The Future of Natural Gas

Kim Greene
Chair, American Gas Association, 2022
Chair, President, CEO, Southern Company Gas

American Gas Association

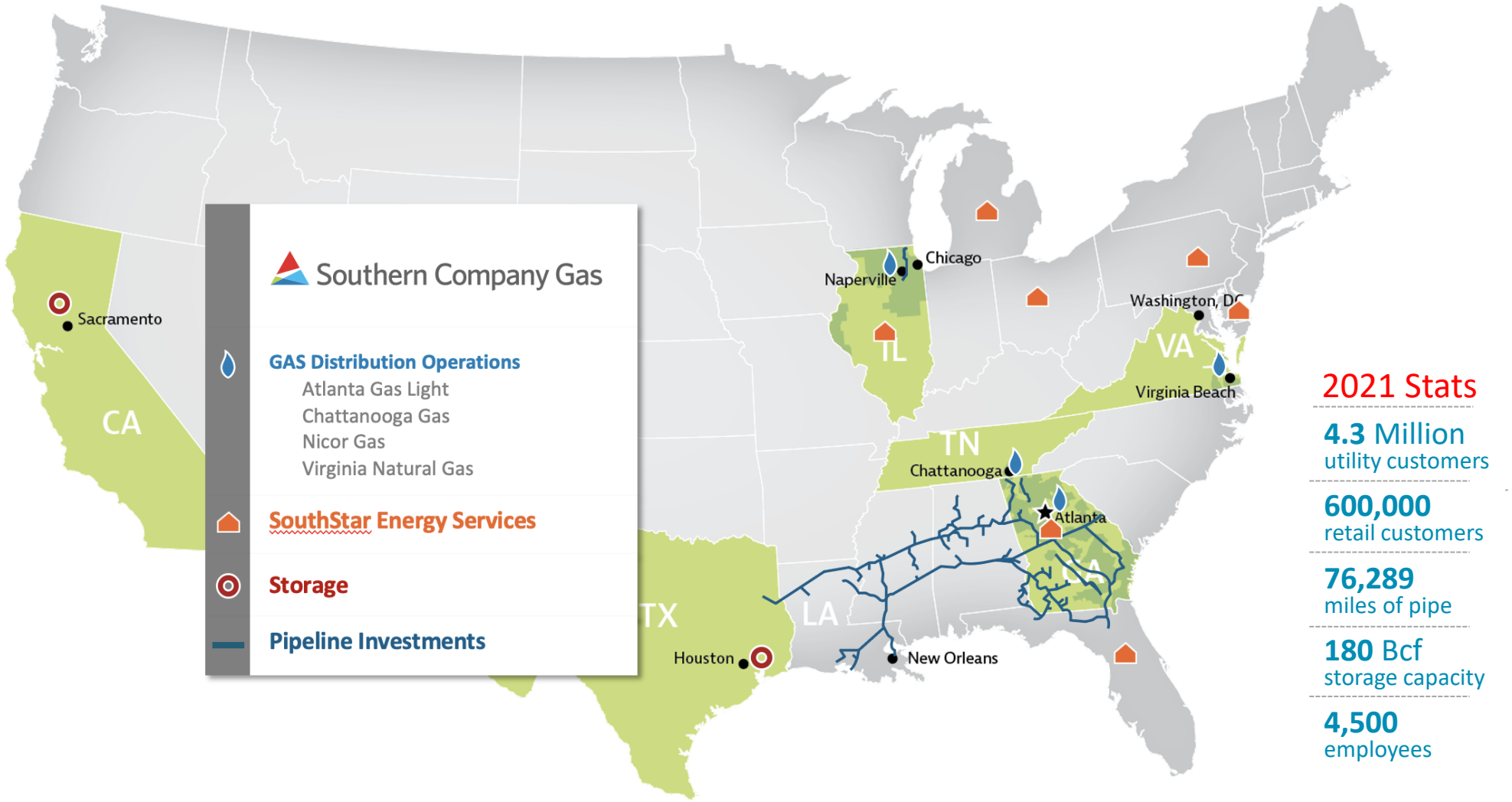
The American Gas Association, founded in 1918, represents more than 200 local energy companies that deliver clean natural gas throughout the United States. There are more than 77 million residential, commercial and industrial natural gas customers in the U.S., of which 96 percent – more than 73 million customers – receive their gas from AGA members. Today, natural gas meets more than one-third of the United States' energy needs.

www.aga.org

aga_natgas | naturalgas | AGA_naturalgas | TrueBlueNaturalGas.org

Southern Company Gas

Operational Footprint



2021 Stats

4.3 Million
utility customers

600,000
retail customers

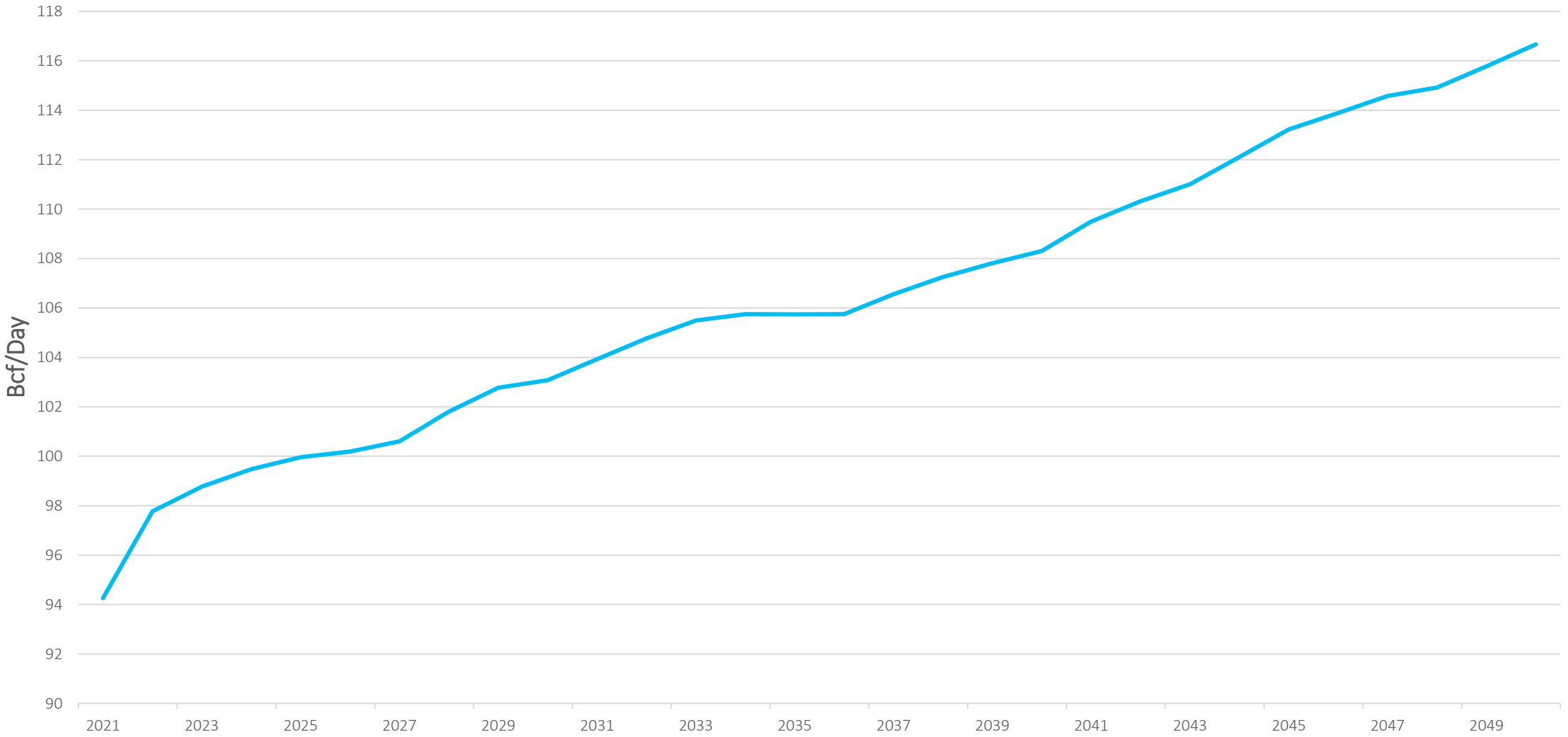
76,289
miles of pipe

180 Bcf
storage capacity

4,500
employees

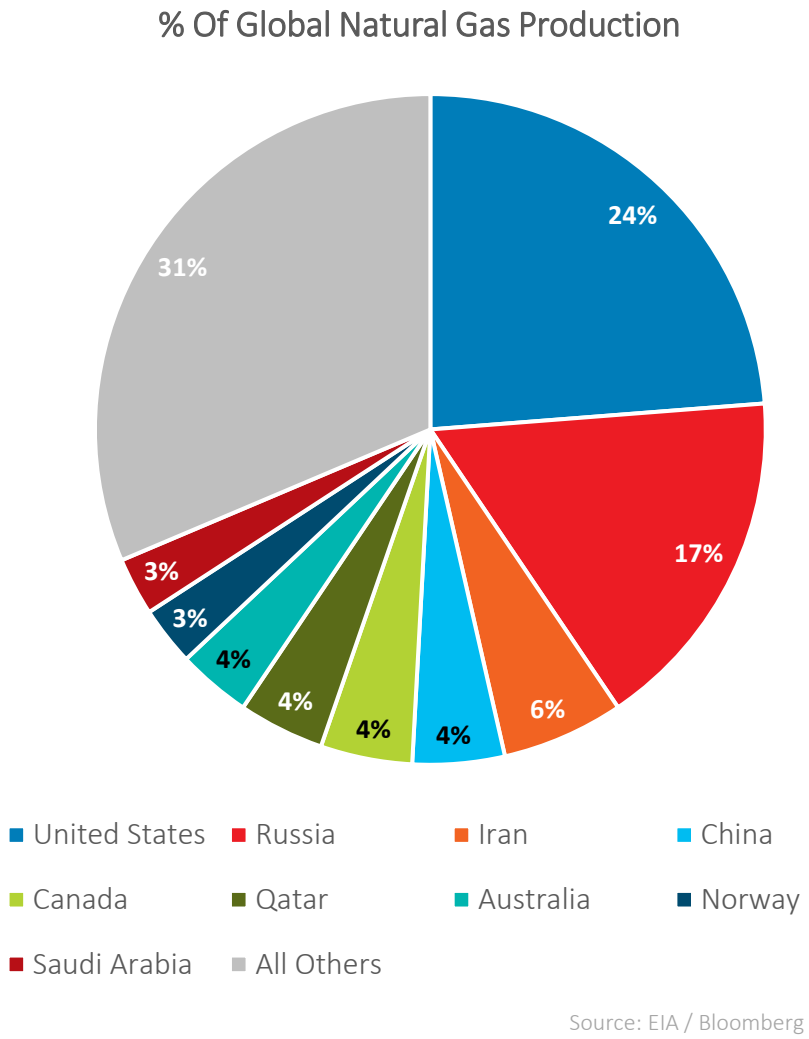
A Few Fundamentals

U.S. Dry Natural Gas Production Actual/Forecast

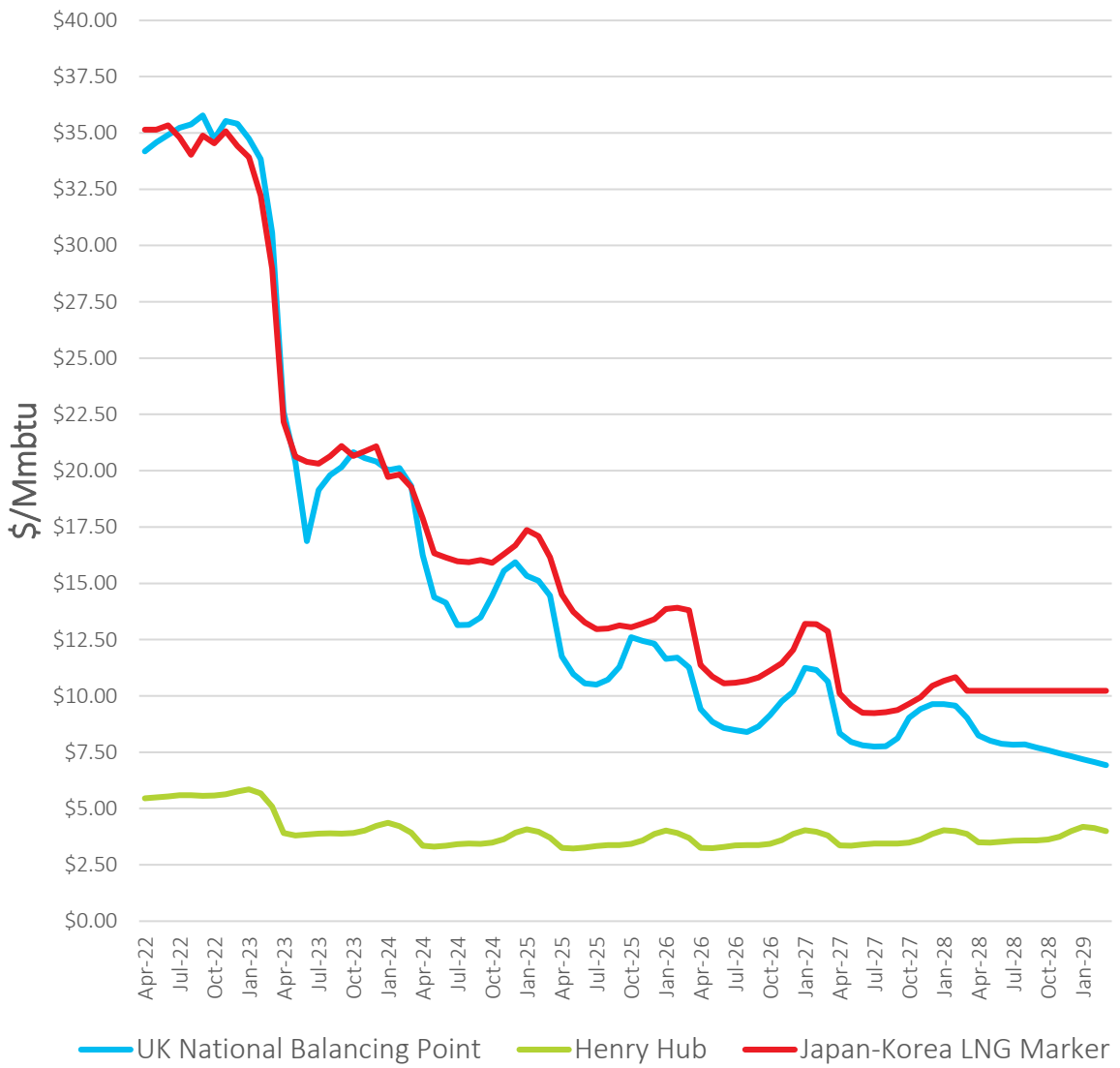


Source: EIA Annual Energy Outlook 2022

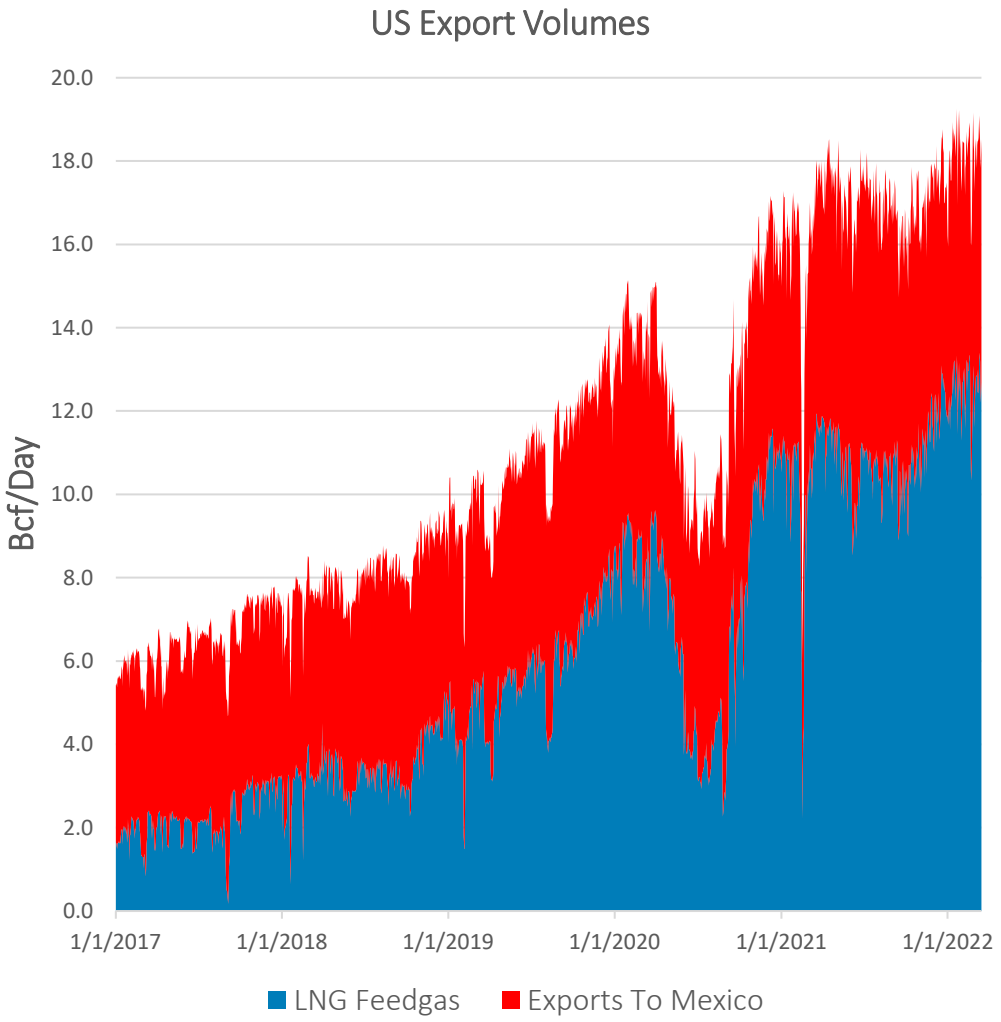
U.S. Dominates Global Natural Gas Production



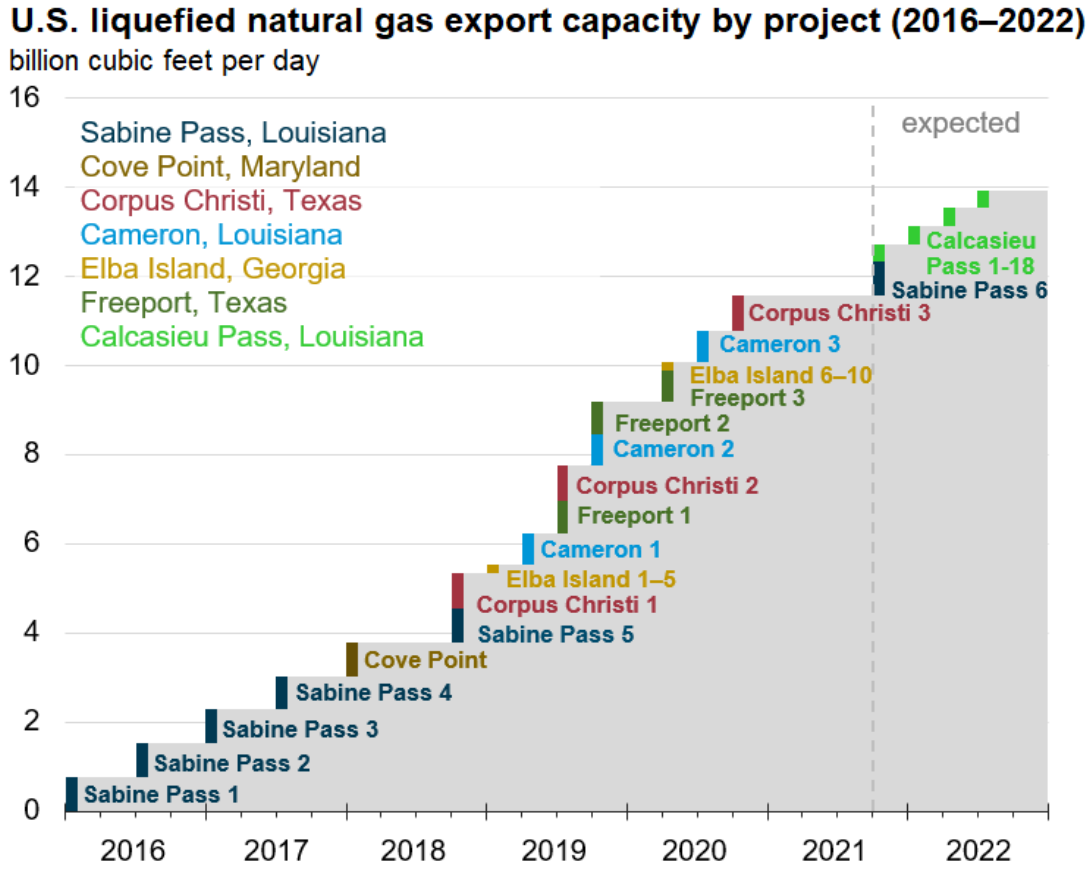
Source: EIA / Bloomberg



And Helps Fuel the World

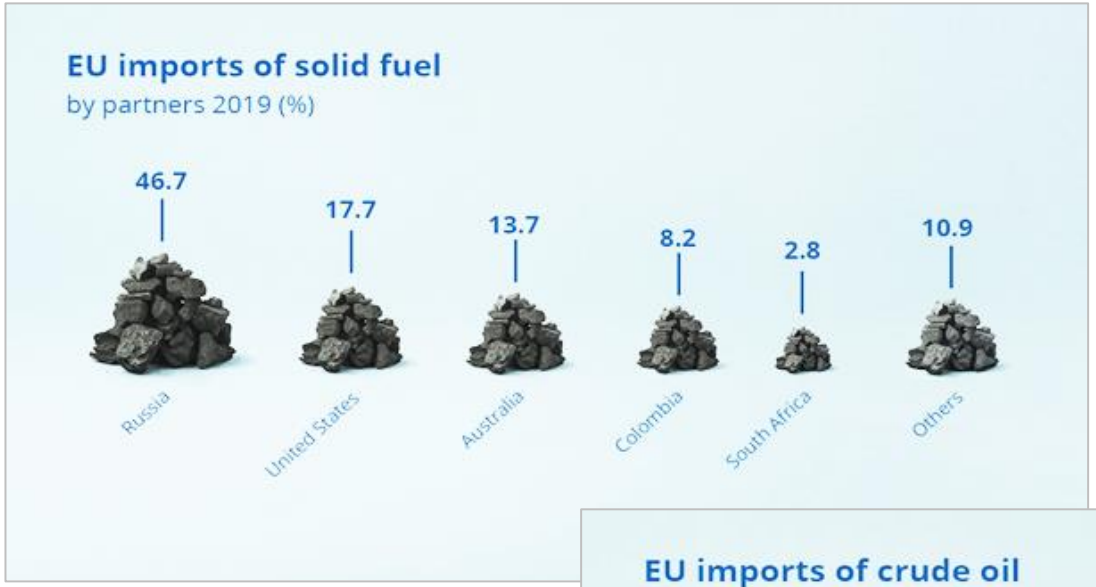


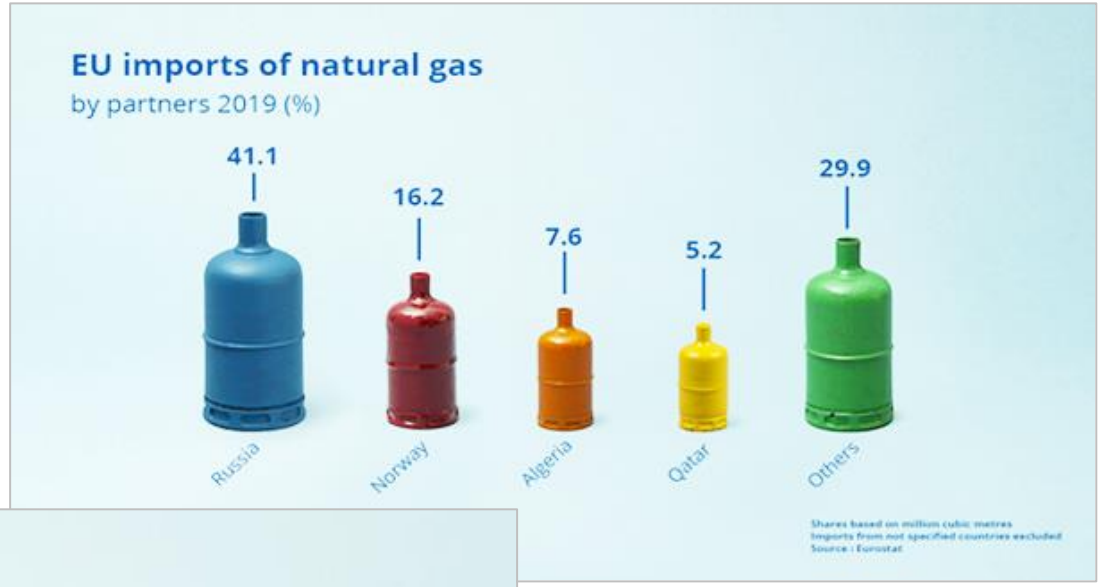
Source: S&P Global Commodity Insights / EIA

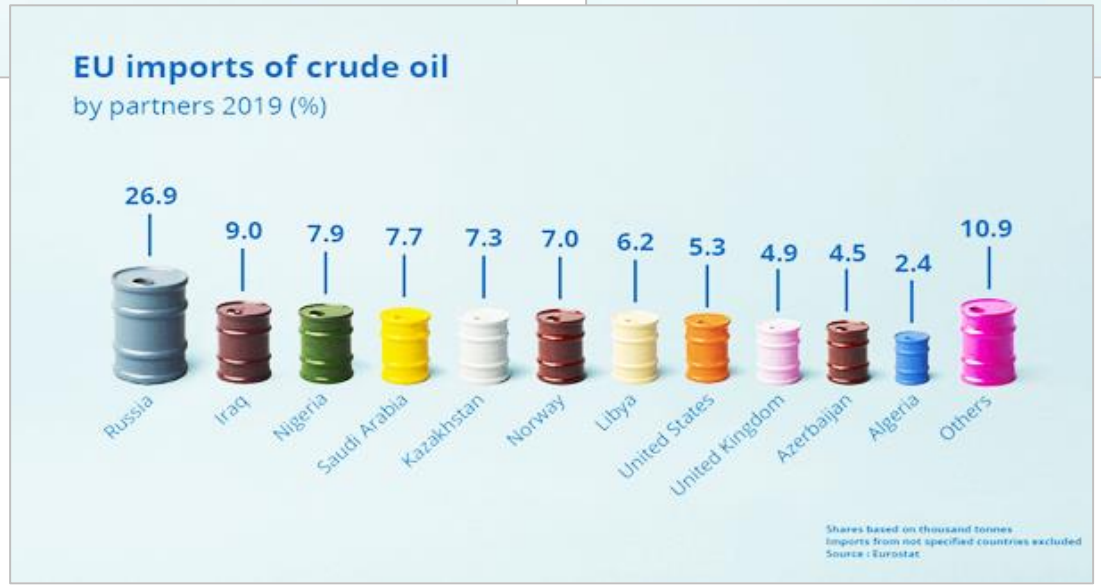


eia Source: Graph created by the U.S. Energy Information Administration (EIA)
Note: The chart shows U.S. LNG peak export capacity buildout by quarter, project, and liquefaction train

EU Highly Dependent Upon Russia







Source: Eurostat

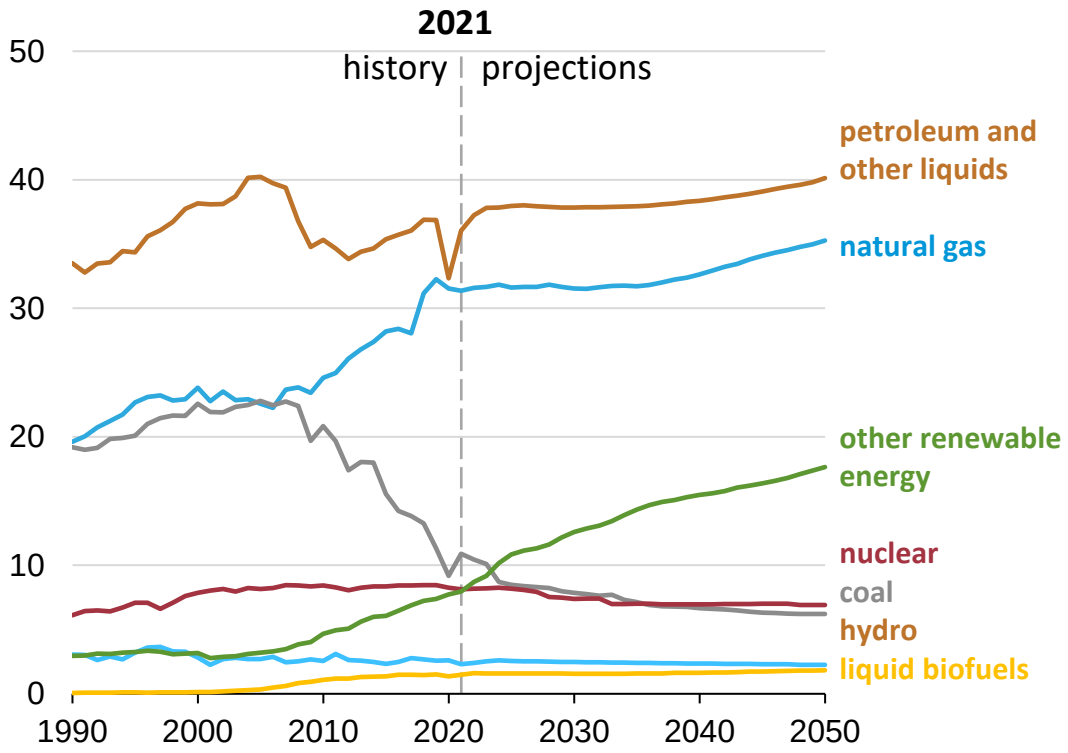
Energy Security

Economic Security

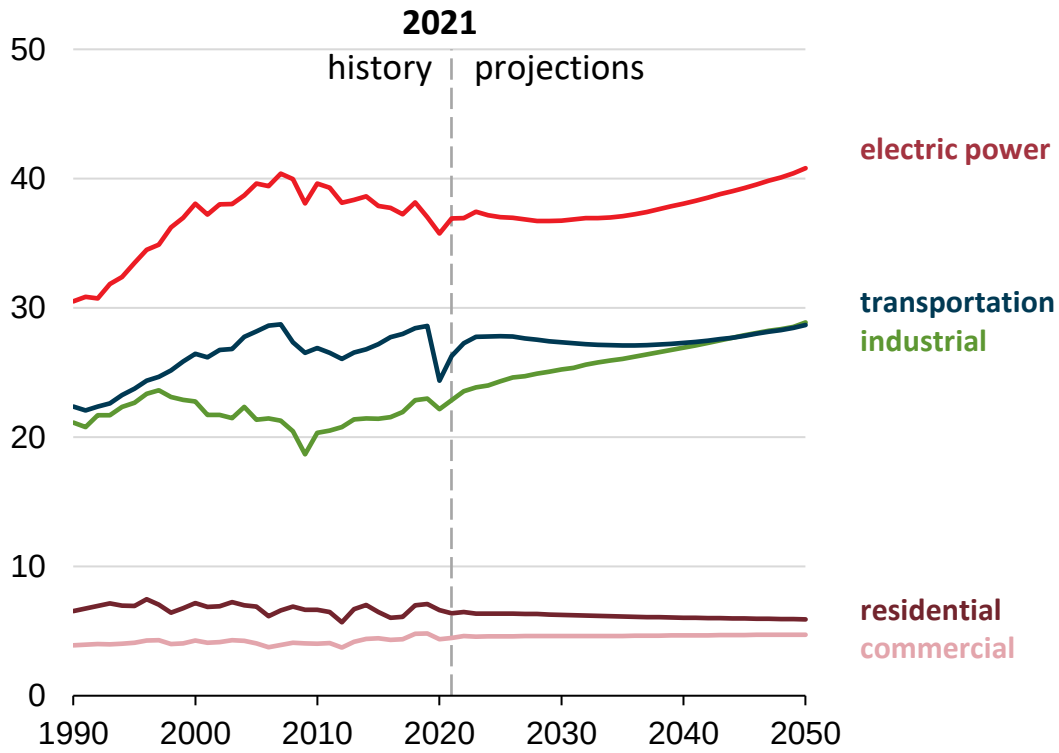
National Security

Petroleum and Natural Gas Remain the Most Consumed Sources of Energy in the U.S. Through 2050

Energy consumption by fuel AEO2022 Reference case
quadrillion British thermal units



Energy consumption by sector AEO2022 Reference case
quadrillion British thermal units



Note: Biofuels are shown separately and included in petroleum and other liquids.

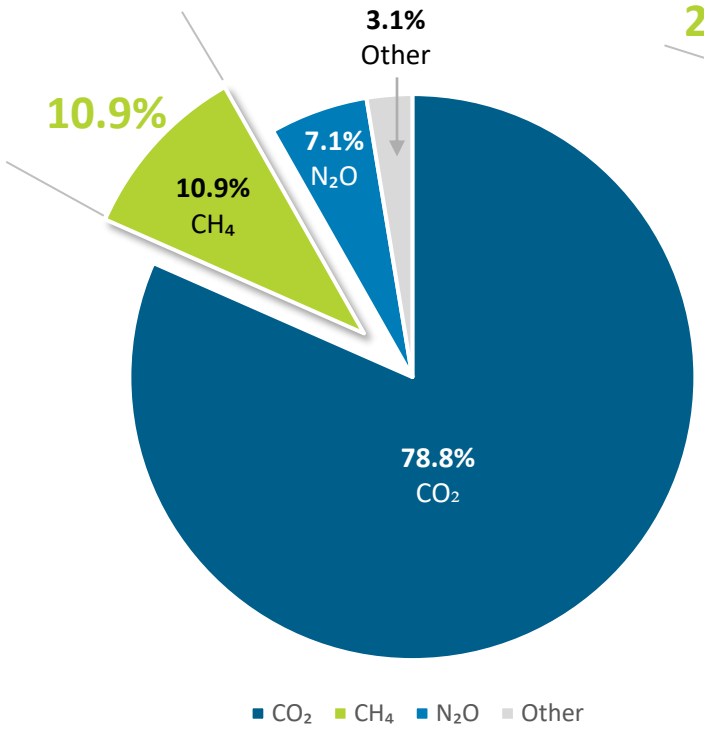
In America, Natural Gas is Here for a Long, Long Time

- Nearly **187 million Americans** use natural gas in their homes, and more than **5.5 million businesses** rely on natural gas daily
- The U.S. has **2.6 million miles of pipeline** infrastructure network
- **1,900 natural gas power stations** deliver 40 percent of the total power production in the U.S.
- Natural gas is **more affordable** than other energy sources
- Over the last 15 years, natural gas is responsible for lowering greenhouse gas emissions – more than **47% in power generation sector**

Gas Distribution Companies are Extremely Small Contributors of CH_4;

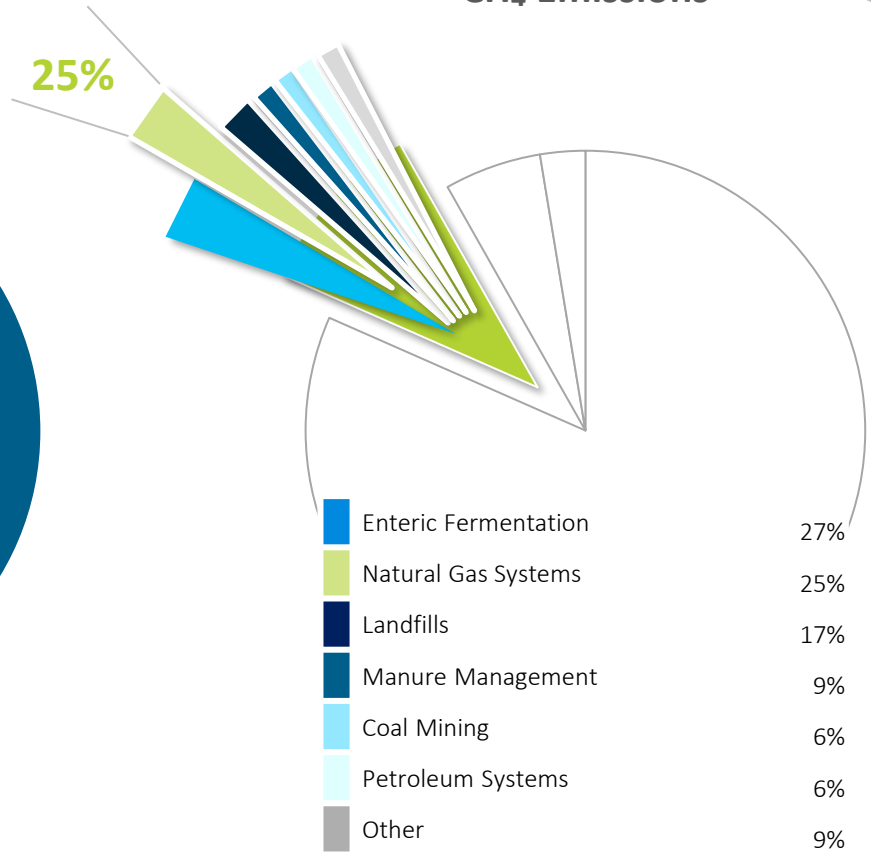
5973.0 $MMtCO2_e$

All GHG Emissions



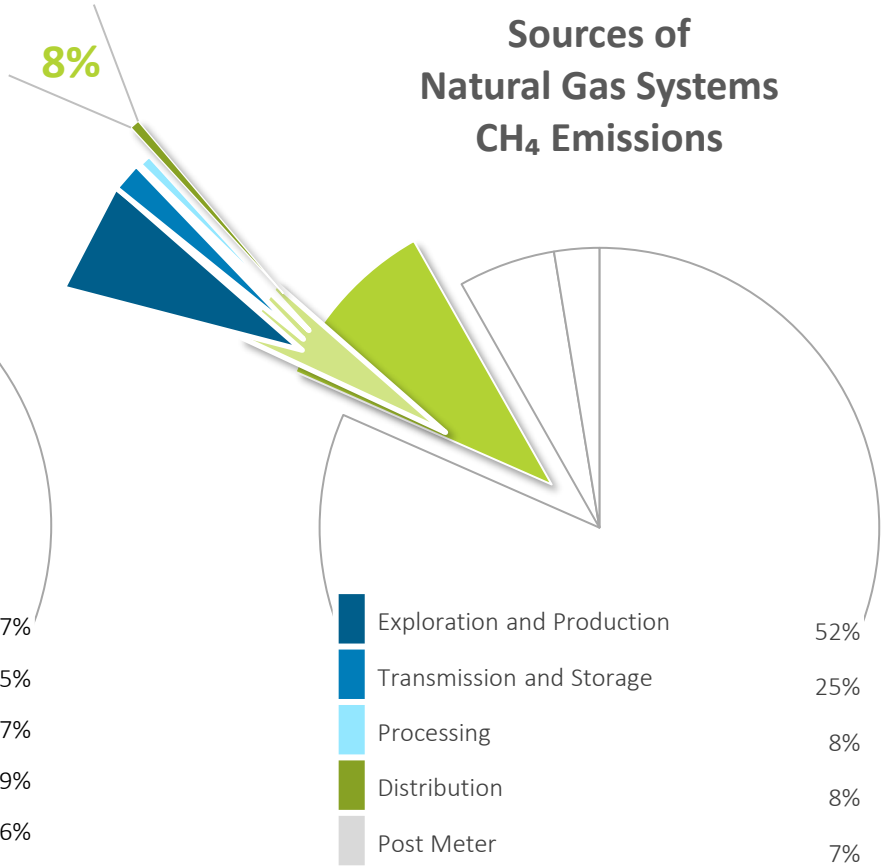
650.3 $MMtCO2_e$

Sources of CH_4 Emissions



164.5 $MMtCO2_e$

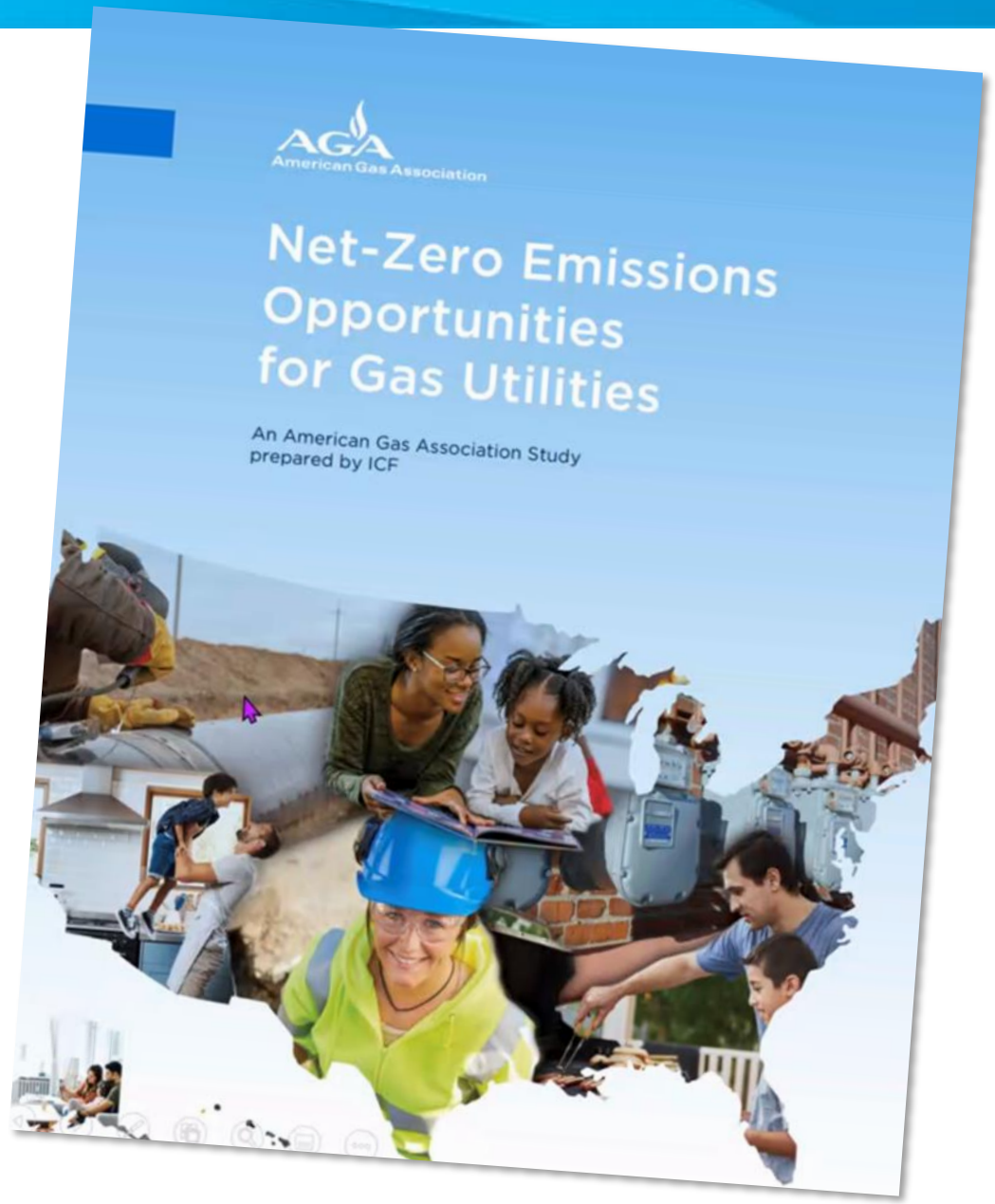
Sources of Natural Gas Systems CH_4 Emissions



All data is from draft EPA report for 2020

AGA Net-Zero ICF Project Objective and Approach

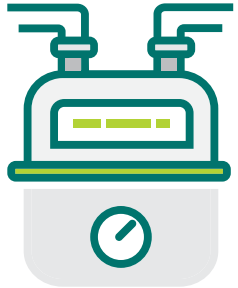
- Evaluates the wide array of opportunities for gas utilities to achieve net-zero greenhouse gas emissions goals
- Provides in-depth assessment of illustrative pathways to achieve net-zero greenhouse gas emissions for gas utility customers by 2050
- Identify policy and regulatory actions to accelerate net-zero ambitions through gas infrastructure and technologies



Southern Company - A Commitment to **Emissions Reductions**

Southern Company has established a goal to reduce its enterprise-wide greenhouse gas emissions 50% from 2007 levels by 2030 and a long-term goal of net-zero by 2050.

This is inclusive of Southern Company Gas operations. We also are focused on opportunities to support emissions reductions across the natural gas value chain – targeting upstream, operational and end-use emissions.



INFRASTRUCTURE MODERNIZATION

CNG and NGVs

RENEWABLE FUELS

EMPOWERING CUSTOMER SUSTAINABILITY

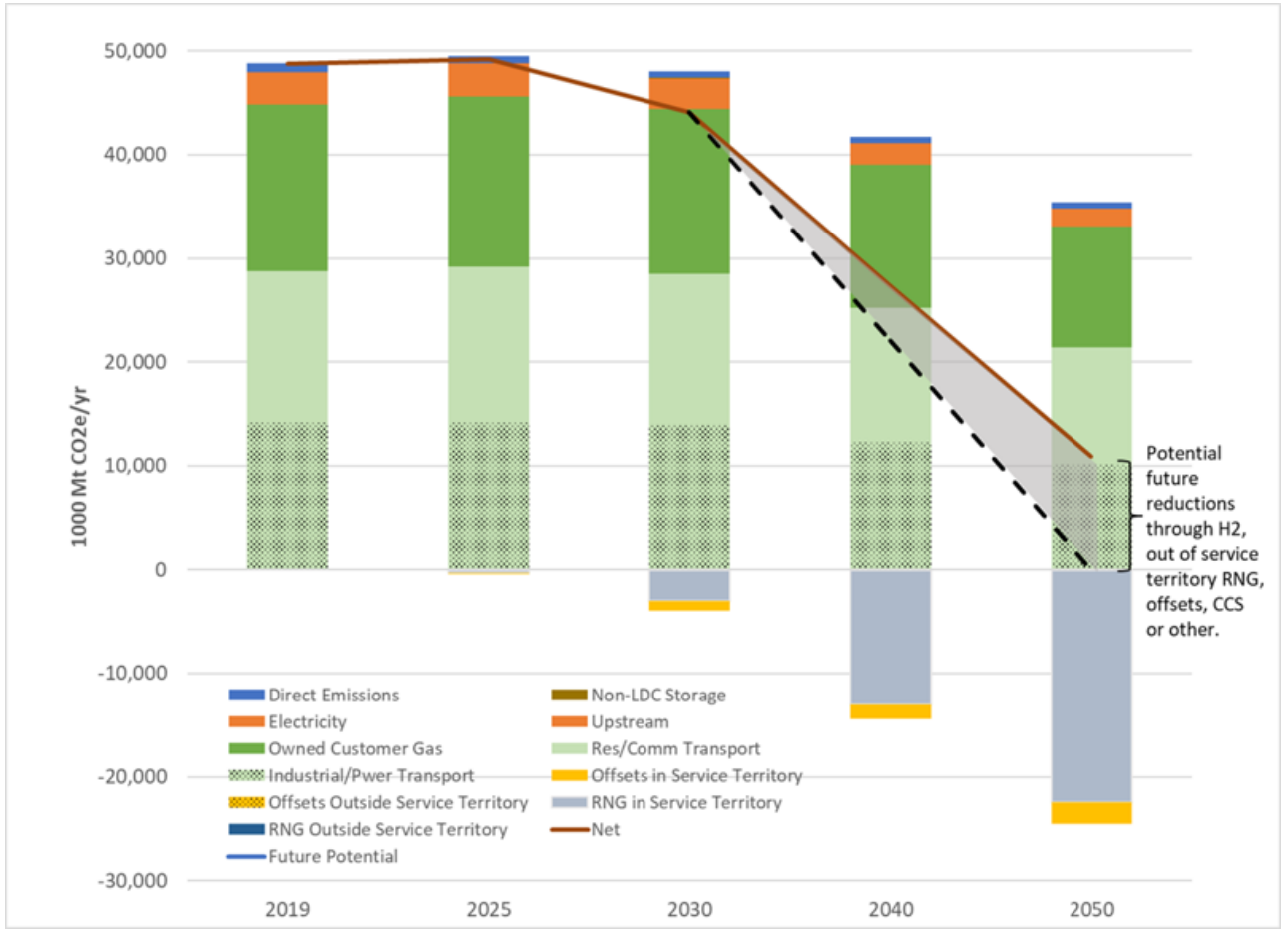
METHANE EMISSIONS REDUCTIONS ACROSS OPERATIONS

R&D INVESTMENT

Southern Company Gas ICF Project

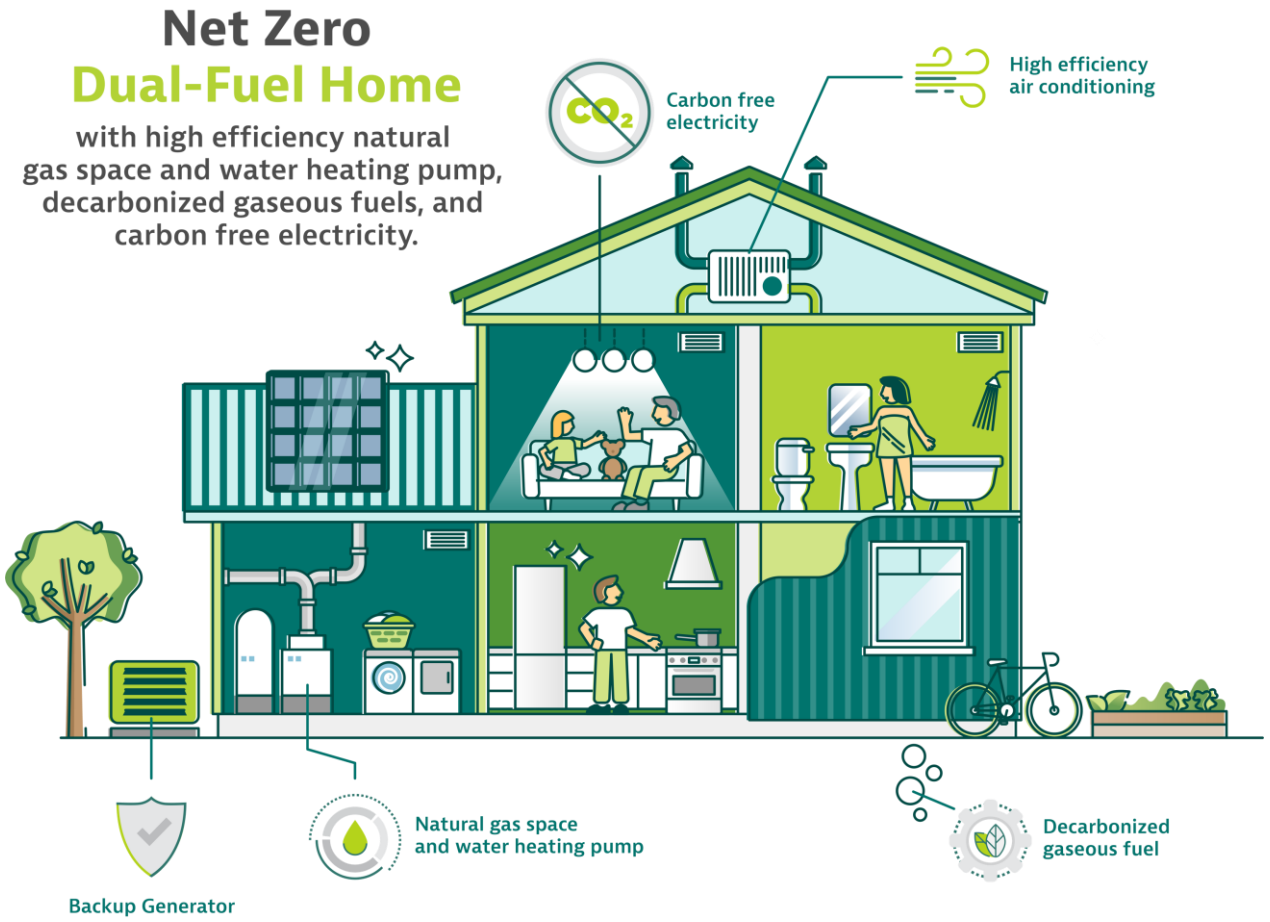
- A new landmark Southern Company Gas analysis reveals natural gas and our company's **natural gas infrastructure is foundational to reaching a net-zero, clean energy future** with the greatest level of affordability for consumers.
- The study, conducted by consulting firm ICF, details **pathways for the company's four LDCs to reach net-zero direct GHG emissions, including methane emissions**, while using its existing reliable infrastructure.
- The analysis demonstrates that Southern Company Gas can fully support its parent Southern Company's goal to reach enterprise-wide net-zero direct GHG emissions by 2050 in addition to **providing benefits to its customers and communities**.

Illustrative Total Emissions Reduction Pathway (1000 Mt CO2e)



Southern Company Gas | Sustainability and Energy Policy

Pathways to 2050 for Residential & Commercial Customers



- ↗ **Almost Half the Cost**
- ↗ **25% More GHG Reductions**
- ↗ **Resiliency**
- ↗ **Customer Choice and Value**
- ↗ **Energy Diversity and Security**

Source: "Decarbonization Pathways for Southern Company Gas" by ICF Resources, LLC, September 2021. Comparisons based on scenarios modeled by ICF for residential and commercial use of gas for GAS utilities to 2050 for high efficiency gas technologies as compared to policy driven mandated electrification.

Natural gas and the infrastructure that transports it are ***foundational*** to America's clean energy future.

AMERICAN WATER

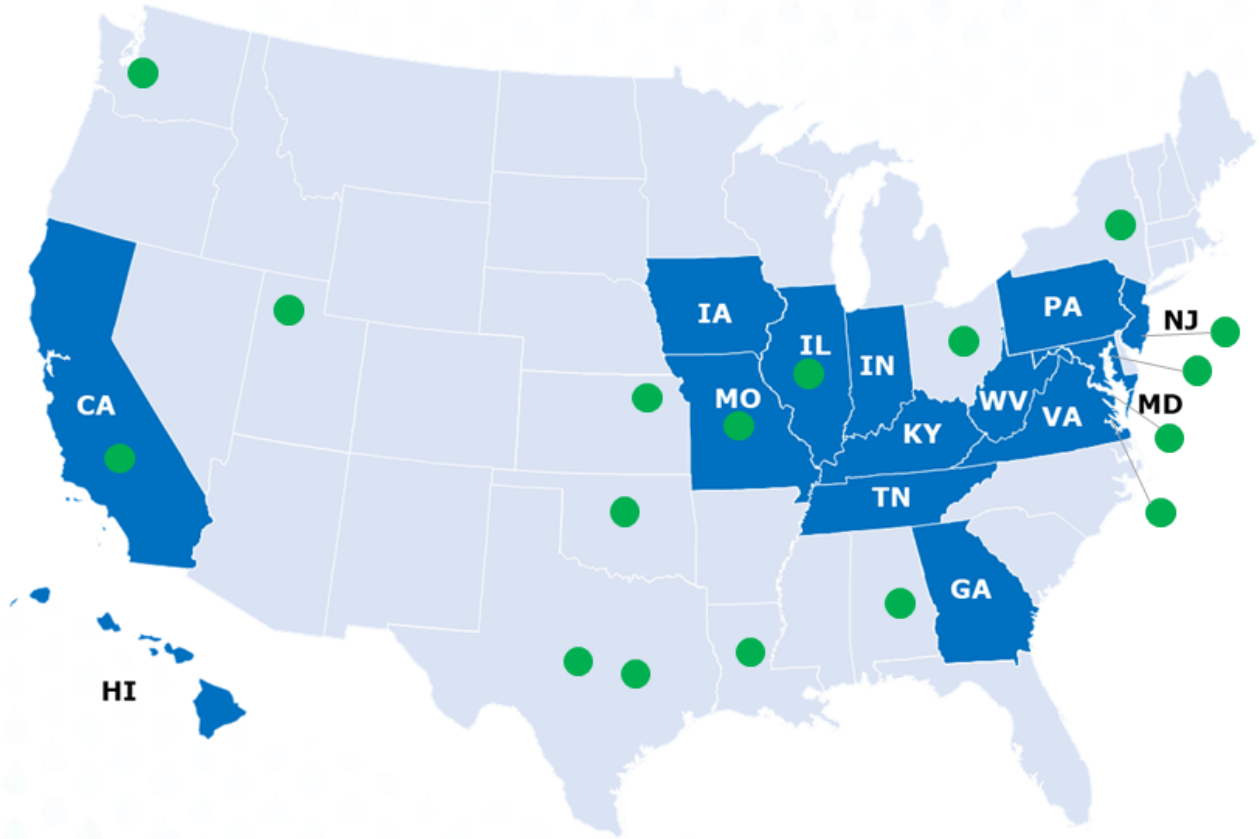
Industry Leader's Roundtable

Cheryl Norton, EVP & COO American Water

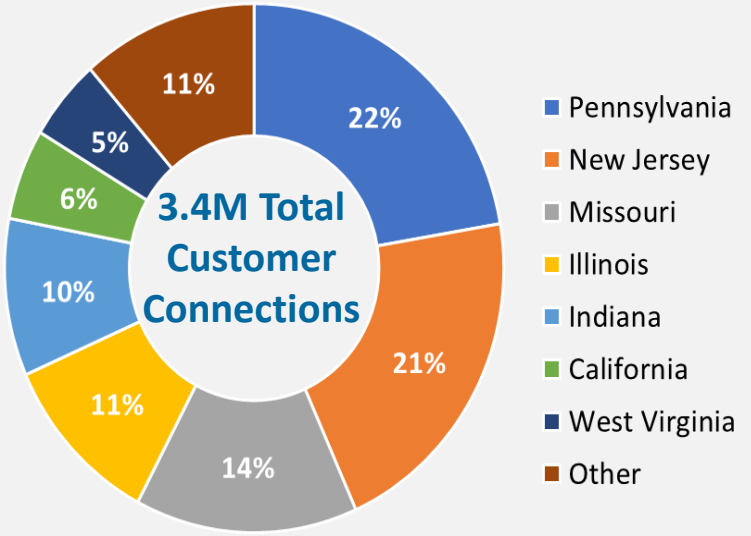
NMSU Current Issues Conference

April 11, 2022

American Water- Our Business at a Glance



Regulated Customer Count



Regulated Operations

- 52,500 miles of pipe
- 560 water treatment plants
- 160 wastewater treatment plants
- 1,100 wells and 76 dams

Military Services Group

- Regulated-like
- Serves 17 military installations
  - 12 Army
  - 5 Air Force

Water and Wastewater Industry Challenges

American Society of Civil Engineers Grades U.S. Infrastructure

Not American Water pipes

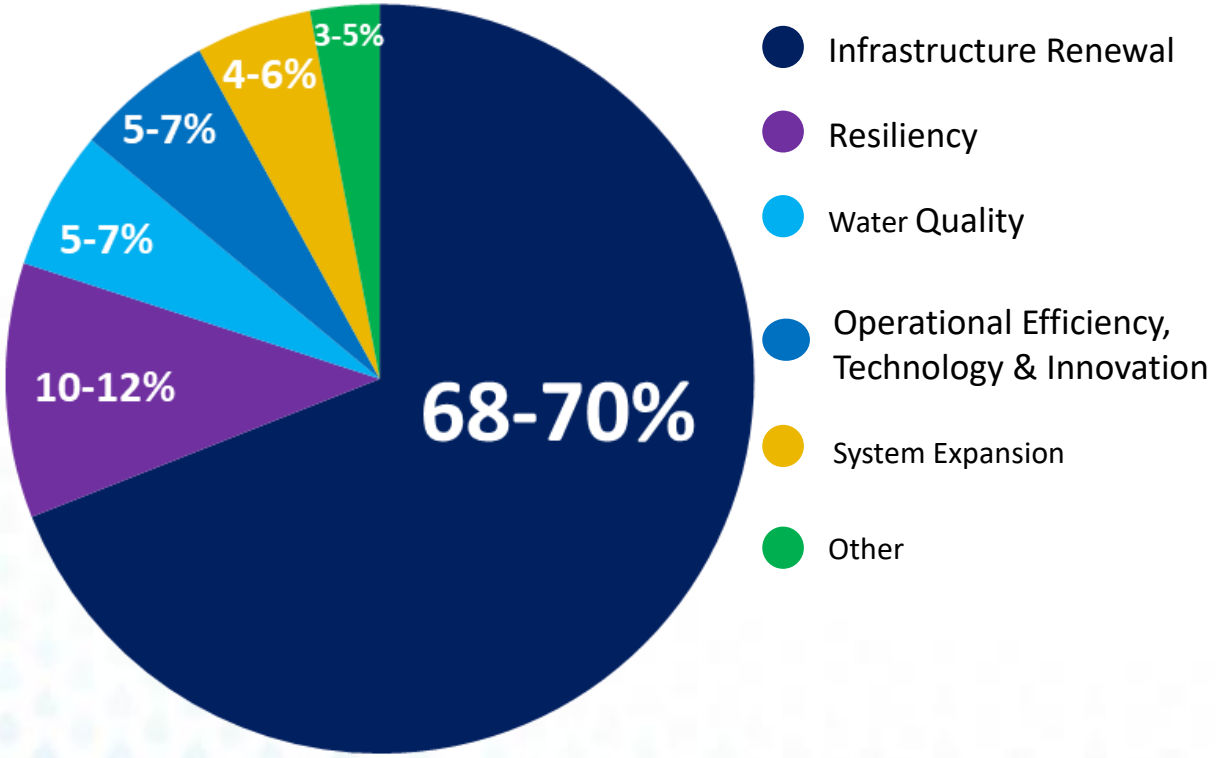
- Approximately **51,000** community water systems, **16,000** wastewater systems
- Nationwide, there is an estimated **250,000 to 300,000** water main breaks per year; equivalent to a water main break every two minutes
- Over **2.1 trillion gallons** of treated water is lost each year
- Since 2017, replacement rates for wastewater collection pipes have essentially **stagnated**
- **900 billion gallons** of untreated wastewater discharged into our waterways each year

Critical need for multi-decade investment

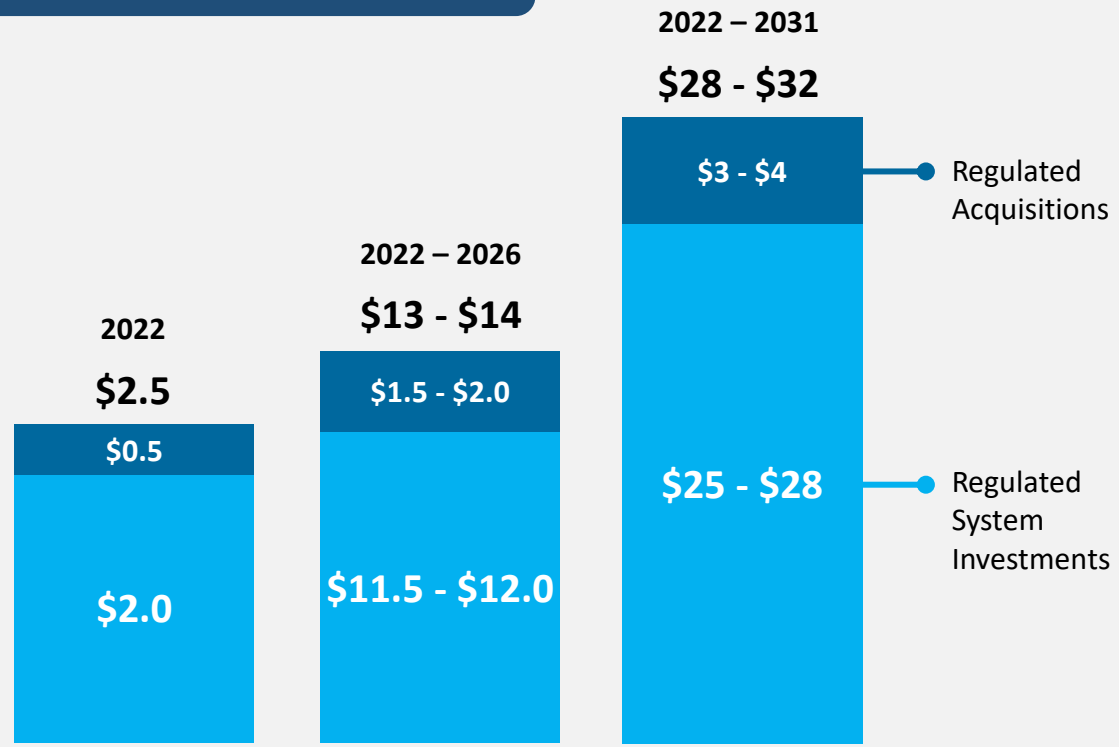
AMERICAN WATER

Proactively Addressing These Challenges: Capital Investment

2022-2031 Average Regulated
Capital Expenditures by Purpose



Capital Plan ($ in billions)



AMERICAN WATER

Proactively Addressing These Challenges: Resiliency

Resiliency Investments to Manage
Climate Variability and Cybersecurity Threats

AMERICAN WATER

Proactively Addressing These Challenges: Affordability

Investment

- *Consolidation*
- *Single tariff pricing*
- *Improving operational efficiency*

Programmatic

- *Target programs for lower income customers*

Tariff

- *Single tariff pricing*
- *Discount tariffs*
- *Alternative ratemaking*
- *Rate design*

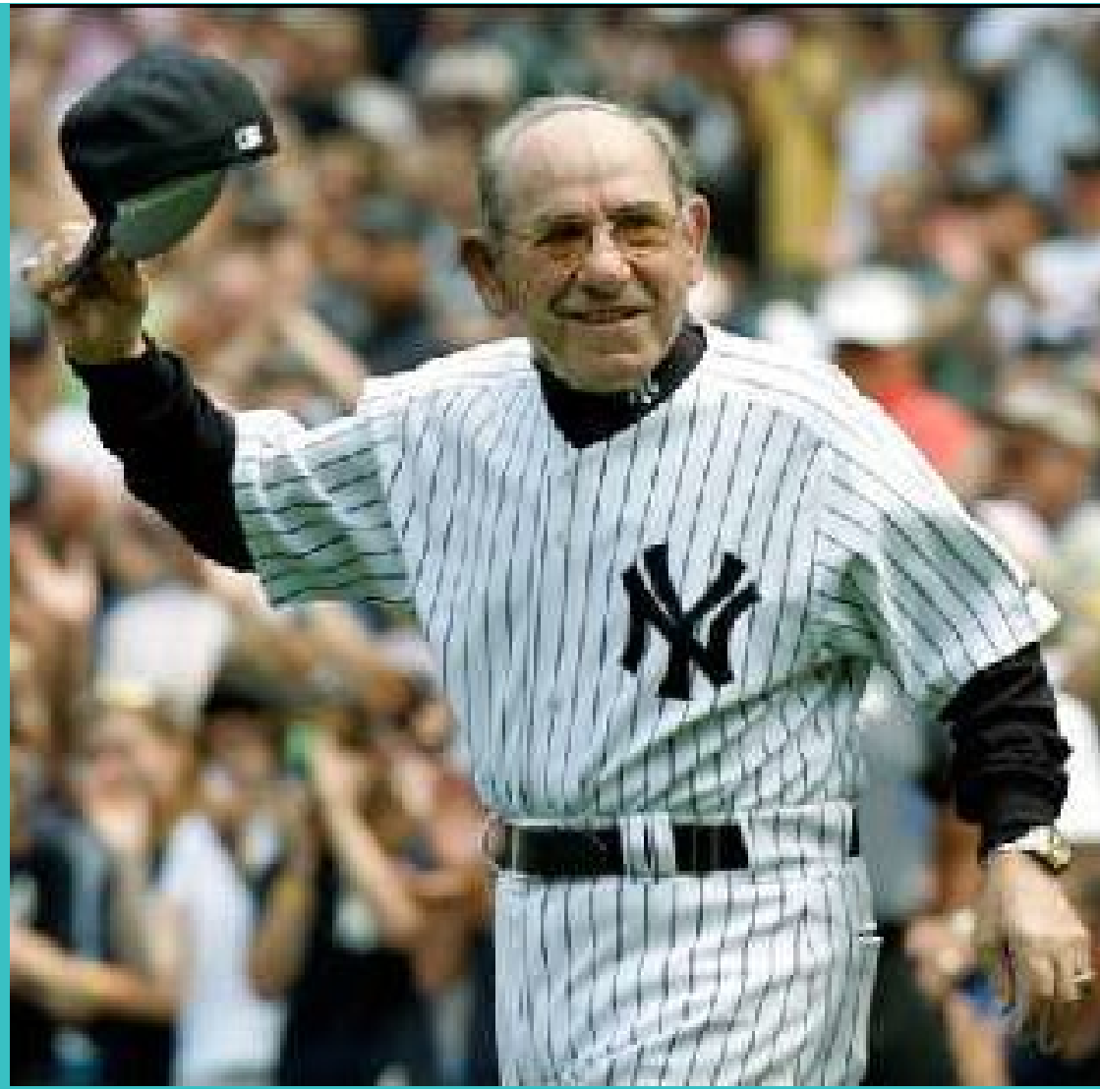
Thank you

NMSU Current Issues 2022

Electric Overview

“The future ain’t what it used to be!”

Yogi Berra



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Everything works — and will continue to work — as long as we have electricity. It's what keeps the lights on, the oxygen flowing, the information going. Everything is the grid, the grid, the grid.

- Peggy Noonan

Wall Street Journal columnist

What we'll discuss

- NorthWestern Energy
  - Reliable, Affordable, Responsible, Engaged
- Electric Sector overview
  - Industry priorities (EEI)
  - Infrastructure Investment and Jobs Act
  - Electric transportation
  - Wildfire, grid resilience and security;
  - Investment; credit ratings
  - *Customer Focus!*
  - Reducing carbon while maintaining reliability
- Let's discuss!

About our company

Dignity, honoring native peoples of South Dakota, near Chamberlain

About our company

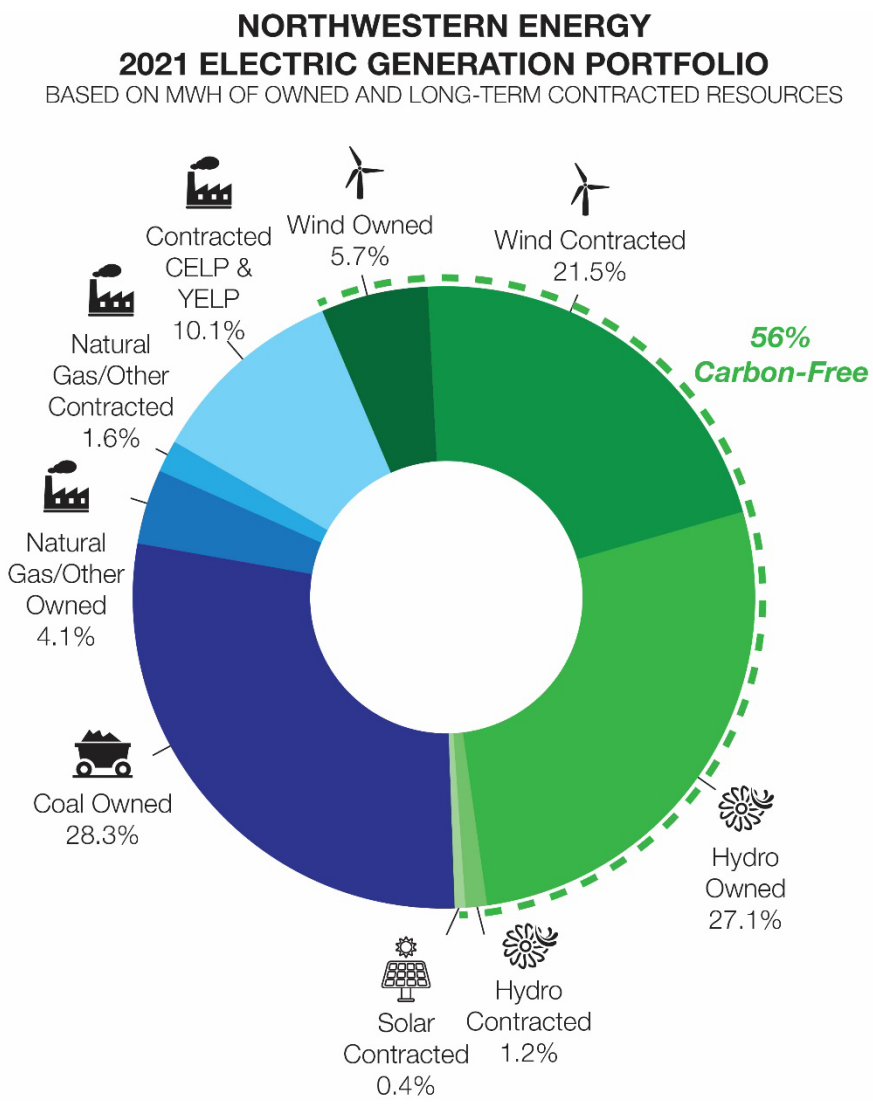
753,600
Customers

1,483
Employees

318
communities in Montana and South Dakota with electric service

183
communities in Montana, South Dakota and Nebraska with gas service

About our company

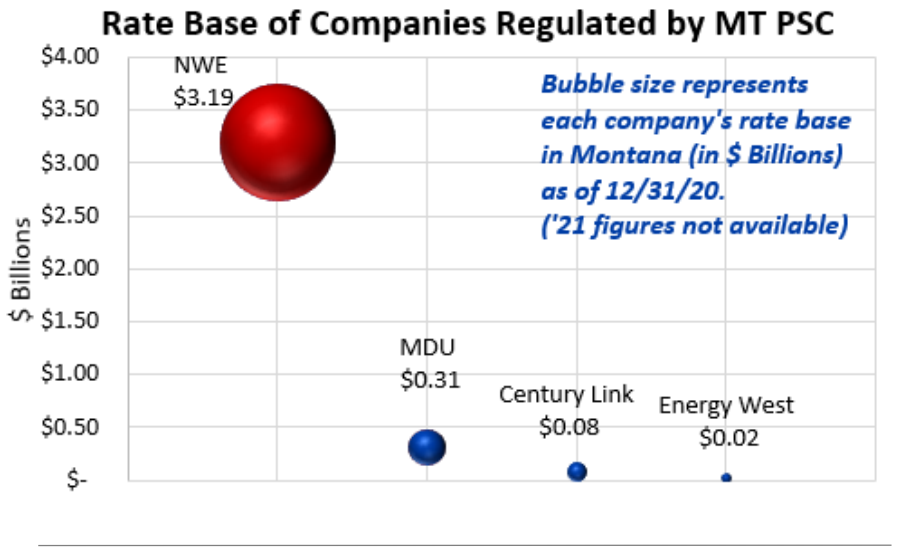


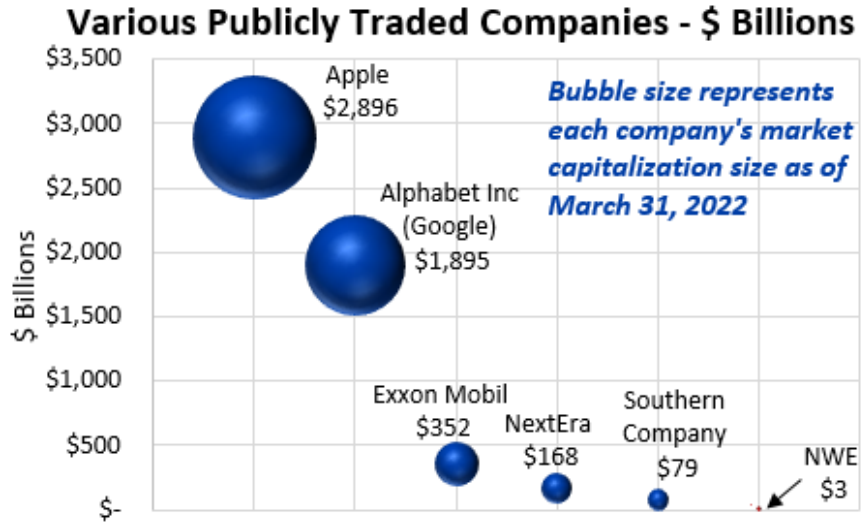
*NorthWestern does not own all the renewable energy certificates (RECs) generated by contracted wind, and periodically sells its own RECs with proceeds benefiting retail customers. Accordingly, we cannot represent that 100% of carbon-free energy in the portfolio was delivered to our customers.

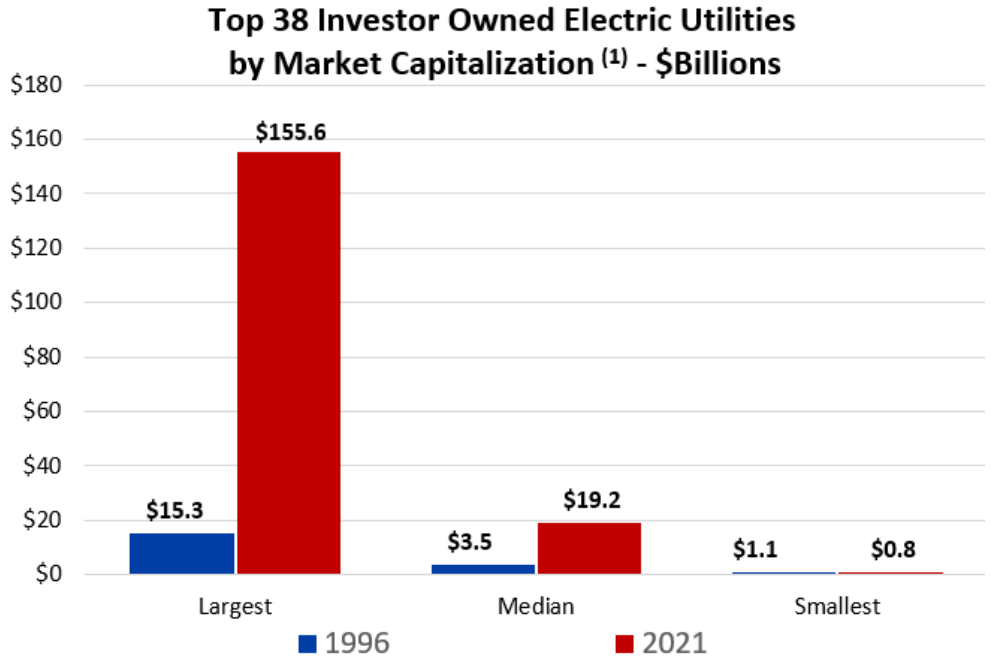
The paradox of large and small

NWE is by far Montana's largest infrastructure provider.

However, on a national / global scale, we are a very small corporation competing for capital (to fund investment) against much larger entities.







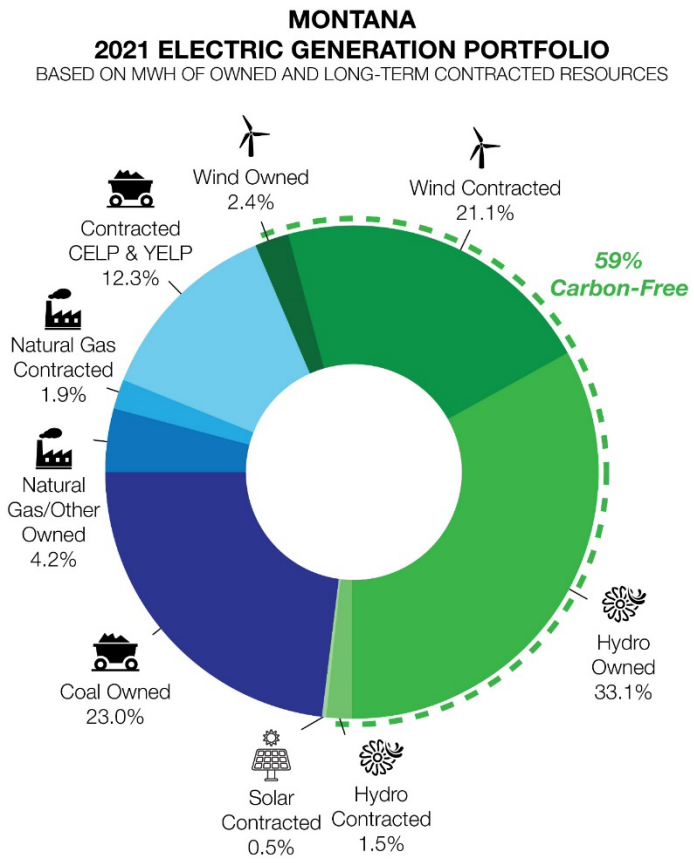
Utilities that aren't growing tend to be acquisition, and / or activism, targets. There were 97 publicly traded regulated electric utilities back in 1996.
At the end of 2021 there were only 38.

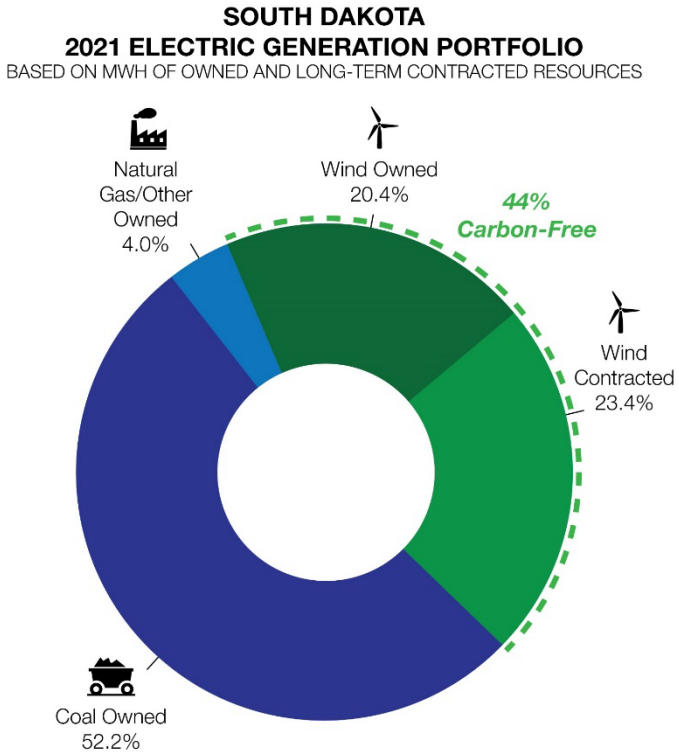
Ranked by market capitalization, NWE was the 4th smallest utility among this group.

Source: Capital IA via Morgan Stanley M&A presentation – April 2016

1) *List only includes publicly traded regulated companies. Reflects parent companies, not each operating company. 2021 data as of December 31,2021 based on 38 existing electric utilities listed by EEI.*

High carbon-free supply portfolios (state comparisons)

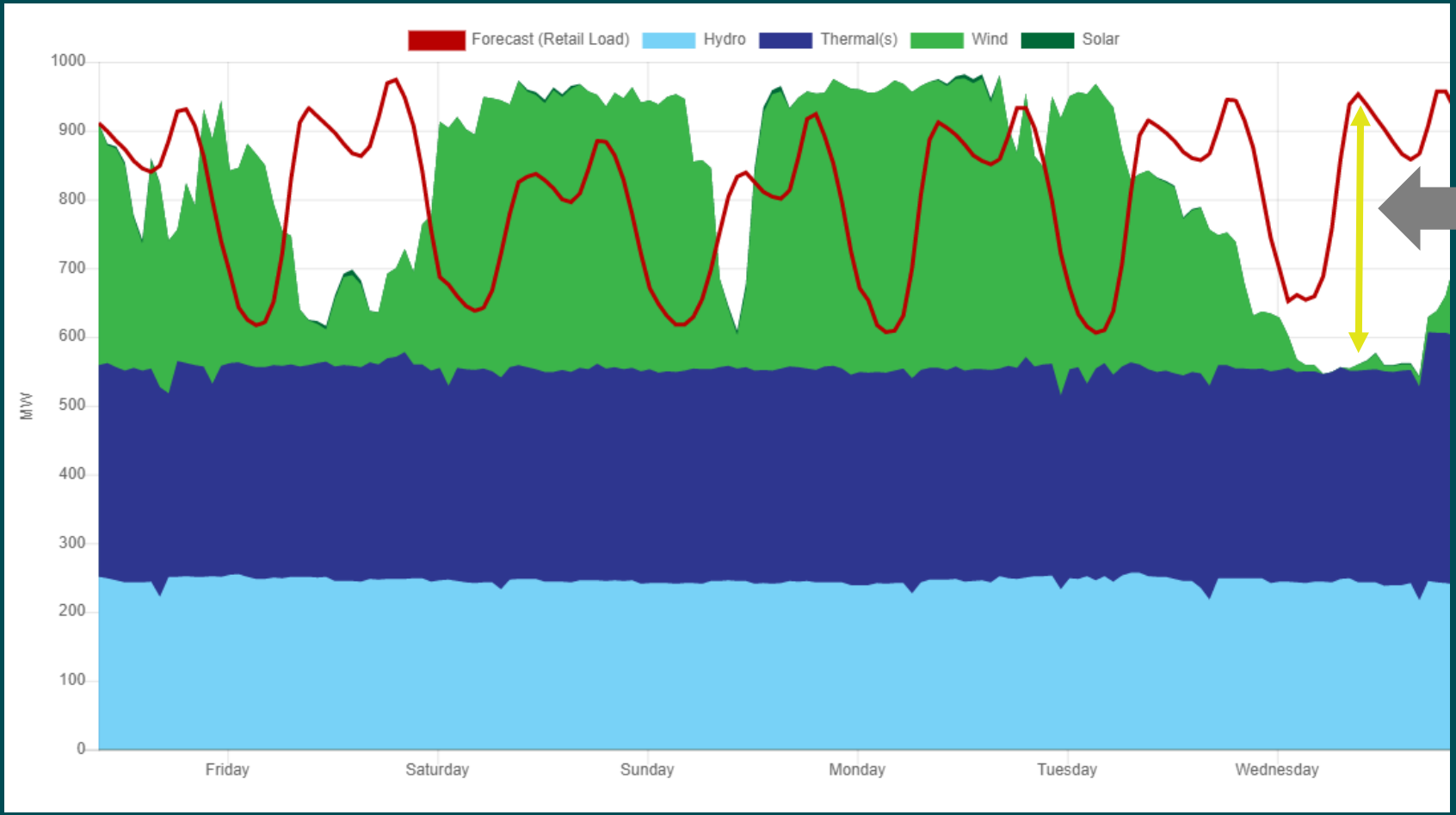




Contracted energy from Colstrip Energy Limited Partners (CELP), Yellowstone Energy Limited Partners (YELP) as well as a majority of the contracted wind, hydro and solar are federally mandated Qualifying Facilities, as defined under the Public Utility Regulatory Policies Act of 1978 (PURPA).

Based upon 2021 MWH's of owned and long-term contracted resources. Approximately 56% of our total company owned and contracted supply is carbon-free – better than the national average of ~40% in 2020. (eia.gov table 7.2b)

Meeting customers' needs no matter what

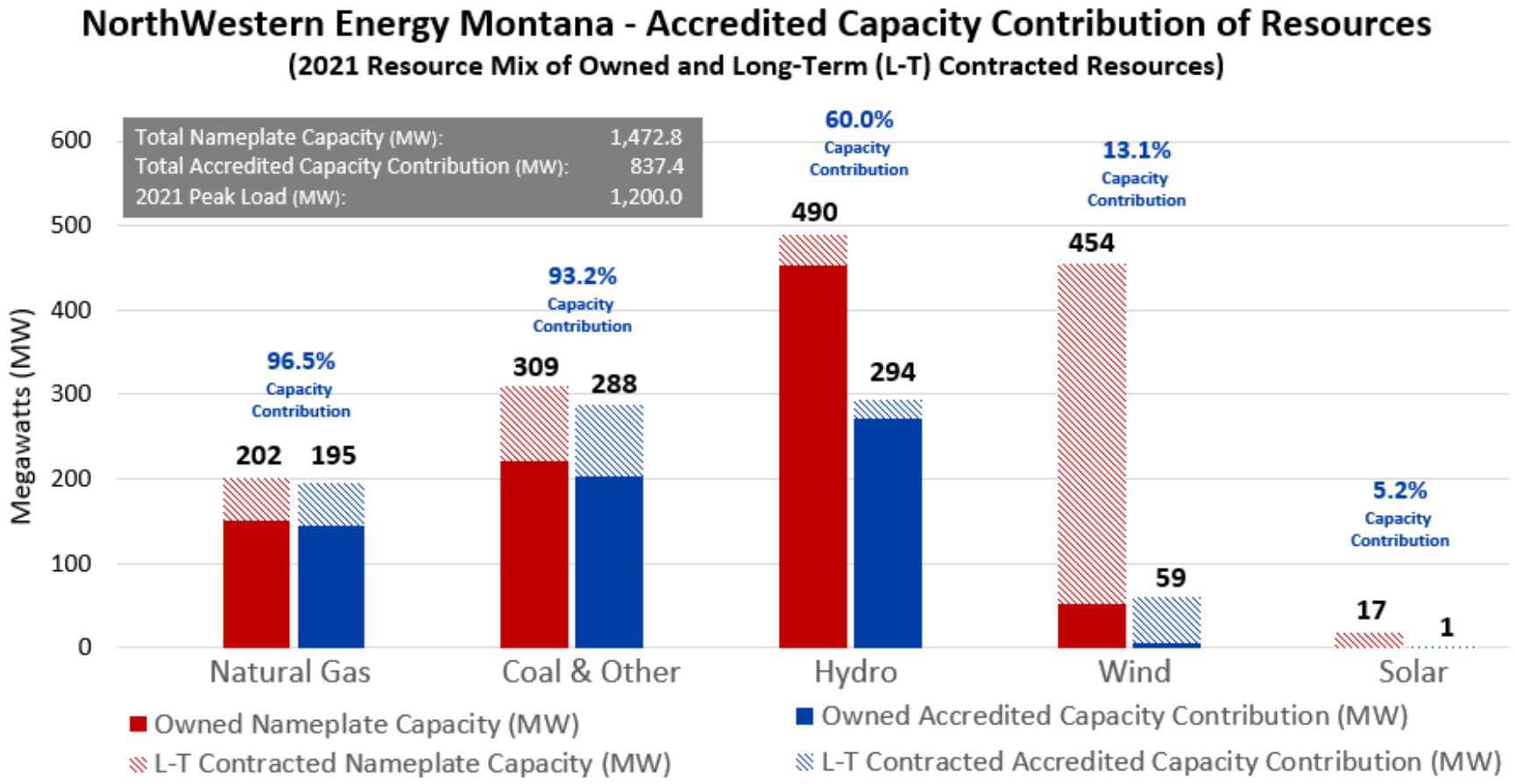


We need generation resources we can count on when we need them most.

NorthWesternEnergy.com/EnergyMix

Montana hourly electrical generation by source. Jan. 13-19, 2022.

Accredited capacity of diverse resources



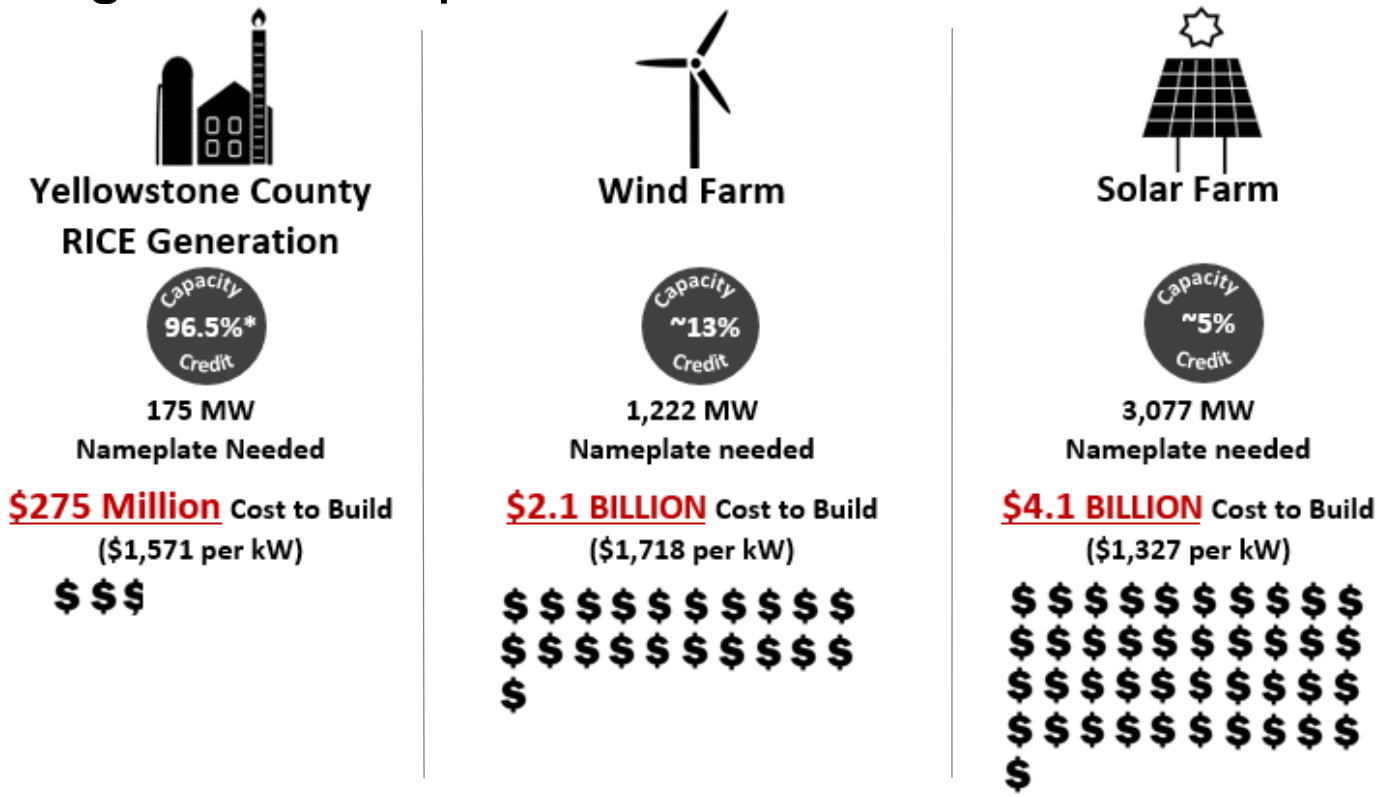
On a megawatt basis, wind generation comprises a very significant portion of our electric generation portfolio. However, based upon its ~13% accredited capacity, it provides a much less significant contribution to our overall capacity deficit.

Accredited Capacity Contribution is the ability of each resource fuel-type to contribute to meet demand during peak energy usage by customers.

Accredited Capacity Contribution or Peak Load Contribution is based on Effective Load Carrying Capability (ELCC) E3 Study on Peak Load Measurement for NorthWestern Energy's resources that are on-line or in service as of 12/31/2021 and the ELCC is based on 2021 values.

Coal & Other: 222MW Colstrip (30% ownership in jointly owned coal plant) and 87 MW of Federally mandated Qualifying Facilities (52MW Petroleum-coke contract with Yellowstone Energy Limited Partnership and 35MW waste coal contract with Colstrip Energy Limited Partnership).

Meeting extended peak demand – the right tools for the job to be done



Note: Each dollar sign above represents $100 million of investment and the shaded area below represents the land requirement, according to generation type, to provide required capacity.

We expect to build the 175MW nameplate Yellowstone County Reciprocating Internal Combustion Engine (RICE) generation facility for approximately $275 million with capacity contribution of roughly 160 MW*.

If we were to build wind or solar to provide the equivalent 160 MW of capacity, we estimate a range of roughly $2.1 billion to $4.1 billion in capital investment – roughly 8 to 15 times our RICE units investment.

** Natural gas Reciprocating Internal Combustion Engine (RICE) facility capacity credit of 96.5% is further adjusted for site specific attributes at the Yellowstone County location (i.e. altitude and ambient temperature).*

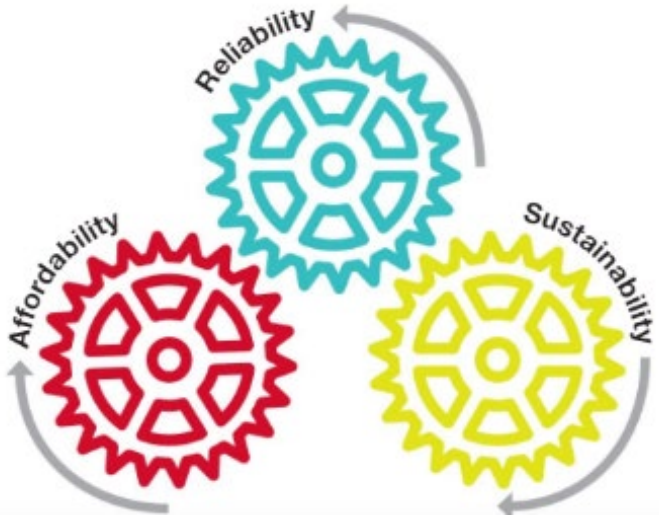
Note: Capacity Credit factors are based on Effective Load Carrying Capability (ELCC) as of Dec. 2021.

The construction cost per generation type based on Cost and Performance Characteristics of New Generating Technologies, Annual Energy Outlook 2022 (eia.gov)

Cost Calculation: 160 MW of capacity from Yellowstone County RICE Facility. 160 MW divided by Capacity Credit then times the cost per generation type equals total capital investment.

Net zero by 2050

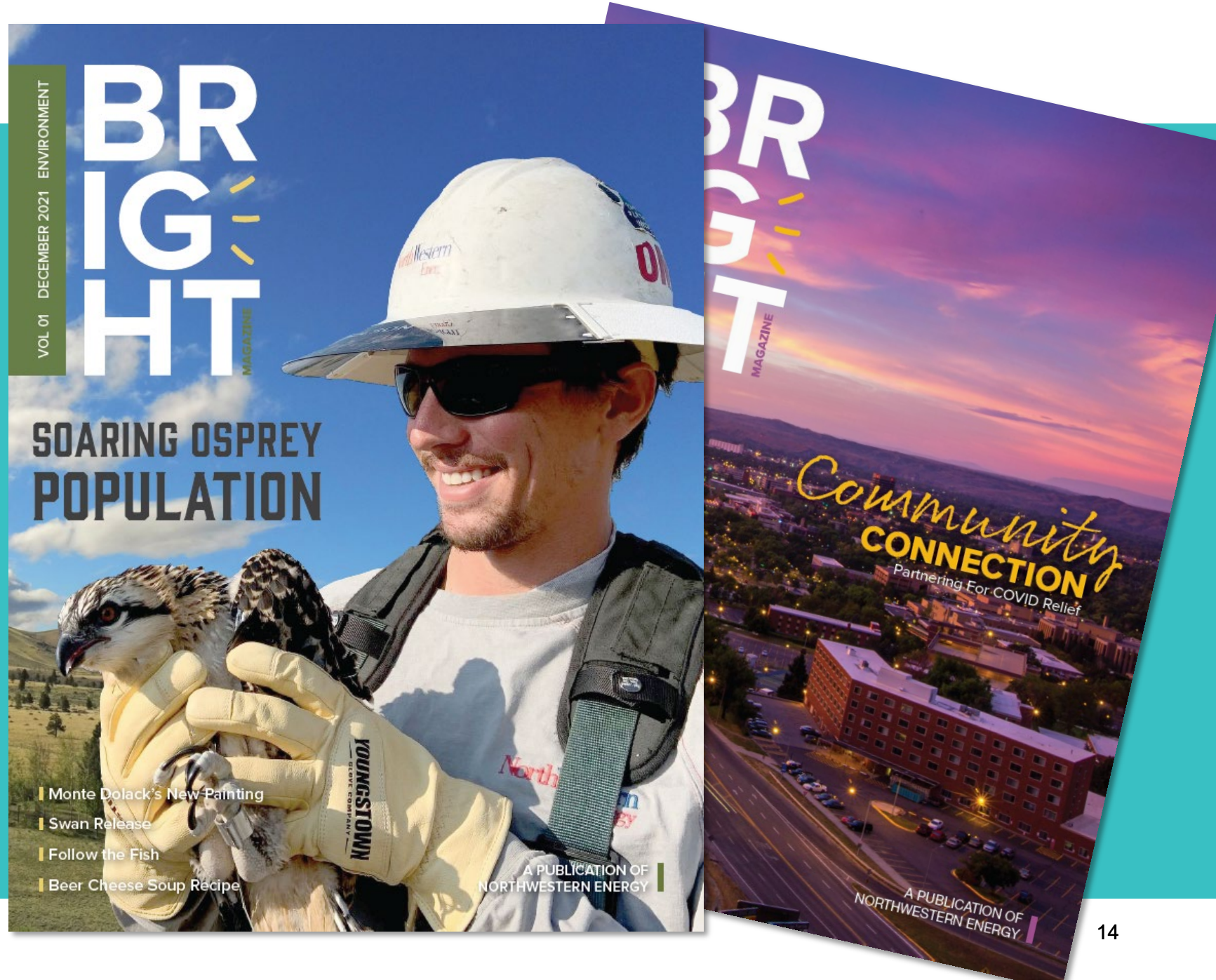
Over the past 100 years, NorthWestern Energy has maintained our commitment to provide customers with reliable and affordable electric and natural gas service while also being good stewards of the environment. We have responded to climate change, its implications and risks, by increasing our environmental sustainability efforts and our access to clean energy resources. But more must be done. We are committed to achieving net zero emissions by 2050.



- Committed to achieving net-zero by 2050 for Scope 1 and 2 emissions
- Balance Affordability, Reliability and Sustainability in this transition
- No new carbon emitting generation additions after 2035
- Pipeline modernization, enhanced leak detection and development of alternative fuels for natural gas business
- Electrify fleet and add charging infrastructure
- Carbon offsets likely needed to ultimately achieve net-zero
- Please visit www.NorthWesternEnergy.com/NetZero to see our Net Zero Vision.

Connect with us

NorthWesternEnergy.com/Bright



Electric sector overview

Industry priorities (EEI)

Infrastructure Investment and Jobs Act

Electric transportation

Wildfire, grid resilience and security;

Investment; credit ratings

Customer Focus!

Reducing carbon while maintaining reliability

2022 EEI Industry Priorities

Clean Energy

Resilience & Grid Security

Storm Response & Wildfire Mitigation

Infrastructure Investment & Jobs Act Implementation

Electric Transportation

Diversity, Equity & Inclusion

Leading on Clean Energy

Changing U.S. Energy Mix

40%

CARBON-FREE

↓CO_2

Carbon Emissions from the Electric Power Sector at

Lowest Level In Nearly 40 Years

Increasing Investments

$120 Billion+

Per Year on Average

TO MAKE THE ENERGY GRID SMARTER, CLEANER, STRONGER

>1/2

Over the Past 10 Years, More Than Half of New Electricity Generation Capacity Was

WIND AND SOLAR

Nearly

28 Gigawatts

of

RENEWABLE TECHNOLOGIES

Added in 2020

Investing More Than

$3.4 Billion

to Deploy

EV CHARGING INFRASTRUCTURE

Using

90%+

of all

U.S. ENERGY STORAGE

Accelerating Our Efforts on Clean Energy

Expanding the deployment of **renewables** and preserving **existing clean energy** technologies, including nuclear energy.

Promoting essential innovation across a range of new, high-potential, and affordable carbon-free technologies.

Building new energy infrastructure critical for bringing greater resilience and more clean energy to customers and for helping other sectors of our economy reduce their emissions, while keeping electricity affordable for all customers.

Potential Infrastructure Investment and Jobs Act resources

$5.05B
Expanding Access to Energy Efficiency & Clean Energy

$16.5B
Grid Resilience & Improvements

$6.7B
Maintaining our Existing Clean Generation Fleet

$21.5B
Clean Energy Demonstration & Research Hubs

$43.4B
Broadband Development & Infrastructure

$8.9B
Electric Vehicle Infrastructure

Electric Transportation Trends

TODAY

There are more than

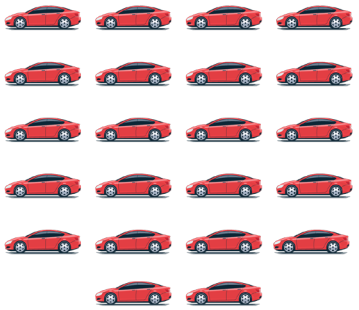
2 million

electric vehicles on U.S. roads.

>$3.4 billon

EEI's member companies are investing more than $3.4 billion in customer programs and projects to deploy charging infrastructure and to accelerate electric transportation.

BY 2030



The number of EVs on U.S. roads is projected to reach nearly

22 million.

>100,000

EV fast charging ports will be required to support this number.

Addressing Wildfire Risks

Industry and government leaders are partnering to:

- Enable **more effective coordination** among stakeholders.
- Foster **urgency and accountability** for all stakeholders.
- Improve the **allocation of resources** to harmonize programs, prioritize efforts, and ensure new programs are funded and utilized effectively.
- Identify and address **public policy issues** that may be hindering effective wildfire risk management and response efforts.
- **Prepare communities** in high fire risk areas by communicating with a more unified voice.
- **Invest in research, development, and deployment** of technologies that proactively mitigate wildfire risks.

Securing the Energy Grid

- Cross-Sector Coordination
- Culture of Security Initiative
- Cyber Mutual Assistance
- Enhanced Resilience Against All Hazards
- Federal Research & Development
- Supply Chain Security Risks

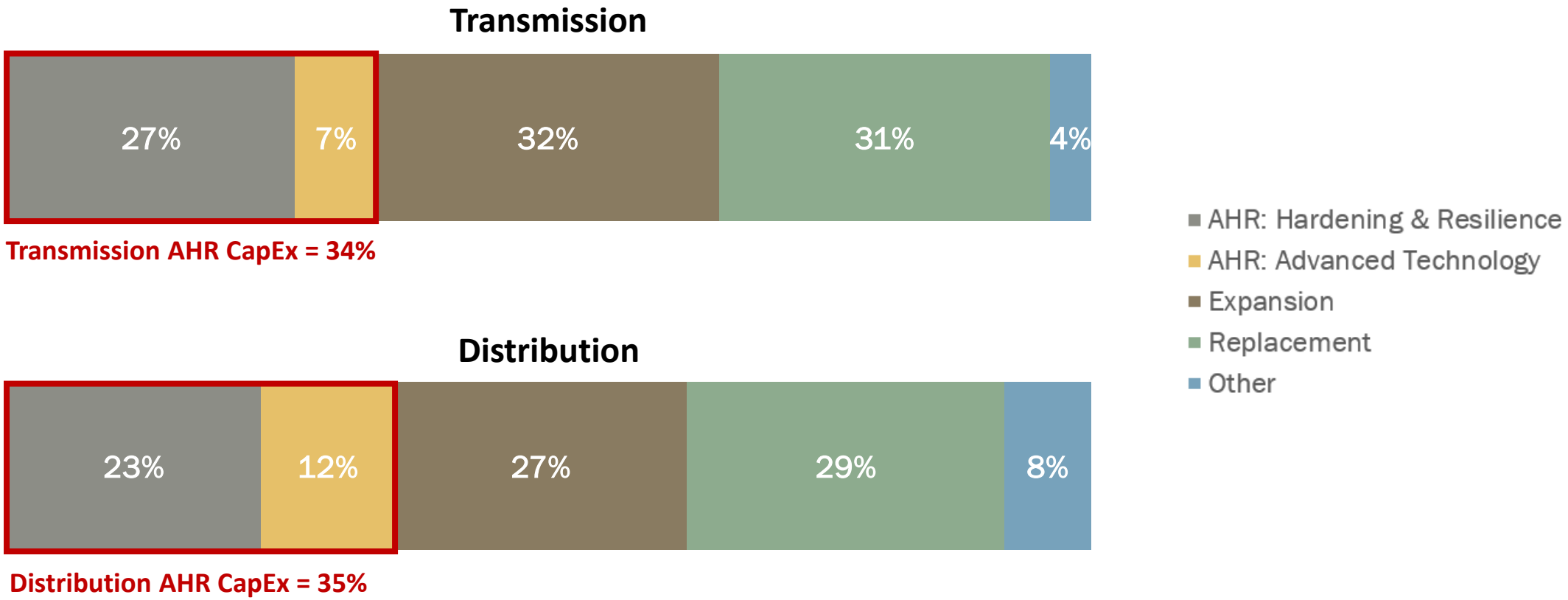
ESCC
Electricity Subsector Coordinating Council

CMA
Cyber Mutual Assistance

Adaptation, Hardening and Resilience

- EEI member companies are deploying a significant and growing amount of capital resources on adaptation, hardening, and resilience (AHR) initiatives.
- AHR is increasingly becoming an important way that electric companies fulfill their mission of supplying clean, reliable, and affordable energy to customers.
- Working with EEI member companies and the financial community, EEI developed an AHR taxonomy that aligns with the electric power industry's functional CapEx categories to classify types of AHR investments.
- EEI has surveyed member companies to quantify industry AHR investment in electric transmission and distribution (T&D) infrastructure.
- Examples of electric T&D AHR investments include:
  - Undergrounding power lines
  - Installing cement poles
  - Elevating or relocating transformers
- While we know a meaningful portion of generation and natural gas-related investments also are being driven by AHR initiatives, EEI has not surveyed member companies on these segments.

AHR drives significant electric T&D investment



Source: EEI Financial Analysis and Business Analytics, EEI member company survey.

Industry Capital Expenditures

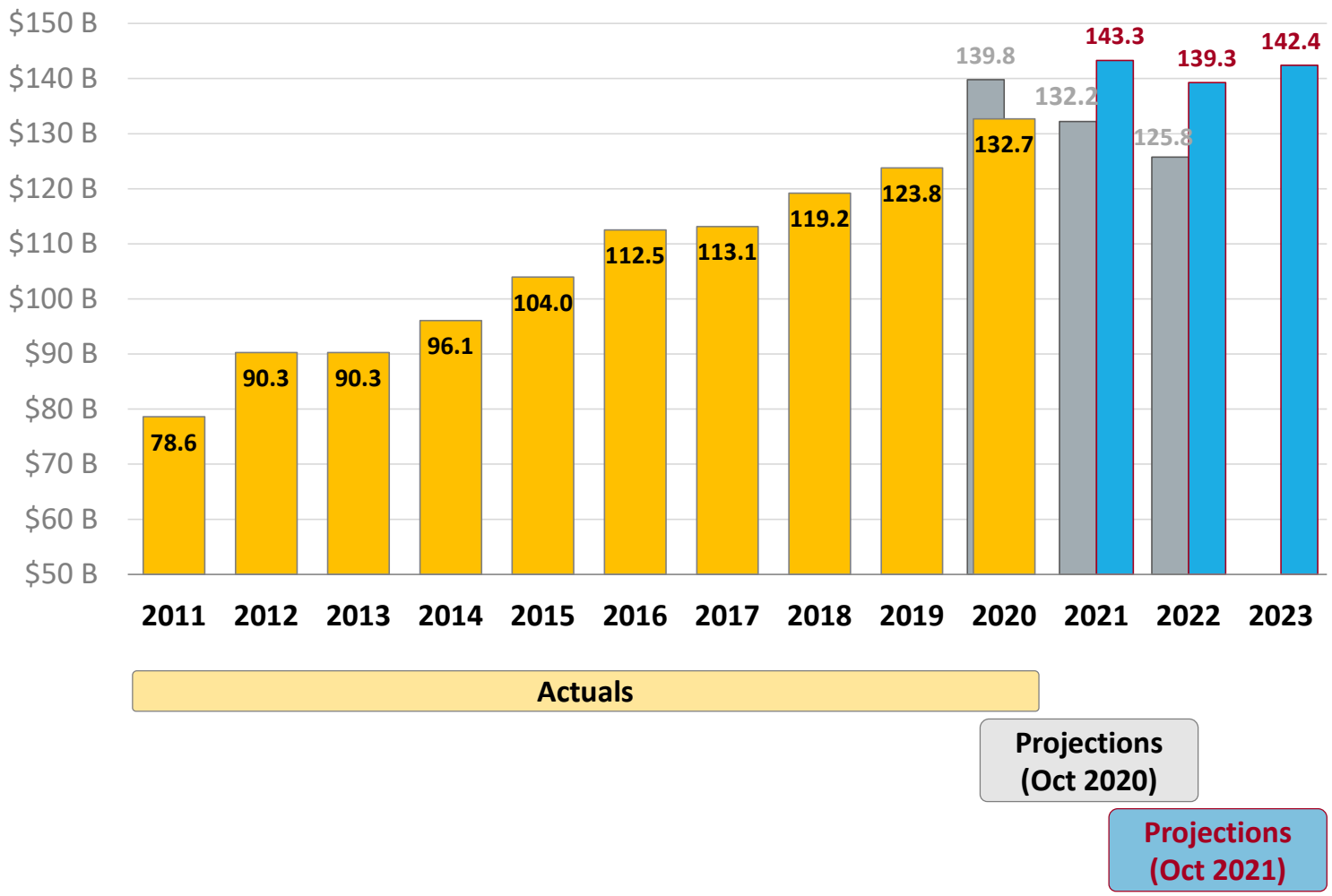


Chart represents total company spending of U.S. Investor-Owned Electric Companies, consolidated at the parent or appropriate holding company.

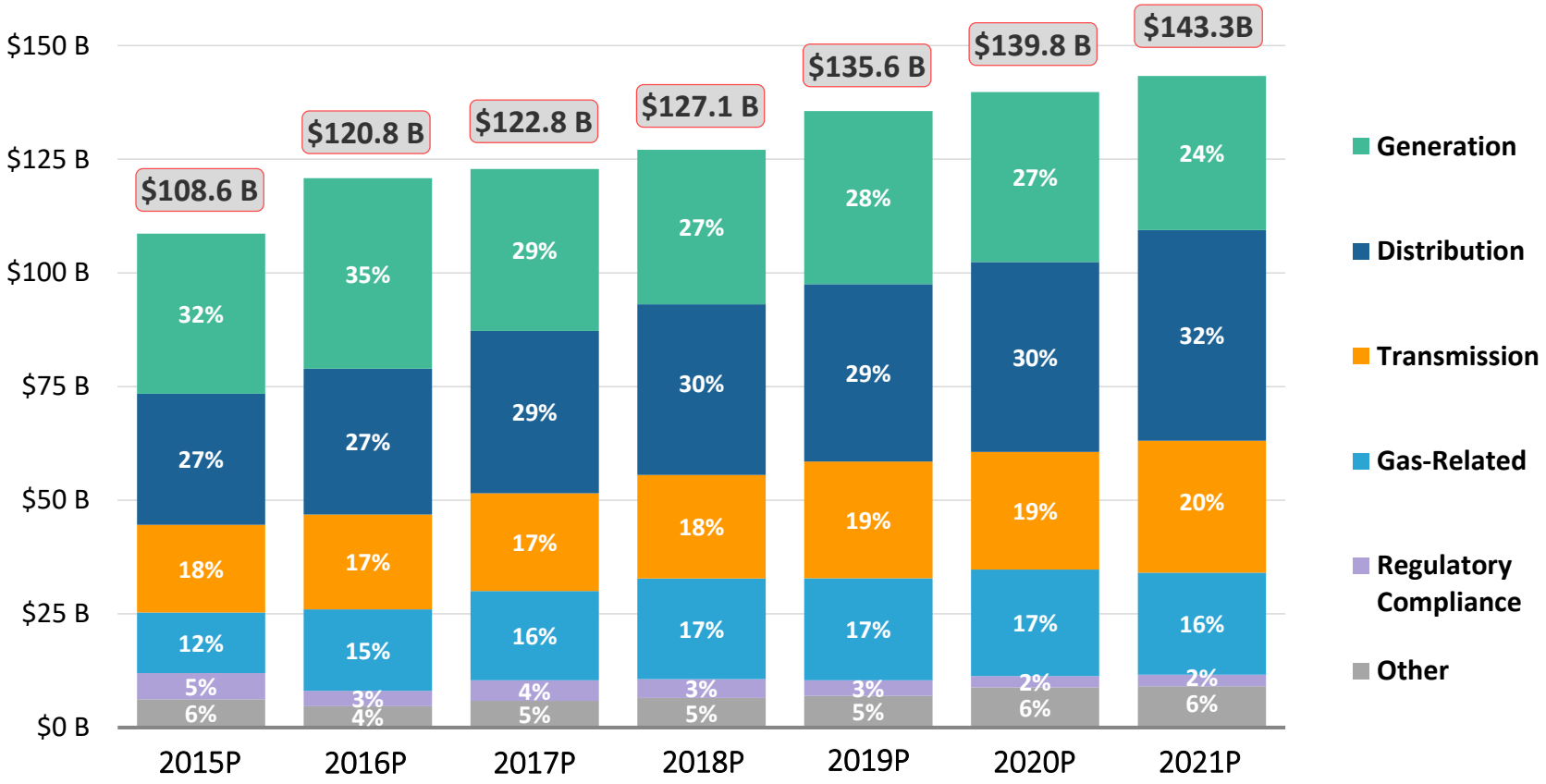
Note: At the industry level, CapEx tends to be overestimated for the current, or first, year's projection and under-estimated for the two following years. Although the chart indicates investments are trending down in 2022 and 2023 relative to 2021 levels, we expect a continued level of elevated spending after accounting for the historical trend of over- and underestimation.

Source: EEI Finance Department, member company reports, and S&P Global Market Intelligence (updated October 2021).

Projected Functional CapEx

Chart represents total company functional spending of U.S. Investor-Owned Electric Companies. Individual years may not sum to 100% due to rounding error.

Note: Each annual functional projection is compiled during the calendar year for which it is reported and is not revised to align with the actual total that is subsequently compiled after the end of each calendar year. Therefore, the projected total dollar amounts in the functional chart do not align with the actual totals reported on the enclosed industry capital expenditures chart.



Source: EEI Finance Department, company reports, and S&P Global Market Intelligence (updated October 2021).

Creating Value in America's Economy

Contribute

5%

annually to U.S. GDP

Support

7 million+

jobs across the United States

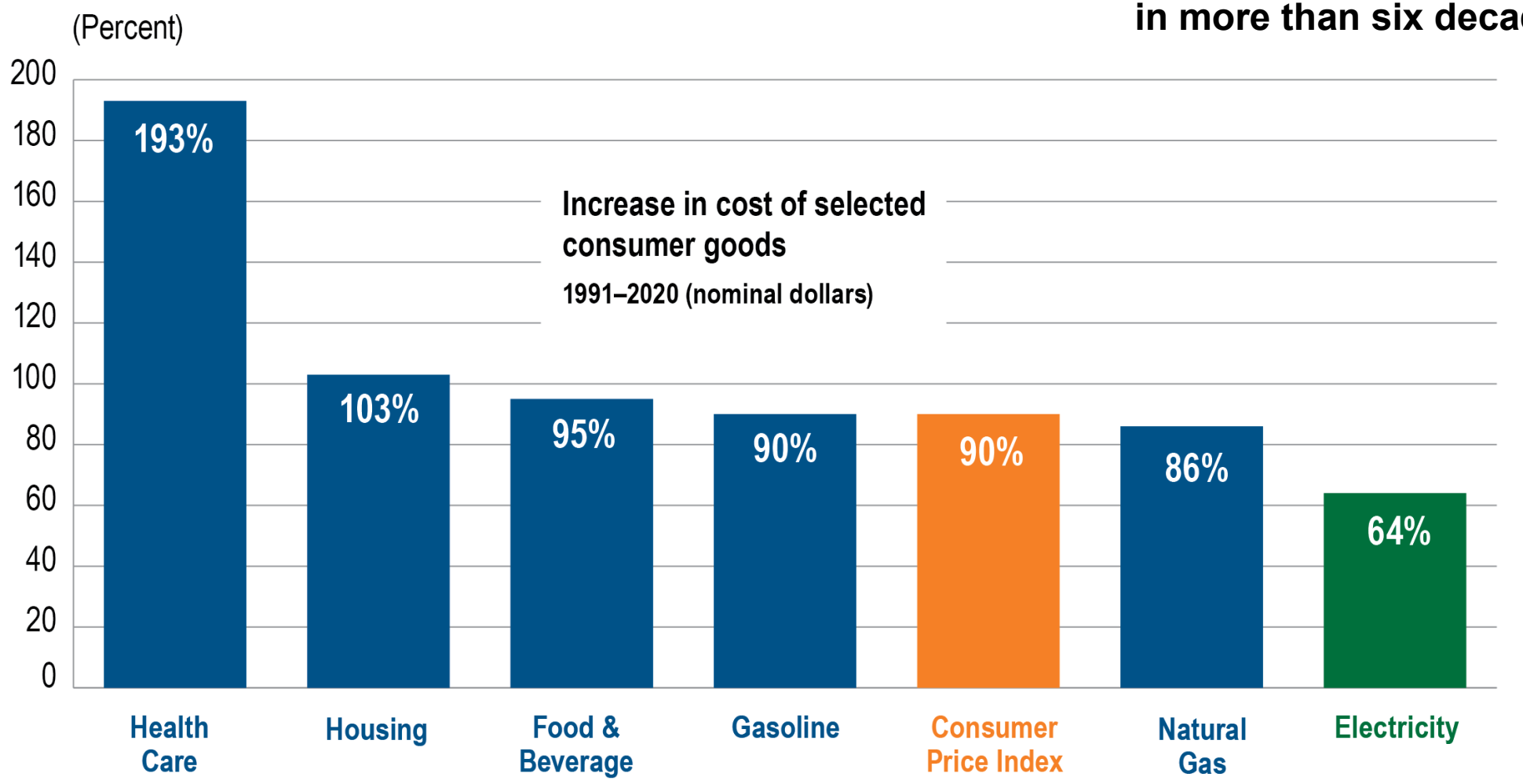
Invest

$120 billion+

per year to build smarter, cleaner, stronger, and more secure energy infrastructure

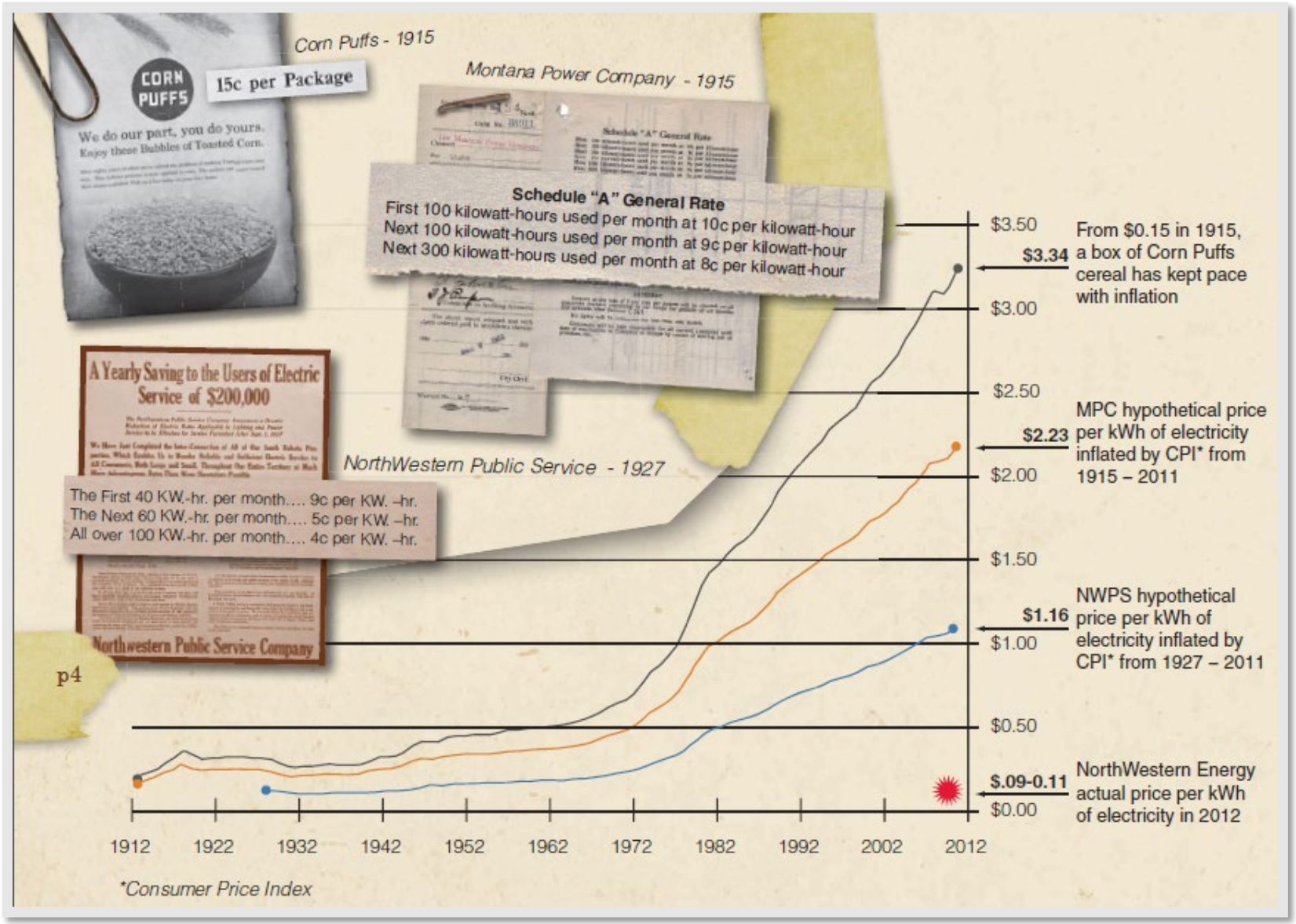
Electricity Is a Great Value

1.28 percent of Americans' personal consumption expenditures in 2021 went toward electricity bills—**the lowest annual rate in more than six decades.**



Sources: U.S. Department of Labor, Bureau of Labor Statistics, and U.S. Department of Energy, Energy Information Administration.

At NorthWestern, lower *real* price delivers real value

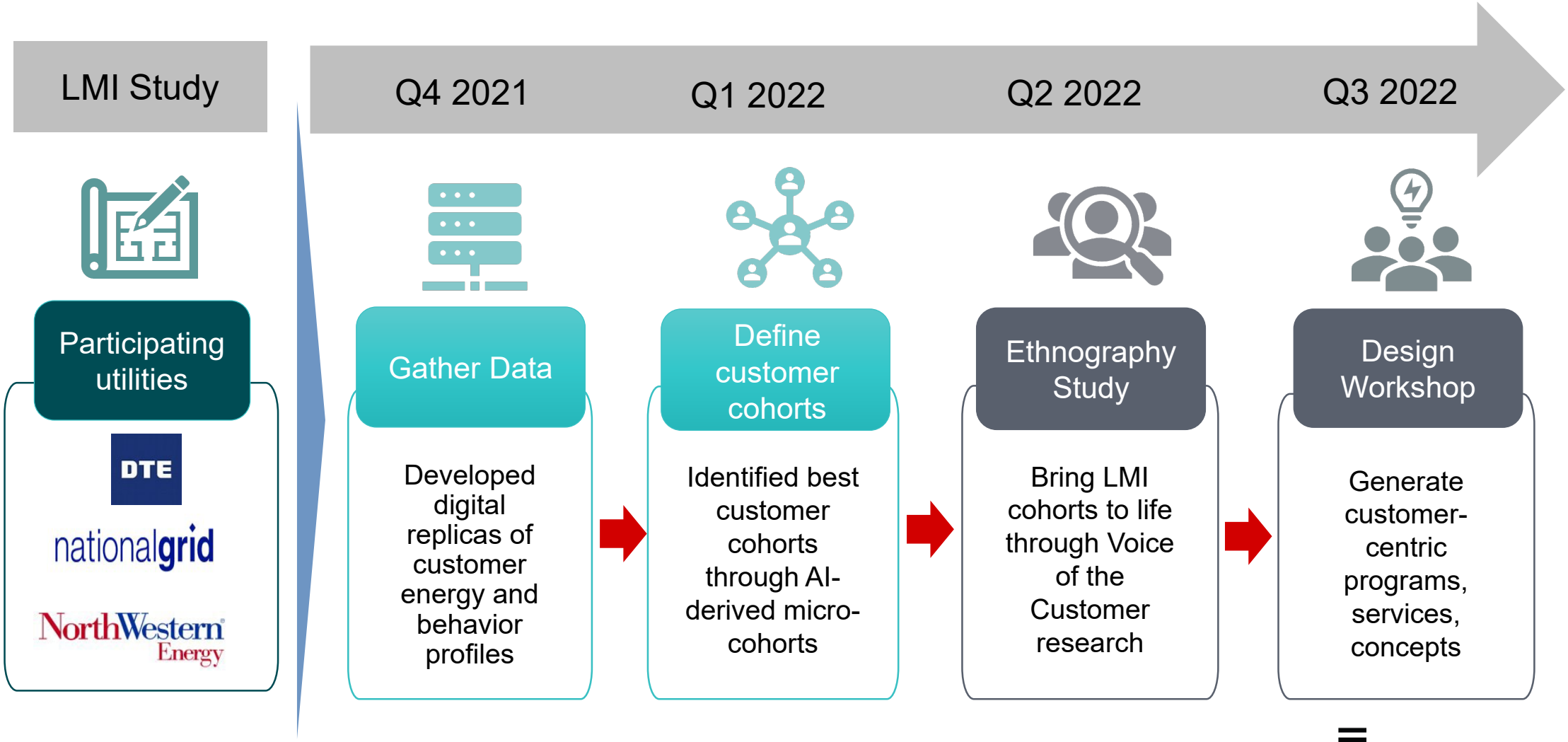


If electricity costs, on a kilowatt hour basis, inflated at the same rate as Corn Puffs cereal over the last 100 years, a typical residential bill in South Dakota would be about $900 per month vs actual of ~$90 per month.

Meeting the needs of low and moderate income customers

- EEI Customer Service working team identified energy security for low to moderate income (LMI – 300% of poverty) as a priority.
- DTE Energy, National Grid, NorthWestern Energy partnering with E-Source.
- Develop a shared understanding of the cohorts that make up the LMI customer base and the effectiveness of programs designed to support these customers.
- To-date, project identified five unique cohorts of customers for DTE Energy and four unique cohorts of customers for NorthWestern Energy using advanced analytics.
- No single variable is a good predictor of behavior. Goal is to redesigning programs/policies to better serve customers.
- Next steps: “Voice of the Customer” research and a design workshop to co-develop potential services and solutions to address the needs of LMI customers that we can champion as an industry

Understanding and listening to customers to meet their *actual* needs



Enhancing Customer Payment Approaches to Better Serve Residential and Small Business Customers

- JD Power and other studies show that customers highly value choice in payment options
- Based on a 2021 Fiserv consumer survey, 84% say paying by credit card is a “must have” or “nice to have”
- As customer preferences change, electric and natural gas companies are expanding digital payment options
- Several companies offer fee-free credit/debit cards and a wide variety of digital payment options.
- Forthcoming report on digital payment trends including leveling the field on payment fees, expanding digital payment options, and benefits to customers

Digital Payment Options Available (with and without fees)									Non-Digital Payment Channels Available (with and without fees)		
*Credit / Debit Card Payments (Fee Free)	Mobile App	Amazon Pay	Apple Pay	Google Pay	PayPal	Venmo	Pay-By-Text	Voice Assistant	Pay Stations/ APA	Walk-in Locations	Kiosks
*✓	✓	✓			✓	✓			✓		✓
✓	✓		** Pending			** Pending		✓	✓	✓	✓
✓	✓								✓		
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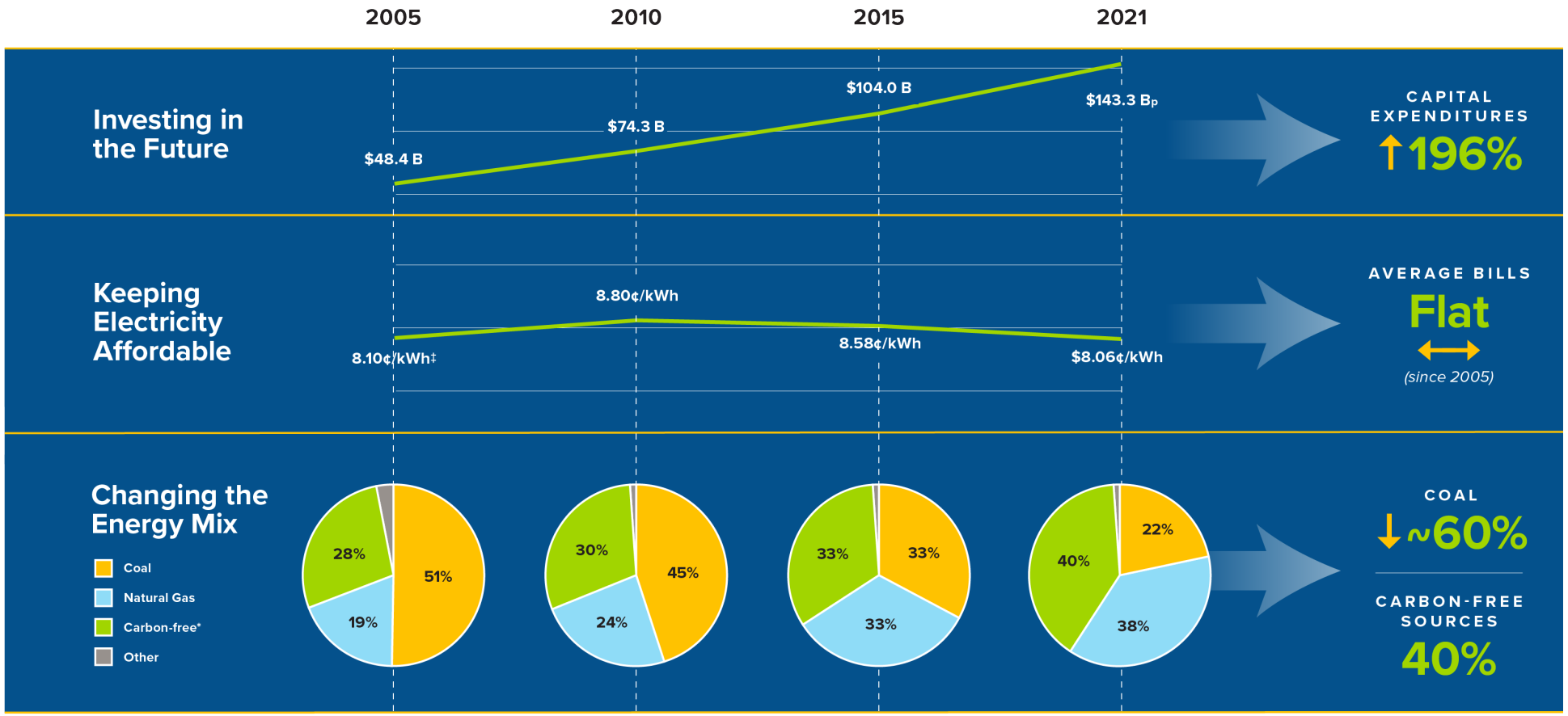
The Carbon-Free Technology Initiative

CFTI is identifying and advocating for policies to support commercial availability of key technologies that can achieve net-zero emissions in the U.S. electricity sector and ensure electricity remains affordable and reliable. Areas of focus include:

- Advanced, dispatchable renewables (e.g., superhot deep geothermal), advanced wind and solar, and advanced power electronics.
- Zero-carbon fuels, such as hydrogen and ammonia, produced from a variety of sources.
- Advanced nuclear energy (both fission and fusion).
- Carbon capture, utilization, and sequestration, especially for natural gas generation.
- Advanced demand efficiency and long-duration storage.

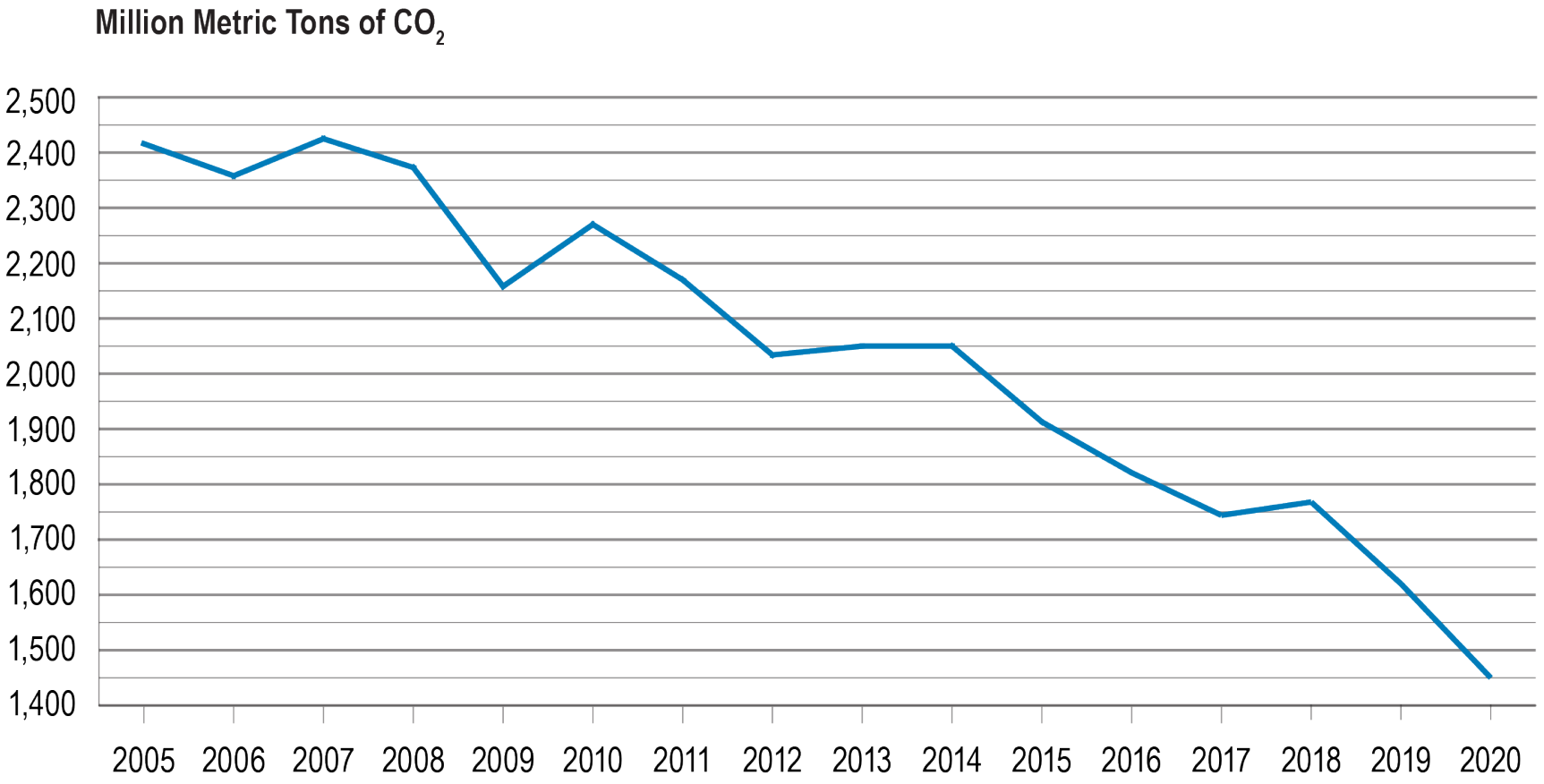
Our Clean Energy Journey



From 2005 Levels | Electric Power Industry Carbon Emissions** ↓40%

Sources and Notes: ‡Average Annual U.S. Retail Electricity Rates 2005–2021 (real 2005 $) | *Carbon-free = nuclear, hydropower and other renewables | **U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review*, March 2021

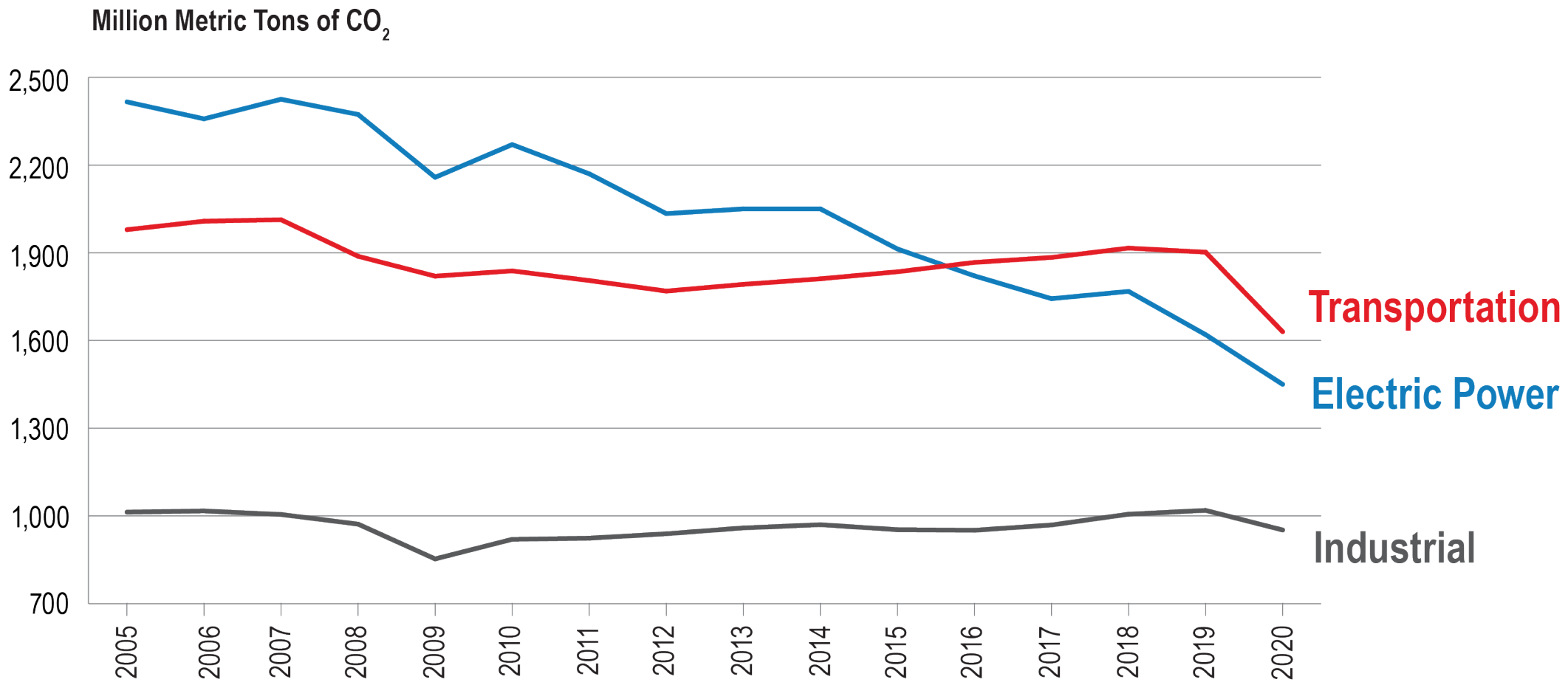
Reducing Carbon Emissions



Source: U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review*, March 2021.

- Today, 40 percent of U.S. electricity comes from carbon-free sources
- As of 2020, electric power industry CO_2 emissions are 40 percent below 2005 levels
- Overall trajectory is expected to continue based on current trends

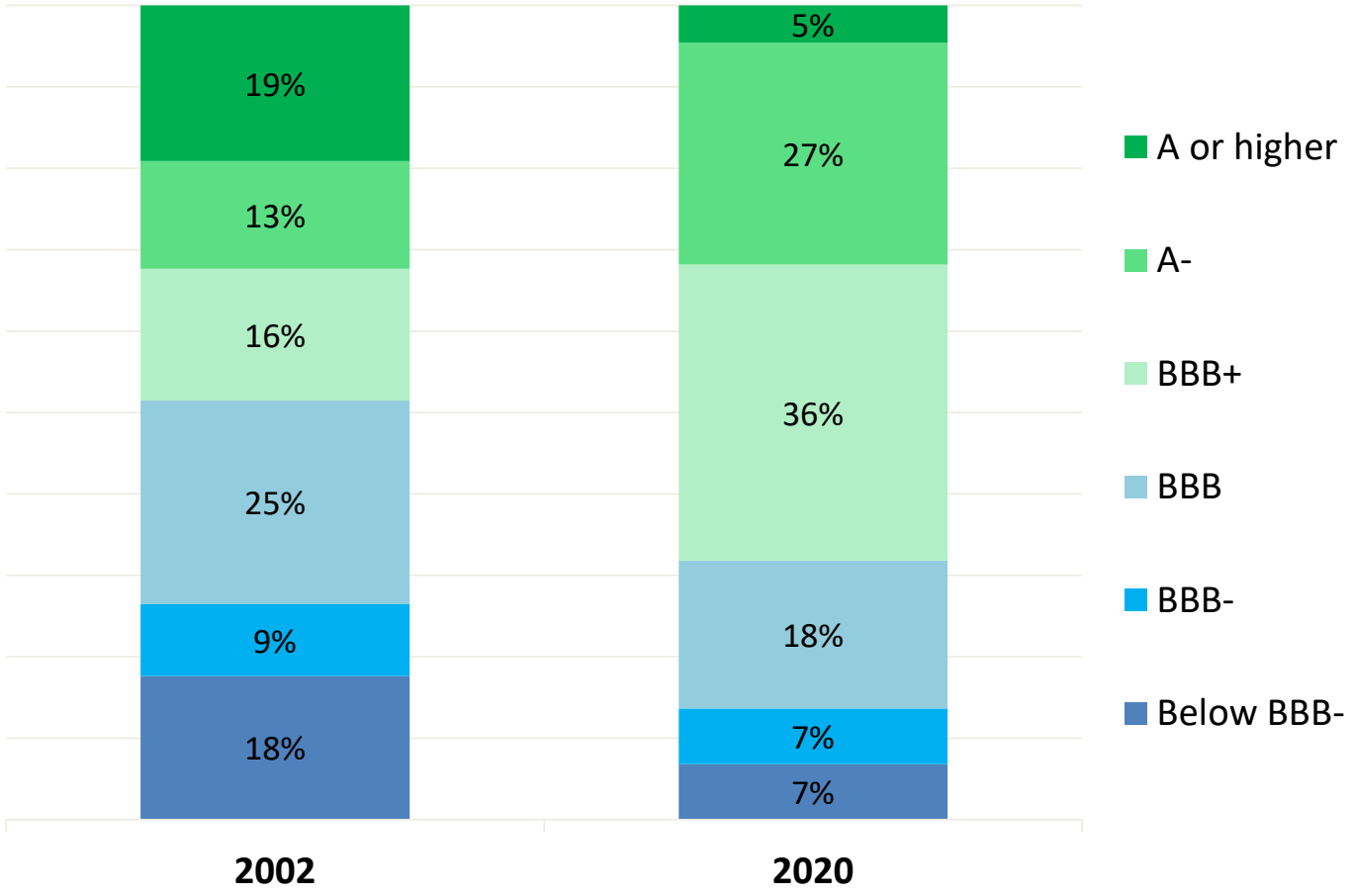
Comparing CO_2 Emissions



Source: U.S. Department of Energy, Energy Information Administration, *Monthly Energy Review*, March 2021.

U.S. Electric Industry Rating History

Industry maintains BBB+ rating since 2014; majority of outlooks stable or positive



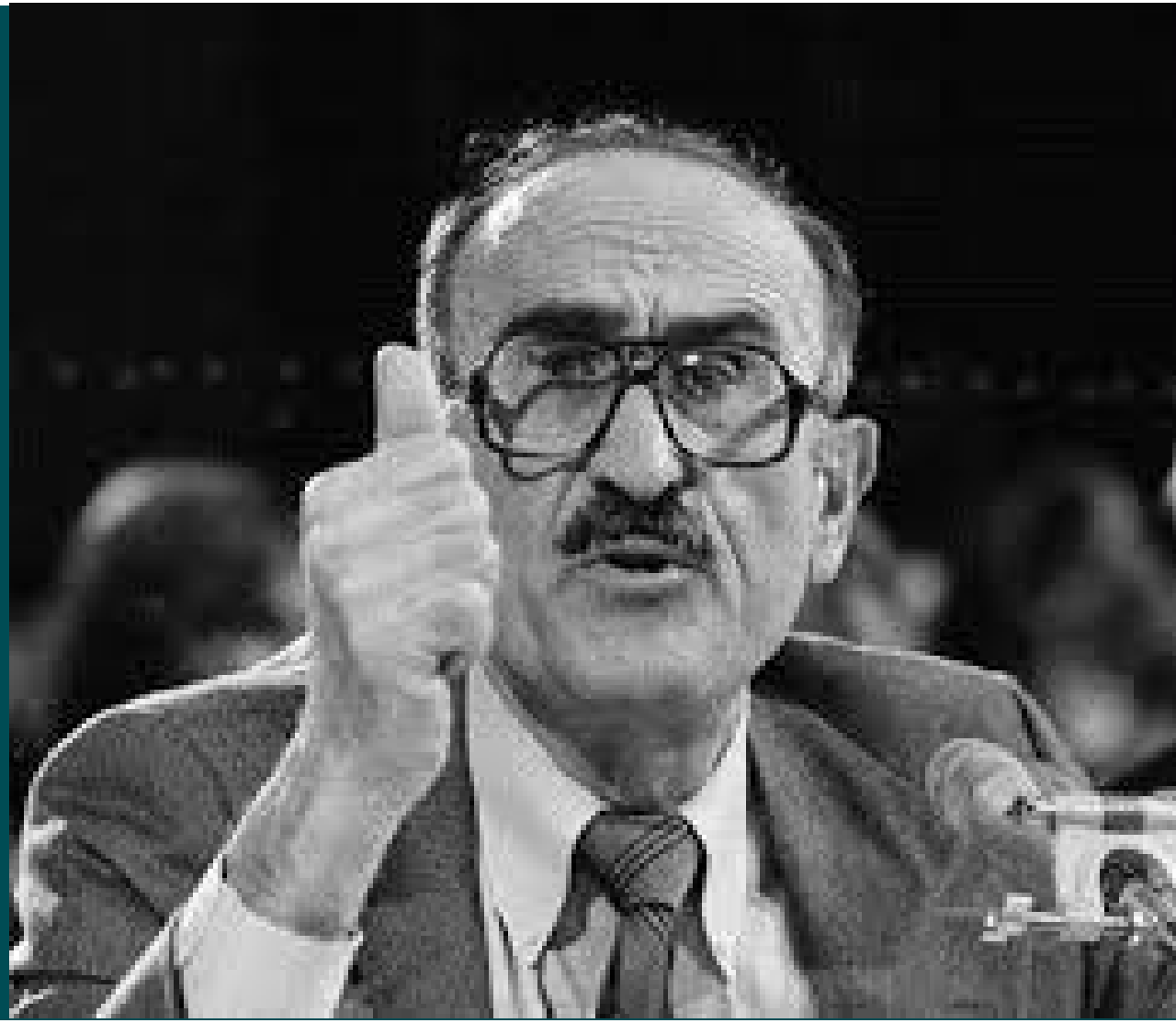
Source: EEI Finance Department and Standard & Poor's.

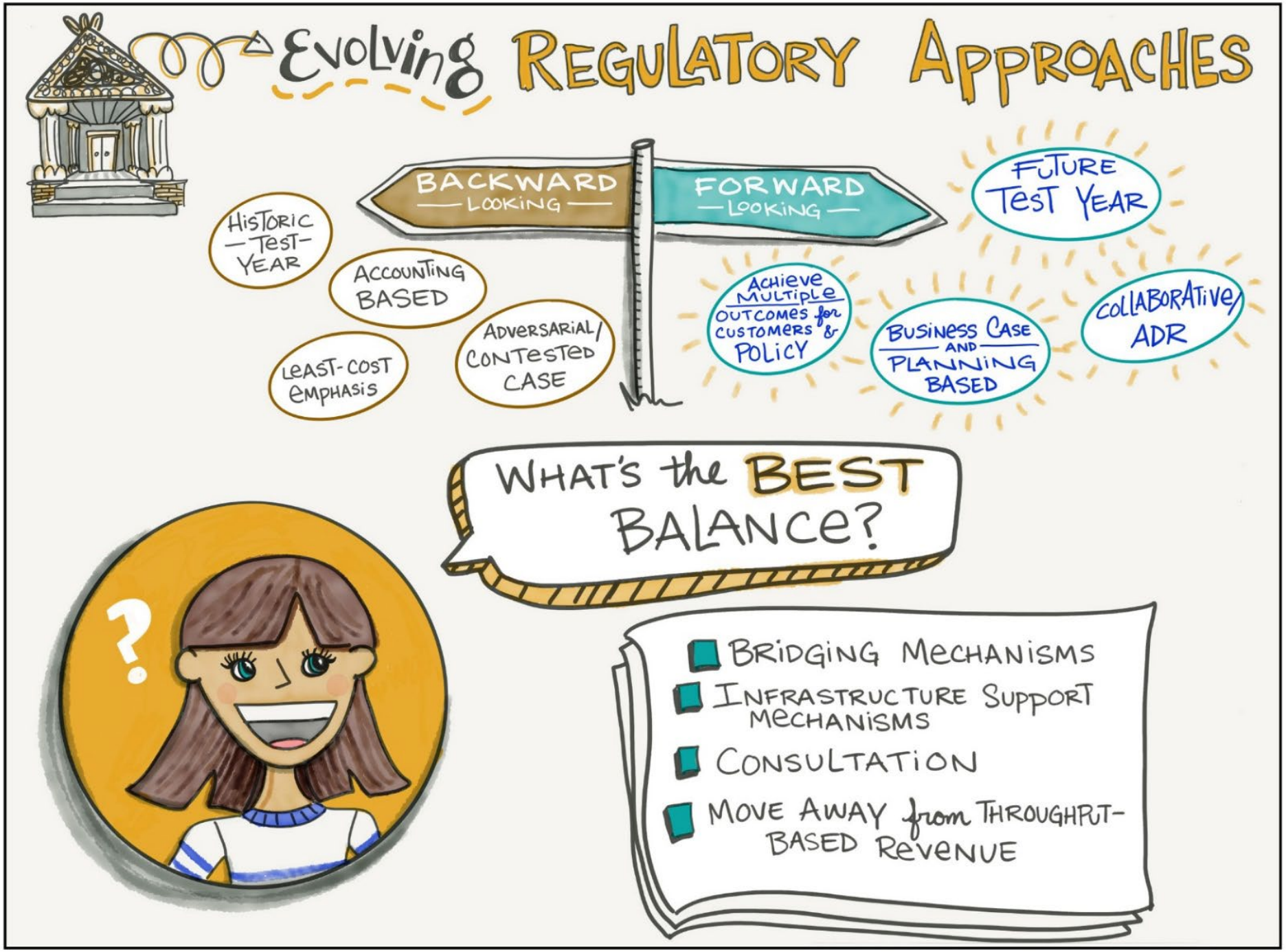
“It was impossible to get a conversation going, everybody was talking too much.”

Yogi Berra

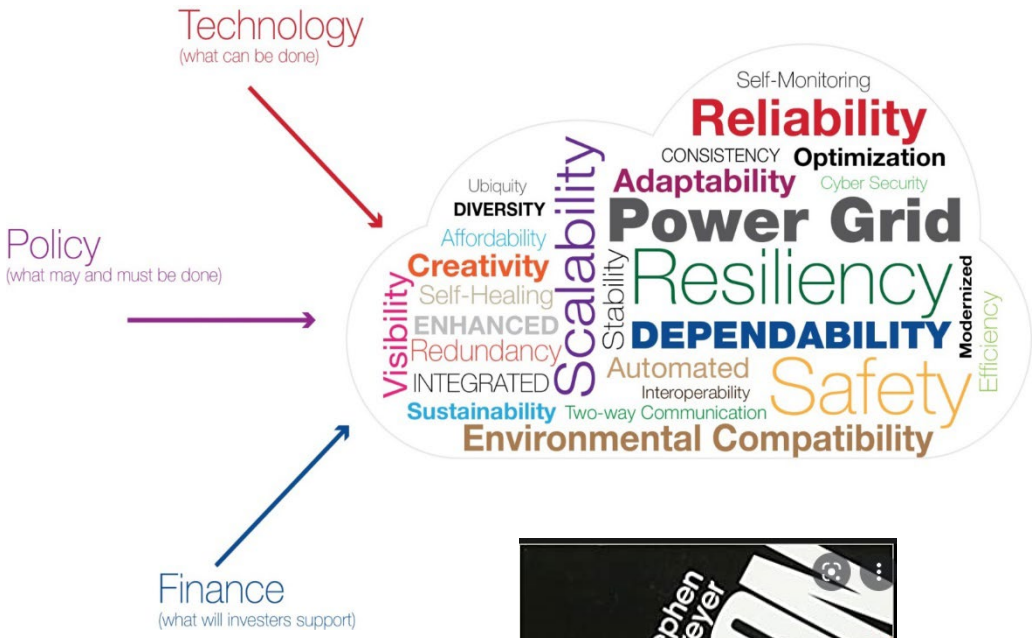
“All regulation is incentive regulation”

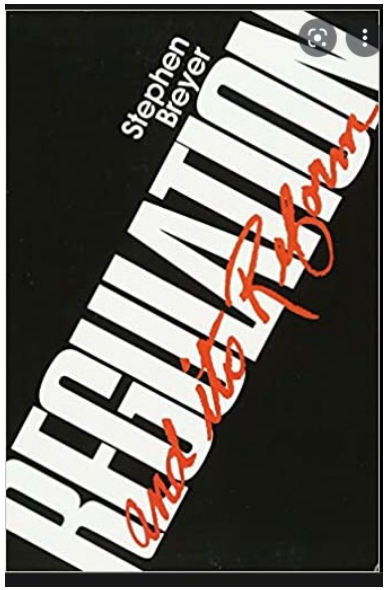
Alfred Kahn




Evolving Regulatory Approaches
BACKWARD LOOKING
FORWARD LOOKING
Historic Test Year
Accounting Based
Least-Cost Emphasis
Adversarial/ Contested Case
Future Test Year
Achieve Multiple Outcomes for Customers & Policy
Business Case and Planning Based
Collaborative/ ADR
What's the BEST Balance?
?
Bridging Mechanisms
Infrastructure Support Mechanisms
Consultation
Move Away from Throughput-Based Revenue

Who, Why and How do we regulate??





- *Why are some companies subject to economic regulation?*
- *What are the top goals of economic regulation?*
- *What gets in the way of achieving those goals?*
  - *What should we stop doing or do differently?*
- *What structures and processes should be adopted to maximize the possibility of achieving those goals?*
- *What pricing structure makes the most sense to achieve those goals?*
- ?

What's your legacy?

"In 20-25 years, we will be seen as a company that provides essential energy infrastructure and value-added services that enrich lives and empower communities."

This statement was agreed to by NorthWestern's executives in a retreat at Hebgen Dam in August, 2015. The team also affirmed our *vision, mission and values*.