



Governors' Advisors Energy Policy Institute

August 20 - 25, 2020

**National Governors Association
Center for Best Practices**



Welcome & Day 2 Recap

Jessica Rackley, Program Director, National Governors
Association

Upcoming Opportunity: Planning for the Future Workshop

- NGA will be hosting a virtual workshop on strategies to help governor's meet their energy goals on October 27-29th
- This Workshop will provide states with policy and regulatory solutions to help meet their state energy goals, address areas for regional collaboration, and allow time for small group discussions
- Topics covered during this workshop include:
 - Enhancing energy procurement targets to meet clean energy and related goals,
 - Integrating high volumes of new technologies such as renewables on the grid, and
 - Leveraging new technologies to improve system resilience, reliability, and affordability.
- Please contact Emma, ecimino@nga.org



Keynote: The Future of U.S. Carbon Pricing

Speaker:

Robert N. Stavins, Harvard Kennedy School of Government

Moderated by:

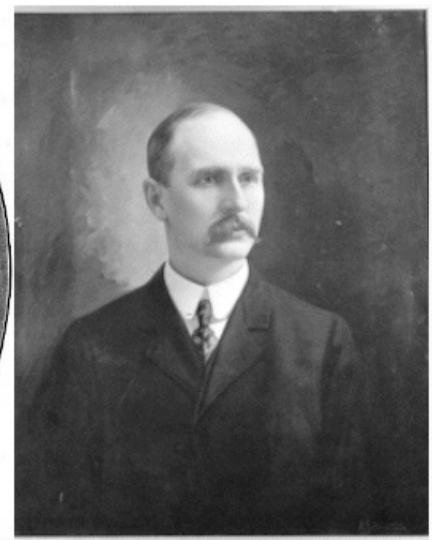
Jessica Rackley, Program Director, National Governors Association

Trivia!

- Which state once had 3 governors during the same day?

Answer:

Colorado – March 16,
1905





The Future of the Energy Workforce

Speakers:

Reice Haase, Senior Policy Advisor, Office of North Dakota Governor Doug Burgum

Randi Tveitaraas Jack, Manager of International Development, Kansas Department of Commerce

Moderated by:

Timothy Schoonhoven, Policy Analyst, National Governors Association



FUTURE OF ENERGY WORKFORCE

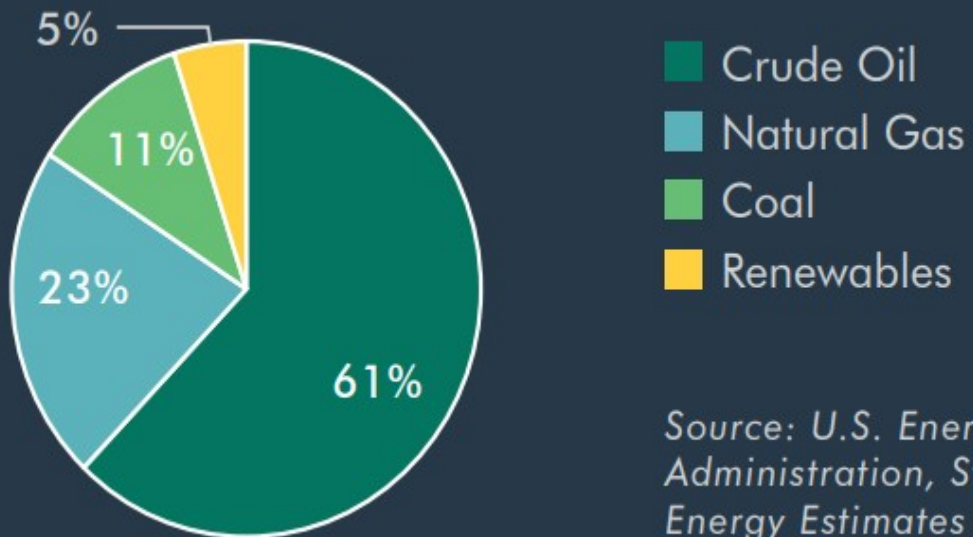
NGA Energy Policy Institute

August 24, 2020

NORTH
Dakota
Be Legendary.™

NORTH DAKOTA'S GEOLOGIC JACKPOT LED TO AN ALL-OF-THE-ABOVE ENERGY POLICY

North Dakota Total Energy Production

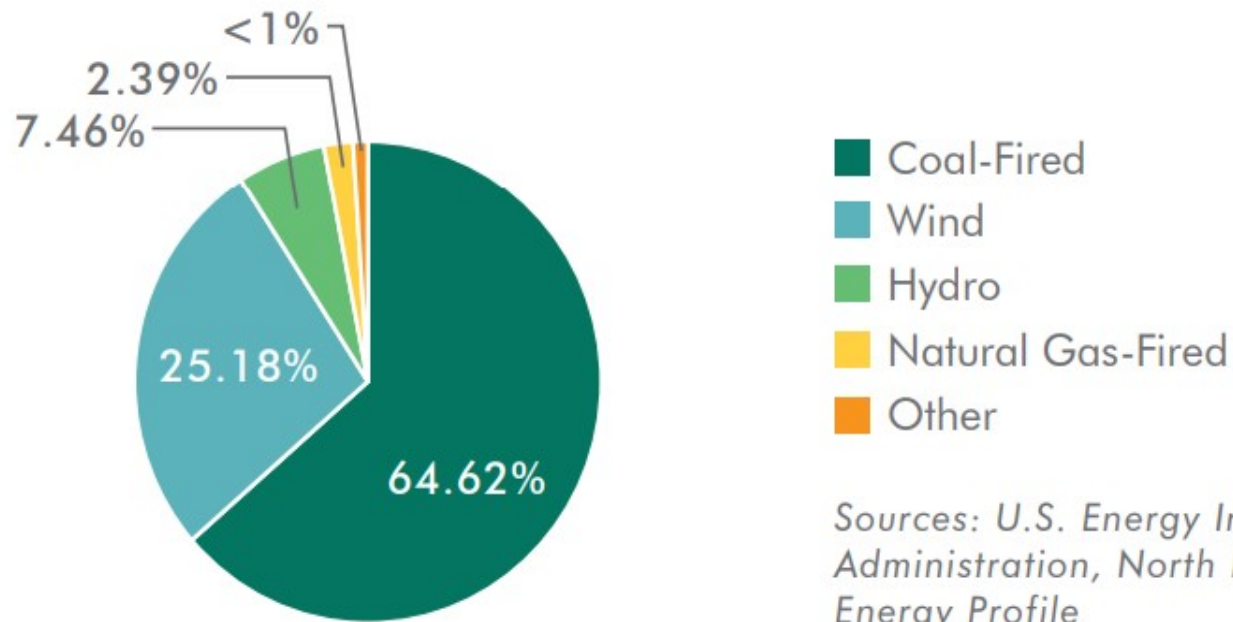


Source: U.S. Energy Information Administration, State Profile and Energy Estimates

- 800-year supply of lignite
- Over 26 billion barrels of technically recoverable oil
- Over 38 trillion cubic feet of natural gas
- Abundant wind resources
- 189 million bushels annually converted to biofuels

DIVERSE GENERATION PORTFOLIO ENSURES GRID RELIABILITY

North Dakota Electricity Production



Baseload:

- 4,046 MW of Lignite (Mine to mouth)
- 583 MW of Hydro

Intermittent:

- 3,501 MW of Wind
- 506 MW of Natural Gas (Peaking)
- ~100 KW Solar (Growing interest)

CHALLENGES
(AND
OPPORTUNITIES)
TO BE
ADDRESSED BY
FUTURE ENERGY
WORKFORCE

COVID Pandemic Demand-shock

Market Demand for Environmental,
Social and Governance Sustainability

Maintaining Diverse Workforce to
Ensure Grid Reliability

BAKKEN RESTART TASK FORCE FORMED TO ADDRESS COVID DEMAND-SHOCK

- Three Focus Areas:
 - Regulatory Relief
 - In-person requirements waived
 - Inspection flexibility
 - Economic
 - \$66m from CARES Act for Orphan Well Plugging and Reclamation
 - Long-term Capital Access
 - State Investment Board authority for private equity investments
 - ESG Scores

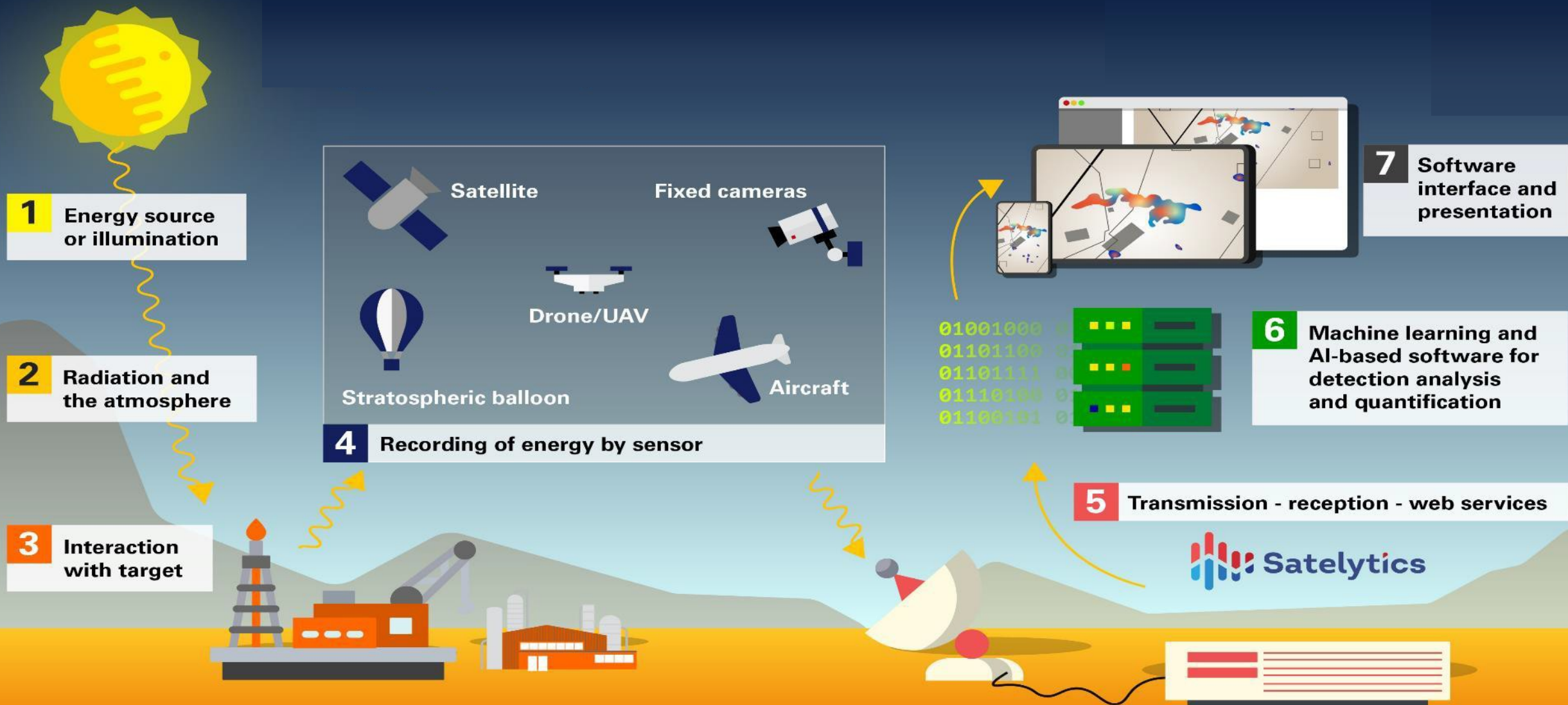


POLICY OF “INNOVATION, NOT REGULATION”, LEVERAGING OPPORTUNITIES FROM SHIFTING MARKETS

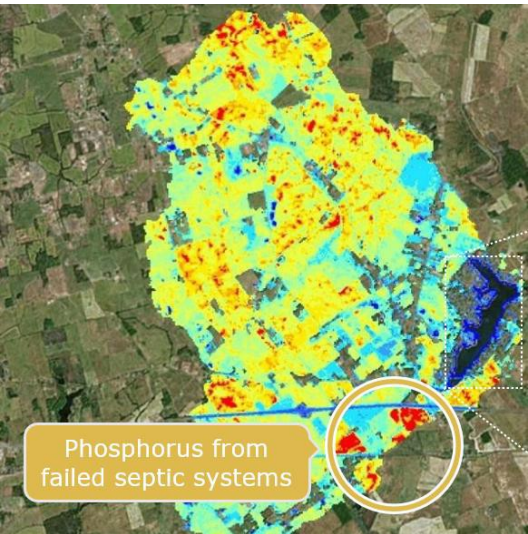
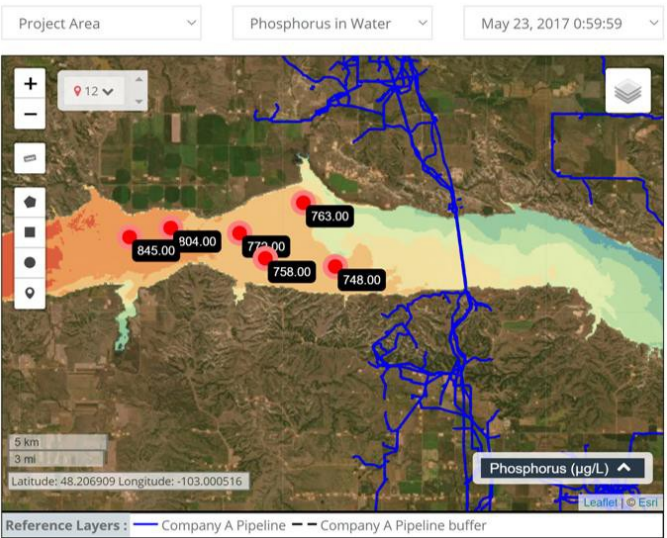
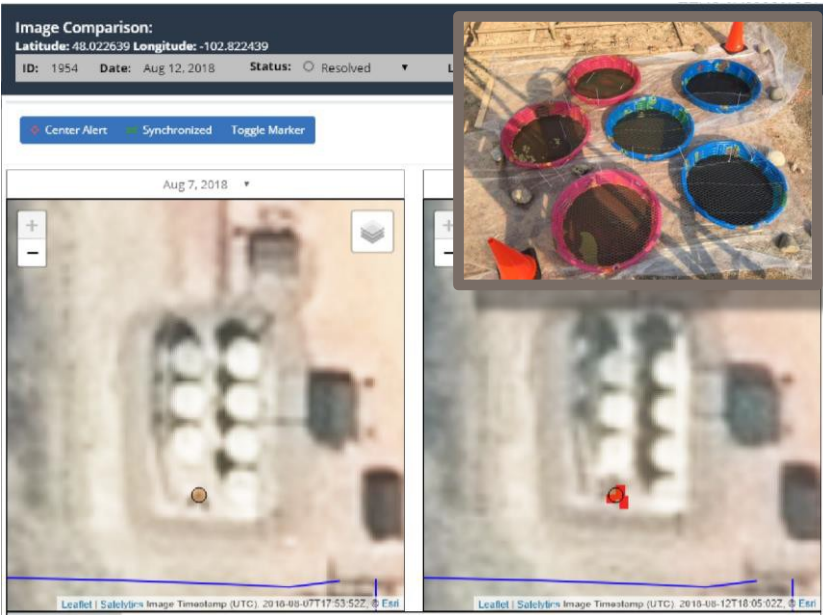
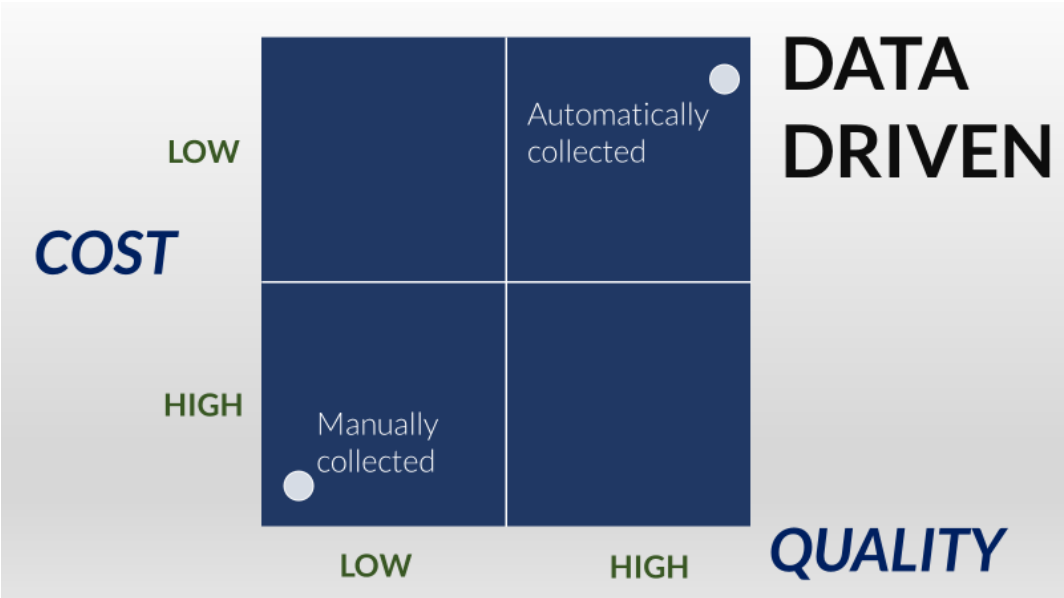
- \$45 trillion in capital contingent on meeting ESG goals
- Over \$100m in Oil and Gas/Lignite taxes re-invested in research and development
 - Value-added (rare earth minerals, fly ash re-use, co-located ethanol plants)
 - Carbon Capture, Utilization and Storage:
 - ND first state with Class VI UIC primacy
 - \$15m invested in Project Tundra to capture and market CO₂ from Lignite Power Plant
 - Co-located greenhouses
 - Native grasses on range lands
- iPipe Program funds emerging technologies for detecting and preventing pipeline leaks



IPIPE'S FIRST SELECTION: REMOTE SATELLITE MONITORING BY SATELYTICS



LEVERAGING AUTOMATICALLY-COLLECTED DATA TO RE-PRIORITIZE WORKFORCE RESOURCES



MAINTAINING DIVERSE ENERGY WORKFORCE IS KEY TO ENSURE GRID RELIABILITY

- MISO Renewable Integration Impact Assessment:
 - Increased complexity once grid reaches 40% from non-dispatchable energy sources
 - Baseload retirements as fleet ages
 - Meeting peak demand with intermittent sources
 - Meeting demand in non-summer months
- Diversity of technologies and geography improves ability to meet demand growth
 - Ensure baseload survival
 - Hybrid approach to ensure resource adequacy
- Level playing-field to attract investment in all sources





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The Future of the Energy Workforce

NGA Energy Policy Institute

PRESENTED BY RANDI TVEITARAAS JACK

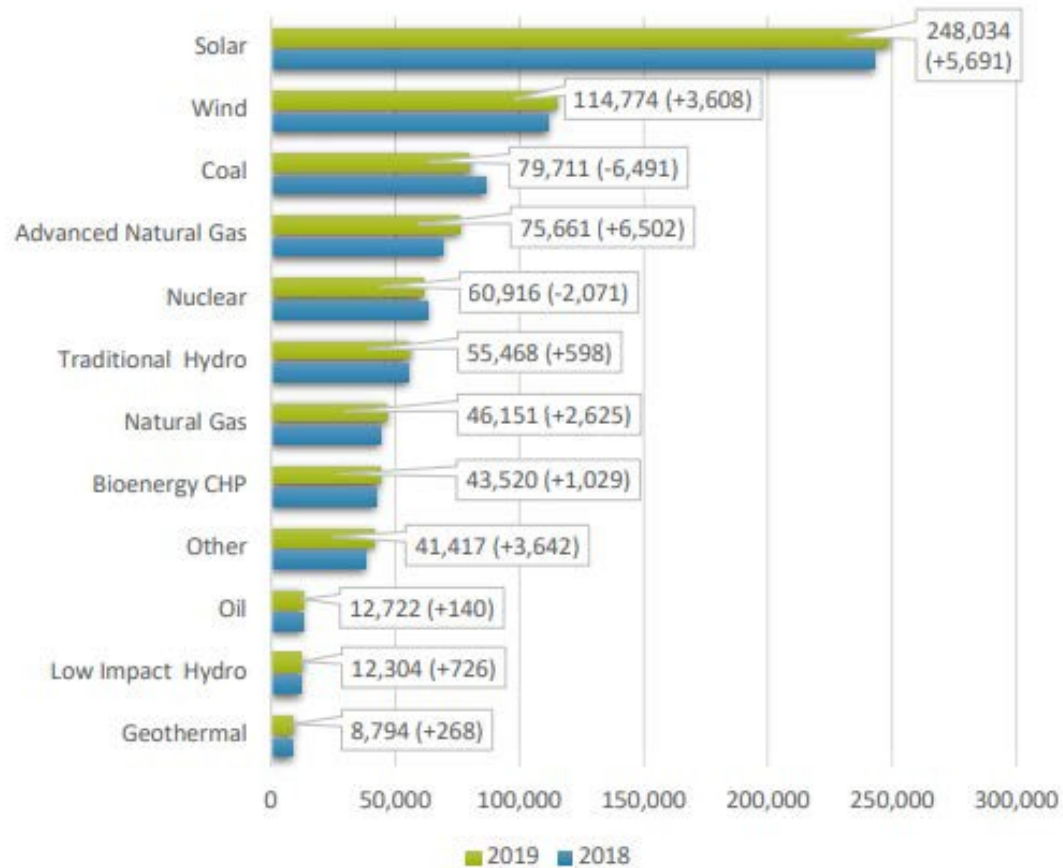
AUGUST 24, 2020



US Energy + Employment Report

Employment by Technology

Electric Power Generation Sector - Employment by Detailed Technology Application, 2018-2019

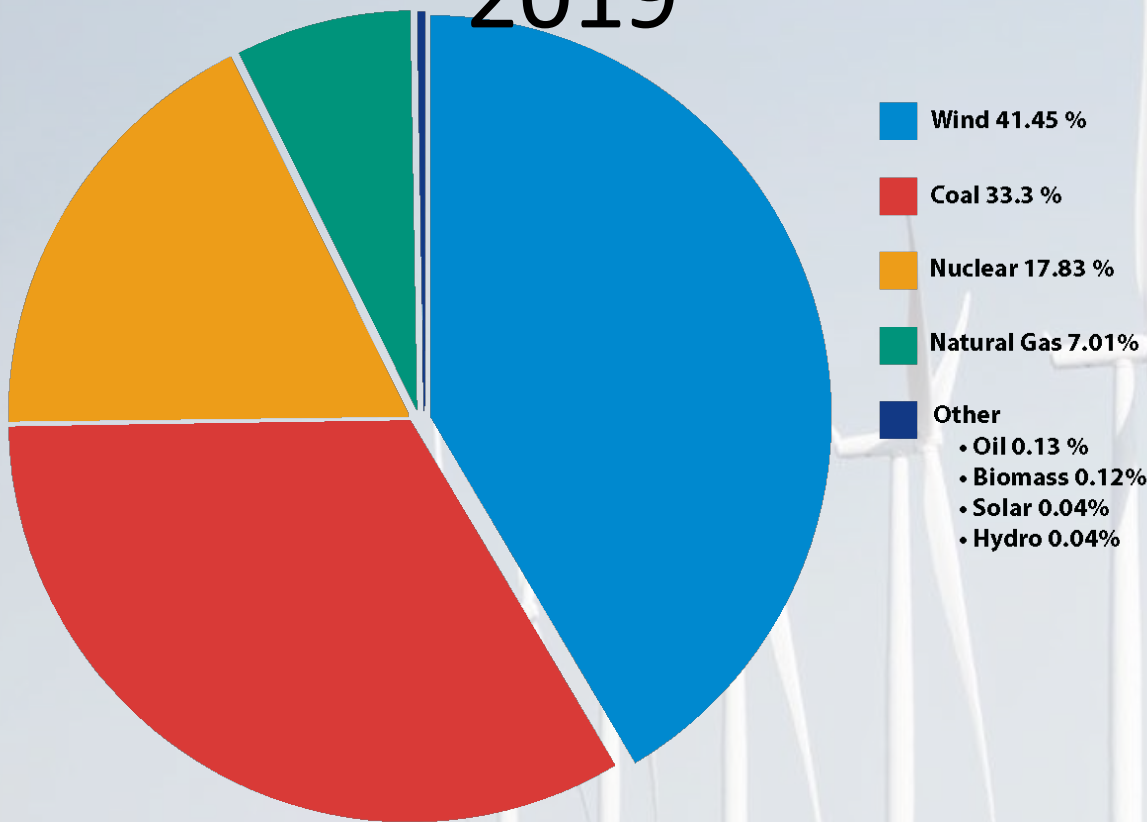


Electric Power Generation and Fuels Employment by Major Energy Technology Application and Detailed Technology Application³²

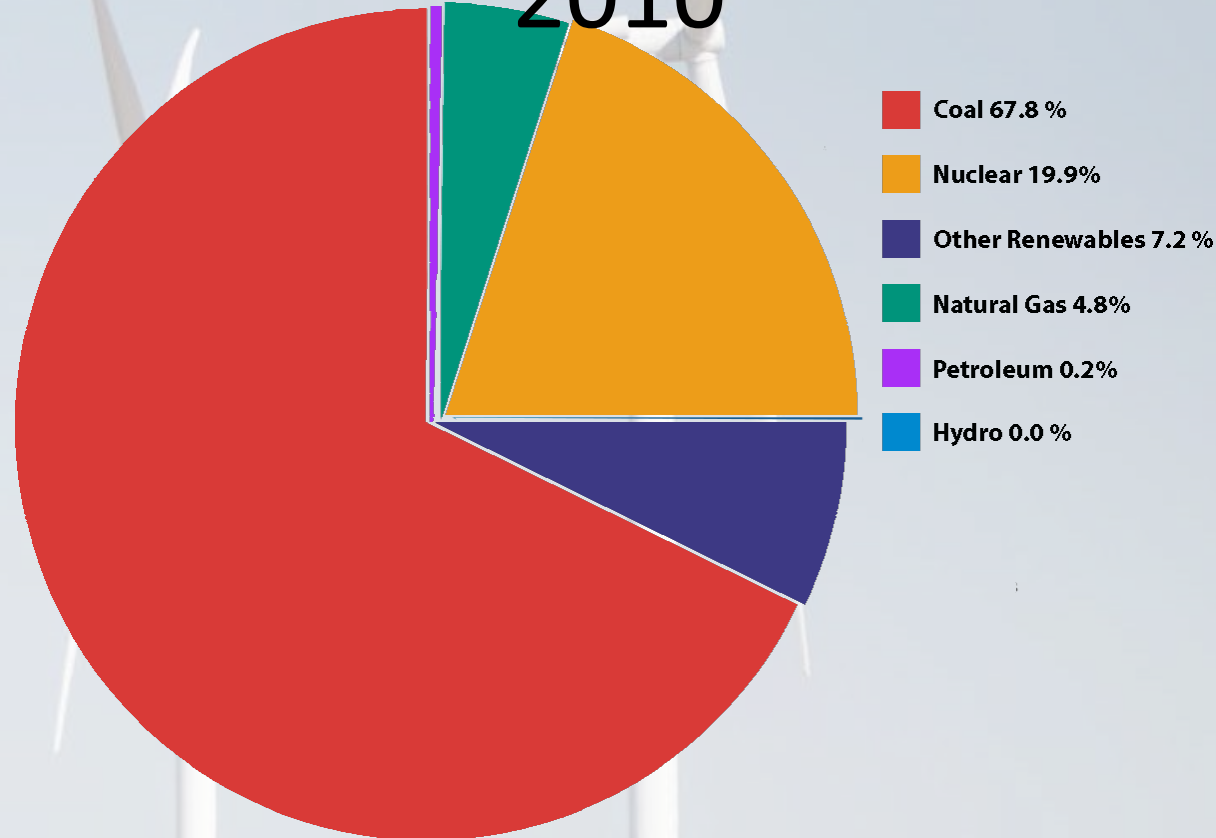
	Electric Power Generation	Fuels	Total
Oil/Petroleum	12,722	615,528	628,250
Natural Gas	121,812	275,924	397,736
Traditional Gas	46,151	275,924	322,074
Advanced Gas	75,661	-	75,661
Majority-Time Solar Employment*	248,034		248,034
Coal	79,711	75,443	155,154
Bioenergy	13,178	107,915	121,093
Corn Ethanol	-	34,866	34,866
Other Ethanol/ Non-Woody Biomass, including Biodiesel	-	20,694	20,694
Woody Biomass Fuel for Energy and Cellulosic Biofuels	-	33,426	33,426
Other Biofuels	-	18,928	18,928
Wind	114,774	-	114,774
Other Generation/ Other Fuels	41,417	64,677	106,094
Nuclear	60,916	9,406	70,323
Hydroelectric Generation	67,772	-	67,772
Low Impact Hydroelectric Generation	12,304	-	12,304
Traditional Hydropower	55,468	-	55,468
CHP	30,342	-	30,342
Geothermal	8,794	-	8,794

Kansas Electricity Generation by Source

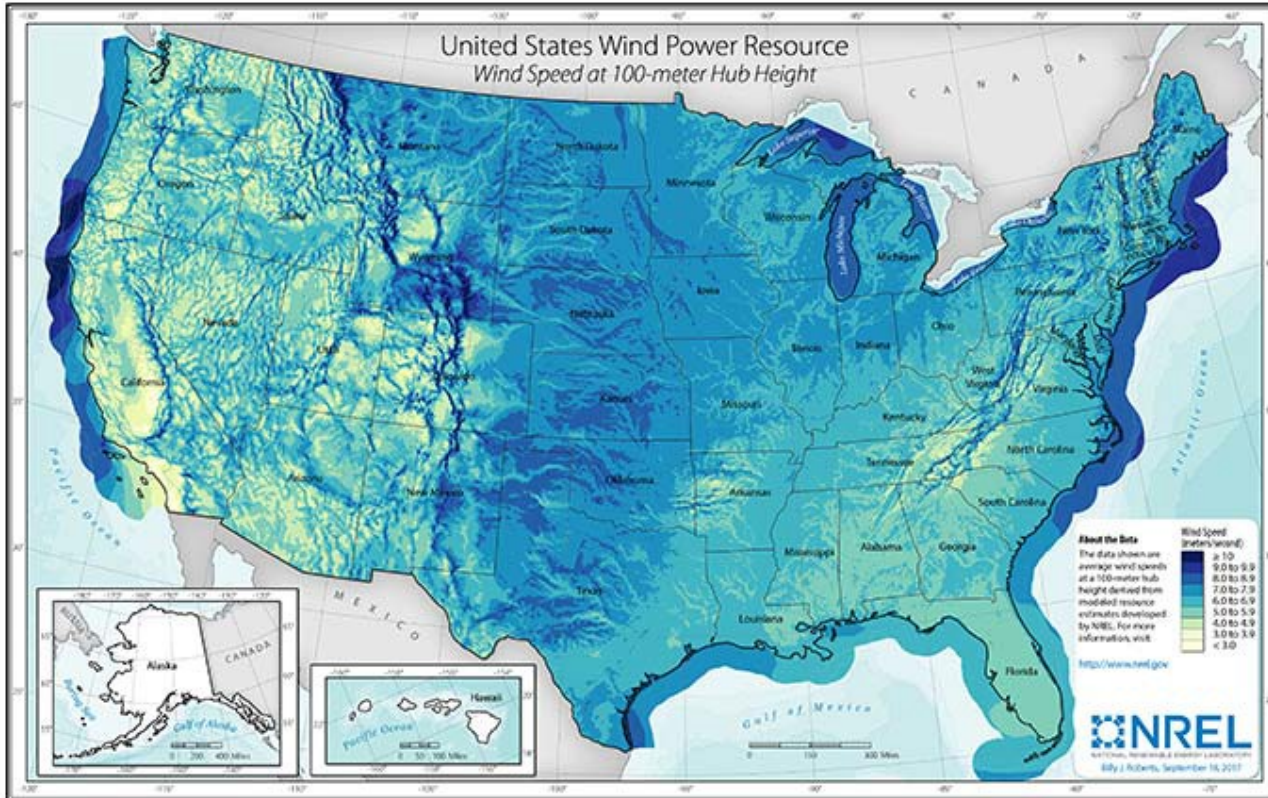
2019



2010



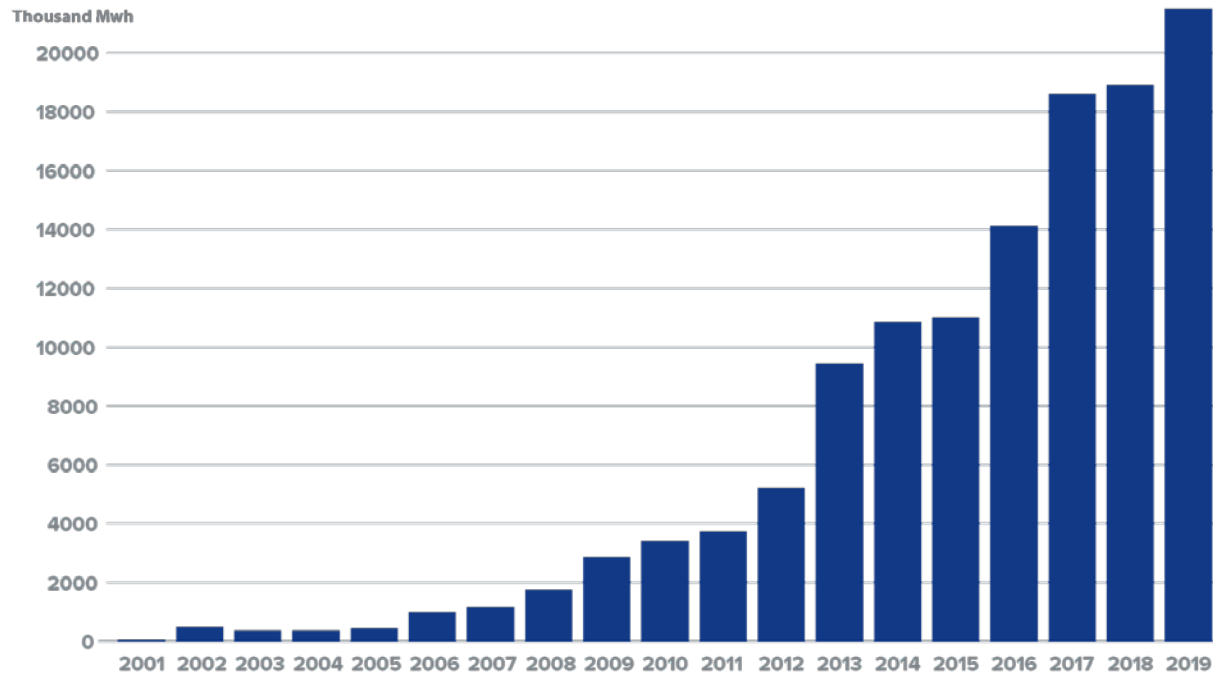
North American Wind Corridor: Central Location



Kansas:

Wind Industry Growth

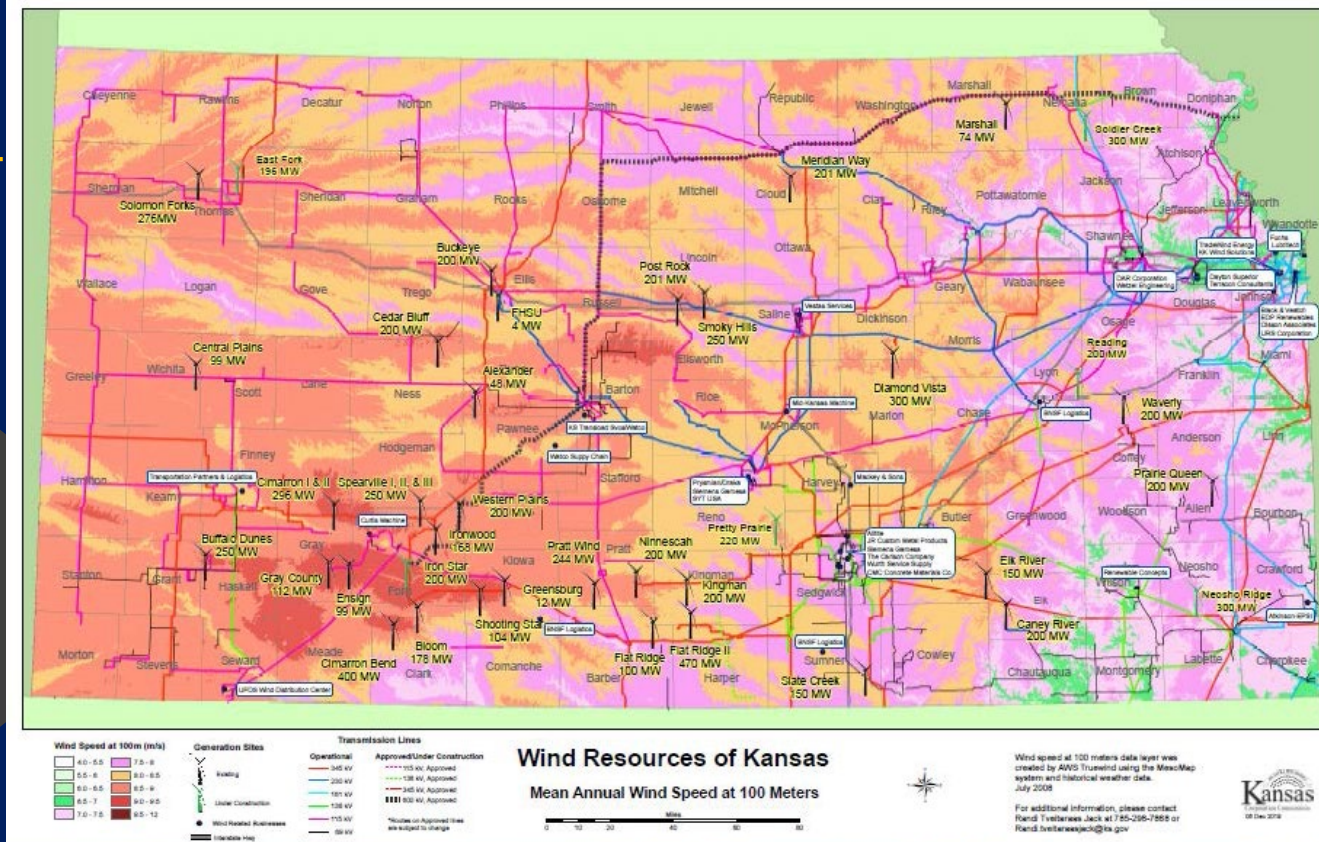
Kansas Wind Industry



Kansas:

Wind Energy Leader

- **1st** – Wind as % of total electricity sales
- **2nd** – Wind as % of total generation
- **3rd** – Corporate wind purchases
- **4th** – Wind power installations
- **\$11+ billion** investment
- **6500 MW** installed/operating
- **5000 – 6000** jobs



Kansas:

Workforce Resources

- Career Technical Education
 - Cloud County Community College
 - Wind Technician, Blade Repair
 - Solar Technician
 - UAS
 - Colby Community College – Wind & Solar Certificate
 - Hutchinson Community College – Manufacturing Technology
- University Engineering Initiative
 - Kansas State University – Wind & Solar Engineering
 - Wichita State University – Sustainable Energy Technology
 - University of Kansas - Bioenergy
- Industry Engagement / Future Pipeline
 - KidWind
 - Wind for Schools
 - Collegiate Wind Competition

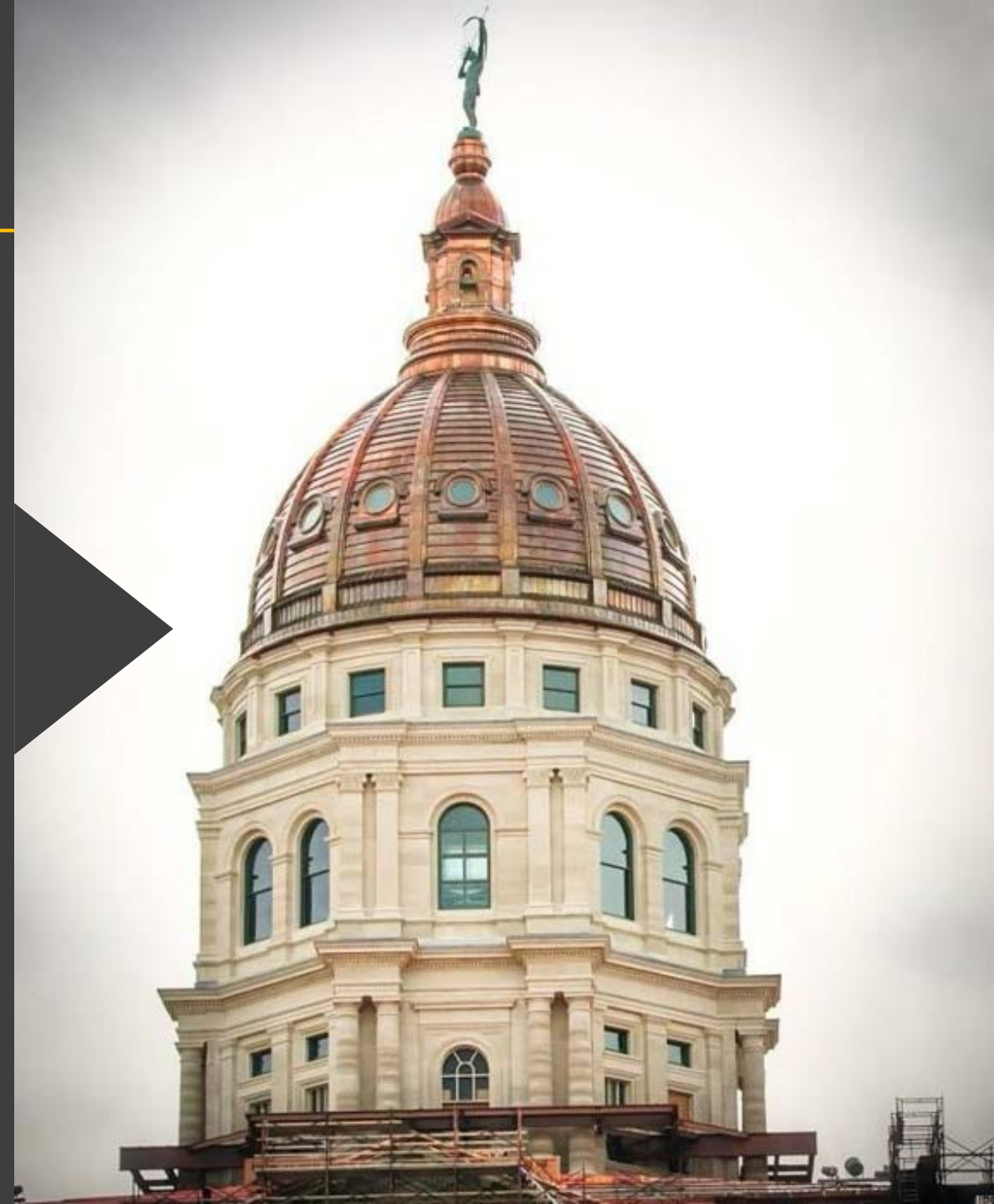


Energy Workforce

Future Opportunities

- Wind Energy – Energy Storage/Hybrid Development
- Solar Energy – Commercial Development
- Biofuels/Biomass – New Technology, Renewable Natural Gas

Description	2020 - 2030 % Change
Crude Petroleum Extraction	(14%)
Natural Gas Extraction	(10%)
Drilling Oil and Gas Wells	(20%)
Support Activities for Oil and Gas Operations	(16%)
Fossil Fuel Electric Power Generation	11%
Nuclear Electric Power Generation	(17%)
Solar Electric Power Generation	0%
Wind Electric Power Generation	29%
Geothermal Electric Power Generation	0%
Biomass Electric Power Generation	0%
Electric Bulk Power Transmission and Control	19%
Electric Power Distribution	(11%)



Thank You!

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Trivia!

- Which state was the first to declare Christmas a legal holiday?

Answer:

Alabama – in 1836.
The US followed suit in
1870





Utility Disconnection Moratoriums: Supporting Financially Strained Consumers While Addressing Financial Constraints on Utilities

Speakers:

Commissioner Brandon Presley, Mississippi Public Service
Commission

Josh Howat, Senior Energy Analyst, National Consumer Law Center

Moderated by:

Emma Cimino, Senior Policy Analyst, National Governors Association



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Utility Disconnection Moratoriums: Supporting Financially Strained Consumers While Addressing Financial Constraints on Utilities

Commissioner Brandon Presley, Mississippi
Public Service Commission

The Utility Customer Financial Impact of COVID-19:

The Need For Flexibility and Reform in Utility Billing, Credit and Collections

NGA Energy Policy Institute

August 24, 2020

John Howat – jhowat@nclc.org



**National
Consumer Law
Center**

*Fighting Together
for Economic Justice*

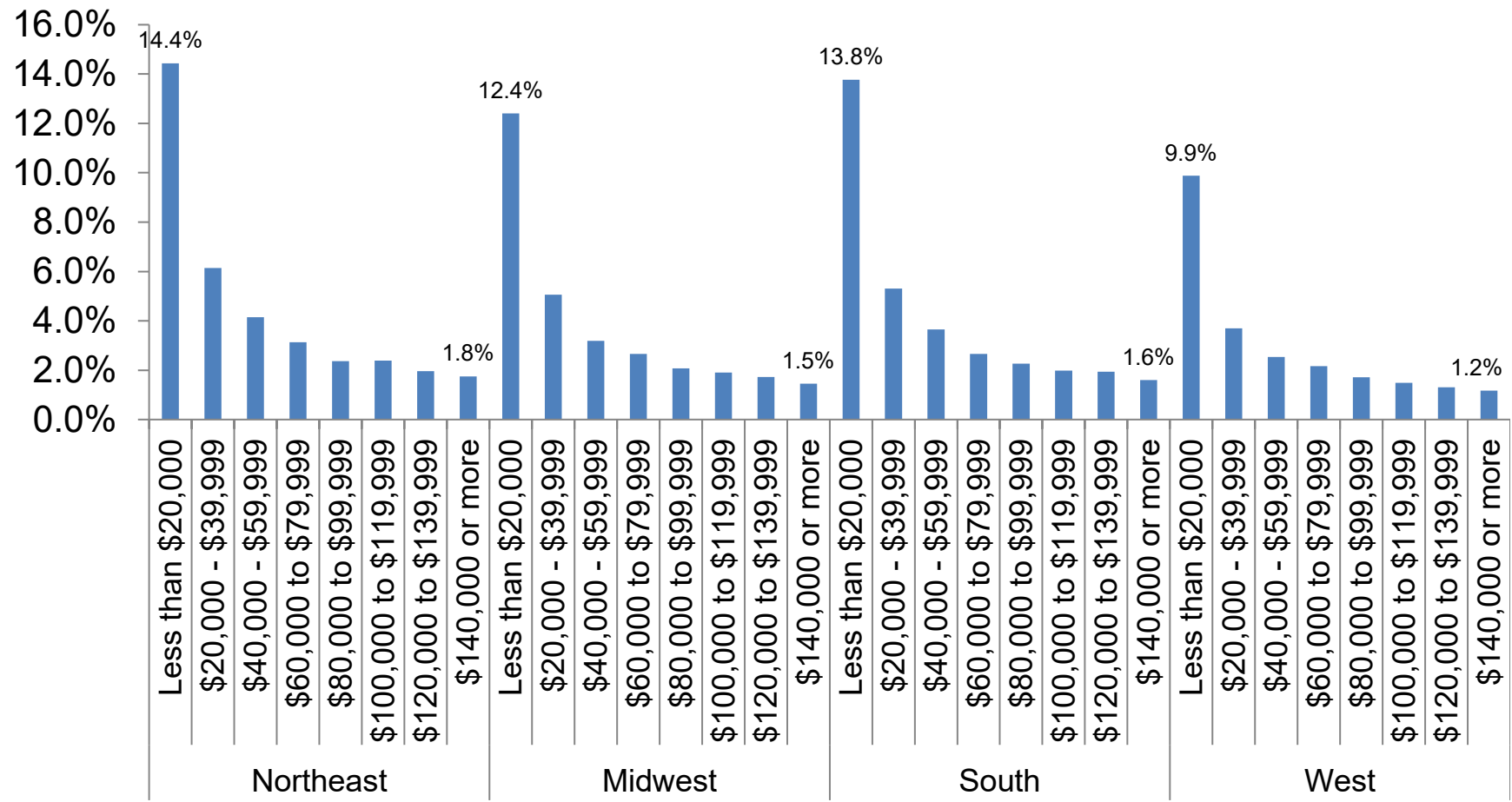
Energy Security

- Uninterrupted, affordable access to basic residential home energy services without
 - Disconnection notices
 - Involuntary disconnection of service
 - Foregoing other necessities to retain service
 - Maintaining unhealthy indoor temperature

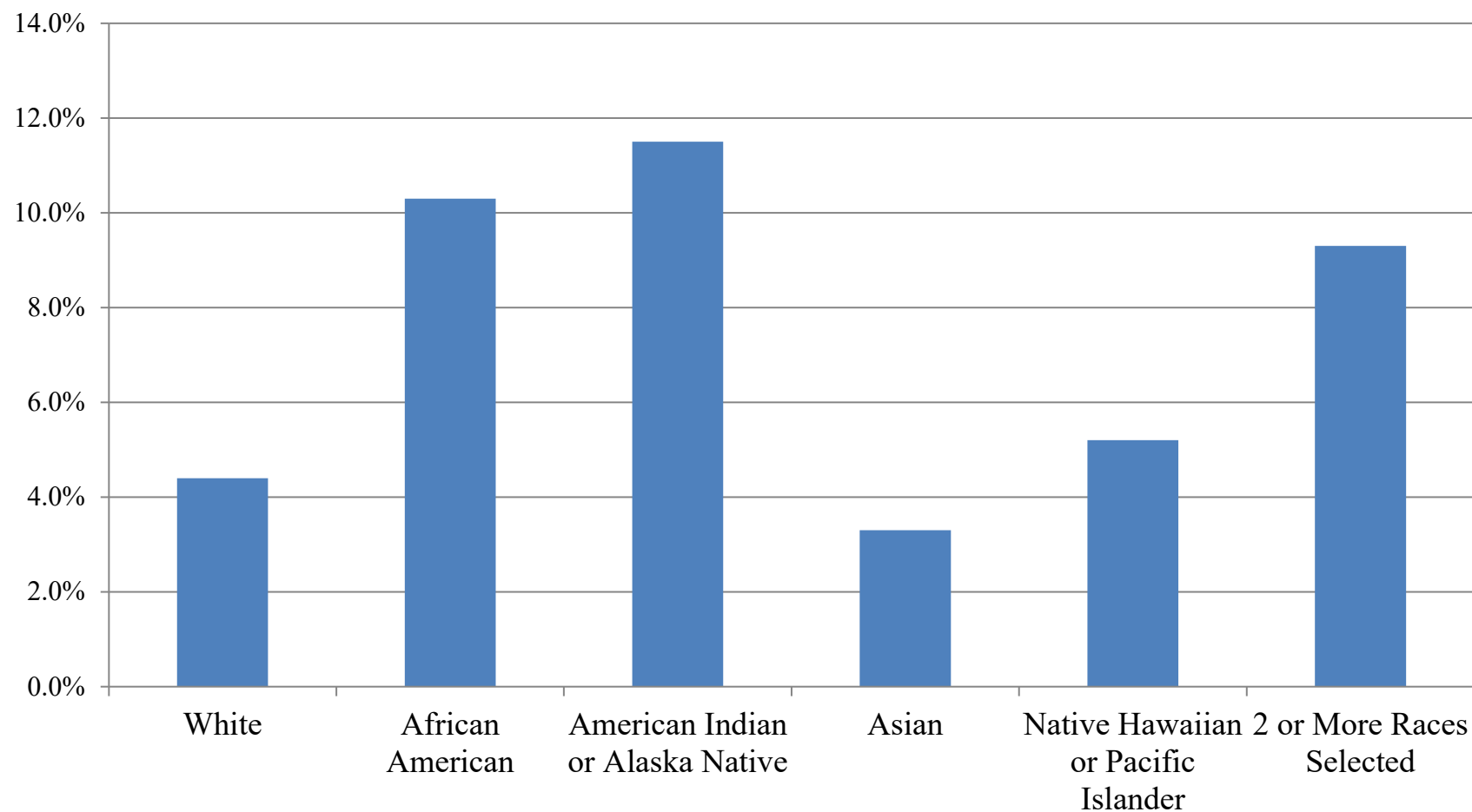
Utility Service a Basic Necessity

- Consequences of energy insecurity include (but are not limited to):
 - Threats to health and safety
 - Illness, hospitalization
 - House fires
 - Loss of life
 - Inflated Covid-19 risk
 - Spoiled food
 - Eviction
 - Reduced academic and worker performance

Median 2015 Home Energy Burdens by Income Category and Census Region



Loss of Heat in the Past Year Due to Unaffordable Utility Service, Fuel or Heating System Repair by Race: 2015 - U.S.



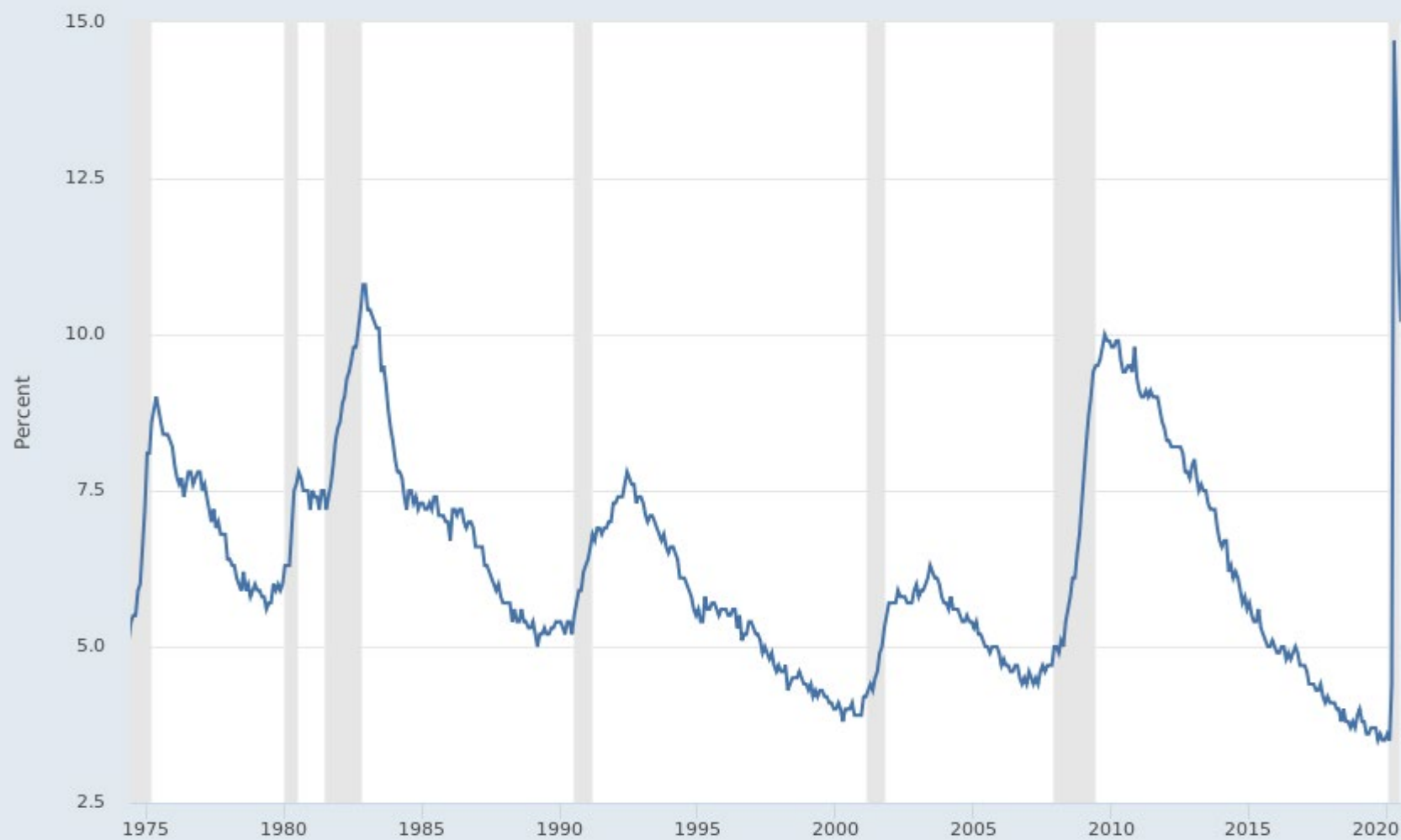
Electricity Disconnected Inability to Pay * Race of Householder * Region: U.S. Household at or Below 150% Poverty in 2009

			Race and Latino Descent of Householder				
			White	African-American	Latino	2 or More Races	Total
Northeast	No	Count	2644306	725791	1094894	61542	3803830
		%	95.2%	94.2%	92.6%	76.0%	94.5%
	Yes	Count	108494	45005	61541	19410	197145
		%	3.9%	5.8%	5.2%	24.0%	4.9%
Midwest	No	Count	3419706	1341659	638667	104388	5194320
		%	93.1%	92.6%	95.9%	81.7%	93.1%
	Yes	Count	253091	107983	27431	23451	384525
		%	6.9%	7.4%	4.1%	18.3%	6.9%
South	No	Count	7077186	2183720	1840937	14125	9890996
		%	93.4%	83.9%	92.4%	100.0%	91.1%
	Yes	Count	503159	418555	152349	0	965375
		%	6.6%	16.1%	7.6%	0.0%	8.9%
West	No	Count	4035675	388463	2310679	78936	5012604
		%	96.3%	95.6%	96.8%	84.9%	96.4%
	Yes	Count	144626	18047	66223	14047	176720
		%	3.5%	4.4%	2.8%	15.1%	3.4%
Total	No	Count	17176873	4639633	5885177	258991	23901750
		%	94.3%	88.7%	94.5%	82.0%	93.1%
	Yes	Count	1009370	589590	307544	56908	1723765
		%	5.5%	11.3%	4.9%	18.0%	6.7%

FRED



— Unemployment Rate



Source: U.S. Bureau of Labor Statistics

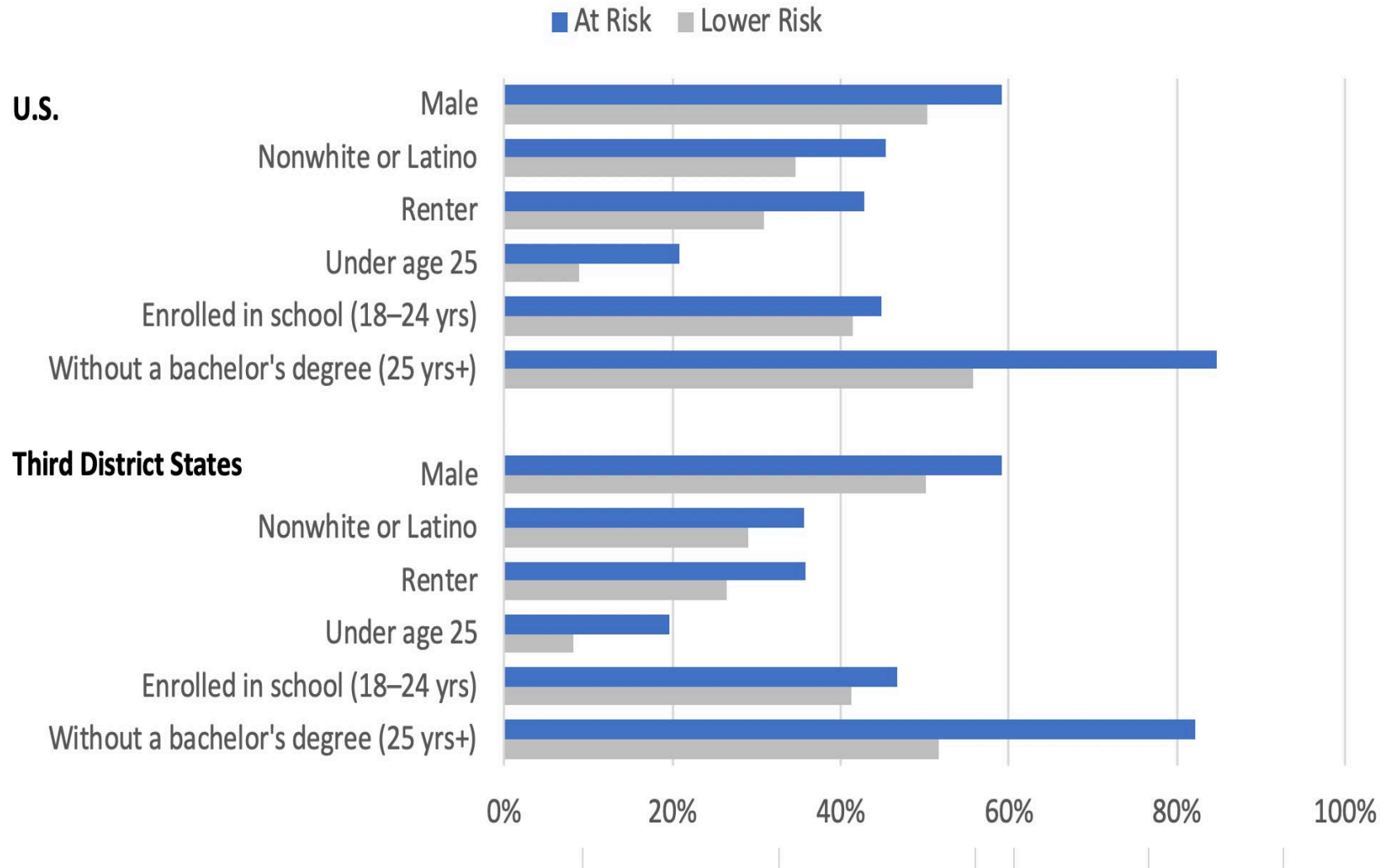
myf.red/g/uH2k

Total Employment and Percent of Total for Each Risk Group		
	Total Employment	Share of Total Employment
All Occupations	144,731,220	
Employed in Occupations at “Low Risk” of Layoff	77,944,910	54%
Employed in “Essential” Occupations	24,840,280	17%
Employed in Occupations Possible to Work from Home	48,204,920	33%
Employed in Other Salaried Occupations	4,899,710	3%
Employed in Occupations at “High Risk” of Layoff	66,786,310	46%
Food Preparation and Serving-Related Occupations	13,374,170	9%
Sales and Related Occupations	10,443,460	7%
Production Occupations	8,313,750	6%
Installation, Maintenance and Repair Occupations	5,628,890	4%
All Other “High-Risk” Occupations	29,026,040	20%
SOURCES: Bureau of Labor Statistics Occupational Employment Statistics (2018) and Charles Gascon's calculations. Federal Reserve Bank of St. Louis		

Economic Conditions of Workers by Occupational Risk

	At Risk	Lower Risk
Median earnings	\$23,141	\$41,535
Median share of household earnings	50%	59%
Working fewer than 35 hours/week	30%	17%
No health insurance	19%	7%
Income below the poverty line	11%	5%
Housing cost burdened	28%	18%

Sources: Authors' calculations using American Community Survey One-Year Public Use Microdata Sample (2017), USDOL/ETA Occupational Information Network (O*NET) (24.2 database), and BLS Occupational Employment Statistics (May 2018).



Source: Federal Reserve Bank of Philadelphia: “COVID-19: Which Workers Will Be Most Impacted?” April 2020.

Covid-19 Residential Utility Customer Credit and Collections Impacts Remain Uncertain

- The need for comprehensive monthly reporting of credit and collections data
- Data reporting lag
- Credit, collections and energy security outcomes to be determined by
 - Public health and economic crisis scenarios
 - Assistance and consumer protection funding
 - Credit and collection reforms

Post-moratorium Energy Security Programs and Policies

- During public health crisis, restore access to service for any utility customer whose service has been cut off without requiring a down payment
- Waive late payment fees and security deposit
- For past-due bills, provide extended deferred payment plan options that are affordable based on a household's actual income and expenses (12 – 18 mo)
- For households with low incomes, use debt forgiveness programs that avoid adding to current monthly bills.
- Expand bill payment programs that reduce monthly bills to an affordable level.
- As weatherization crews safely return to work, expand access to comprehensive whole-house energy efficiency and retrofit opportunities
- Require more comprehensive utility tracking and reporting of data on residential customer overdue bills, disconnections, and repayment efforts.
- Utility cost recovery over time in return for non-punitive credit and collections practices and reductions in involuntary disconnections.

What Data Do We Need?

- Number of residential accounts
- Total billed and received amounts
- Number and dollar value of late payment fees
- Number and dollar value of unpaid accounts by vintage(30-60, 60-90, 90+)
- Number and duration of new payment agreements
- Number of accounts sent notice of disconnection for non-payment
- Number of disconnections for non-payment
- Number of service restorations after disconnection for non-payment
- Number & percent of customers completing an extended payment plan
- Average duration of service disconnection for restored accounts
- Number and dollar value of accounts written off as uncollectible
- **Many of these should be reported by zip code**

Illinois a leader

- Docket ICC 20-0309, June 10 settlement
- Terminated customers get restored.
- Moratorium continues until “30 days after the Stipulated Moratorium Period ends,” or Aug. 1 (now, later date)
- Payment plans 18 mos., or 24 mos. for financially struggling (no down payments for those).
- Debt forgiveness for LIHEAP customers, \$300-\$500.
- No adverse credit reporting, and no low-income deposits for 6 months.
- Stakeholder discussions to improve affordability.
- Zip-code level data reporting.
- Agreement on cost-recovery for companies (lost late fees, increased uncollectibles, COVID expenses.)

Some NCLC Tools

- Residential Electric Utility Arrearage Scenarios
 - <https://bit.ly/covid-state-electric-arrears>
- Data Collection
 - <http://bit.ly/brief-covid-19-data>
- Program Design Template
 - <https://bit.ly/RPT-covid-19-program-design>



Since 1969, the nonprofit **National Consumer Law Center® (NCLC®)** has worked for consumer justice and economic security for low-income and other disadvantaged people, including older adults, in the U.S. through its expertise in policy analysis and advocacy, publications, litigation, expert witness services, and training. **www.nclc.org**

Day 3 Recap of Key Ideas and Insights

1. What did you hear today that resonated?
2. What remaining questions do you have?
3. How can NGA provide assistance on these topics?