Water Utility Authority

Technical Customer Advisory Committee

AGENDA

Members

David Brookshire
Cassandra D'Antonio
Amy Ewing
Laurie Firor
Moises Gonzales
Michael Hightower
Elaine Hebard
Laura McCarthy
Ege Richardson

Thursday, July 9, 2015	**4:00 PM**	**City Hall – 3rd Floor Conference Room 304**

1.	Call to Order – Note presence of quorum	4:00-4:05
2.	Approval of Agenda	4:00-4:05
3.	Approval of June 11, 2015 Action Summary	4:00-4:05
4.	Water Resources Management Strategy Scenario Planning	4:05-5:45
5.	Public Comment	5:45-5:55
6.	Final Comments or Questions	5:55-6:00
7.	Adjournment	6:00

NOTICE TO PERSONS WITH DISABILITIES: If you have a disability and require special assistance to participate in this meeting, please contact the Water Utility Authority Office, Suite 5012, Albuquerque/Bernalillo County Government Center, phone 768-2500 or by the TTY 1-800-659-8331, as soon as possible prior to the meeting date.

Technical
Customer Advisory Committee

ACTION SUMMARY

June 11, 2015

Members Present:	Members Excused:
David Brookshire	Cassandra D'Antonio
Amy Ewing	Wayne Frye
Laurie Firor	Will Gleason
David Ritchey	Moises Gonzales

Water Authority Staff / Others Present:
Frank Roth, Senior Policy Manager
John Stomp, Chief Operations Officer
Katherine Yuhas, Water Conservation Officer
David Jordan, INTERA Inc.
Greg Gates, CH2M
F. Lee Brown, UNM Professor Emeritus of Economics and Public Administration

Item 1 – Call to Order - Note presence of quorum
The meeting was called to order at 4:10 pm by Chair Amy Ewing.

Item 2 – Approval of Agenda
David Brookshire made a motion to approve the agenda. Laurie Firor seconded the motion. The motion passed on a 4-0 vote.

For:	4	Brookshire, Ewing, Firor, Ritchey
Against:	0	
Excused:	4	D'Antonio, Frye, Gleason, Gonzales

Item 3 – Approval of May 7, 2015 Action Summary
David Brookshire made a motion to approve the action summary. Laurie Firor seconded the motion. The motion passed on a 4-0 vote.

For:	4	Brookshire, Ewing, Firor, Ritchey
Against:	0	
Excused:	4	D'Antonio, Frye, Gleason, Gonzales

Item 4 – Water Resources Management Strategy Scenario Planning
David Jordan and John Stomp reviewed the work plan through the end of 2015. Lee Brown discussed the key concept of the working reserve providing a fuel gauge analogy as a way to manage drawdown. David Jordan provided an overview of low, medium, and high demand projections. John Stomp provided overview of potential new supply alternatives including: conservation, surface and ground water, reuse, ASR, and other new supplies.

Item 5 – Public Comment
None.

Item 6 – Final Comments or Questions
None.

Item 7 – Adjournment
The meeting concluded at 5:42 pm.

WRMS 2017 – Scenario Planning

ABCWUA TCAC July 09, 2015

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Future Agenda Items

- **Facilitated decision analysis criteria selection exercise**
- **Discuss existing policies in the Strategy and the need to simplify and reduce the number of overall policies**

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Future Agenda Items

- Method for quantification of the Working Reserve
- Management of the Working Reserve
- Preliminary ranking of alternatives

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Future Agenda Items – Public Process

- Additional public meetings
- Community conversations
- Town halls

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Today's Discussion

- Overview of the Decision Analysis process
- Overview of the economic module

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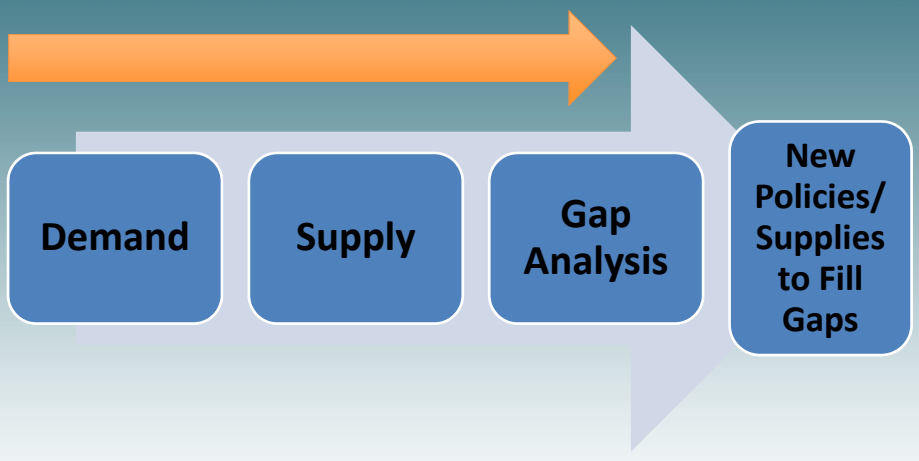
Decision Analysis Process



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3x3 Scenario Matrix

Supply →

Demand ↑

Demand \ Supply	Low	Medium	High
High	High Low	High Medium	High High
Med	Med Low	Medium Medium	Medium High
Low	Low Low	Low Medium	Low High

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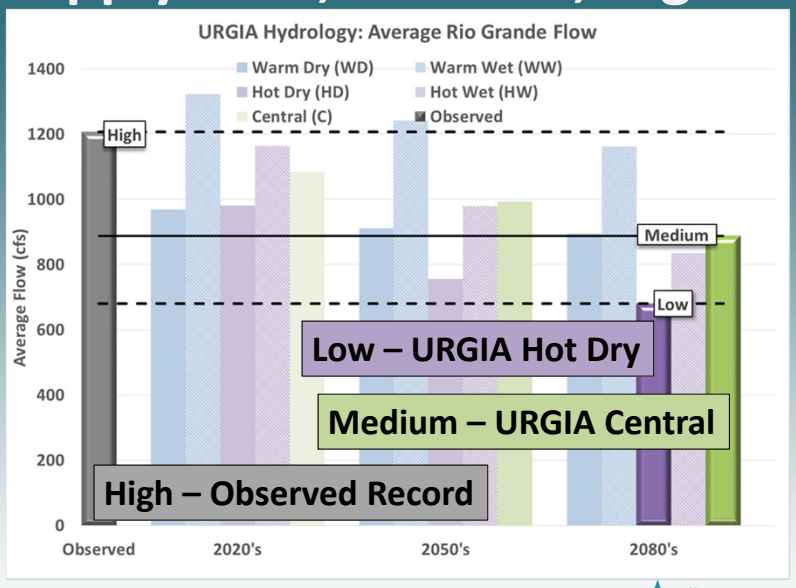
Supply -Low, Medium, High



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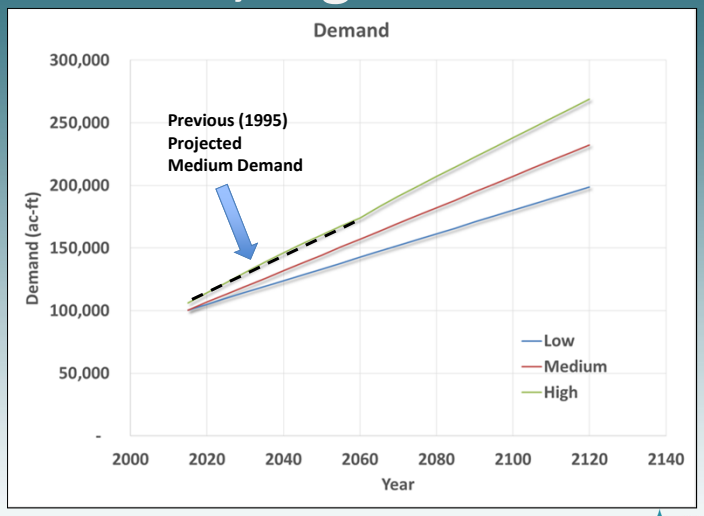
Demand Projections – Low, Medium, High



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Decision Analysis Process - Alternative Ranking

- **Step 1:**
  - **Identify supply gaps**
- **Step 2:**
  - **Develop list of supply alternatives**
- **Step 3:**
  - **Develop criteria for ranking supply alternatives**
  - **Rank supply alternatives using a benefit score for each criteria**
- **Step 4:**
  - **Develop portfolios**
  - **Apply metrics to measure the cost and performance of the portfolios**

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Decision Analysis Process

- **Step 1:**
  - **Identify supply gaps**
- Step 2:
  - Develop list of supply alternatives
- Step 3:
  - **Determined by the model scenarios** tives
  - Rank supply alternatives using a benefit score for each criteria
- Step 4:
  - Develop portfolios
  - Apply metrics to measure the cost and performance of the portfolios

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Decision Analysis Process

- Step 1:
  - Identify supply gaps
- **Step 2:**
  - **Develop list of supply alternatives**
- Step 3:
  - Develop criteria for ranking supply alternatives
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Potential New Supply Alternatives

- Conservation
- Surface Water
  - Lease or short-term purchase of additional San Juan-Chama water
  - Excess San Juan-Chama water (in excess of Heron storage)
  - Directly divert current pre-1907 water rights
  - Develop stormwater runoff as a resource
  - New regional surface water diversion

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Potential New Supply Alternatives

- Non-potable and reuse
  - Transfer current native rights for use in the non-potable system
  - Expand non-potable reuse
- ASR
  - Additional large-scale ASR projects
  - New infiltration projects
  - Stormwater capture from existing facilities with spreading basins for infiltration

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Potential New Supply Alternatives

New Supplies

- Importation
  - Inter-basin transfer
  - Produced water
- Water banking
- Relinquishment credit water (may be issued by the state)
- Storage fee water
- Water owed to the Authority by other agencies
- Indirect/direct potable reuse and storage

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Potential New Supply Alternatives

New Supplies (continued)

- Native water storage in Abiquiu with direct diversion
- New storage to capture high flows and store excess water (if available)
- Brackish groundwater
- Additional purchase of pre-1907 rights
- Watershed management

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Maximizing Existing Supply

- Groundwater
  - Additional arsenic treatment facilities on groundwater wells
  - New groundwater wells

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Decision Analysis Process

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Evaluation Criteria – Decision Analysis

Long Term Sustainability and Resiliency

Implementability

Timing

Quality of Life

Environmental Protection

Primarily Quantitative

Primarily Qualitative

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Evaluation Criteria

Evaluation Categories	Criteria	Criteria Description
Long Term Sustainability and Resiliency	Yield	Estimated quantity of water generated
	Resiliency	Anticipated reliability to meet the proposed objective during drought and/or climate variability
Implementability	Technical Feasibility	Technical feasibility of alternative based on existing assets, existing operations, and/or currently applied technology
	Permitting	Level of anticipated permitting requirements, type of permit (NEPA, NM OSE, etc.), and precedence of success for similar projects
Timing	Time to Implement	Estimated timeframe within which implementation is possible
	Frequency of Availability	Estimated frequency of alternative availability
Quality of Life	Aesthetic Ranking	Potential impacts to sites or areas of historic, cultural, or aesthetic value or to farm land
	Socioeconomic Impact	Potential impacts to socioeconomic conditions, jobs, and growth
Environmental Protection	Ecosystem Protection	Impacts or improvements to endangered species and/or aquatic, wetland, riparian, or terrestrial habitats
	Carbon Footprint	Energy requirements for full operation and potential impacts to air quality

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Evaluation Criteria and Examples (see handout)

Category	Criteria	Ranking Guide				
Evaluation Categories		1	2	3	4	5
		Examples				
Long Term Sustainability and Resiliency	Yield	Yield is expected to be 10,000 ac-ft/yr or more	Yield is expected to be 5,000 - 10,000 ac-ft/yr	Yield is expected to be 3,000 - 5,000 ac-ft/yr	Yield is expected to be1,000 - 3,000 ac-ft/yr	Yield is expected to be 1,000 ac-ft/yr or less
		Importation - inter-basin transfer	Large-scale ASR	Indirect/direct potable reuse and storage	Payback of borrowed water	Storage fee
	Resiliency	Not affected by drought or climate variability during the timeframe of the planning period	Infrequent impact from drought or climate variability during the timeframe of the planning period	Minimal impact from drought or climate variability during the timeframe of the planning period	Some impact from drought or climate variability during the timeframe of the planning period	Significantly impacted by drought or climate variability during the timeframe of the planning period
		Brackish groundwater	Inter-basin transfer	Water banking (dry-year leases)	Lease or short-term purchase of additional San Juan Chama water	Excess San Juan Chama water (in excess of Heron storage)
Implementability	Technical Feasibility	Existing assets can be used; O&M costs are known and expected to be low; Technology is well-established and currently being used by the Water Authority	Existing assets can be used; O&M costs are expected to be moderate; Technology is well-established and currently being used by the Water Authority	New assets are required; O&M costs are expected to be moderate; Technology is well-established but not currently being used by the Water Authority	Requires new assets; O&M costs are expected to be moderate to high; Technology is new or emerging and not currently being used by the Water Authority	Requires new assets; O&M costs are expected to be high or are unknown; Technology is new and not yet proven beyond the pilot scale; Technology is not currently being used by the Water Authority
		Lease or short-term purchase of additional San Juan Chama water	Stormwater capture from existing facilities with spreading basins for infiltration	Indirect/direct potable reuse and storage	Brackish groundwater	Produced water
	Permitting	Can be implemented under the Water Authority's current permits	Requires modification or amendment to current Water Authority permits	Requires that new or revised permits be issued, which would include a public comment process	Requires changes to current permitting practices, and would likely entail public comment and/or litigation	Requires new legislation or significant changes to current permitting practices to be implemented, and would likely entail extensive public comment
		Conservation	Expand non-potable reuse	Transfer current native rights for use in the non-potable system	Native water storage in Abiquiu with direct diversion	Develop stormwater runoff as a resource

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Evaluation Criteria and Examples (see handout)

Timing	Time to Implement	Expected to be able to be permitted and implemented within one year	Expected to be able to be permitted and implemented within two - four years	Expected to be able to be permitted and implemented within 5 years	Expected to be able to be permitted and implemented within 10 years	May require decades to permit and implement
		Expand non-potable reuse	Additional large-scale ASR projects	Directly divert current pre-1907 water rights	Develop stormwater runoff as a resource	Importation - inter-basin transfer
	Frequency of Availability	Expected to be consistently available	Expected to be nearly always available, but subject to some service interruptions	Available sporadically (several times a year) and/or subject to frequent service interruptions	Available only very rarely: several times a decade	Available only extremely rarely: once a decade or less
		Brackish groundwater	Indirect/direct potable reuse and storage	Stormwater capture from existing facilities with spreading basins for infiltration	Relinquishment credit water (may be issued by the state)	Excess San Juan-Chama water (in excess of Heron storage)
Quality of Life	Aesthetic Ranking	Expected to support and/or improve cultural, historical, and/or aesthetic values in the Middle Valley	May support and/or improve cultural, historical, and/or aesthetic values in the Middle Valley	Expected to cause no change to cultural, historical, and/or aesthetic values in the Middle Valley	May slightly degrade cultural, historical, and/or aesthetic values in the Middle Valley	May degrade cultural, historical, and/or aesthetic values in the Middle Valley
		Make additional irrigation water available for additional green space (**Expand non-potable reuse**)	Water banking	The no-action alternative (no new alternatives implemented)	New storage to capture high flows	Additional purchase of pre-1907 rights
	Socioeconomic Impact	Expected to significantly boost the local economy as measured by an increase in employment, and an increase in residential and/or industrial development	Expected to boost the local economy as measured by an increase in employment, and an increase in residential and/or industrial development	Expected to have no impacts to the local economy as measured by no net change in employment nor change in residential and/or commercial/industrial development	May slightly degrade the local economy as measured by an increase in unemployment, a net flow of population out of the service area, and/or a reduction in residential and/or commercial/industrial development	May degrade the local economy as measured by an increase in unemployment, a net flow of population out of the service area, and/or a reduction in residential and/or commercial/industrial development
		Water Authority produces designer reuse water for a specific industries which relocate to Albuququerque, creating significant new job growth (variant of **Indirect/direct potable reuse and storage**)	New water supply from outside the basin allows for additional economic growth (**Inter-basin transfer**)	The no-action alternative (no new alternatives implemented)	Additional purchase of pre-1907 water rights	Conservation is applied to such a degree that water use becomes very restricted (extreme variant on **Conservation**)

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Evaluation Criteria and Examples (see handout)

Environmental Protection	**Ecosystem Protection**	Expected to increase habitat and bosque area, and improve the local ecosystem in the Middle Valley	May slightly increase habitat and bosque area, and improve the local ecosystem in the Middle Valley	Expected to have no impacts to the habitat and bosque area, nor the local ecosystem in the Middle Valley	May slightly decrease the habitat and bosque area, or degrade the local ecosystem in the Middle Valley	May decrease the habitat and bosque area, or degrade the local ecosystem in the Middle Valley
		Watershed management	Infiltration basin	The no-action alternative (no new alternatives implemented)	Additional purchase of pre-1907 water rights	New regional surface water diversion
	Carbon Footprint	Expected to have very low energy requirements and result in a very low carbon footprint	Expected to have low energy requirements and result in a low carbon footprint	Expected to have moderate energy requirements and result in a moderate carbon footprint	Expected to have high energy requirements and result in a high carbon footprint	Expected to have very high energy requirements and result in a very high carbon footprint
		Conservation	Stormwater capture from existing facilities with spreading basins for infiltration	New regional surface water diversion	Indirect/direct potable reuse and storage	Brackish groundwater

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Decision Analysis Process

- Step 1:
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Apply Metrics to Portfolios

- **Cost Metric:**
  - **Develop a cost per unit of water delivered under each portfolio**
- **Performance Metrics (examples):**
  - **Minimize carbon footprint**
  - **Maximize Resilience**

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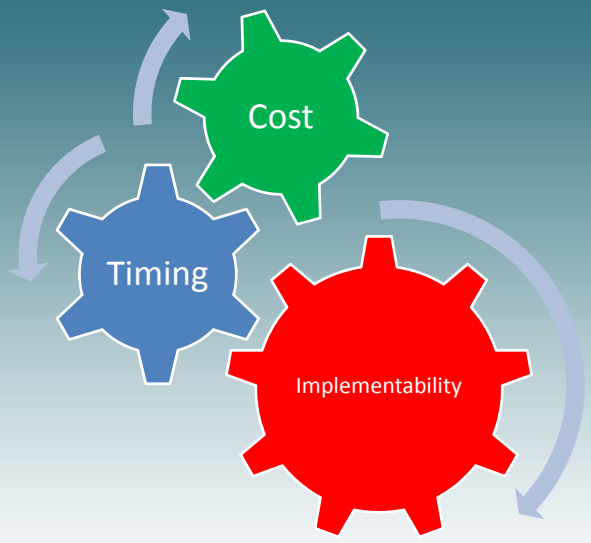
The Economic Module



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Purpose of the Economic Module

- Need structured approach for cost evaluation to effectively rank supply alternatives compared to current practice (no action)
- Spreadsheet comparison of the relative cost of alternative supplies under Scenarios, using discounted present value as measure

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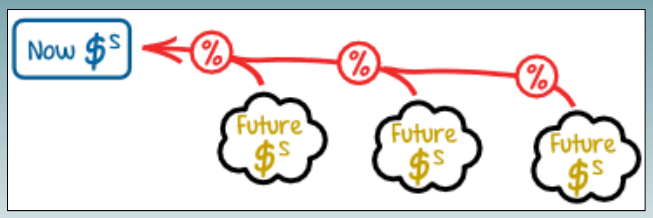
Purpose of the Economic Module

- Discounted present value = current equivalent of future capital and operations costs



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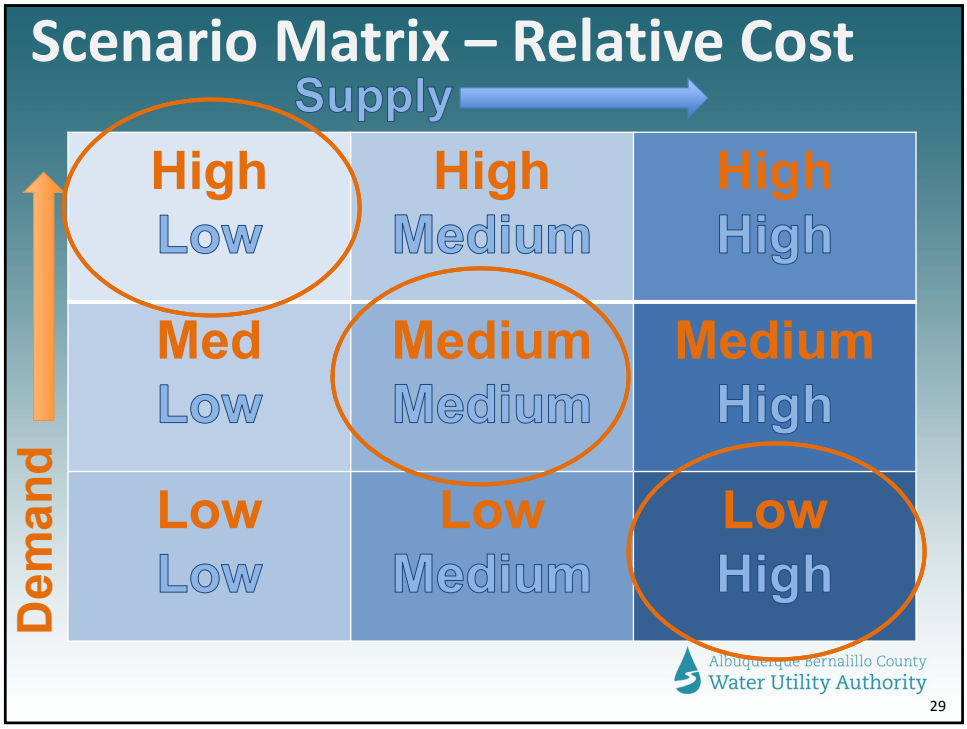
Scenario Matrix – Relative Cost
Supply
Demand
High Low
High Medium
High High
Med Low
Medium Medium
Medium High
Low Low
Low Medium
Low High
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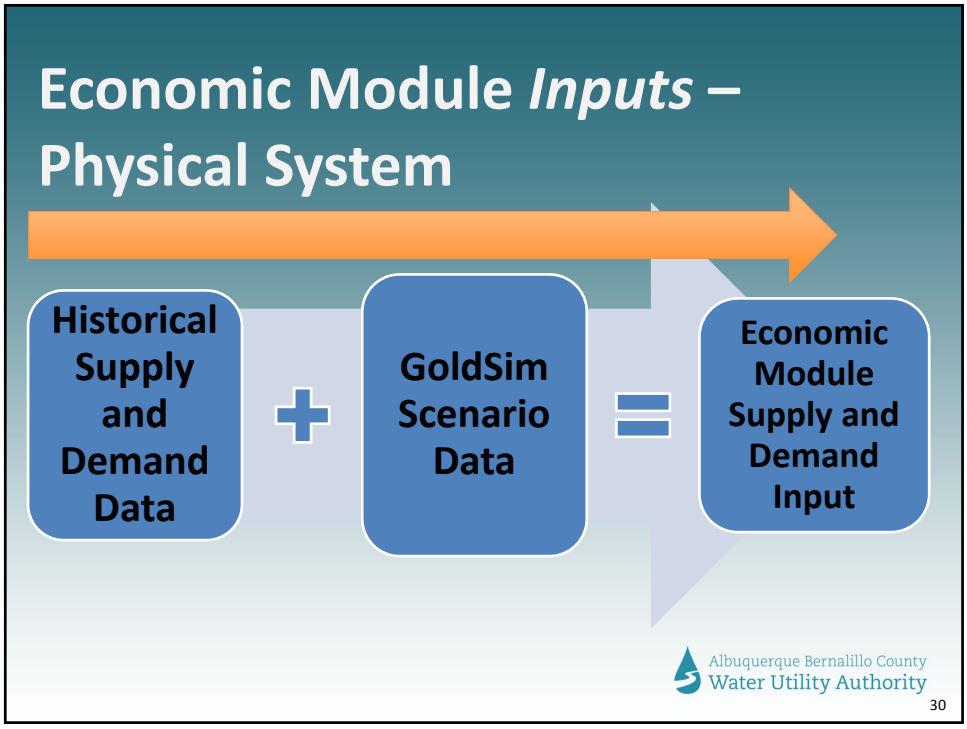
Economic Module *Inputs* – Physical System
Historical Supply and Demand Data
+
GoldSim Scenario Data
=
Economic Module Supply and Demand Input
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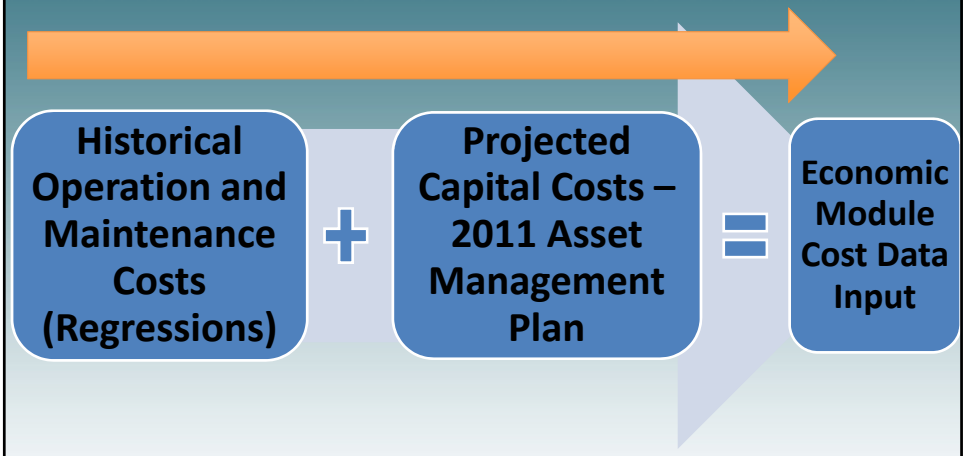
Economic Module *Inputs* – Costs



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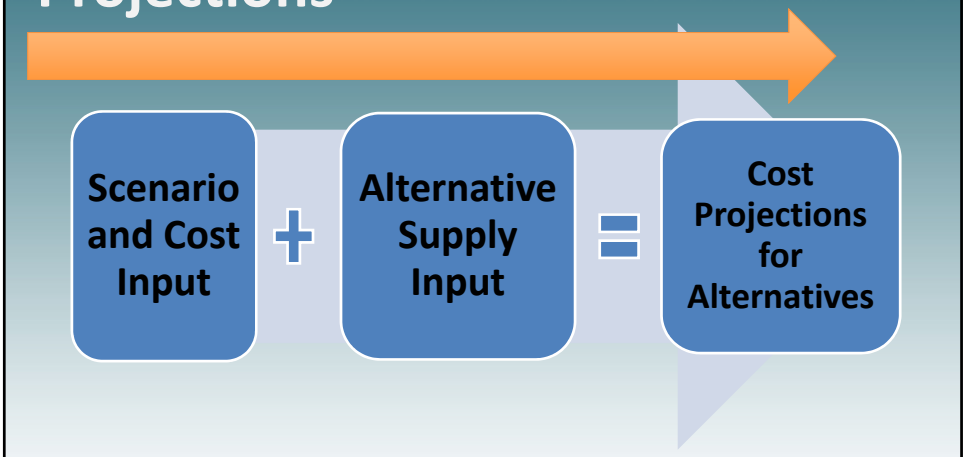
Economic Module *Output* – Cost Projections



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Economic Module *Output*- Relative Cost Comparison

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Economic Module → Decision Analysis Process

Element in Decision Analysis Process:

- **Calculate the relative cost of each alternative**
- **Apply relative cost to ranking each alternative**

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