

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com





Henderson, Nevada

Creating Sustainable Solutions to Water & Energy Challenges

WaterSmart Innovations '09
October 2009

Presenters:

Kyle R. Okamura
Guy A. Voss

Manager of Utility Management Services
Engineering Manager

City of Henderson
Black & Veatch

Presentation Overview

- DUS Natural Resource Management Performance Objectives – Water & Energy Challenges
- City of Henderson Vision, Priorities & Principles of Sustainability
- Renewable Energy Development Project
 - Scope of Work
 - Current Status
 - Next Steps

City of Henderson

● Our Vision

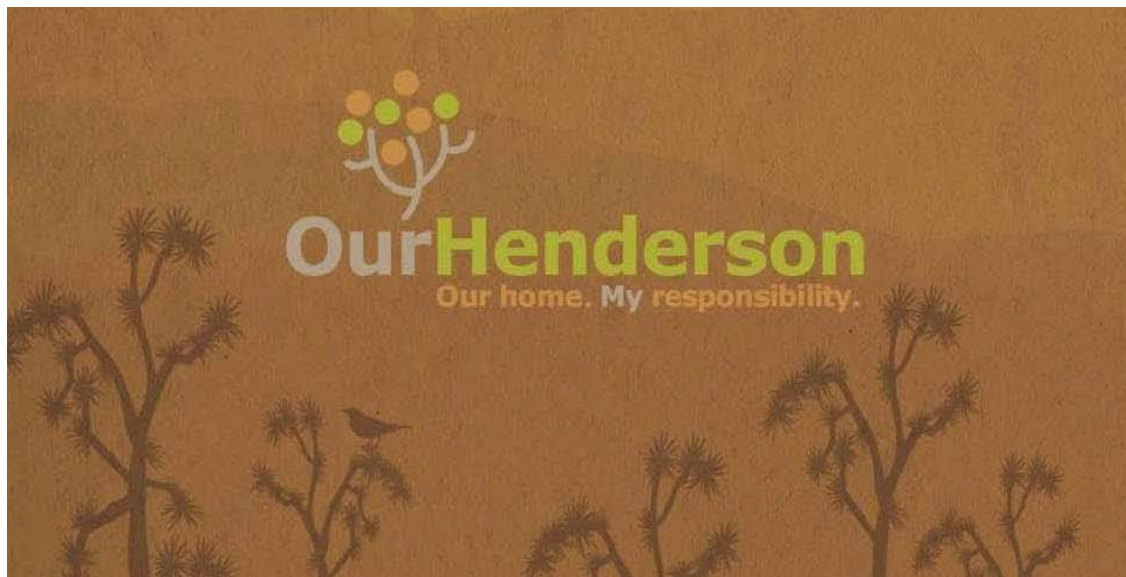
“We envision our City as a fully integrated, progressive, and engaged community of citizens and neighborhoods enjoying premier amenities, services and opportunities.”



● Our Priorities

- Economic Development
- Financial Planning
- Natural Resource Management
 - Protect and preserve our natural resources for future generations.
- Transportation
- Public Safety
- Quality Development

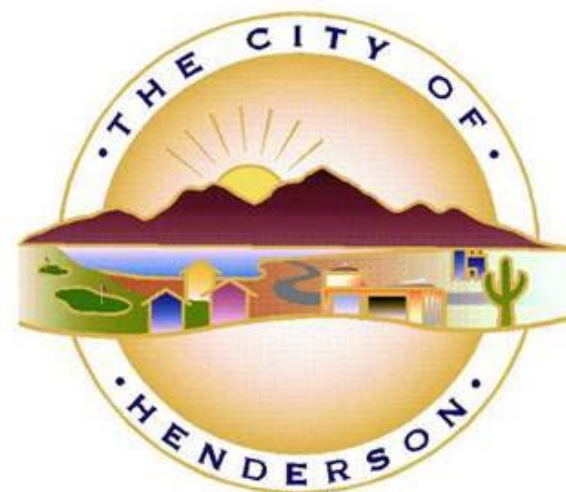
City of Henderson



- Guiding Principles of Sustainability
 - Stewardship of the Environment
 - Leadership by Example
 - Partnership with the Community
 - Diversification of Our Economy
 - Think Globally, Act Locally
- Mayor James B. Gibson recently signed the *U.S. Mayors Climate Protection Agreement*

City of Henderson

- City of Henderson
 - 104 square miles
 - Population (2008): 269,826
- Department of Utility Services
 - Employees: 268
 - City Department
 - Primary Services
 - Water = 70 MGD (average)
 - Wastewater treatment & water reclamation capacity = 32 MGD + 8 MGD (under construction)



DUS Natural Resource Management Performance Objectives – Water & Energy Challenges

- To increase efficiencies in department operations to mitigate long-term impacts on the department's carbon footprint
- To decrease usage of electricity from non-renewable energy sources
- To decrease the City's average gallon per capita per day (gpcd) consumption



Renewable Energy Development Project

Scope of Work & Current Status

- Task 1 – Electric Rate Assistance
- Task 2 – Solar Energy Feasibility Study
- Task 3 – Hydroelectric Energy Feasibility Study
- Task 4 – Greenhouse Gas Emissions Inventory
- Task 5 – Renewable Program Review

Task 1 – Electric Rate Assistance

- Review NV Energy proposed rate increase
- Review CRC power supply proposal as compared to NV Energy rates
- Forecast electric cost savings for proposed solar project
- Review electric interconnection and metering requirements for solar project



Task 1 – Electric Rate Assistance

- Current CRC analysis shows \$440,000 yearly savings due to load matched pricing & rate increase 5-year hedging
- Current solar analysis shows \$450,000 yearly savings due to renewable energy production



Task 2 – Solar Energy Feasibility Study



- Feasibility study for solar installations on DUS property
- Contracting mechanisms for optimized solar installation
- Project planning in light of changing economic conditions

Task 2 – Solar Energy Feasibility Study



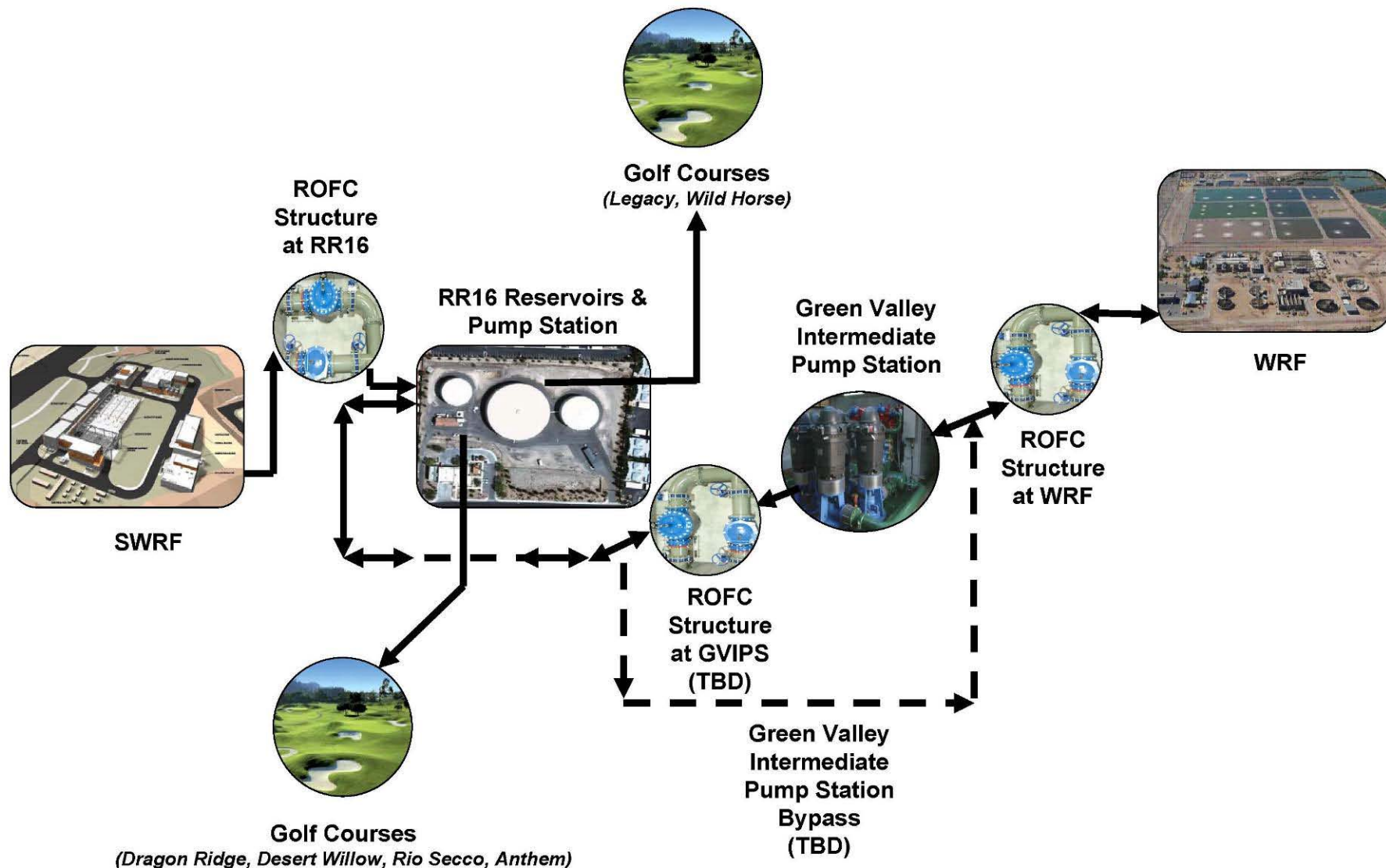
- 55 acre reclaimed WW lagoons with direct connection to 69kV substation
- Up to 6 MWp of solar capability
- Multiple contracting mechanisms included build/own, lease back and power purchase agreements

Task 3 – Hydroelectric Energy Feasibility Study

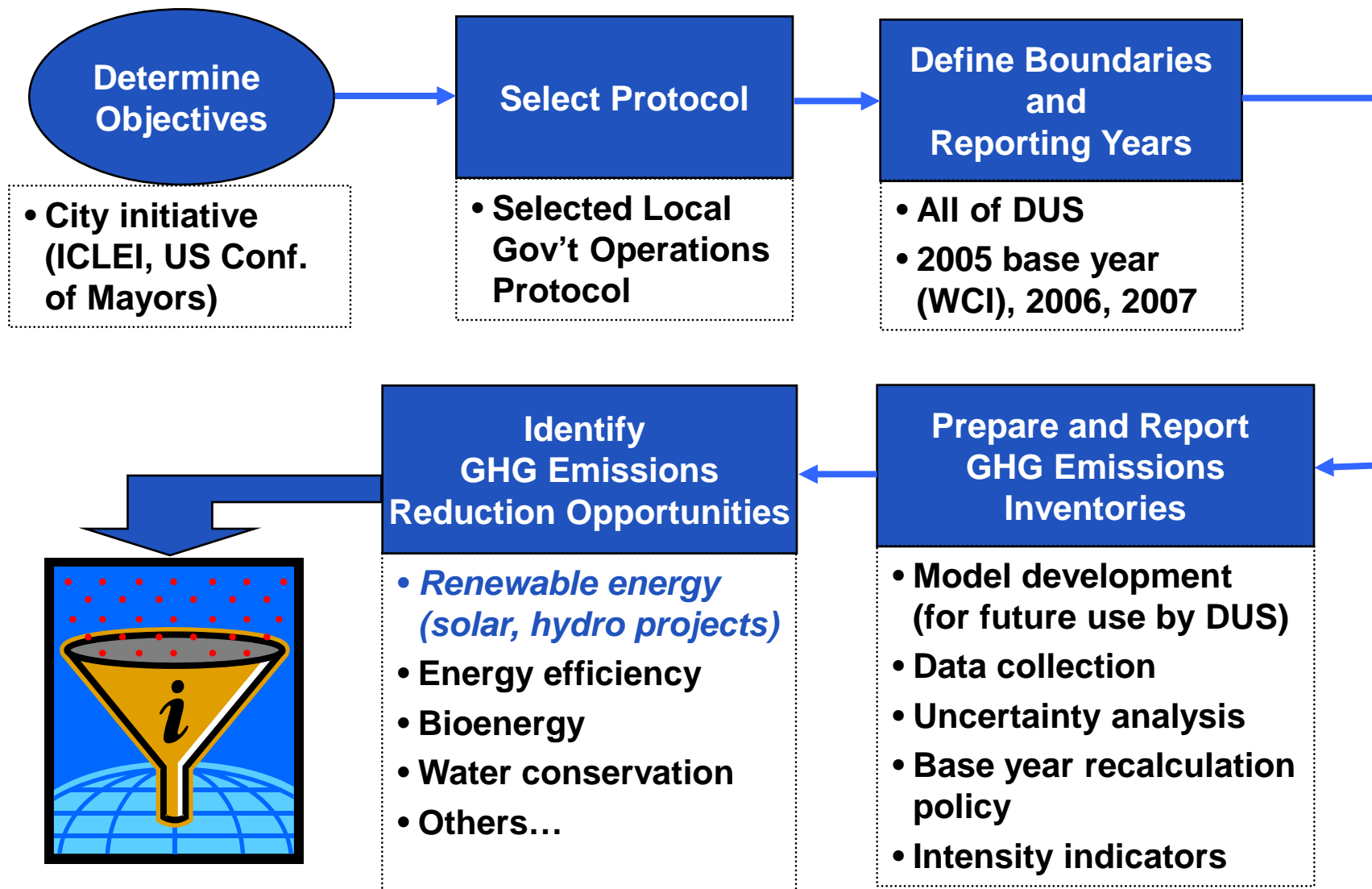
- Reconnaissance-level feasibility study at five sites
 - Three reclaimed water sites
 - Two potable water sites
- Technical analysis of current and future head & flow conditions
- Economic analysis utilizing renewable energy generation estimates



Task 3 – Hydroelectric Energy Feasibility Study



Task 4 – GHG Emissions Inventory



Task 5 – Renewable Program Review

- Provide an overview of current renewable energy and sustainability trends within US municipalities



Project Funding Mechanisms

- Stimulus funding – Energy Efficiency & Conservation Block Grants (EECBG)
- Bailout incentives – ITC and PTC
- Clean Renewable Energy Bonds (CREBs) & Qualified Energy Conservation Bonds (QECBs)
- Power Purchase Agreements
- Traditional funding



Renewable Energy Development Project

Next Steps

- Task 1 – Transition to CRC
- Task 2 – Project funding and 4 MW solar facility design
- Task 3 – Hydroelectric installation(s) determination
- Task 4 – GHG reduction project determination



Thank You

