

# SALT RIVER PROJECT AGRICULTURAL IMPROVEMENT AND POWER DISTRICT BOARD MEETING NOTICE AND AGENDA

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## JOINT MEETING OF THE BOARD OF DIRECTORS AND COUNCIL WORK STUDY SESSION

Wednesday, August 30, 2023, 9:30 AM

PERA Training and Conference Center  
1 E. Continental Drive, Tempe, AZ 85288

Roll Call  
Safety Minute

1. Reconvene Meeting of August 29, 2023.....PRESIDENT DAVID ROUSSEAU
2. Integrated System Planning Overview.....ANGIE BOND-SIMPSON;  
NICK SCHLAG, ENERGY AND ENVIRONMENTAL ECONOMICS, INC.;  
APRIL SMITH, BELLOMY RESEARCH; and VARIOUS

Informational presentation to provide an overview of the Integrated System Plan (ISP) and demonstrate how coordinated planning throughout generation, transmission, distribution, and customer programs will guide SRP through the energy transition.

3. Adjourn .....PRESIDENT DAVID ROUSSEAU

The Board may vote during the meeting to go into Executive Session, pursuant to A.R.S. §38-431.03 (A)(3), for the purpose of discussion or consultation for legal advice with legal counsel to the Committee on any of the matters listed on the agenda.

The Board may go into Closed Session, pursuant to A.R.S. §30-805(B), for records and proceedings relating to competitive activity, including trade secrets or privileged or confidential commercial or financial information.

Visitors: The public has the option to attend in-person or observe via Zoom and may receive teleconference information by contacting the Corporate Secretary's Office at (602) 236-4398. If attending in-person, all property in your possession, including purses, briefcases, packages, or containers, will be subject to inspection.



NOTICE WILL BE SENT REGARDING THE NEXT JOINT  
MEETING OF THE BOARD OF DIRECTORS AND COUNCIL  
WORK STUDY SESSION

08/22/2023



An aerial photograph of a large dam and reservoir situated in a deep, rugged canyon. The canyon walls are composed of layered, reddish-brown rock. The reservoir is a deep blue color, and the dam is a long, curved structure across the middle of the canyon. The sky is a clear, pale blue.

# **Integrated System Plan (ISP) Update: Day 2**

## **ISP Board and Council Study Session**

**Angie Bond-Simpson, Sr. Director | August 30, 2023**

**SAFETY MINUTE: MONSOON SEASON  
SRP BOARD AND COUNCIL  
WORK STUDY SESSION**

**SARA MCCOY  
DIRECTOR, RISK MANAGEMENT  
AUGUST 30, 2023**

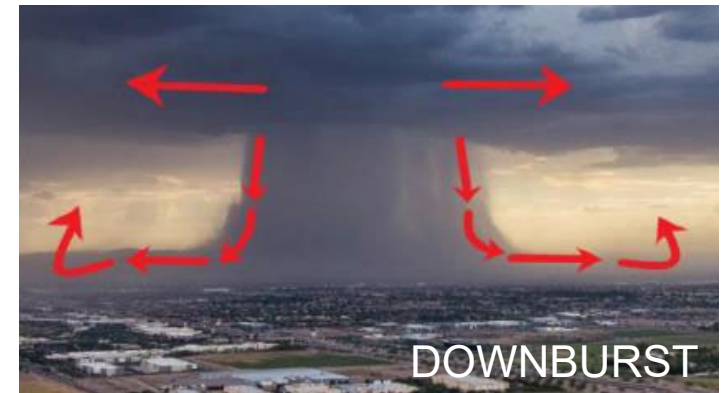


Delivering water and power™

## SAFETY MINUTE: MONSOON SEASON

- Arizona: June 15 – September 30
  - Downbursts
  - Dust Storms
  - Thunderstorms
- Prepare before a storm
- Stay indoors, decide not to drive

*Outages or downed lines/poles?  
Call SRP 602-236-8888*



# Welcome

**Bobby Olsen**

AGM & Chief Planning, Strategy & Sustainability Executive

# Meeting Objectives

## Day 1

- ✓ Introduce Integrated System Planning (ISP)
- ✓ Review collaborative study plan and engagement processes

## Day 2

- Present ISP recommended System Strategies based on key findings from the analysis
- Illustrate Management's ISP Implementation Steps
- Address questions with SRP Subject Matter Experts

# Agenda

Time (incl. Q&A)		Topics	Presenter
<b>DAY 2</b>	<b>DAY 2</b>		
<b>9:30-9:35</b>	5 min	Welcome	Bobby Olsen
<b>9:35- 9:45</b>	10 min	ISP Scenario Planning Metrics	Angie Bond-Simpson
<b>9:45-10:25</b>	40 min	ISP Recommendation: System Strategies Including Key Findings That Support the Recommendation	Angie Bond-Simpson Nick Schlag (E3)
<b>10:25-10:45</b>	20 min	ISP Implementation Steps: Balanced System Plan	Angie Bond-Simpson
<b>10:40- 11:15</b>	35 min	ISP Implementation Steps: ISP Actions	Adam Peterson Dan Dreiling Vanessa Kisicki Grant Smedley Bryce Nielsen
<b>11:15-12:00</b>	45 min	Panel Q&A	All
<b>12:00-12:05</b>	5 min	Wrap Up & Next Steps	Angie Bond-Simpson
<b>12:05-12:30</b>	30 min	Lunch	



# Metrics Takeaways: The Need for Balance



## Affordability

A Tech Neutral strategic approach results in lowest system cost and lower bill impacts.



## Sustainability

A Minimum Coal strategic approach results in greater emissions reductions and lower water use.



## Reliability

A Tech Neutral strategic approach results in paced infrastructure development and is the only approach able to meet reliability under high customer demand conditions.

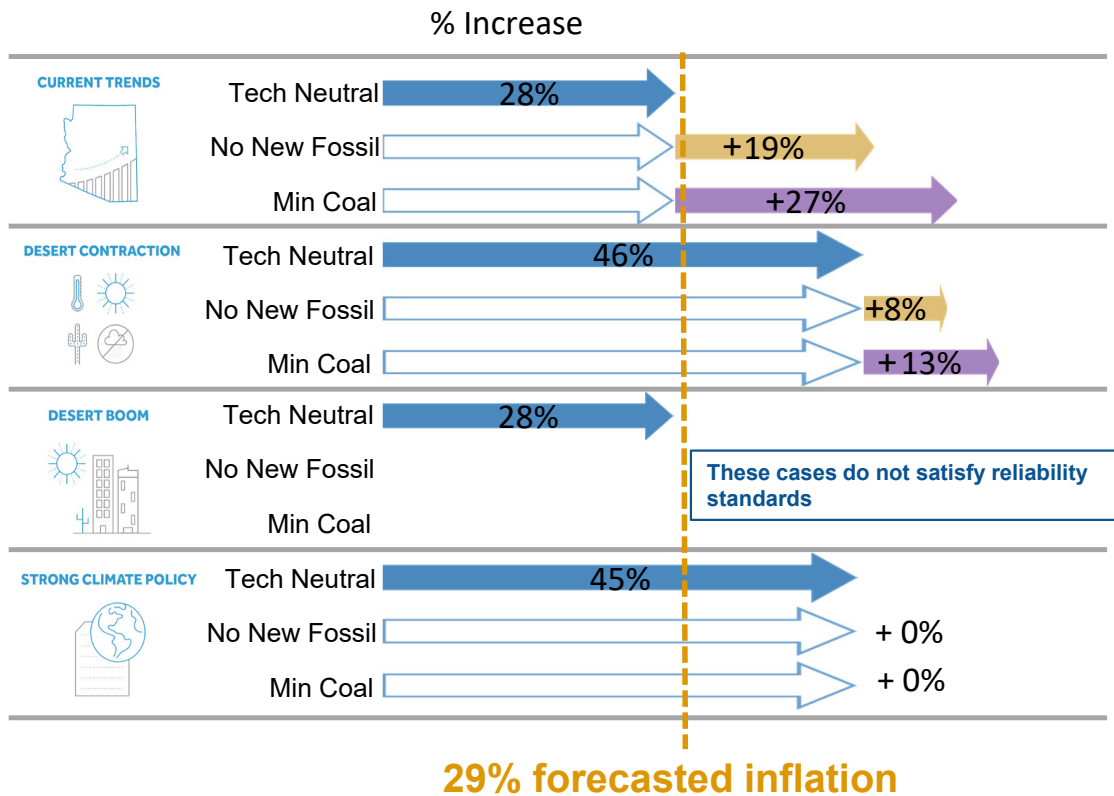


## Customer Focus

Residential customer are sensitive to bill impacts.

Customer programs potentially unlock greater economy wide carbon reductions.

# ISP Scenario Rate Impacts

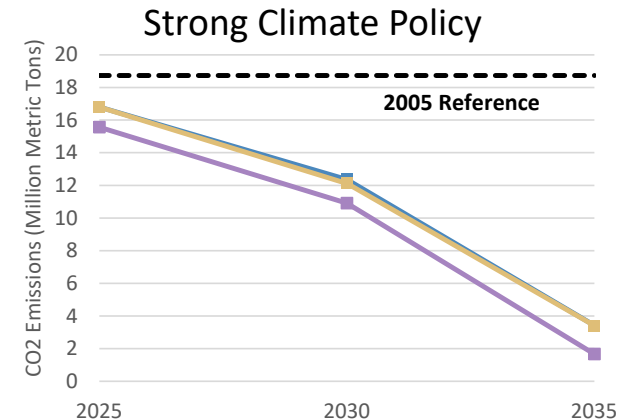
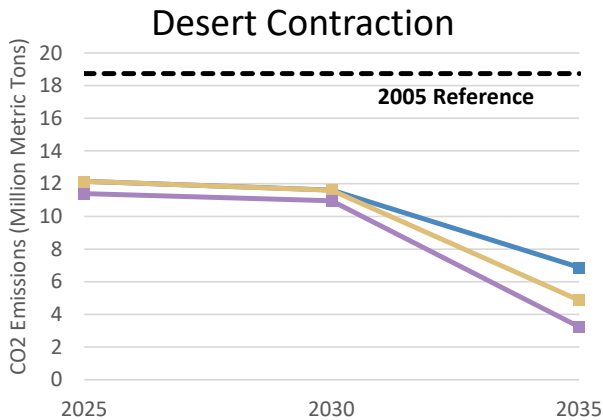
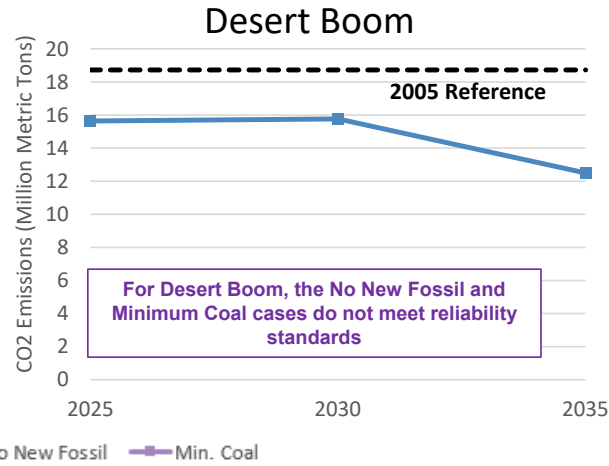
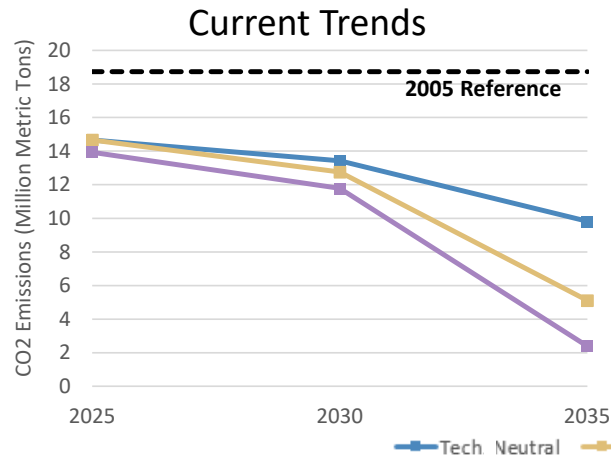


## ISP Takeaway:

- The Technology Neutral strategic approach results in lowest impact to customer prices.

*These are representative results based on ISP analysis modeling, NOT projections of SRP's future prices, and are not inclusive of factors beyond the scope of ISP analysis.*

# ISP Scenario CO<sub>2</sub> Reductions (Mass)



## ISP Takeaways

- Coal retirements, coupled with renewable and storage additions, drive significant carbon mass reductions in all cases
- No New Fossil and Minimum Coal lead to greater carbon reductions
- Carbon emissions are generally correlated with load growth (lower in Desert Contraction, higher in Desert Boom)

*All cases achieve SRP's 2035 Sustainability goal of a 65% carbon intensity reduction.*

# ISP Recommendation: System Strategies

Angie Bond-Simpson  
Sr. Director, Resource Management

Nick Schlag  
Partner (E3)

# ISP System Strategies

The System Strategies are long-term strategies for planning and operating the power system to achieve SRP's 2035 goals.

## Objectives:

- Provide **guidance and priority** for how to plan and operate the system in the future.
- Provide **transparency** to customers and other stakeholders of what strategies SRP plans to employ to evolve its system.
- Serve as **the starting point** for building an illustrative Balanced System Plan and ISP actions designed to implement the System Strategies

# Integrated System Plan: System Strategies

## Energy Investments

Invest in renewable resources and storage to manage fuel consumption, and drive carbon and water reductions.

## Capacity Investments

Invest in firm generation, including natural gas, to support reliability and manage affordability, while also supporting advancement of emerging firm technologies.

## Proactive Transmission

Proactively plan to expand transmission infrastructure to enable generator interconnections and load growth.

## Distribution Innovation

Ensure distribution grid readiness to maintain reliability and enable customer innovations to drive carbon reductions.



## Strategic Investment & Reinforcement of Existing Assets

Reinforce and maximize value of existing infrastructure with strategic investments to manage affordability, and ensure future performance, grid security and resilience.

## Evolution of Customer Programs & Pricing

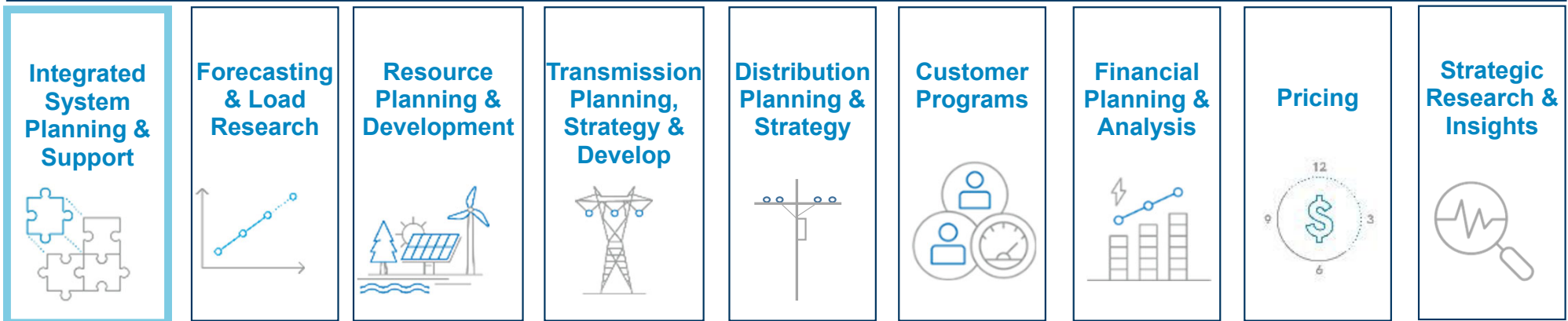
Evolve pricing and customer programs to improve economy-wide carbon reductions and pace infrastructure development, while recognizing customers' diverse needs.

## Partnerships & Suppliers

Explore partnerships, supply chain and development solutions that manage cost and availability to meet the pace of transformation.

# ISP Project Team

## Key Contributing Departments



*Coordination, Leadership Guidance, Analysis & Support*

*Consultants:*



*Leadership Guidance & Analysis Teams*

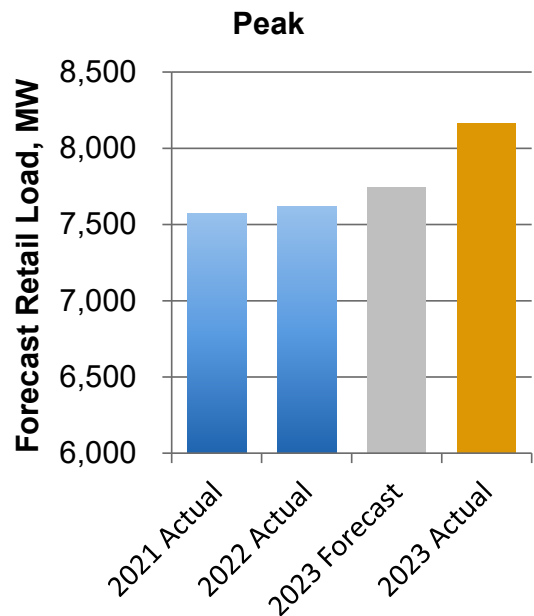
*Customer Research Team*

*Consultant:*



# Major Trends Impacting Planning

## Energy demand continues to grow rapidly in Arizona



The SRP system reached a new peak load of 8,163 MW on 7/18/23.

## The Inflation Reduction Act (IRA) provides significant funding for clean energy

**\$350 billion**

new funding for a wide range of clean energy technologies and programs

As part of the ISP, SRP held a Technical Working Session on the IRA and the analysis factors in IRA incentives.

## NERC: North America faces increased reliability risks



Source: North American Electric Reliability Corporation (NERC) 2023 Summer Reliability Assessment



# System-Wide Analysis

## Strategic Approaches

Scenarios

	Technology Neutral	No New Fossil	Min. Coal
Desert Contraction	●	●	●
Current Trends	●	●	●
Strong Climate Policy	●	●	●
Desert Boom	●	●	●

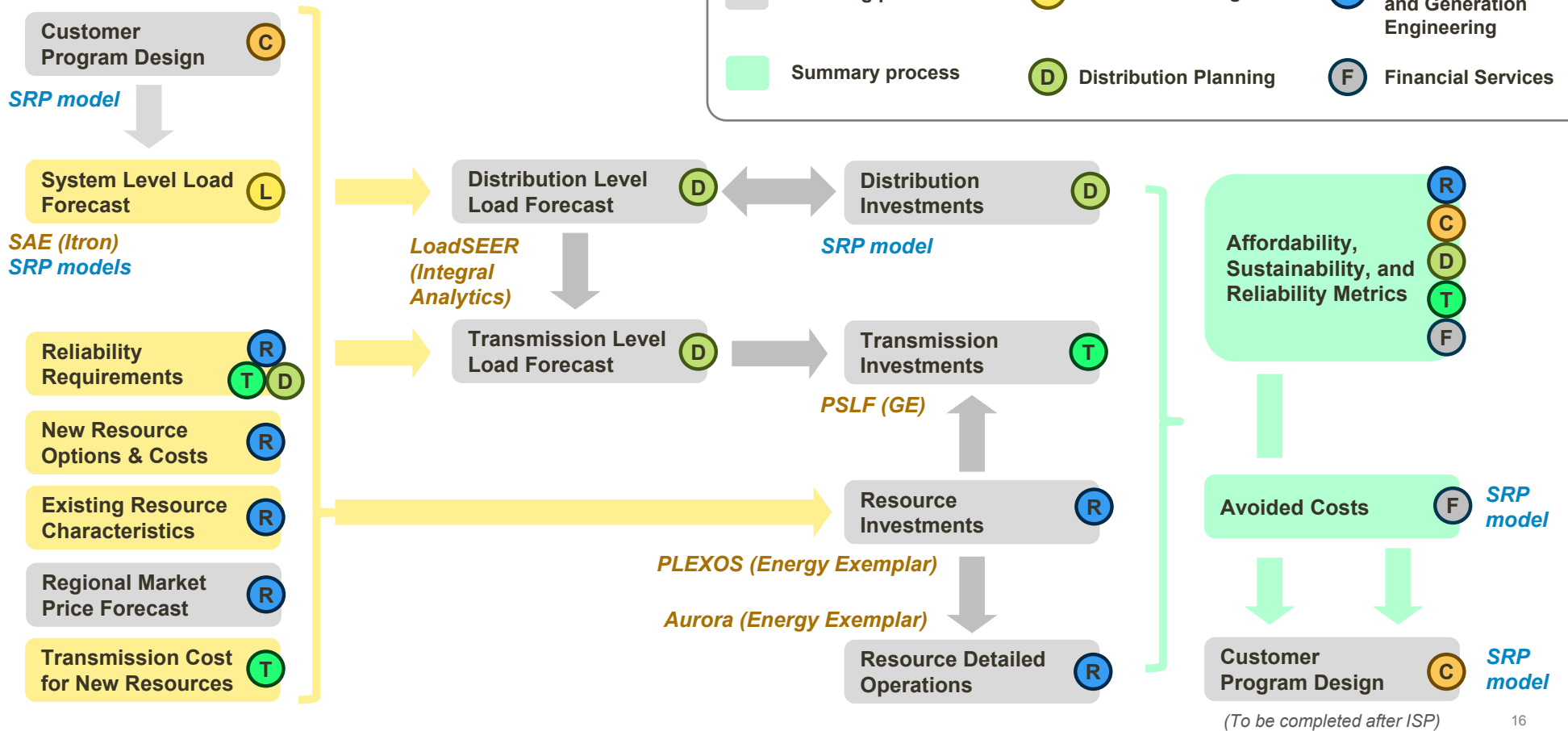
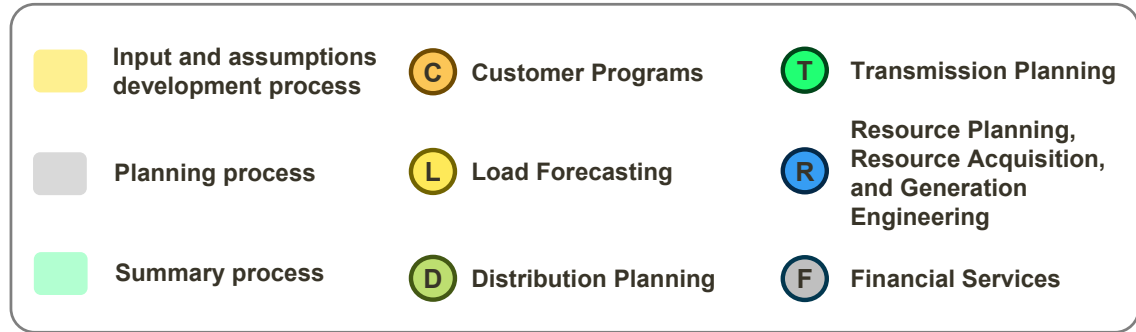
12 Scenario-Based System Plans



30 Sensitivity Cases

# Integrated System Plan

## SRP and third-party models



# Integrated System Plan: System Strategies

## Energy Investments

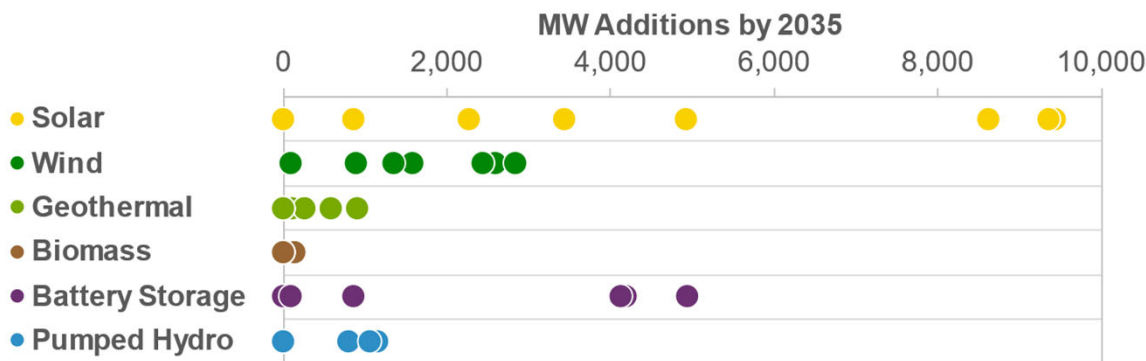
Invest in renewable resources and storage to manage fuel consumption, and drive carbon and water reductions.



# Renewable and Storage Resources Reduce Fuel Costs and Contribute to Improved Sustainability



The ISP analysis identified a range of renewable and storage additions that vary depending on future planning conditions.



Different amounts of renewable and storage additions lead to different sustainability outcomes:

**Reduced Carbon Intensity**

**74 to 96%**

vs. 2005 baseline  
(SRP goal of 65%)

**Reduced Water Usage Intensity**

**31 to 71%**

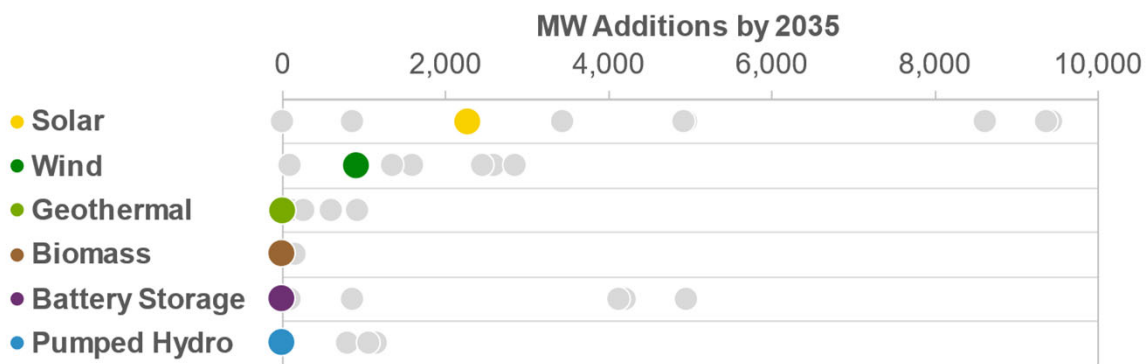
vs. 2005 baseline  
(SRP goal of 20%)

# Renewable and Storage Resources Reduce Fuel Costs and Contribute to Improved Sustainability



Lower renewable & storage additions are associated with smaller reductions in carbon and water usage intensity

*Tech Neutral, Current Trends case:*



**Renewable & storage additions under a mid case planning scenario:**

**+3,150 MW**

*(second lowest among cases)*

**Reduced Carbon Intensity**

**75%**

*vs. 2005 baseline  
(third smallest reduction)*

**Reduced Water Usage Intensity**

**37%**

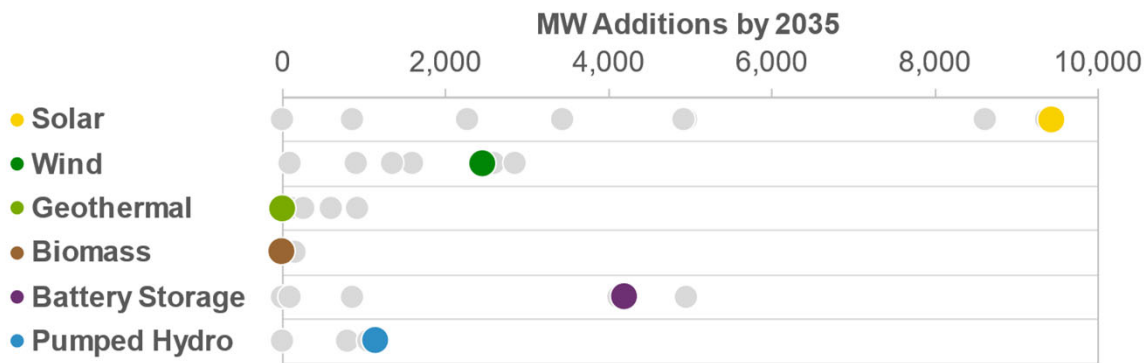
*vs. 2005 baseline  
(second smallest reduction)*

# Renewable and Storage Resources Reduce Fuel Costs and Contribute to Improved Sustainability



Higher renewable & storage additions are associated with larger reductions in carbon and water usage intensity

Tech Neutral, Strong Climate Policy case:



Renewable & storage additions under an aggressive federal clean energy requirement scenario:

**+17,200 MW**  
*(highest among cases)*

Reduced Carbon Intensity

**91%**

vs. 2005 baseline  
*(third largest reduction)*

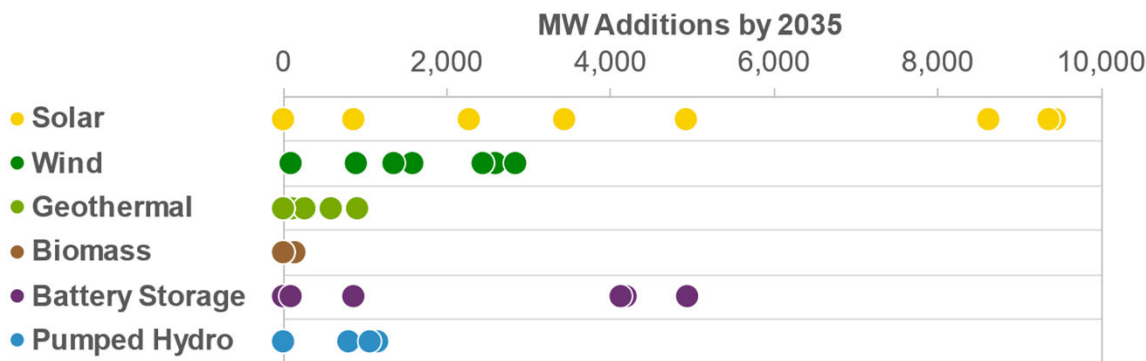
Reduced Water Usage Intensity

**67%**

vs. 2005 baseline  
*(third largest reduction)*

This outcome could be driven by factors outside of SRP's control, including an aggressive federal clean energy requirement

# Renewable and Storage Resources Reduce Fuel Costs and Contribute to Improved Sustainability



Significant quantities of new renewables & storage resources across cases point to their role in improving sustainability and managing fuel consumption

A focus on adaptivity and flexibility will position SRP to adjust its portfolio to meet customer needs at lowest costs

# Integrated System Plan: System Strategies

## Energy Investments

Invest in renewable resources and storage to manage fuel consumption, and drive carbon and water reductions.

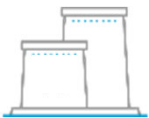
## Capacity Investments

Invest in firm generation, including natural gas, to support reliability and manage affordability, while also supporting advancement of emerging firm technologies.





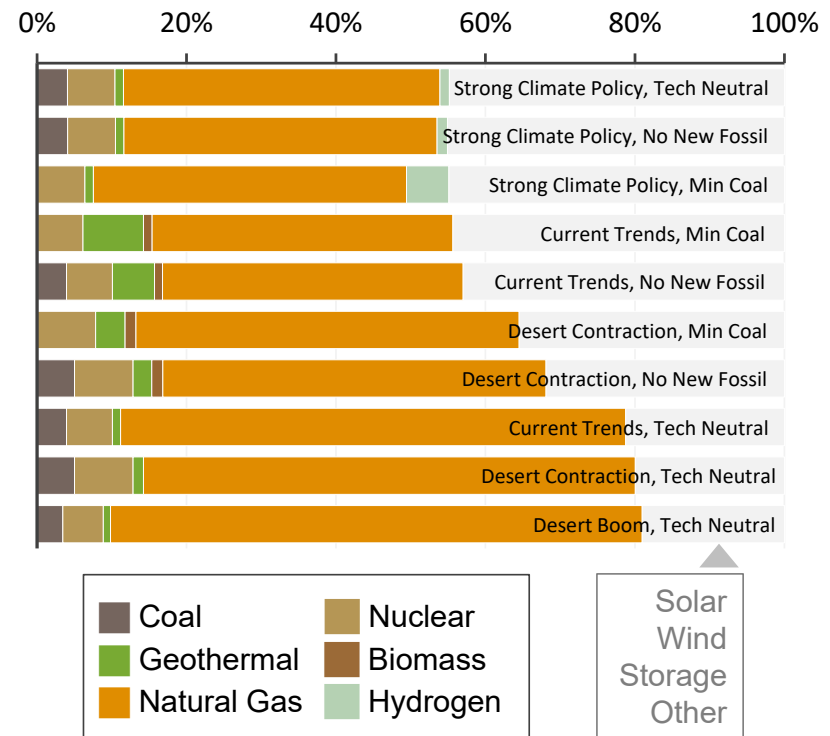
# New Firm Resources Are Needed



Firm resources are key to maintaining reliability

- Across all plans, firm resources meet at least **55%** of reliability needs in 2035
- Without new firm resources, reliability is compromised by **2028** under a high load growth scenario

Share of Adequacy Reliability Requirement Met by Firm Resources Across Cases



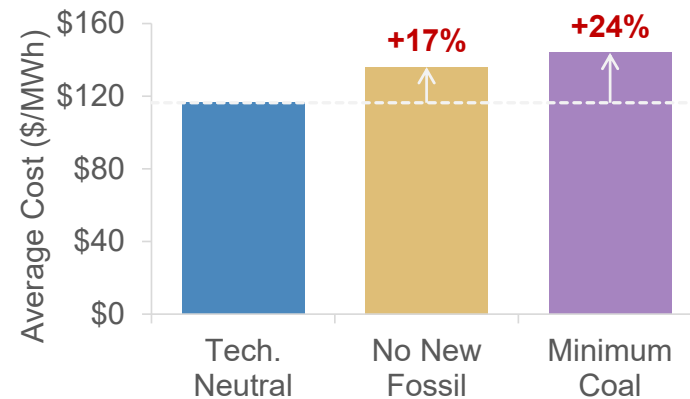
# New Firm Resources Are Needed



## New natural gas is part of a least-cost portfolio

- On average, a least-cost plan adds **>2,000 MW** by 2035
- Without new natural gas, costs are **17-24%** higher in 2035 in the Current Trends scenario

## Average System Cost in 2035 Under the Current Trends Scenario



*In the Desert Contraction scenario, the cost increase is 7-11%. The Desert Boom cases do not meet the reliability requirements but would have even greater cost increases.*

# New Firm Resources Are Needed



**Emerging technology may help to meet a portion of firm resource needs**

- Hydrogen is selected in cases that accelerate hydrogen availability and include an aggressive federal carbon target

**Green hydrogen capacity additions in Strong Climate Policy scenario cases:**

Approach	Hydrogen Capacity
Tech Neutral	178 MW
No New Fossil	195 MW
Minimum Coal	790 MW

*Any green hydrogen capacity additions would require the development of supply, storage, and transportation infrastructure, which would require further advancements in the industry.*

*The ISP also evaluated nuclear small modular reactors (SMR) and gas with carbon capture and sequestration (CCS), but these resources were not selected by 2035 in any cases.*

# Integrated System Plan: System Strategies

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## Proactive Transmission

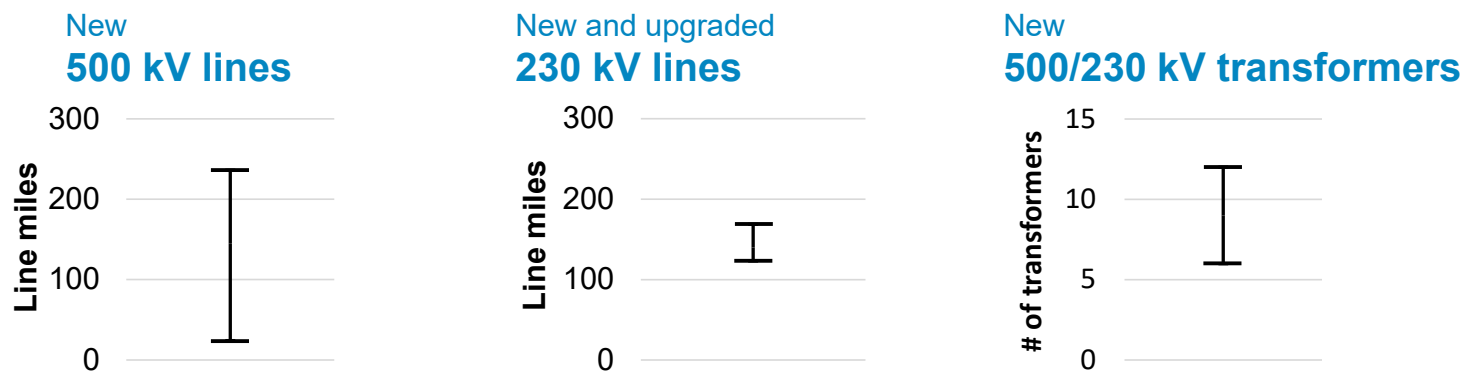
Proactively plan to expand transmission infrastructure to enable generator interconnections and load growth.



# Proactive Transmission Planning Enables Load Growth and Addition of Generating Resources



A significant amount of transmission infrastructure is needed by 2035:



Long lead times for infrastructure necessitate a proactive approach.

500 kV lines  
**5-9+** years

230 kV lines  
**3-7** years

500/230 kV transformers  
**3-5** years

# Integrated System Plan: System Strategies

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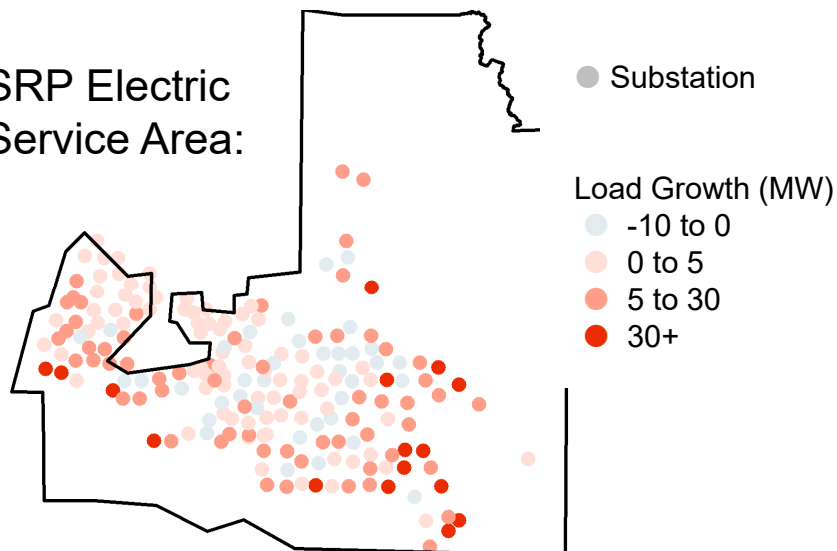
# Distribution Readiness for Growth and Evolving Customer Needs



Load growth will drive additional infrastructure needs for the distribution system...

...while changes in *how* our customers use energy will require innovation and flexibility

SRP Electric Service Area:



**500,000**  
electric vehicles



**1,300 MW**  
distributed solar



**300 MW**  
demand response

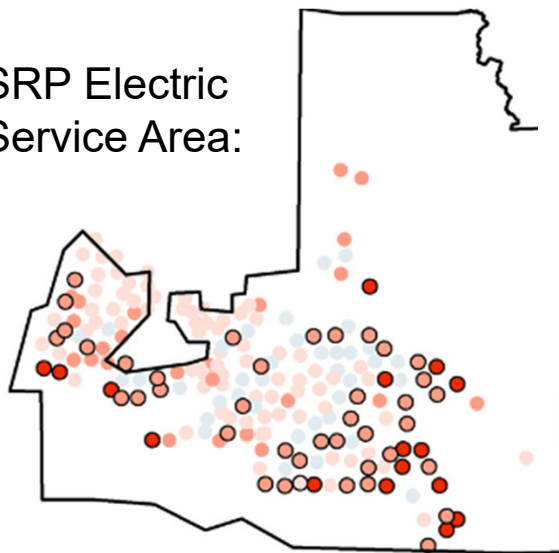
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SRP Electric Service Area:



- Substation
  - New or upgraded
- Load Growth (MW)
- -10 to 0
  - 0 to 5
  - 5 to 30
  - 30+



**500,000**  
electric vehicles



**1,300 MW**  
distributed solar



**300 MW**  
demand response



# Integrated System Plan: System Strategies

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## Partnerships & Suppliers

Explore partnerships, supply chain and development solutions that manage cost and availability to meet the pace of transformation

# Partnership and Supplier Solutions Can Help SRP Meet the Pace of Transformation through 2035



**2,200-18,000 MW**  
new nameplate capacity

**160-380 miles**  
new 230+ kV transmission lines

**6-12**  
new 500/230kV transformers

**26-84**  
new distribution substation bays

**3,800 GWh**  
total energy efficiency savings

**300 MW**  
total demand response

**500,000**  
total electric vehicles

**Up to 10% IRA bonus**  
domestic content provisions\*  
*\*Public power must satisfy domestic content, or entire credit at risk*

# Integrated System Plan: System Strategies

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## Evolution of Customer Programs & Pricing

Evolve pricing and customer programs to improve economy-wide carbon reductions and pace infrastructure development, while recognizing customers' diverse needs.

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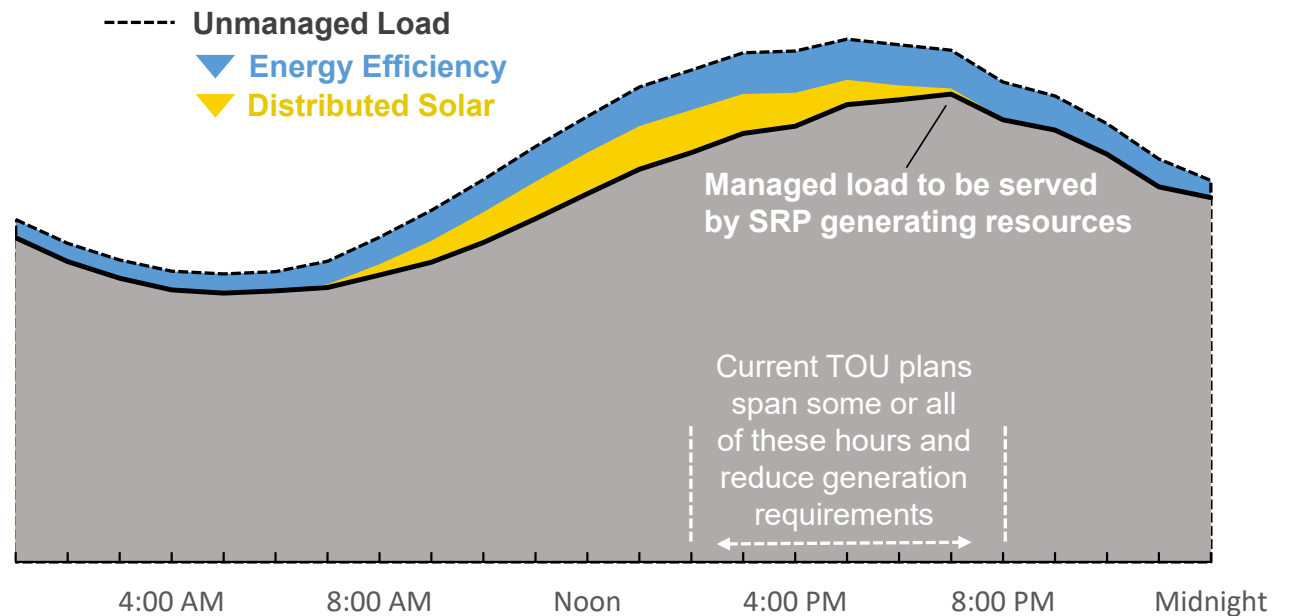
Explore partnerships, supply chain and development solutions that manage cost and availability to meet the pace of transformation

# Customer Programs & Price Plans Help SRP Manage Peak Energy Demand



Existing customer programs and price plans are effective at managing peak energy demand today.

2035 Peak Day Projection

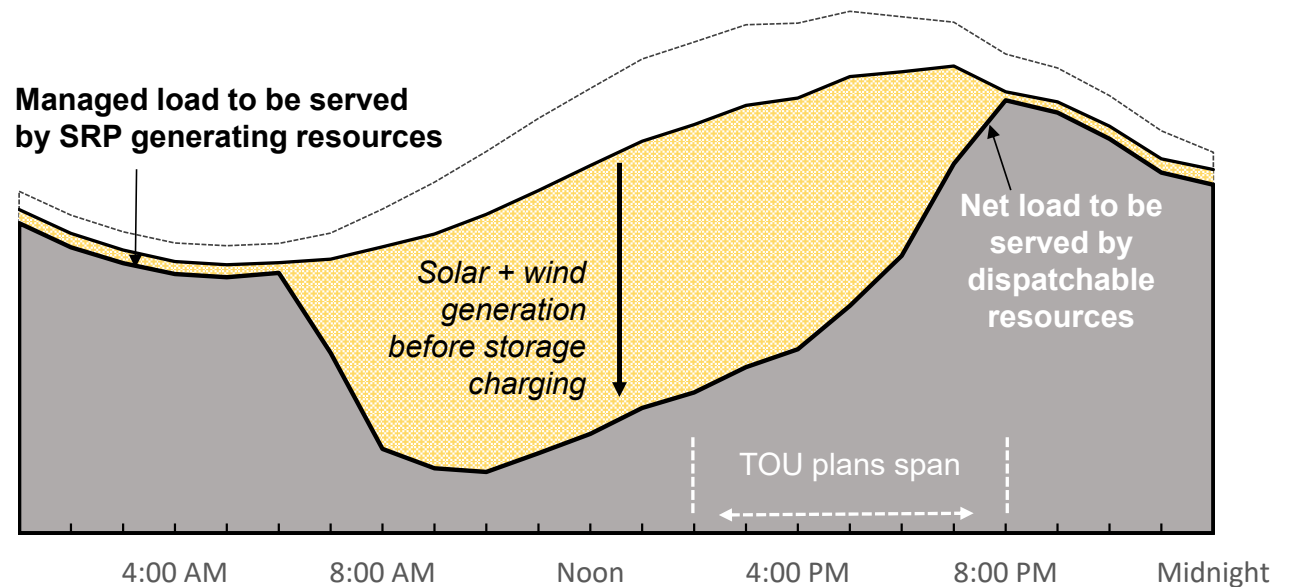


# Customer Programs & Pricing Can Help SRP Meet New System Needs



As large amounts of solar and wind are added to the system, the “net load” must be served with dispatchable resources

2035 Peak Day Projection



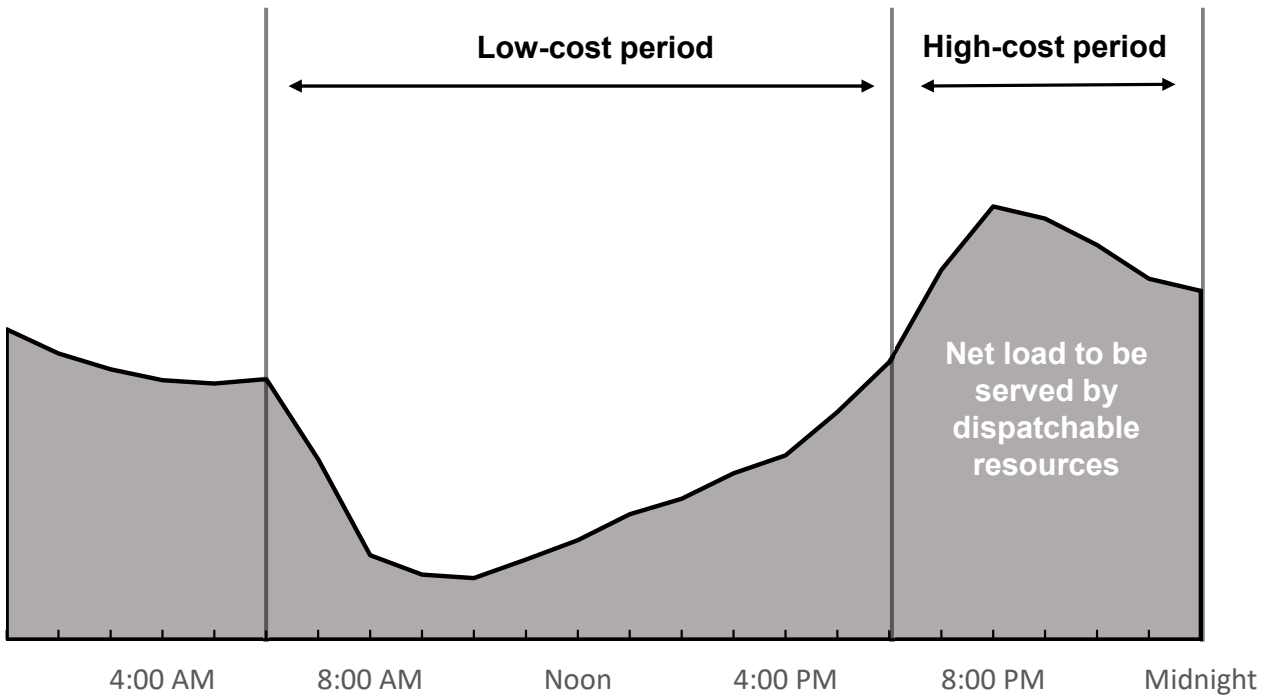
# Customer Programs & Pricing Can Help SRP Meet New System Needs



**As the system transforms, net load is the new target for pricing and programs.**

- Late evening and overnight load reduction becomes more important
- Opportunity to shift load to mid-day, low-cost periods and build load during these periods

**2035 Peak Day Projection**



# Integrated System Plan: System Strategies

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## Strategic Investment & Reinforcement of Existing Assets

Reinforce and maximize value of existing infrastructure with strategic investments to manage affordability, and ensure future performance, grid security and resilience.

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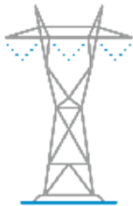
# Existing Assets Are the Foundation for the Future System



Any future planning scenario requires maintaining the existing system.



In 2035, SRP's existing and contracted generating assets make up an estimated **50%** of nameplate capacity, **70%** of reliability needs, and **45%** of carbon-free energy



In 2035, SRP's existing transmission lines make up an estimated **90%** of the total number of 230+ kV line miles



In 2035, SRP's existing distribution substation bays make up an estimated **85%** of the total number of substation bays



# Integrated System Plan: System Strategies

## Energy Investments

Invest in renewable resources and storage to manage fuel consumption, and drive carbon and water reductions.

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Reinforce and maximize value of existing infrastructure with strategic investments to manage affordability, and ensure future performance, grid security and resilience.

## Evolution of Customer Programs & Pricing

Evolve pricing and customer programs to improve economy-wide carbon reductions and pace infrastructure development, while recognizing customers' diverse needs.

## Partnerships & Suppliers

Explore partnerships, supply chain and development solutions that manage cost and availability to meet the pace of transformation.

# Draft Balanced System Plan

Angie Bond-Simpson  
Sr. Director, Resource Management

# Balanced System Plan Objectives

The Balanced System Plan serves as an *illustrative path* for SRP's system that is consistent with the ISP System Strategies.

- Achieves SRP's reliability requirements
- Achieves SRP's 2035 Sustainability Goals
- Informed by the breadth of analysis in the Integrated System Plan
- Balances risks, including financial, development, and operational
- Considers customer preferences and stakeholder input

# The System Strategies Inform the Draft Balanced System Plan

## Energy Investments

The draft Balanced System Plan adds mostly renewable and storage resources to manage fuel consumption, drive carbon and water reductions.

## Capacity Investments

The draft Balanced System Plan includes new natural gas capacity to support reliability and manage affordability.

## Proactive Transmission

The draft Balanced System Plan includes transmission infrastructure needed to meet load and generation growth, balancing a hub and pro-rata location strategy

## Distribution Innovation

The draft Balanced System Plan adds distribution infrastructure needed to meet growing load, including that from electric vehicles, while preparing the grid for future customer innovation



## Strategic Investment & Reinforcement of Existing Assets

The draft Balanced System Plan maintains existing system infrastructure, barring resources with planned retirement dates.

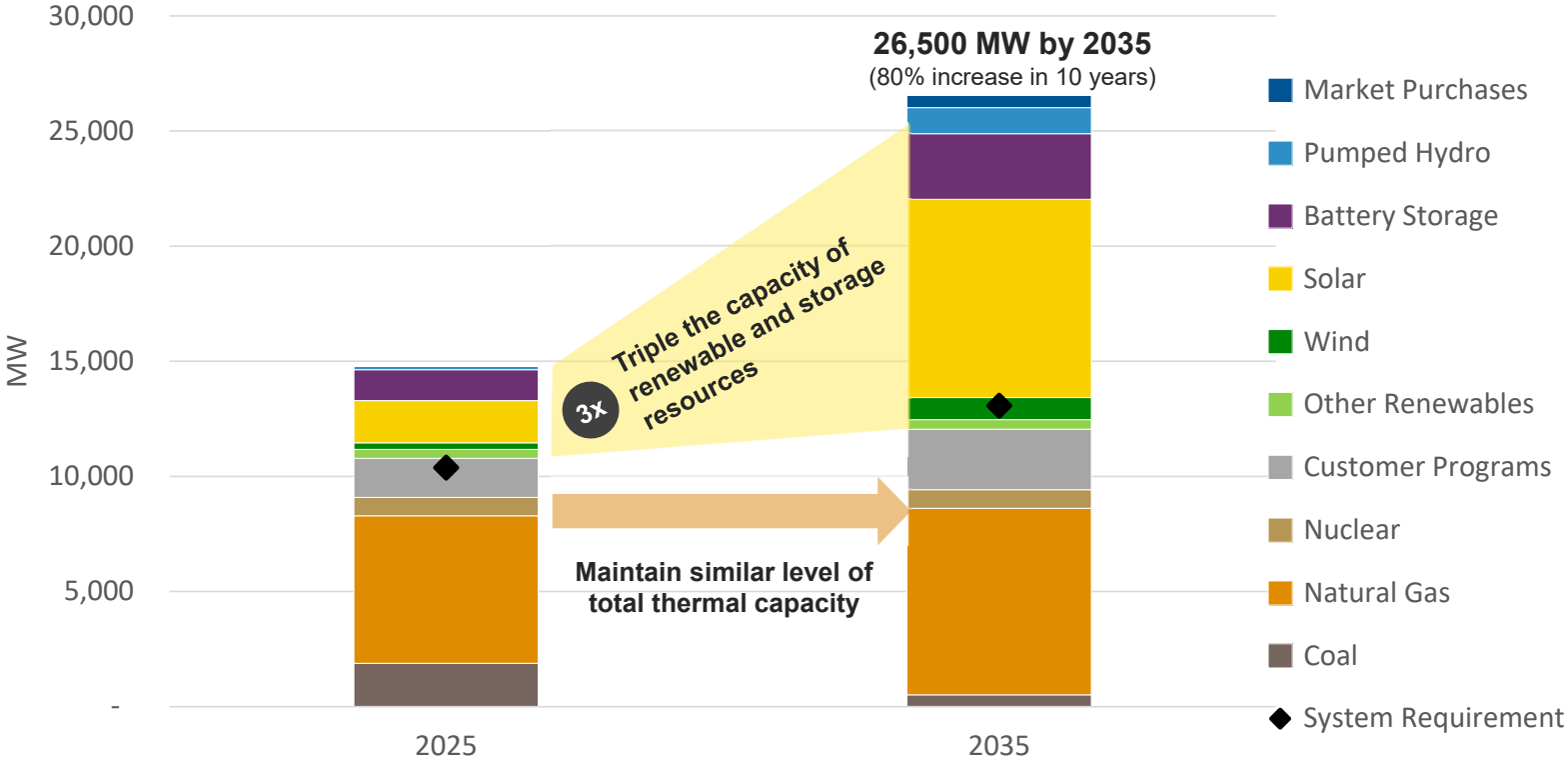
## Evolution of Customer Programs & Pricing

The draft Balanced System Plan grows customer programs through 2035. The draft Balanced System Plan doesn't include the impacts of changes to pricing, but SRP anticipates that could mitigate some system needs.

## Partnerships & Suppliers

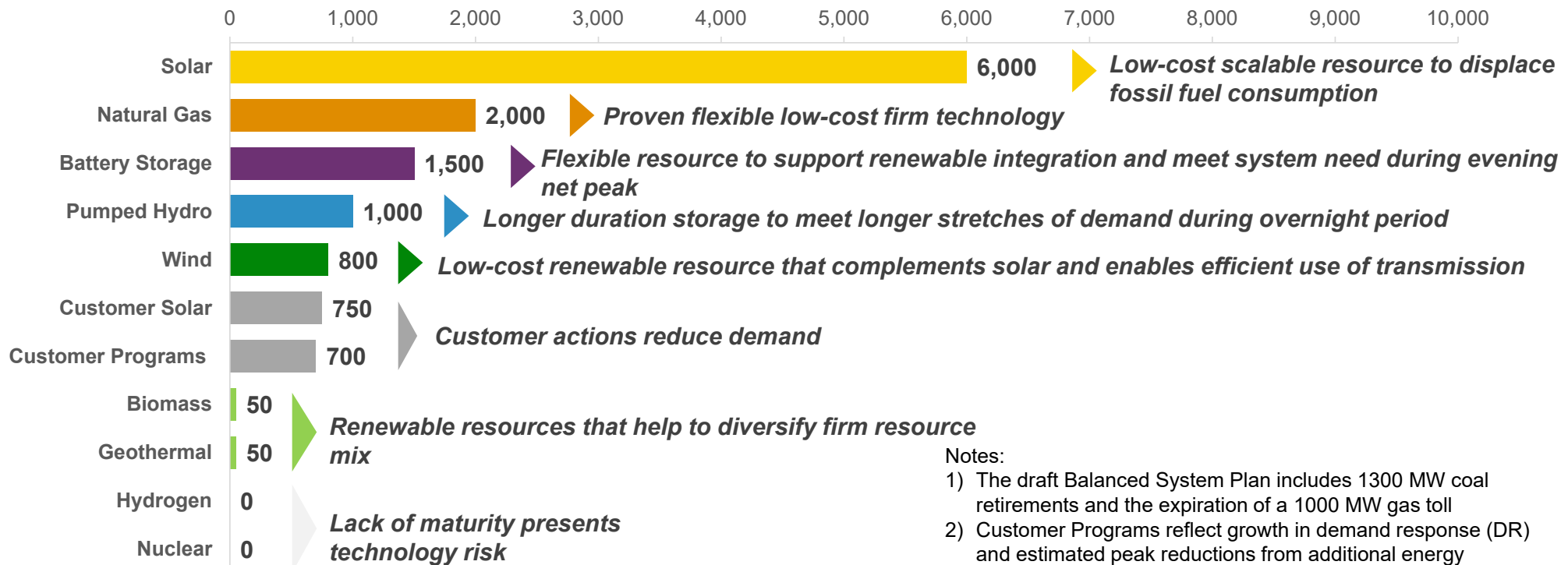
The draft Balanced System Plan will seek partners for emerging technology research and domestic suppliers for renewable and storage self-build options.

# Draft Balanced System Plan: 2025 and 2035 Total Capacity



# Draft Balanced System Plan: Diversified Resource Additions

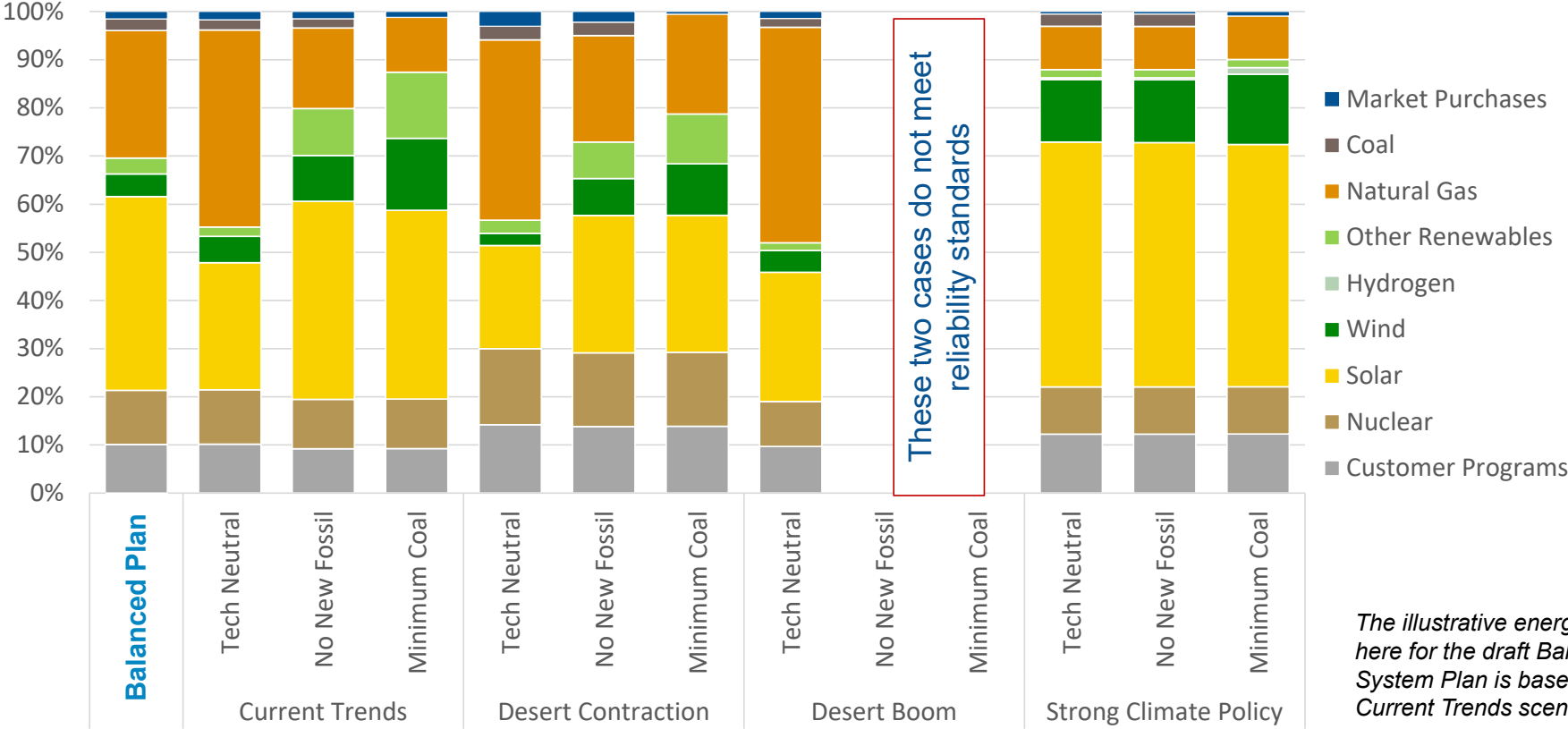
Balanced System Plan Nameplate Capacity Additions by 2035 (MW)



Notes:

- 1) The draft Balanced System Plan includes 1300 MW coal retirements and the expiration of a 1000 MW gas toll
- 2) Customer Programs reflect growth in demand response (DR) and estimated peak reductions from additional energy efficiency (EE). Customer Solar includes forecasted adoption of customer solar and storage

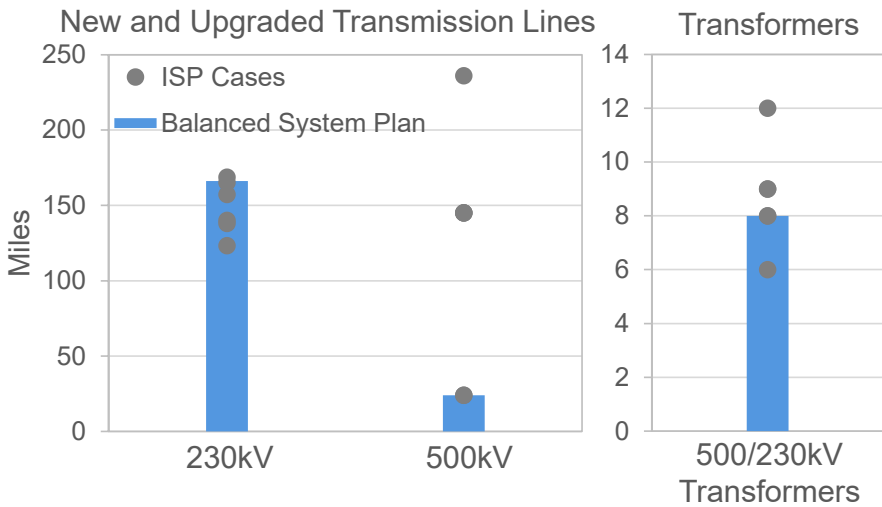
# Draft Balanced System Plan: 2035 Energy Mix



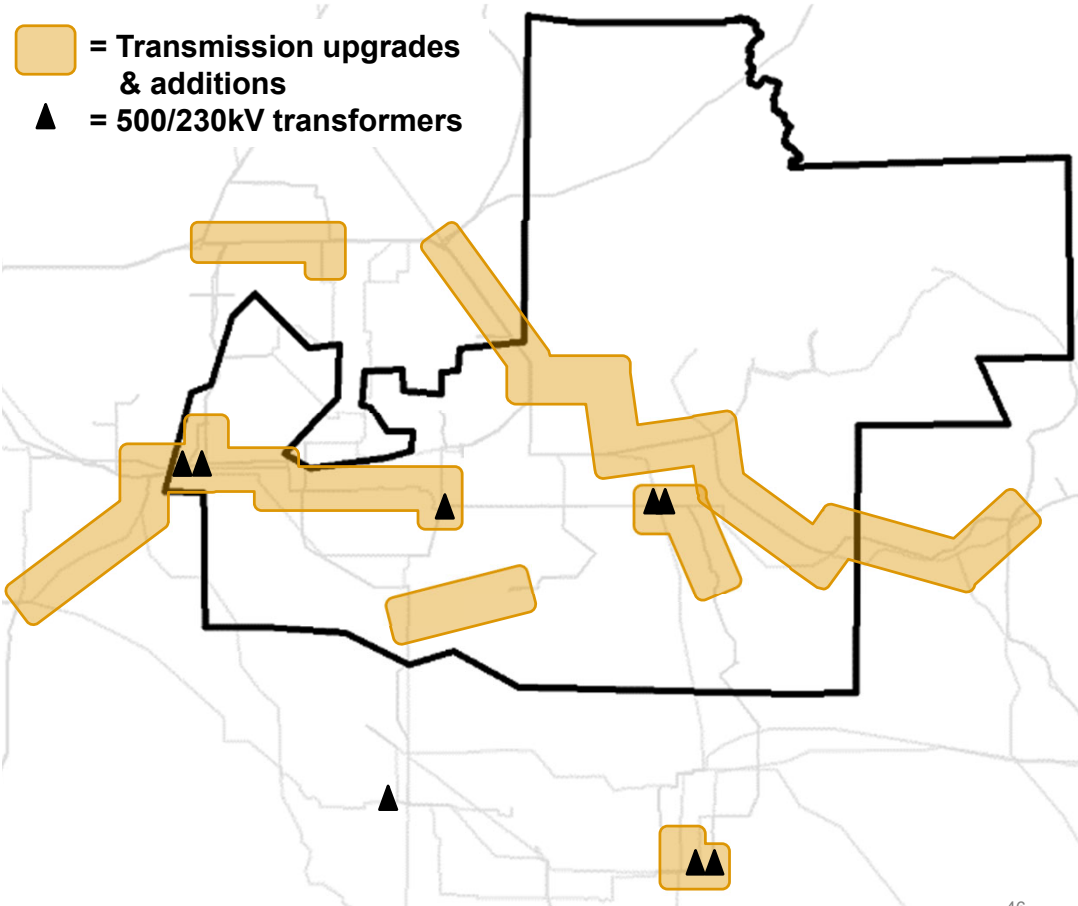
*The illustrative energy mix shown here for the draft Balanced System Plan is based on the Current Trends scenario.*

# Draft Balanced System Plan: Transmission Additions by 2035

The Balanced System Plan includes transmission infrastructure needed to meet load and generation growth, balancing a hub and pro-rata resource location strategy



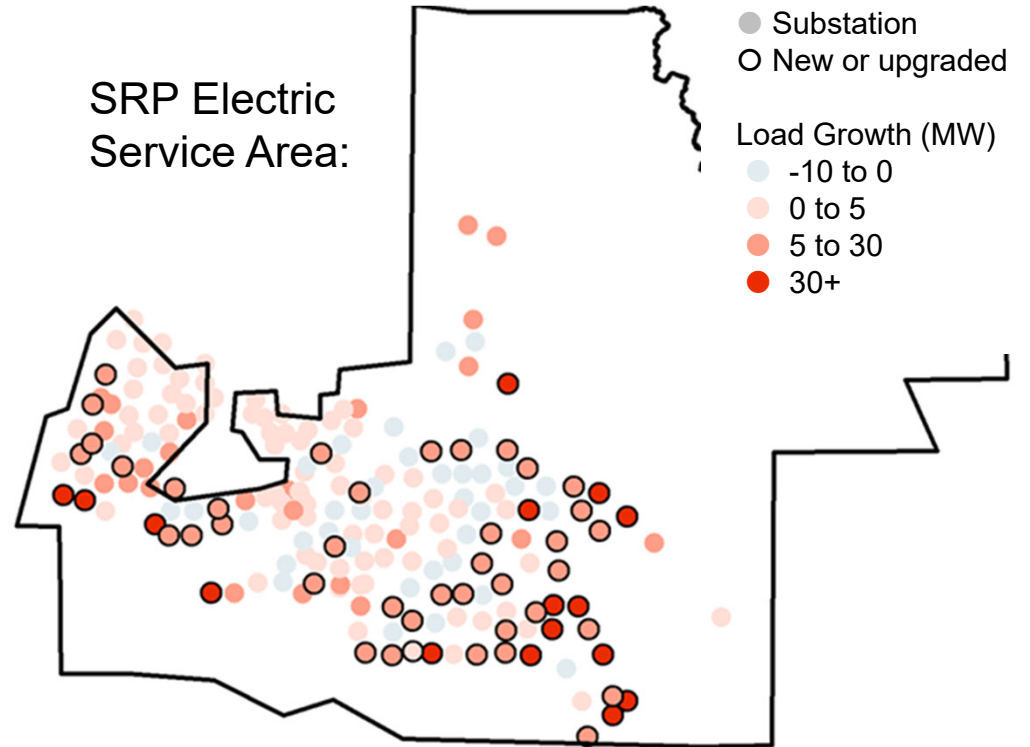
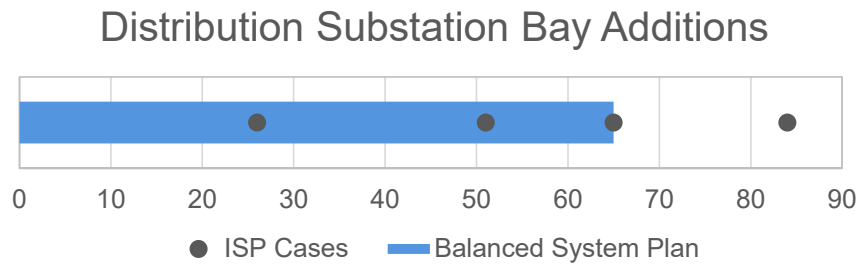
8/30/2023 Integrated System Plan Overview, A. Bond-Simpson





# Draft Balanced System Plan: Distribution Additions by 2035

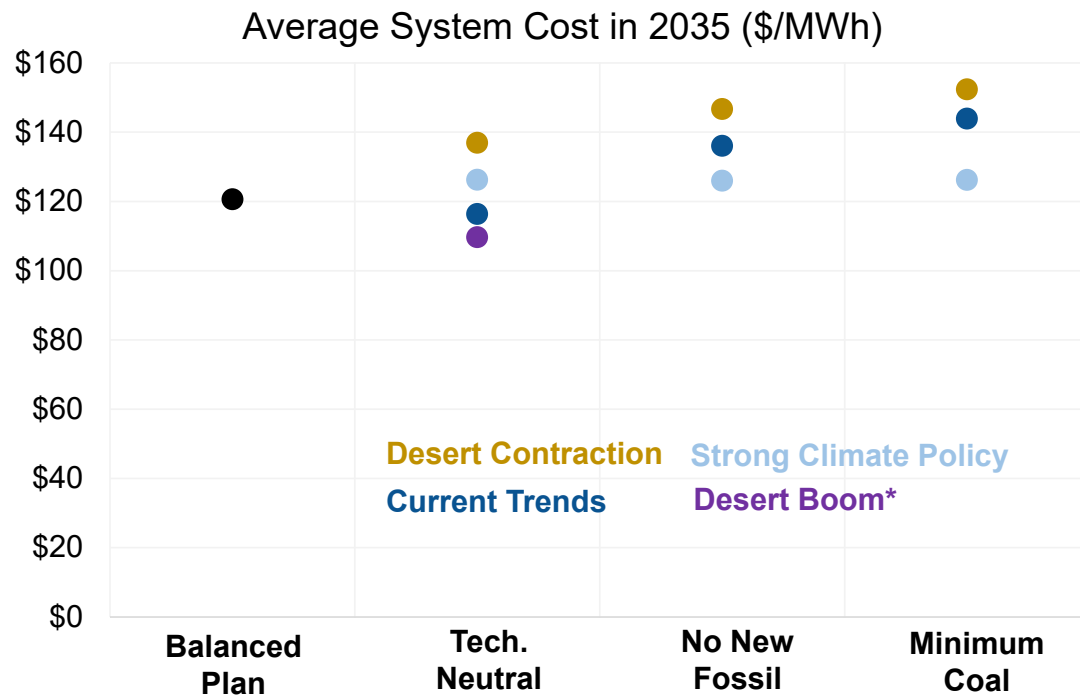
The Balanced System Plan adds distribution infrastructure needed to meet growing load, including that from electric vehicles, while preparing the grid for future customer innovation.



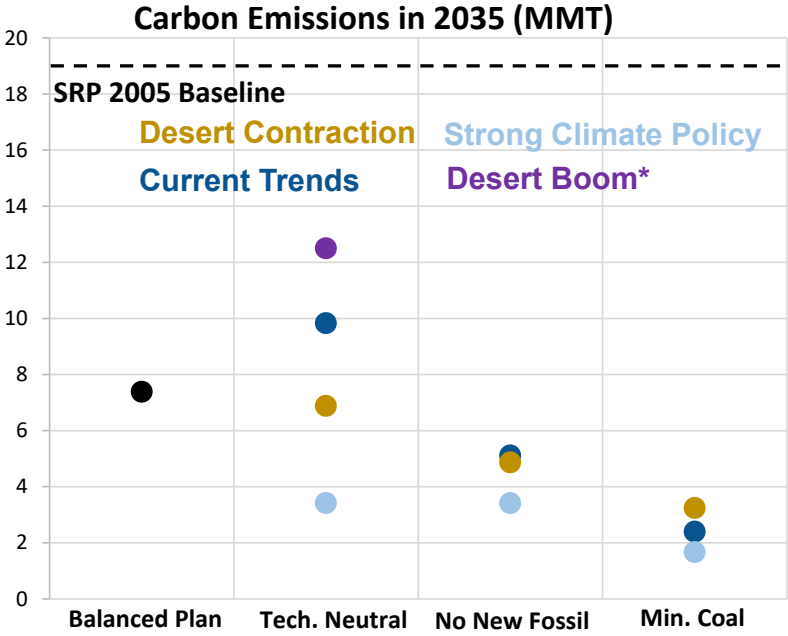
# Proposed Balanced System Plan Affordability

Balanced Plan: \$121/MWh in 2035

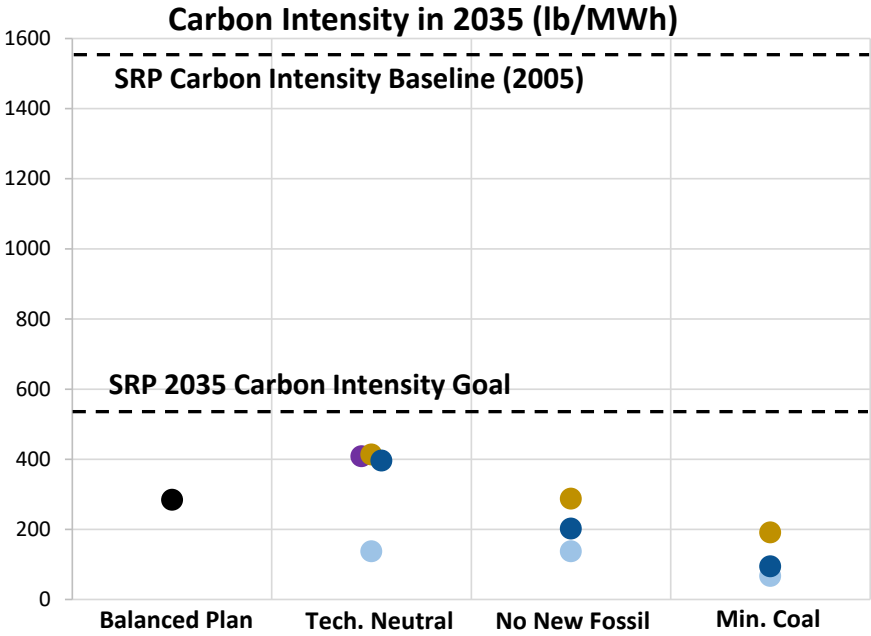
Reference: \$117/MWh in 2025



# Balanced Plan Carbon Emission Comparison



**Balanced Plan: 7.4MMT, 61% reduction from 2005**



**Balanced Plan: 284 lb/MWh, 82% reduction from 2005**

# Balanced System Plan (2035)

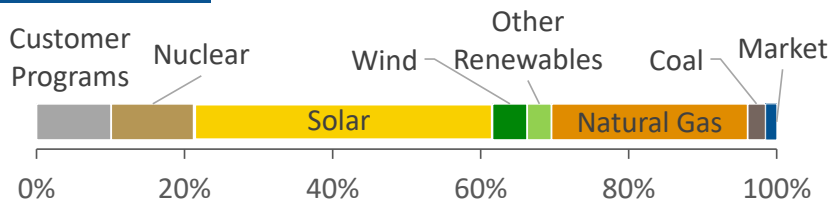
## Affordable



**3% annual growth rate in Total System Cost**

**0.3% annual growth rate in average system cost (\$/MWh)**

## Sustainable



**1,300 MW**  
coal plants  
retired



**7,000 MW**  
new wind & solar  
capacity



**82% CO2 intensity reduction (lb./MWh)**  
**61% CO2 emission reduction (lbs.)**  
relative to 2005 levels



**56% water use reduction (gal/MWh)**  
relative to 2005 levels

## Reliable



**16% planning reserve margin**

satisfied by an increasingly diverse portfolio of resources



**2,000 MW**

new firm natural gas capacity



**1,000 MW**

new long-duration energy storage capacity (pumped hydro)



**190 miles of new or upgraded transmission lines**



**8 new transmission 500/230kV transformers**



**65 new distribution substation bays**

## Customer-Focused



**3,800 GWh energy efficiency savings**



**300 MW total demand response**



**500k electric vehicles**



**Responsive to ISP Residential Customer Research**

Manages cost, while maintaining reliability and transitioning to more sustainable energy system

# Draft Balanced System Plan



## Affordability

Utilizes an all-of-the-above approach to diversify and pace investments



## Sustainability

Triples renewable and storage development to drive emissions reductions and reduce water consumption from power generation



## Reliability

Maintains firm generation capacity and expands grid needs, while preparing for emerging grid technologies



## Customer Focus

Focuses on managing costs, advancing sustainability and customer programs without sacrificing reliability

# Intended Use of the Balanced System Plan

- The Balanced System Plan maps out an illustrative path through 2035. It provides a tangible, unified vision that reflects the ISP System Strategies.
- The Balanced System Plan will provide a common starting point for future planning efforts, and serve as a basis for various external reporting and communication activities
- SRP will continue to monitor factors impacting system planning, including but not limited to factors listed below, and may deviate from this illustrative path as necessary to adapt to change.
  - Population and economic growth
  - Climate change
  - Evolving customer needs
  - Technological advancements
  - Fuel costs
  - Supply chain risk
  - IRA implementation progress
  - Regulatory changes

# ISP Actions

**Adam Peterson**

Director, Corporate Pricing

**Grant Smedley**

Director, Resource Planning, Acquisition & Development

**Dan Dreiling**

Director, Customer Programs

**Bryce Nielsen**

Director, Transmission Planning & Development

**Vanessa Kisicki**

Director, Distribution Strategy

# ISP Actions

ISP Actions are a set of near-term actions that SRP will complete following the publication of the Integrated System Plan (ISP).

Objectives:

- Kick start implementation of the System Strategies and make progress toward the 2035 Goals.
- Serve as SRP's commitment to pursue these actions and to provide annual progress updates.



# ISP Action #1: Residential Time-of-Use Pilot

Perform customer research to evaluate customer's response to new time-of-use peak periods and a super off-peak period in the middle of the day which will inform SRP's load forecast for long-term system planning and SRP's price process.

## ISP System Strategies Alignment



**Evolution of Customer Programs & Pricing**



**Partnerships & Suppliers**



**Energy Investments**

## Potential to defer



**Capacity Investments**

# ISP Action #2: Time-of-Use Evolution

Engage commercial, large industrial, and residential customers, and stakeholders to inform them of how the evolving grid will impact time-of-use periods and develop a roadmap for implementing new time-of-use periods.

- Undertake a Pricing Process informed by the ISP as to how time-of-use plans need to evolve. Propose new time-of-use hours including a super off-peak period when the cost to serve customers' needs is lowest and on-peak hours updated for the modern grid.
- Develop communication plan for all customer types and segments to educate on any new time-of-use price plans with a focus on promoting affordability as well as potential sustainability benefits.

## ISP System Strategies Alignment



**Partnerships & Suppliers**



**Evolution of Customer Programs & Pricing**



**Energy Investments**

## Potential to defer



**Capacity Investments**

# ISP Action #3: Customer Programs

Continuously refresh program plans and drive participation in customer programs at levels consistent with those planned for in the ISP, representing a meaningful increase from SRP's initial 2035 Sustainability Goal for Energy Efficiency.

- Evaluate the cost-effectiveness and emissions impacts of different customer program measures using the avoided costs and emissions impacts results from the ISP. Determine whether any changes to the customer programs portfolio are warranted based on this information, considering that these results must be weighed against other important factors such as customer access, equity, cost and satisfaction.

## ISP System Strategies Alignment



**Partnerships & Suppliers**



**Evolution of Customer Programs & Pricing**



**Energy Investments**



**Distribution Innovation**

## Potential to defer



**Capacity Investments**

# ISP Action #4: EV Management

Develop a roadmap by evaluating customer needs and system impacts and assessing viable pathways for managing electric vehicle (EV) charging through price plans, customer programs and educational efforts to align with time periods that are lower-cost and minimize additional infrastructure needs.

## ISP System Strategies Alignment



**Energy Investments**



**Strategic Investment & Reinforcement of Existing Assets**



**Evolution of Customer Programs & Pricing**



**Partnerships & Suppliers**



**Distribution Innovation**

# ISP Action #5: Electrification

Analyze the benefits and costs of non-EV electrification within SRP’s service area, including effects on SRP operations and economy-wide emissions. Assess options for expanding E-Tech program offerings related to residential and commercial electrification.

## ISP System Strategies Alignment



**Energy Investments**



**Strategic Investment & Reinforcement of Existing Assets**



**Evolution of Customer Programs & Pricing**



**Partnerships & Suppliers**



**Distribution Innovation**

# ISP Action #6: Distribution Enablement Roadmap

Continue implementing SRP's Distribution Enablement (DE) Roadmap, which includes:

- Deploying Advanced Distribution Management System (ADMS) and Distributed Energy Resources Management System (DERMS)
- Continue implementing advanced planning tools
- Advancing the distribution interconnection process
- Executing the DE Research & Development (R&D) plan

## ISP System Strategies Alignment



**Distribution  
Innovation**



**Partnerships &  
Suppliers**



**Strategic Investment  
& Reinforcement  
of Existing Assets**

# ISP Action #7: Resource Selection

Issue all-source requests for proposals (RFPs) or requests for information (RFIs) at least once every two years

Compare with self-build options and ensure that SRP can select resource technologies that meet SRP's reliability and sustainability goals while minimizing total system cost

## ISP System Strategies Alignment



**Capacity  
Investments**



**Energy  
Investments**



**Partnerships &  
Suppliers**

# ISP Action #8: Coal Transition Action Plan

- Coordinate with co-owners to develop a path forward for the Springerville Generating Station
- Prepare plans for repurposing the Coronado Generation Station site
- Develop solutions that preserve transmission following the retirement of coal plants
- Test strategies for minimizing coal plant emissions while leveraging their capacity to maintain reliability

## ISP System Strategies Alignment



**Capacity  
Investments**



**Strategic Investment  
& Reinforcement  
of Existing Assets**



**Proactive  
Transmission**



**Partnerships &  
Suppliers**



# ISP Action #9: Proactive Siting

Develop and initiate siting research that considers collaborative community engagement, land, resources, and transmission and distribution to proactively identify, prepare and preserve options for feasible sites for future system infrastructure.

## ISP System Strategies Alignment



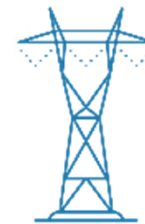
**Partnerships & Suppliers**



**Capacity Investments**



**Energy Investments**



**Proactive Transmission**



**Distribution Innovation**

# ISP Action #10: Regional Transmission

Pursue transmission projects that would enable SRP to access diverse renewable resource options beyond solar, such as wind and geothermal, and engage with project developers, as appropriate.

## ISP System Strategies Alignment



**Capacity  
Investments**



**Energy  
Investments**



**Proactive  
Transmission**



**Partnerships &  
Suppliers**

# Panel Q&A

**Bobby Olsen**

AGM & Chief Planning, Strategy  
& Sustainability Executive

**Angie Bond-Simpson**

Sr. Director, Resource Management

**Adam Peterson**

Director, Corporate Pricing

**Dan Dreiling**

Director, Customer Programs

**Bryce Nielsen**

Director, Transmission Planning & Development

**Vanessa Kisicki**

Director, Distribution Strategy

**Grant Smedley**

Director, Resource Planning, Acquisition & Development

**Nick Schlag**

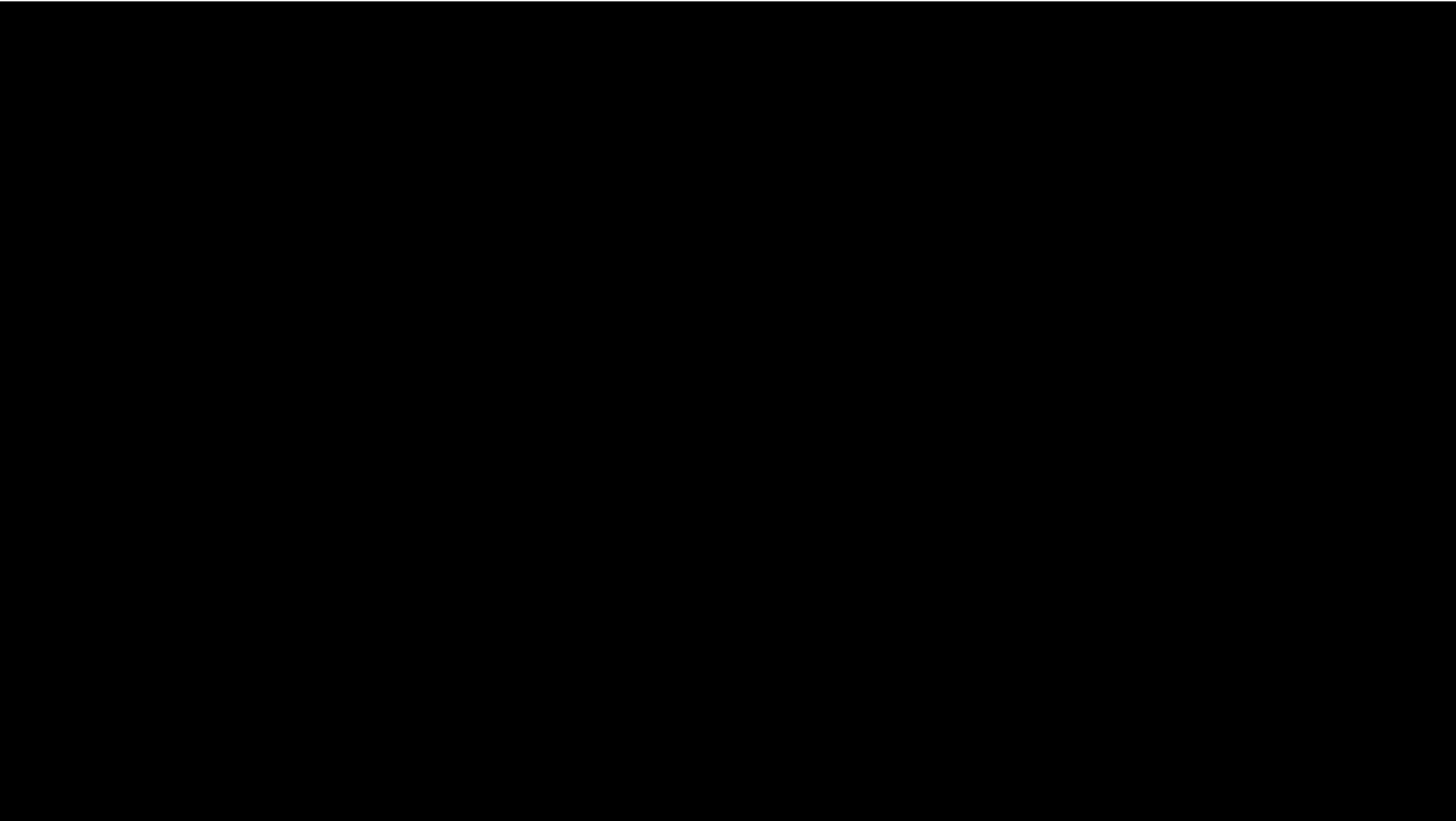
Partner (E3)

# Wrap Up and Next Steps

Angie Bond-Simpson  
Sr. Director, Resource Management

**thank you!**

# Lunch





# SRP's Integrated System Plan Pre-Read

August 2023 Board & Council Study Session

*The purpose of this document is to provide Board & Council members context and background about SRP's first Integrated System Planning (ISP) process in preparation for the two half-day Board & Council ISP Work Study Sessions on August 29th and August 30th, 2023, where the SRP project team will:*

- *Share the motivation behind SRP's transition to Integrated System Planning*
- *Demonstrate the extensive and collaborative nature of the ISP process*
- *Present ISP findings and proposals for SRP's planning through 2035*



## ALIGN: BUILDING A SHARED VISION TOGETHER

The electric power industry is undergoing a rapid transformation, presenting Salt River Project (SRP) with unprecedented opportunities and future uncertainties. SRP strives to provide high quality electricity services to its customers and work closely with them to respond to their needs, advance their priorities and goals, and collaboratively adapt to changes.

An Integrated System Plan (ISP) is a data-driven, collaboratively developed plan for generation, transmission, distribution and customer programs to meet SRP's 2035 Corporate Goals at a high customer value while preparing for rapidly evolving system needs.

### The analytical objectives of the ISP are to identify:

- Viable pathways for achieving SRP's 2035 Corporate Goals
- Costs, risks and tradeoffs of these different pathways
- System strategies that are valuable across different pathways
- New capabilities or tools required to effectively plan and operate as the system evolves
- Activities SRP should undertake in the next 6 years to plan for these system strategies

SRP considers customers and community stakeholders to be important partners in building a sustainable, reliable, and affordable future power system. During the ISP process, SRP built a study plan that considered customers' needs and interests and allowed SRP to explore a shared vision for the future of the power system.

## Guiding ISP Principles

In developing the ISP, SRP followed certain Guiding ISP Principles, which were defined through a collaborative and transparent process involving the ISP Advisory Group, which represents a diverse set of stakeholder perspectives. These principles were intended to balance reliability, affordability, sustainability, and other important considerations.

**Integrated Long-Term View:** Develop a holistic view, including resources, transmission, distribution and customer program perspectives for meeting evolving customer needs and achieving SRP's Corporate Goals for 2035 and beyond. The long-term view ensures that SRP is making the right decisions today to support its customers and stakeholders in the future.

**Transparency:** Engage customers and other stakeholders in a system planning process that is responsive to questions and input.

**Measure Success Through the Eyes of Our Customers:** Maintain industry-leading customer satisfaction by responding to evolving customer needs by providing sustainable, safe, reliable, and affordable power while equitably recognizing the different needs, challenges, and perspectives of our customers.

**Manage Costs:** Deliver exceptional system and energy value by minimizing impacts from additional grid needs and future uncertainties to average retail prices, while maximizing customer value through diligent, long-term oriented cost management.

**Build an Adequate and Reliable Power System:** Meet, and in some cases, exceed industry standards to provide a dependable supply of electricity to all SRP customers. Provide a reliable grid that is able to prepare for and recover from both anticipated and unanticipated disruptions to ensure energy availability.

**Adapt Toward a More Sustainable Future:** Meaningfully reduce carbon emissions and generation water usage to achieve SRP's 2035 Sustainability Goals to help address climate change and create less waste.

# PREPARE: PLANNING AMIDST CHANGE

The ISP used scenario planning methods to help SRP better understand future uncertainties and take advantage of opportunities. Using scenario planning allows SRP to develop the future power system in a way that can flexibly adapt to the changing industry and maintain affordable, reliable and sustainable power delivery.

The scenario planning framework for the ISP included three distinct elements: scenarios, strategic approaches and metrics.

**Scenario** defines a plausible future state of the world around us, reflecting societal, technological, economic, environmental, and political trends and conditions. These factors are outside of SRP’s control and reflect the unpredictable nature of the future that needs to be accounted for in SRP’s planning activities.

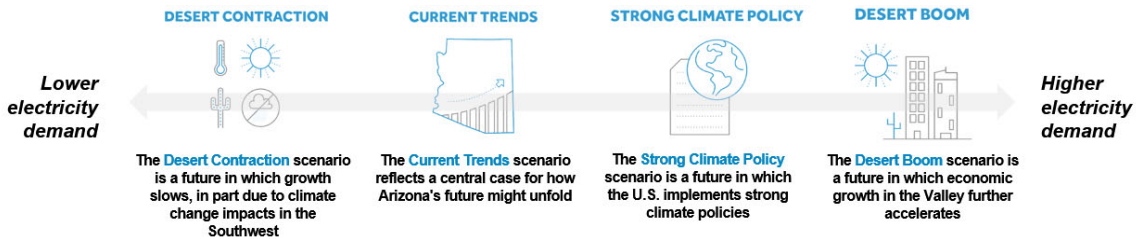
**Strategic approach** represents a possible decision, or set of decisions, that SRP could make in planning the future power system. These decisions are fully within SRP’s direct control.

**Metrics** are outputs from the ISP modeling ecosystem that allow SRP, customers and other stakeholders to measure the performance of different system plans across a range of future scenarios and sensitivities.

These elements of the ISP made up the holistic study plan that was developed with input from SRP subject matter experts and customer and stakeholder feedback. The SRP project team, consisting of representatives from Forecasting, Resource Planning, Transmission Planning, Distribution Planning and Customer Programs, performed a first of its kind system-wide scenario analysis that allowed SRP to test strategies for building the future power system across a wide range of possible futures. Based on learnings from that analysis, the project team developed, and shared with stakeholders, the ISP key findings that identified costs, risks and tradeoffs to consider when planning the future power system.

## Scenarios

SRP, with Advisory Group input, developed four scenarios to analyze in the ISP. The four scenarios reflect a diverse set of possible futures and consider uncertainties across a broad set of parameters. The figure below shows the four scenarios with a short narrative that describes each scenario.






## Strategic Approaches

SRP developed three strategic approaches to analyze in the ISP. These strategic approaches were intended to explore clearly delineated key decisions that may impact the future power system and to understand how these strategies perform across the scenarios described above. SRP strategy decisions resulting from the ISP are not restricted to only those analyzed in the strategic approaches and will include paths that combine the strategies described below.

- The **Technology Neutral** strategic approach aimed to develop future system plans on a technology-neutral and least-cost basis.
- In the **No New Fossil** strategic approach, SRP explored a system with no new natural gas capacity, meeting future needs with carbon-free resources. Existing and in-development natural gas units were still able to be used to meet customer needs under this strategic approach.
- The **Minimum Coal** strategic approach utilized a no new fossil approach to new capacity and also aimed to reduce power generation from coal in SRP’s system by testing operational changes to SRP’s coal resources, including seasonal operations and SRP coal exit by the end of the study period in 2035.

### Strategic Approaches for System Analyses

<p><b>Technology Neutral</b></p>  <p>SRP takes a <b>least-cost</b> approach to building the future power system</p>	<p><b>No New Fossil</b></p>  <p>SRP explores a system with no new natural gas capacity, <b>meeting future needs with carbon-free resources</b></p>	<p><b>Minimum Coal</b></p>  <p>SRP <b>reduces power generation from coal</b> and analyzes the system-wide impacts while maintaining reliability</p>
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## Metrics

Metrics were used to provide information to internal and external stakeholders, evaluate the performance of each strategic approach across scenarios, and design customer preference research. SRP, drawing on Advisory Group input, developed metrics for affordability, sustainability, reliability, and customer focus, as shown in the figure below.



**Affordability**  
Total System Costs  
Average System Costs  
Average Residential Price Impact



**Sustainability**  
CO2 Reductions  
Water Use  
Carbon-Free Generation  
Capacity Factor for Gas Fleet  
Direct Air Emissions (NOx, SO2, PM, VOC)



**Reliability**  
Resource Contribution to Reliability  
Reliance on Emerging Technologies  
Qualitative Risk Ratings (Development Risk and Operational Risk)  
Planning Reserve Margin



**Customer Focus**  
Customer Preference Rating  
CO2 Reductions from energy efficiency, demand response, distributed generation, and electrification

## ANALYZE: PERFORMING ANALYSIS & VALIDATING RESULTS

SRP's planning groups evaluated the strategic approaches across scenarios using a rigorous analytical process. For each combination of a strategic approach and scenario, SRP developed a system plan for 2025-2035 that sought an affordable way to meet customer needs while ensuring reliability and meeting or outperforming SRP's sustainability goals related to generation carbon emissions and water usage. Each modeled system plan includes a plan for customer programs, distribution investments, transmission investments and generation resource additions.



**External Validation:** SRP leveraged external technical expertise, from Energy and Environmental Economics (E3), to benchmark analytical methods used in the ISP. E3 has worked collaboratively with the SRP Project team in developing an industry-leading ISP by providing validation services on generation capacity modeling.

**Transparency:** A key aspect of the ISP was the development and implementation of a robust plan to actively engage customers and community stakeholders. Inclusive, transparent and proactive dialogue with SRP stakeholders aimed to build support for the ISP process. The ISP team has hosted more than 20 forums for engagement, including ISP Advisory Group meetings, Large Stakeholder Group meetings, Technical Working Sessions, Modeling Subgroups and one-on-one discussions with interested stakeholders. The ISP team posts meeting agendas, slides and summaries on the ISP web portal.

**Voice of the Customer:** To bring the voice of SRP's residential customers into the planning of the future energy system, SRP conducted residential customer research in partnership with Bellomy. During three phases of research, information on preferences pertaining to reliability, affordability and sustainability was collected through customer focus groups and surveys.

## Metric Takeaways: The Need for Balance

The section below provides a brief description on how the ISP strategic approaches performed across scenarios under the four metric categories described above: affordability, sustainability, reliability, and customer focus.



**Affordability:** On affordability, a Tech Neutral strategic approach results in lowest system cost, driven largely by differences in generation costs across cases. All strategic approaches have similar costs under a scenario where the U.S. government provides federal incentives for clean energy technologies (Strong Climate Policy).



**Sustainability:** With respect to sustainability, a Minimum Coal strategic approach results in greater emissions reductions and lower water use, followed by No New Fossil. Decreased dependence on fossil fuel technology for energy (e.g., coal retirements and projected declined utilization of natural gas), paired with renewable and storage additions drive significant carbon reductions. These efforts enable SRP to achieve the 2035 Sustainability Goals related to generation carbon emissions and water reduction in all cases.



**Reliability:** In terms of reliability, a Tech Neutral strategic approach results in paced infrastructure development and is the only approach able to meet reliability under high customer demand conditions. Existing resources play a key role in ensuring reliability across all cases. When allowed, firm capacity resources are selected to help meet reliability needs at the least cost. All cases have development and operational risks given the amount of infrastructure necessary to enable the future system, which also poses new operational challenges and proactive measures to mitigate.



**Customer Focus:** Residential customers are sensitive to bill impacts and have preferences for managing costs while maintaining reliability and transitioning to a more sustainable energy system. Customer Preference Ratings reflected that Tech Neutral is most favorable in futures with higher load growth driven by lower generation costs, while Minimum Coal and No New Fossil were preferred when there is low load growth and federal incentives are driving down the cost of technology. Customer programs also have the potential to unlock greater economy-wide carbon reductions.

## Summary of ISP Key Findings

SRP shared these key findings from the ISP analysis with stakeholders in the spring of 2023.

### Resources & Infrastructure

- ✓ Significant investment over the next decade is needed to strategically locate and build out new grid infrastructure to connect new resources and customers, while achieving reliability and sustainability goals.
- ✓ SRP will likely need to double or triple resource capacity in the next decade to serve customers while achieving reliability and sustainability goals. This will be at an unprecedented pace.
- ✓ New renewables and firm capacity are part of a least-cost portfolio, even under a wide range of gas price and technology cost sensitivities.
- ✓ When paired with firm capacity, solar and wind contribute to a least-cost portfolio while being able to help reduce carbon emission.
- ✓ Without new firm generation capacity, the system cannot satisfy reliability requirements under a high load growth scenario. Higher levels of renewables and storage, including pumped storage, are required in lower load growth scenarios.
- ✓ Hundreds of miles of new or upgraded transmission lines and nearly double the number of 500/230 kV transformers could be needed relative to today.
- ✓ Location of generation matters and plays a significant role in the buildout of the 500 kV transmission system.

### Customer Programs

- ✓ Electrification of end uses, including transportation and heating demand, creates new opportunities to shift energy usage to mid-day hours to help integrate more renewable energy and maximize carbon reduction impacts.
- ✓ SRP will need to evolve programs and price plans to shift consumer behavior, and further educate customers on when to consume and when to conserve energy.

### Future Considerations

- ✓ If the U.S. government enacted a mandate for 85% CO2 reductions by 2035 (Strong Climate Policy), SRP would need to significantly accelerate renewable & storage deployment.
- ✓ Future uncertainties around development, planning and permitting processes could impact SRP's ability to grow at the pace needed to meet increasing future load growth.
- ✓ With the amount of future infrastructure and resources needed, internal and external partnerships are going to be essential to build the future system and maintain high customer value.



## SRP Integrated System Plan Board and Council Study Session

# DAY 2

### AGENDA OVERVIEW

- Welcome and Day One Recap
- ISP Recommendation: System Strategies Including Key Findings that Support the Recommendation
- ISP Implementation Steps: Balanced System Plan
- ISP Implementation Steps: ISP Actions
- Q & A
- Wrap Up & Next Steps
- Lunch

### MEETING OBJECTIVES

- Present ISP recommended System Strategies based on key findings from the analysis
- Illustrate Management's ISP Implementation Steps
- Address questions with SRP Subject Matter Experts

## SRP Team's Implementation of ISP System Strategies : Balanced System Plan

The Balanced System Plan serves as an illustrative path for SRP's system that is consistent with the ISP System Strategies.

### How it will be used:

- The Balanced System Plan will provide a common starting point for future planning efforts, and serve as a basis for various external reporting and communication activities
- SRP will continue to monitor factors impacting system planning and may deviate from this illustrative path as necessary to adapt to change.

## 2035

### Affordable

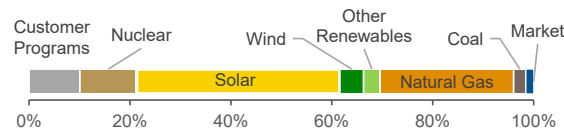


**3% annual growth rate in Total System Cost**



**0.3% annual growth rate in average system cost (\$/MWh)**

### Sustainable



**1,300 MW**  
coal plants retired



**82% CO<sub>2</sub> reduction (lb./MWh)**  
**61% CO<sub>2</sub> reduction (lbs.)**  
relative to 2005 levels



**7,000 MW**  
new wind & solar  
capacity



**56% water use reduction**  
(gal/MWh)  
relative to 2005 levels

### Reliable



**16% planning reserve margin**  
satisfied by an increasingly diverse and modular portfolio of resources



**2,000 MW**  
new natural gas capacity



**1,000 MW**  
new long-duration energy storage capacity (pumped hydro)



**190 miles of new or upgraded transmission lines**



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**65 new distribution substation bays**

### Customer-Focused



**3,800 GWh**  
energy efficiency savings



**300 MW**  
total demand response



**500,000**  
electric vehicles



**Responsive to ISP Residential Customer Research**  
Manages cost, while maintaining reliability and transitioning to more sustainable energy system

### NOTES:

### SRP Integrated System Plan Web Page

Web page includes, but is not limited to, public information and reports, meeting slide decks, educational pre-read materials and meeting summaries



### For Reference:

System Strategies and other ISP Output definitions are on the back



## Integrated System Plan: Other Definitions

**System Strategies:** The System Strategies are long-term strategies for planning and operating the power system to achieve SRP's 2035 goals.

**How they will be used:**

- Provide guidance and priority for how to plan and operate the system in the future.
- Provide transparency to customers and other stakeholders of what strategies SRP plans to employ to evolve its system.
- Serve as the starting point for building an illustrative Balanced System Plan and ISP actions designed to implement the System Strategies.

**ISP Actions:** A set of near-term actions that the SRP Team will complete following the publication of the ISP.

**How they will be used:**

- The ISP Actions will kick start implementation of the System Strategies and make progress toward the 2035 Goals.
- Serve as SRP's commitment to pursue these actions and to provide annual progress updates to stakeholders.

## Integrated System Plan: System Strategies

### Energy Investments

Invest in renewable resources and storage to manage fuel consumption, and drive carbon and water reductions.

### Capacity Investments

Invest in firm generation, including natural gas, to support reliability and manage affordability, while also supporting advancement of emerging firm technologies.

### Proactive Transmission

Proactively plan to expand transmission infrastructure to enable generator interconnections and load growth.

### Distribution Innovation

Ensure distribution grid readiness to maintain reliability and enable customer innovations to drive carbon reductions.



### Strategic Investment & Reinforcement of Existing Assets

Reinforce and maximize value of existing infrastructure with strategic investments to manage affordability, and ensure future performance, grid security and resilience.

### Evolution of Customer Programs & Pricing

Evolve pricing and customer programs to improve economy-wide carbon reductions and pace infrastructure development, while recognizing customers' diverse needs.

### Partnerships & Suppliers

Explore partnerships and supply chain and development solutions that manage cost and availability to meet the pace of transformation.