



**SRP Integrated System Plan**  
**Scenario Planning Framework- Part 2 &**  
**Strategic Approach Options- Part 1**

**February 15, 2022**

# Welcome

Kelly Barr

Associate General Manager Chief Strategy and Corporate Services & Sustainability Executive, SRP

# Welcome SRP Board and Council Observers



**John Hoopes**  
SRP Vice President



**Randy Miller**  
SRP Board Member



**Anda McAfee**  
SRP Board Member



**Jack White**  
SRP Board Member



**Larry Rovey**  
SRP Board Member



**Suzanne Naylor**  
SRP Council Member



**Rocky Shelton**  
SRP Council Member

# safety & sustainability minute

# Safety & Sustainability Minute

## National Burn Awareness Week

Tips for Burn Safety at Home:

- Clean Stovetop
- Watch your stove
- Monitor Appliances
- Keep Children Safe

## End Plastic Pollution

Use the Miro board to share your ideas on how to reduce plastic waste

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#NBAW

**National Burn  
Awareness Week**

**FEBRUARY 6–12, 2022**

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# Sustainability Minute

See chat box for the link!



# Meeting Objectives:

- Gather feedback on the future scenarios and sensitivities to evaluate in the Integrated System Plan
- Gather input on strategic approaches to test in the Integrated System Plan
- Inform on the customer research initiative within the Integrated System Plan and early results

# Agenda

Time		Topics	Presenter
9:00 – 9:05	5 mins	Welcome and Opening Remarks	Kelly Barr (SRP)
9:05 – 9:15	10 mins	Agenda Overview and Introduction	Joan Isaacson (Kearns & West)
9:15 – 9:25	10 mins	Recap of Scenario Proposal and Overview of Proposed Sensitivities	Nick Schlag (E3)
9:25 – 10:00	35 mins	Feedback on the Scenario and Sensitivities Proposal – Roundtable Discussion	Facilitated by Joan Isaacson (Kearns & West)
10:00 – 10:15	15 mins	Coffee break	
10:15 – 10:45	30 mins	Recap of Advisory Group Input to Scenarios and Sensitivities – Open Discussion	Facilitated by Nick Schlag (E3)
10:45 – 11:35	50 mins	Brainstorm Strategic Approaches	Facilitated by Nick Schlag and Lakshmi Alagappan (E3)
11:35 – 11:55	20 mins	Customer Research Strategy and Preliminary Insights	Dennis Goodman (SRP)
11:55 – 12:00	5 mins	Wrap Up and Next Steps	Joan Isaacson (Kearns & West)

# Guides for Productive Virtual Meetings

- Actively participate
- Be respectful of other perspectives
- Listen for understanding
- Stay concise to allow time for everyone to participate
- Enjoy the meeting!

# Advisory Group Subgroup

- A Subgroup is composed of self-selected *Advisory Group members* who have a strong interest in diving into specific Integrated System Plan topics; maintaining a range of perspectives is important.
- If *more than 50%* of the Advisory Group members have an interest in the topical subgroup, SRP will consider integrating the content into a regular Advisory Group meeting.
- Notes from subgroup meetings will be reported out in Advisory Group meetings.

# 2/11 Agenda

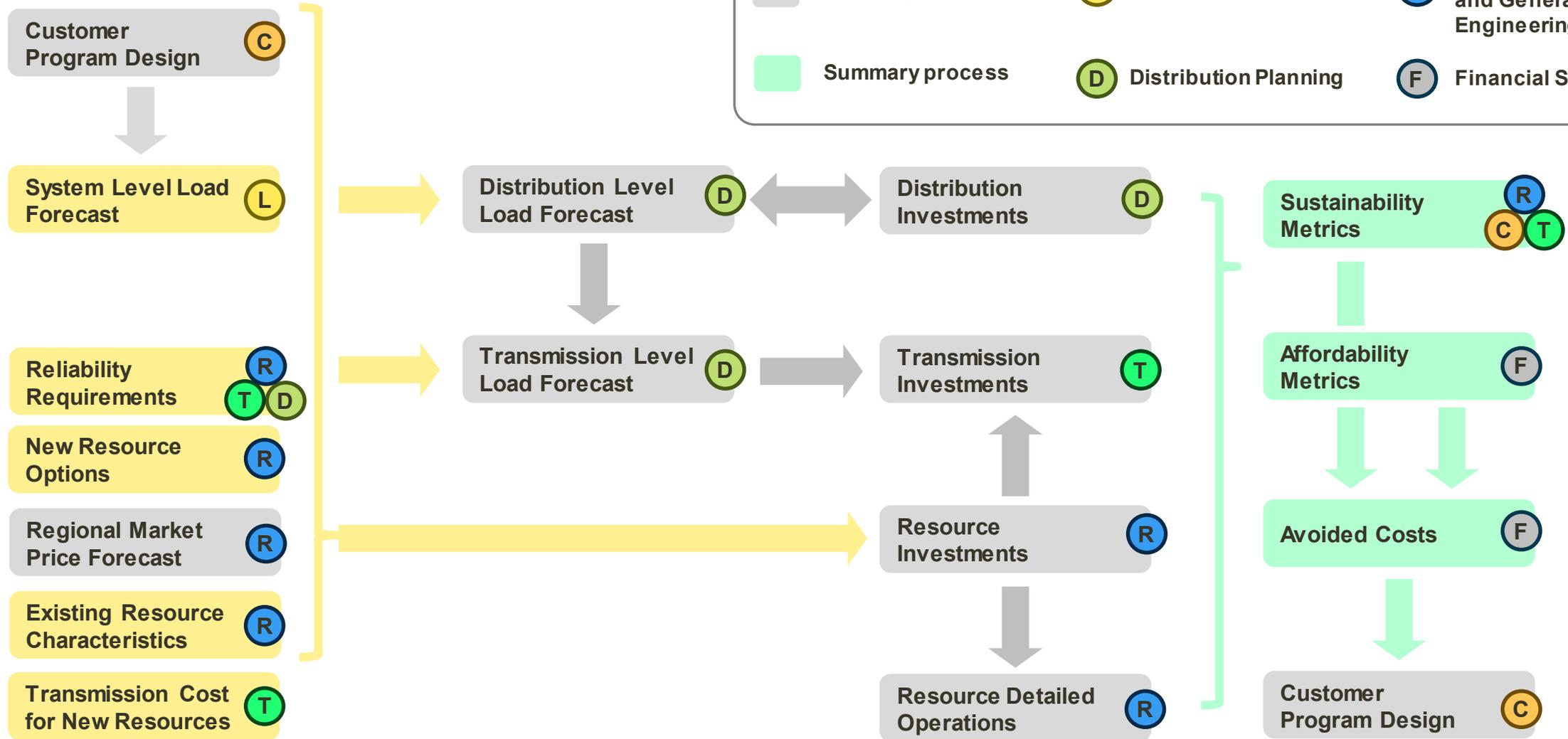
## Modeling Subgroup: Integrated System Plan Modeling Ecosystem

Time		Topics	Presenter
9:00 – 9:10	10 mins	Agenda Overview & Subgroup Formation	Joan Isaacson (Kearns & West)
9:10 – 9:30	20 mins	Overview of Modeling Ecosystem and Study Plan	Lakshmi Alagappan (E3) Joe Hooker (E3)
9:30 – 10:00	30 mins	Load Forecasting (Includes Customer Programs)	Harry Sauthoff (SRP) Nathan Morey (SRP)
10:00 – 10:30	30 mins	Resource Planning Models	Michael Reynolds (SRP)
10:30 – 10:50	20 mins	Distribution Planning Methods	Melissa Martinez (SRP)
10:50 – 11:10	20 mins	Transmission Planning Methods	Justin Lee (SRP) Bryce Nielsen (SRP)
11:10 – 11:20	10 mins	Next Steps & Wrap-up	Joan Isaacson (Kearns & West)

# Modeling Subgroup

## Integrated System Plan

### Modeling Ecosystem Reviewed 2/11



(To be completed after ISP)

# Report Out: 2/11 Modeling Subgroup Meeting

## Examples of Things We Heard from Members:

- Varied interests in the models and data inputs
- Importance of considering small businesses and low-income communities in the study plan
- Time-of-use pricing, commercial load growth, demand-side management and electrification effect on the load forecast
- How will the Integrated System Plan consider the new Arizona Corporation Commission provisions governing APS and TEP's Integrated Resource Planning processes?
- Interest in modeling the retirement of resources in addition to investment in new resources

# Recap of Scenario Proposal and Overview of Proposed Sensitivities

Nick Schlag  
Partner, E3

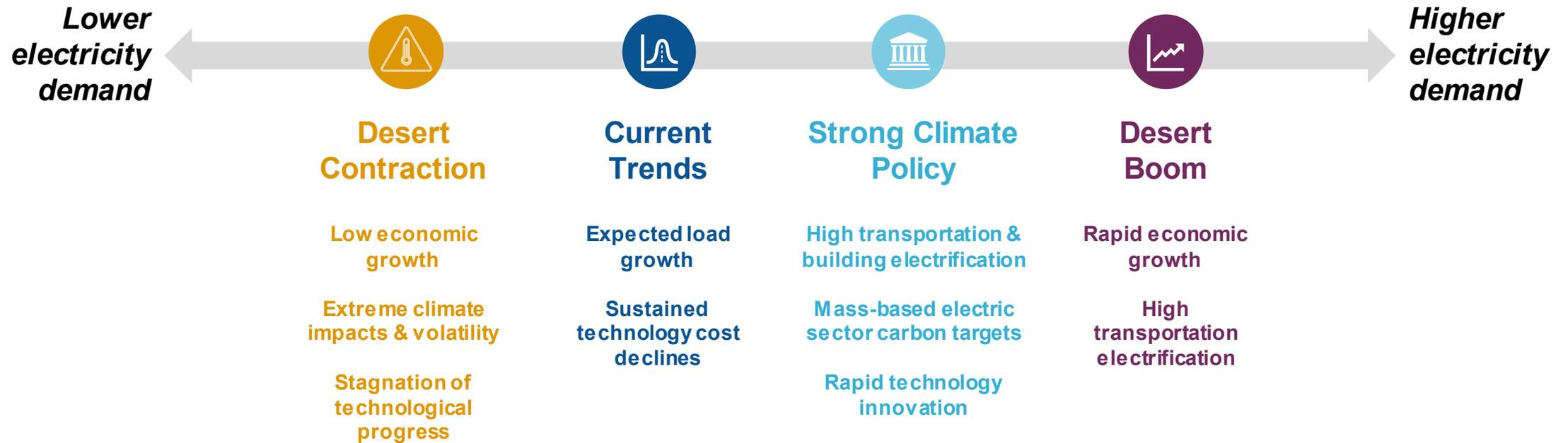
# Scenario Design Framework

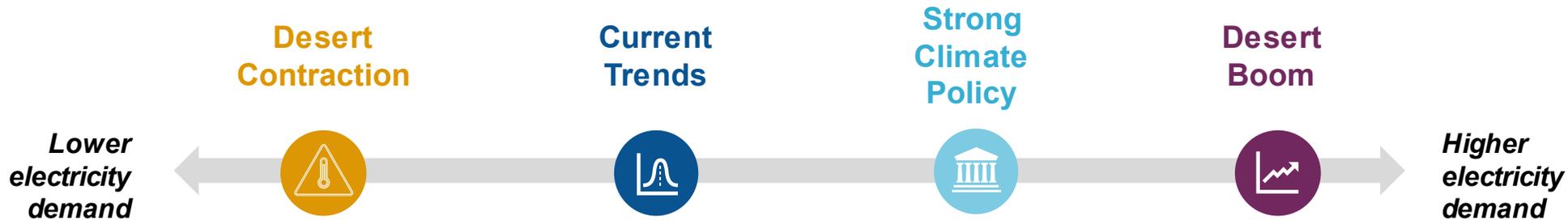


A **scenario** defines a plausible future state of the world around us, reflecting societal, technological, economic, environmental, and political trends & conditions

A **strategic approach** represents a possible set of choices that could allow SRP to meet its objectives

# Overview of Proposed Scenarios



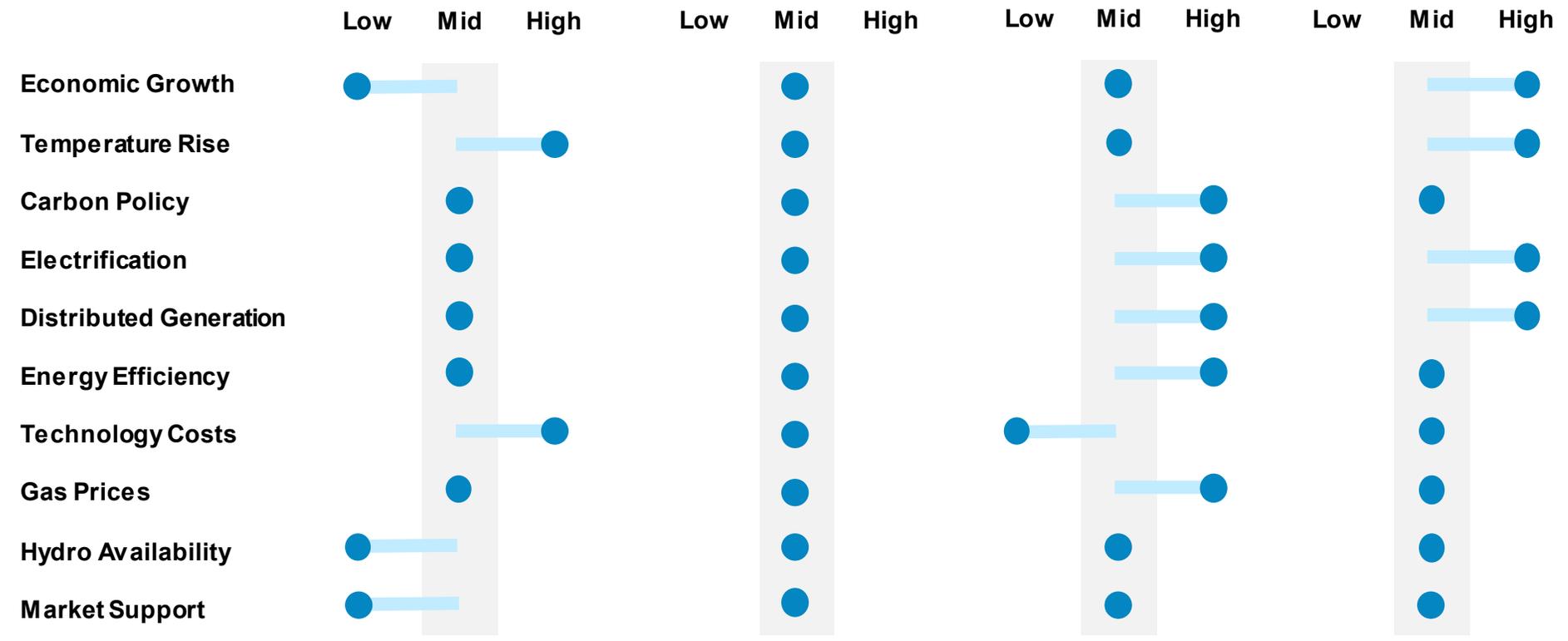


The **Desert Contraction** scenario is a future in which growth slows, in part due to climate change impacts in the Southwest

The **Current Trends** scenario reflects a central case for how Arizona's future might unfold

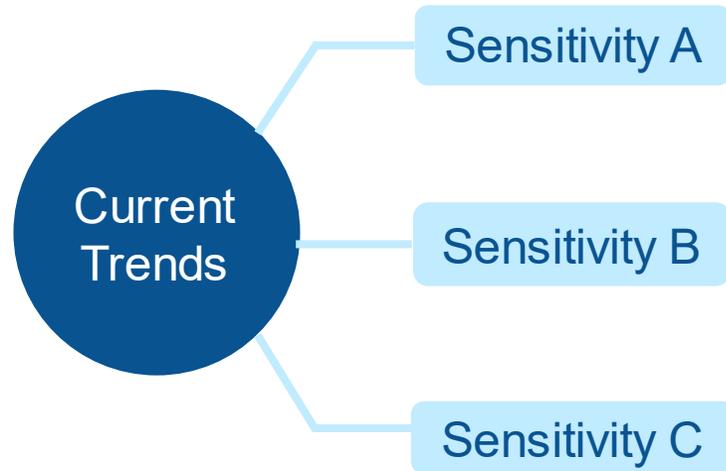
The **Strong Climate Policy** scenario is a future in which the U.S. implements strong climate policies

The **Desert Boom** scenario is a future in which economic growth in the Valley further accelerates



Note: factors that don't vary across scenarios are explored in sensitivities

# Sensitivities



SRP proposes to run additional sensitivities under the *Current Trends* scenario.

A **sensitivity** varies a single assumption in the *Current Trends* scenario, allowing SRP to understand the impact of this assumption on the overall system plan.

# Proposed Sensitivities

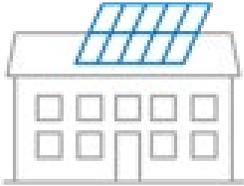
Customer Participation



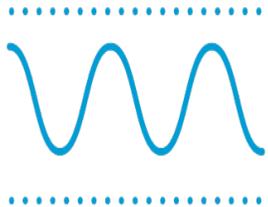
High Demand Response



High Energy Efficiency



High DG Adoption



Increased Load Management

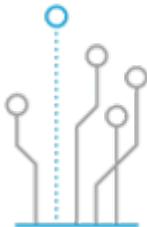
Market Variables



RTO Assessment



High & Low Gas Prices



High & Low Technology Costs

# Feedback on the Scenario and Sensitivities Proposal – Roundtable Discussion

Joan Isaacson

Lead Facilitator, Kearns & West

# Questions for the Roundtable (facilitated discussion, 35 min)

1. What do you like about the proposed Integrated System Plan scenarios?
2. Do the proposed scenarios and sensitivities adequately capture the range of possibilities for the future through 2035 that should be analyzed in the Integrated System Plan? If not, what is missing?
3. Which sensitivities do you see as higher priority? Which are lower priority?

# Question 1 Miro Board

## 1. What do you like about the proposed Integrated System Plan scenarios?

I like the range of scenarios and the variability of the sensitivities

Good range

the ability to adjust individual sensitivities in a single scenario is important

Sensitivities a good option

opportunity to evolve through switches

curious about some of the assumptions

I appreciate the integration of economic growth at every level.

good range

I like the focus on transportation electrification, however, that should be included in each scenario at different levels.

# Question 2 Miro Board

## 2. Do the proposed scenarios and sensitivities adequately capture the range of possibilities for the future through 2035 that should be analyzed in the Integrated System Plan? If not, what is missing?

temp rise should be reflected in more scenarios	DG definition shows "moderate" growth. What about "high-level" growth as a scenario?	important to consider policy changes in neighboring states? Such as transmission restrictions or less production	Is it important to consider terrorist actions -such as computer system hacks?	disproportionate heat island status in low income areas	A commitment to combating climate change	benefit of aggressive/ active load shifting to address peak
carbon policy change should be reflected in current trends scenario	does SRP have enough dispatchable generation online today to help reliability as more solar, wind, batteries get added to your grid?	DG definition shows "moderate" growth. What about "high-level" growth?	There should be consideration of mass-based (cumulative) GHG emissions targets for each scenario	Supply Chain impacts	Need variation of costs/prices for current trends scenario	The impact of the next COVID (hopefully not)
prolonged drought in only one scenario?	Potential impact of natural and man made disasters to fuel sources (i.e. NG, Coal, oil, etc.)	Will need to consider broader consumer impacts (i.e. high electricity bills vs rates)	Removing "must-run" designations for coal units.	state-level climate leadership and how that impacts national trends, along with commitments from other utilities and broader power sector trends	More realistic to consider temperature rise in each scenario, unfortunately.	Gas price volatility (low & high) should be considered in each scenario

# Question 3 Miro Board

## 3. Which sensitivities do you see as higher priority? Which are lower priority?

		Higher Priority				Lower Priority			
		High and low gas prices	Gas prices	High Demand	Increased Load Management	High DG Adoption	high DG Adoption	High Energy Efficiency	
		High Demand response	High and Low Gas prices	HIGH ENERGY EFFICIENCY IN EACH SCENARIO	High energy efficiency	High low gas prices	high dg adoption		
		high demand response	increased load management	High DG Adoption	High DG adoption				
		\$/kWh impact	high energy efficiency	IMPACT OF EV/BUILDING ELECTRIFICATION AT DIFFERENT LEVELS	Gas prices (and sharing the range with this group)				

**Coffee Break**

# Recap of Advisory Group Input to Scenarios and Sensitivities – Open Discussion

Facilitated by Nick Schlag  
Partner, E3

# Suggestions We Heard:

*Recap from the roundtable discussion*

- **Scenarios & sensitivities capture a broad range of possibilities well**
- **Broad interest in impacts of climate policy & emissions targets (mass-based reductions, infrastructure bill impacts, transportation and building electrification)**
- **A desire to see changing climate featured more prominently (temperature rise & heat island impacts, year-to-year variability, heat island variation)**
- **Emphasis on importance of “resilience” (cyber threats, fuel security, extreme weather)**
- **A desire to dig deeper on specific scenario & modeling assumptions**
- **Questions relating to a number of other aspects of portfolio planning (role of dispatchable generation, “must-run” designations for coal, impacts of neighboring states/markets, supply chain)**

# Strategic Approaches

Nick Schlag  
Partner, E3

# Scenario Design Framework



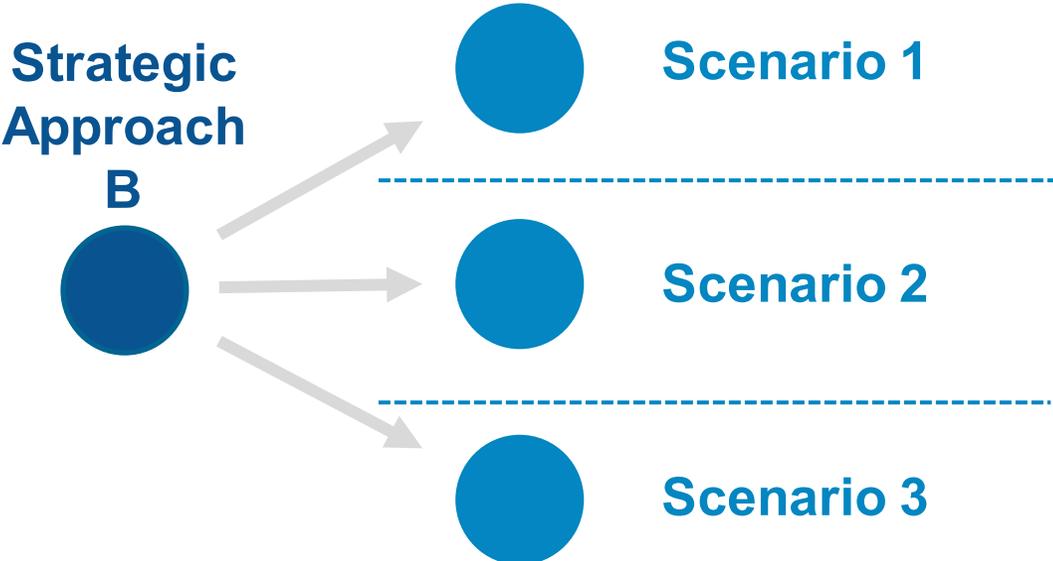
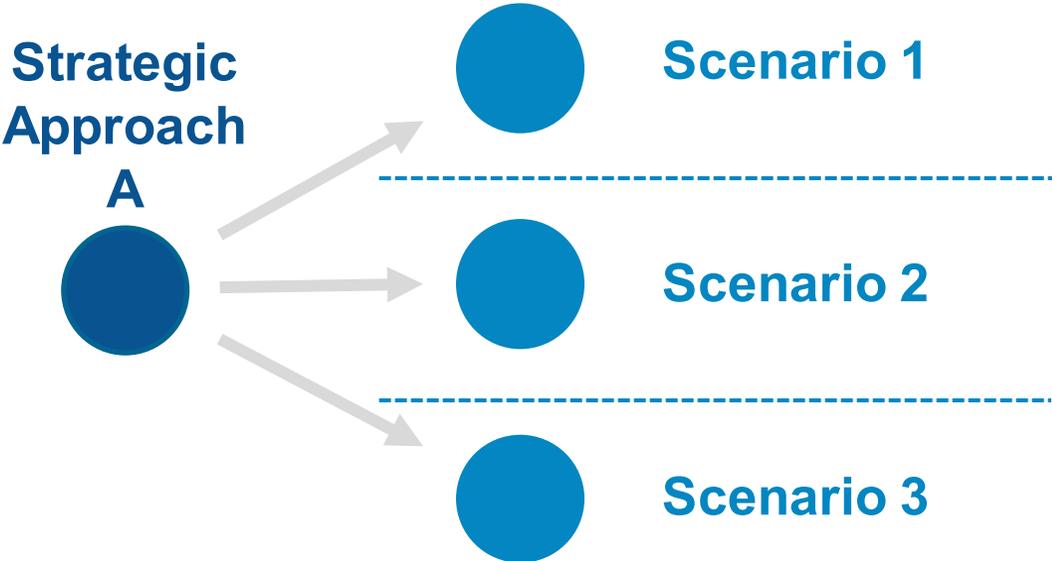
A **scenario** defines a plausible future state of the world around us, reflecting societal, technological, economic, environmental, and political trends & conditions

A **strategic approach** represents a possible set of choices that could allow SRP to meet its objectives

# Relationship Between Scenarios & Strategic Approaches

Each strategic approach will be tested under a range of different future scenarios...

...to identify the plan components that best achieve SRP's objectives and inform the development of Action Plans



# Scenarios and Strategic Approaches

## Strategic Approaches

### Proposed Scenarios

	Strategic Approach A	Strategic Approach B	Strategic Approach C
Current Trends	●	●	●
Desert Contraction	●	●	●
Desert Boom	●	●	●
Strong Climate Policy	●	●	●

### Distinct System Plans

The Integrated System Plan modeling process develops a distinct, optimized system plan for each combination of scenarios and strategic approaches

# Scenarios and Strategic Approaches

## Strategic Approaches

### Proposed Scenarios

	Strategic Approach A	Strategic Approach B	Strategic Approach C
Current Trends	●	●	●
Desert Contraction	●	●	●
Desert Boom	●	●	●
Strong Climate Policy	●	●	●

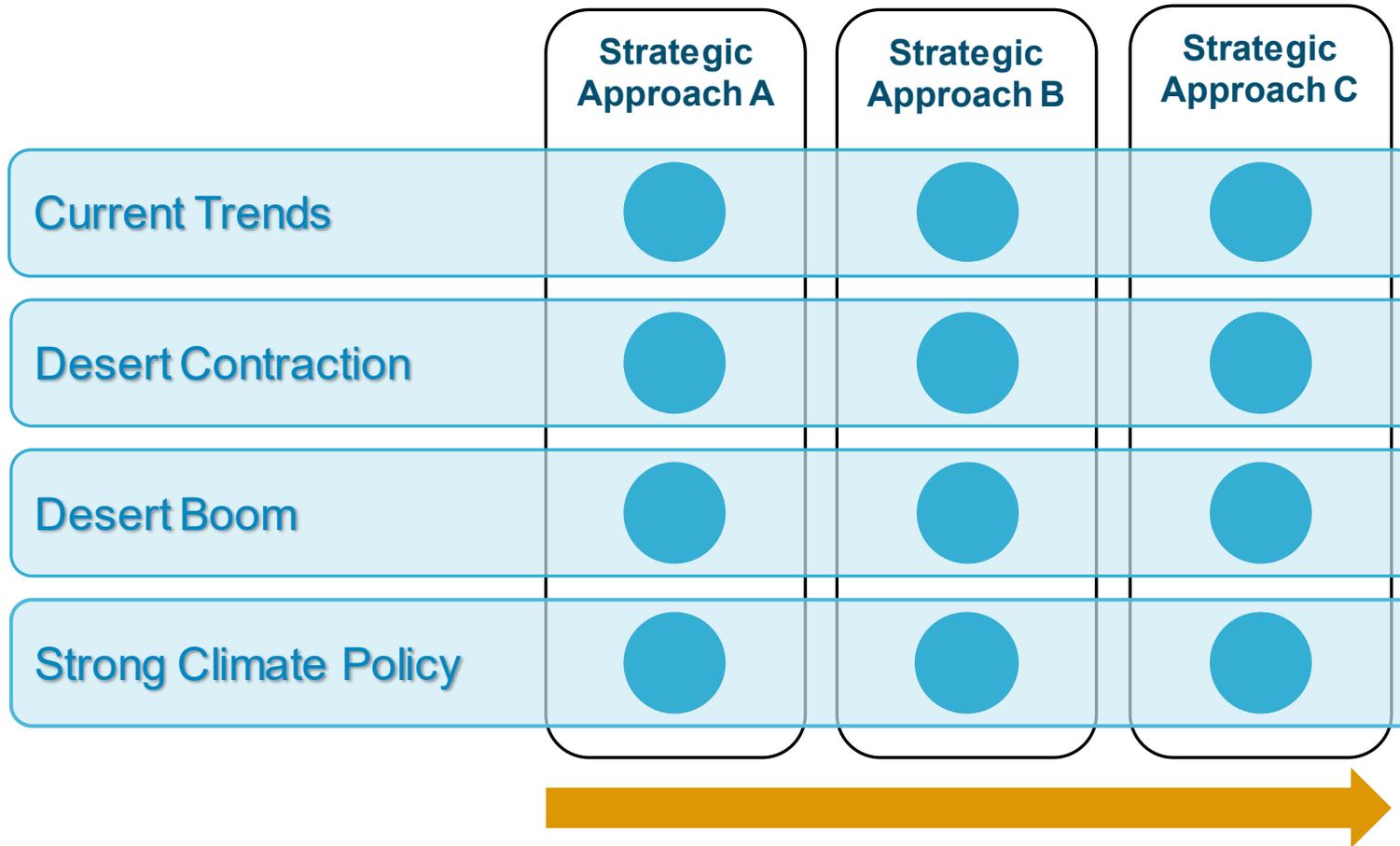


**Assessing a strategic approach across multiple scenarios allows SRP to understand the risks and tradeoffs for each strategic approach.**

# Scenarios and Strategic Approaches

## Strategic Approaches

### Proposed Scenarios



**Assessing multiple strategic approaches across each scenario allows SRP to understand which strategic approach performs best under a given future.**

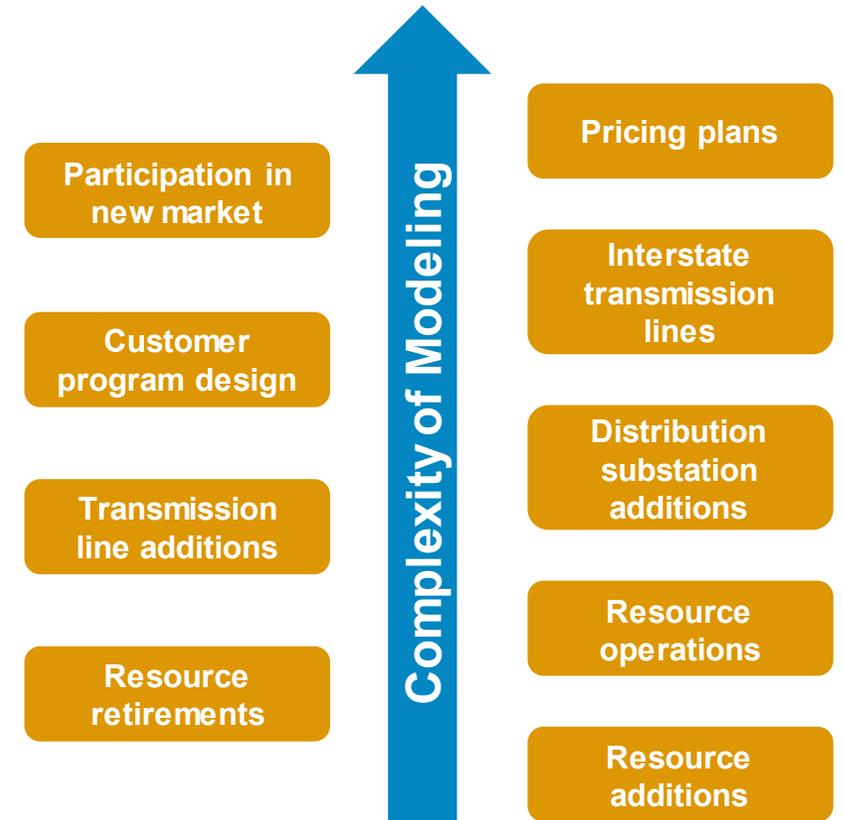
# Guidelines for Strategic Approaches

## All strategic approaches must:

- Meet SRP's 2035 **Sustainability** Goals.
- Meet industry & SRP standards for **reliability**.

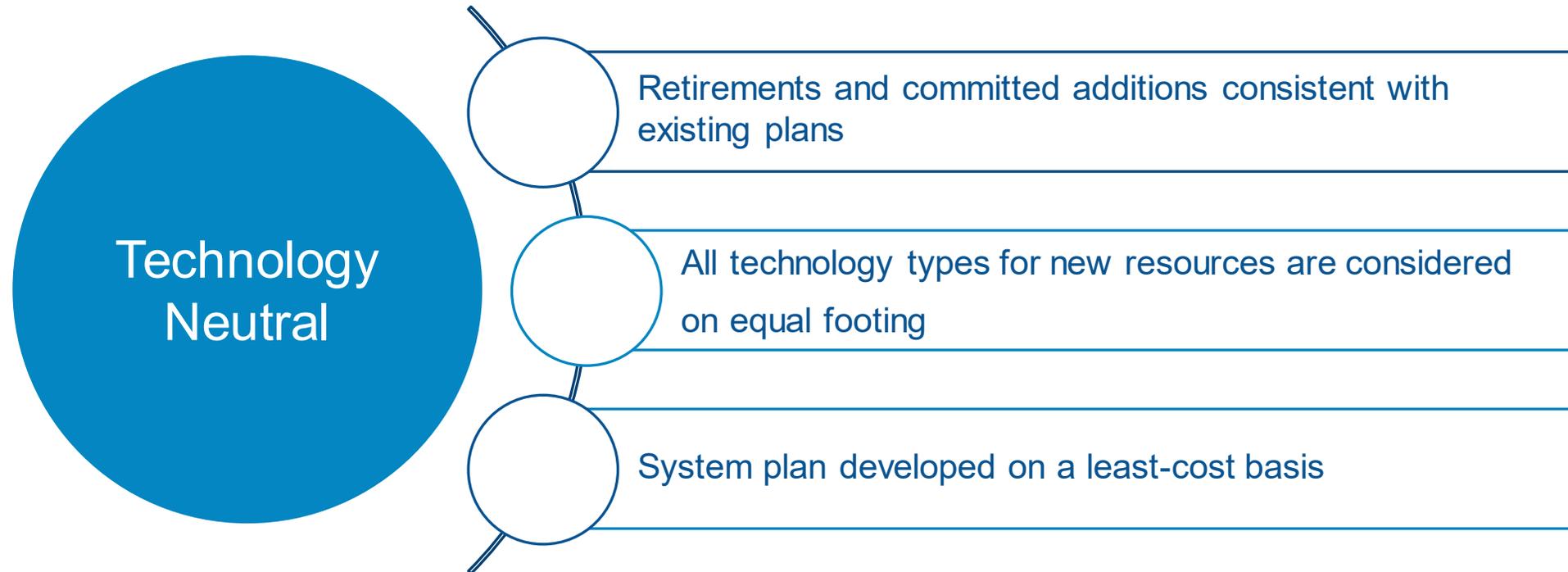
The first Integrated System Plan will not be able to evaluate all potential strategic approaches.

## Illustrative SRP Decisions:



# Example: Technology Neutral Strategic Approach

A Technology Neutral strategic approach aims to develop system plans on a technology-neutral and least-cost basis.



# Group Discussion – Brainstorming Potential Strategic Approaches

Nick Schlag & Lakshmi Alagappan

Partners, E3

# Brainstorming Input to Develop Strategic Approaches (facilitated discussion, 35 min)

## Questions to Discuss:

1. What strategies for building a low-carbon, affordable and reliable power system should utilities consider today?
2. Which decisions available to SRP would you like to see tested in the Integrated System Plan and why?

“I’d like to see a strategic approach where SRP (active verb/expression).”

## SRP Decision Categories:

Investments

Operations

Retirements

Pricing

Customer  
Participation

Regional  
Interactions

# Strategic Approach Brainstorm Miro Board

## Questions

- 1) What strategies for building a low-carbon, affordable and reliable power system should utilities consider today?
- 2) Which decisions available to SRP would you like to see tested in the Integrated System Plan and why?

## SRP Decision Categories:



Equity considerations being integrated into the process

Exiting coal as soon as possible

Metrics related to coal closures and just/equitable transition (e.g. job indicators)

All-Source RFPs for meeting goals most effectively

Not investing in technologies that may become obsolete or stranded

Technology agnostic least cost

Coal closure community impact mitigation

Maximizes opportunities for regional interaction (e.g. RTO)

Accounting for full cost of technologies (e.g. social cost of carbon)

Measured approach with emerging tech (e.g. high cost of nuclear, dev process, hydrogen)

Supporting economic development through reliable and affordable power

Not relying on fossil fuel generation to address climate change

Role of emerging technologies (e.g., SMRs)

Open approach to all technologies (e.g. EE, DG, DSM)

Microgrids to enhance reliability and resiliency

Maximizing utilization of existing assets by leveraging distributed resources (e.g. non-wires alternatives)

EE to relieve T&D congestion

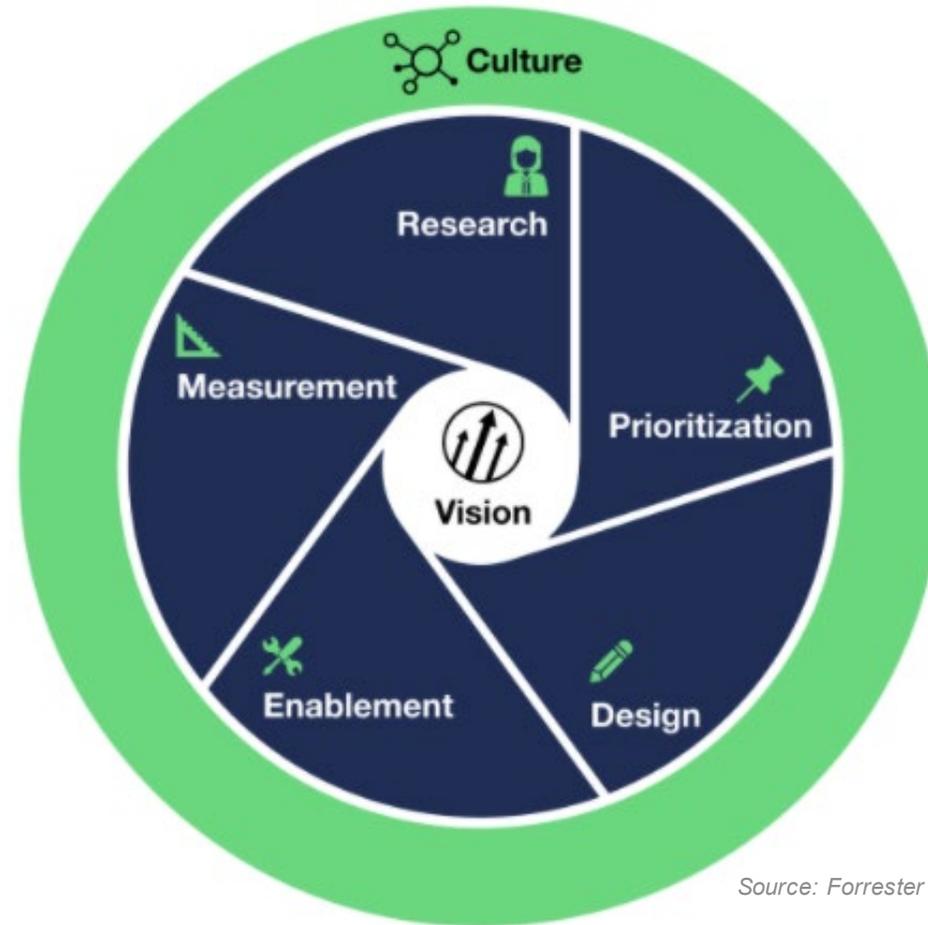
Need a transition plan that includes all voices (communities, SRP, state, stakeholders, etc.)

# Customer Research Strategy and Preliminary Insights

Dennis Goodman

Manager, Strategic Research & Insights (SRP)

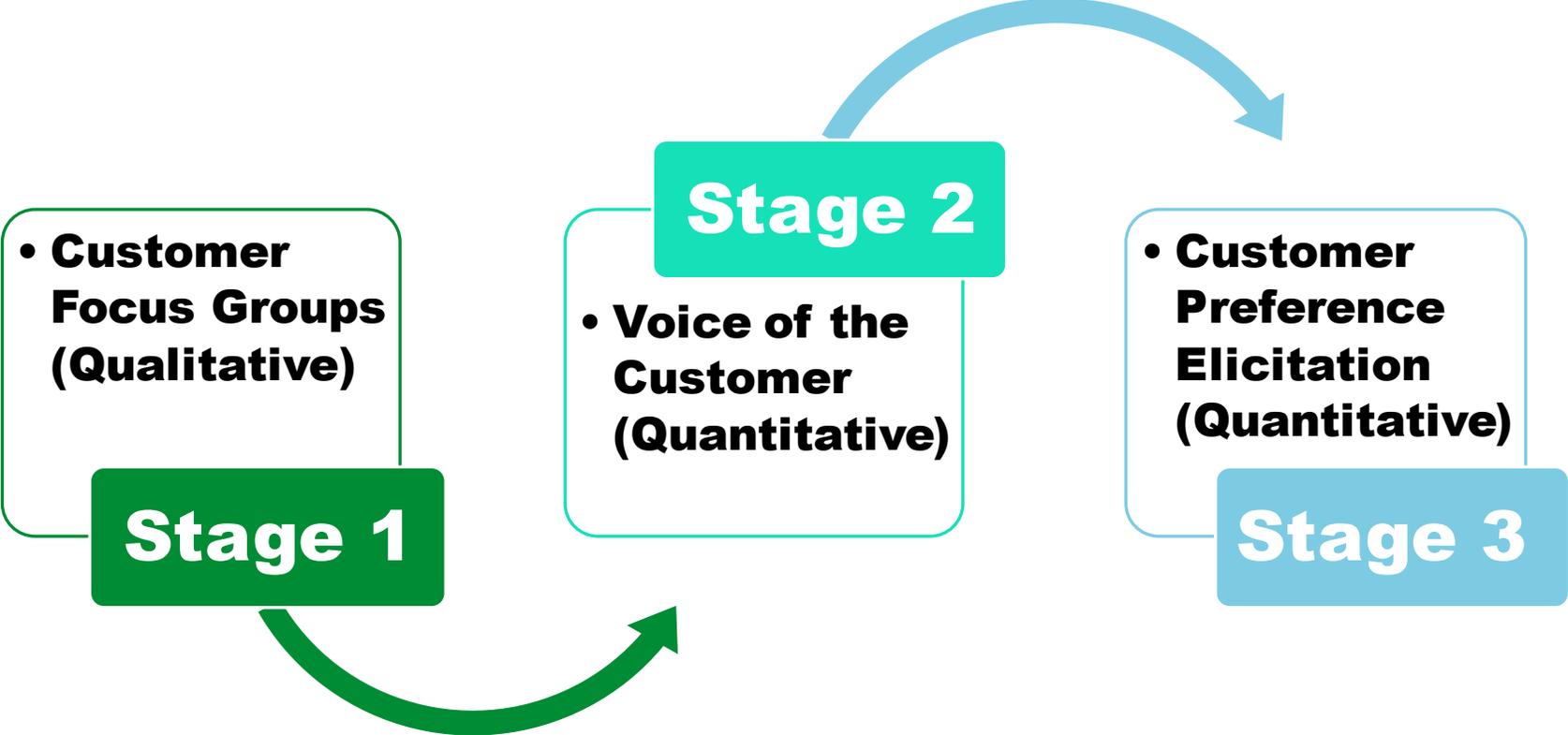
# Listening to Our Customers is the Start of Great Customer Experience



Source: Forrester Research Inc.

# Research Designed to Dive Deep, Validate and Test

## Three Stages of Research



# Customer Research Timeline Meets Needs of ISP

	2021		2022											2023				
	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A
Stage 1																		
Stage 2																		
Stage 3																		

An Independent market research firm completes each Stage including data collection, methodology and results

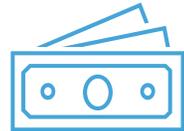
# Insights from Customer Focus Group

## Reliability, Affordability then Sustainability, in that order

### Customer Priority



Reliability



Affordability



Sustainability

### Voice-of-the-Customer

- “ It has to be reliability first. That's just a base requirement for any utility. Right?”
- “ I want it to be affordable for the people who need it to be affordable”
- “ My visceral reaction is it's not fast enough. And the other one is I'm amazed-- shocked is a better word, how much of our power comes from coal. I don't even understand that.”

# Insights from Customer Focus Group

## But Customers Struggled with the Balance



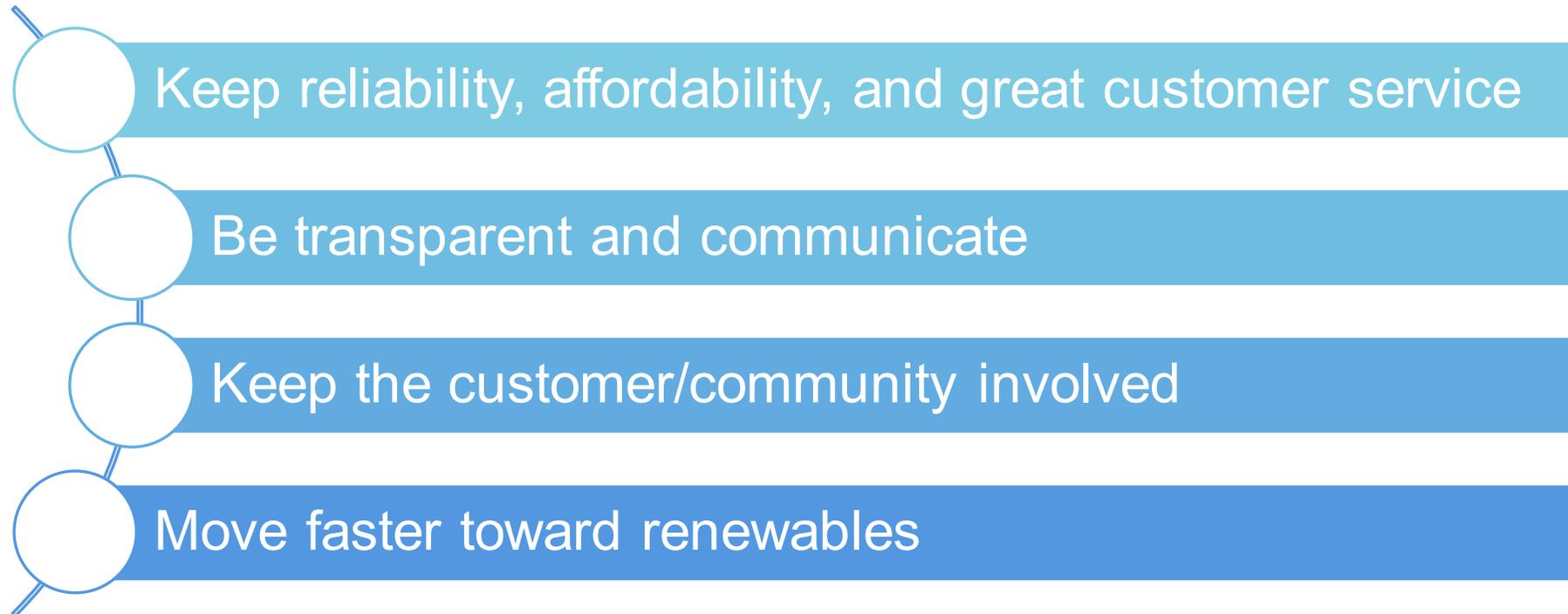
“ I'd like all three of them to be equal

“ Yeah, that's a brutal contest.

“ That's actually really hard because I tend to feel like all three of them are kind of equal footing, their importance.

# Insights from Customer Focus Group

## Customer Wants and Value from SRP

- 
- Keep reliability, affordability, and great customer service
  - Be transparent and communicate
  - Keep the customer/community involved
  - Move faster toward renewables

# Next Steps

## February/March

- Stage 1 Report Completed
- Finalize Stage 2 Questionnaire
- Launch Stage 2 Survey
- Stage 2 Analysis/Report/Presentation

## September/October

- Phase 3 Planning

# Wrap Up and Next Steps

Joan Isaacson

Lead Facilitator, Kearns & West

# Next Steps

## Advisory Group Meetings

- **March 14, 2022 9:00AM-1:00PM (MST)** – Strategic Approach Options Part 2 & Metrics
- **March 21, 2022 10:00AM-12:30PM (MST)** – **Optional** Modeling Subgroup Meeting #2
- **April 15, 2022 12:00PM-4:00PM (MST)** – ISP Study Launch
- **May 10, 2022 9:00AM-1:00PM (MST)** – Advisory Group Meeting #7

## Large Stakeholder Group Meetings

*Open to all existing  
Large Stakeholder and Advisory Group Members*

- **April 29, 2022 12:00PM-2:00PM (MST)** – ISP Study Plan
- **April 29, 2022 2:00PM-4:00PM (MST)** – ISP Technical Working Session #1: ISP Study Plan Details



**Stakeholder Communication Email:**  
**[IntSysPlan@srpnet.com](mailto:IntSysPlan@srpnet.com)**

**Integrated System Plan: Informational Portal**  
**<https://srpnet.com/about/integrated-system-plan.aspx>**

**thank you!**