Update On Desalination Projects

City Council Presentation
February 23, 2016

Port Industries of Corpus Christi Industrial Desal Update

23 February 2016
Corpus Christi City Council

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Desal Feasibility Study Recap

- Letter of Intent signed November 2014
- Funded by 15 regional stakeholders
- City issued RFQ for services
- 4 firms interviewed
- Freese and Nichols selected
- Cost – $350,000 (est.)
- Notice to Proceed issued 4 May 2015
- Current Status - 95 to 98% Complete (Phase I)

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Industrial Desal Study Partners

- Corpus Christi Regional EDC
- City of Corpus Christi
- San Patricio MWD
- Port of Corpus Christi
- Chemours
- Cheniere Energy
- CITGO Refining & Chemicals
- Flint Hills Resources
- Lyondell-Basell
- OxyChem
- Sherwin Alumina
- Valero
- voestalpine Texas
- AEP Texas
- Talen Energy

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Goals and Objectives

Answer key questions so that Industry can make an informed decision on a "Drought Proof" Source of Water:

- Where is best location to build a desal plant?
- How large should it be?
- How much will it cost?
- Who will use it?
- Who will pay for it?
- Who will build it?
- Who will own and operate it?

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Additional Questions/Issues

- What quality water should be produced?
  - Industrial or Potable?
- How will the water be transported?
  - Existing or new pipeline system
- Publicly Owned or Privately Owned Plant?
- Design, Build, Operate, and Maintain?
- Discharge locations? Technical Processes? Permitting?
- Can Water be Wheeled from one area to another?
- Financing Options?
- Impact on City water rates?

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Study Determined

- Two feasible sites (Inner Harbor and LaQuinta)
- Size 10 to 20 MGD…expandable
- Estimated Cost for a 20 MGD plant is $200 million
- Industrial Water Quality Cost is 6% to 7% less to produce and is more efficient for industrial operations than potable water
- But requires separate transmission system
  - $50 to $100 million cost

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Study Determined

- Public Ownership offers significant cost savings
  - Lower financing costs
  - Property tax considerations
  - Possible state infrastructure loans or grants
- Public Entity can contract with private company
  - Design, Build, Operate, Maintain, and Transfer
- Concepts for Water Wheeling should be considered to broaden participation
- Impact on City Rates needs to be discussed and resolved

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Next Steps

- Freese and Nichols finalizes study
- Industry and City solve rate impact issue
  - Magnitude
  - Timing (future demand may lessen impact)
- Negotiate terms of Non-Curtailable Water
- Negotiate Water Wheeling concept
- Decide who bears cost of any speculative capacity
- Identify Project Sponsor(s)
- Refine costs based on final plan
- Industry then decides on participation

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Industrial Desal Study Milestones

- ~~Letter of Intent~~ (Nov 2014)
- ~~Consultant Selection~~ (Jan 2015)
- ~~Scope of Work Refinement~~ (Mar 2015)
- ~~Data Collection and Background Investigation~~ (Jun 2015)
- ~~Project Assumptions Memorandum~~ (Aug 2015)
- ~~Project Profiles (Dec 2015)~~
- Project Definition Package (mid-Mar 2016)
- Participant "Go – NoGo" Decision Period (starts Mar 2016)

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Expected Timeframe

- Six to twelve months to finalize negotiations and decide to proceed, or not, with project
- Three to four years for project design, permitting, and construction
- 2020 target date is achievable

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Comparison of Projects

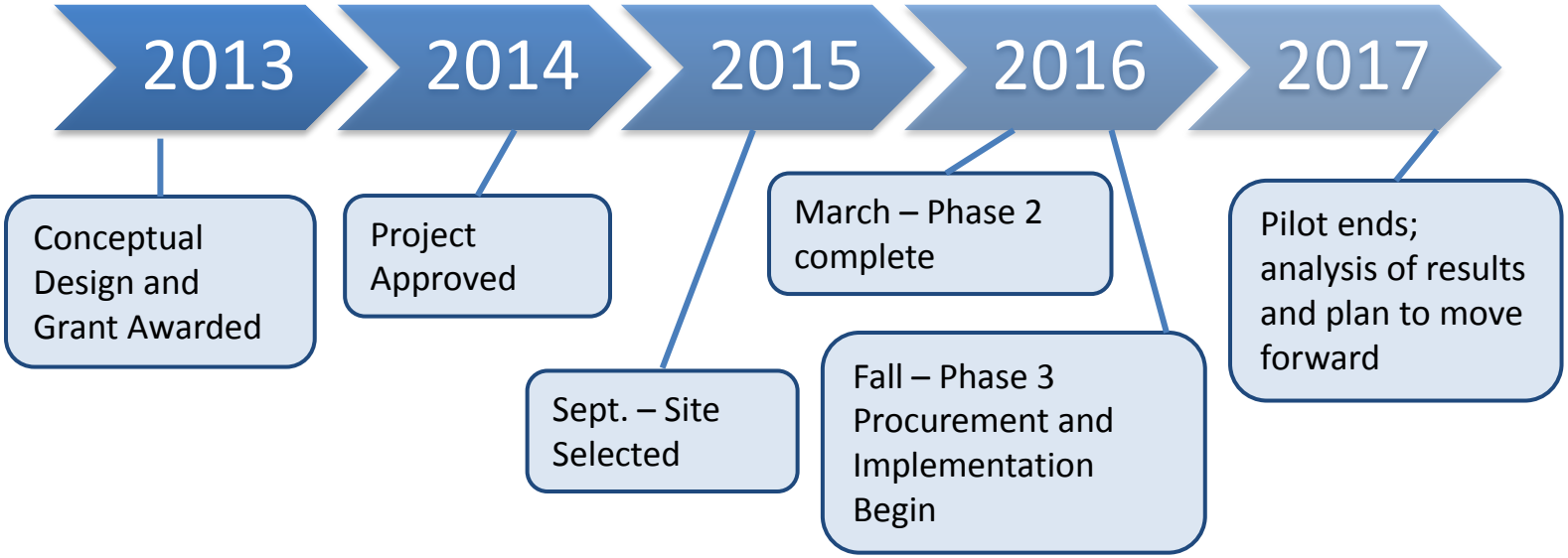
Desal Demonstration - City		Industrial Desal – Industrial Stakeholders
Technology & Literature Review	→	Technology & Literature Review
Siting Criteria	→	Siting Criteria
Technical (**Variable Salinity**): Treatment	→	Technical (**Seawater**): Treatment; Transmission
Costs: Treatment	→	Costs: Treatment; Transmission; Rate impacts on Other Customers
TCEQ Pilot Demonstration		
TCEQ Permits for Drinking Water		
Drinking water	→	Drinking Water

City's Desalination Project

- Grant awarded by Bureau of Reclamation - $400,000 To Help Fund:
  - Test technology to specific location
    - Pretreatment options
      - Dissolved Air Flotation evaluation
      - Side-by-side MF/UF membrane pretreatment evaluation
    - Mixing seawater with other water sources to reduce cost of production (BGW, Effluent, etc.)
  - Help to refine estimated cost to construct and operate plant
  - Pilot required to obtain TCEQ permit for drinking water production
  - Pilot desirable to optimize treatment process and more accurately estimate desalination costs – capital and O&M
  - City positioned to move forward with full-scale Plant for Drinking Water

Desal Demonstration Timeline

- Phase 1: Conceptual plan and grant application
- Phase 2: Technology research and site selection
- Phase 3: Pilot design, protocol development, procurement, and implementation



City's Desalination Demonstration Project

- Moving Forward:
  - Fund completion of Program
  - Project in Current CIP
  - City Council action scheduled for March
  - Project Qualifies for Funding through Texas Water Development Board (TWDB) State Water Implementation Fund for Texas (SWIFT)
    - Application for Subsidized and Deferred Loans could be submitted in the next application cycle
    - Project Qualifies for TWDB Prioritization:
      - Regional Water Plan
      - Local/Federal Funding already in place
      - Readiness to Proceed