removing generation projects (and the associated transmission upgrades) that have expressed interests in participating in the PG&E's Request for Offer for long term resource procurement[1]. The resulting base cases used in the 2005 study represent transmission network (including approved transmission projects by CAISO and PG&E or generation developers) and load forecast (1-in-5 system peak load) and generation retirements for year 2010.

The base case for the off peak period was based on the same 2008 light autumn case (modified from the WECC 08 LA1-S case) used in the 2004 study except that the load was updated to the 2005 forecast, the generation models were updated as necessary as described above for the peak period base cases and approved transmission facilities were added. The case represents the light system load with maximum south to north flow on the Path 15.

[1] New generation projects that have completed SIS/FS are located in Solano, Lake, Contra Costa, Kings, Santa Clara, San Francisco, Fresno, San Mateo, and Santa Barbara Counties. Two projects that have completed SIS/FS were not modeled or dispatched in the base cases because they have expressed their interests in participating the RFO. These two projects are located in Alameda and San Luis Obispo Counties.

This 2005 study did not include any clusters for the Humboldt area. Please refer to the report, http://www.pge.com/docs/pdfs/biz/transmission_services/transmission_forum/Humboldt_Gen.pdf for the transmission proxy costs for the Humboldt area. Since the Humboldt study was completed in December, 2004, was based on different base cases than the 2004 study and there were no significant changes in terms of transmission network, load forecast and generation in that area, there is no need to update the Humboldt area transmission proxy costs.

Results

The 2005 transmission proxy costs for the peak period are showed in Table 1. For each substation, PG&E has identified several levels of possible additional transmission capacity and the related costs. Level 1 reflects the available transmission capacity after taking into account all approved reliability and economic transmission projects as well as upgrades planned for generation projects with completed SIS/FS studies. Thus, Level 1 would have no network upgrade costs except those associated with reactive power support. The next and subsequent levels reflect the next most cost-effective proxy network upgrade(s). The number of levels depends on the number of proxy network upgrades needed to accommodate up to the total MW of new generation projects in that vicinity that have expressed interest in participating in the RFO.

Voltage (reactive) support is required to reliably transmit the generation to the load. This reactive support is needed in addition to the reactive power produced by a typical synchronous generator. To be effective these voltage support devices will be installed at various strategic locations, which are generally at or near the load centers.

The levels of voltage support are estimated based on proxy devices and the results of past studies and are technology neutral. Because the voltage support devices are not as "lumpy" as the other transmission facilities, they can be estimated *pro rata* with the Offers. For this evaluation, each 100 MW of new generation is assumed to require a +50/-30 MVAR static var compensator (SVC) at a cost of $5.25 million for voltage support. Thus, in addition to the transmission proxy costs listed in Table 1, voltage support costs proportional to the size of the generation would also be included in the evaluation.

Applications of Transmission Proxy Costs

It is important to note that the transmission proxy costs will be used solely for the purpose of ranking and evaluating Offers. The actual transmission network upgrades and their associated costs for a specific generation project, determined by the SIS/FS, may differ from those determined in this transmission proxy costs study and PG&E is not responsible or liable for the deviation between transmission proxy costs and SIS/FS costs.

	Peak Period				Off Peak Period		
Cluster (Substation)	Level	Max MW gen in each Level	Proxy facility costs ($million)		Level	Max MW gen in each Level	Proxy facility costs ($million)
Bellota 230	1	500			1	500	
Contra Costa 230	1	0			1	200	
	2	450	$17.52		2	450	$38.94
	3	150	$23.07				
	4	50	$4.02				
Cortina 115	1	0			1	350	
	2	400	$70.87		2	400	$50.51
	3	350	$50.51				
Cottonwood 230	1	0			1	200	
	2	400	$258.58		2	600	$33.62
	3	400	$20.09				
Fulton 230	1	500			1	200	
					2	300	$18.98
Gregg 230	1	0			1	150	
	2	500	$4.38		2	300	$44.13
	3	300	$3.65		3	700	$188.06
	4	100	$22.27				
	5	200	$3.44				
	6	50	$7.81				
Los Banos 230	1	450			1	50	
					2	400	$44.13
Metcalf 230	1	100			1	100	
Midway 230	1	1000			1	0	
					2	150	$488.54
					3	400	$44.13
Morro Bay 230	1	50			1	0	
					2	150	$538.92
Moss Landing 230	1	200			1	200	
Newark 230	1	500			1	400	
	2	500	$128.18		2	200	$23.64
					3	300	$128.18
Oakland C 115	1	150			1	250	
	2	100	$5.78				
Panoche 230	1	750			1	100	
	2	450	$44.13		2	700	$44.13
	3	300	$16.94		3	250	$188.06
					4	250	$16.94
Rio Oso 230	1	0			1	200	
	2	200	$12.78				
Round Mt 230	1	0			1	350	
	2	400	$258.58		2	150	$33.62
	3	400	$20.09				
San Jose B 115	1	500			1	250	
					2	150	$18.91
						100	$23.64
San Mateo 230	1	1000			1	200	
Stagg 230	1	100			1	100	
Table Mt 230	1	0			1	200	
	2	250	$38.27				
Tesla 230	1	2000			1	2000	
Vaca Dixon 230	1	0			1	500	
	2	500	$70.87				
Wilson 230	1	200			1	0	
					2	200	$233.66

Table 1. Transmission Proxy Costs (2005$)