

California Water Plan Update 2009

Scenarios South Lahontan HR

2009 Regional Workshops

California **Water Plan** Update **2009**

INTEGRATED WATER MANAGEMENT



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Public Review Draft

January 2009

Water Plan Scenarios Used To Consider Future Uncertainty

- Three plausible yet very different conditions during 2050 planning horizon
- Explore key uncertainties facing water community
- Factors water community has little control over
- Not predictions ---- used to evaluate water management responses

Quantifying Future Scenarios for Update 2009

- Using WEAP analytical tool to quantify water demand and supplies for future scenarios and water management responses
- WEAP Hydrologic Region analysis being done for all regions --- high level, coarse representation
- WEAP Planning Area analysis for Sacramento and San Joaquin regions --- more physically based
- Each scenario evaluated with 12 climate sequences (climate change, multiple year droughts, wet years)

Hydrologic Region Analysis

- Monthly, climate-driven demands to 2050
 - reflect global climate change projections
- Inventory current supplies by source
- Coarse representation of response packages

All 10 Hydrologic Regions



Planning Area Analysis

Sacramento and San Joaquin River Regions

- Hydrologically-based water system simulation by month to 2050
 - reflect global climate change projections
- Estimate environmental flows, system operations, deliveries, and reliability
- More direct representation of response packages

Sacramento River & San Joaquin River Hydrologic Regions



3 Baseline Scenarios for 2050

Plausible Yet Different Futures

➤ **Current Trends**

- ✓ Recent trends continue into the future for population, agricultural production, environmental water, and background water conservation

➤ **Blueprint Growth**

- ✓ More coordinated planning & infill
- ✓ Lower population growth
- ✓ More agricultural prod. -- 2000 level
- ✓ New environment water -- High
- ✓ More background water conservation

➤ **Expansive Growth**

- ✓ Less coordinated planning & sprawl
- ✓ Higher population growth
- ✓ More agricultural prod. -- 2000 level
- ✓ New environment water -- Low
- ✓ Less background water conservation

Scenario Assumptions for Key Factors

South Lahontan Hydrologic Region

Scenario Factors Affecting Water Demand	Year 2005 Observed	2050 Current Trends	2050 Blueprint Growth	2050 Expansive Growth
Population (millions)	1.1	2.4	1.4	3.4
Irrigated Crop Area (thousand acre)	65.8	59.1	61.9	56.1
Environmental Water Instream flows & refuges (maf)	2005 Level	0	0	0
Background Water Conservation (% Incr.)	----	10%	15%	5%

Scenario Water Demand Changes

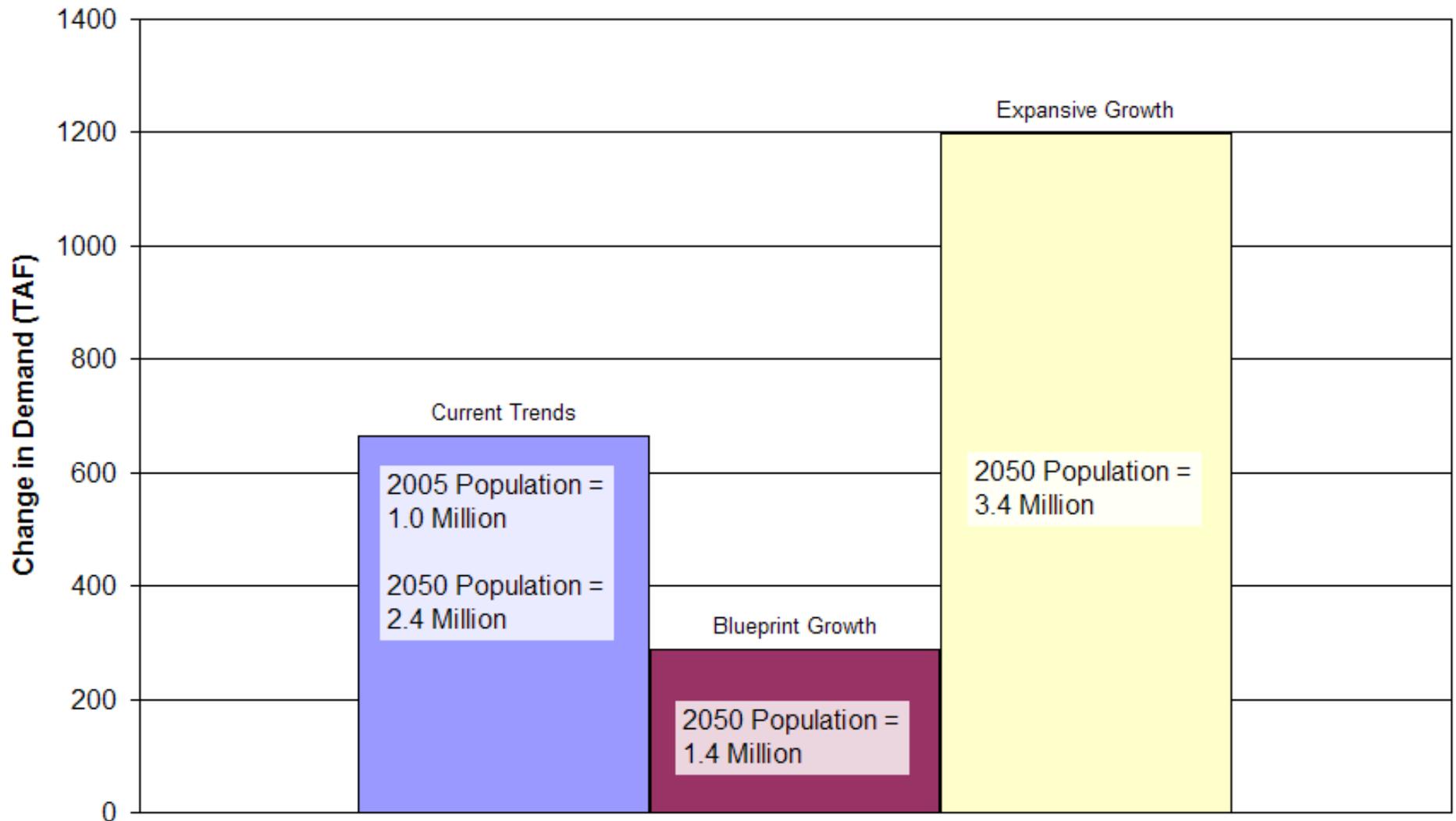
HR Results for 1 Climate Sequence

- Change in urban water demand
- Change in irrigated agriculture water demand
- Change in environmental water
- Net Change in regional water demand

Urban Water Demand Changes – 2005 to 2050

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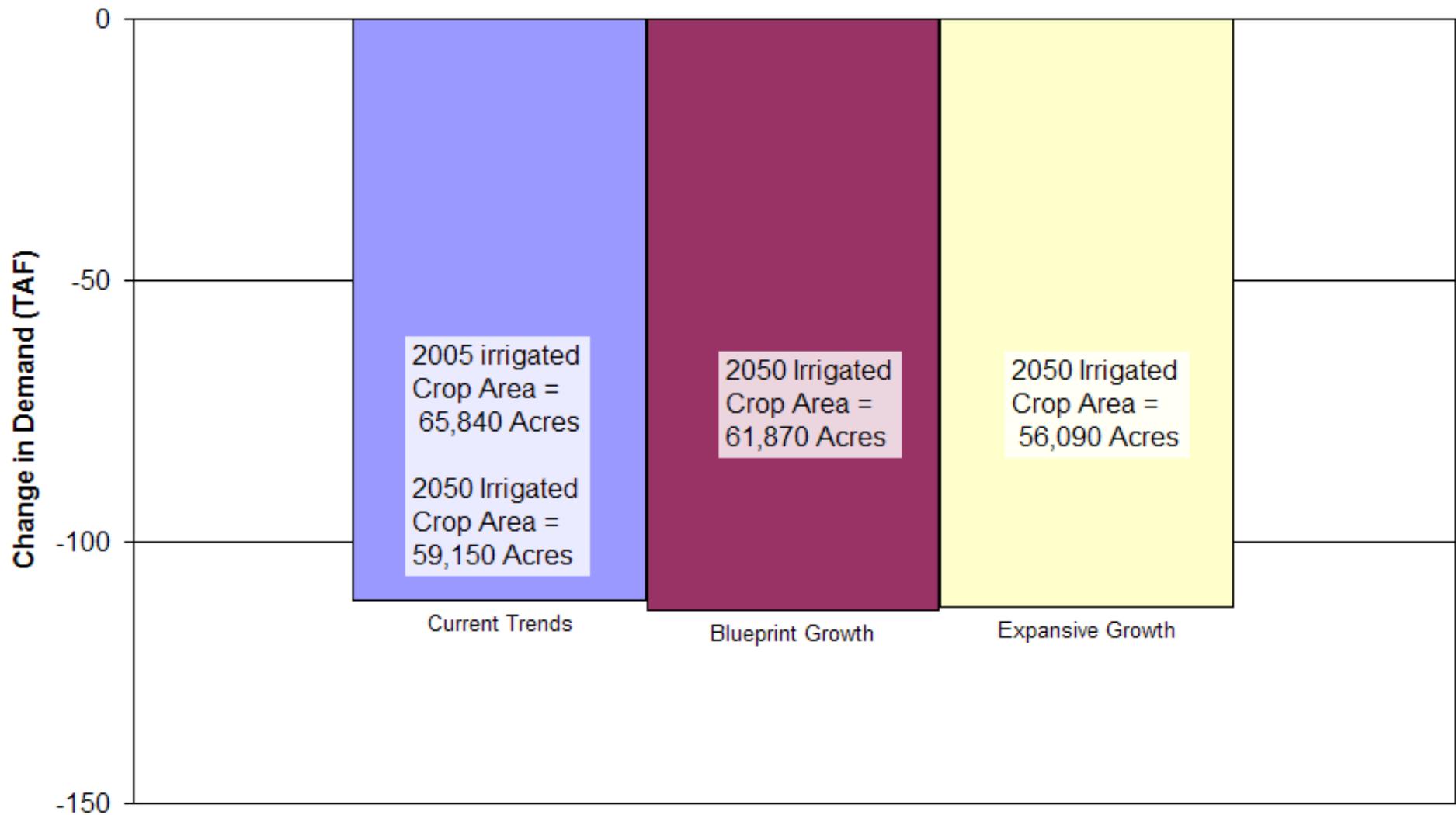
**Change in 2041-2050 Average Applied Urban Water Demand
from 1998-2002 Historical Average by Scenario
South Lahontan Region, Climate Sequence 1**



Farm Water Demand Changes – 2005 to 2050

South Lahontan HR

**Change in 2041-2050 Average On Farm Applied Water Demand
from 1998-2002 Historical Average by Scenario
South Lahontan Region, Climate Sequence 1**



Environment Water Demand Changes – 2005 to 2050

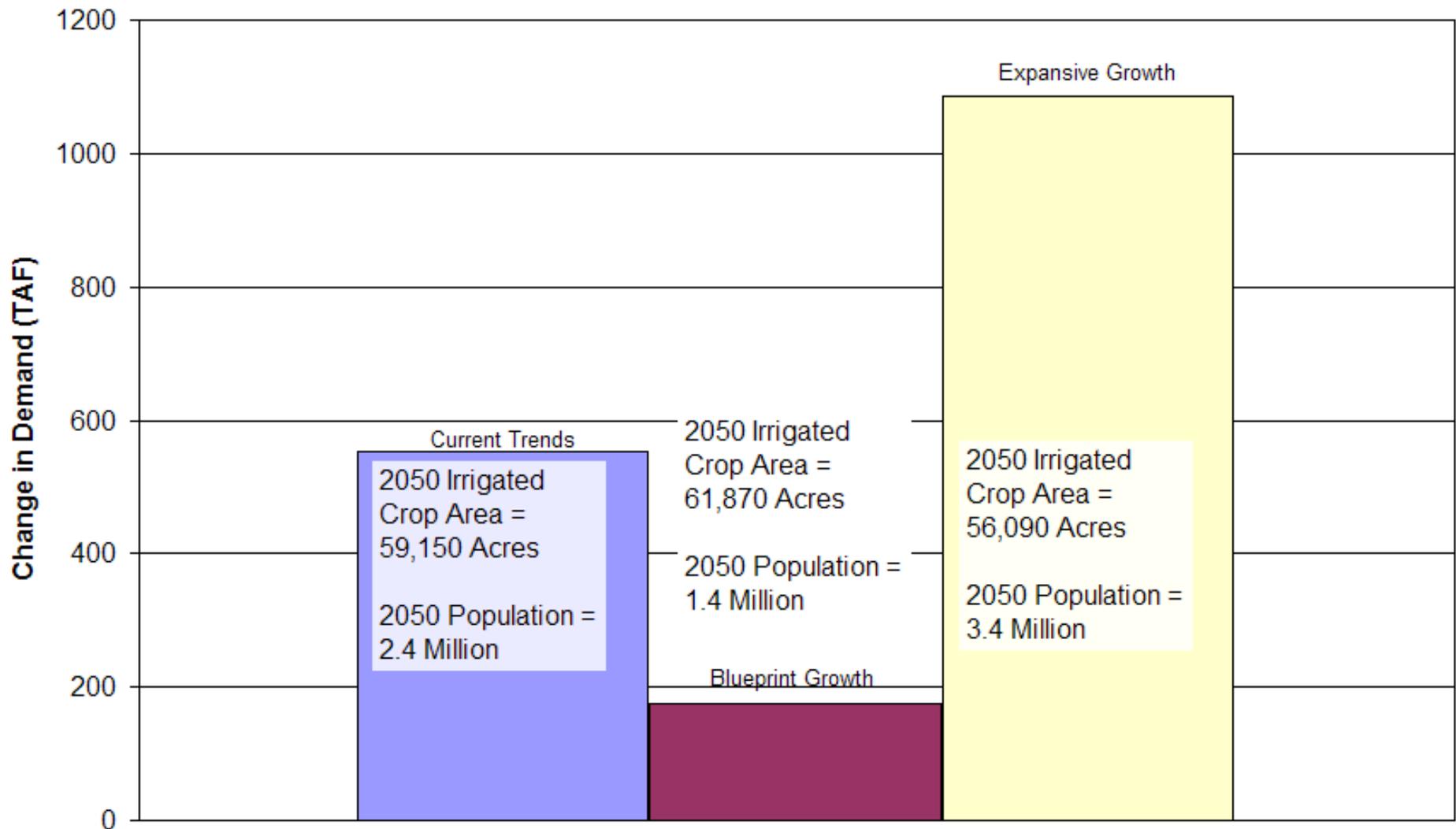
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No environmental water changes for all scenarios.

Net Water Demand Changes – 2005 to 2050

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**Change in 2041-2050 Average Applied Water Demand
from 1998-2002 Historical Average by Scenario
South Lahontan Region, Climate Sequence 1**



Technical Outreach for Scenario Work

- December 2007 – Scenario proposal
- April 2008 – Shared Vision Planning
- June 2008 – Refinement of scenario proposal
 - Climate change
 - Environmental water
 - Flood management
 - Water quality
- February 2009 – Review of preliminary demands

Steps for Scenario Work

- December 2008 – February 2009
 - Develop scenario water demands
- February – May 2009
 - Develop scenario water supplies
 - Test future water management responses
- Mid-June 2009
 - Workshop on Regional and Planning Area results