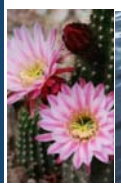
Integrated Resource Planning Advisory Committee

Meeting 1:

September 12, 2012



Meeting Topics

- **Public Comment**
- **Discuss meeting ground rules**
- **Presentation – History of Southern Nevada's water use**
- **Develop mission statement**
- **Discuss the committee process**
- **Public Comment**

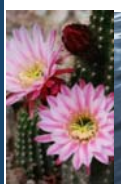
Ground Rules

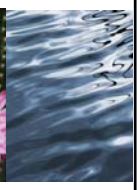
1. **Attend and participate in all meetings.**
2. **Be prepared to discuss the issues on the agenda, as well as information distributed by staff in advance of meetings.**
3. **Be willing to explore goals, constraints and multiple options.**
4. **Listen attentively and with an open mind.**
5. **Respect the ideas and perspectives of others. Give everyone a chance to speak. Avoid side discussions. Don't interrupt.**
6. **Maintain focus on the topic currently under discussion. Avoid repeating issues that have already been raised or recorded.**
7. **Achieve consensus.**

Integrated Resource Planning Advisory Committee

Meeting 1:

Southern Nevada's Water Resources & Regional Facilities





HISTORY OF WATER 1900s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

Eglington Well, 1912

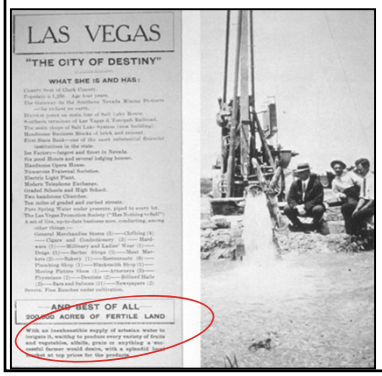
1910: 3,000 residents

Local springs met water demands.

Water was so plentiful, residents let their wells run freely.

HISTORY OF WATER 1900s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010


LAS VEGAS

"THE CITY OF DESTINY"

WHAT SHE IS AND HAS:

AND BEST OF ALL

300,000 ACRES OF FERTILE LAND

At the beginning of the 1900s, the small community boasted an "inexhaustible supply of artesian water"

HISTORY OF WATER 1920s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

Early Las Vegas, Main & Bonneville, 1914
UNLV Special Collections

1920: 5,000 residents

Spring and groundwater sources continued to meet water demands.

HISTORY OF WATER 1920s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

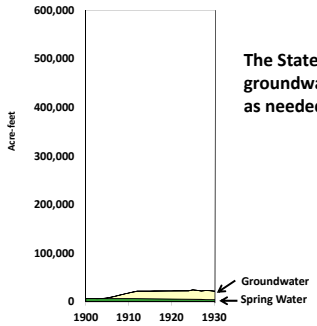
Acre-foot:

- Unit of volume in reference to large-scale water resources.
- Equal to 325,851 gallons or one acre of surface area by a depth of one foot.
- On average, one acre-foot serves two single family homes in Southern Nevada.

A football field is about the size of one acre.

HISTORY OF WATER 1920s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010



The State of Nevada issued permits for groundwater and surface water rights as needed to meet growing demands.

HISTORY OF WATER 1920s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

Nevada Division of Water Resources:

- **State agency responsible for managing Nevada's surface water, groundwater and well permits.**
- **Also known as the "State Engineer."**
- **No jurisdiction over Colorado River resources**

HISTORY OF WATER 1920s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

Meanwhile, officials were working on negotiations to divide Colorado River water among its basin states.

HISTORY OF WATER 1920s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

In 1922, the Colorado River Compact was signed.
The Compact was ratified by seven state legislatures and Congress.

Nevada received the smallest Colorado River allocation:

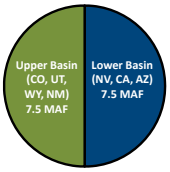
- **Lack of agricultural opportunities**
- **Small population**
- **Anticipated growth was minimal**
- **Plentiful groundwater supply**

Signing of Colorado River Compact, 1922

HISTORY OF WATER 1920s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

States along the river were divided into the Upper Basin and Lower Basin.
7.5 million acre-feet were allocated to each.



HISTORY OF WATER 1920s

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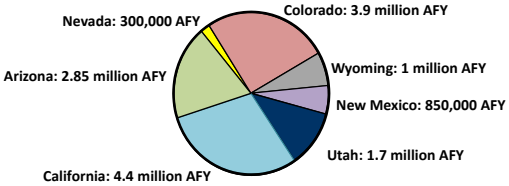
Colorado River Allocations



HISTORY OF WATER 1930s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

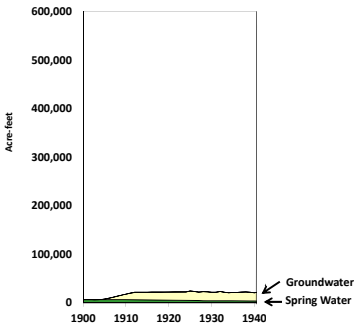
Helldorado Parade, 1934

1930: 8,500 residents

Groundwater continued to meet the community's small demands.

HISTORY OF WATER 1930s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010



History of Water — 1930s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

1931: Hoover Dam construction began

A federal project, managed by the Bureau of Reclamation, constructed to:

- **Control floods**
- **Provide irrigation water**
- **Produce hydroelectric power**

History of Water — 1930s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

1935: Nevada State Legislature created the Colorado River Commission.

Created to:

- **Manage and protect Nevada's Colorado River <u>water</u> resources.**
- **Manage and protect Nevada's Colorado River <u>power</u> resources.**

History of Water — 1940s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

Downtown Las Vegas, 1947

<u>1940:</u> 16,000 residents

Water managers assumed the groundwater supply was unlimited.

History of Water — 1940s

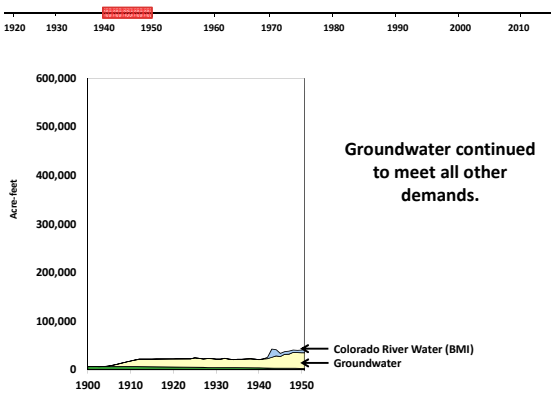
1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

Basic Management, Inc. (BMI) established a major factory in Henderson.

To meet its water demands, BMI constructed a water line from Hoover Dam.

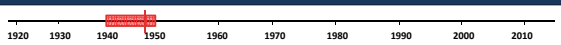
BMI Intake, Lake Mead

HISTORY OF WATER 1940s



Groundwater continued to meet all other demands.

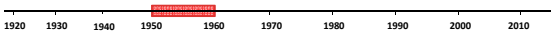
HISTORY OF WATER 1940s

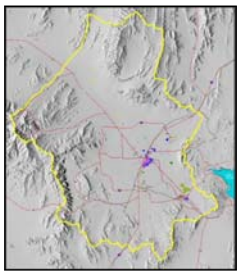


To coordinate and manage regional water supplies, the Las Vegas Valley Water District was established in 1947.

LAS VEGAS VALLEY WATER DISTRICT

HISTORY OF WATER 1950s





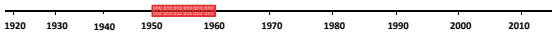
1950 Land Use

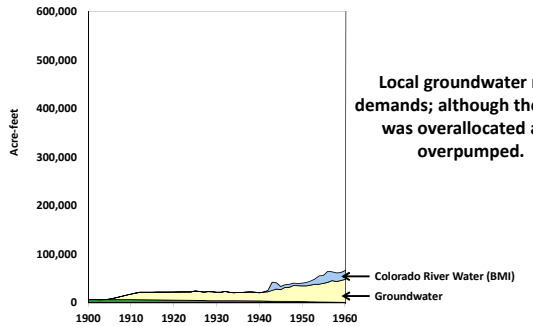
<u>1950:</u> 48,000 residents

Southern Nevada began growing: the local population more than doubled during the decade.

Planners forecasted the area's population would not exceed 100,000 until 2000.

HISTORY OF WATER 1950s





Local groundwater met demands; although the basin was overallocated and overpumped.

HISTORY OF WATER 1950s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

Groundwater Subsidence, Las Vegas Valley

The community's near full reliance on the local groundwater basin was proving insufficient and adversely impacting the environment.

Groundwater alone could not sustain the community's demands – the supply was not inexhaustible.

HISTORY OF WATER 1950s

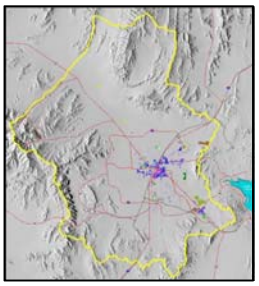
1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

In 1955, the State of Nevada stopped issuing <u>permanent</u> groundwater permits and began issuing <u>temporary</u> permits.

The decision allowed the state to revoke a temporary groundwater right when the facilities to provide Colorado River water became available.

HISTORY OF WATER 1960s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010



1960 Land Use

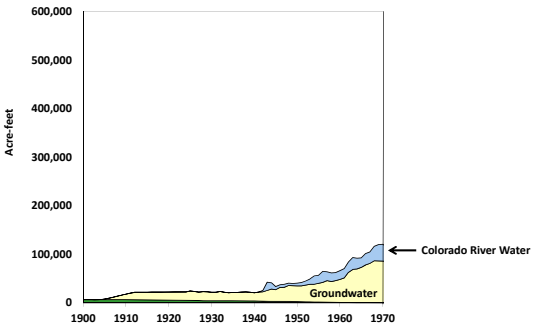
<u>1960:</u> 127,000 residents

In order to access a water supply separate from depleting groundwater supplies, the community required significant infrastructure.

Construction began on the Southern Nevada Water System in 1968.

HISTORY OF WATER 1960s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010



HISTORY OF WATER 1970s

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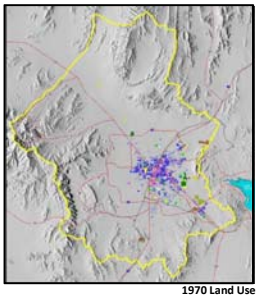


1970 Land Use

1970: 263,000 residents

***Projected* 2000 Population: 585,000**

HISTORY OF WATER 1970s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

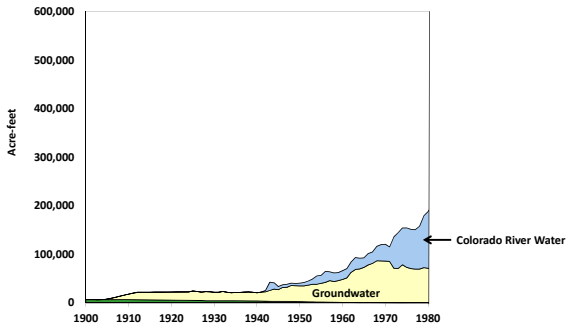
Southern Nevada Water Project Dedication, 1971
Bureau of Reclamation

In 1971, the Southern Nevada Water System became operational – initial capacity was only 34.5 MGD.

Colorado River water was expected to meet the community's water needs through at least 2020 – the resource was regarded as nearly limitless.

HISTORY OF WATER 1970s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010



HISTORY OF WATER 1980s

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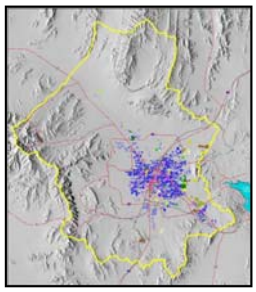
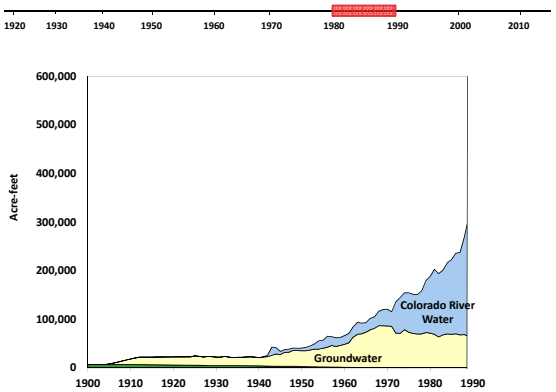


1980: 463,000 residents

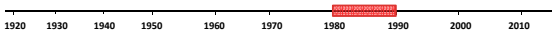
In 1982, the second phase of the Southern Nevada Water System became operational.

The Bureau of Reclamation forecasted that existing facilities would meet demands until 2025.

HISTORY OF WATER 1980s



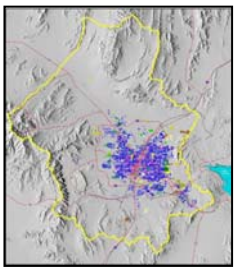
HISTORY OF WATER 1980s



During this time, the population doubled and periods of tremendous growth continued.

The need for regional water resources – and regional water management – became more apparent than ever during this decade.

HISTORY OF WATER 1990s

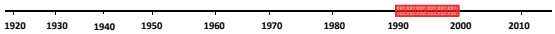


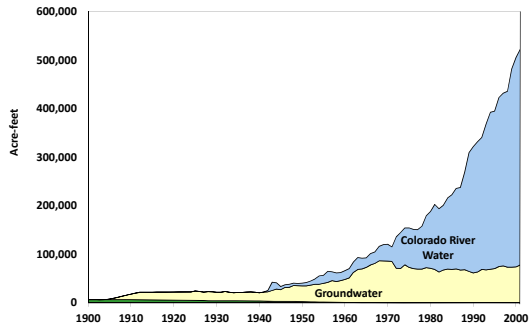
<u>1990:</u> 750,000 residents

***Projected* 2000 Population: 1 million**

Colorado River water was only expected to meet the community's needs through the early 2000s.

HISTORY OF WATER 1990s





HISTORY OF WATER 1990s

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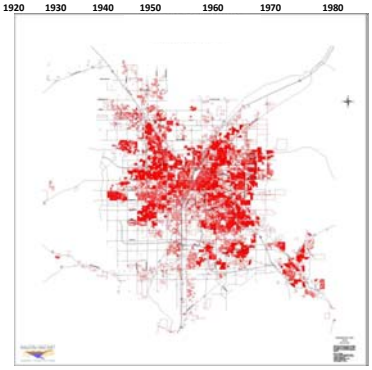


Ongoing, significant population growth caused significant challenges for water managers.

Population

1950 – 48,000
1960 – 127,000
1970 – 263,000
1980 – 463,000
1990 – 750,000

HISTORY OF WATER 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

Water Issues

Competition for Colorado River water
- Local water agencies were operating independently.
- No coordination of resources, demands, etc.
- Each agency was negotiating its own best deal for future supplies with the Colorado River Commission.

No coordinated conservation plan
- No incentive to save water.
- "Use it or lose it."

HISTORY OF WATER 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

Local government agencies recognized that water supply issues must be resolved collaboratively.

This led to the formation of the Southern Nevada Water Authority in 1991.

HISTORY OF WATER 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

SNWA Cooperative Agreement

- Establishes the SNWA
- Specifies membership
- Sets forth powers
- Identifies reasons for formation
  - Coordination of Colorado River supplies
  - Regional water resource management and conservation
  - Development of additional supplies
  - Management of supplies through a Water Budget
  - Share shortages
  - Maintain a unified position

History of Water 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

SNWA Member Agencies

- Big Bend Water District
- City of Boulder City
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- Clark County Water Reclamation District
- Las Vegas Valley Water District

History of Water 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

SNWA Responsibilities

- Manage regional water supplies
- Implement conservation programs
- Develop new supplies
- Manage long-term water resource planning efforts
- Meet state and federal water-quality standards

History of Water 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

Early SNWA actions included:

1992: Contracted with the Bureau of Reclamation for additional Colorado River rights and return-flow credits.

1993: The LVVWD became the SNWA operating agent.

1995: Southern Nevada Water System facilities transferred from the Colorado River Commission to the SNWA.

History of Water 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

LVVWD as SNWA's Operating Agent:

- Maximizes efficiencies
- Improves availability of resources
- Reduces labor costs

HISTORY OF WATER 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

SNWS Facility Transfer:

- **The transfer of the SNWS facilities created an additional responsibility for the SNWA:**

  Facility Construction and Operations

HISTORY OF WATER 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

The 1990s presented significant challenges to water managers:

- **Increasing population projections**
- **Limited supplies available to meet projected demands**
- **Facility limitations to meet projected demands and max-day capacity:**
  - **Reliability**
    Single system and inadequate backup supply could lead to outages
  - **Additional Capacity**
    Maximum capacity reached at existing facility
    Existing capacity could not access all available resources
  - **Potential Water Quality Issues**
    Improved treatment techniques were needed

HISTORY OF WATER 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

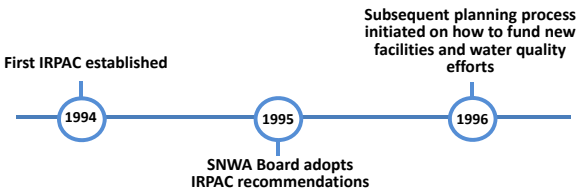
Concerned about supply interruptions, the LVVWD began a comprehensive well drilling program to meet peak day demands.

LVVWD Groundwater Well

HISTORY OF WATER 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

To address these critical issues, the SNWA convened the Integrated Resource Planning Advisory Committee.



HISTORY OF WATER 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

IRPAC made key recommendations related to:

- **Facilities**
- **Resources**
- **Finance**

HISTORY OF WATER 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

IRPAC RECOMMENDATIONS - FACILITIES

- **Build a new treatment and transmission facility immediately, large enough to be reliable and provide backup in the event of a catastrophic event.**

  In 2002, the River Mountains Water Treatment Facility becomes operational and provides an additional 150 MGD of regional treatment capacity.

  In 2006, regional capacity reaches 900 MGD.

- **Expand the existing Southern Nevada Water System to capacity as soon as possible.**

  In 1999, SNWS capacity was increased from 400 MGD to 600 MGD.

- **Implement a phased and expandable water facilities program.**

  In 1995, the SNWA Board approved a phased Capital Improvements Program (later retired in 2010 following the completion of $2.9 billion in projects) to build "just in time" facilities

HISTORY OF WATER 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

IRPAC made key recommendations related to:

- **Facilities**
- **Resources**
- **Finance**

HISTORY OF WATER 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

IRPAC RECOMMENDATIONS - RESOURCES

- **Seek permanent, long-term water supplies. Develop a water resource plan to meet future water demands.**

  In 1996, the SNWA developed its Water Resource Plan. The plan is reviewed annually and includes a 50-year planning horizon.

- **Place top priority on Colorado River water resources.**

  In 1997, the SNWA began purchasing Muddy and Virgin River water.

  In 2001, the BOR's Interim Surplus Guidelines were finalized. The guidelines allow the SNWA to use additional Colorado River supplies when available.

  In 2004, finalized agreement for Arizona water bank.

HISTORY OF WATER 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

IRPAC made key recommendations related to:

- **Facilities**
- **Resources**
- **Finance**

HISTORY OF WATER 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

IRPAC RECOMMENDATIONS - FINANCE

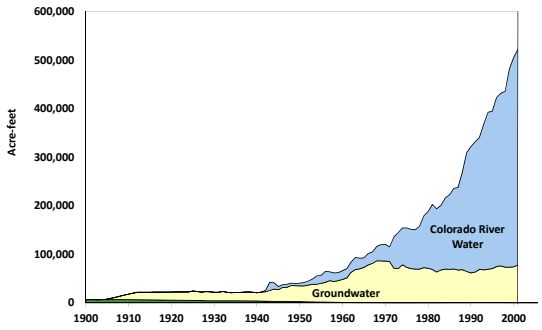
- **Study different approaches to financing and rate setting.**

The committee developed recommendations specific to funding new facilities:

- **The "growth pays for growth" model.**
- **An assumption that water rates should contribute to new facilities.**
- **Incorporation of sales tax as a revenue source.**
- **An assumption that increased revenues should help fund conservation programs.**

HISTORY OF WATER 1990s

1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

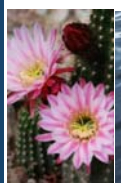


Although times are different, the issues facing this committee are very much the same.

- **Facilities**
- **Resources**
- **Finance**

Integrated Resource Planning Advisory Committee

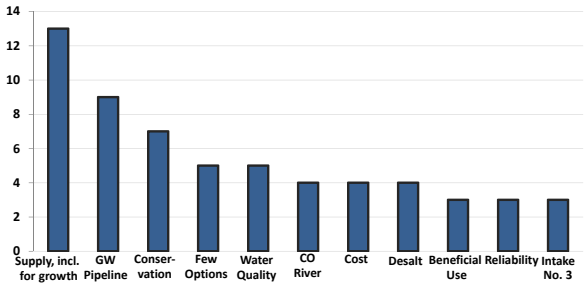
Mission Statement Development



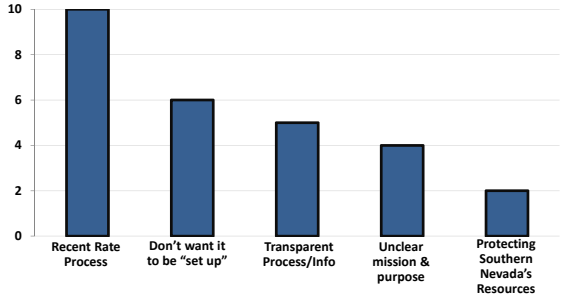
Overview of One-on-Ones (Summer 2012)

- **Met individually with 19 of 21 members**
- **Asked everyone the same questions**

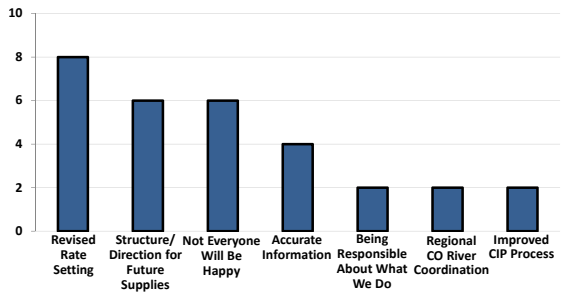
When you think about the long-term water supply for Southern Nevada, what do you see as the most important issues?



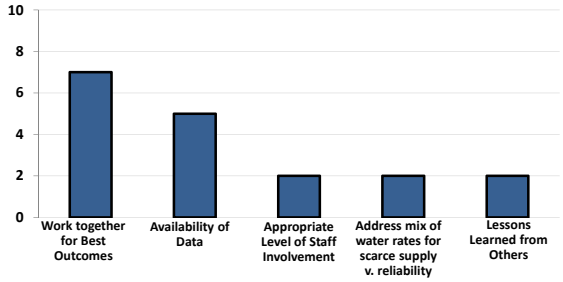
What are the key concerns that you or your stakeholders have about this process?



How would you define success of this IRP process?



Do you have any suggestions to improve the process?



Draft Mission Statement

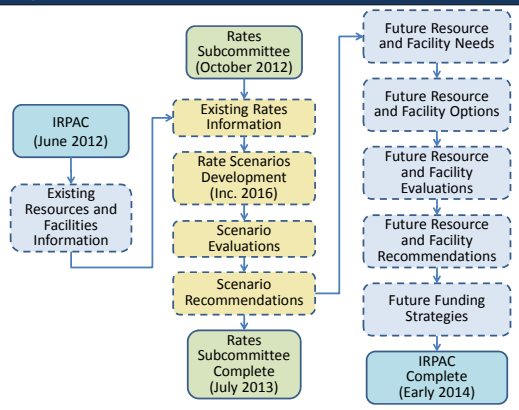
The Integrated Resource Planning Advisory Committee will evaluate current and near-term (2016) water charges and develop recommendations to meet future resource and facility needs in a way that supports adaptation to changing conditions.

DRAFT

COMMITTEE APPROVED:
The Integrated Resource Planning Advisory Committee will evaluate current and near-term (2016) water charges, future resources, conservation, and facility needs in a way that supports adaptation to changing conditions, and develop recommendations on all these areas for the Southern Nevada Water Authority's Board of Directors.

Committee Process

Integrated IRPAC/Rates Subcommittee Process



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