

# Energy Transformation & the Changing Role of Electric Utilities

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Freeport, ME

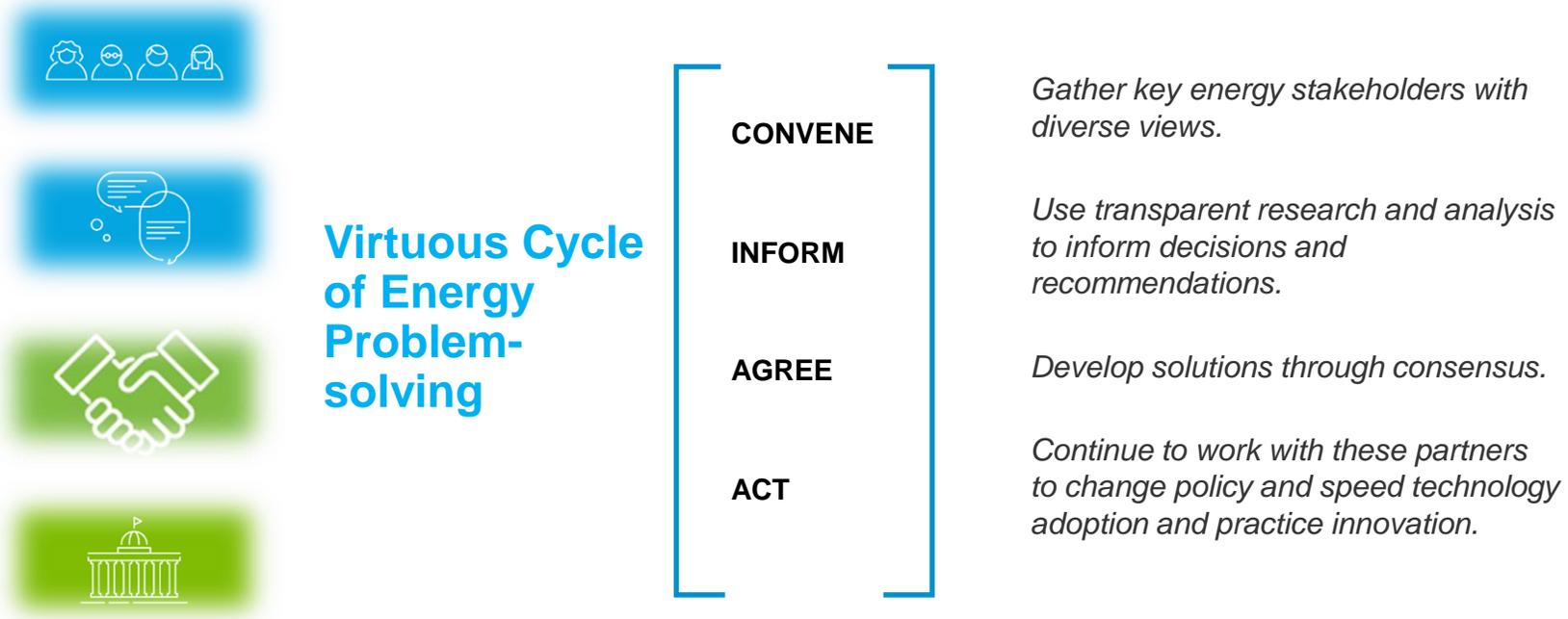


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# Consensus-based Approach to Developing Energy Solutions



Translates into more durable energy solutions



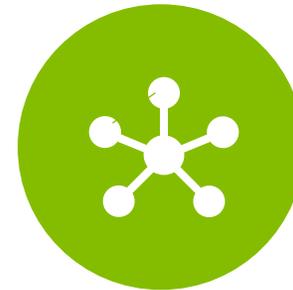
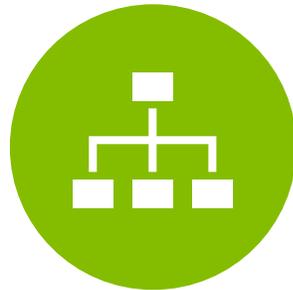
# The Changing Electric System

Analog & Manual



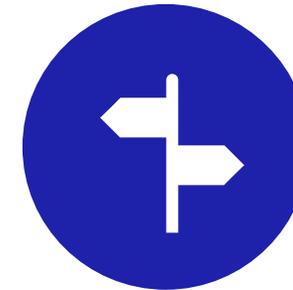
Digital & Automated

Centralized  
One-way flow



Cleaner  
More Distributed  
Multi-directional flow

Little consumer  
choice



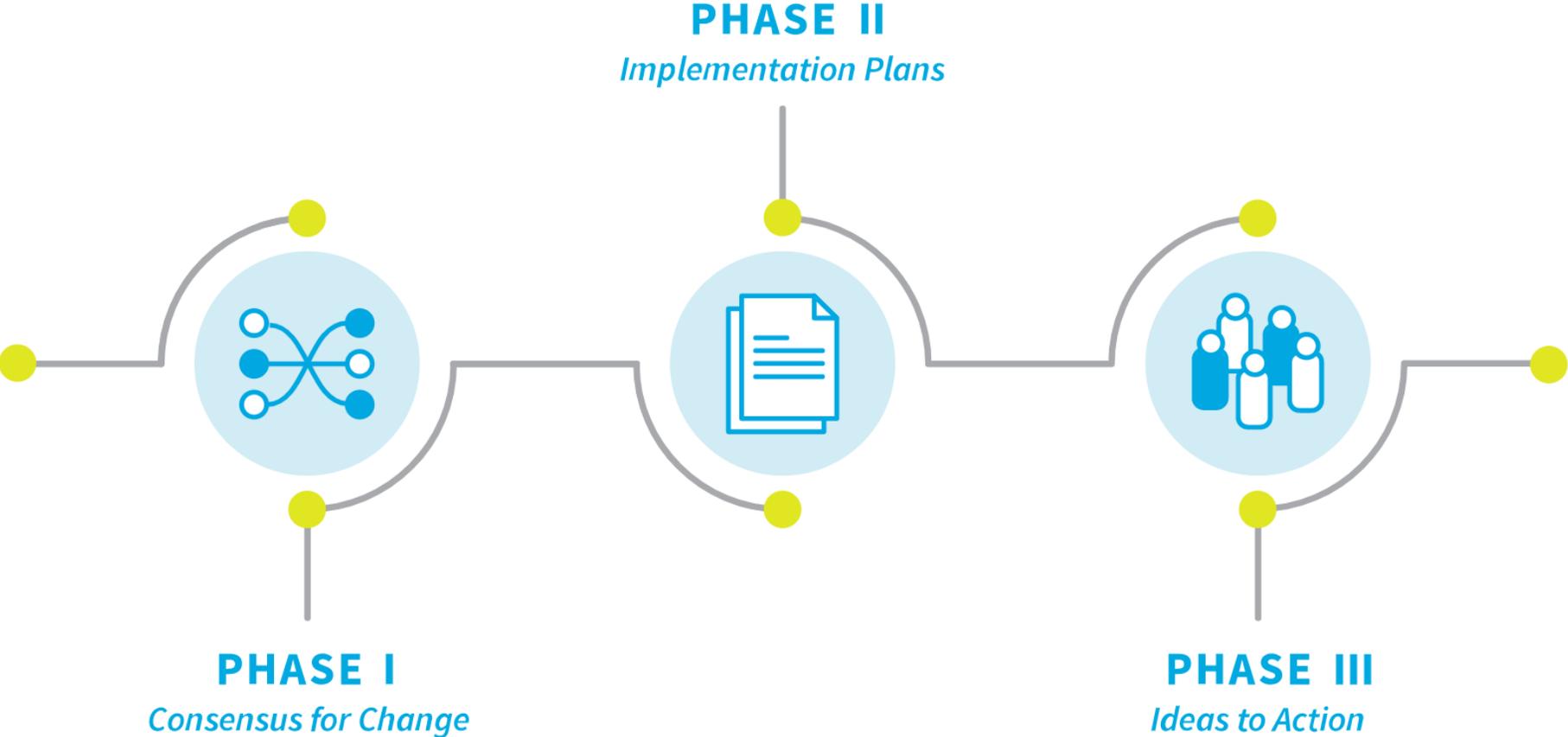
More consumer  
choice

# e21 Initiative: Toward a 21<sup>st</sup> C. Electric System in MN

Does the utility regulatory framework and business model need to evolve to keep pace with rapid changes in the electric sector, and if so how?



# Phase III: Ideas to Action



# e21's Distinguishing Features

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## Proactive



**Done in advance of crisis**

**Agreement on arc of change could reduce transaction costs & improve outcomes**

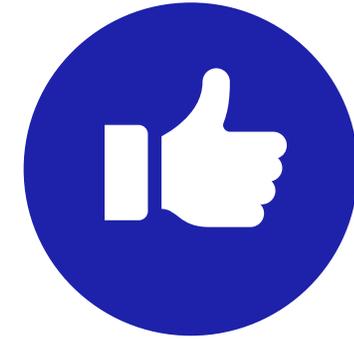
## Multi-interest & Collaborative



**Consensus-oriented**

**Safe space outside of formal regulatory process**

## Voluntary



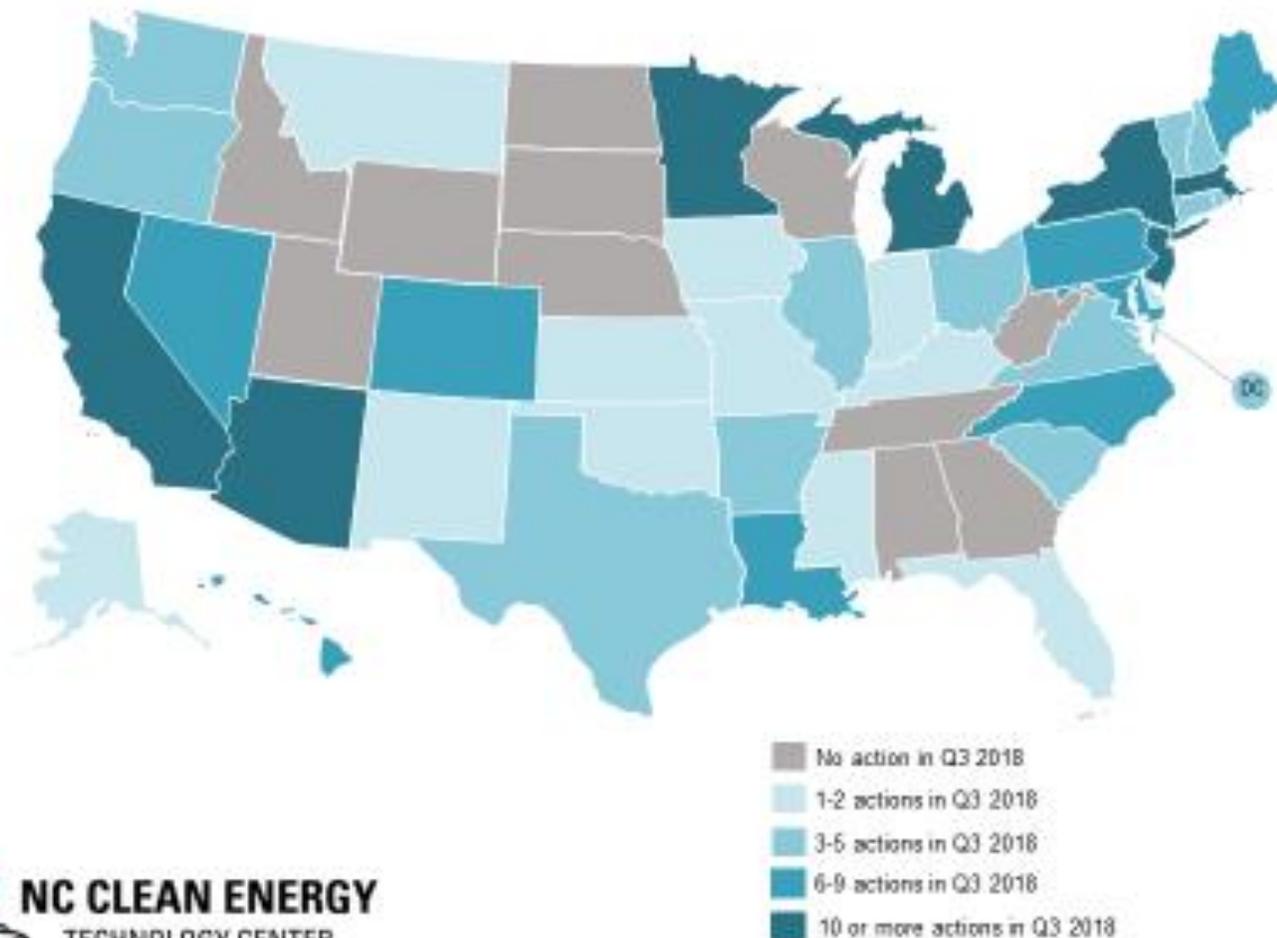
**Arose from mutual interest among participants**

**Opportunity for diverse interests to travel common learning curve**

What are other states & utilities doing?

39 states + D.C. took actions related to grid modernization during Q3 2018

Q3 2018 Grid Modernization Action, By Number of Actions



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# Implications?

1. **Grid Modernization is “when” not “if.”**
2. **Will look different in every state & utility, but many issues & opportunities are common.**
3. **The issues are necessarily intertwined, but you don’t have to eat elephant all at once.**
4. **Most change across country is incremental, though more states are taking up broad reform.**



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# Upshot?

- **100-plus-year-old utility business model is changing**
- **The Technology, Consumer & Market forces**
- **New players will be able to compete, partner**
- **Regulators see the trends**
- **At some point, relied upon revenue may not be there**
- **Time to start is before you have to**

