



# Planning and investing in critical utility infrastructure with public consultation

**Pacific Northwest Economic Region**

Annual Summit

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CEO

NorthWestern Energy

**NorthWestern**  
**Energy**

*Delivering a Bright Future*

# Building on a Strong Foundation



*A “Healthy” utility is built from the bottom-up with a firm foundation in its core-competency*

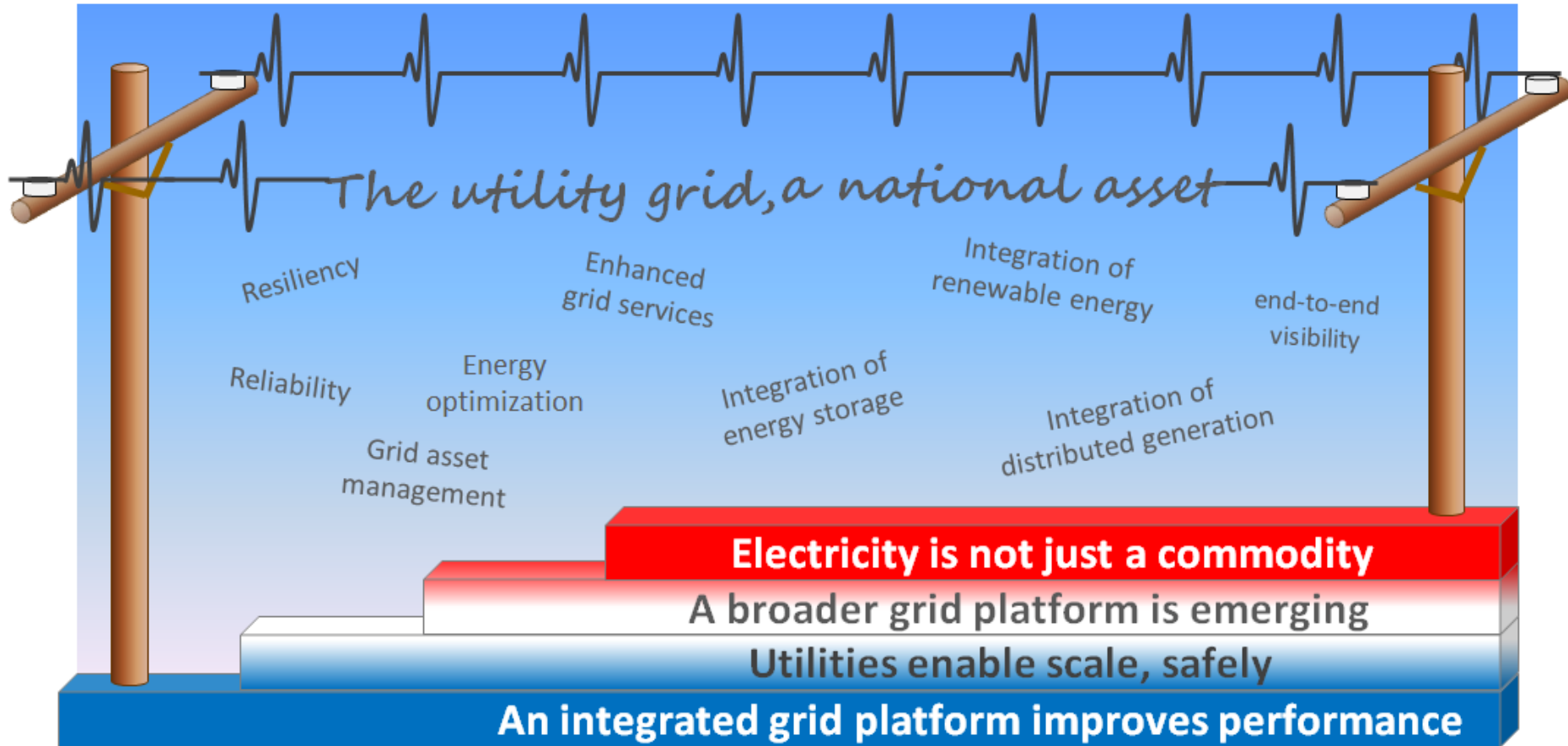
**“Evolving Grid Platform”**

**Supply Adequacy & Stability**  
Resource stability and diversity  
Base supply, regulation, efficiency, renewables

**Utility Infrastructure Investment**  
Programmatic approach to gas and electric transmission and distribution investment, back office systems, technology a partner throughout the business

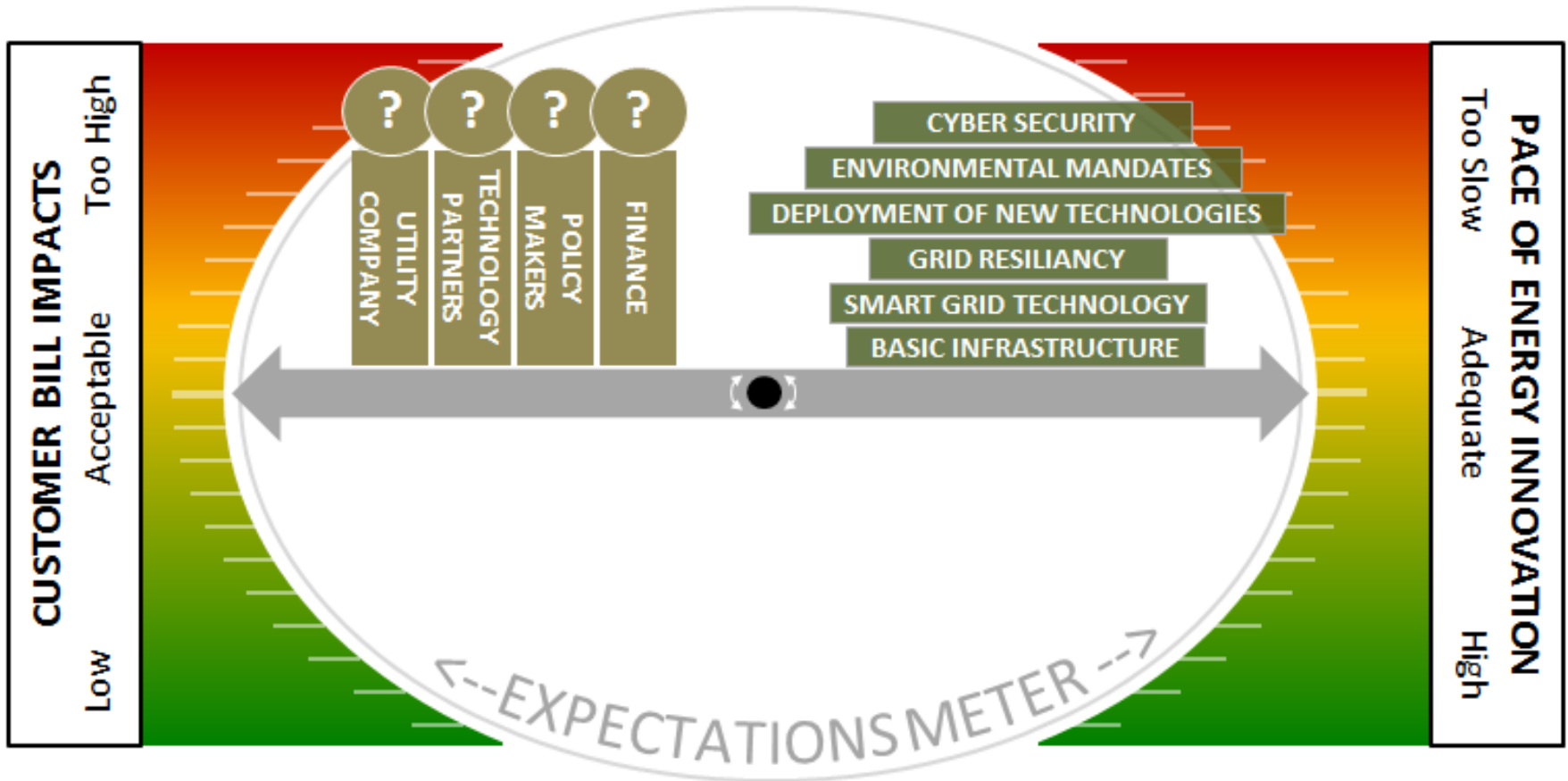
**Ongoing Operations – capital and expense**  
Safety, customer service and satisfaction, reliability, security, back office, environmental compliance, regulatory and other compliance

# The Platform Grid — The *most critical* critical infrastructure\*



\* According to the Department of Homeland Security, the energy sector is ***uniquely critical because it provides an “enabling function”*** across all 16 critical infrastructure sectors.

# Innovation Across the Grid



*Deployment at the Speed of Value*



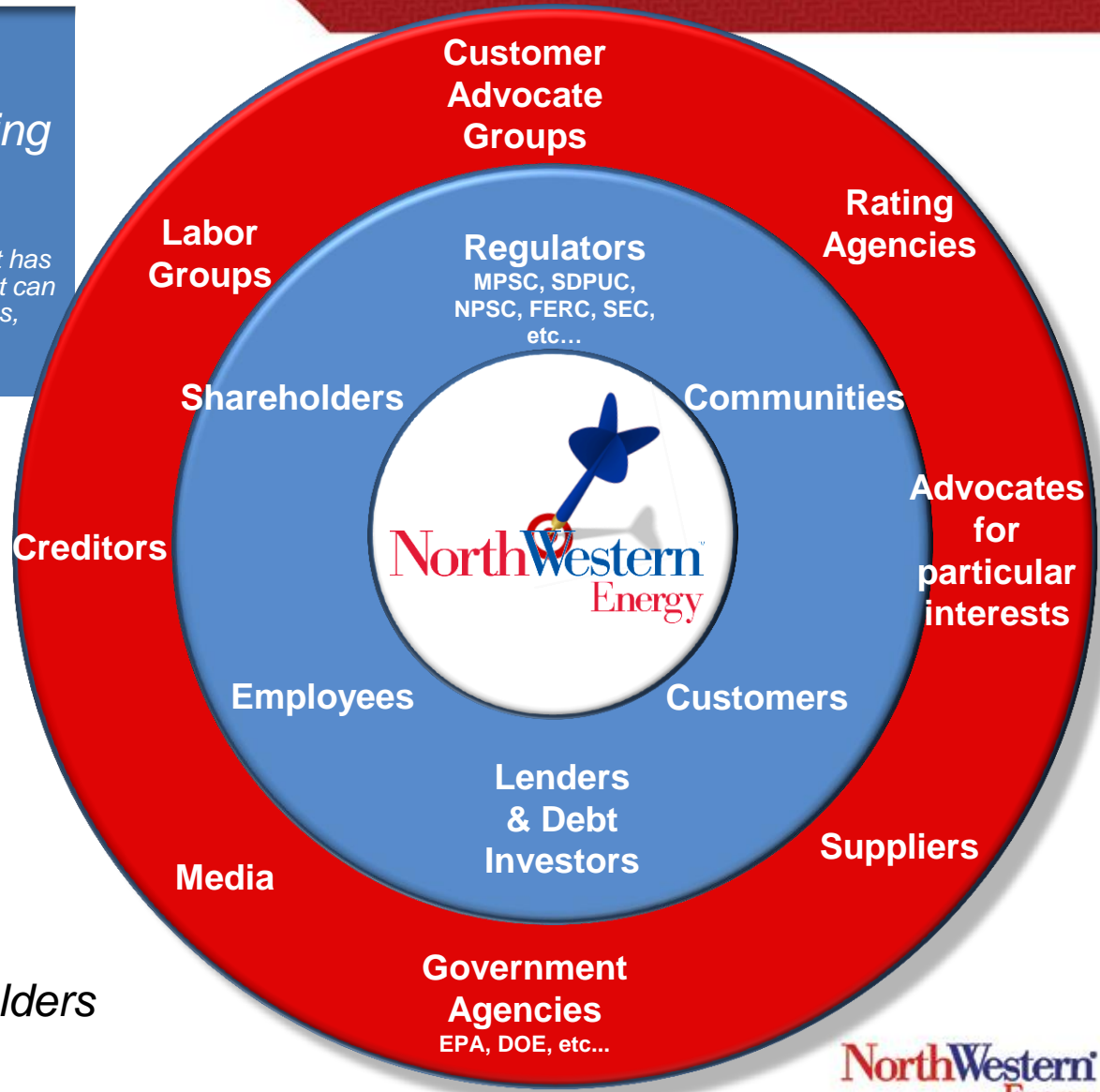
# NWE Montana Distribution System Infrastructure Plan (DSIP)

Approximately \$348 million (\$133 million already spent through 2014) of capital investment into the multiyear project through 2019. In addition to base investment.

# Mapping the stakeholder landscape

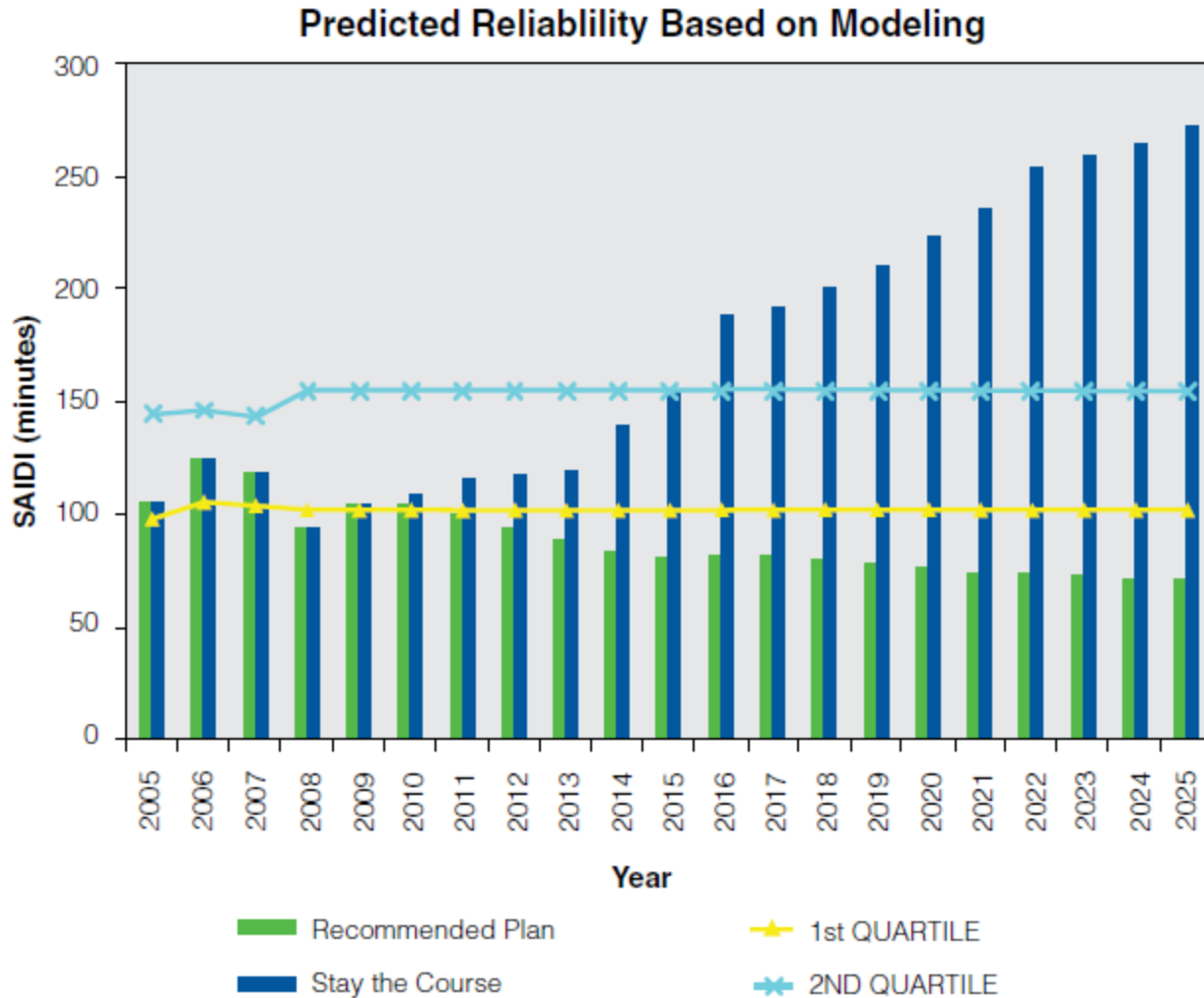
Our Challenge:  
*Being the center of our stakeholder group without being the target.*

Stakeholder: A person, group, or organization that has direct or indirect stake in an organization because it can affect or be affected by the organization's actions, objectives, and policies.

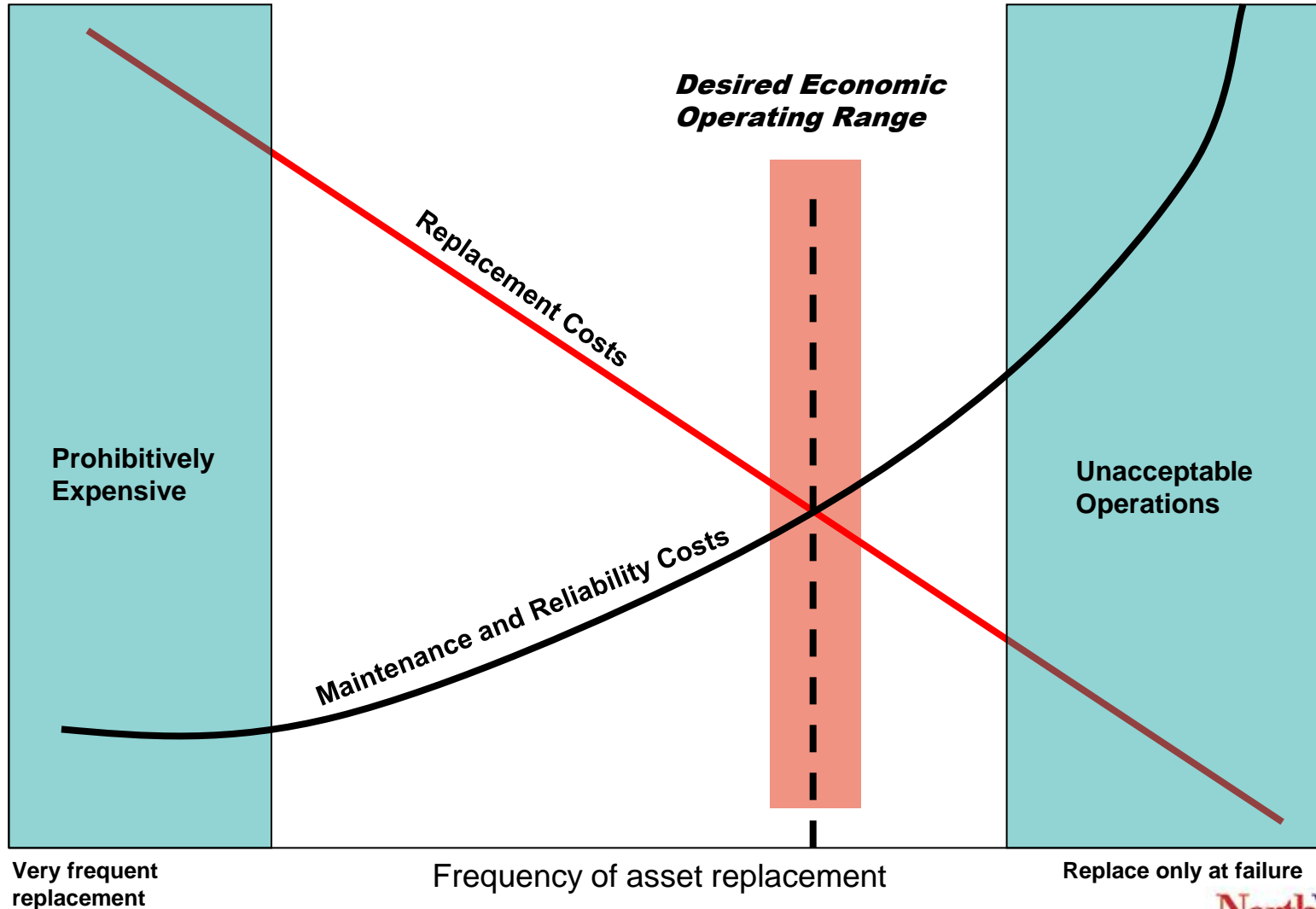


*As an investor-owned, state and federally regulated, public utility, NorthWestern Energy has numerous stakeholders and lots of accountability*

# NWE predicted reliability pre DSIP



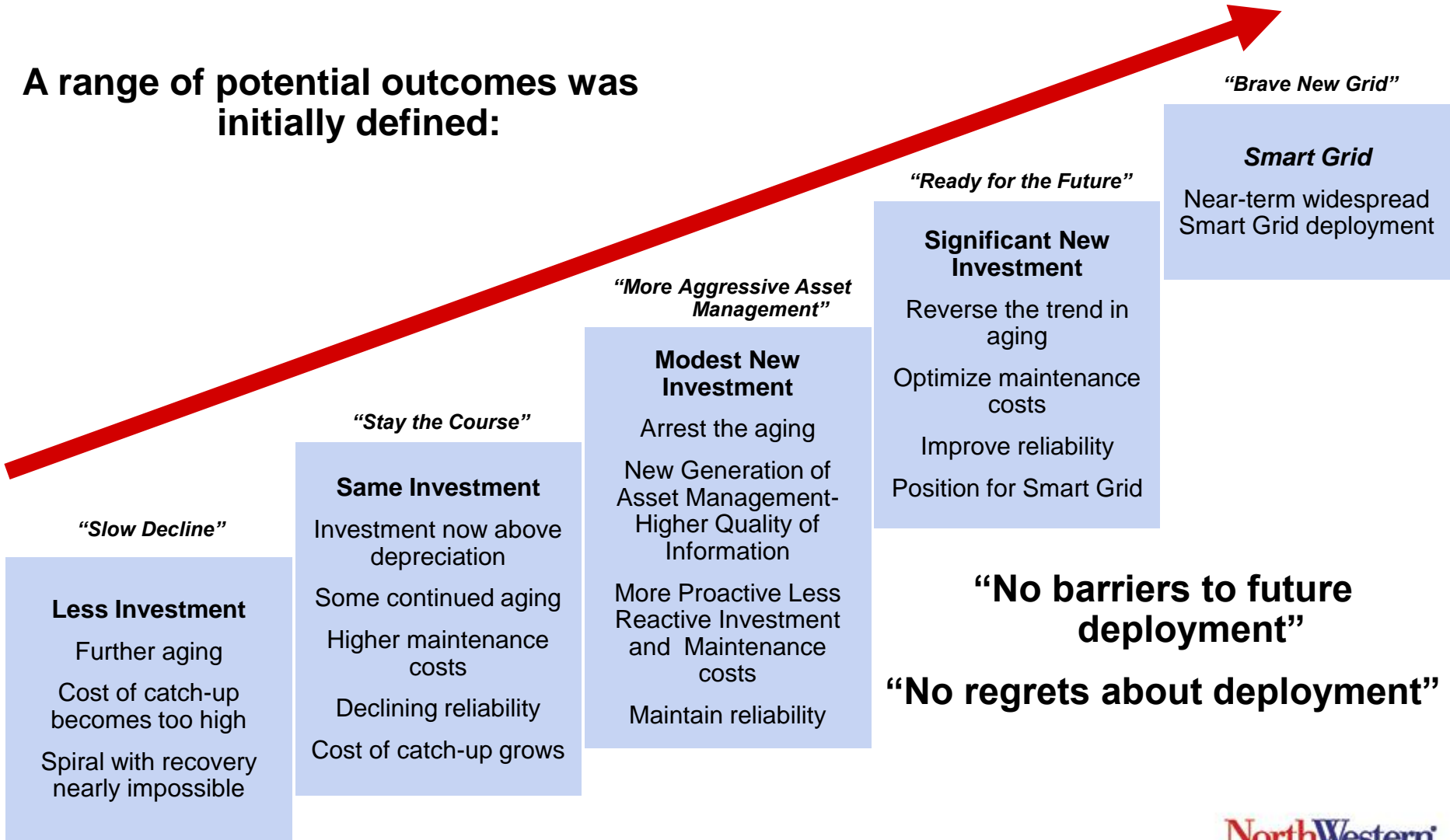
# Managing investment to control price





# Infrastructure Investment in Uncertain Times

A range of potential outcomes was initially defined:



## The Foundation for the Electric Plan

- **Objectives**

- Arrest or reverse the trend in aging infrastructure
- Restore margin (capacity) back into the system
- Maintain reliability over time, and increase it for our rural customers
- Position NWE to adopt new technologies

- **Vision - A distribution system that is:**

- Continuing as safe for the our employees and the public
- Reliable – consistent with the needs of a society that is increasingly dependent on electricity
- Able to grow - to accommodate the needs of new customers and potential quantum growth from new electric applications
- Optimized – an optimum mix of investment in new plant and maintenance of existing facilities
- Responsive to all customers – minimizes the service gap between urban and rural customers
- Energy efficient – a system that provides the platform to achieve the efficient use of energy resources
- Cost effective – a system designed, built and operated for least cost while achieving the above objectives
- State-of-the-art – a system that employs effective technologies to further the above objectives

## The Foundation for the Gas Plan

- **Objectives / Attributes**

- Improve leak rate performance
- Enthusiastically embrace the industry's new safety model (DIMP)
- Employ state-of-the-art analytical skills to proactively manage safety

- **Vision - A distribution system that is:**

- Continuing as safe for the public and our employees
- Reliable – maintain our record of near-perfect delivery performance
- Able to grow to accommodate the needs of new customers
- Optimized – an optimum mix of investment and maintenance of existing facilities
- Energy efficient – a system that facilitates the efficient use of energy resources
- Cost effective – a system designed, built and operated to meet or exceed defined safety levels at optimal cost
- Modernized – a system that is replaced, over time, to address the cumulative effects of aging infrastructure, older materials, and outdated technologies



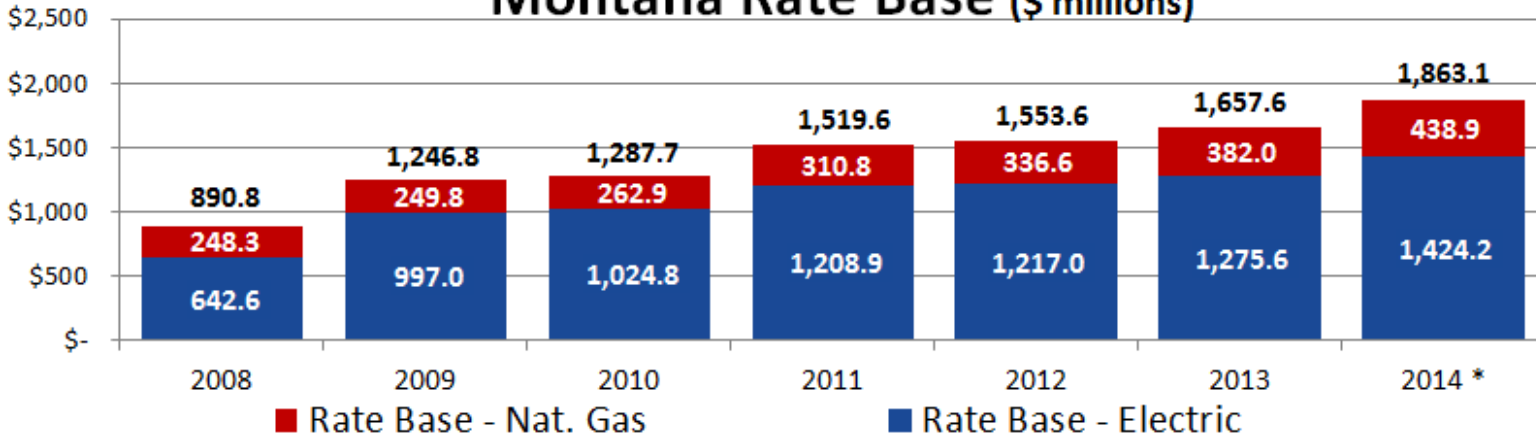
# DSIP Progress 2011- 2015 Q1

	DSIP	Base	Project To Date (PTD)
<b>Expense Projects- \$42M</b>			
Tree Trimming	\$13,596,260.00	\$10,566,438.00	8,643 OH miles
Pole Inspection	\$5,597,931.00	\$2,219,236.00	8,541 OH miles
OH Electric Repairs (P2's)	\$2,623,084.00	N/A	5,772 repairs
Rural Reliability Improvement	\$1,122,260.00	N/A	8 Circuits
Substation Upgrades	\$789,508.00	N/A	*51 Substations
Automation	\$530,866.00	N/A	*28 Base Stations, 8 Subs
Farm Taps	\$17,539.00	N/A	*15 Farm Taps
Gas Repairs (G1's)	\$756,204.00	N/A	7,254 repairs
<b>Capital Projects- \$144M</b>			
Pole Replacement	\$56,396,772.00	\$11,495,784.95	21,299 poles
Underground Cable Replacement	\$28,260,229.00	\$7,986,501.34	787,000 trench ft.
Substation Upgrades	\$12,151,861.00	N/A	*51 Substations
Capacity Upgrades	\$10,310,909.00	N/A	19 projects
Gas Historic Block Refurbishment	\$23,120,000.00	N/A	160 blocks
Rural Reliability Improvement	\$2,076,454.00	N/A	8 Circuits
Automation	\$4,644,622.00	N/A	*28 Base Stations, 8 Subs
Farm Taps	\$329,361.00	N/A	*15 Farm Taps
<b>*Combination of Capital and Expense</b>			



# Bill impact of investment in serving customers

## Montana Rate Base (\$ millions)

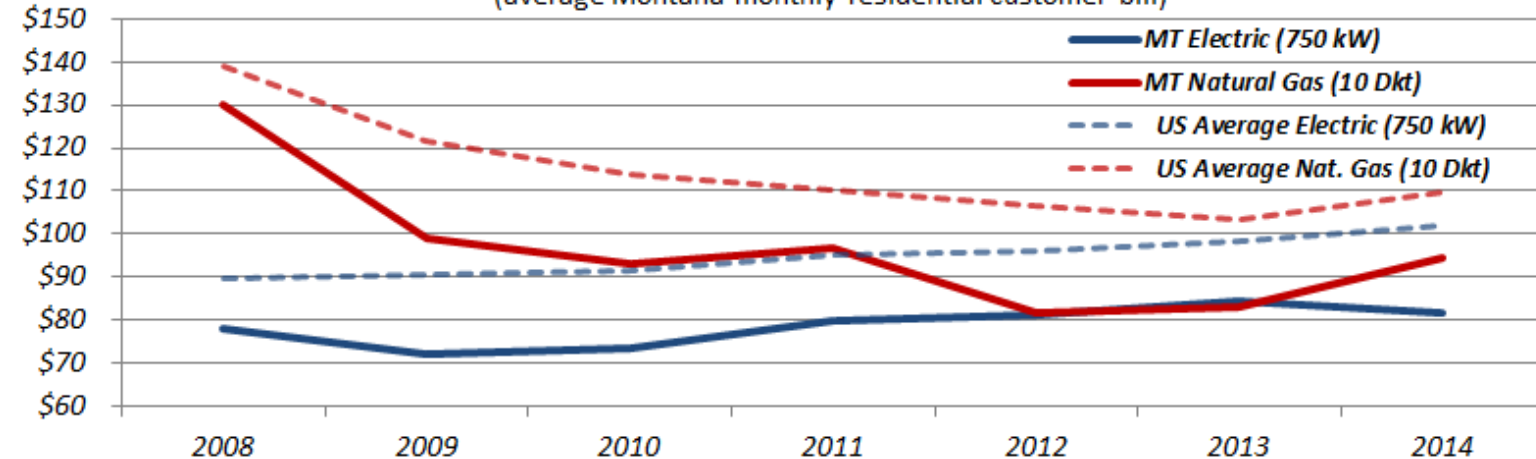


Source: Montana Annual Report Schedule 27

\* MT Annual Report Schedule 27 is 13 month average rate base. Does not show full impact of hydro assets

## Typical Residential Electric and Natural Gas Bill

(average Montana monthly residential customer bill)



NorthWestern's Montana customers have experienced relatively stable, even declining, rates while we continue to invest in the system to meet customer demands and environmental/other regulations.

### Rate Base CAGR

MT Electric 13.1%  
MT Nat. Gas 10.0%

### Typical Bill CAGR

MT Electric 0.8%  
MT Nat. Gas -5.2%



Rates based on residential monthly bills – 750 kW for Electric and 10 Dkt for Natural Gas



Transmission & Distribution  
end-to-end infrastructure  
initiative

# Major categories used in monitoring system capabilities

- **Asset Life (managed by components)**
- **Reliability (by segment and asset performance)**
- **Capacity (by segment and asset performance)**
- **Compliance (by segment and asset performance)**
- **Automation and Technology (used throughout the major categories)**



# System planning from the “inside”

Distribution Base – includes Reactive and Normal Maintenance

Transmission Base – includes Reactive and Normal Maintenance

Overall Infrastructure

Electric

Gas

Capacity

- Distribution, Substations, Transmission

Capacity

- Distribution
- Transmission

Reliability

- Distribution, Substations, Transmission

Reliability

- Distribution
- Transmission

Asset Life

- Distribution, Substations, Transmission

Asset Life

- Distribution,
- Transmission

Compliance

- Distribution, Substations, Transmission

Safety/Compliance

- Distribution
- Transmission

Automation  
&  
Technology





# Integrated T&D investment and maintenance plans which directly support **long-term goals for managing our delivery systems, and meeting customer expectations.**

- Delivery systems serve our customers in urban, suburban and rural areas and are comprised of:
  - Electric & Gas Transmission
  - Substations/Gate/Compressor Stations
  - Electric & Gas Distribution
- Build on model and success of DSIP and DSIP stakeholder process
- Diverse stakeholder group, including technical skills, customers, and others



# What is “acceptable service”?

- Disparate customer expectations
- Diverse levels of engagement – “keep the lights on and leave me alone” to “prosumers”
- “Effortless” transactions
- Values driven?
- Reliability expectations?
- Resiliency?
- Efficiency?
- Levels and focus of investment?
- Future utility models?
- Evolution of smart grid?

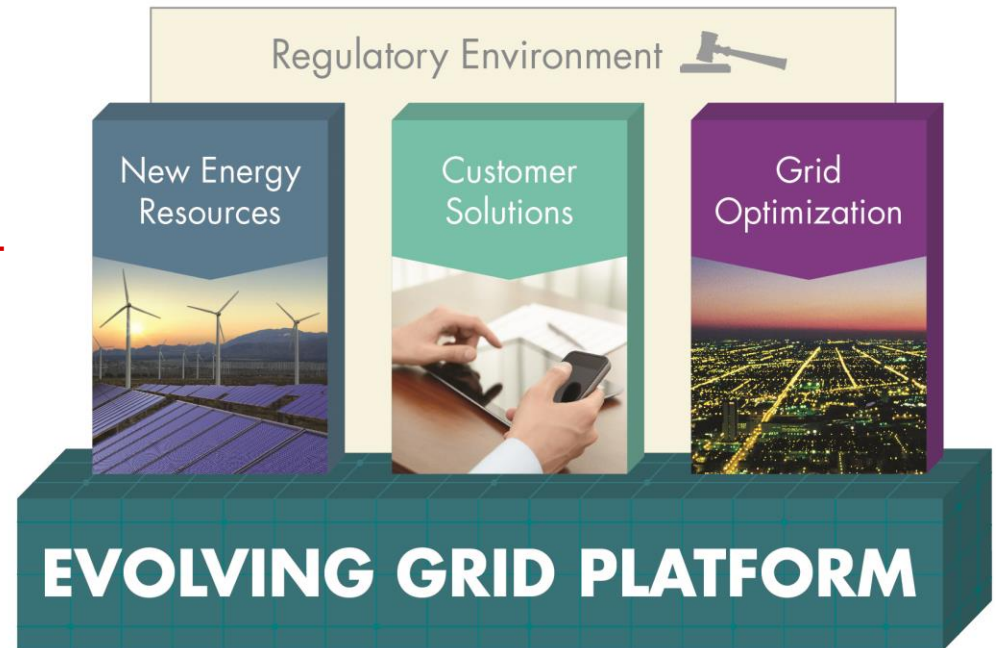


Can (and should)  
policy evolve?



# Platform grid – from Institute for Energy Innovation

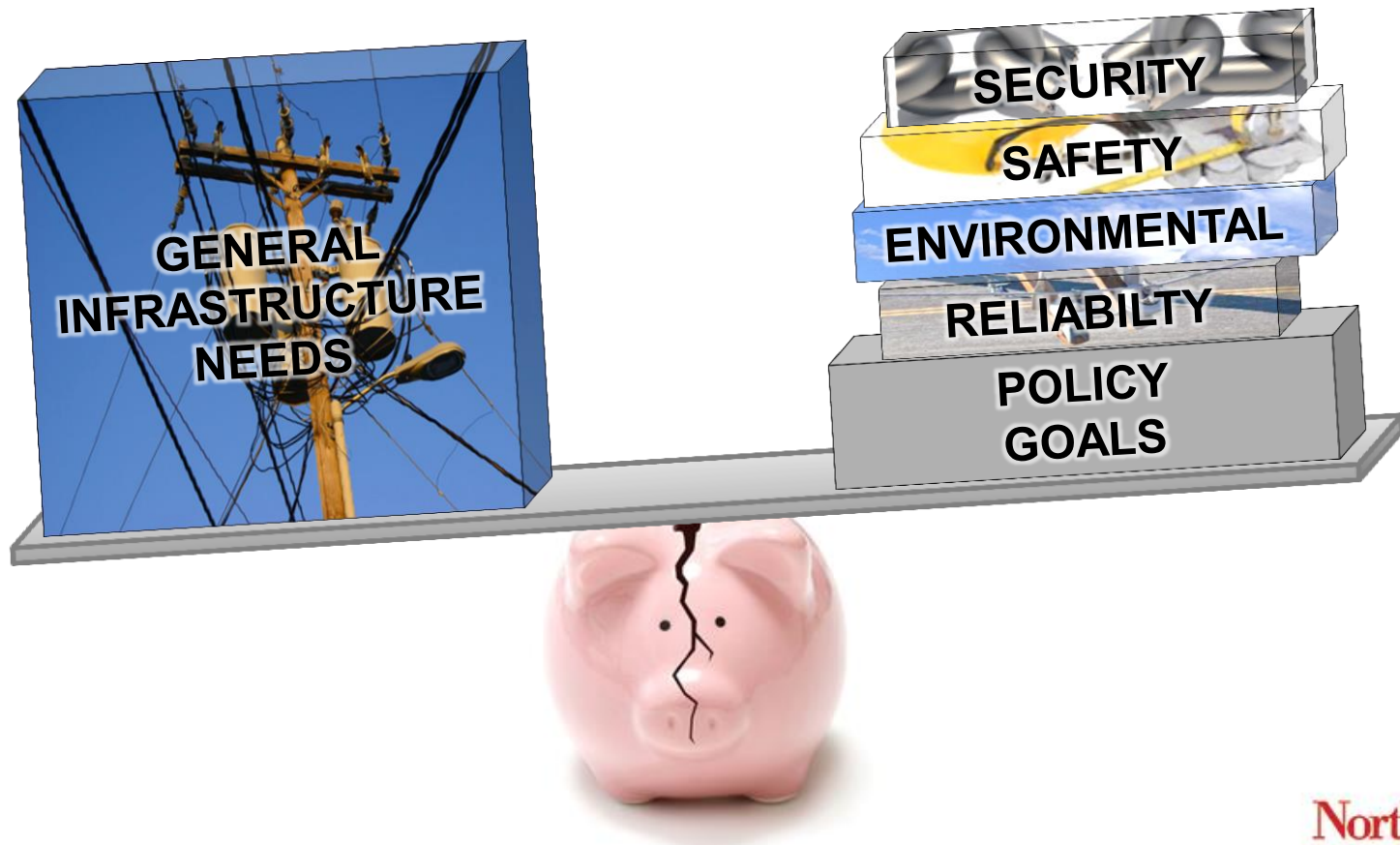
- Evolving to meet critical needs
  - Integrating new resources
  - Serving new customers
  - Optimizing the grid
  - “Grid of things”
- Electric providers are “plug-and-play” for an efficient platform
  - Engagement with technology to deploy standards-based approaches
  - Engagement with policymakers and regulators to define new business models
- Multi-year integrated grid vision is critical for resource optimization
  - Allow scalability, flexibility and responsiveness



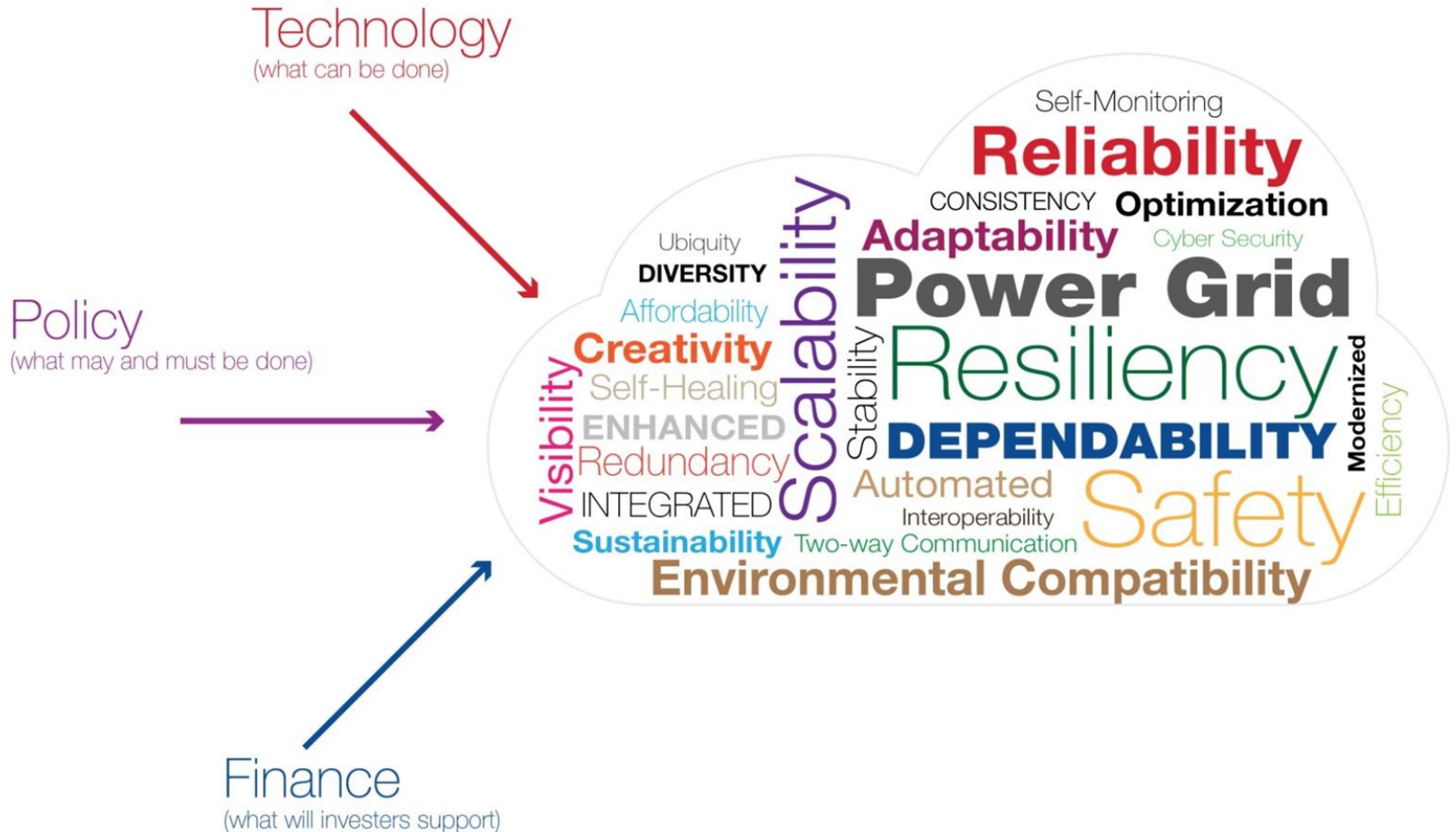
- All to engage with *customers* to help identify and meet their needs

# Planning and investing in long-term infrastructure

How to ensure our ability to attract capital (debt and equity at good prices) to continue investing in essential infrastructure while meeting and complying with other policy goals?



# Meeting Complex Customer Expectations





# Hierarchy of (Utility) Needs

(Apologies to Abraham Maslow)





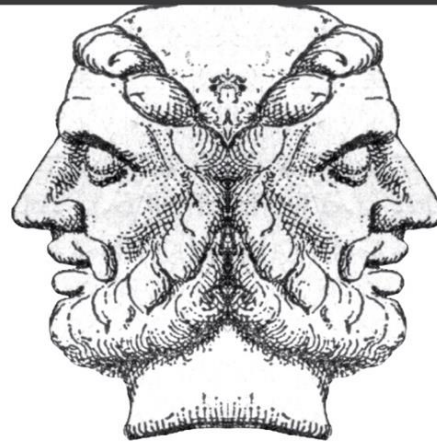
## Policy Archetypes

### Backwards Looking

Historic test year  
Adversarial/contested case  
Accounting based  
Least-cost emphasis

### Forward Looking

Future test year  
Collaborative/ADR  
Business-case and planning based  
Achieve multiple outcomes  
for customers and policy



### **What's The Best Balance?**

Bridging mechanisms  
Infrastructure support mechanisms  
Consultation  
Move away from throughput-based revenue





# State legislation to support infrastructure

- Over 30 states have infrastructure cost recovery legislation (AGA 2013)
- Indiana SB560 “TDSIC Rider” (transition, distribution and storage improvement charge) allows infrastructure investments by electric and gas utilities in:
  - Safety
  - Replacement
  - Reliability
  - System modernization
  - Economic development
  - General rate case required within seven years of filing date
- Minnesota e21 initiative - <http://www.betterenergy.org/projects/e21-initiative>



- What are your goals for utility infrastructure and service?
- What works well now?
- What are the barriers?
- How might we address the barriers?



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NorthWestern<sup>®</sup>  
Energy