



Advisory Group Meeting

Summary, Outcomes & Next Steps



31 October – 1 November 2024



CONVERGE
STRATEGIES

Agenda

01

Day 1

*Executive Summary, Risk +
Criticality, and Restoration
Priorities*

03

Appendix A

Workshop Slides

02

Day 2

*Interdependency Planning and
Design + Integration*

04

Appendix B

Flip Chart Photos

Future Milestones

	Draft	Spring Workshop	Finalize First 2 Modules	Fall Workshop	Finalize Final 2 Modules
	Winter 2024	Spring 2025	Summer 2025	Fall 2025	Winter 2025/6
Objectives	Update first two Modules (Energy Risk & Criticality, Restoration Priorities) based on Fall Workshop comments	Discuss outlines of remaining two concept areas (Interdependency Planning & Design + Integration)	Publish frameworks for Energy Risk and Criticality & Restoration Priorities	Test draft framework concepts for remaining two sections. Revise Executive Summary, as needed.	Publish frameworks for Interdependency Planning & Design + Integration
Outputs	Advisory Group Meeting Slides based on open questions from Fall 2024 Workshop	Workshop Overview Slides, including photos of flip charts	- Executive Summary - Energy Risk and Criticality Section - Restoration Priorities Section	Workshop Overview Slides, including photos of flip charts	- Interdependency Planning Section - Design + Integration Section - Executive Summary

Day 1

Structural Updates – Modular Framework



Notes

At the workshop, the group determined that five different Modules would be more useful than one long one. The group also determined that we will not develop a Module centered around resource adequacy given the amount of work currently underway on that subject. Over the course of the next few months, we will discuss the ways in which we can incorporate resource adequacy topics into each of the Modules listed above.

Executive Summary + User Guide

Summary – “Not all outages are created equal”

The executive summary will provide an overview of all framework Modules. Each Module will be structured similarly, designed to provide users of the framework an understanding of the primary issues for each topic and a guide to finding more detailed information. This Module will introduce the State Energy Strategy model as a means to help users understand their organizations roles and responsibilities in planning and implementation. Ultimately, it will guide readers in making risk-informed decisions based on their priorities, the stakeholders involved, and existing plans and policies.

Framework Updates

1. Orient readers to the framework’s modular structure and vocabulary of new planning tools.
2. Having case studies in the Executive Summary will be helpful for users to understand how the Modules can be used. Workshop participants indicated that hazards including a blizzard/cold weather event, flood event, and high wind/derecho should be included.
3. Map out stakeholders (e.g., states, utilities, grid operators, communities, and the public) and how the framework will help understand specific planning requirements, roles and responsibilities, and authorities for energy security.
4. Identify where planning resources currently exist to improve information sharing that will support implementation of the framework.
5. Maintain an emphasis on “electricity only” for the initial framework with room to grow into other sectors.

Open Questions

1. What level of granularity in topics or language will allow this framework to remain useful to both energy and non-energy professionals?
2. How can this be approachable to users who are not experienced energy practitioners while still providing value to experts?
3. What are the best ways to incorporate existing emergency planning resources, (i.e. FEMA lifelines, VRA, THIRA) to ensure the framework goes “all-in” on electricity?
4. What type of graphic would be useful to differentiate proactive and reactive planning? Does something similar already exist?

Energy Risk + Criticality

Summary – Energy policy cannot “do everything for all people at all times”

Stakeholder alignment is needed to define and identify critical assets/facilities. This alignment helps organizations build a general understanding of how specific circumstances might impact what is considered essential. Criticality can vary depending on factors such as the severity of potential electricity disruptions and the associated risks to people and infrastructure systems. This Module will provide a more detailed approach to plan for and respond to different types of electricity disruptions, with the goal of reducing the impact of future events.

Framework Updates

1. Provide examples of how state policies can influence utilities' infrastructure investment decisions (e.g., in Texas low rates attracted business but the lack of investment in their grid contributes to higher costs later).
2. Move the State Energy Strategy development to the Executive Summary because it applies to all Modules.
3. Explain how policy differences between gov't and private sector can impact how states articulate asset criticality.
4. Discuss how outage type (controlled vs. uncontrolled, different weather events, etc.) informs energy risk assessments and emergency response.
5. Examine methods for understanding how the Dimensions of Energy Risk can incorporate the severity of an electricity outage to address energy security from a hazard-agnostic perspective.

Open Questions

1. How do can we address the severity of a risk's impact on other sectors? What about upstream risks?
2. Should this concept area address data sharing problems, or should the NARUC framework be referenced?
3. How can we achieve alignment in risk definition/assessment between gov't and private sector? This concept area will fail without this alignment.
4. What are the best tools to reference that discuss the hardening of infrastructure?

Restoration Priorities

Summary – “Put your oxygen mask on before the kids (aka – the grid)”

Not all restoration efforts are the same. For example, there are key differences between losing transmission and generation compared to distribution, with varying impacts on stakeholders and priorities related to the scope, duration, and control of outages. After the reader determines their state’s strategy in the Executive Summary, they can utilize this Module to understand options to plan for or respond to particular events. The “AHA” moment is for readers to understand how different situations may require different restoration priorities and strategies.

Framework Updates

1. Show a variety of ways vulnerabilities can differ, such as weather (hot weather vs. cold weather), controlled vs. uncontrolled event, etc. Draft use cases for each strategy, including different event types, and clarify how restoration priorities change based upon the event.
2. Leverage the FEMA Critical Lifelines to inform load categorization, as these categories can affect definitions of risk and restoration priorities.
3. Use examples of different outages, such as capacity shortfall (rotating outages), cascading transmission load shed (2003 blackout), and the effects to customers at the end of the line to demonstrate how these variables may change states’ plan to conduct restoration.
4. Discuss how electricity may affect other lifelines, including communications (can’t use credit cards, hard to dispatch fuel, and difficult to get in touch with others).
5. Create a pyramid graphic to show how the hierarchy of priorities may change depending on the situation.

Open Questions

1. How might multi-ISO states operate differently?
2. How does your chosen energy strategy inform your plans during controlled or uncontrolled outages?
3. What does “restoration” actually mean to different utilities and state offices? What does a common definition include?
4. How should roles in restoration be clarified (e.g., impacts at a substation can be handled by local people, not utility HQ or state)?
5. Does load categorization exist?

Day 2

Interdependency Planning

Summary – “Not everything can be critical”

Interdependency planning should be driven by a proactive, prevention mindset. This Module will help the users assess how their state’s energy security strategy informs their interdependency planning. The State Energy Security Strategy will provide a structured method for mapping out decision-making processes and find points of overlap or alignment, including which FEMA Critical Lifelines should be prioritized to guide the actions required to protect them.

Framework Updates

1. Work through examples of how each driver of state energy security (i.e., resilience, economic, and diversification) has associated FEMA Critical Lifelines that inform what aspects of infrastructure should be protected and articulate what you need to do so (i.e., provide examples of how to shape actions, plans, or policies).
2. Discuss how engagement, not from a connectivity perspective, is an important aspect of interdependency planning.
3. Work with the Advisory Group to determine 4 lifelines to focus on that provide the most relevance to midwestern state energy policy.
4. Facilitate discussion about fuels and connection to interdependency planning.

Open Questions

1. What electricity interdependencies should be focused on? (Group suggested choosing ~4 FEMA Critical Lifelines to make this section manageable)
2. What types of injects can we use to build off of the existing scenarios (cold snap, derecho, and heat wave) to show how cascading failures might impact situations differently?

Design + Integration

Summary – “The best energy is the energy we don’t use”

States can develop policies and identify priorities to clearly communicate objectives for infrastructure design that can inform investment. This Module will help set targets, rather than dictate specific technical solutions, to achieve energy security goals aligned with State Energy Strategies. For example, guidelines for levels of redundancy or asset hardening can help states refine their existing standards and develop new ones.

Framework Updates

1. Prompt discussion on how changes to infrastructure planning and standards can improve long-term solutions.
2. Help states understand how to better communicate energy security priorities and infrastructure performance/availability requirements to enhance infrastructure planning efforts.
3. Analyze how the chosen state energy security strategy informs decisions on what infrastructure is needed to accomplish policy goals.
4. Identify methods to help states communicate efficiency needs, design standards, and infrastructure investments while maintaining confidentiality and security.

Open Questions

1. How can efficiency, design standards, and infrastructure investment help accomplish state energy security goals?
2. How can this Module promote clear communication of state priorities to utilities?
3. What’s the middle ground between states changing their infrastructure standards and making interactions between utilities and state offices more efficient?

Contact Us



MGA



America's Smartland
Midwestern Governors Association

JEFF EWART

Deputy Director

jewart@midwesterngovernors.org

JESSE HEIER

Executive Director

jheier@midwesterngovernors.org

JONATHON MONKEN

Principal

jmonken@convergestrategies.com

SHOSHANA COHEN

Senior Associate

scohen@convergestrategies.com

BRAXTON DUNCAN

Senior Associate

bduncan@convergestrategies.com

Appendix A

Workshop Slides



Advisory Group Meeting

Framework Development Workshop

31 October – 1 November 2024



CONVERGE
STRATEGIES

Day 1 Agenda

01

Workshop Objectives

03

**Energy Risk and
Criticality**

02

**Executive Summary +
User Guide**

04

Restoration Priorities

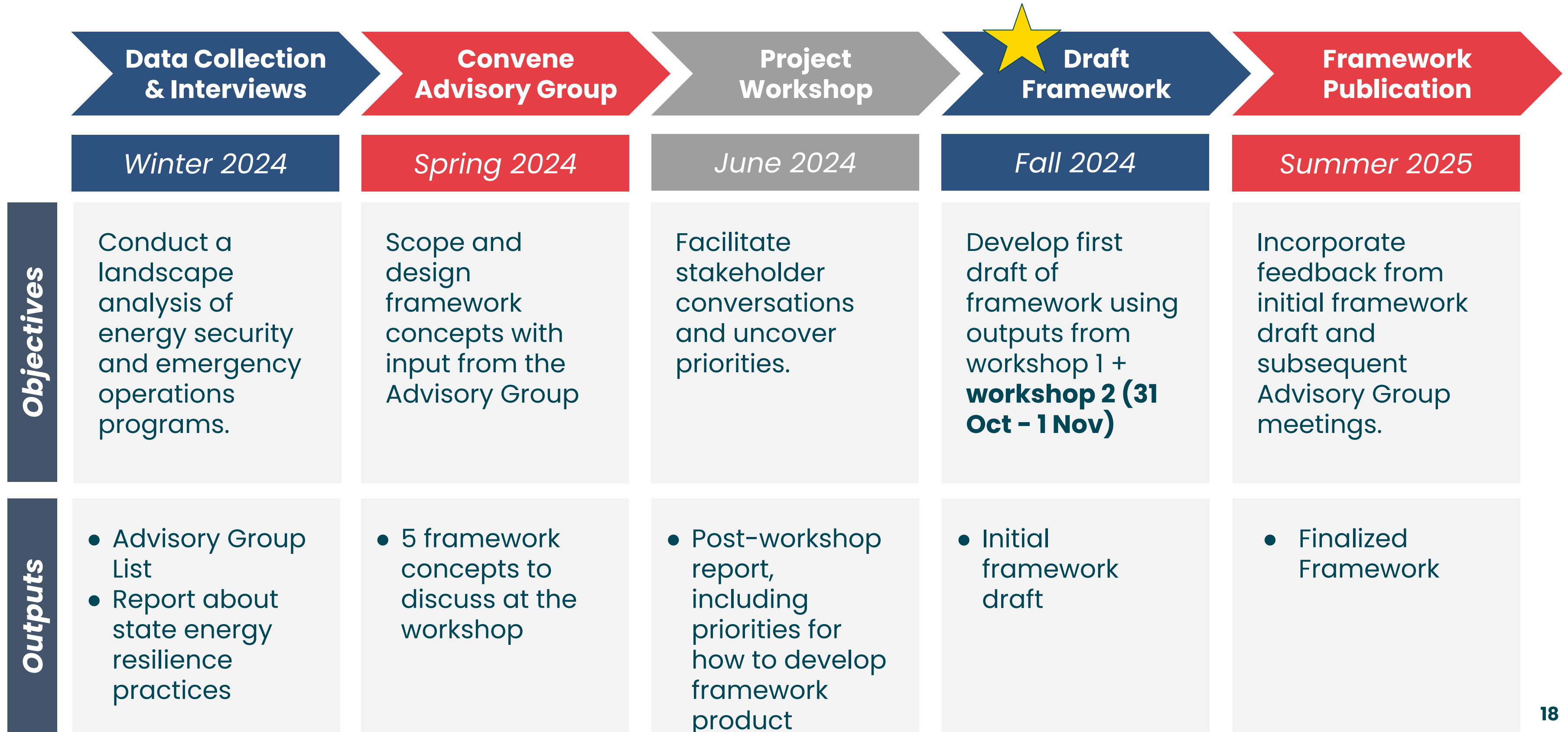
Welcome + Introductions

Workshop Agenda

Day 1 Thursday 31 October	
Time	Description
1:00 – 1:15 PM	Welcome/ Introductions
1:15 – 1:45 PM	Introduction Section
1:45 – 3:00 PM	Risk + Criticality
3:00 – 3:15 PM	Break
3:15 – 4:45 PM	Restoration Priorities
4:45 – 4:50 PM	Closing Remarks
5:30 PM	Evening Reception

Day 2 Friday 1 November	
Time	Description
8:00 AM	Continental Breakfast Available
8:30 – 8:45 AM	Welcome/ Day 1 Recap
8:45 – 9:30 AM	Interdependency Planning
9:30 – 10:15 AM	Resource Adequacy
10:15 – 10:30 AM	Break
10:30 – 11:15 AM	Design + Integration
11:15 AM – 12:00 PM	Closing Discussion

Effort Milestones | Past, Present, + Future



Workshop Objectives

CONTINUE DEVELOPING THE FRAMEWORKS



1. Energy Risk + Criticality
2. Restoration Priorities
3. Interdependency Planning

4. Design + Integration
5. Resource Adequacy

TEST FRAMEWORKS



Work through a series of decision-making exercises and scenarios to determine how best to support energy resilience, equity, and economic development.

BUILD TRUST



Improve interregional resource integration and planning. Build a shared understanding of existing and future energy infrastructure capabilities, requirements, and gaps.

Housekeeping + Introductions

Ground Rules



Be Present. Please try not to check your email or cell.



Be Respectful. Respect the timer, additional participants, and the team.



Make Space. Encourage participation of the full group.



Think BIG. Ask clarifying questions and collaborate creatively.

Popcorn Introductions

Instructions

1. Introduce yourself (name, role, org)
2. What do you want to get out of this document?



Executive Summary + User Guide

Executive Summary | Objectives



SUPPORT ALIGNMENT

This framework will help align Governors' policy, regulatory, planning, operational, and legislative capabilities to support energy strategy goals for states. Share information about their organizational protocols (e.g., response plans or communication channels).



MAXIMIZE IMPACT

Improve energy policy decision-making to support energy resilience, equity, and economic development. Prioritize public and private infrastructure investments to support energy security goals for states.



BUILD TRUST

Use this framework to improve interregional resource integration and planning. Build a shared understanding of their existing and future energy infrastructure capabilities, requirements, and gaps.

What “pain points” will this resource address?

Purpose



Understand the different priorities that feed into energy security planning among and between states



Enhance existing energy security processes, plans, and policies in both government and industry



Align energy security policy goals through a more holistic approach to emergency operations planning

Our Stakeholders + Region

- **States.** Statutory and regulatory authorities for rate design, security planning, and consequence management
- **Utilities.** Infrastructure planning and operational requirements for serving customers and maintaining systems
- **Grid Operators.** Oversight of real-time grid performance, energy markets, and regional/interregional planning of infrastructure to support reliability and efficiency

Framework Overview

1

Problem Statement + Gaps

What energy security challenges and gaps do states face?

2

Framework User Guide

Guidance on navigating the resource and applying it to your organization

3

Resources and Stakeholders

What organizations, policies, plans, data, and processes should be considered?

4

Energy Strategy Crosswalk

What is the primary policy driver behind your state energy security strategy? (E.g., diversification of resources, economic development, resilience)

5

Dimensions of Energy Risk

What types of risk guide how you assess and mitigate risk? (e.g., geographic scale, outage duration, affected population, cross-sector impact).

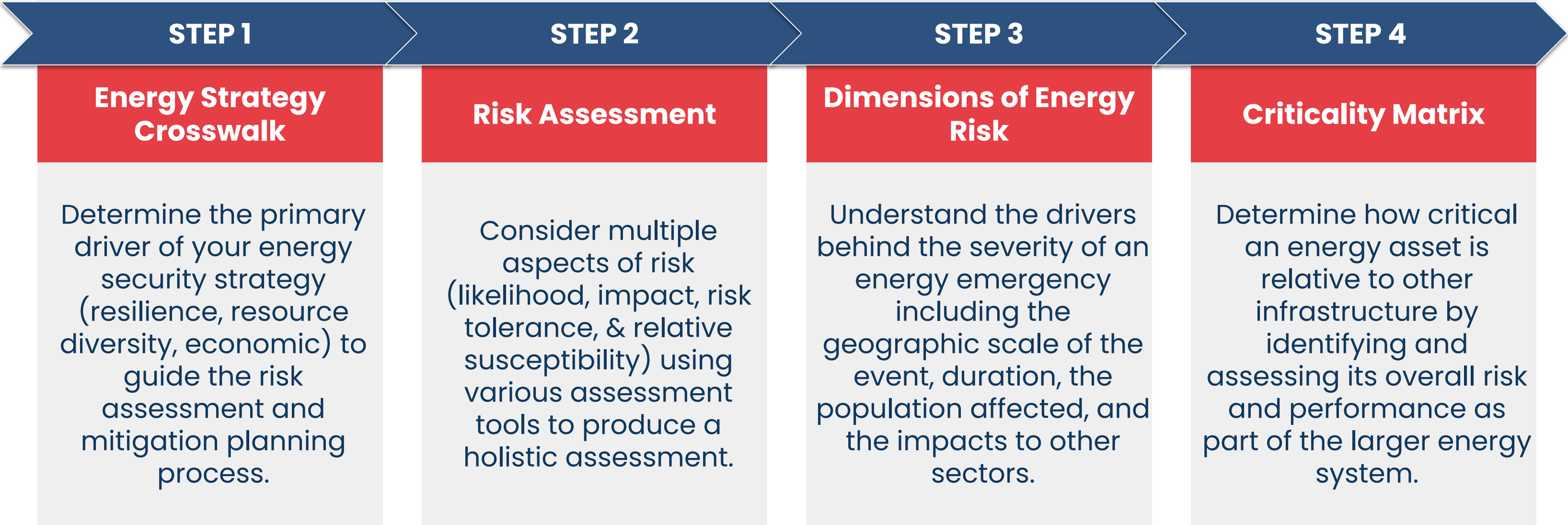
The framework is designed to align with the FEMA Emergency Management Cycle as it pertains to energy security to maximize compatibility with multiple processes.

FEMA Emergency Management Cycle



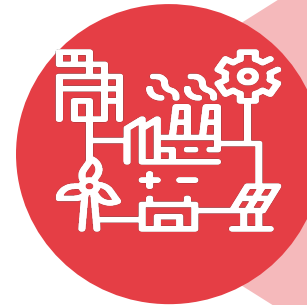
Energy Risk + Criticality

Challenge: There is no uniform method for assessing risk and vulnerabilities of energy infrastructure assets. The Consolidated Risk Spectrum is a multi-step process that integrates several public and private sector methodologies and plans to help evaluate risk and determine the relative criticality of assets and systems.



Step 1: Energy Strategy Crosswalk

**Consolidated
Risk
Spectrum:
What does
your state
prioritize?**



Diversification

Understand the energy resources available to your state and assess their ability to meet your energy security needs. Determine how risk can inform the potential benefits of energy resource diversification.



Economic

The nexus between energy security and economic stability can inform risk mitigation strategies by prioritizing investment in infrastructure and/or specific energy sources to reduce the potential economic impacts of energy emergencies.



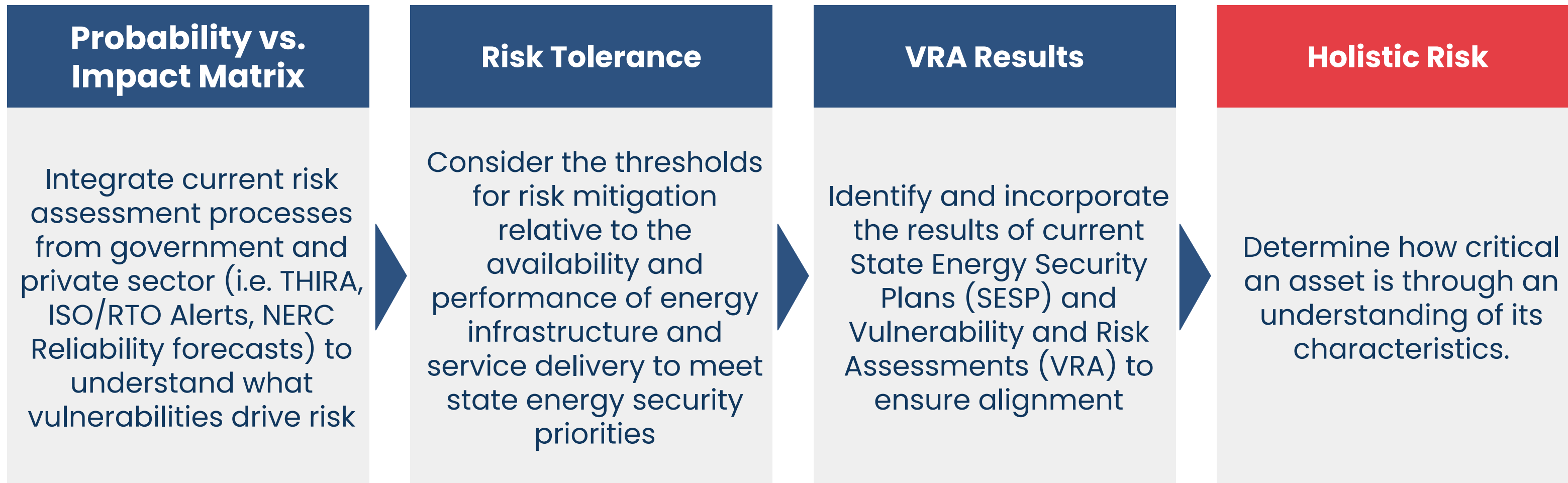
Resilience

Resilience promotes the use of innovative technologies to reduce risk and enhance the security of the system. The identification of facilities and capabilities essential to mitigating human impacts from energy emergencies can inform infrastructure planning and prioritization.

Step 2: Risk Assessment

Builds off existing resources to help users consider multiple aspects of risk:

- Determine what risks to prioritize as a function of likelihood and impact
- Identify the thresholds of acceptable risk to establish mitigation targets
- Integrate current government and private sector plans to maximize compatibility



Step 3: Dimensions of Energy Risk

Dimensions of Energy Risk

Geographic Scale: Risk increases proportionally to the scale and type of infrastructure assets and energy systems impacted in an event.

Duration. Establish thresholds for time-driven disruptions resulting in cascading impacts to people and interdependent systems

Affected Populations. Understand the severity of impact based on tiers: 1) Vulnerable populations, 2) Public Health/Safety, 3) Potential for permanent relocation/ mass migration

Cross Sector Impact: Crosswalk of FEMA Community Lifelines to assess extent of multi-sector impacts



Scenario Example – Cold Snap

Scale	Local T & D	BES	Regional
Duration	<24 hours	24-72 hours	72 + hours
Population	Vulnerable	Health/Safety	Mass Migration
Cross-Sector	1-2 Lifelines	3-4 Lifelines	5+ Lifelines

Risk Level = Medium

Step 4: Criticality Matrix

Susceptibility to Risk

What was the outcome of the risk assessment? An asset with a high likelihood of experiencing a risk that you can't reasonably tolerate should be rated as highly critical.

Risk Assessment Output

Dimensions of Energy Risk

Risk Drivers

What is the primary aspect of risk? Does the asset serve a densely populated area? Is it an important regional asset? Would it take a long time to repair or replace?

What makes
an asset
"critical?"

Historical Performance

What is this asset's historical performance? What stage of lifecycle is this asset in? Think about what risks an aged asset poses to system operations.

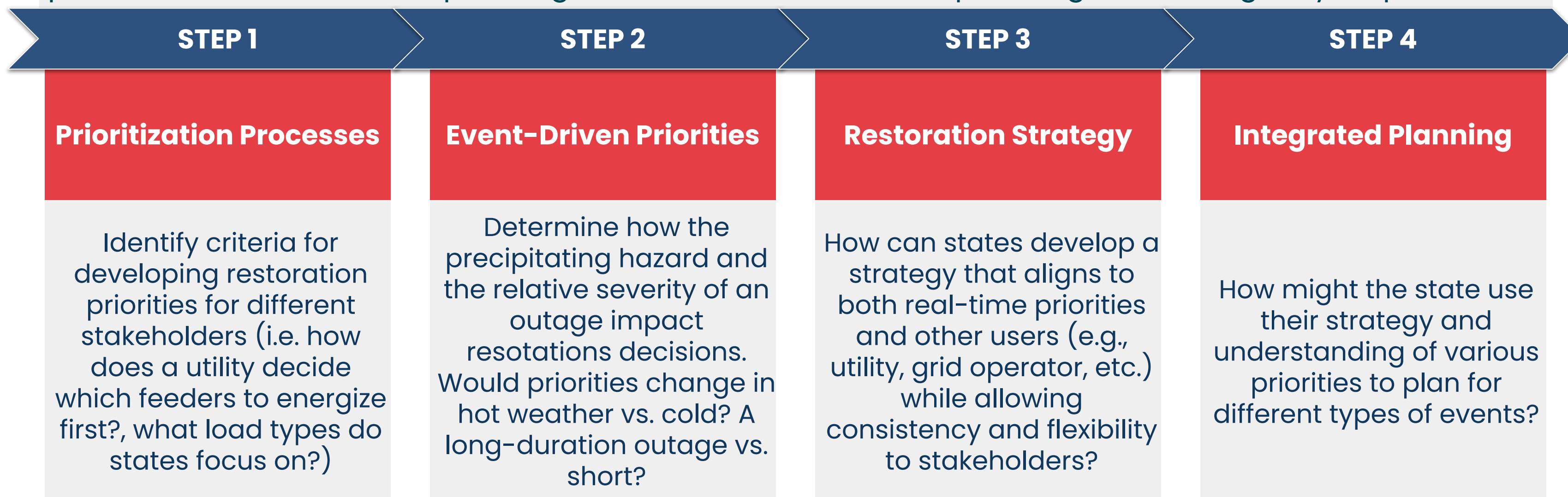
Single Point of Failure

Can the functions on this asset be supplemented or replaced by another resource, asset, or capability with minimal impact?

Redundancy

Rate of Failure

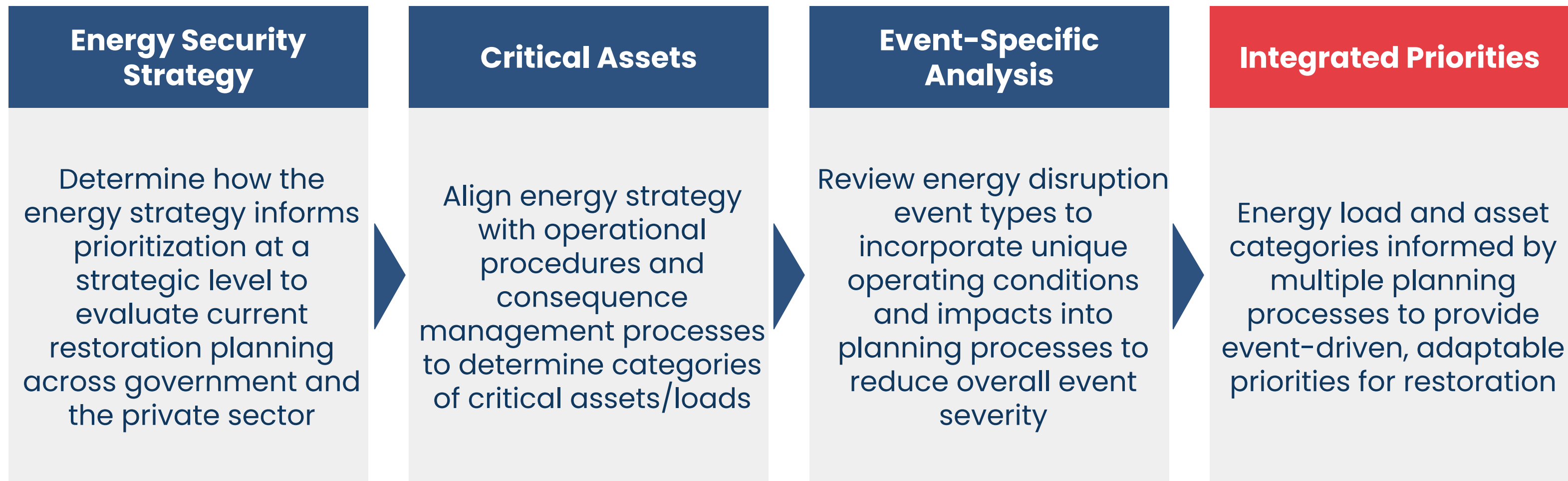
States, RTOs, and utilities use emergency response processes to set restoration priorities, which can adapt to the type or severity of an outage. While organizations often set internal restoration priorities, external variables may impact their plans including input from government officials, customers, and changing conditions. This framework will share insights for building a common prioritization method, incorporating both successful resource planning and emergency response.



Step 1: Holistic Risk Integration

The outputs of the risk assessment and criticality matrix will inform the restoration process to ensure priorities maximize risk reduction benefits.

- Understand risk and criticality as drivers for decision-making during event response
- Incorporate unique impacts of different events to adapt processes for changing conditions



Step 2: Variable Crosswalk

Energy Strategy Selection. How does the state strategy affect identification and selection of energy loads for restoration?

Asset/Load Categorization. Which critical assets are essential to maintaining functionality/operability of the identified priorities?

Risk Dimensions. Considerations for the geographic size, anticipated duration, impacted populations and cross-sector impacts of the event on identified assets.

Event-Driven. How does the precipitating event support the last tier of prioritization?

Step 3: Scenario Development



Strategy	Economic	Load Identificaiton	Asset Types	Risk Dimensions	Impact Assessment
	• Communications for support of financial sector and connectivity • Transportation for movement of goods and availability of services		• 911/PSAP • LTE switching • Fiber relay facilities • Gas stations and fueling		• Regional outage • Expected duration 24-48 hours • Vulnerable populations • 1-2 Lifelines



Updated Priorities
• Warming centers for displaced population • Home heating (electricity and natural gas) • Emergency medical dispatch • Water pumping/treatment freeze offs

Other Project Concepts | Next Steps

Interdependency Planning

1. **Identify + prioritize critical assets** – how do these change depending on scenario, comfortability with risk, and other dimensions of risk?
2. **Share best practices** – how to develop interdependency mapping methodology
3. **Recommendations for how to develop resilience requirements** – Analyze existing resources to generate a list of best practices.

Design + Integration

1. **Paint a picture of existing standards** – How are infrastructure design criteria aligned or not?
2. **Highlight economic/ policy factors may influence design** – Consider how rate design will affect design criteria. Consider real-world regulations and authorities (e.g. NESC Codes, USDA Rural Utilities Service).

Resource Adequacy

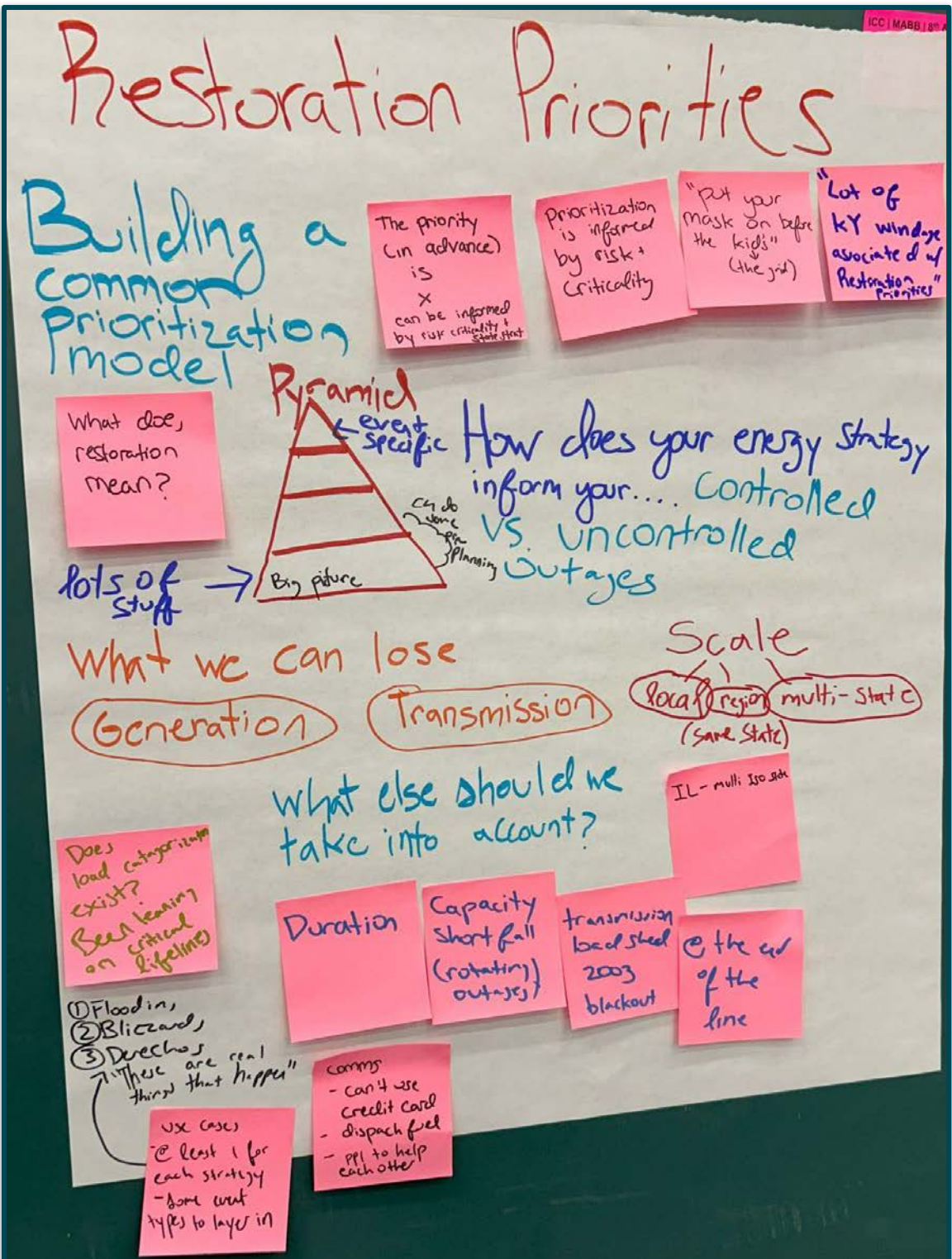
1. **Better understand how capacity is able to support the critical energy needs of identified state load priority** – use of capacity markets to ensure power is available when needed.
2. **Examine the ways in which transmission capacity and interregional transfers align with in-state capacity resources** – Improving connections and conversations around interregional transfers.
3. **Help states build strategy** – After understanding the mechanics of load priority and what they can do to optimize capacity, states may use the dimensions of risk to build their future state strategy.

Step 3: Scenario Development

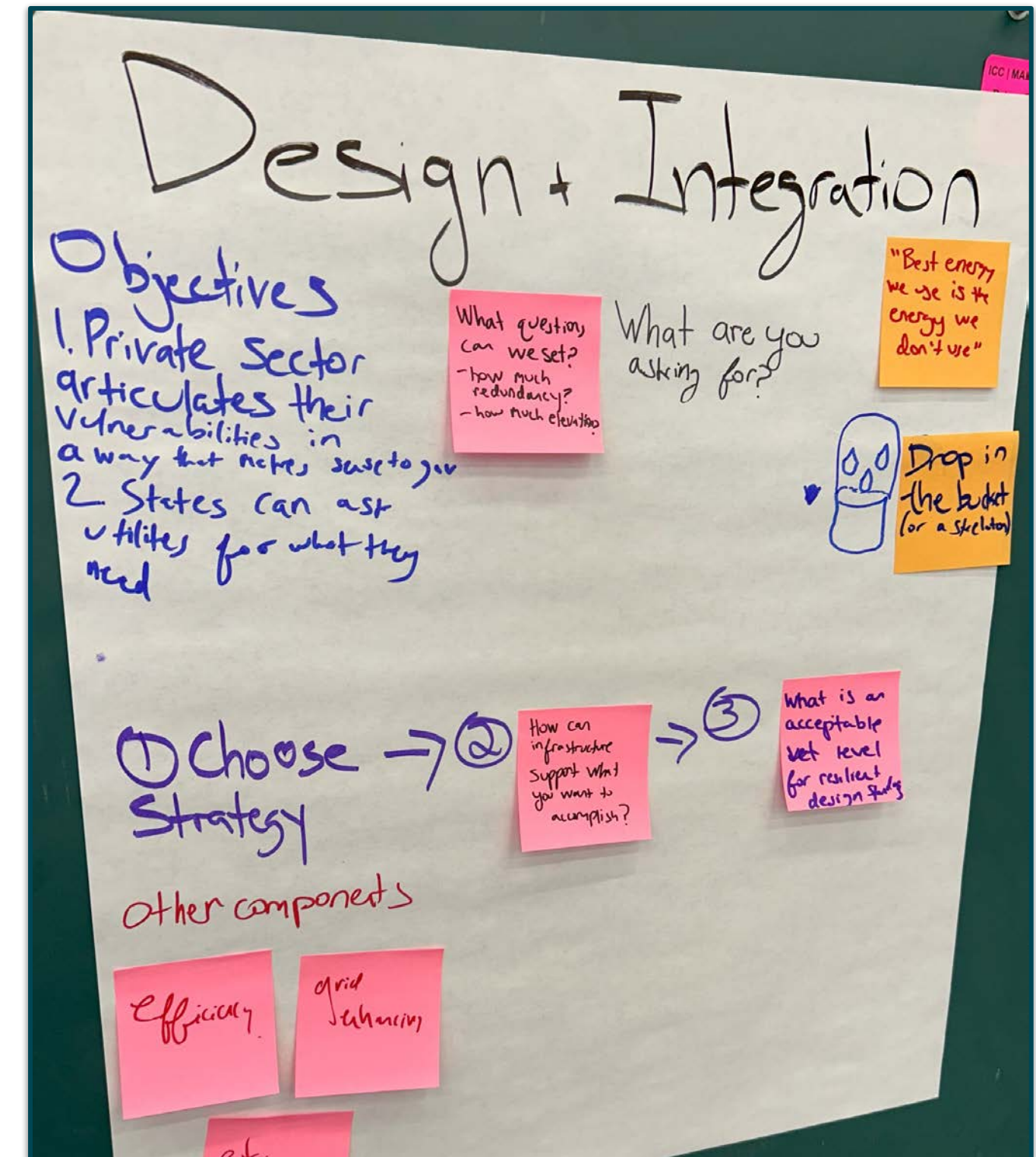
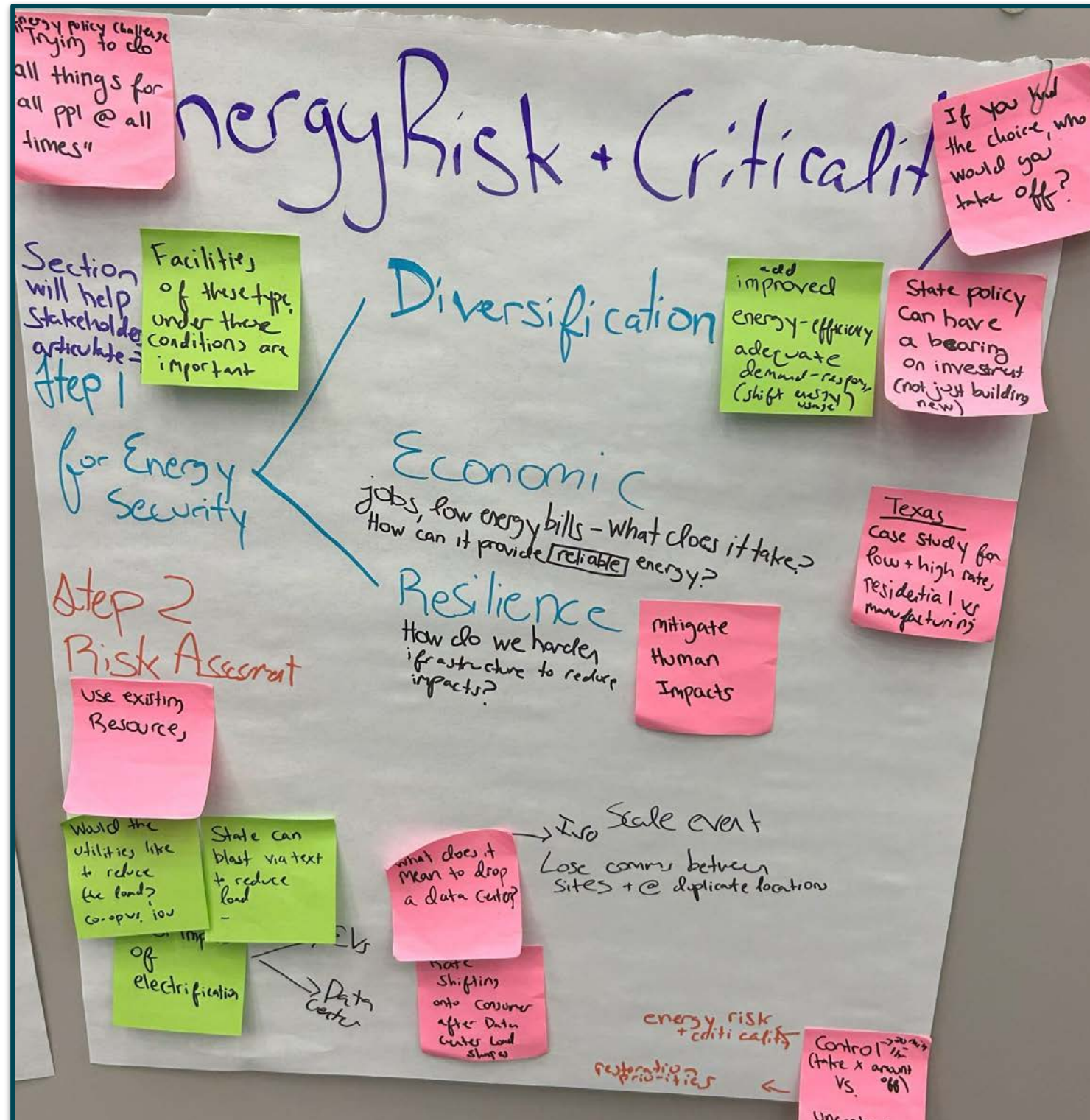


Appendix B

Flip Charts



Flip Chart Photos



Flip Chart Photos

