Markets for 100% Clean Electricity

ESIG Task Force Meeting

October 24, 2024

ESIG

ENERGY SYSTEMS INTEGRATION GROUP

Workshop Agenda

TIME	TOPIC	PRESENTER/LEAD
8:00 – 8:45	Welcome and Introduction Recap of 2023 Workshop	Robing Hytowitz, NextEra Analytics, Debra Lew, ESIG Erik Ela, EPRI
9:00 – 10:00	What evaluation tools and metrics can help us understand the potential performance of future market designs? Breakout Session 1	Breakout Leads: Conleigh Byers, Jim Gonzalez, Todd Levin,Bethany Frew, Francisco Munoz
10:00 - 10:30	Break	
10:30-11:15	What evaluation tools and metrics can help us understand the potential performance of future market designs? Breakout Session 2	Breakout Leads from above
11:15-12:00	Breakout report back	Breakout Leads
12:00 – 1:00	Lunch	
1:00 – 3:00	Paper and Visions Review	Leads Rob Gramlich, Kelli Joseph, Jacob Mays, Jessica Greenberg, Ryan Schoppe
3:00 – 3:30	Break	
3:30 – 4:15	Breakout: What is missing, what other possible challenges are left unaddressed?	Breakout Leads (same as above)
4:15 – 4:50	Forward Looking Actions to Enable Visions	Lead: ● Rob, Kelli, Jacob, Jessica, Ryan
4:50-5:00	Close out	Robin Hytowitz, NextEra Analytics
TBD	Networking Reception	

Task Force Goals

- Questions we hope to address
  1. What different visions and options for wholesale market designs and structures can support 100% clean electricity futures?
  2. How to accommodate high levels of variable, zero-fuel cost, and inverter-based resources, high levels of limited duration resources, and a dynamic distribution system with price responsive demand-side assets?
- Objective
  - Discussion and debate
  - Develop a paper containing several visions for wholesale market pathways to support instantaneous penetration of 100% clean as well as ensure reliability through periods of low renewables outputs and provide sufficient investment signals for future capacity needs.

Paper Outline

- Introduction and Visions Overview
  - What are visions? *In the context of this paper, visions are market designs and structures that modify current practice to accommodate 100% clean energy. Modification can be slight or drastic, or starting over completely.*
  - What is defined as “clean” electricity (fuels included)? How much do we need to focus on the transition? What are the major gaps we need to address?
- Visions
  - Physical structures, institutional roles, and designs needed for achieving a reliable and affordable carbon-free grid
  - Mandatory Contracting Around Full-Strength Spot Prices
  - Coordinated Planning for the Energy Transition
  - Assessing price adders for lost load, capacity, flexibility, and carbon displacement
  - Additional visions: Hybrid markets, un-restructuring, energy-only
- Metrics to evaluate markets
- Conclusions and next steps

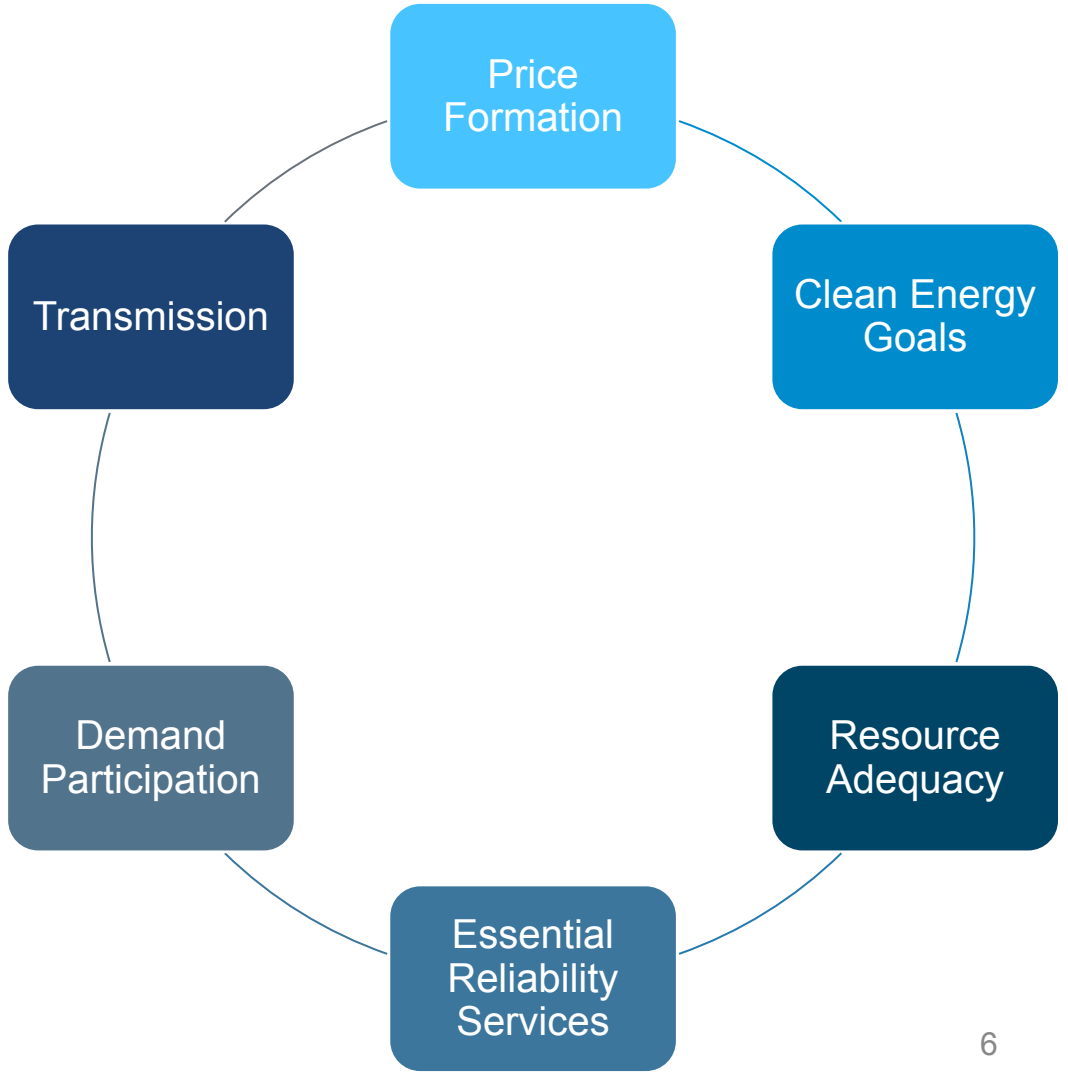
Goals for Today's Workshop

- Brainstorm and discuss metrics to evaluate future (or current) markets
  - How should we evaluate future markets?
  - Is there a single metric (qualitative or quantitative) that captures market efficiency?
- Summarize visions and get feedback
  - Paper lead authors will discuss their visions
  - Are there missing future visions?
- Please speak up!

Future Visions: Framework

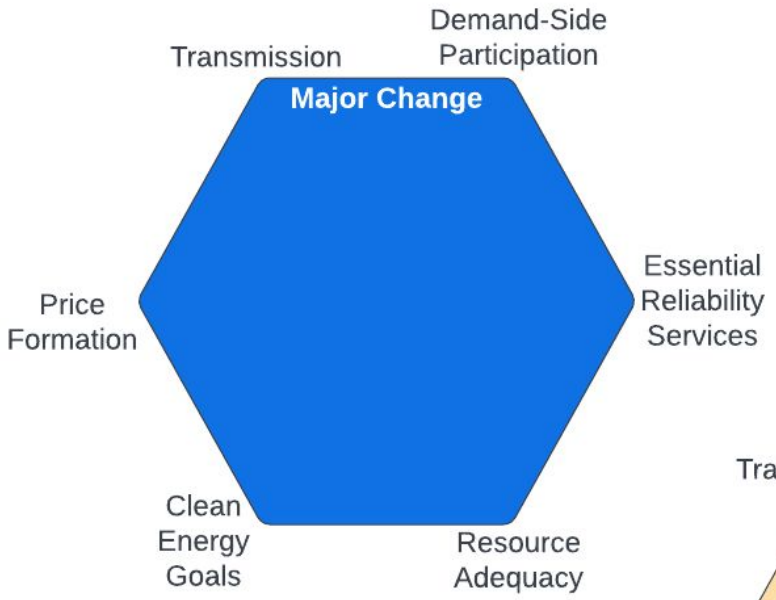
Three major visions:

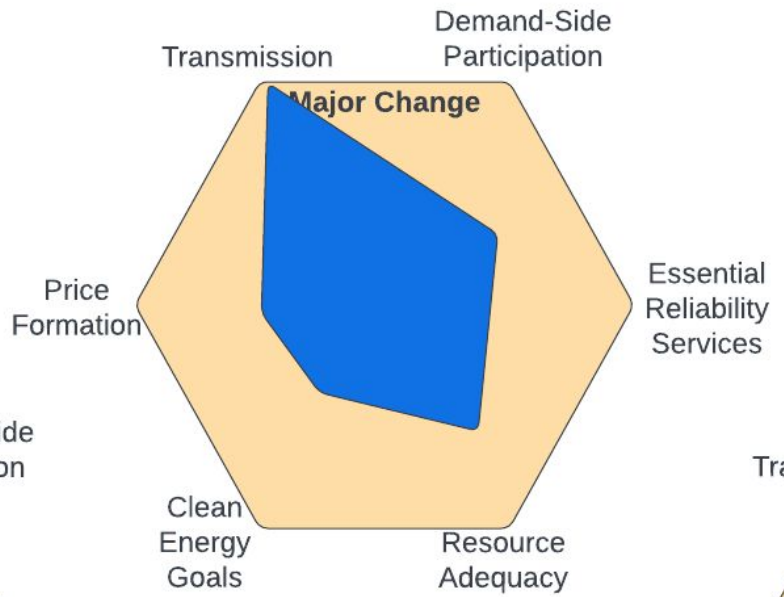
- Status quo / incremental changes
  - Can we make sufficient changes within the current market structures to accommodate changing resource mix and other technological advances?
- Large scale changes
  - Do we need to make fundamental changes to our markets? Are there designs or structures that are unique to the old resource mix?
- Blank slate / Cost of service
  - Should we dissolve the ISOs/RTOs and move to full cost-of-service regulation?

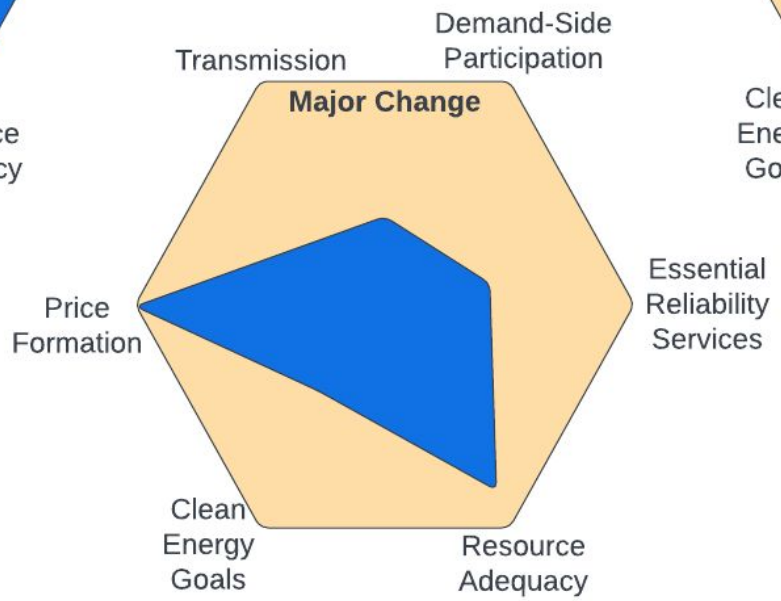


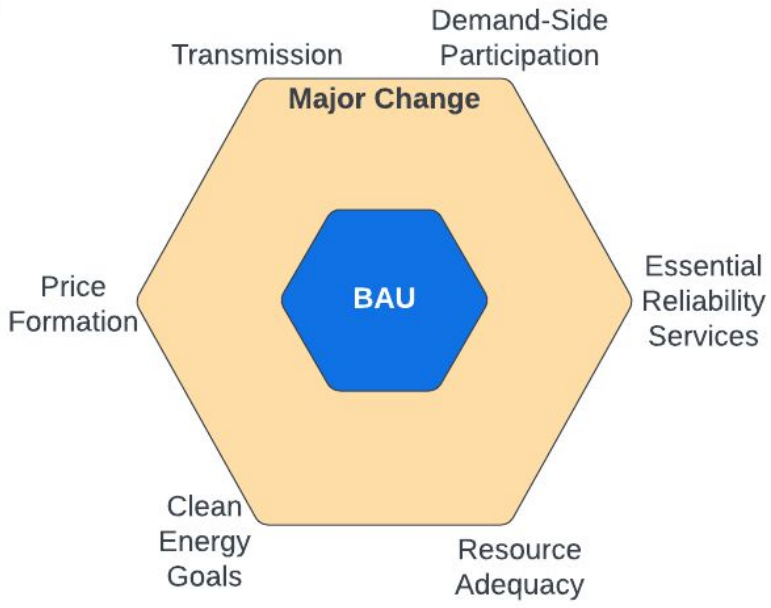
THANK YOU

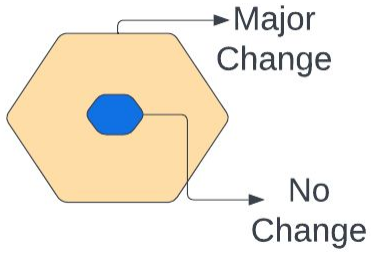
Future Visions: Potential Visualization











Chapter themes will depend on author.