



Delivering water and power®

SRP ISP SUMMER SERIES MEETING 1:

“Since We Last Met”

The following materials will provide background information for topics that will be covered in the ISP Summer Stakeholder Series Meeting 1, “Since We Last Met.” This first meeting will update stakeholders on actions taken in accordance with the Strategic Resource Directions from the 2017-2018 Integrated Resource Plan.

To make the most of this session, it is important that you have a basic understanding of how the power grid works and the planning required to deliver energy to our customers. This session will also provide a base knowledge of the System Planning Foundation as well as cover Distribution and Transmission Planning. This will best prepare you to collaborate in our upcoming Integrated System Plan (ISP) efforts where we will develop plans to holistically address the modern needs of the grid across all SRP planning areas.

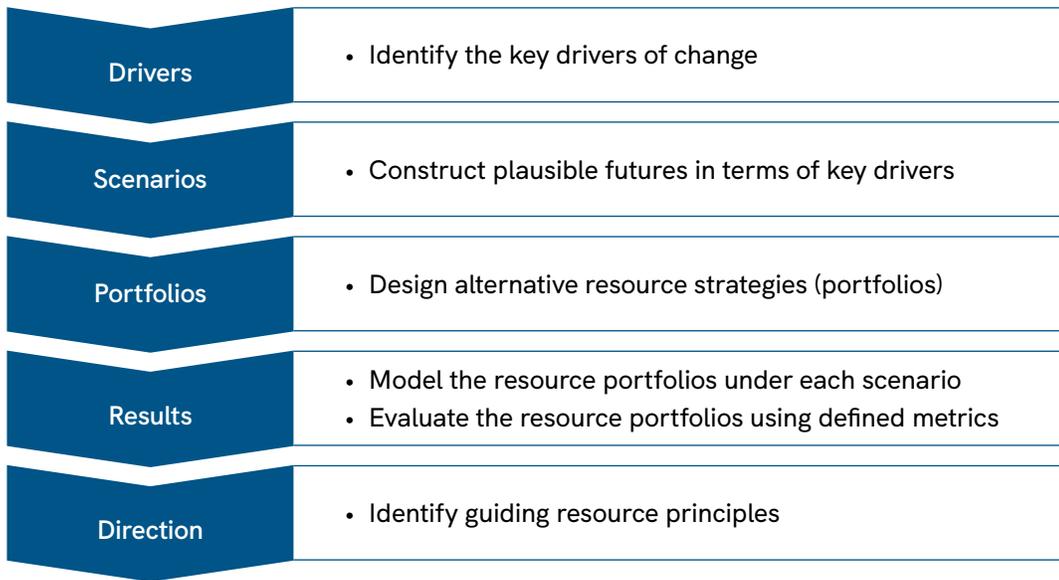
SRP Background

The Salt River Project (SRP) is a community-based not-for-profit water and energy company that provides reliable, affordable water and power to more than 2 million people living in central Arizona. SRP has provided these essential resources for more than a century to meet the growing needs of customers through innovation, planning and a focus on doing what’s right for the region. SRP is a vertically integrated utility company which owns and plans for all levels of the electric energy supply chain, including generation, transmission and distribution.

2017-2018 INTEGRATED RESOURCE PLAN

2017-2018 Integrated Resource Plan Analytic Overview

Previously, SRP used an Integrated Resource Plan (IRP) to analyze possible critical uncertainties and the resources available to navigate them. Using this IRP process, SRP could clearly understand how different resource choices and energy portfolios performed in a variety of scenarios and future business environments.



Stakeholder Engagement Process Overview

Recognizing that resource choices have meaningful long-term impacts on customers and many stakeholders, SRP’s IRP process relied on key analytics as well as extensive collaboration with stakeholders and SRP’s elected officials. SRP held more than 20 discussions with SRP’s elected officials, as well as five in-depth stakeholder meetings and 26 stakeholder interviews. This process was informed by and responsive to customer, stakeholder and elected official perspectives.



2017-2018 INTEGRATED RESOURCE PLAN (continued)

Strategic Directions

Fundamental Objective

The objective of SRP's resource portfolio has always been to deliver reliable, affordable and sustainable power to our customers. The construction of the path follows a disciplined analytical process that incorporates:

1. SRP Board policy
2. 2035 and 2050 sustainability goals (in particular, our CO₂ commitment)
3. Customer needs and preferences
4. Regulations
5. Technological advancement
6. Customer costs
7. Customer satisfaction
8. Cost stability
9. Key financial indicators

The overall objective of the IRP process was to incorporate a flexible resource plan that can embrace the challenges, uncertainties and growing energy requirements of tomorrow's world.

The following are the concluding strategic directions from the 2017-2018 IRP process:



Coal Generation: Reduce the amount of energy in SRP's portfolio produced by coal generation.



Nuclear Generation: Preserve option for new nuclear generation in the mid-to-late 2030s with a focus on small modular technology.



Natural Gas Generation: Develop flexible natural gas generation options to meet peak demand and integrate renewables.



Customer Programs: Continue the promotion of energy efficiency programs and technologies that help customers save energy and money.



Renewable Energy: Grow SRP's renewables portfolio to reduce CO₂ intensity and manage costs; expand opportunities for customer-dedicated projects.



Market Resource: Implement Energy Imbalance Market participation as planned and seek opportunities to expand participation in other regional markets.



Energy Storage: Add cost-effective energy storage to support additional renewable energy integration.

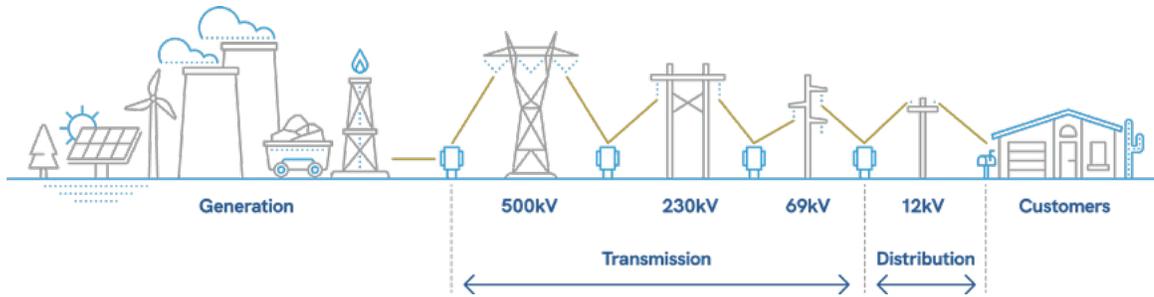


New Technologies: Pursue pilot projects and research and development efforts for innovative applications of new power generation, load management, energy storage and electrification.

TRANSMISSION PLANNING

Transmission System Overview

Transmission and distribution refer to the various stages of delivering electricity from generating resources to a “load” such as a home or a business. The primary distinction between transmission and distribution is the voltage level at which electricity moves. At SRP, transmission refers to facilities that are energized at 69 kV (69,000 volts) or higher.



The transmission system is the “interstate” of electricity delivery. It consists of three primary components: 1) substations, 2) switchyards and 3) transmission lines. Both substations and switchyards are connection points where two or more transmission lines connect to form an “intersection.”

The transmission lines are responsible for getting large quantities of electricity from the generation resources over long distances to the distribution system to deliver to customers. In a few instances, larger energy customers connect directly to the transmission system.

SRP’s grid is also part of a larger transmission network, called the Western Interconnection, which ties SRP to other regional utilities and allows SRP to participate in wholesale power markets. The SRP transmission system is just a small portion of this much larger system. Being part of the Western Interconnection provides significant reliability benefits; each entity within the interconnection can rely on others in times of emergency.

TRANSMISSION PLANNING (continued)

Transmission Planning for the Future

As the demand for electricity in the Phoenix metro area continues to grow, the need for new and upgraded transmission infrastructure also increases. Transmission infrastructure is planned well in advance to construct facilities and place them in service before they are needed. One of the significant challenges with planning the transmission system is the uncertainty around the location of both the new electric demand and future generation resources. SRP proactively identifies and develops effective transmission solutions to serve current and future electric customers.

SRP is integrating low-carbon resources, such as solar, to meet the growing electricity demand from our customers and to replace retiring generation assets. This shift in our resource mix also impacts the transmission system. Some of the transmission-related challenges facing utilities are system voltage control, greater fluctuations in frequency, and increased risk of interruption due to forest fires. To best prepare for these transmission-related issues, SRP is shifting from the IRP process for long-term strategic planning to an Integrated System Planning (ISP) process. These new efforts will aid in the development of plans to holistically address grid needs across all SRP planning areas. This move also bolsters our efforts to achieve our 2035 Corporate Goals.

Distribution Planning Overview

Distribution Overview

The Distribution Electrical System includes the distribution substations and the infrastructure required to bring the power safely and reliably to the customer. There are currently 189 substations located throughout the SRP distribution territory, each built to serve an approximate area of 4 square miles. A substation can accommodate between one and four transformers with each transformer serving 2,800-3,200 customers.

Distribution Planning is responsible for ensuring that SRP has the capacity to serve the electrical needs of both current and future customers safely and reliably. This is accomplished through the development of annual growth plans and designing a looped system. The development of the annual load growth plan uses criteria to provide capacity margins and to accommodate for unexpected load (e.g., planned and unplanned outages, hotter-than-normal summers and large load new customers). The looped system provides SRP with the ability to serve a customer by more than one path. If service from one path gets interrupted, SRP can still serve the customer from a secondary path. This configuration also allows SRP to reconfigure the system for optimal use of existing capacity.

This commitment to provide reliable power is why SRP has ranked highest in customer satisfaction in the western United States among Large electric utilities 21 times in the past 22 years that J.D. Power has been surveying residential electric customers.

Distribution Planning for the Future

The SRP system is very robust, has large hosting capacity and suffers few significant voltage issues. As more distributed energy resources (DER), including solar generation and battery storage, are added to the distribution system, the possibility of voltage issues increases. The system is also experiencing an increase in electrification (electric vehicle adoption, smart appliances, etc.) that draws more of the load.

When we take these factors into account, it becomes clear that we need to enhance our projection models of the distribution system as well as increase our ability to collect and analyze data. These efforts to plan for the changing grid system will better enable distribution planning to work collaboratively with other planning areas at SRP through the Integrated System Planning (ISP).

ISP SUMMER SERIES & INTEGRATED SYSTEM PLANNING

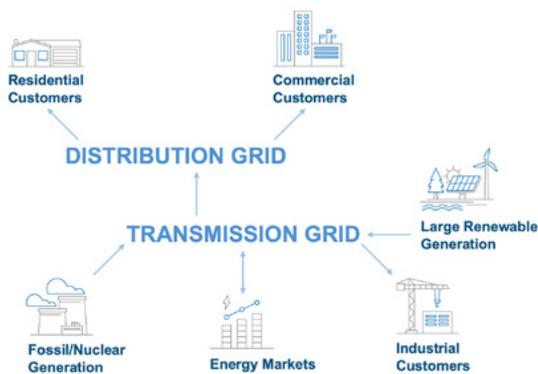
In recent years, the electric power industry has undergone a dramatic transformation which is expected to accelerate.

This transformation is driven by a variety of factors, including:

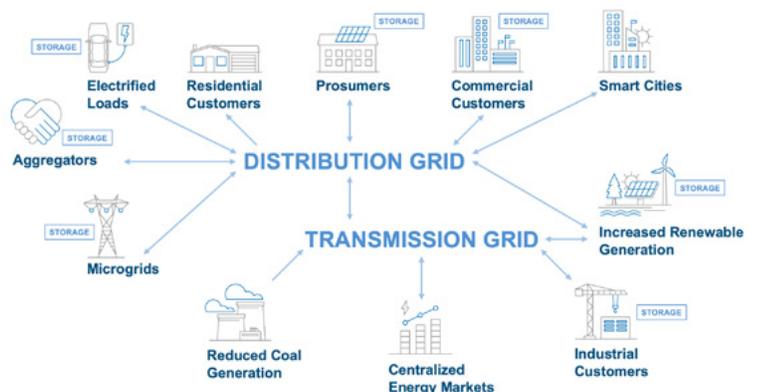
- Rapid deployment of large-scale variable energy resources (VER)
- The growth of distributed energy resources (DER)
- Dramatic advances in digital energy and communications technologies
- Persistent low natural gas prices
- Increased reliance on just-in-time delivery of natural gas to support gas-fired generation
- Growing awareness of the electric sector’s potential role in achieving environmental goals

Where these changes are occurring, traditional planning methods are increasingly insufficient to optimally develop a safe, reliable, affordable and environmentally responsible power system.

Traditional Power System



Future Power System



ISP SUMMER SERIES & INTEGRATED SYSTEM PLANNING (continued)

SRP has begun transitioning from a traditional Integrated Resource Plan (IRP) to a more holistic and comprehensive Integrated System Plan (ISP). This new ISP, formally kicking off in early 2022, is a data-driven process that collaboratively integrates all internal planning functions for generation, transmission, distribution, and customer-sided resources to adapt to evolving industry demands and enhance long-term resource value for our customers and communities, through the lenses of sustainability, reliability and affordability.

The SRP Summer Stakeholder Series is an opportunity to update, educate and engage with community partners like yourself regarding this upcoming transition. Working with community stakeholders is valuable and essential as SRP charts the course to achieving its aggressive 2035 corporate and sustainability goals.

ISP SUMMER SERIES MEETING 1

“Since We Last Met”

JUNE 16

9:30AM – 11:30AM (PST)

OBJECTIVE:

Update on actions taken in accordance with Strategic Resource Directions from the 2017-2018 Integrated Resource Plan

OVERVIEW OF TOPICS:

- 2017-2018 Integrated Resource Plan Refresh
- 2017-2018 Integrated Resource Plan Strategic Direction Progress
- System Planning Foundations (Distribution, Transmission & Load Growth)

ISP SUMMER SERIES MEETING 2

“Near-Term Planning”

JULY 22

10:00AM – NOON (PST)

OBJECTIVE:

Educate on forces of change affecting the industry and SRP’s near-term planning focus

OVERVIEW OF TOPICS:

- Integrated Resource Plan to Integrated System Plan Transition
- Current Planning Environment
- Near-Term Reliability Challenges & Solutions

ISP SUMMER SERIES MEETING 3

“Where We Want To Go”

AUGUST 16

8:30 – 10:30AM (PST)

OBJECTIVE:

Engage stakeholders in early development of the ISP

OVERVIEW OF TOPICS:

- Integrated System Plan Objectives
- Stakeholder Involvement Opportunities
- Preliminary Integrated System Plan Metric Considerations

Glossary

Distributed Energy Resource (DER): Any resource on a distribution system that produces electricity and/or can be controlled (e.g., demand response).

Distribution System (distribution lines): The last phase of power delivery. This is where high-voltage electricity is distributed from generation assets to substations where the voltage is lowered to a level that can be delivered directly to residential homes and businesses.

Energy: The amount of electricity customers use or that a generating resource produces over a specific period.

Integrated Resource Planning (IRP): A process in which SRP plans with community stakeholders to identify and prepare electricity generating resources and customer programs to serve customer needs.

Integrated System Plan (ISP): A data driven, collaboratively developed plan for generation, transmission, distribution and customer resources to meet SRP's 2035 Corporate Goals and prepare for SRP's growing power system needs and aggressive 2050 ambitions.

Load/Demand: The amount of electricity being used at any given moment by a single customer or by a group of customers. The total demand on a given system is the sum of all individual demands on that system occurring at the same moment. The peak demand is the highest demand occurring within a given span of time, usually a season or a year. The peak demand that a transmission or distribution system must carry sets the minimum requirement for its capacity (see also the definition for energy).

Resources: Power generation assets that produce electricity for SRP customers or customer programs to reduce customer energy use.

Substations: Secure areas where the high-voltage transmission system connects to the lower-voltage distribution system for purposes of switching, metering or adjusting voltage.

Transmission and Distribution: Transmission and distribution refers to the different stages of carrying electricity over poles and wires from generators to a home or a business. The primary distinction between the two is the voltage level at which electricity moves in each stage, with transmission carrying a higher voltage than distribution.

Transmission System (transmission lines): Facilities that are energized at 69 kV (69,000 volts) or higher. Transmission is the "interstate highway" of electricity delivery. It refers to the part of electricity delivery that moves bulk electricity from the generation sites over long distances to substations closer to where the electricity is needed.

Variable Energy Resource (VER): Any generation resource whose output is not perfectly controllable by a transmission system operator and whose output is dependent on a fuel resource whose availability is difficult to predict. Residential solar is a good example of a VER.

Western Electricity Coordinating Council (WECC): WECC is an independent organization that works with entities across the West to further grid reliability. Through its various reliability-related activities, WECC provides critical support to the Reliability Coordinator and the resource owners/operators throughout the Western Interconnection.