THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Report

Water System Operations

- **Metropolitan's Forward Energy Transactions for the Colorado River Aqueduct**

Summary

This report provides an update on Metropolitan's Forward Energy transactions for the Colorado River Aqueduct (CRA). In 2002, the Board established provisions for Metropolitan to make energy purchases for delivery up to two years in the future. Since 2008, when CRA deliveries returned to near full conditions, Metropolitan has used Forward Energy purchases to mitigate risks of future energy market disruptions and the resulting fiscal impact to CRA operations. Forward Energy purchases also provide a higher level of certainty in developing multi-year CRA energy budgets.

Detailed Report

To meet the energy requirements of pumping on the CRA, Metropolitan obtains power from three basic sources. The first is from the federal hydro power projects at the Hoover and Parker dams on the Colorado River. Under full CRA conditions, this source supplies about 60 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. The third source is the most expensive and volatile and is used to supplement the first two sources and meets 30 percent of a full CRA's energy needs. The amount of supplemental energy that is required varies depending upon the pumping requirements and the amount of energy available from federal and SCE sources.

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, ballooned to as much as $80 million due to market turmoil, including manipulation by major suppliers. 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 two years) energy purchases (Forward Energy) to meet future needs for supplemental energy. Even though Metropolitan makes commitments to purchase energy up to two years in advance of delivery, Metropolitan only pays for Forward Energy after it has been delivered and utilized. The cumulative value of the Forward Energy transactions was set at no more than $35 million. These risk management provisions were incorporated in section 8122(e) of Metropolitan's Administrative Code. At the time the $35 million value was established, the CRA was moving over 1.2 MAF and the supplemental energy costs were budgeted for approximately $33 million.

Shortly after the Board's action, due to prolonged drought conditions in the Colorado River Basin, in 2003 California had to reduce its use of Colorado River water to 4.4 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 need for most supplemental energy and the need for Forward Energy transactions.

Starting in mid-2008, projected CRA diversions were for near full conditions. At that time, the use of Forward Energy transactions was resumed. Since July of 2008, Metropolitan has acquired nearly 1.45 million megawatt-hours (MWh) of energy at a value of over $58 million in Forward Energy transactions for 2009 through the first quarter of 2012. This represents about 41 percent of the total supplemental market energy needed or projected for that time. The acquisition of this energy at a known cost has provided assurance that Metropolitan's short-term CRA energy costs will remain within budget and will not experience increases that could occur from market disruptions such as hurricanes or increased world demand for oil and other energy products. Typically, the cumulative total value of open Forward Energy purchases has ranged between $10 million and 20 million.

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After Forward Energy purchases were resumed, most transactions were for the immediate twelve months or the following year. As energy prices declined due to the deepening recession, Metropolitan's strategy was to take advantage of the lower prices by making periodic purchases, especially in the spring and fall months when energy prices typically dip. The sequencing or layering of purchases, similar to dollar cost averaging with stock purchases, prevents Metropolitan from acquiring all of its Forward Energy at what could turn out to be the peak of energy prices. In 2010, as the recession appeared to bottom out and with indications of a strengthening economy, the strategy shifted to lengthen the time span of the Forward Energy purchases out to the full 24-months, locking in the depressed energy prices for the longest period allowed.

A benefit of the price certainty provided by Forward Energy transactions was seen during the recent budget deliberations. Trying to estimate future costs of market commodities such as wholesale energy is always difficult, especially when looking two to three years into the future. With the forward purchases, Metropolitan was able to more accurately estimate CRA energy costs for the next two fiscal years. Another benefit has been the ability of Metropolitan to be flexible in its day-ahead purchases of supplemental energy. Day-ahead purchases meet the pumping needs of the CRA after accounting for the resources from the federal hydro projects, SCE and the forward purchases. At times energy suppliers will raise their prices if they believe a buyer must have the energy. Forward purchases afford Metropolitan the flexibility to defer energy purchases which helps bring a supplier's prices down.

As the use of Forward Energy transactions continues, Metropolitan will also continue its review of strategies to mitigate energy costs and supply and regulatory risks. Given forecast increases in energy costs due to inflation, a recovering economy and impacts of carbon regulations, as well as the institution of a two-year budget, it may be appropriate to modify the present cumulative value and time span limits in section 8122(e) to better reflect new market conditions. For example, after a recent series of transactions had been completed, it was determined the cumulative limit of $35 million in forward purchases had been exceeded by approximately $3.7 million. Metropolitan took no-cost steps to reverse about $1.9 million in Forward Energy contracts, as about $2 million of transactions had expired, to bring the portfolio value within the Administrative Code limit. While this event did not impact Metropolitan's budget or energy cost, it resulted in changes to controls on Forward Energy purchases. It also indicated that the present dollar value cap is hindering what would otherwise be appropriate risk mitigation or economic actions. Other options to mitigate risk include the acquisition of long–term energy supplies from a third-party developer or from a Metropolitan-owned energy project along the CRA. As the review of the various risk mitigation strategies and options progress, further reports and recommendations will be brought back to the Board. Staff will develop recommendations for modifying any of the risk controls over the next six months.