THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

INFORMATION

- **Board of Directors**
  Finance and Insurance Committee

2/8/2011 Board Meeting

9-2

Subject

Review of limits on Forward Energy Purchases for Colorado River Aqueduct pumping

Description

Summary

Metropolitan purchases about 35 percent of the energy required to pump water from the Colorado River in the wholesale power market. In order to reduce price and supply volatility and risk, Metropolitan has utilized forward purchase contracts to lock in prices and quantities for up to 24 months in advance of need. Metropolitan only pays for the energy after it has been delivered. The Board's current policy limits the total amount of these Forward Energy purchases to $35 million in any 24-month period. Given increasing cost of power as Hoover power may be limited and energy prices rise, it is appropriate to review this limit.

Background

To meet the energy requirements of pumping on the Colorado River Aqueduct (CRA), Metropolitan obtains power from three basic sources. The first is from the federal hydropower projects at the Hoover and Parker dams on the Colorado River. Under near-full CRA conditions, this source supplies about 55 percent of the energy requirements. The second source is from the Southern California Edison Company (SCE) through the Service and Interchange Agreement (Benefit Energy), which satisfies 10 percent of the energy needs. The third source is from the wholesale energy marketplace. This last source is the most expensive and volatile and meets approximately 35 percent of the CRA's energy needs. The price Metropolitan pays for supplemental energy is a function of market conditions. During the 2000/01 energy crisis, the cost of this segment of the CRA's energy portfolio, which had historically been around $11 million, increased to as much as $80 million due to then market conditions. To mitigate the risk of future energy market disruptions and the resulting fiscal impact to CRA operations, on October 8, 2002, the Board approved a CRA energy risk management policy that provided for the use of short-term (up to 24 months) energy purchases (Forward Energy) to meet future needs for supplemental energy. The cumulative cost of the Forward Energy transactions was set at no more than $35 million within any 24-month period. These risk management provisions were incorporated in Section 8122(e) of Metropolitan's Administrative Code. Although Metropolitan makes commitments to purchase energy up to two years in advance of delivery, Metropolitan only pays for the Forward Energy after it has been delivered and utilized.

In 2003, shortly after the Board's action, California was required to reduce its use of Colorado River water to 4.4 million acre-feet (MAF) annually and the amount of water transported in the CRA was substantially reduced. In that year, the Quantification Settlement Agreement was approved, providing additional water supply opportunities that would take years to fully mature, leaving diminished supplies in the CRA for a period of time. This pumping reduction temporarily eliminated the requirement for most supplemental energy and the need for Forward Energy transactions.

Starting in mid-2008, CRA diversions returned to near-full conditions. At that time, the use of Forward Energy transactions was resumed. These transactions were for energy to be delivered within the next 24 months starting in the month after the commitment was made. For example, a Forward Energy transaction made in July of 2008 would require the energy to be delivered no later than July 31, 2010. Since July of 2008, Metropolitan has acquired nearly 1.67 million Megawatt-hours (MWh) of Forward Energy within the 24-month window at the time the transaction was made. At present, Forward Energy transactions have committed to energy deliveries through the third quarter of 2012. The acquisition of this energy at a known cost has helped ensure that Metropolitan's short-term CRA energy costs will remain within budget.

Forward Energy transactions provide price certainty for multi-year CRA energy cost budget projections. With the Forward Energy purchases, Metropolitan is able to more accurately project CRA energy costs for the next two fiscal years. Another benefit has been the ability of Metropolitan to be more flexible in its day-ahead purchases of supplemental energy. Day-ahead purchases meet the pumping needs of the CRA for the next day after accounting for the resources from the federal hydro projects, SCE and the Forward Energy purchases. At times, energy suppliers will raise their prices if they believe a buyer must have the energy. Forward Energy purchases afford Metropolitan the flexibility to defer day-ahead energy purchases, which helps bring a supplier's prices down.

Review Results

In a report on Forward Energy transactions for the CRA provided to the Board on July 12, 2010, it was noted that the Forward Energy payment obligation limit of $35 million had been reached, preventing additional transactions. Given the estimated need for supplemental energy at forecast CRA deliveries and the depressed prices for Forward Energy due to the recession, Metropolitan could have continued to make transactions absent the limit. The July report concluded with a commitment to develop recommendations for modifying existing energy risk controls.

This review is based on a CRA water delivery amount of 1.1 MAF with a supplemental energy requirement of approximately 770,000 MWh. The projected supplemental energy prices used in the analysis were $45/MWh for off-peak energy and $66/MWh for on-peak. These prices are 2017 projected values and are about 50 percent higher than 2011 prices of $30/MWh off-peak and $45/MWh on-peak. Recent energy prices have been depressed for a number of reasons, including: the continuing effects of the recession and slow recovery, a surplus of natural gas and new natural gas drilling techniques. Energy prices could escalate faster than projected if economic conditions produce inflationary pressures, the demand for energy increases or new regulations hinder the drilling for natural gas. If energy prices do increase faster than projected, the Forward Energy payment obligation limit may need to be increased in the future.

Several other factors were included in the analysis of the payment obligation limit. One was the amount of supplemental off-peak versus on-peak energy required. Most of the supplemental energy acquired is for the off-peak period; however, as the elevation of Lake Mead has declined, the amount of energy Metropolitan receives from the Hoover Dam has decreased, and the amount of on-peak supplemental energy needed has increased.

Recently, Metropolitan has acquired 5 to 10 percent of the total supplemental energy required in the on-peak period. In the analysis, a conservative value of 5 percent was used, potentially understating the impact on on-peak energy prices. Another factor used in the analysis was the amount of supplemental energy to be acquired through Forward Purchases. In early 2010, Metropolitan had acquired a little over 70 percent of the supplemental energy needed for the next two years through Forward Energy purchases. The 70 percent value was retained for the analysis and leaves the remaining 30 percent of supplemental energy need to be met with near-term transactions, such as day-ahead purchases.

As a result, after reviewing the forecasted water deliveries on the CRA, the estimated supplemental energy required and the projected wholesale energy prices, staff is prepared to recommend the payment obligation limit for Forward Energy be increased to $50 million.

With a payment obligation limit of $50 million, Metropolitan could be able to cover up to 70 percent of the estimated supplemental energy requirements for the CRA over a 24-month period, assuming the projected energy prices and need for on-peak energy does not deviate excessively from the values used in the analysis. Increasing the limit will allow Metropolitan to take further advantage of the stability in Forward Energy prices and reduce the risk that an energy market disruption would cause a large variance from the multi-year CRA energy budget.

Policy

Metropolitan Water District Administrative Code Section 8122(e): Power and Transmission Contracts

Brian Thomas	1/18/2011
Chief Financial Officer	*Date*

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