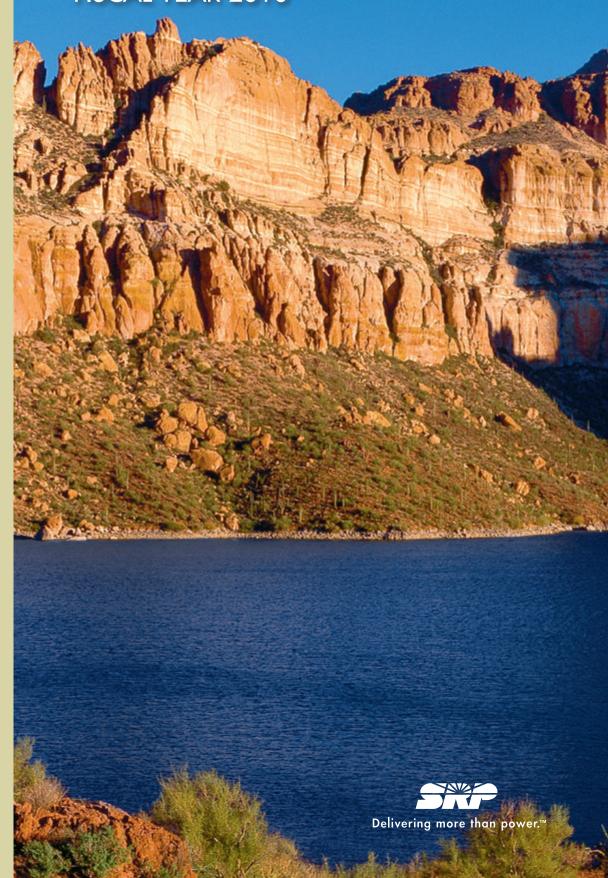


# SRP RESOURCES AND STEWARDSHIP FOR A SUSTAINABLE FUTURE FISCAL YEAR 2010





WHO WE ARE

Serving central Arizona since 1903, SRP (Salt River Project) was created through provisions of the National Reclamation Act and is the oldest multipurpose federal reclamation project in the United States.

SRP comprises two principal operating entities: the Salt River Valley Water Users'
Association — the Association — a private corporation; and the Salt River Project
Agricultural Improvement and Power District — the District — a political subdivision of the state of Arizona.

The District provides electricity to more than 930,000 customers in central Arizona, including most of the greater metropolitan Phoenix area, in a service area of about 2,900 square miles. As a not-for-profit public power utility, SRP reinvests revenues to address operating and capital needs that serve our customers. We are an integrated electric utility, providing generation, transmission and distribution services, as well as metering and billing.

The Association is the largest raw-water supplier to central Arizona, providing a 375-square-mile service area with about 1 million acre-feet of water annually. SRP manages a 13,000-square-mile watershed in the mountainous regions north and east of Phoenix that supplies a majority of the surface water for Maricopa County municipalities.

All told, more than 2 million people enjoy the benefits of SRP-provided power and water. Over the past several years, according to studies by J.D. Power and Associates, SRP has been one of the leading electric power utilities in both residential and commercial customer satisfaction.

This FY10 SRP resource planning report is based upon the best available information at the time it was developed. Due to the large number of assumptions and uncertainties that are inherent to this process, the plan will evolve and change as new information becomes available or as circumstances change. One of the components we are closely monitoring is the economy; current conditions indicate a further downturn may have occurred since this plan was developed. Changes as appropriate will be reflected in our next plan update.

# RESOURCE PLANNING STRIKES A BALANCE TO MEET THE ENERGY NEEDS OF TOMORROW

As a public power utility, SRP was founded on the principles of resource stewardship. SRP strives to preserve the balance between serving growing customer needs, managing costs and protecting natural resources. This means planning for future facilities, resources and programs that use conventional, new and advancing technologies to produce cleaner power, boost efficiency and improve operations.

We are entering an era in which SRP and other utilities must make generation resource planning and investment decisions that address global climate change issues such as greenhouse gases. SRP continues to build a resource mix that includes more energy-efficiency technologies and renewable/sustainable sources while also considering additional nuclear power as an approach to cleaner electricity production. Our resource plan will evolve and change as new information becomes available or as circumstances change.

In 2006 SRP's Board of Directors established a goal that 15% of our retail sales will be met by sustainable resources no later than 2025. The initial target is 5% through 2015 and increases at a rate of 1% per year up to 15% in 2025.

GENERATION RESOURCE NEEDS

# 11000 - 9000 - Remaining Needs 7000 - New Resources 6000 - Existing Resources

**FY14** 

**FY10** 

FY11

**FY12** 

**FY13** 

SRP's existing generation resources are expected to decline as purchased-power contracts expire. By FY19, about 9,800 megawatts (MW) will be needed to serve our customers' demand, and of that, about 2,645MW will need to be acquired above and beyond existing and committed resources. This gap, which includes a projected increase in retail load over time, requires new resources to be developed.

**FY15** 

**FY16** 

**FY17** 

FY18

**FY19** 



sreprise focused on meeting our customers' needs for affordable, reliable and sustainable power.

We have a long history of leadership in the Southwest region and in the U.S. electric utility industry. We continue to implement our portfolio of balanced solutions to address global climate change issues over time.



**ENVIRONMENTAL AND PUBLIC-POLICY CHALLENGES** 

SRP is at a key juncture in our history of electric utility operations.

These are unprecedented times with respect to lower electric utility customer and load growth, volatile gas and electric prices, increasing attention to global climate change issues, and regulatory and political dynamics. These concerns require SRP to rethink our resource planning process and examine the types of projects we must develop to meet our customers' future energy needs and expectations, as well as the changing regulatory climate.

Dialogue about greenhouse gases from fossil-fuel generation dominates the public-policy arena. SRP is similar to many other U.S. utilities in our reliance on fossil-fueled capacity to supply much of the electricity we produce. We also recognize the potential implications climate-change initiatives could have on our operations, customers and communities. Because these issues impact our existing and new generation options, we actively participate in regional and national discussions about emerging policy options.

As a provider of both water and energy, SRP is uniquely positioned to understand how climate change may affect vital resources. SRP has been involved in climate-change research for more than 20 years. We are a founding reporting member of the Climate Registry, a voluntary program to measure greenhouse-gas emissions in North America.

While understanding that avenues such as a carbon tax on emissions may achieve the desired results efficiently and with greater price certainty, SRP advocates that any cap-and-trade program should include the following principles:

- Set realistic reduction targets and timetables
- Apply legislation across the whole economy
- Federal law should pre-empt state and regional programs
- Transition the economy through allocation of allowance value
- Provide effective cost-containment measures and limit volatility
- Recognize that high-growth-rate states face special challenges

Over the next six years, the portion of SRP's energy supplied by sustainable resources will continue at 5% per year, and all energy supplied by sustainable resources in excess of this goal will be "banked" for future use.



#### Sustainability and Climate-Change Issues

Another facet of our resource picture is our growing sustainable portfolio, which combines renewable-energy resources with energy-efficiency, demand-response and other conservation programs. Our plans include new wind, geothermal, solar and distributed generation resources, along with increases in energy-efficiency and demand-response programs. SRP's Sustainable Portfolio is designed to benefit the environment while balancing the need for affordable and reliable resources to meet customer needs.

Renewable resources generally are more expensive than traditional energy sources and offer less operational flexibility. If not carefully acquired and integrated, renewables can have a significant impact on electric system reliability as well as customer price. As a result, resource decisions must consider environmental benefits, reliability and economics.

The National Academy of Sciences and the Electric Power Research Institute both recommend addressing global climate change issues by using a full-portfolio approach. SRP supports the full-portfolio approach and is actively taking steps to implement it by pursuing energy-efficiency and renewable technologies, natural-gas generation, advanced nuclear energy technologies, and clean-coal technologies such as carbon capture and storage.

#### A Collaborative Process

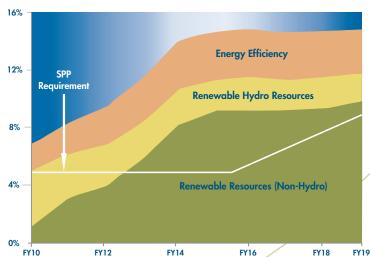
SRP is dedicated to collaborating with our customers, elected officials, federal, tribal, state and local agencies, and other concerned parties on issues related to our operations and to the protection of the environment. This includes siting and building transmission lines to link up with new generation sources.

We support working with the existing planning framework to accomplish these goals rather than creating new agencies. We also favor using existing transmission corridors for new lines and continuing to include state and local opinion leaders and stakeholders in the siting process.

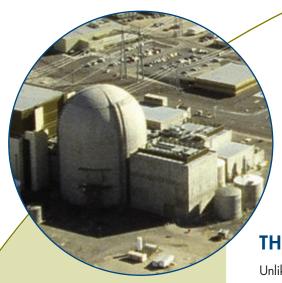
SRP recognizes that environmental protection and resource conservation are sound business practices and add value to the services we provide for our customers.

Including nuclear
power, about
20% of the retail
energy we provide
today is produced
without creating
greenhouse gases.

#### SUSTAINABLE PORTFOLIO 10-YEAR OUTLOOK



SRP's Sustainable Portfolio Principles (SPP) call for 5% of energy to be obtained from sustainable resources and energy efficiency each year until 2015, after which it increases by 1% per year until it reaches 15% by 2025.



Resource planning
considers power needs
for each customer class,
such as residential,
commercial or large
industrial. A parallel
effort considers need by
price-plan level, such
as residential Time-ofUse. Added to these
calculations are key
variables such as:

- Weather
- Population forecast
- Historical usage by SRP customer classes
- Economic indicators/factors

#### THE RESOURCE PLANNING PROCESS

Unlike water stored in a reservoir or waiting in a pipe, electricity must be made at the exact time it is needed. It cannot be stored in large enough quantities to meet customers' needs. Customers flip a switch or hit a button and expect immediate results. Electric resource planning by utilities helps ensure those results.

SRP resource planning is responsible for continued reliable and cost-effective electric service to our customers. The SRP planning process first estimates the forecasted customer demand for the next 10 years, then evaluates available resources to meet those needs and charts a course to acquire those resources.

#### Part Science, Part Art

Resource planning is part science and part art; it combines sophisticated modeling and hard calculations along with judgment and experience, all the while balancing competing objectives such as affordability, changing customer demand and environmental stewardship. Our resource plan is constantly evolving, given the multiple challenges and uncertainties facing utilities; flexibility and adaptability are crucial characteristics.

#### **Adding Sustainable Resources**

A fully integrated resource plan considers all options. A diverse resource portfolio helps to manage risk, address uncertainties and control costs.

SRP's planning process emphasizes the importance of incorporating additional sustainable technologies to expand resource diversity and help SRP reach its sustainable portfolio target of 15% by 2025.



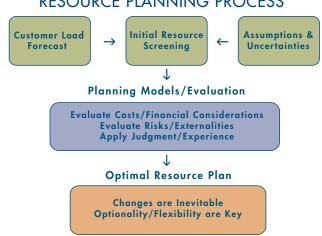
#### **Resource Planning 101**

The resource plan starts with a set of assumptions. These include a forecast of customer demand, estimated costs and operating characteristics for potential resource options, and projections for new legal, regulatory and/or environmental requirements such as greenhouse-gas legislation or federal renewable-energy standards. These assumptions help screen potential new resource options.

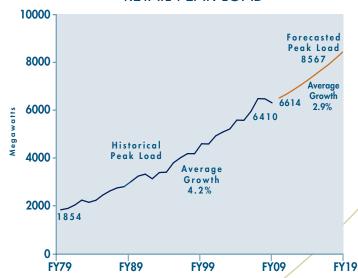
After initial screening, the next step is to utilize planning models and analysis to fine-tune the initial calculations. This step involves the detailed analysis of costs and financial considerations, the evaluation of risk and unanticipated factors, and the application of judgment and experience to develop the best plan. Because of the large number of assumptions that go into the plan, changes are inevitable, so allowing for contingencies and flexibility is critical.

Last summer SRP hosted three resource planning workshops for a diverse group of stakeholders and customers to explain our planning process, discuss future challenges and receive input from stakeholders.

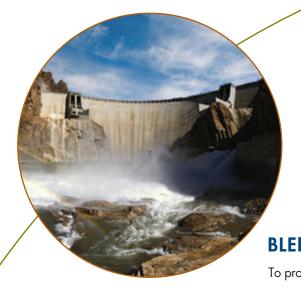
#### **RESOURCE PLANNING PROCESS**



#### RETAIL PEAK LOAD



While the economy has slowed peak-load growth in the short term, SRP needs to plan for long-term resource requirements. Even with the current slowdown, projections estimate continued peak demand increases over time.



A fully integrated plan considers all options and leaves room for dynamic change, so as new technologies evolve they can be studied and embraced where possible.

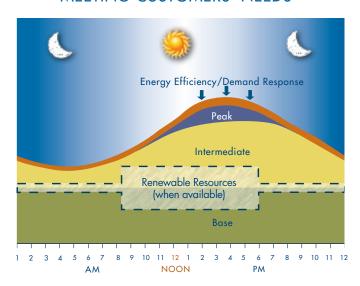
#### **BLEND OF RESOURCES CREATES VALUE**

To provide value to customers, a blend of resources is always better than an over-reliance on any one resource. Resource needs are based upon a tiered approach:

- Baseload generation satisfies all or part of the minimum or baseload of an electric system, producing electricity essentially at a constant rate and running continuously.
   Coal and nuclear plants are examples of baseload generating facilities. Among renewable resources, geothermal and biomass plants can operate as baseload plants. Conventional baseload units like coal and nuclear are generally the largest of the four types of units.
- Intermediate generation helps meet aggregate system requirements that may not be continuous during all periods of the year or all hours of the day. For example, intermediate-load units may provide power during daylight and early evening hours but not at night. Technologies for intermediate-load plants include natural-gas-fueled steam cycle plants, combined-cycle plants and some hydroelectric units. Some solar thermal resources can serve as intermediate generation if they include an energy storage system or a hybrid technology with backup fossil-fuel generation.
- Peaking resources are normally the least efficient of the three unit types and are used to meet requirements during the periods of greatest (peak) demand typically from 3 to 6 p.m. in the summer on the SRP system. These units generally are quicker to start up than baseload or intermediate-load sources and run for short periods of time. Currently, the most reliable and economic resources to meet peak demand are natural-gas-fueled combustion turbines and hydroelectric plants.
- Intermittent resources include many renewable resources such as wind and solar, and are only available when natural conditions occur for example, the wind blows and the sun shines. These resources must have a backup source of generation to replace them when they are not operating.

Energy-efficiency and demand-response efforts play a significant role in our resource plan, as these efforts can reduce the amount of resources SRP needs to meet our customers' energy requirements and also help to reduce peak demand. By offering a wide range of programs, SRP can leverage the multiple technologies that improve efficiencies in businesses and homes. Customer participation — and growing participation over time — is key to the success of energy-efficiency and demand-response efforts.

#### MEETING CUSTOMERS' NEEDS



Meeting customers' needs means providing a blend of generation resources to meet fluctuating demands around the clock. Renewable resources such as solar and wind can help support intermediate load needs but are not reliable to support baseload and peak periods.



#### **Energy efficiency and demand response**

**Benefits:** low-cost options available, no greenhousegas emissions, no water use, can reduce transmission needs. **Challenges:** customer participation, market potential, sustained load reduction.



#### Hydroelectric

**Benefits:** emission-free, less expensive than many other resources. **Challenges:** limited availability, limited new development opportunities.



#### **Nuclear**

**Benefits:** low overall costs, baseload operation, zero greenhouse-gas emissions, proven technology. **Challenges:** large up-front construction costs; spent fuel; financing, transmission and permitting issues; water needs.



#### Wind

**Benefits:** no greenhouse gas emissions, no water use, low operational costs, short development timeline. **Challenges:** high overall cost, intermittent, transmission.



Solar Photovoltaic – Benefits: no greenhouse gas emissions, little water use, abundant Arizona sunshine. Challenges: expensive, can use large amounts of land, intermittent.

**Solar Thermal** – **Benefits:** low to no greenhouse-gas emissions, makes use of abundant sunshine, more reliable than solar PV. **Challenges:** expensive, requires large amounts of land; water needs.



#### Geothermal

**Benefits:** cost competitive, baseload operation, near-zero greenhouse-gas emissions, proven technology. **Challenges:** limited availability, lack of existing transmission to resource areas, exploration risk.



Natural gas (combined cycle/combustion turbine)

**Benefits**: low construction costs, low greenhouse-gas emissions, operational flexibility, proven technology. **Challenges:** vulnerable to gas-price volatility, requires gas pipeline infrastructure.



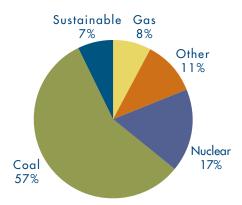
#### Coal

**Benefits:** cost competitive, baseload operation, proven technology. **Challenges:** greenhouse-gas emissions, permitting and transmission issues; water needs.

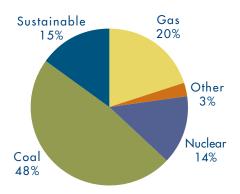


### GENERATION RESOURCES MIX

#### **FY10**



#### **FY19**



As part of building a balanced resource portfolio, SRP is reducing coal-based resources in favor of natural-gas resources and sustainable resources. Our existing nuclear resources don't decline but rather become a lesser percentage of the whole as gas and renewables increase. "Other" includes short-term purchases.

#### SRP'S RESOURCE MIX AND HOW IT IS CHANGING

With new and advancing technologies, the considerations of climate change and the needs of Arizona's future in mind, SRP's resource mix is systematically integrating more low-carbon and carbon-free resources.

Even with slowed growth in customers and usage, SRP must plan for steadily increasing demand for electricity into the future. The costs of new resources — which always will be needed to meet growth, and as power plants retire and contracts expire — will continue to increase over time. The costs of new resources must be balanced with several sometimes competing factors, including customer needs, regulatory and environmental policy, reliability and fuel diversity.

Current SRP resources include owned and partly owned natural-gas, coal, nuclear and renewable generating plants as well as purchased resources that include all of these except nuclear. Sustainable resources — including energy efficiency and demand response — also comprise a growing portion of the current resource mix.

Our 10-year resource plan covers short-term and medium-term needs, and takes into account a reserve to help ensure reliability for extreme temperatures and unexpected outages. SRP also considers a longer-term view to determine which resources may be required over the long term.

**Short term (through 2014):** Especially when it comes to reducing carbon emissions, our short-term effort focuses on sustainable resources and natural-gas resources. We are also pursuing feasibility studies to assess the viability of nuclear generation as a potential new baseload resource in the future. We continue to be involved in research and development projects for carbon capture and storage, a technology that will be needed to facilitate new coal resources.

**Medium term (2015-19):** Planning will continue to focus on sustainable resources, natural-gas resources, development of carbon capture and storage technologies, and evaluation/development of nuclear as a potential long-term resource option.

Long term (2020 and beyond): New baseload resources will be needed in this time frame. Growth in coal-fired generating capacity likely will be limited by restrictions on greenhousegas emissions, the potential for mandated limits, and whether carbon capture and storage technologies are economically viable and commercially available. New nuclear generation may come online long-term, based upon feasibility findings. In today's planning environment, it can take a dozen or more years to plan, site, permit and build a new nuclear plant.



#### LOOKING AHEAD

Providing electric service to hundreds of thousands of Arizonans requires planning well in advance. Some of the alternatives SRP could call upon to meet projected future customer needs, such as nuclear, take years to move from the drawing board to reality. The resource planning process identifies resource alternatives and strategies that will enhance SRP's ability to meet customer needs at competitive prices and will increase the flexibility to meet load and industry uncertainty.

SRP will continue to develop long-term resource plans in a manner that provides an effective balance of all objectives and follows four guiding principles.

1. Provide Value Through Reliable Service
Provide affordable electricity while
making capital investments that preserve
reliability and fuel diversity, support
infrastructure and meet environmental
requirements.

## 2. Advance Efforts in the Responsible Utilization of Resources

Increase investments in low- to nocarbon energy resources, and increase customer-focused energy-efficiency and conservation measures.

# 3. Remain Flexible When Adding Future Resources

Embrace a dynamic approach to build a robust portfolio that reflects future needs and supports environmental commitment.

**4. Actively Manage Risk and Uncertainty**Plan wisely for fuel-price volatility,
climate legislation, and cost and
growth uncertainties.



www.srpnet.com

