LCRA’S WATER MANAGEMENT PLAN

Participant Meeting
May 21, 2018
Agenda

• Water Management Plan presentation
  - WMP background
  - Why we are updating the plan
  - Schedule for update
  - What will and won’t change in the updated application

• Discussion and questions
LCRA’s Water Management Plan

• Governs LCRA’s operation of lakes Buchanan and Travis to supply water to users throughout the lower Colorado River basin

• Allows for supply of interruptible water provided we don’t impair our ability to meet the needs of our firm customers

• Helps meet the environmental needs of the river and bay
2015 Water Management Plan

• Approved by TCEQ in November 2015
• Set minimum combined storage through a repeat of historical hydrology
• Framework changed from 2010 plan
• More responsive to changing conditions
2015 WMP – Interruptible Agricultural Supply

• No “open supply”

• Two evaluation dates for interruptible stored water

• Three water supply conditions: Normal, Less Severe Drought, Extraordinary Drought
  - Based on storage and prior three months of inflows

• Look-ahead tests
2015 WMP – Environmental Flows

- Two evaluation dates for environmental flows
- Instream flows levels:
  - Base Average, Base Dry and Subsistence
- Matagorda Bay inflows:
  - Four levels of two-month inflows
  - Monthly Threshold value
Why are we updating the plan?

• WMP was first approved in 1989
• WMP updated periodically:
• TCEQ required update process to begin in 2018
Meetings and Communications

• Had initial discussion with Texas Commission on Environmental Quality in January
• Since January, met with interested groups
• Discussed update process with LCRA Board
Timeline

• May 21 – First participant meeting
• July 12 – Second participant meeting
• Aug. 10 – Third participant meeting
Timeline

- Sept. 6 – Fourth participant meeting
- October/November – Present draft WMP to LCRA Board
- December – Request LCRA Board approval
- Early 2019 – Submit to TCEQ
UPDATING THE WATER MANAGEMENT PLAN
What’s not changing?

• The basic objectives:
  - Meet firm demands without shortage
  - Maintain minimum combined storage

• The basic WMP framework:
  - Three water supply conditions – Normal, Less Severe Drought and Extraordinary Drought
  - Two evaluation dates for interruptible water availability for agriculture
  - Look-ahead tests
  - Environmental flow criteria
What’s changing?

• Updating water demands

• Extending hydrology through 2016
  - Hydrology reviewed and approved by TCEQ

• Adding new water supplies:
  - Arbuckle Reservoir
  - Amended Garwood water right
What might change?

• Amounts of water available for interruptible agricultural and environment

• Curtailment triggers

• Consider adding fall evaluation date for environmental flow criteria

• How LCRA meets environmental flow criteria at Wharton and the bay
UPDATES TO THE WATER DEMANDS
Water Demands

• Update for 2025 conditions

• Firm demands
  - Municipal and manufacturing
  - Steam-electric cooling

• Interruptible agricultural demands
Weather-varied Demands

- Demands are influenced by weather
- 2015 WMP weather-varied demands:
  - Lake evaporation
  - Irrigation
- WMP update weather-varied demands:
  - Lake evaporation
  - Irrigation
  - Municipal and manufacturing
  - Steam-electric
Municipal and Manufacturing Demands

• Based on Region K demands
  - Reflects high-use year (high GPCD)
  - Conservative for high-use years
  - Much higher than average years

• Average use occurs in many years

• Developed method to toggle between high-use and average-use years in WMP update
Steam-electric Demands

• Weather-varied demand:
  - STP reservoir and Lake LBJ evaporation in 2015 WMP
  - Expand to include FPP and Decker in WMP update

• Use 2011 as maximum demand

• FPP and Decker power plant:
  - Weather variation correlated to summer temperatures
Interruptible Agricultural Demands

• Based on Region K
• Uses 2011 planted acreage
• Reflects contracting practices and efficiency improvements
• Weather-varied
Methodology Recap

• Based on Region K projections and recent use
• Expands use of weather variation
• Uses highest projected demands through 2025
### Preliminary Projected 2025 Demands (a-f/yr)

<table>
<thead>
<tr>
<th></th>
<th>Normal/Average</th>
<th>High/Max</th>
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<tbody>
<tr>
<td><strong>Municipal/Manufacturing</strong></td>
<td></td>
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<tr>
<td>City of Austin¹</td>
<td>167,200</td>
<td>215,900</td>
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<tr>
<td>Other²</td>
<td>105,300</td>
<td>124,000</td>
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<tr>
<td><strong>Steam-electric³</strong></td>
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<tr>
<td>LCRA power plants</td>
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<td>COA power plants</td>
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<td>Bastrop Energy Partners</td>
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<td><strong>Agriculture⁴</strong></td>
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<td>Lakeside</td>
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<td>Garwood</td>
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<tr>
<td>Pierce Ranch</td>
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<td>30,000</td>
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<tr>
<td>Gulf Coast</td>
<td>139,000</td>
<td>156,700</td>
</tr>
</tbody>
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¹ Average-use year projections estimated by City of Austin Water Forward Task Force. High-use year projections estimated by Region K.

² High-use year projected demands based on Region K. For entities not reported in Region K, high-use projected demands are based on use since 2010. Average-use year projections estimated from ratio of average to high use in recent years.

³ Max-use year based on 2011. Weather variation applied to FPP and Decker power plant, and evaporation from STP cooling reservoir.

⁴ Based on Region K projected demands. Weather variation applied to all operations.
Next Steps

• Comment period open until June 20
  - Submit comments to LCRAWMP@lcra.org

• July 12 – Second participant meeting
  - Discuss demands and preliminary modeling results