NORTHERN WATER RATE STUDY

Board of Directors – Rate Hearing

May 1, 2014

Northern Water
Presentation Topics

- Project Status and Schedule
- Assessments Design Options
- Other Fees and Charges
- Comments and Questions
PROJECT STATUS AND SCHEDULE
Northern Colorado Water Conservancy District Rate Study - Schedule

Notice to Proceed
Task 1 Project Management
Task 2 Initial Project Meeting
Task 3 Data Collection and Analysis
Task 4 Revenue Requirements Analysis
Task 5 Cost of Service Analysis
Task 6 Ability-to-Pay Analysis
Task 7 Rate Design
Task 8 Comparison of Rates and Financial Performance
Task 9 Forecasting Tool and Training
Task 10 Draft Report of Findings
Task 11 Northern Water Meetings
Task 12 Final Report and Presentation

Board/Allottee Meetings
1 January 2, 2014 – Presentation at Northern Water planning and action meeting
2 January 10, 2014 – Northern Water Board Meeting and allottee informational meeting
3 April 9, 2014 – Special allottee rate study meeting following Spring Water User meeting
4 May 1, 2014 - Public Hearing at Planning & Action meeting
5 June 13, 2014 - Adoption of Rate Study and 2014 rates at Northern Water Board meeting

Additional Board Meetings
May 2014 Study Completion

Current Status

Board/Allottee Meetings (see list)
Rate Study Methodology

- Open rate customers are the focus of this study
- Revenue requirements established using a risk-based economic and financial forecast
- Assessments designed to meet revenue requirements and overall objectives of Northern Water
- Assessments examined using a variety of options
- Assessment differentials between customer classes ultimately designed using two basic methods:
  - Cost of Service
  - Ability to Pay (Irrigation)
FINANCIAL PLAN
OVERVIEW
Historical Financial Performance
Financial Plan Scenarios

- Risk-Based Analysis
  - Economic Conditions (uncontrollable variables)
  - Reserve Targets (controllable variables)
  - User Charge Revenue Requirements (controllable)
Risk-Based Scenarios

Rate Study Scenarios

- **Status Quo**
  - Maintain average historical rate of increase to Assessments (3%)

- **Basic Cost Recovery (Break-Even)**
  - Cost Recovery
  - Maintain existing target reserves during Average Regional Economy

- **Moderate Reserve Recovery**
  - Cost Recovery
  - Target 100% O&M and 50% Programs Reserve with Average Regional Economy

- **Aggressive Reserve Recovery**
  - Cost Recovery
  - Target 100% O&M and 100% Programs Reserve with Average Regional Economy
## Scenario Assumptions

### Economic Conditions

<table>
<thead>
<tr>
<th>Category</th>
<th>Robust Regional Economy</th>
<th>Average Regional Economy</th>
<th>Sluggish Regional Economy</th>
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<tbody>
<tr>
<td><strong>Revenue</strong></td>
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<tr>
<td>Fixed to Open Rate Transfers</td>
<td>1500 AFU/year (recent max)</td>
<td>900 AFU/year (recent avg)</td>
<td>300 AFU/year (recent min)</td>
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<tr>
<td>Federal Funding of Joint Works O&amp;M</td>
<td>No Funding Issues</td>
<td>Limited Funding Issues</td>
<td>Long-Term Funding Issues</td>
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<tr>
<td>Property Tax Revenue</td>
<td>4% increase (1995-2011)</td>
<td>3% increase (average)</td>
<td>1-2% increase (1937-2011)</td>
</tr>
<tr>
<td><strong>Expenses</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Operating Expenses</td>
<td>3% increase (at inflation)</td>
<td>3% increase (at inflation)</td>
<td>2% increase (2010-2012)</td>
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<tr>
<td>Capital Projects</td>
<td>3% increase (at inflation)</td>
<td>3% increase (at inflation)</td>
<td>1% increase</td>
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<tr>
<td>Capital Outlay</td>
<td>3% increase (at inflation)</td>
<td>3% increase (at inflation)</td>
<td>2% increase</td>
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</tbody>
</table>
## Scenario Assumptions

### Reserve Targets

<table>
<thead>
<tr>
<th>Category</th>
<th>Existing</th>
<th>100% O&amp;M, 50% Reserves</th>
<th>100% O&amp;M, 100% Reserves</th>
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</thead>
<tbody>
<tr>
<td><strong>Reserve Targets</strong></td>
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<tr>
<td>Restricted</td>
<td>Existing</td>
<td>Existing</td>
<td>Existing</td>
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<tr>
<td>Unrestricted - Fixed Asset</td>
<td>Existing</td>
<td>Existing</td>
<td>Existing</td>
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<tr>
<td>Unrestricted - O&amp;M</td>
<td>Existing (68% of 2013 budget)</td>
<td>100% of 2013 budget</td>
<td>100% of 2013 budget</td>
</tr>
<tr>
<td>Unrestricted - Programs</td>
<td>Existing (7% of 2013 budget)</td>
<td>50% of 2013 budget</td>
<td>100% of 2013 budget</td>
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</table>
Status Quo
Basic Cost Recovery

Additional UCRR = $5.6M / Year
Moderate Reserve Recovery

Additional UCRR = $6.9M / Year
Aggressive Reserve Recovery

Additional UCRR = $8.2M / Year
Financial Plan Summary

- Northern Water’s cash reserves have been used to finance recent large capital projects, thus declined significantly.
- Forecasted annual revenue falls below annual expenses beginning in 2015.
- As a result, action is required to balance revenues and expenses and rebuild cash reserves.
Cost-of-Service

- Cost of service is the proportionate share of net system costs to serve customer classes.

- Uniform allocation method simply distributes costs equally to all customer classes.

- Split allocation method was used to allocate operating expenses between M&I and Irrigation classes.
# Split-Allocation of 2014 Budget

## Northern Water

### District Fund-Summary

#### 2014 Proposed Budget

<table>
<thead>
<tr>
<th>Account and Description</th>
<th>2013 Budget</th>
<th>2014 Budget</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>1013660-Program Water Quality</td>
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### Municipal/Ag Allocation

#### Jan. December 2013

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<tr>
<th>Distribution</th>
<th>Both</th>
<th>Muni Only</th>
<th>Ag Only</th>
<th>Total</th>
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<td>(1,125,603)</td>
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<td>(1,464,712)</td>
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**Northern Water**

[Image of a spreadsheet with data]
Ability-to-Pay

- Used by the Bureau of Reclamation to determine irrigation repayment obligations (i.e., Payment Capacity Analysis)
- Uses long-term average price, yield, and cost estimates to minimize variability over time.
  - Calculated as $14.17 in 1997; $22.00 in 2014
- Originally intended to promote irrigated agriculture and rural community development ... like the C-BT Project
- Also intended to apply to farm owner-operators who depend on the farm enterprise
- Range of results depending on underlying assumptions
ASSESSMENT
DESIGN
## Range of Options Considered

- Special assessments
- Owner-operated rate
  - 5-year phase-in
  - 10-year phase-in
- One step increase
- Two step increases
- Uniform COS
- Split allocation COS
- Existing structure

- Across-the-board increases
- Smooth increases
- Ability to pay
- Base COS
- Open Rate COS
- COS Assessments
  - 5-year phase in
  - 10-year phase in
Assessment Design Options

- **Option 1: Existing Structure – Based on ability-to-pay for all Irrigation**
  - Smooth Increase
  - Step Increase

- **Option 2: Base Cost of Service – Irrigation open rate assessment recovers the irrigation base cost of service**
  - Smooth Increase
  - Step Increase

- **Option 3: Open Rate Cost of Service – All open rate units recover fixed rate unit costs**
  - Smooth Increase
  - Step Increase
Assessment Design Assumptions

- All options recover the approximately the same amount of revenue over 10 years ($109-$111 Million)
- All options assume Average Regional Economic Conditions, and Moderate Reserve Recovery
- All options assume a 9% increase in 2015
- All options reach Moderate Reserve Recovery target by 2023
- Step increase balances the budget in 2016
- Smooth increase balances the budget in 2018
Near-Term Assessment Objectives

- Near-term: Next 5 Years
  - Balance budget
  - Compare ability-to-pay vs. cost of service assessments
  - Set the course for the long-term (10 years)
Existing Structure (Option 1)

Near-Term Projection

- M&I - Step
- M&I - Smooth
- Irrigation - Step
- Irrigation - Smooth

$28.00/AFU in 2014
$30.50/AFU in 2015
$55.40/AFU in 2018

$10.00/AFU in 2014
$11.00/AFU in 2015
$22.00/AFU in 2018
Cost of Service (Option 2 and 3)

Near-Term Projection

- M&I - Step
- M&I - Smooth
- Irrigation - Step
- Irrigation - Smooth

Costs:
- $28.00/AFU (2014)
- $30.50/AFU (2015)
- $52.70/AFU (2018)
- $30.20/AFU (2018)
- $10.00/AFU (2014)
- $11.00/AFU (2015)
Comparison of Existing Structure and Cost of Service Assessments

Near-Term Projection

- **M&I** (Option 1)
- **M&I - Step**
- **M&I - Smooth**
- **Irrigation - Step**
- **Irrigation - Smooth**
- **Existing Structure**

Financial projections for the years 2014 to 2018 are shown for different options related to M&I and Irrigation services.
# Proposed Assessments (Near-Term)

<table>
<thead>
<tr>
<th>Assessment Design Option</th>
<th>Customer Class</th>
<th>2015 ($/AFU)</th>
<th>2016 ($/AFU)</th>
<th>2017 ($/AFU)</th>
<th>2018 ($/AFU)</th>
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<tbody>
<tr>
<td>Fixed Rate Assessments</td>
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<tr>
<td>All Options</td>
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<td>1.50</td>
<td>1.50</td>
<td>1.50</td>
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<td><strong>Option 1 - Open Rate Assessments</strong></td>
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<tr>
<td>Smooth Increase</td>
<td>M&amp;I</td>
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<td>37.20</td>
<td>45.40</td>
<td>55.40</td>
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<td>11.00</td>
<td>13.80</td>
<td>17.30</td>
<td>22.00</td>
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<td>Step Increase</td>
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<td>53.50</td>
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<td>Irrigation</td>
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<td>18.70</td>
<td>20.20</td>
<td>22.00</td>
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<td><strong>Option 2 and Option 3 – Open Rate Assessments</strong></td>
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<tr>
<td>Smooth Increase</td>
<td>M&amp;I</td>
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<td>52.70</td>
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<td>11.00</td>
<td>20.90</td>
<td>25.10</td>
<td>30.20</td>
</tr>
</tbody>
</table>
Long-Term Assessment Objectives

- Long-term: Between 5 and 10 Years
  - Reach reserve target
  - Achieve COS differential
    - Option 2 – Base Cost of Service: Irrigation open rate assessment recovers the irrigation base cost of service
    - Option 3 – Open Rate Cost of Service: All open-rate classes (M&I and Irrigation) recover fixed-rate unit costs
Option 1 - Existing Structure

Long-Term Projection

- M&I - Step
- M&I - Smooth
- Irrigation - Step
- Irrigation - Smooth

Costs:
- $117.80/AFU (M&I - Step)
- $91.70/AFU (M&I - Smooth)
- $22.00/AFU (Irrigation - Step and Smooth)
Option 2 - Base Cost of Service

Long-Term Projection

- M&I - Step
- M&I - Smooth
- Irrigation - Step
- Irrigation - Smooth

Costs:
- $104.60/AFU (M&I - Step, 2023)
- $85.00/AFU (M&I - Smooth, 2023)
- $61.70/AFU (Irrigation - Step, 2023)
- $50.20/AFU (Irrigation - Smooth, 2023)
Option 3 - Open Rate Cost of Service

Long-Term Projection

- M&I - Step
- M&I - Smooth
- Irrigation - Step
- Irrigation - Smooth

$96.20/AFU
$89.50/AFU
$79.40/AFU
$73.80/AFU

Risk-Based Impacts on Assessments

- Robust Regional Economy Projection
  - Annual decrease in assessments
    - ~ 3% percent per year
  - Assessments at the end of 10 years (in 2023)
    - 30% to 35% lower

- Sluggish Regional Economy Projection
  - Annual decrease in assessments
    - ~ 1.5 percent per year
  - Assessments in 2023
    - 15% to 20% higher
Balancing Near-Term Decisions with Long-Term Objectives

- **Near-Term Decisions (5-Year Forecast)**
  - Maintain ability-to-pay assessments for irrigation, or move towards cost of service
  - Smooth annual increases or step increase
    - Step increase results in lower assessments over the long-term
  - No significant difference between Option 2 and Option 3 in the near-term

- **Long-Term Objectives (10-Year Forecast)**
  - Base cost of service, or open-rate cost of service approach
  - Establish a reserves target and maintain appropriate reserves
OTHER FEES AND CHARGES
## Other Fees and Charges

<table>
<thead>
<tr>
<th>Other Fee or Charge</th>
<th>Annual Revenue</th>
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<tbody>
<tr>
<td>Carryover Charges</td>
<td>$1,000,000</td>
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<tr>
<td>Unit 2 Charge</td>
<td>$15,500</td>
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<tr>
<td>Winter Water Service Charge &amp; Admin.</td>
<td>$11,800</td>
</tr>
<tr>
<td>Tax Exempt Charge</td>
<td>$3,400</td>
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</tbody>
</table>
Carryover Charges

- Currently ~ $1 million/year revenue
- Carryover charge is not based on cost of service
- Carryover charge sends a market price signal to allottees
  - Lower charges – many subscribers
  - Higher charges – fewer subscribers
- Currently carryover is priced (on a per ac-ft basis) equal to the annual assessments – and is highly utilized.
- Options for alternative pricing:
  - Avoided Cost: $60-$140 per acre-foot
  - Unit Cost: $66-$72 per C-BT unit
  - Unit Cost: $47-$52 per C-BT unit (with prior-year assessment credit)
- Observation – currently carryover charge is relatively low
Unit 2 Charge

- Currently $15,500/year revenue
- Entities that take delivery d/s of Boulder Reservoir
  - Unit 2 contracts (fixed-rate) - $2.00 per AFU
  - Unit 4 contracts (open-rate) - +$0.50 per AFU
- What it covers
  - Originally to pay portion of Boulder Res (1953) but it is not limited to Boulder Res
- Unit 2 cost of service is higher than for other areas
- Recommend a gradual phased-in increase to the Unit 4 charge (Approximately $1.50 per year increase)
Winter Service Charge

Currently $11,800/year revenue

Began with 1962 Municipal Operating Agreements

- Based on Actual Costs
- $200 Administrative Fee
- $1.50 per ac-ft delivered
- Specified in Operating Agreements, but Board reserves right to modify annually

Currently it is difficult to isolate the cost of service for winter water deliveries

Recommend no change at this time
Tax Exempt Charge

- Currently $3,400/year Revenue
- Established in 1950s while negotiating Class C contracts
  - $0.50 per AFU
  - 6,884 Units (all but 13 are Class C Irrigation)
  - Primarily Boulder County (41%), CSU (23%)
- Recommend to eliminate this charge – antiquated charge and insignificant source of revenue
BENCHMARKING RESULTS
Benchmark Survey of Water Providers (2011-2012)

1. Northern Colorado Water Conservancy District
2. Central Arizona Water Conservancy District
3. Southern Nevada Water Authority
4. Central Utah Water Conservancy District
5. Tarrant Regional Water District (Texas)
6. Denver Water (Raw Water Only)
7. Oakdale Irrigation District (California)
8. Central Nebraska Public Power and Irrigation District
Benchmark – Employees per Thousand Acre-Feet Delivered

- **Median**: 0.47
- **Mean**: 0.66
- **Survey of Western Water Providers**
- **Northern Water C-BT**: 0.47

Employees (FTEs) per Thousand Acre-Feet Delivered
Benchmark – Total Expenses per Acre-Foot Delivered

Survey of Western Water Providers

Median - $189
Mean - $296

Northern Water
C-BT - $127

Total Expenses Per Acre-Foot Delivered Benchmark
Benchmark – Current Ratio

Median - 4.21
Mean - 4.95

Survey of Western Water Providers

Northern Water C-BT - 8.20
Benchmark – Current Assets as a Percent of Annual Revenue

Survey of Western Water Providers

Median - 150%
Mean - 172%
Northern Water C-BT - 130%

Current Assets as a Percent of Annual Revenue
Regional Irrigation Assessments

- Data for 48 companies/districts
- Using river diversion yields ("at river") as measure ($/ac-ft)
- 2013 and/or 2014 data (many provided both)
- Significant impacts on rates, especially District 5 due to flood

<table>
<thead>
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<th>Number of Respondents</th>
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<tr>
<td>2 (S. Platte)</td>
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<tr>
<td>3 (Poudre)</td>
<td>5</td>
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<tr>
<td>4 (Big T)</td>
<td>8</td>
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<tr>
<td>5 (St. Vrain)</td>
<td>17</td>
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<td>6 (Boulder)</td>
<td>12</td>
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<td>64 (S. Platte)</td>
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<td><strong>Total</strong></td>
<td><strong>48</strong></td>
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</table>

- **C-BT Units**  = $14.29
- **Median**      = $11.75
- **Average**     = $18.57
- **Max**         = $131
- **Range** (min to max)
- **Range** (20%, median, 80%)
COMMENTS, QUESTIONS AND DISCUSSION