Carlsbad Desalination Project – Responses to Previous Board Member Questions
ADDITIONAL SENSITIVITY ANALYSIS OF UNIT COST TO INCREASE ELECTRICITY PRICES
Projected Electricity Price – Carlsbad Desal Project

Future Electricity Price – Key Drivers

Factors driving higher growth rate
- Renewable Portfolio Standard (RPS)
- AB 32
- Fleet replacement

Factors driving lower growth rate
- Natural Gas Prices
- Demand-Side Response
- Rate-Setting Process
Impact on Water Unit Price - Comparison

Base Case vs. High (Levelized)

Water Unit Price increase: $127/AF

25%  23%  21%

25%  25%  23%  21%

Base Case vs. High (Non-Levelized)

Water Unit Price increase: $182/AF

25%  26%  22%  21%

25%  25%  23%  21%
BOARD QUESTIONS ON
UNIT PRICE/CAPITAL & OPERATING COST
QUESTIONs ON UNIT PRICE AND COST

Water Unit Price and Cost Information provided to the Board on November 5, 2012

• Detailed review of unit price cost components
  – Debt Service Charge
  – Equity Return Charge
  – Pipeline Installment Payments
  – Fixed and Variable Operating and Electricity Charges

• Reference Information
  – Explanation of bond interest rate assumptions
  – Unit price calculations at 48,000 AFY and 56,000 AFY
  – Data and calculations that tie back to WPA appendices
  – Calculations that show conversion to 2012$

• Capital Cost Detail for Project Components
Interest Rates and Assumptions

• Debt Service charge is a direct pass through
  – No Poseidon mark-up
  – Interest rate benefit/risk assigned to Water Authority

• Current Market Interest rates for low investment grade infrastructure
  – Plant Bonds: 5.1% (Private Activity Bonds subject to AMT) (PABs)
  – Pipeline Bonds: 4.6% (Municipal Purpose Bonds exempt from AMT)

• Final interest rate will not be known until financial closing
  – Staff established 100 BP buffer from expected market rate
  – Water Unit Price analyzed at mid point 5.6% and maximum of 6.1% for the Plant Bond final maturity
  – Will seek Board Authorization to price Bonds at maximum of 6.1% for the Plant Bond final maturity
# Interest Rates and Assumptions

<table>
<thead>
<tr>
<th>First Year Debt Service</th>
<th>6.10% Bond Rate</th>
<th>$21,042,800&lt;sup&gt;1&lt;/sup&gt;</th>
<th>5.60% Bond Rate</th>
<th>$18,955,933&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Water Deliveries</td>
<td>48,000 AF/year</td>
<td>56,000 AF/year</td>
<td>48,000 AF/year</td>
<td>56,000 AF/year</td>
</tr>
<tr>
<td>Debt Service Charge (2016$/AF)</td>
<td>$658</td>
<td>$564</td>
<td>$592</td>
<td>$508</td>
</tr>
<tr>
<td>Debt Service Charge (2012$/AF)</td>
<td>$612</td>
<td>$525</td>
<td>$551</td>
<td>$472</td>
</tr>
</tbody>
</table>

<sup>1</sup> First year debt service and water deliveries pro-rated to reflect partial first contract year
# Escalation Rates and Assumptions

<table>
<thead>
<tr>
<th>Unit Price Component</th>
<th>WPA Contractual Provision</th>
<th>Staff Modeling Assumption</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fixed Charges:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Debt Service Charge</td>
<td>A fixed annual “slope” of 2.5% has been used to establish this charge</td>
<td>2.5% Fixed Slope</td>
</tr>
<tr>
<td>2. Equity Return Charge</td>
<td>A fixed annual “slope” of 2.5% has been used to establish this charge</td>
<td>2.5% Fixed Slope</td>
</tr>
<tr>
<td>3. Pipeline Installment Payments</td>
<td>A fixed annual “slope” of 2.5% has been used to establish this charge</td>
<td>2.5% Fixed Slope</td>
</tr>
<tr>
<td>4. Fixed Operating Charge</td>
<td>Indexed to San Diego CPI</td>
<td>Assumed to escalate at 2.5%</td>
</tr>
<tr>
<td>5. Fixed Electricity Charge</td>
<td>Linked to SDG&amp;E Rates</td>
<td>Assumed to escalate at 2.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Variable Charges:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Variable Operating Charge</td>
<td>Indexed to San Diego CPI</td>
<td>Assumed to escalate at 2.5%</td>
</tr>
<tr>
<td>7. Variable Electricity Charge</td>
<td>Linked to SDG&amp;E Rates</td>
<td>Assumed to escalate at 2.0%</td>
</tr>
<tr>
<td>8. Poseidon Management Fee</td>
<td>Indexed to San Diego CPI</td>
<td>Assumed to escalate at 2.5%</td>
</tr>
</tbody>
</table>
UPWARD SLOPING VS. LEVELIZED CAPITAL CHARGE

**Capital Charge Base Case - 2.5% Escalation**

- Principal: $739 million
- Interest: $937 million
- Equity Return: $764 million
- Capital Payments: $2,440 million

**Capital Charge Levelized - 0% Escalation**

- Principal: $739 million
- Interest: $794 million
- Equity Return: $628 million
- Capital Payments: $2,161 million
UPWARD SLOPING VS. LEVELIZED CAPITAL CHARGE

Impact of Levelized Capital Charge

- Price increase in first year of $352/AF
- Price decrease in final year of $908/AF
- Cross-over point in 2027
- $36 Million Difference 30 year NPV

2.5% Capital Charge Escalation
0.0% Capital Charge Escalation
WHAT ARE THE NON-ELECTRICITY O&M COSTS?

Fixed Operator Compensation (2012$) $11,871,000
  • Labor
  • Maintenance
  • Membrane and Filter replacement
  • Operator fees, insurance, bonding

Fixed Non-Operator Costs (2012$) $7,326,000
  • Lease payments
  • Owner insurance
  • Mitigation/Monitoring
  • Property taxes
  • Administrative Costs
  • Debt fees

Variable Operating Costs (2012$) $4,848,000
  • Chemical dosing of raw water
  • Pre-treatment cleaning and disposal of solids
  • Operator fee (variable component)
BOARD QUESTIONS ON CONSEQUENCES OF DELAYING THE DECISION ON THE WPA
Potential Impact of Delay of WPA Approval

Lease Extension Requirement

NRG

• Site owner
• Lease and Easement Agreement executed 2003 and amended 10 times, primarily to extend construction start deadlines.
• NRG considering other redevelopment options
• Further extensions would be required if WPA not approved in November
Potential Impact of Delay of WPA Approval

EPC Construction Contract Pricing and Contractor concerns

Kiewit-Shea Desalination

• Original bid submitted 2010
• Risk of losing key members of project management team to other projects
• Pricing commitment expires 12/31
• Reluctant to commit additional resources without WPA
Potential Impact of Delay of WPA Approval

O&M Contract Pricing and Contractor concerns

IDE

• Original bid submitted 2008
• Pricing commitment expires 12/31
• Reluctant to commit additional resources without WPA
Potential Impact of Delay of WPA Approval

Financing concerns:

– Market Conditions
  • Current market conditions are favorable for issuance of “BBB” municipal bonds
  • Interest rates remain at historic lows
  • Credit spreads (between AAA and BBB) are tight
  • Market conditions can change abruptly, especially with regard to credit spreads

– CPCFA
  • Private Activity Bond allocation by CPCFA is based on 2012 issuance
  • Risks and delays may be associated with need to seek 2013 allocation
Evaluation of Rate Structure Alternatives for the Carlsbad Seawater Desalination Project

Special Board of Directors Meeting
November 8, 2012
April 19, 2012 Special Board Meeting
• Following cost of service rate setting principles and Beneficiaries Pay
  ▪ Identified existing rate structure service categories for allocating desalination costs
  ▪ Discussed potential modifications to rate structure to address reliability benefits

June 28th Board Meeting
• Continued discussion on modification to rate structure for reliability category

July, August, September, October 2012 Board/Special Meetings
• Presented alternative structures consistent with cost of service
  ▪ Alternatives continuously refined based on previous Board discussions
  ▪ Reviewed existing Board policy for non-commodity charges
  ▪ Reviewed existing practices for allocating costs to service categories
  ▪ Provided detailed financial information for each alternative by individual member agency

November 2012
• Responding to Board and Member Agency comments provided detailed information on additional alternatives
  ▪ Staff developed in response to comments
  ▪ Member Agency Proposed
1. The rate design analyses is being conducted for the Carlsbad Desalination project with the Board providing policy direction on rate structure
   - Independent review of proposed Rate Structure Service Categories and Alternative Conceptual Cost Allocations

2. Cost of Service Study
   - Full Cost of Service Study
     - 2014 Rates and Charges
   - December 2012 – May 2013

3 Steps of Cost of Service Applied to Carlsbad Desalination
Where are we in the Process?

Desal Project Cost Analysis

Rate Structure Alternatives Developed

Board Feedback on Alternatives

Board Direction on Rate Structure

Request for Alternate Structures

WE ARE HERE

Cost of Service Study

Rate & Charge Determination

Cost of Service Study

RFP Issued 10/5/2012

Required Changes
Description of Rate Structure Alternatives

1. Existing Rate Structure
2. Enhanced Treatment Value
   - TOVWTP Inefficiencies and/or Water Quality Benefits
3. Enhanced Supply Value
   - Majority of project costs on supply or set supply value to existing or other identified source
4. Increased Fixed Charges
   - Increase IAC or
   - Establish Stand by reliability Charge
5. Reduced Fixed Charges
   - Reduce IAC for Desalination Project
Rate Projections

• Through 2017
• Uses high and low desalination cost examples
  ▪ Actual costs are lower
• Uses high and low assumptions on Water Authority Rates
  ▪ Sales (Normal-Wet weather)
  ▪ Member Agency local supplies
  ▪ MWD Rates
  ▪ Capacity Charge revenue
Desalination High/Low Rates

November 8, 2012
Special Board Meeting
High/Low All-in Treated Water Rate Projection – February 2011

All-in rates include all desal costs - no adjustments for non-commodity revenues have been made.
Revised Projections with No Change in Desal Assumptions

Adopted CY 12 & 13 Rates and Charges

All-in rates include all desal costs - no adjustments for non-commodity revenues have been made.
Revised Projections with No Change in Desal Assumptions

All-in rates include all desal costs - no adjustments for non-commodity revenues have been made.
Revised Projections with New Desal Assumptions

All-in rates include all desal costs - no adjustments for non-commodity revenues have been made.
Revised Projections with New Desal Assumptions

Adopted CY 12 & 13 Rates and Charges

Desal High
Desal Low

All-in rates include all desal costs - no adjustments for non-commodity revenues have been made.
February 2011 High/Low vs. Desal

All-in rates include all desal costs - no adjustments for non-commodity revenues have been made.
Illustrative Smoothed High/Low Rate Ramp

Adopted CY 12 & 13 Rates and Charges

High Projection

Smoothed Desal High

Smoothed Desal Low

Low Projection

All-in rates include all desal costs - no adjustments for non-commodity revenues have been made.
Next Steps In Rate Setting Process

- Desal Project Cost Analysis
- Rate Structure Alternatives Developed
- Board Feedback on Alternatives
- Board Direction on Rate Structure

Cost of Service Study
- RFP Issued 10/5/2012
- Next Step

Required Changes
- Rate & Charge Determination
- Developed Board Feedback on Alternatives
- Request for Alternate Structures
Next Steps In Process

• **Cost Of Service Process**
  - Two Steps
    1. Analysis of 2014 Rates
    2. Allocation of Desalination

• **Cost of Service Analysis of 2014 Rates**
  - Consultant will begin work in December
  - Meet with Member Agencies to discuss scope of 2014 Study
  - Interactive process with Member Agencies January- April
  - Complete COS Study May 2013
Next Steps In Process

• Allocation of Desalination Cost and potential fixed charge modifications to rate structure
  ▪ Concurrent with 2014 COS Study
  ▪ Create a member agency workgroup for technical discussions – Winter 2013
  ▪ Provide periodic reports to A&F Committee
  ▪ Return to Board with workgroups technical recommendations
  ▪ Estimate 6-9 month process- consistent with 2015 rate setting schedule