SRP Integrated System Plan

Strategic Approach Options – Part 2 & Integrated System Plan Metrics – Part 1

March 14, 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

Victor Flores
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 Minute

Garrett Kent –CMC Steel
ISP Advisory Group Member

Safety Minute – CMC Steel

Parking lots concentrate the hazards of the road
Especially new lots like SRP's!

1 in 5 accidents occur in a parking lot

2 out 3 drivers may be distracted while looking for a parking spot

Each year in the U.S. alone parking lots and garages are the scenes of:

- **600,000 injuries**
- **500+ deaths**
- **50,000+ crashes**

Safety Minute – CMC Steel

Drivers feel more comfortable driving distracted in parking lots!

While Driving Through a Parking Lot, Drivers Feel Comfortable…

Making phone calls	66%
Texting	56%
Emailing	50%
Video chatting	42%

Safety Minute – CMC Steel

When in parking lots drivers should…

- Drive with caution
- Avoid distractions, particularly mobile devices

  (applies to pedestrians too!)
- Use turning signals
- Watch your speed, most parking lots have a speed limit of 10mph

Meeting Objectives:

- Review the updated proposal for scenarios and sensitivities to be used in the analysis
- Gather feedback on the draft strategic approaches proposal
- Brainstorm metrics to compare potential future power systems

Agenda

Time		Topics	Presenter
9:00 – 9:05	5 mins	Welcome and Opening Remarks	Kelly Barr (SRP)
9:05 – 9:20	15 mins	Agenda Overview and Introduction	Joan Isaacson (Kearns & West)
9:20 - 9:35	15 mins	Revised Scenarios and Sensitivities	Angie Bond-Simpson (SRP) Jed Cohen (SRP)
9:35 – 10:30	55 mins	Strategic Approaches Draft Proposal (Part 2) – Roundtable Discussion	Nick Schlag (E3) & Angie Bond-Simpson (SRP) Facilitated by Joan Isaacson (Kearns & West)
10:30 – 10:45	15 mins	Coffee break	
10:45 – 11:15	30 mins	Recap of What We Heard on Strategic Approaches – Open Discussion	Nick Schlag (E3)
11:15 – 11:55	40 mins	Metrics to Compare Potential Future Power Systems (Part 1) – Brainstorming Activity	Nick Schlag (E3)
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!

In-Person Meeting Options

To promote fuller participation and discussion, SRP will host upcoming meetings as hybrid events with in-person and virtual participation options.

Would you attend the April Advisory Group hybrid meeting in-person?

- ❑ Yes, definitely
- ❑ Maybe
- ❑ No
- ❑ No, but maybe in the future

Rocket Roundtable:

What is something new you have learned about SRP or another member's organization through our engagements thus far?

SRP ISP ROADMAP

Stakeholder Engagement and Public Outreach

Collaboratively develop Study Plan:
Scenarios & Sensitivities
Strategic Approaches
Metrics

Gather input data

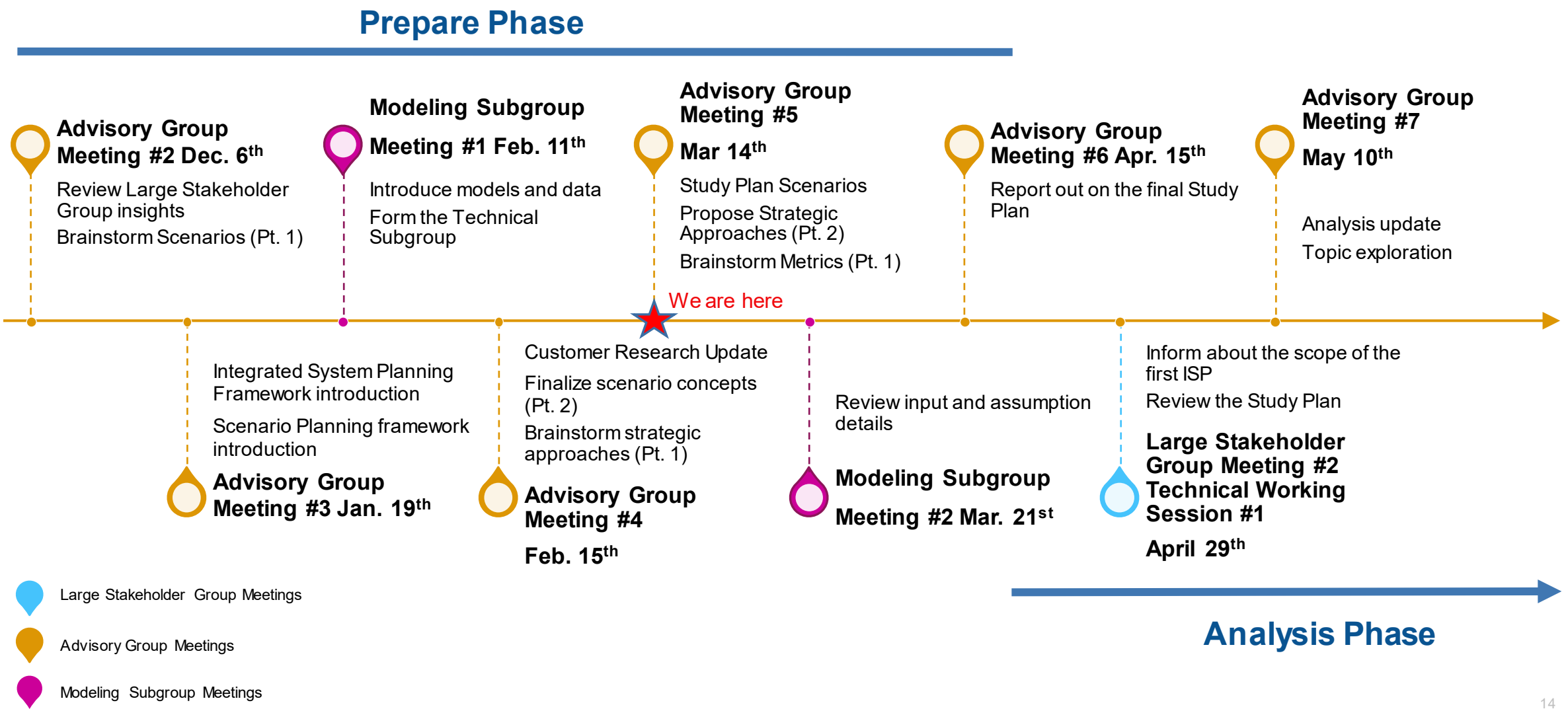
Perform system analysis

Validate and share results

Recommend new SRP strategic directions

Recommend near term actions

Developing the Study Plan



An Example of Integrated System Plan Outcomes

Source: Strategic Directions from SRP's 2018 Integrated Resource Plan

Grow renewables

Reduce coal

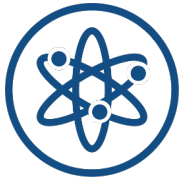
Preserve option for new nuclear

Develop and promote customer programs

Seek battery alternatives

Develop flexible natural gas

Expand participation in regional transmission markets



Focus research on new technologies for generation, load management, storage and electrification

Revised Scenarios and Sensitivities

Angie Bond-Simpson
Director, Integrated System Planning & Support, SRP

Jed Cohen
Lead, Integrated System Planning & Support, SRP

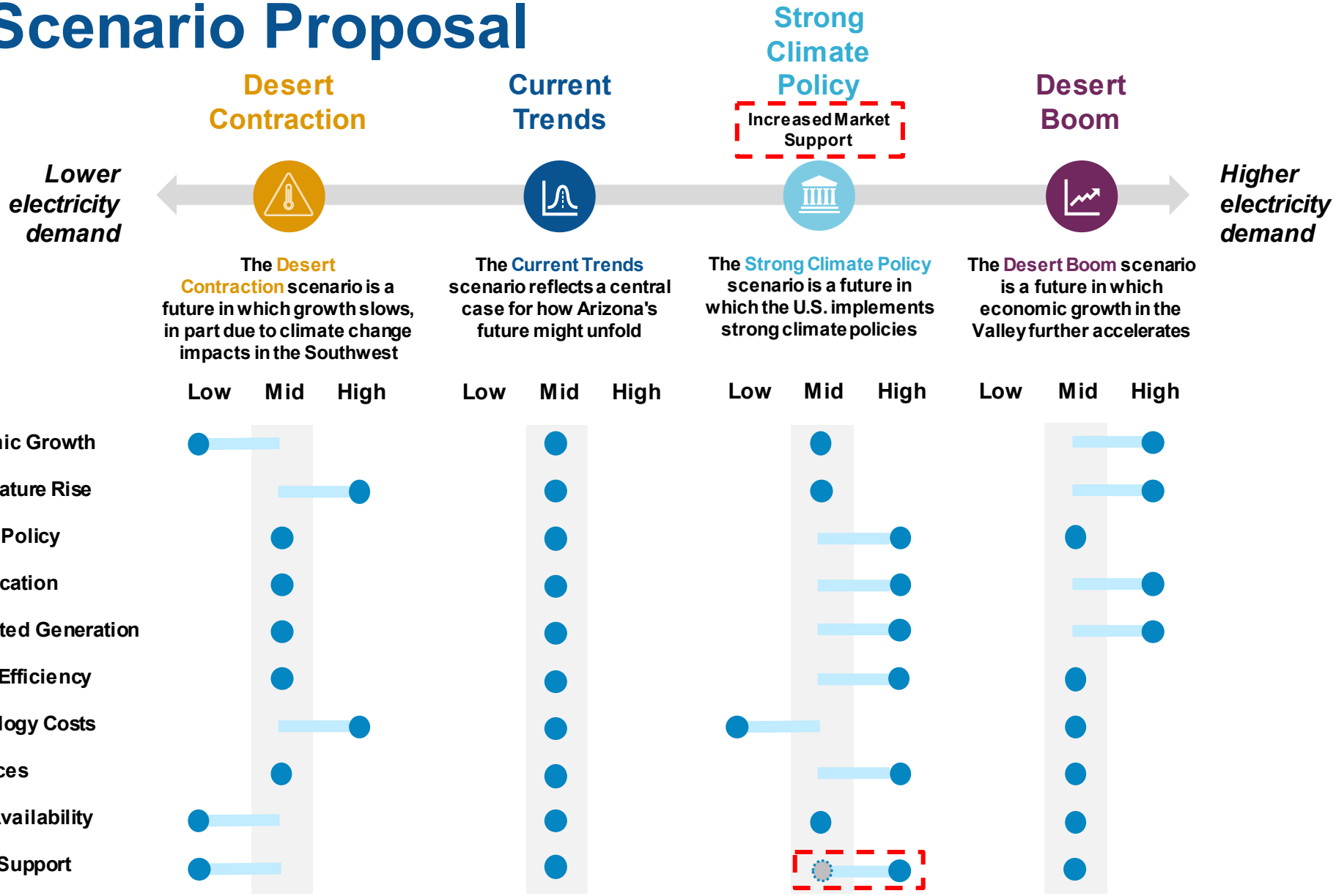
Suggestions We Heard during February 15th Meeting:

- 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 for Advisory Group members to dig deeper on specific scenario & modeling assumptions
- Questions relating to other aspects of portfolio planning (role of dispatchable generation, “must-run” designations for coal, impacts of neighboring states/markets, supply chain)

Actions Taken in Response to Stakeholder Feedback

- Additions to Study Plan: Market support in Strong Climate Policy Scenario and a Volatile Gas Price Sensitivity
- Investigations (Underway): Medium & heavy-duty electric vehicle data
- Investigations (Completed): Climate impacts across scenarios, include supply chain discussion and major events (e.g. pandemic) in scenario narratives
- Discussions of other Study Plan components: Coal plants in strategic approaches, metrics for resiliency
- Further Research Post ISP #1 Pilot : Sub-hourly modeling, locational impacts on distribution system

Revised Scenario Proposal



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

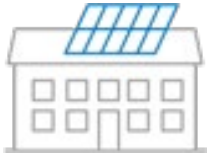
Revised Sensitivities Proposal

Sensitivities

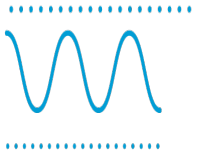
- High Demand Response

- High Energy Efficiency

- High Distributed Generation Adoption

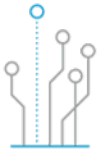


- Increased Load Management

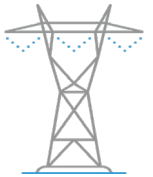


- High, Low & Volatile Gas Prices

- High & Low Technology Costs



- Regional Transmission Organization Assessment



Additional Exploration - EVs

Medium- and heavy-duty EV adoption and potential impact to SRP load.

Explore data availability and share with stakeholders; possibly incorporate into **Strong Climate Policy.**

Table 27. Vehicle Miles Traveled (VMT) Assumption

Vehicle Type	VMT	Source
Personal LDV	16,385	Previous E3 analysis in Arizona
TNC LDV	40,545	UC Davis survey in partnership with Uber
Parcel truck	14,000	NREL fleet DNA
Transit bus	50,000	Valley Metro actual bus schedule adjusted for electric bus range assumption
School bus	11,253	State Transportation Statistics

Source: AZ Statewide Transportation Electrification Plan

Additional Exploration - Climate

Drought and temperature rise are built-in assumptions to all scenarios

- RCP 4.5 & 8.5 temperature projections used in the scenarios

- Current drought conditions assumed in all scenarios, with extreme drought included in Desert Contraction

Next Steps

- March 21st Advisory Group: Modeling Subgroup Meeting
  - Review a selection of inputs and assumptions for scenarios and sensitivities
  - Gather stakeholder feedback on potential alternative options for assumptions or data sources
- Draft narratives to depict the future under each scenario
- Share the ISP Study Plan with the Large Stakeholder Group on April 29th

Strategic Approaches Draft Proposal (Part 2)

Nick Schlag
Partner, E3

Angie Bond-Simpson
Director, Integrated System Planning & Support, SRP

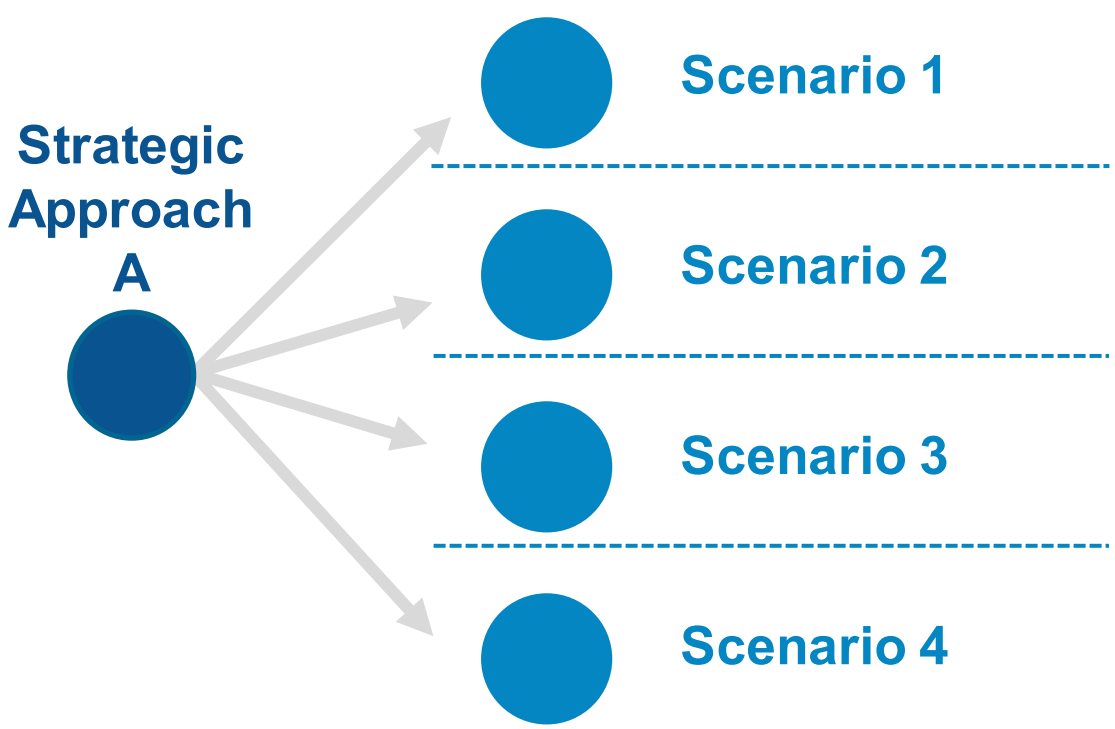
Scenario Design Framework

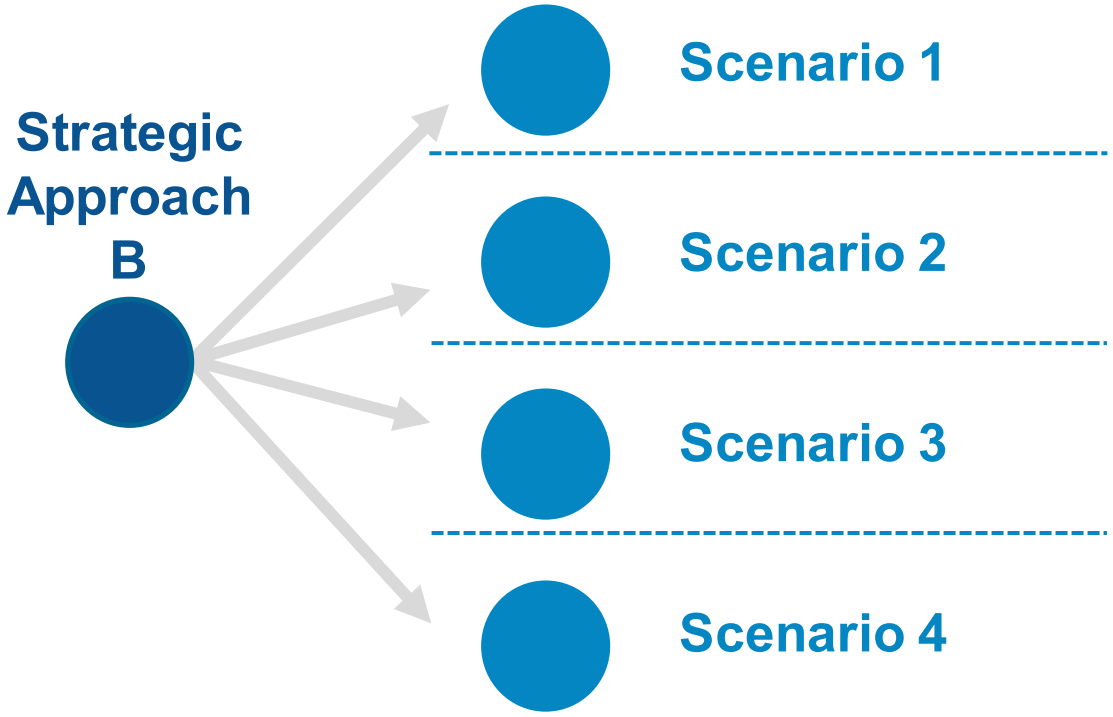
A **scenario** defines a plausible future state of the world around us, reflecting societal, technological, economic, environmental, and political trends & conditions

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





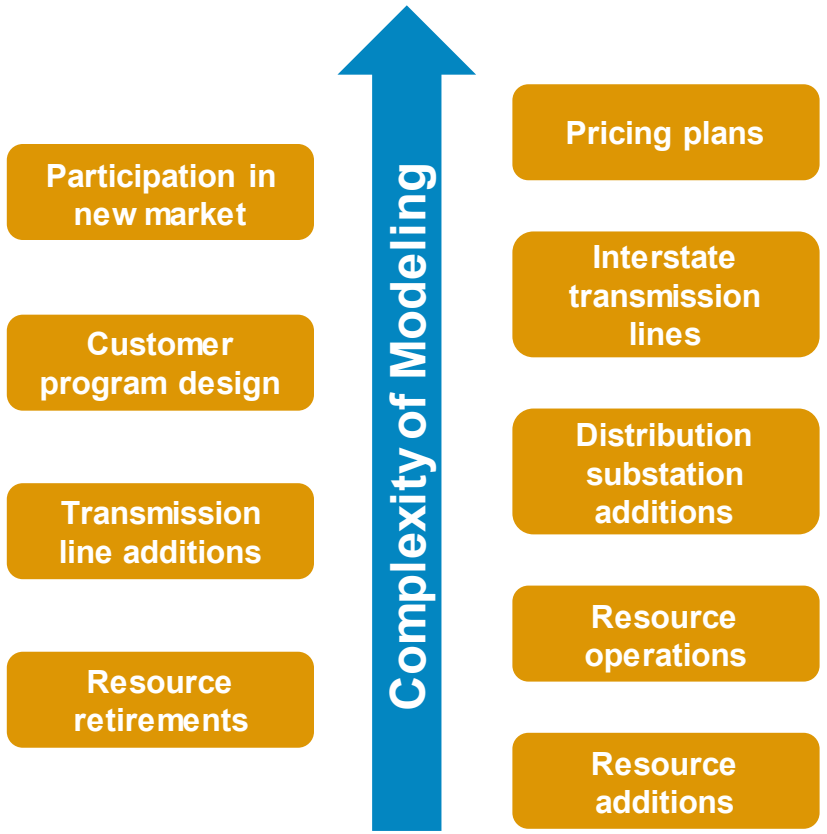
Guidelines for Strategic Approaches

All strategic approaches must:

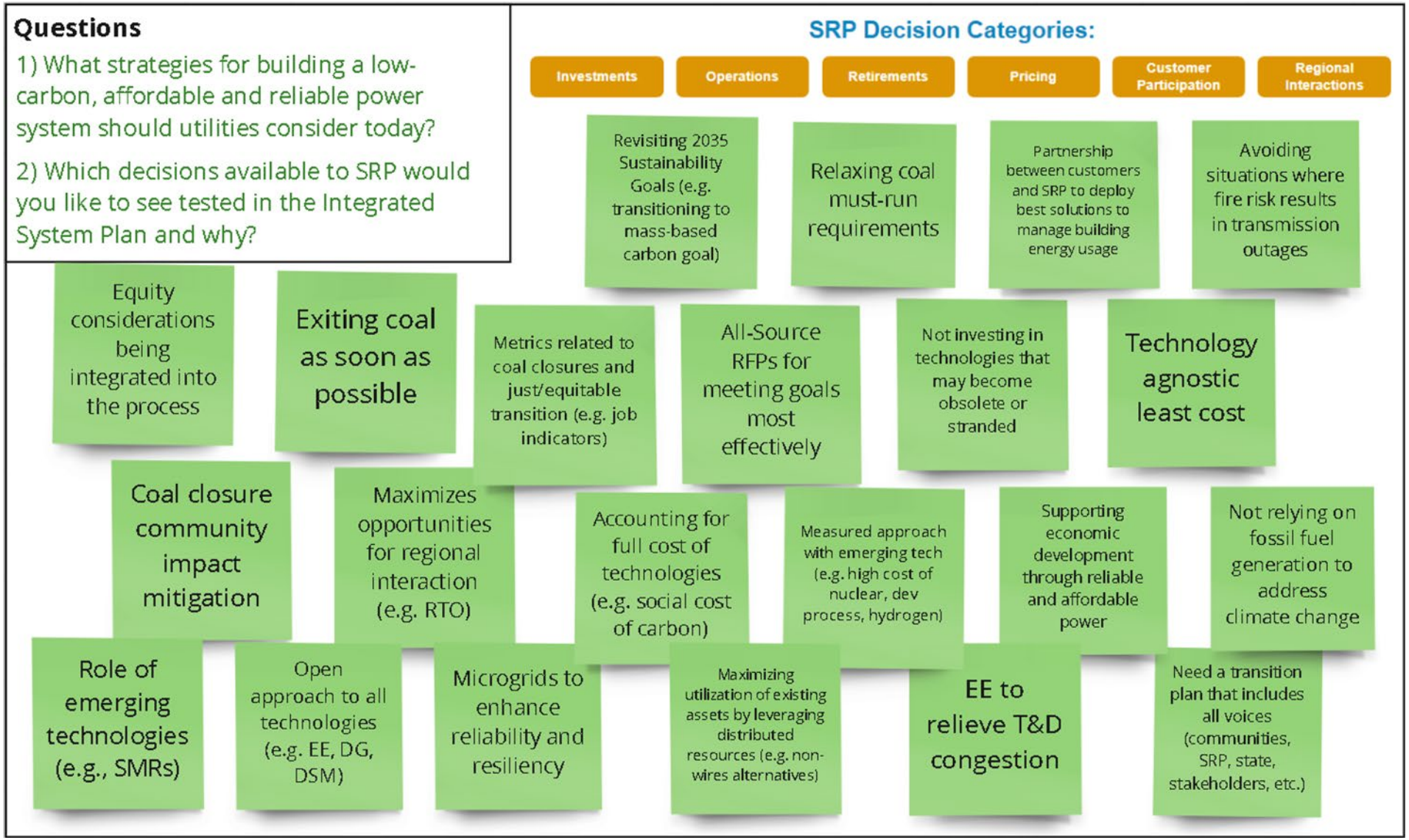
- Meet or exceed SRP's 2035 **Sustainability** Goals.
- Meet industry & SRP standards for **reliability**.
- Consider **affordability**

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

Illustrative SRP Decisions:



Strategic Approach Brainstorming Results



Proposed Strategic Approaches & Studies

Strategic Approaches for System Analyses

Modeled through scenarios and sensitivities

- **Technology Neutral**
- **No New Gas**
- **Minimum Coal**

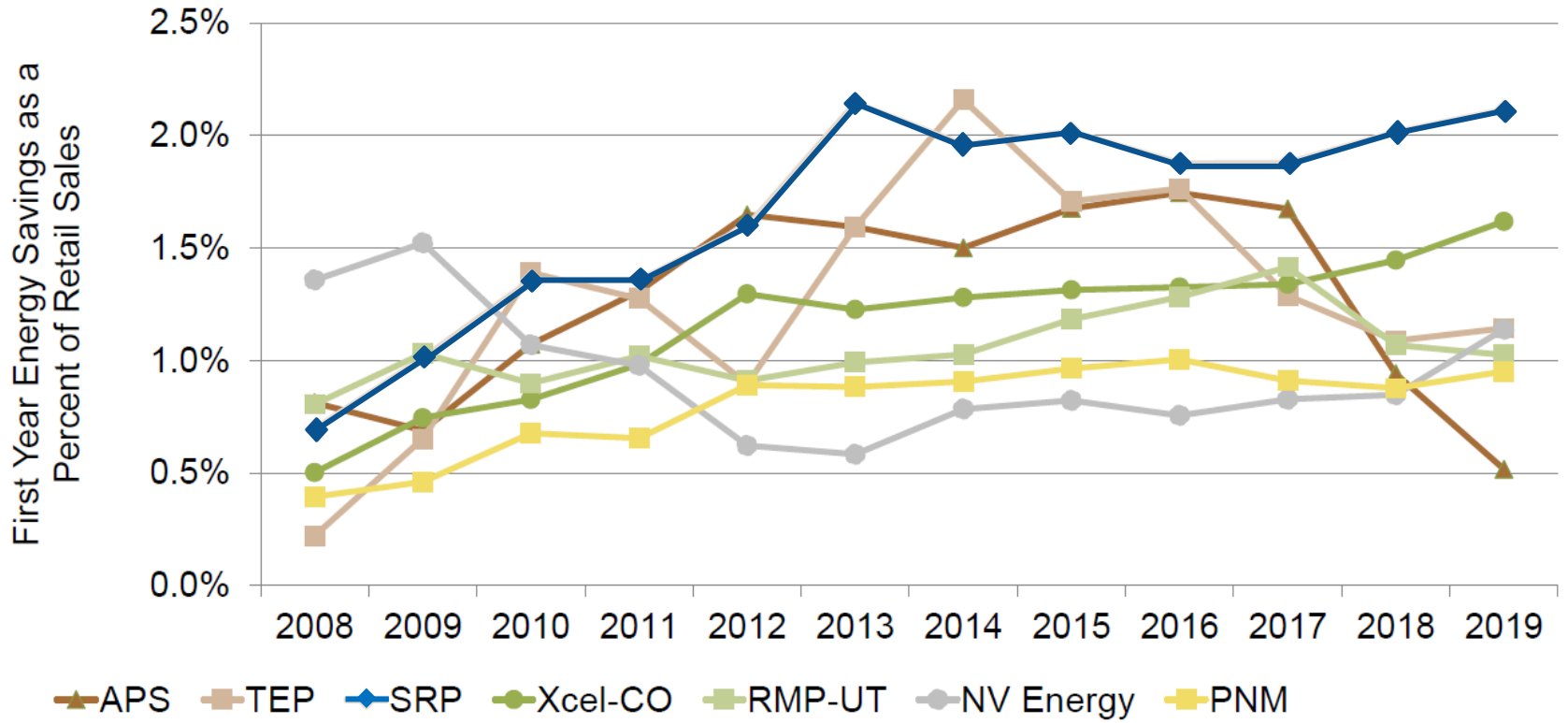
Exploratory Studies

Studies to enhance system planning

- **Next Gen Time of Use (TOU)**
- **High Regional Interaction**
- **SRP Storage on Distribution System**

Regional Leader – Energy Efficiency

First Year Energy Savings Trends



Source: 2020 SWEEP Utility Workshop – Regional Update

SRP Rank:	#4	#3	#2	#1	#2	#1	#2	#1	#1	#1	#1	#1

Technology Neutral

Technology Neutral

*SRP takes a **least-cost** approach to building the future power system*

Core Inputs

- Meet or exceed 2035 Sustainability Goals (EE, DR, EVs, Carbon)
- Plan to all reliability standards across the system
- Limits relating to technical feasibility and the availability of new technologies

Key Research Questions Addressed:

- *What is a least-cost approach to serving customer demand under the various scenarios?*
- *What is the impact of a least-cost approach on carbon emissions?*
- *How diverse/resilient is the system in 2035?*

This strategic approach considers Advisory Group ideas relating to least cost systems, affordability, and approaches open to all technology options

No New Gas

No New Gas

*SRP **avoids investment in new natural gas capacity**, meeting future needs with carbon-free resources*

Core Inputs

- Includes all requirements from Technology Neutral Strategic Approach
- No new natural gas capacity is allowed unless it is carbon-neutral

Key Research Questions Addressed:

- *What investments, research and operational readiness activities are needed to maintain reliability without flexible natural gas?*
- *What are the opportunities and challenges from a power delivery perspective?*
- *Do we have transmission access to diversify renewables?*
- *How diverse/resilient is the system in 2035?*

This strategic approach considers Advisory Group ideas relating to not relying on fossil fuels and avoiding investments in technologies that may become obsolete or stranded

Minimum Coal

Minimum Coal

*SRP **reduces power generation from coal** and analyzes the system-wide impacts*

Core Inputs

- Existing requirements from No New Gas Strategic Approach
- Test operational changes to SRP's coal resources (including seasonal operations and SRP coal exit by end of study period)
- Reduce carbon emissions from coal plants while keeping the reliability and risk mitigation benefits of coal resources

Key Research Questions Addressed:

- *What is the role of existing coal assets in the energy transition?*
- *What other options are available to serve that role?*
- *What emerging technologies will need to be in place to serve customer demand?*
- *How diverse/resilient is the system in 2035?*

This strategic approach considers Advisory Group ideas relating to exiting coal and plant community impacts.

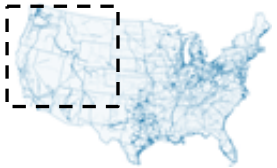
Exploratory Studies

Exploratory Studies

Next Gen Time of Use (TOU)

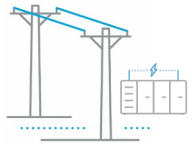
SRP explores the next generation of residential TOU plans

High Regional Interaction



SRP explores integration with regional electricity markets

SRP Storage on Distribution System



SRP explores storage sited on the distribution versus transmission systems

Proposed Strategic Approaches & Studies

Strategic Approaches for System Analyses

Technology Neutral

*SRP takes a **least-cost** approach to building the future power system*

No New Gas

*SRP **avoids investment in new natural gas capacity**, meeting future needs with carbon-free resources*

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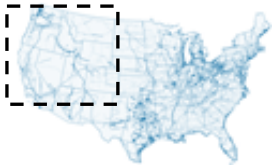
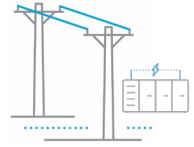


SRP explores integration with regional electricity markets

SRP Storage on Distribution System



SRP explores storage sited on the distribution versus transmission systems

Strategic Approaches to Consider for Future Integrated System Plans

- Continued expansion of Customer Programs
- Participation in new markets and Regional Transmission Organizations
- New pricing schedules
- Micro-grids
- Location-driven solar + storage (non-wires alternatives)
- Equitable transition pathways
- Proactive flexible load management

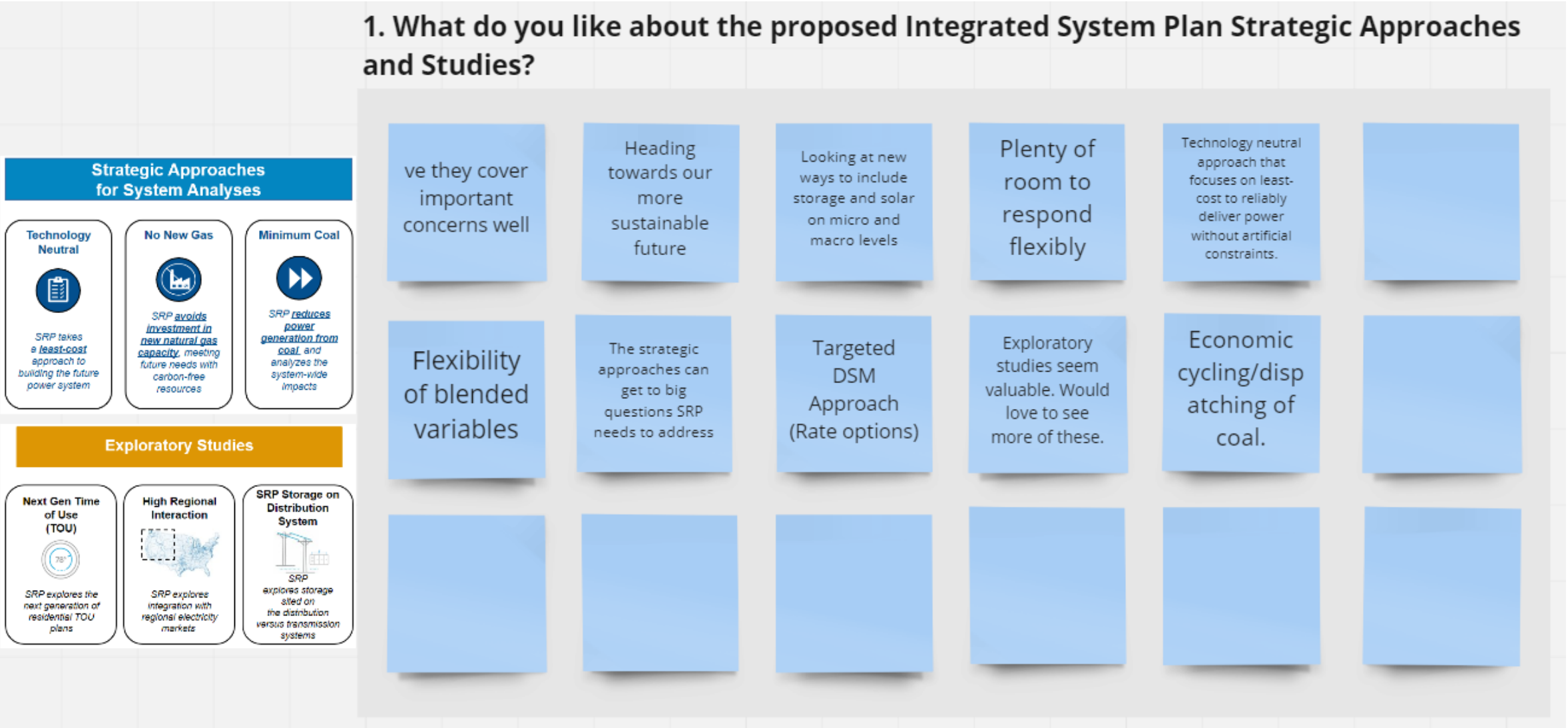
Feedback on Strategic Approaches Proposal – Roundtable Discussion

Joan Isaacson
Lead Facilitator, Kearns & West

Questions for the Roundtable (facilitated discussion, 35 minutes)

1. What do you like about the proposed Integrated System Plan Strategic Approaches and Studies?
2. Do the proposed Strategic Approaches and Studies address important considerations for the first Integrated System Plan? If not, what else should be considered?

Miro Board 3/14



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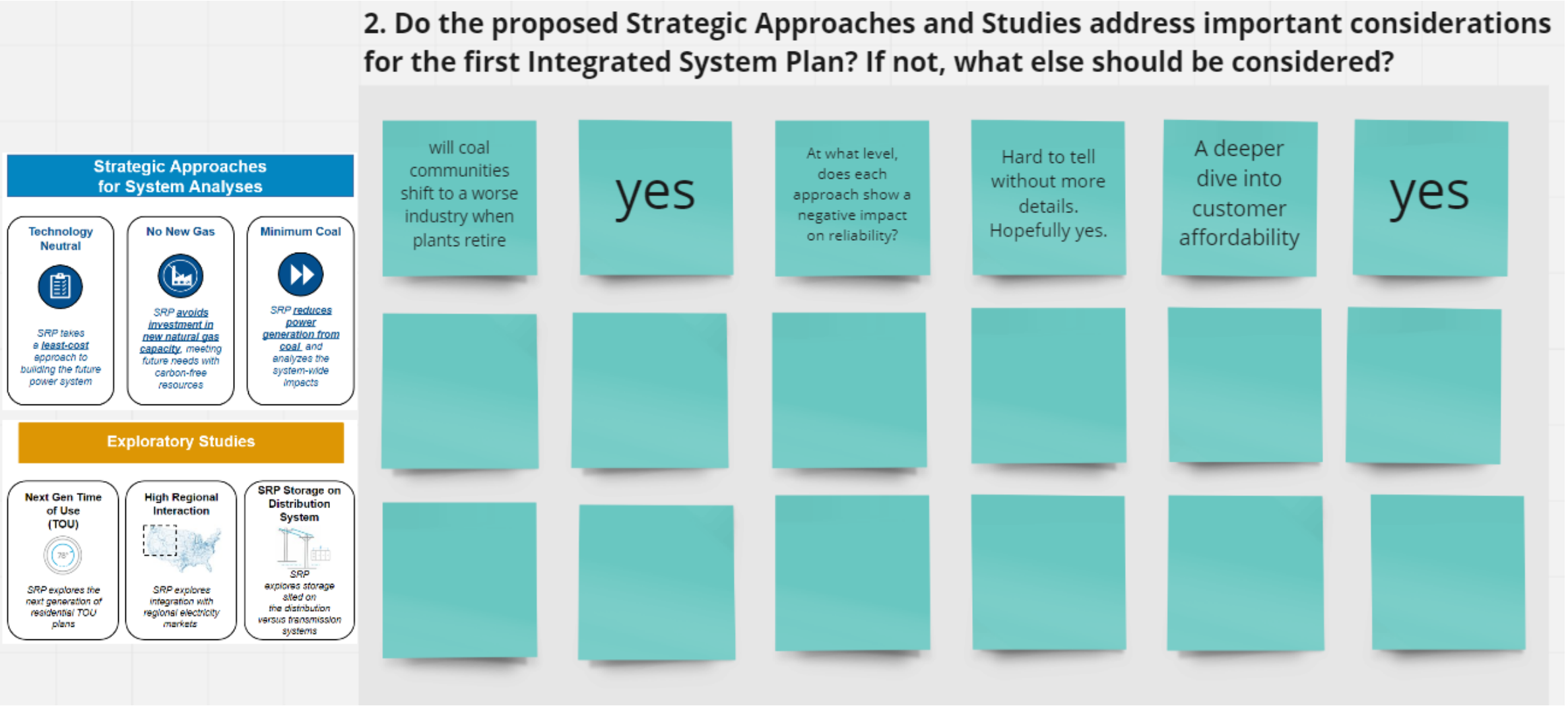

Coffee Break

Recap of What We Heard on Strategic Approaches – Open Discussion

Nick Schlag
Partner, E3

Suggestions We Heard:

Recap from the roundtable discussion

- **Strategic approaches focus on important questions, providing multiple options and a flexible foundation to chart a path to a more sustainable future**
    - **A desire to refine/clarify what counts as "no new gas"**
- **Emphasis on importance of affordability and equity across all strategic approaches (lower income customers, communities impacted by coal transition)**
    - **Need for a broader set of metrics to account for other societal costs and benefits resulting from plans**
- **Support for exploratory studies to examine additional topics (e.g., non-wires, targeted DSM) to enhance insights and direct future efforts**

Metrics to Compare Potential Future Power Systems in the Integrated System Plan (Part 1)

Nick Schlag
Partner, E3

Metrics

Metrics are outputs from the Integrated System Plan modeling ecosystem that allow SRP, customers, and other stakeholders to measure the performance of different system plans.

Metrics

Metrics will be used to…

- Provide information to customers and other stakeholders
- Evaluate the performance of each strategic approach across scenarios and sensitivities
- Design customer preference research

Metrics should…

- Be quantifiable
- Allow us to assess the benefits, costs, and risks of different system plans
- Facilitate the development of strategic directions and an action plan

Primary metrics in the 2018 Integrated Resource Plan

Reliability

- Planning reserve margin

Affordability

- Total costs
- Financial flexibility (fixed costs)
- Cost stability (gas burned)

Sustainability

- Carbon dioxide emissions
- Water use
- Coal ash

Metrics in the Integrated System Plan

Reliability

Affordability

Sustainability

We will brainstorm metrics today and bring back a list of metrics at the 4/15 Advisory Group meeting

All system plans will meet industry and SRP standards for reliability

Exposure to risks may vary across system plans

All system plans will be developed on a least-cost basis, subject to the scenario/sensitivity and strategic approach assumptions

At a minimum, all system plans will satisfy SRP's 2035 Sustainability Goals

Brainstorming Metrics

Nick Schlag & Lakshmi Alagappan
Partner, E3

Questions for the Brainstorming (facilitated discussion, 30 min)

1. What are important metrics for reliability, affordability, and sustainability?
2. Are there other metrics and/or metric categories to consider?
3. What metrics would help SRP determine which system plans are better/worse for customers?

Previous Advisory Group Member Suggestions

- Total Carbon Emissions
- Customer Rate Impacts
- $/kWh Impact
- Community Impacts
- Resiliency Measures

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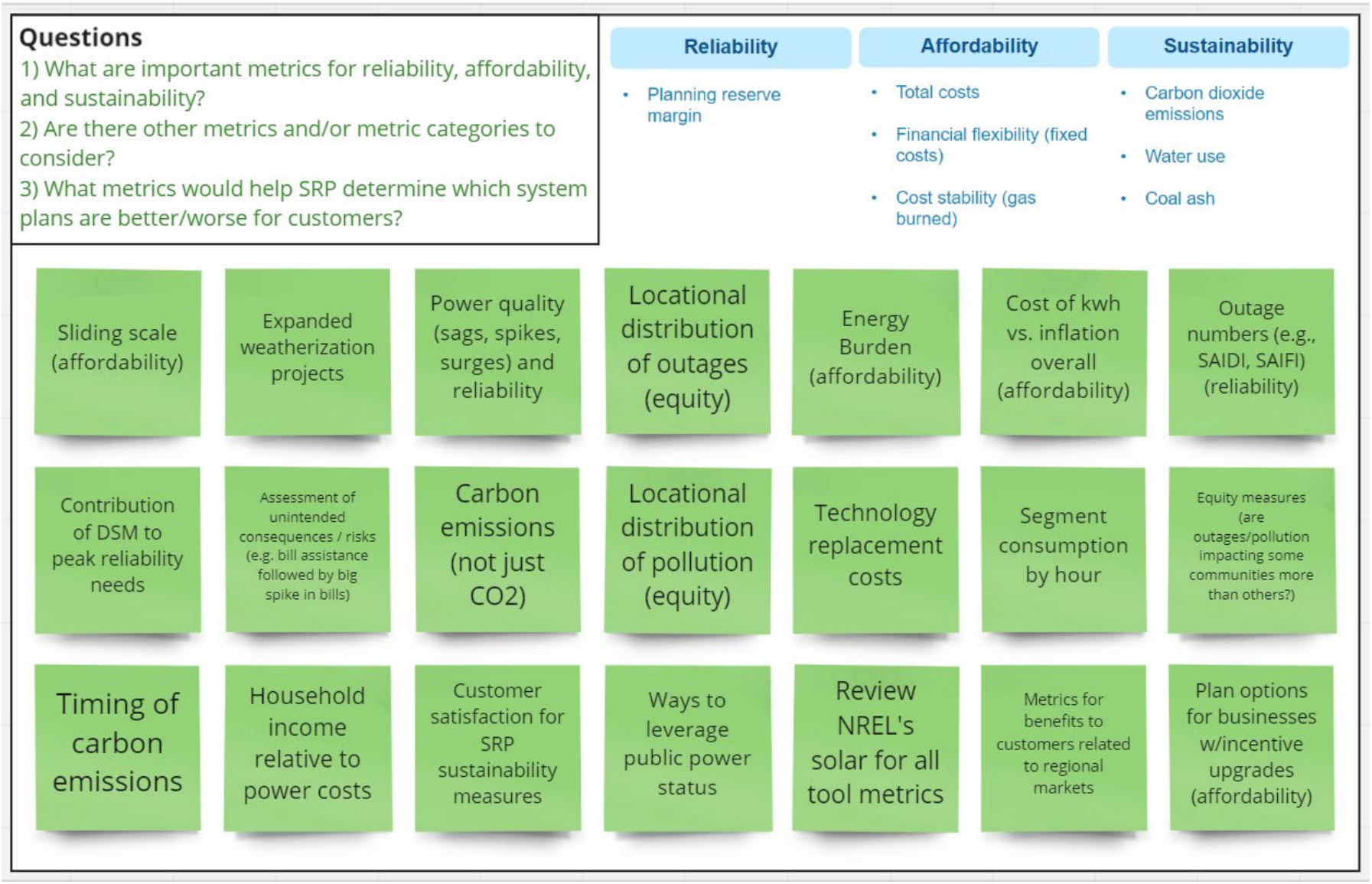

Wrap Up and Next Steps

Joan Isaacson
Lead Facilitator, Kearns & West

Next Steps

Advisory Group Meetings

- ***March 21, 2022*** *10:00AM-12:30PM (MST)* – **Optional** Modeling Subgroup Meeting #2
- ***April 15, 2022 [Potentially Hybrid]*** *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)* – Technical Working Session #1: ISP Study Plan Details

Stakeholder Communication Email:

IntSysPlan@srpnet.com

Integrated System Plan: Informational Portal

https://srpnet.com/about/integrated-system-plan.aspx

thank you!