Decision-making about water in Phoenix

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Arizona State University

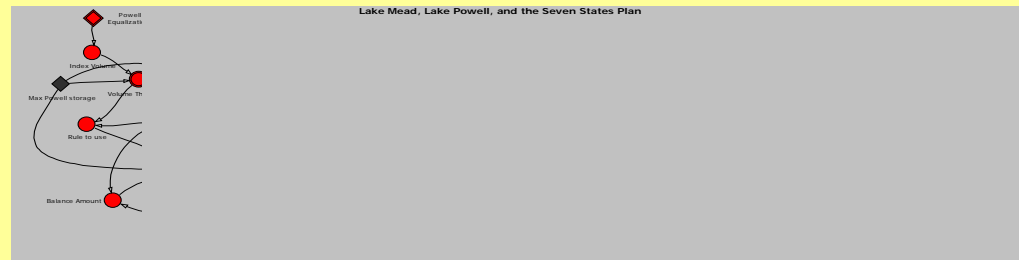# Decision Center for a Desert City

- **Urban water decision-making under uncertainty**

- **Regional stakeholders engaged from start to finish**

- **US NSF's largest social science grant ($14M)**

- **Decision Theater helps explore alternative futures**

- **Could also apply to air pollution, energy, traffic, food**

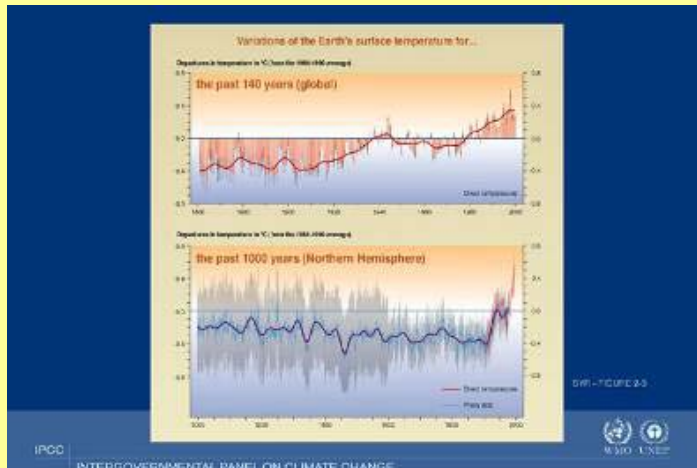Lake Mead, Lake Powell, and the Seven States Plan

Phoenix has three water sources:
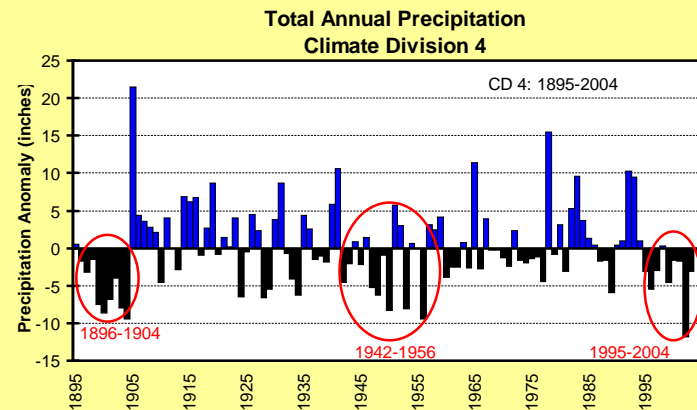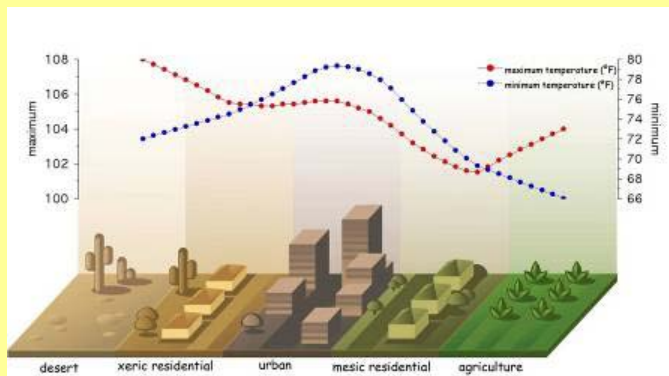# Aquifers, Colorado River, Salt-Verde Rivers

Sources of Phoenix's water uncertainty

Global climate change
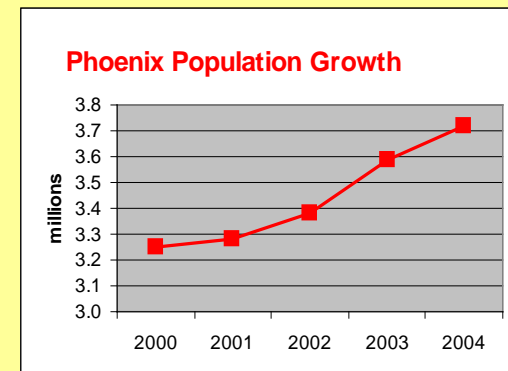

Annual rainfall variability

Urban heat island

Population growth
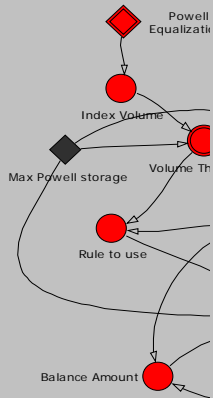
"WaterSim" framework connects models for hydrology, law, economics, climate, land use
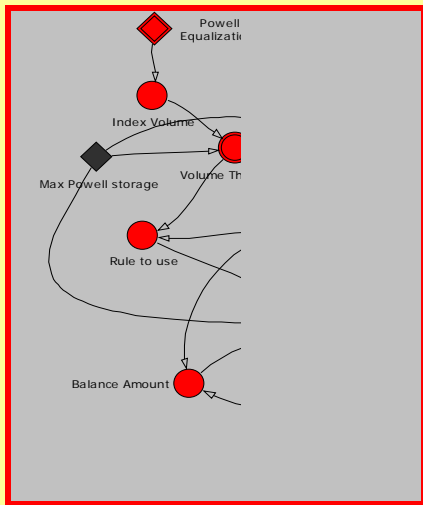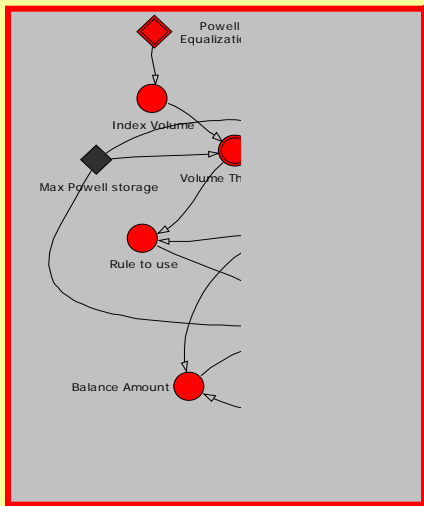

Lake Mead, Lake Powell, and the Seven States Plan

Lake Mead, Lake Powell and the Seven States Plan

"WaterSim" framework connects models for hydrology, law, economics, climate, land use

Lake Mead, Lake Powell, and the Seven States Plan

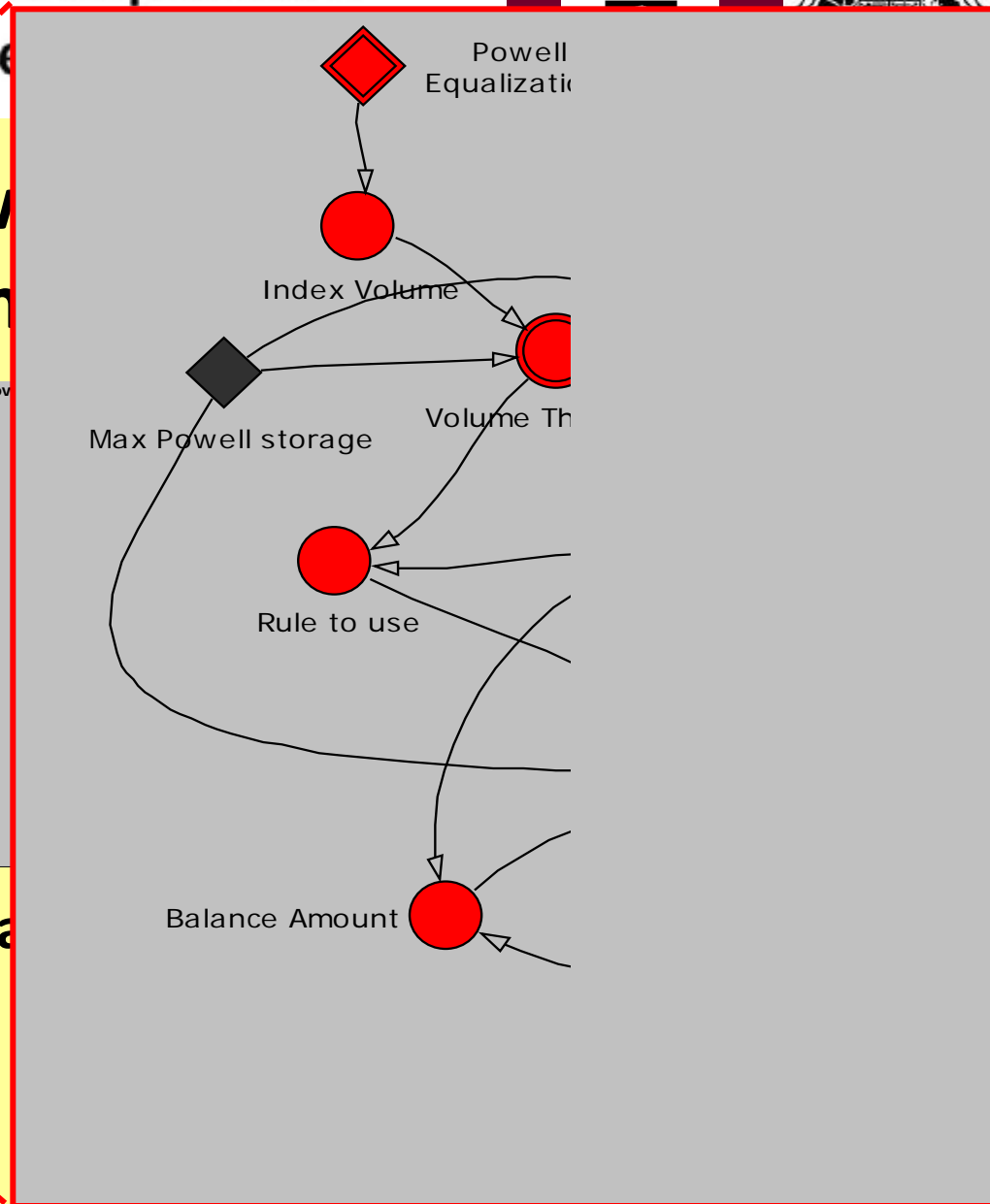**Lake Mead, Lake Powell and the Seven States Plan**

"WaterSim" framew...
hydrology, law, econ...

Lake Mead, Lake Pow...

Lake Mead, Lake Powell a...

Using "WaterSim" tool in Decision Theater

WaterSim has **many user-adjustable variables**
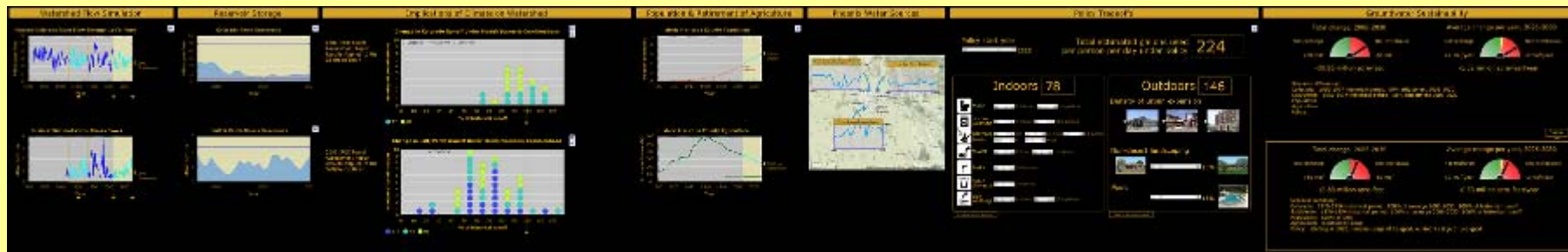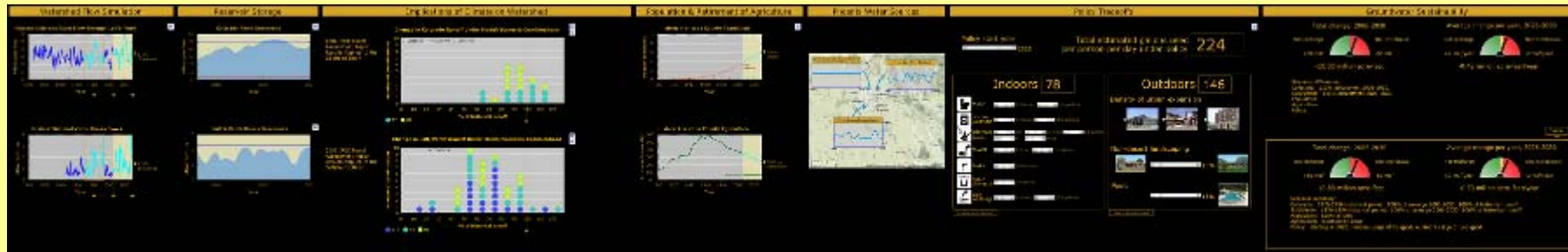
Watershed Simulation **Climate Change** **Land Use & Population** **Policy Tradeoffs** **Groundwater Sustainability**

More technical ←――――――――――→ **Less Technical**

Slider bars on graphs allow alternate futures to be assessed in real time
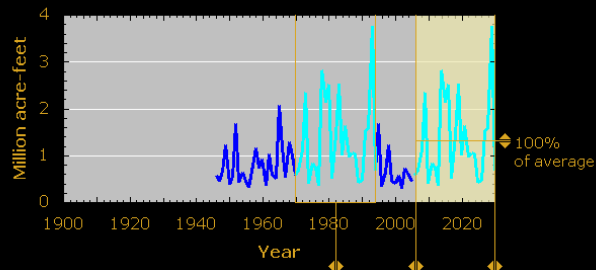
WaterSim also available online at http://watersim.asu.edu

Watershed Simulation
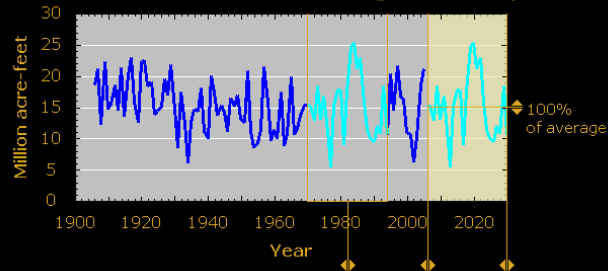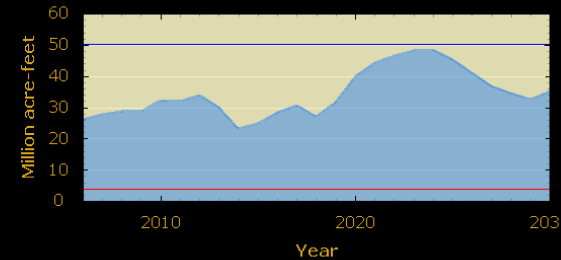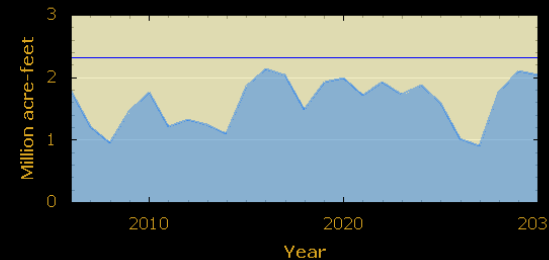
Climate Change
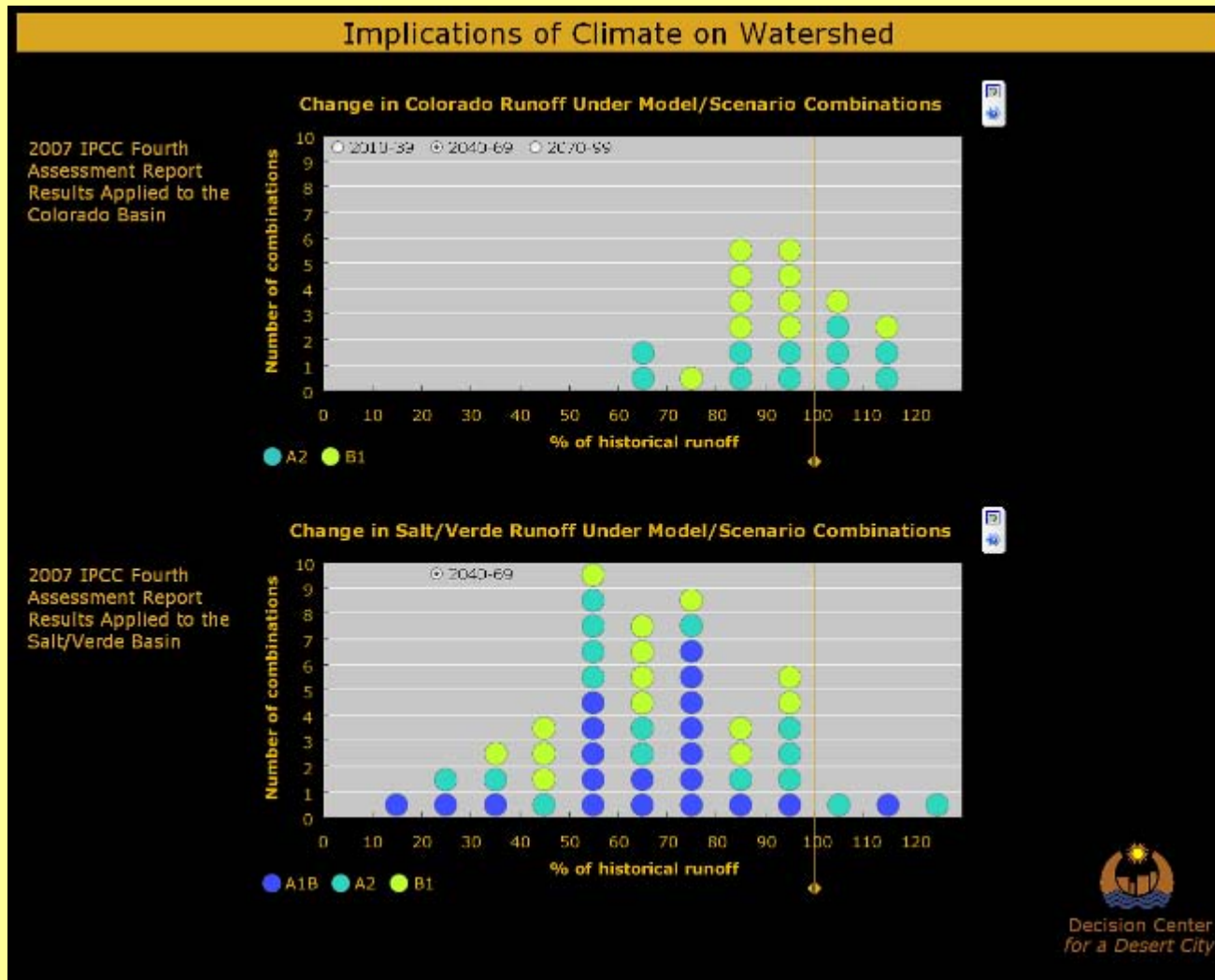
Land Use and Population

Policy Tradeoffs
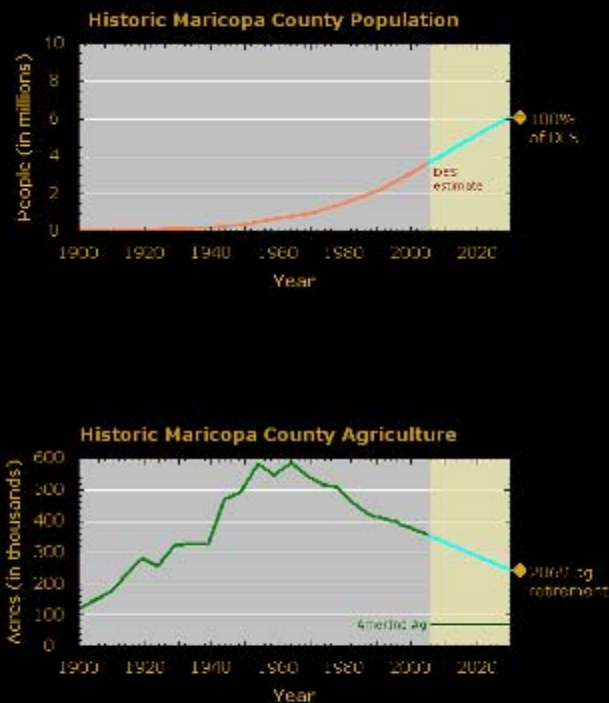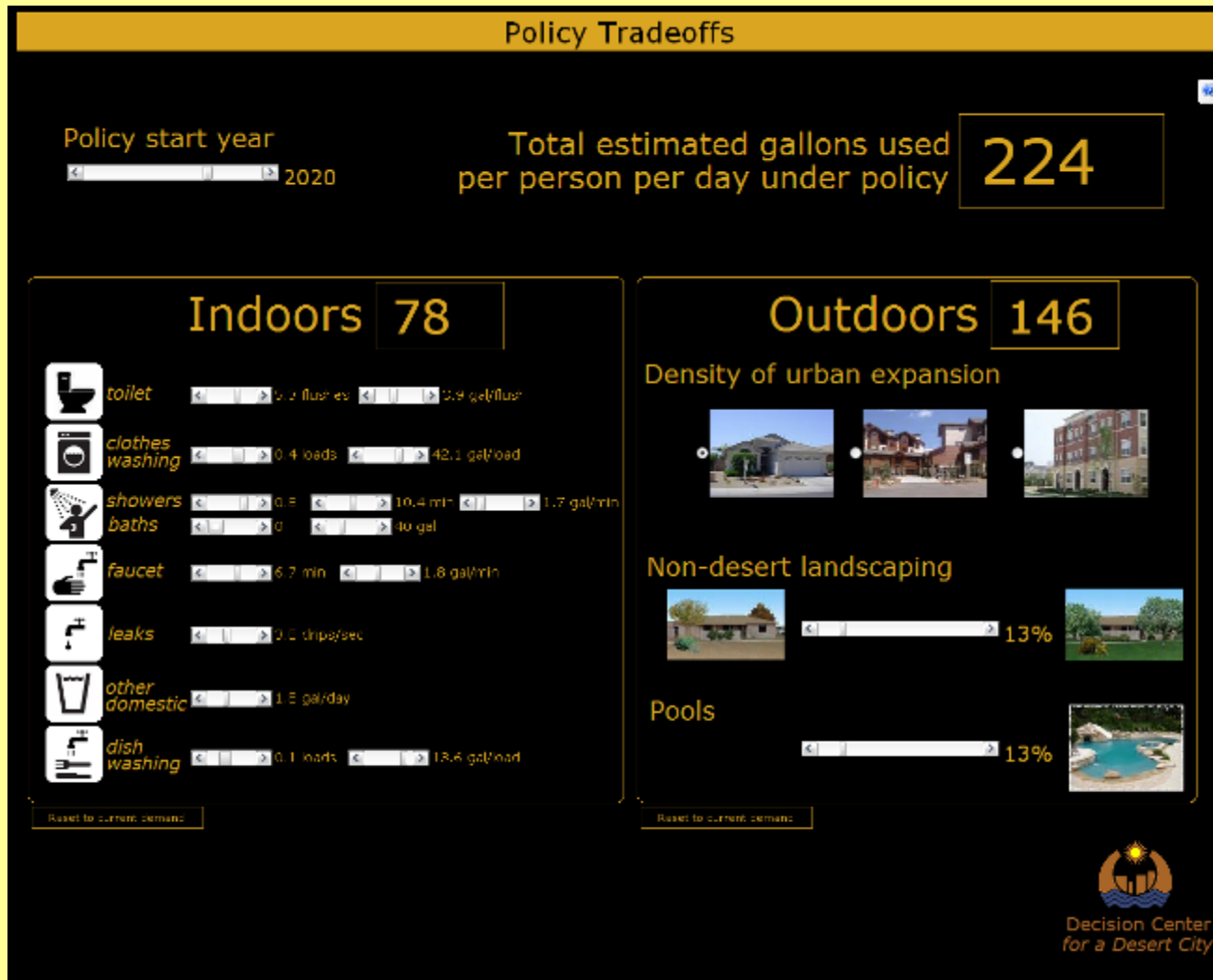
Groundwater Sustainability

Lessons learned
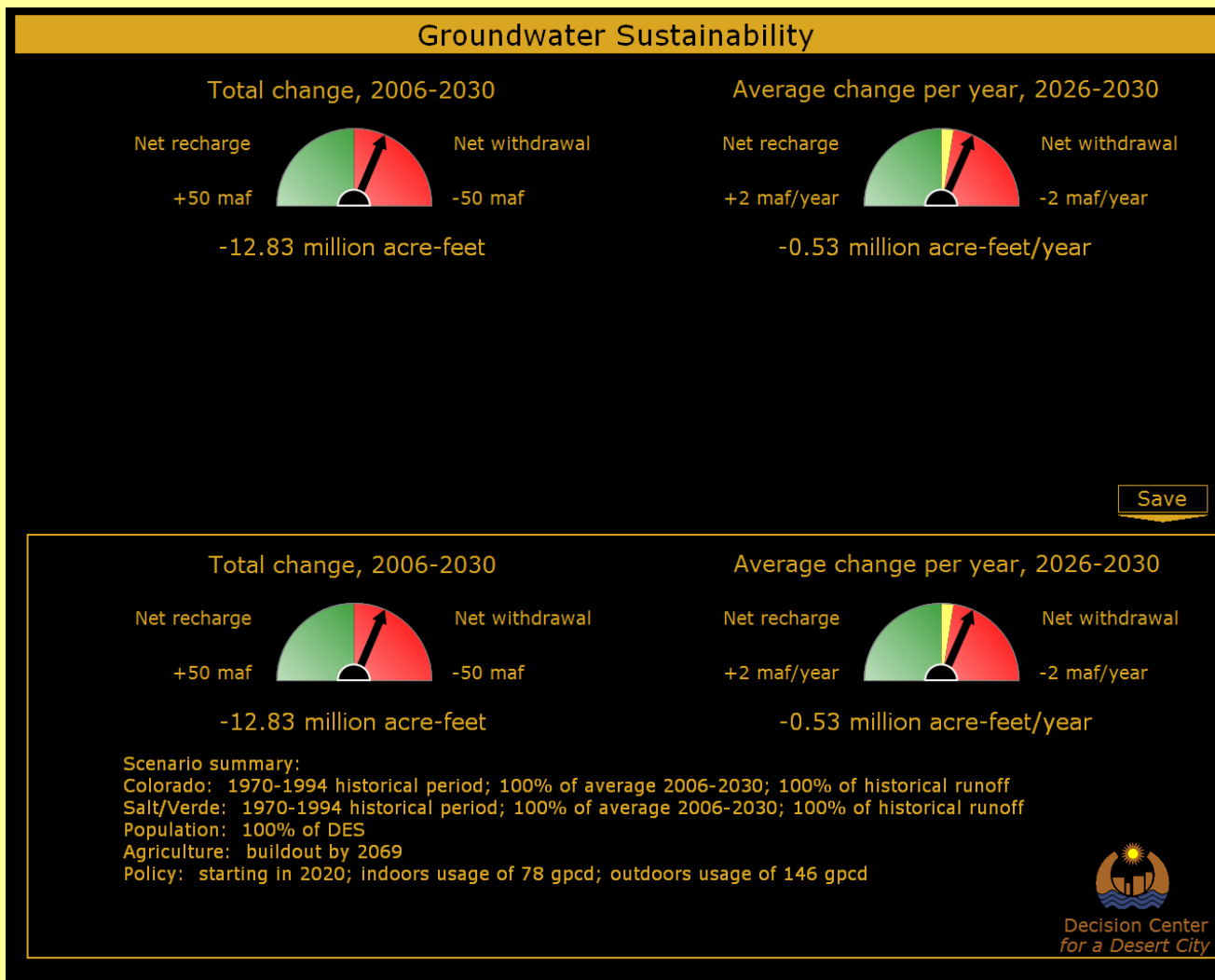
- **Stakeholder engagement an ongoing process**
- **DCDC helps managers communicate with their bosses**
- **Using WaterSim identifies critical gaps in observations**
- **Important to emphasize we don't predict the future**
- **Neutral convening role as important as modeling role**