

Water-Energy Interrelationships: A Municipal Perspective

Richard B. Holmes
Southern Nevada Water Authority
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The Southern Nevada Water Authority (SNWA) is a cooperative agency formed in 1991 to address Southern Nevada's unique water needs on a regional basis.

SNWA officials are charged with managing the region's water resources and providing for the Las Vegas Valley's present and future water needs.



Regional Water Treatment and Delivery



SNWA Member Agency pumping station

- Requires 900,000 MWh of electricity annually.
- Single largest use of electric power in the region.

Maintaining Reliable Supplies

The SNWA's strategy to ensure reliable energy supplies at a stable price includes four basic principles:

1. Minimizing market price risk
2. Maximizing operational flexibility
3. Diversifying the SNWA's energy resources.
4. Increasing use of renewable energy.

1. Risk Minimization

The SNWA procures resources in a manner that minimizes its market price risk.



Hoover Dam's turbine room

Current Energy Resources

- **Silverhawk Generating Station**
25% share in the power plant
- **Hydropower Resources**
25 MW of hydropower resources from the Hoover and Parker-Davis Dam Projects
- **Non-Renewable Market Resources**
- **Renewable Generation**

Silverhawk Generating Station



Silverhawk Generating Station

- **Natural gas-fueled generation**
- **Generates 560 megawatts**
- **Utilizes dry-cooled technology**
- **Uses 90% less water compared to a typical station of the same size**

2. Operational Flexibility

SNWA operations are modified to utilize power resources when they are the least expensive.

- **SNWA pump operators fill reservoirs during non-peak hours, thereby shifting electrical demands to times when electricity prices are lower.**
- **The SNWA must still provide water to its member agencies during peak hours, and therefore has an obligation to ensure sufficient power resources are available when needed.**



- **The SNWA is one of the founding members of the Silver State Energy Association (SSEA).**
- **By participating in the SSEA, the SNWA can develop, own and operate power facilities and access the generated electricity to support operational needs.**
 - **Helps to insulate the SNWA and its member agencies from spikes in the energy market.**
 - **Increases overall reliability.**

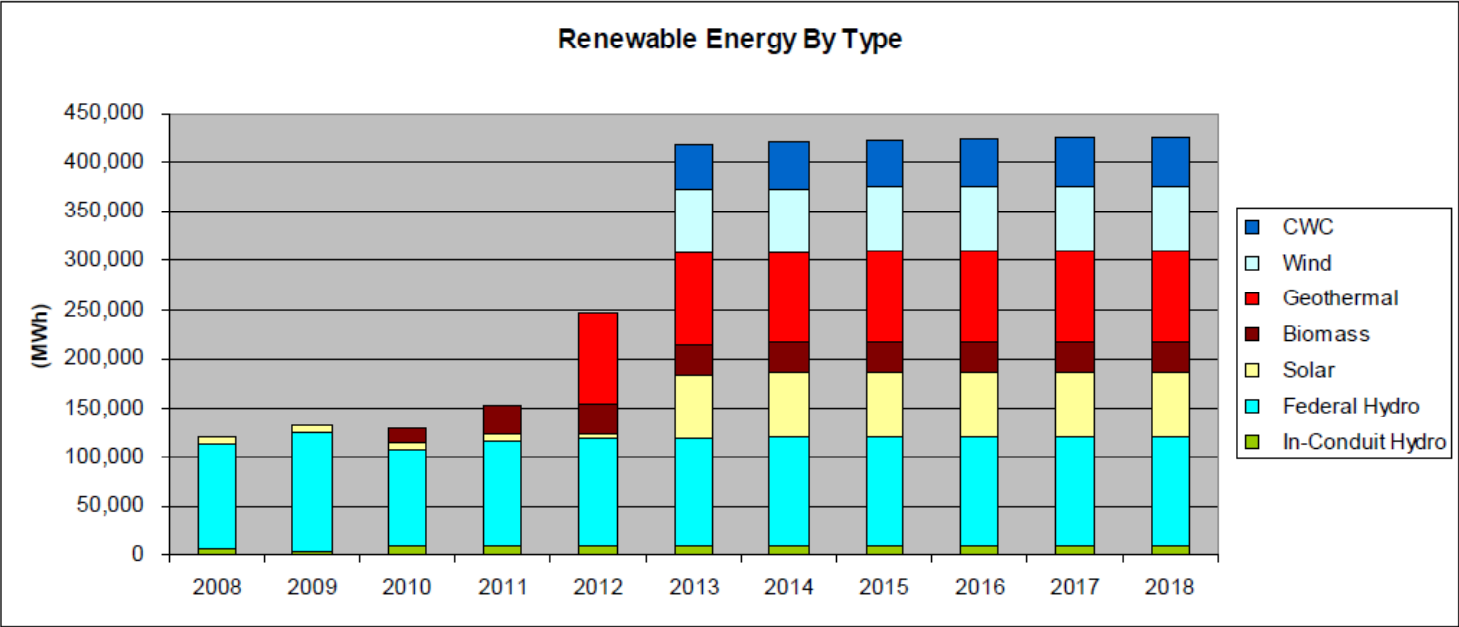
3. Diversification

Diversification is critical to developing a balanced energy portfolio that minimizes price variability and ensures reliability.

- **Purchasing firm power from a variety of utility systems that are geographically dispersed.**
- **Partnering in the development of a gas-fired generating station.**
- **Acquiring a contract for hydropower resources from the federal dams along the Colorado River.**
- **Developing a renewable energy program.**

4. Renewable Resources

SNWA has set a goal of meeting 20 percent of its energy needs through renewable sources by 2015.



Current Renewable Energy Resources



Federal Hydropower

Total Capacity: 25 MW

Horizon Ridge Energy Recovery

Total Capacity: .67 MW

Sloan/Linden Energy Recovery

Total Capacity: 1.45 MW

Solar Covered Carports

Total Capacity: .25 MW

**Solar Covered Carports at Alfred Merritt
Smith Water Treatment Facility**

Planned Renewable Energy Resources



The SNWA continues to work towards renewable energy resources, such as wind resources.

CWC Hydroelectric Project

Projected Capacity: 10 MW

Solar Photovoltaic Demonstration

Projected Capacity: .222 MW

Arrow Canyon Energy Recovery

Projected Capacity: .45 MW

Groundwater Project Pipeline Energy Recovery

Projected Capacity: 40 MW

Geothermal

Projected Capacity: 15 MW

Wind

Projected Capacity: 15 MW

Biomass

Projected Capacity: 5 MW

Summary

Municipalities have a responsibility to deliver water to our customers.

A reliable system for water treatment and delivery is dependent on a stable and reliable power supply.

To accomplish this, we:

- **Minimize market price risk.**
- **Maximize operating flexibility.**
- **Diversify energy resources.**
- **Increase the use of renewable energy.**



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