

Fostering American Energy Innovation and Affordability

SENATOR RUBEN GALLEGO



INTRODUCTION

When heat waves hit and blizzards rage, people across America reach for the thermostat. Electricity keeps the lights on after dark, stoves cook meals for loved ones, and cars get families to work and school. Energy is central to our way of life, but it's also one of the most volatile costs many households face.ⁱ

We need medium- and long-term plans to create a sustainable and affordable energy system in the United States. The United States produced more crude oil “than any nation at any time” from 2018 to 2023, and the Energy Information Administration (EIA) deemed it unlikely that any other country would break that record in the near future.ⁱⁱ However, this alone will not be enough to meet rising demand while protecting our air and water. Energy sources including nuclear, solar, wind, geothermal, and others can reduce emissions while increasing reliability and bringing down prices.

This plan focuses on five pillars: making energy more affordable, investing in emerging technology, prioritizing reliability, leaving nobody behind, and getting power where it needs to go. These five pillars are designed to work together, and there is overlap between many of the concepts: emerging technologies can improve our grid and bring down prices, fortifying transmission will improve reliability, and so on. No energy policy exists in a vacuum.

The United States can have an energy system that is safe, clean, and affordable for working families – we do not have to choose just one of the above. Achieving these goals will require respect for the data and facts that track our progress, rather than only those that policymakers find convenient for their own views. It will also require adequate funding and staffing for the agencies that oversee these crucial systems.

The federal government can and should do more to build an energy system that works for all Americans. Let's get to work.





FRAMEWORK

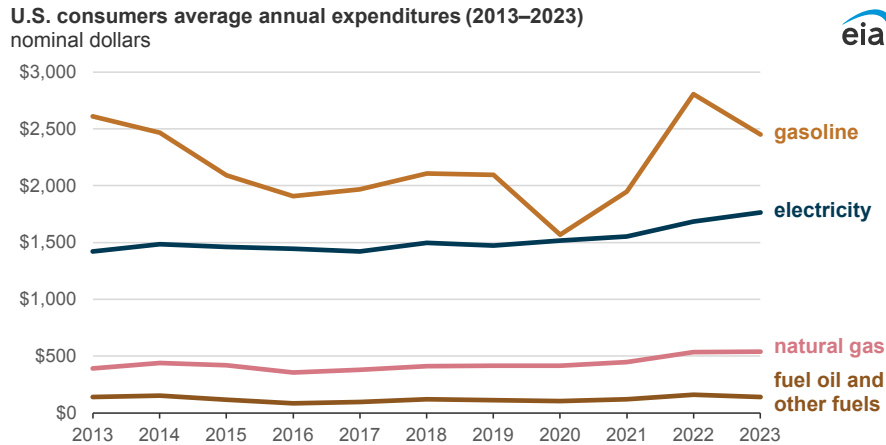
- 1. Emphasize Affordability*
- 2. Invest in Emerging Technology*
- 3. Prioritize Reliability*
- 4. Leave Nobody Behind*
- 5. Get Power Where it Needs to Go*

*Emphasize
Affordability*

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PILLAR 1: EMPHASIZE AFFORDABILITY

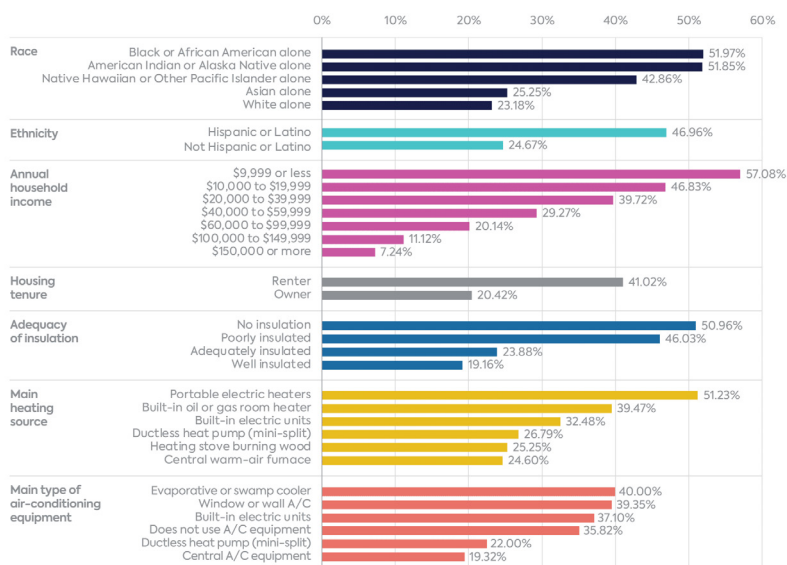
The United States is facing increased energy burdens and affordability challenges. Departing from nearly two decades of relative consistency, national energy demand increased by two percent in 2024, and is expected to grow another two percent in 2025 and three percent in 2026.ⁱⁱⁱ This would be the first three years of consecutive growth in electricity demand in nearly two decades. Stemming from population growth, technological advancements, and economic development, demand spikes have caused prices to rise.



According to the EIA, U.S. consumers spent an average of \$1,760 on electricity expenditures in 2023, and average annual electricity costs were projected to increase 13% between 2022 and 2025.^{iv} One in three Americans can't afford their electricity bills, and 25% of low-income households have an energy burden above 15.2% of their earnings.^{vii}

This issue is top of mind for many: in March 2025, 73% of people in a nationwide survey were concerned about rising utility bills. Nearly two-thirds said their gas and electric bills rose last year.^{vii}

Figure 1: US households reporting some form of energy insecurity (2020)



Source: US Energy Information Administration, Residential Energy Consumption Survey (RECS).

One option for federal intervention is to assist consumers with rising price burdens. The Inflation Reduction Act (IRA) included tax credits to assist households with energy efficiency and diversifying energy sources:

- **Residential Clean Energy Credit:** A 30% credit for clean energy generation like solar panels, wind turbines, heat pumps, and battery storage.^{ix} It was claimed on 1,246,440 tax returns in 2023 (total value of \$6.3 billion, average of \$5,084 per household).
- **Energy Efficient Home Improvement Credit:** A 30% credit for upgrades like air conditioners, water heaters, windows, doors, and insulation. It was claimed on 2,338,430 tax returns in 2023 (total value of \$2.1 billion, averaging \$882 per household).^x

These credits not only helped families save on energy improvements and reduce long-term utility bills, they also supported the development of emerging technologies like solar and wind. President Trump and Congressional Republicans eliminated them in the One Big Beautiful Bill Act.

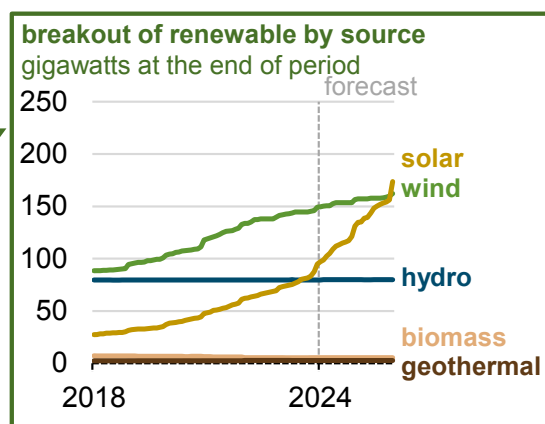
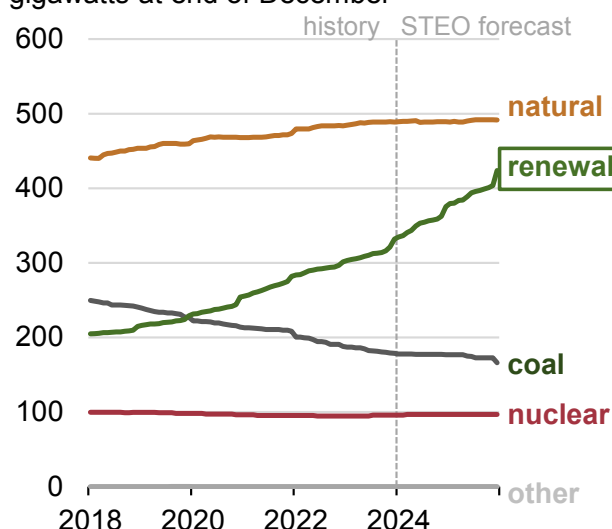


ONE IN THREE AMERICANS CAN'T AFFORD THEIR ELECTRICITY BILLS, AND 25% OF LOW-INCOME HOUSEHOLDS HAVE AN ENERGY BURDEN ABOVE 15.2% OF THEIR EARNINGS.

The federal government also helps consumers through the Weatherization Assistance Program, which provides up to \$3,200 per year for home energy efficiency upgrades for low-income households. This saves households an average of \$372 per year on energy bills.^{xi}

Another lever for addressing energy prices is to increase supply. Solar and wind energy have been at the forefront of this pursuit for abundant clean energy. Solar investments made up the largest number of clean energy credit returns in 2023 at over \$20.5 billion.^{xii} Additionally, wind power has supplied more than 10% of U.S. electricity generation and could save consumers up to \$200 per year.^{xiii xiv} Both have low operating costs and can be used by families at home. To go along with this, the U.S. has scaled up battery storage capacity- which increased by 66% in 2024 alone.^{xv} The table below shows growing capacity for renewable energy.^{xvi}

U.S. annual electric generating capacity (2018–2025)
gigawatts at end of December



Oil and gasoline, other significant energy sources, are also affected by factors like price volatility, supply chain disruptions, and government policies. International conflicts may shape oil supplies, as well as increased international demand. Disruptions to refinery operations- planned or accidental- can increase price volatility. Finally, seasonal changes in gasoline demand and differing fuel blend requirements for different seasons impact supply and price.^{xvii}

A common challenge to scaling across energy sources is the bottleneck of federal permitting. According to the Council on Environmental Quality, the average time for a project to receive an environmental impact statement (when required) is 2.4 years.^{xviii} The National Environmental Policy Act (NEPA), enacted over 55 years ago, lays out much of the federal permitting process. Many Congressional attempts have been made to modernize or amend NEPA, ranging from broadening categorical exclusions to complete overhauls.

As demand and costs continue to rise, federal assistance can provide support to households and put money back into the pockets of American families. At the same time, investing more in affordable, carbon-free sources of energy, such as solar and wind, is key to reducing long-term electricity costs. By advancing clean energy infrastructure, the U.S. can regain its leadership in the global energy sector while ensuring that energy remains affordable for all.

P I L L A R 1 R E C O M M E N D A T I O N S

- **Reinstate and extend energy efficiency tax credits** that bring down prices for consumers.
 - Energy Efficient Home Improvement Credit (25C)
 - Residential Clean Energy Credit (25D)
- **Recognize and invest in solar and wind as highly affordable energy sources.**
 - Couple this with increased battery storage capacity and investment.
- **Ensure affordable gasoline** by encouraging consistent supply chains and providing funding for pipeline fortification.
 - Establish efficient systems across federal agencies to detect and report refinery outages or pipeline problems. Work with state governments to balance regulatory pressure with consistent supplies- especially during extreme weather.
 - Coordinate with refineries to ensure reliable supplies of specialized gas blends used to reduce air pollution in certain regions.
- **Create economic and investor certainty through consistent permitting timelines** and clear federal agency guidance.
 - Set application timelines for federal renewable and sustainable energy projects, including timelines for determining whether an application is complete.
 - Create more categorical exclusions to NEPA for low-disturbance activities relating to affordable energy projects. Create streamlined processes for constructing energy projects, especially renewable energy on abandoned and polluted lands (brownfields).
 - Provide clear timelines and requirements for the permitting of oil and gas pipelines.
- **Tailor energy use** to the amplest supplies in a given state or region to minimize energy transportation costs. Examples include hydropower in the Pacific Northwest, solar energy in the Southwest, or wind energy in the Great Plains.

Invest in Emerging Technologies

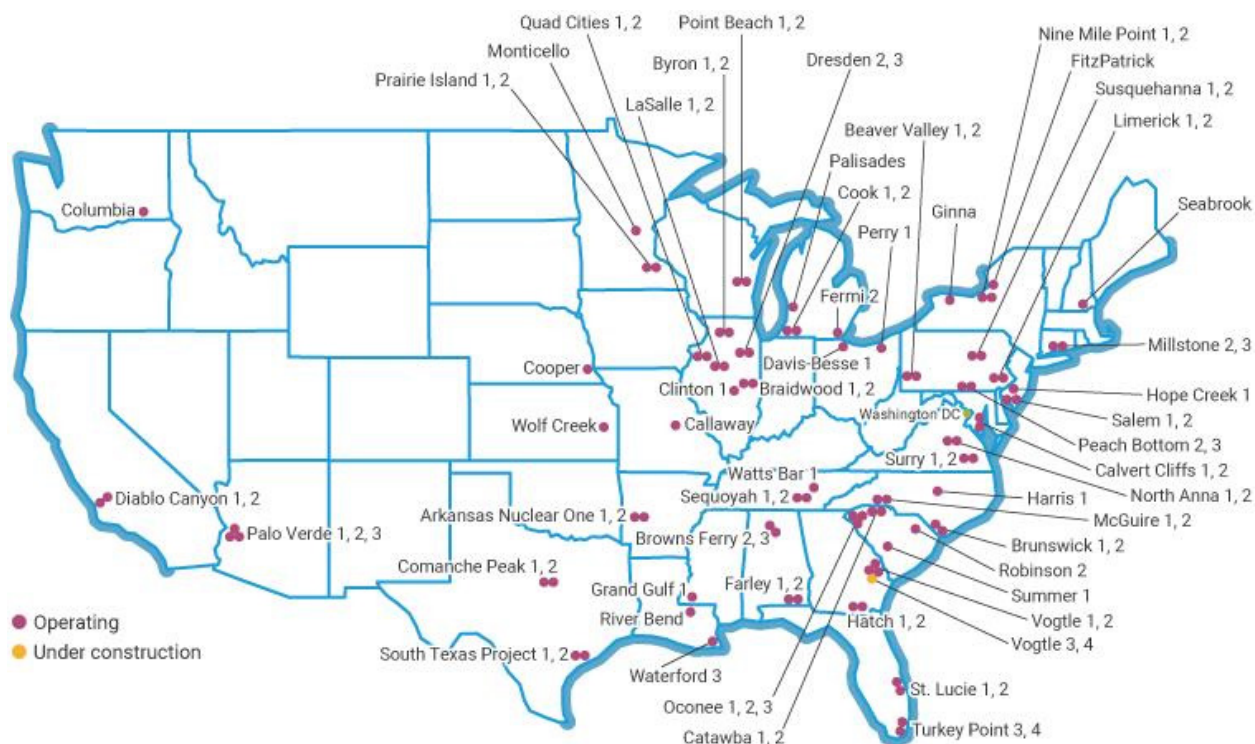
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PILLAR 2: INVEST IN EMERGING TECHNOLOGIES

First-of-a-kind projects are a high-risk, high-reward endeavor, and innovation is flourishing in the energy sector. Geothermal and nuclear energy already exist in certain forms, and are experiencing rapid improvements in reliability, availability, and affordability. Innovative battery storage and energy generation projects also continue to create clean energy and good-paying jobs. Government resources should complement private-sector efforts by investing in technologies that are not yet commercially proven but hold long-term potential. Not only will this fortify our energy security now and for future generations, but it will also ensure the United States' global competitiveness in emerging technologies, artificial intelligence, and more.

ADVANCED NUCLEAR AND SMALL MODULAR REACTORS

Nuclear plants generate nearly 20% of the United States' electricity overall, representing 55% of our carbon-free electricity.^{xxix} This avoids more than 471 million metric tons of carbon each year – the equivalent of removing 100 million cars off of the road.^{xxx} Our nuclear fleet consists of 94 reactors operating across 54 nuclear plants.^{xxxi} However, nuclear energy is plagued by high capital costs for new construction, burdensome licensing processes, and high operating costs.



Source: World Nuclear Association

Small Modular Reactors (SMRs), ideal for flexible power generation, are in development around the world, with Russia and China leading the pack.^{xxxi} Scaling and implementing SMRs would allow for more widely accessible nuclear energy, easier manufacturing, enhanced safety features, and coordination with other energy sources.

^{xxiii} SMRs have bipartisan support across the country, at all levels of government, and across legislative and executive branches.^{xxiv} Deployment would enhance the sustainability of the electric grid, keep us on par with other nations, and decrease costs. Despite some backing from the Department of Energy, including through its Loan Programs Office, SMRs currently face regulatory, scaling, and supply chain challenges.

GEOTHERMAL ENERGY

The U.S. is the leading producer and user of geothermal energy.^{xxv} New geothermal technologies could provide around-the-clock power, lower costs, and wider-ranged siting.^{xxvi} While geothermal energy has historically been limited to areas with special geological conditions, advanced technology and deeper drilling are allowing geothermal generation to be implemented in more places. Most geothermal power plants can produce energy more than 90% of the time, helping recoup costs.^{xxvii} Enhanced geothermal systems could use some of the



same wells, power plants, drilling equipment, and workforce as oil and gas; leading to cost savings and improved scalability.

However, geothermal energy faces similar challenges to many other carbon-free energy sources around permitting and regulatory requirements. Geothermal energy also tends to have higher capital costs and more risk from long lead times and payback periods.

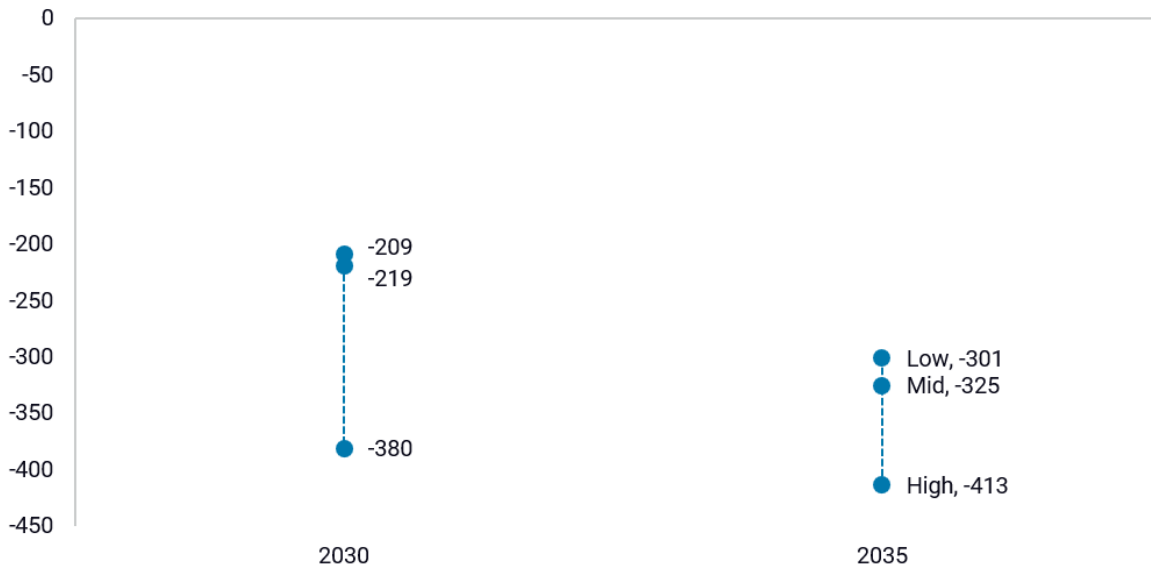
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TAX CREDITS

To support clean energy production and innovation, the IRA included technology-neutral clean electricity production and investment tax credits that were phased out with the passage of the One Big Beautiful

Bill Act. These credits provided a financial incentive for clean energies including battery storage, solar, and wind.^{xxix} Average household annual electric bills were projected to be \$29-74 lower by 2030 because of these credits, a savings of 2-4 percent.^{xxx} Notably, these tax credits were structured not only to incentivize clean energy production, but also to create good-paying jobs for construction workers and energy industry professionals. Companies received a bonus credit worth five times the base amount if they paid Davis-Bacon prevailing wages and utilized registered apprentices. Without these credits, emissions and prices are projected to skyrocket and many workers will lose their jobs.

FIGURE 2
Emission reductions in the US electric power sector due to 45Y and 48E
Million metric tons of CO₂e



Source: Rhodium Group. Note: Reductions are compared to a scenario where 45Y and 48E are not in place.

The IRA also included manufacturing tax credits to incentivize producing and recycling for advanced energy projects, reducing manufacturing emissions, processing critical materials, and domestically manufacturing energy products.^{xxx} Phasing out these policies will risk nearly 300,000 manufacturing jobs, as well as over 1 million indirect jobs.^{xxxii}



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P I L L A R 2 R E C O M M E N D A T I O N S

- **Fund the research and development of Small Modular Reactors and Advanced Nuclear projects.**
 - Explore creative collaborations with the Department of Energy and Department of Defense, particularly around preparedness, national security, and deployment on military installations and national laboratories.
- **Ensure that the Nuclear Regulatory Commission has clear standards and communications with nuclear developers while maintaining its independence and reputation.**
 - Create best practices for tailoring safety standards to the unique needs and attributes of new nuclear technologies.
- **Reinstate and extend tax credits that foster the innovation and scaling of new energy technologies.**
 - Clean Electricity Production Tax Credit (45Y)
 - Clean Electricity Investment Tax Credit (48E)
 - Zero-Emission Nuclear Power Production Credit (45U)
 - Advanced Energy Project Credit (48C)
 - Advanced Manufacturing Production Tax Credit (45X)
 - Preserve the transferability provisions that allow smaller companies to participate in energy financing, and improve investor certainty.
 - Maintain the 5x credit for paying a prevailing wage and using registered apprentices for construction workers.
 - Add similar bonus credits for manufacturing worker labor standards, such as a bonus credit for companies paying above the 75th percentile in industry wages or for paying a modernized Walsh Healey prevailing wage.
- **Maintain federal government support for nuclear fusion projects in addition to fission.**
- **Support investments through DOE's Loan Programs Office and Advanced Research Projects Agency-Energy.**
 - Expand funding for these programs in Congressional appropriations
 - Increase LPO's lending authority and credit subsidy funding.
- **Foster geothermal development by streamlining permitting for exploration.**

*Prioritize
Reliability*

3



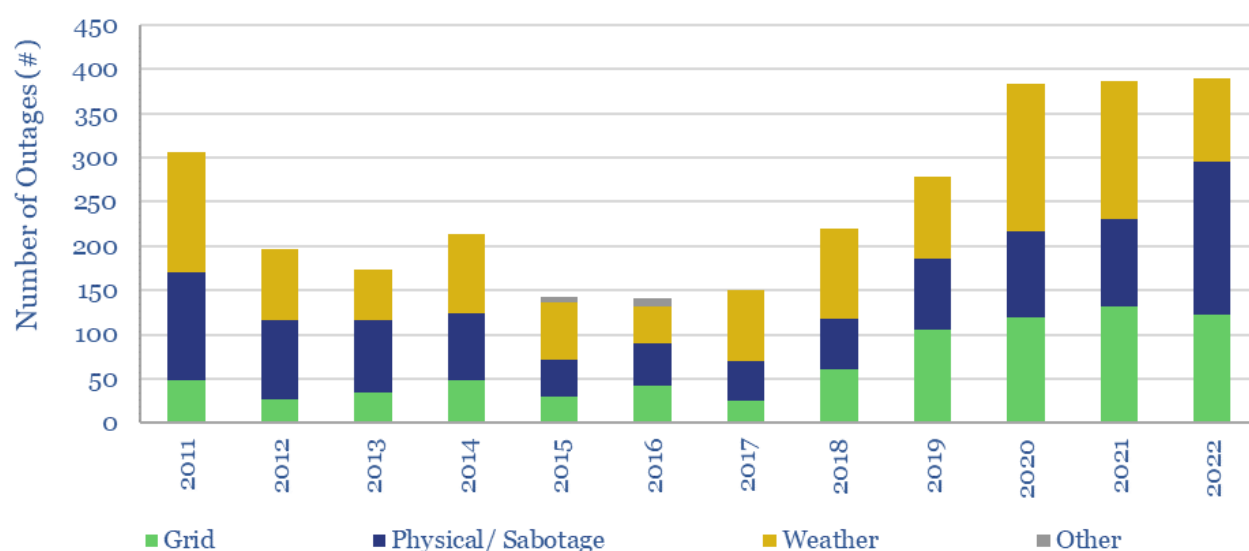


PILLAR 3: PRIORITIZE RELIABILITY

The U.S. is projected to see a 25% increase in electricity demand by 2030, increasing to 78% by 2050.^{xxxiv} As electricity demand surges, energy reliability becomes all the more critical to avoid blackouts. U.S. energy users experience an average of five and a half hours of energy interruptions per year, though in some states it can reach the double digits.^{xxxv} These blackouts pose significant health and safety risks to individuals across the U.S., specifically during extreme weather conditions.

CHALLENGES TO RELIABILITY ACROSS POWER SOURCES

Some reliability challenges span the portfolio of energy generation sources. In the past decade, 40% of US power outages were caused by weather events, 35% by physical incidents or vandalism, and 25% from grid infrastructure failures.^{xxxvi} Due to the limited number and essential role of transmission lines, the smallest disruption may lead to widespread outages.^{xxxvii}



In addition to equipment failure and severe weather, cyberattacks are an increasing threat, especially when international conflict intensifies.

In many places across the U.S., one of the fastest-growing sources of energy demand is artificial intelligence. Data center energy usage has tripled in the past decade and is projected to double or triple by 2028.^{xxxviii} Emerging technologies focus on shifting energy demand from data centers to times when grids are less strained and renewable energy is more widely available.^{xxxix} In tandem with expanding power generation, these technologies can help ensure that data center energy use is balanced with the needs of critical infrastructure and homes.

CHALLENGES TO RELIABILITY (SOURCE-SPECIFIC)

Of course, not every energy source experiences the exact same challenges. Good policy must recognize the unique needs of different energy sources.

Renewables/Battery Storage: Large-scale battery storage is essential for integrating intermittent renewable energy sources such as solar and wind into the power grid. This integration demands new approaches to ensure stability and reliability as generation patterns evolve. Storing low-cost energy and using it during times when

electricity demand- and therefore rates- are higher can reduce costs for consumers and provide flexibility for the grid.^{xi} In 2023, 129 battery storage facilities opened in the U.S., bringing the total of operating battery storage facilities to 600.^{xii} According to the U.S. Energy Information Administration, operators added five gigawatts (GW) of capacity to the grid in the first seven months of 2024.^{xiii}

Another strong option is long duration resources that store energy generated during the day for overnight use. Resources like pumped-storage hydroelectricity can play a key role by providing 10 to 12 hours of energy storage. With a long asset life of roughly 100 years and a relatively low operation and maintenance cost, pumped storage is a tried-and-true technology that can be an American success story.



THE U.S. IS PROJECTED TO SEE A 25 PERCENT INCREASE IN ELECTRICITY DEMAND BY 2030, INCREASING TO 78 PERCENT BY 2050.

Natural Gas Supplies: Natural gas powers 43.1% of our nation's electricity, and comes with its own vulnerabilities.^{xiiii} The complex natural gas supply chain can be disrupted by extreme weather. Old infrastructure is particularly vulnerable, leading to pipeline breaks and leakage.

Renewable Supply Chain Challenges: As the world transitions to renewable energy, we must also anticipate increasing component supply chain challenges. Clean energy technologies including solar panels, wind turbines, and battery storage require critical minerals and materials as inputs. According to the Department of Energy, over 80% of our nation's supply of critical minerals comes from foreign sources, and the U.S. currently imports over half of its consumption of 43 of the 50 critical minerals and metals.^{xlv} Many solar and nuclear energy components, including uranium concentrate, are also imported.^{xlvi} Promoting a stable supply chain and onshoring domestic production where possible are key to prioritizing energy reliability.

As the U.S. faces a dramatic rise in electricity demand and increasing threats from extreme weather, cyberattacks, and disruption of supply chains, energy reliability must become a national priority. Large-scale battery storage, coupled with the transition to renewable energy, offers a viable path forward by stabilizing the grid. We must ensure a reliable, secure, and sustainable energy future, which will strengthen our power systems and protect the well-being of millions of Americans.

P I L L A R 3 R E C O M M E N D A T I O N S

- Invest in **greater baseload power and battery storage** for wind, solar, and existing hydroelectric power.
- Rather than emphasizing speed over reliability in renewable and sustainable energy, **transition deliberately to avoid the risk of blackouts or brownouts during hot summers, storms, or other power surges.**
 - Ensure that utilities have sufficient capacity to meet peak seasonal demand throughout transition periods.
- Focus on meeting **increasing demand from AI and data centers.**
 - Establish regular communication systems between federal agencies and local utilities about how they plan to meet this demand while preserving reliability and affordability.

- Invest in/encourage demand response technology to help manage data center peaks and other moments of high energy demand.
- Work with AI companies, utilities, and regulators to ensure that increased demand on the grid from more data centers doesn't end up in the energy bills of families and small businesses.
- Further, work with data centers to ensure that any new energy generation that they install can be used to stabilize the grid during demand spikes, extreme weather, and other disruptions.
- **Onshore production of energy components** for all types of energy including batteries, solar components, SMRs, and more.
 - Modernize Walsh Healey for manufacturing workers.^{xlvi}
 - Consider strategic tariffs to protect certain industries from unfair Chinese competition while they scale to competitive levels.
- **Prioritize and fund energy cybersecurity initiatives** to decrease the risk of disruptions to energy systems from bad actors.
 - Fund cybersecurity technical assistance for small communities and utilities.
 - Ensure that CISA, DOE, and private entities are communicating well and have reporting and response systems in place for attacks.
 - Collaborate with AI data centers to strengthen cybersecurity.
- Ensure **reliable oil and gas supplies** through greater communication around supply disruptions and supply consistency, as referenced in Pillar 1.



*Leave Nobody
Behind*

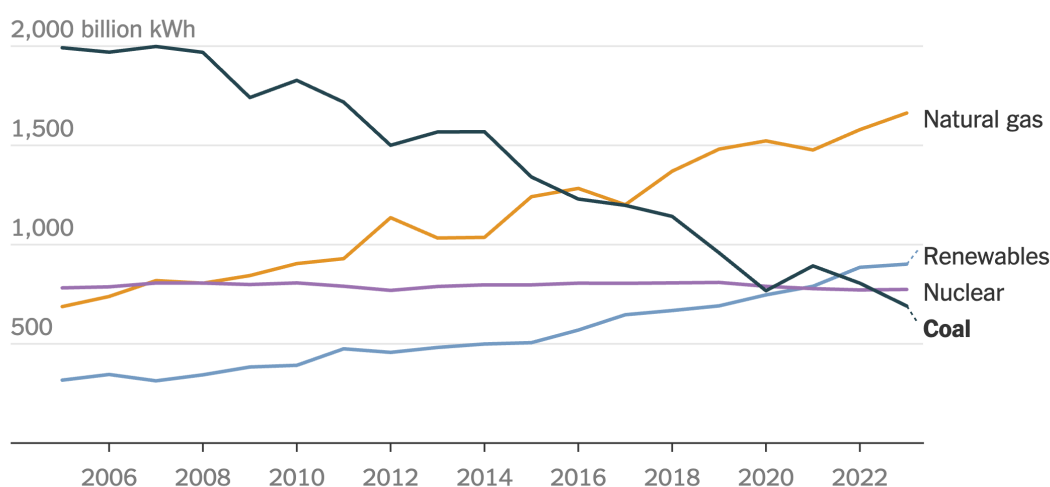
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PILLAR 4: LEAVE NOBODY BEHIND

There has historically been bipartisan agreement that America's energy system needs to provide affordable, reliable energy for all.^{xlviii} Doing this requires that the government pay attention to the needs of those at risk of exclusion as major power sources shift.

- **Energy Communities:** 64 million Americans live in communities that have depended on the oil, gas, and coal industries for revenue and employment opportunities.
- **Disadvantaged Communities:** One third of Americans live in areas that are overburdened by pollution.
- **Significant overlap:** 28.5 million people (45% of the population) in energy communities are also living in disadvantaged communities.^{xlix}

U.S. electricity generation by source

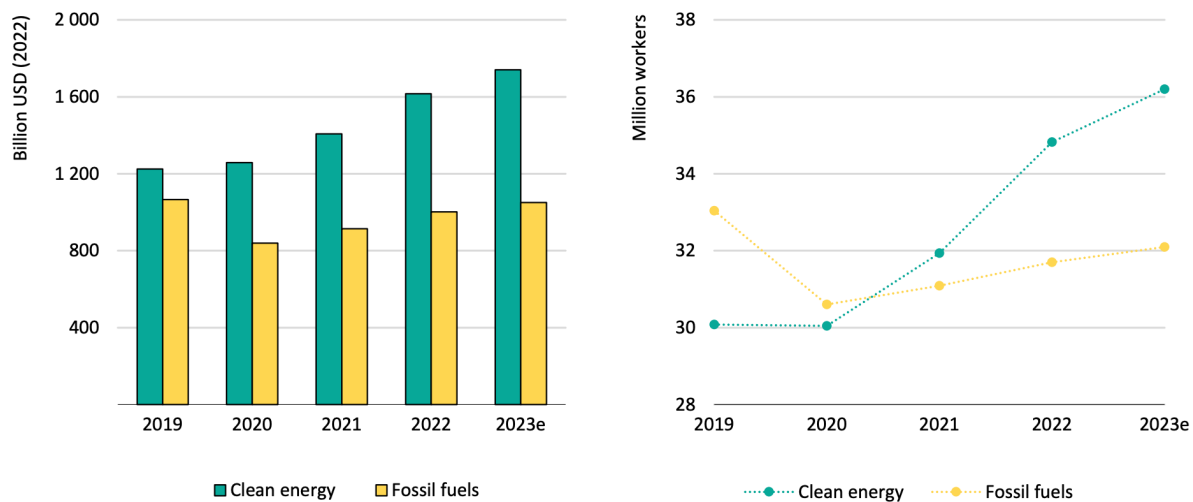


Note: Renewables include wind, solar, hydropower, geothermal and biomass. • Source: Rhodium Group • By The New York Times

Disadvantaged and low-income communities often have high energy burdens, and federal programs like the Low Income Home Energy Assistance Program (LIHEAP) are vital for these communities. In 2023 alone, five million households received heating assistance, 1.4 million received crisis assistance, 927,000 received cooling assistance, and 61,000 received weatherization assistance.¹ Recent government layoffs eliminated all LIHEAP staff, stranding millions of unallocated dollars and leaving millions of families exposed to utility shutoffs, even during extreme weather.ⁱⁱ

Building and sustaining qualified talent across the energy industry will continue to be a challenge as growth in demand increases. This shortage spans across the workforce needs. The long timespans between nuclear projects hinders the availability of a consistent, technical workforce from construction workers to engineers to operators. These are well paying jobs that require specialized training but not necessarily a college degree in communities throughout the country. Many utilities are experiencing a wave of retirements among experienced engineers. Over the course of the next five years, we expect nearly half of the most senior engineers will need to be replaced. Nuclear engineers skew even older and closer to retirement. With only a few dozen nuclear engineering university programs in the U.S., a shortage of their specialized skills could quickly become dire.

Global investment and total employment by sector, 2019-2023e



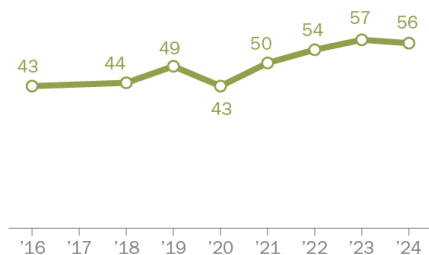
In energy communities, there is potential for workers with valuable skills in fossil fuel industries to retrain for carbon-free energy jobs. Clean energy jobs now employ three times more workers than the traditional energy sectors, and they represent over 84% of new electricity generation jobs.^{lii} By 2030, the global sustainable energy sector is expected to add eight million jobs in areas such as solar, wind, hydropower, and geothermal.^{liii}

Not only is there strong potential for job transferability between coal and nuclear/geothermal generation, much of the transmission and infrastructure could be reused as well. New nuclear power plants could save up to 35% on construction costs by repurposing retired coal power plants and, as mentioned in Pillar 2, some oil and gas wells, plants, and drilling equipment could be used for advanced geothermal.^{liv} Furthermore, solar and wind generation open new doors for passive income on private property through leasing for farmers and ranchers.^{lv}

Sustainable and forward-thinking energy projects of all kinds depend not only on skilled workers and advanced technology but also on strong community buy-in and support. The permitting process under the National Environmental Policy Act (NEPA) averages 4.5 years to complete, with the Environmental Impact Statement (EIS) portion often taking the longest.^{lvi} When communities are engaged and supportive, projects move faster and more efficiently, accelerating the transition to a cleaner energy future.^{lvii}

Majority of Americans continue to support more nuclear power in the U.S.

% of U.S. adults who *favor* more nuclear power plants to generate electricity in the country



Note: Respondents who gave other responses or did not give an answer are not shown.

Source: Survey of U.S. adults conducted May 13-19, 2024.

PEW RESEARCH CENTER

PILLAR 4 RECOMMENDATIONS

- Prioritize **energy affordability for all** by investing in programs like the Low Income Home Energy Assistance Program (LIHEAP).
 - Ensure that the formulas being used to calculate state LIHEAP assistance equally weigh hot and cold weather energy challenges.
 - Continue to foster strong partnerships with local utilities that support the program.

- Establish federal and state **job training and transition programs** for energy communities transitioning from oil and gas industries as markets shift.
 - Explore options for direct transferability of skills and infrastructure for nuclear and geothermal projects.
 - Engage with unions to support workforce development initiatives.
 - Include substantial investment in joint labor-management training programs in the skilled trades, including Building Trades unions and their signatory contractors.
 - Provide investments in joint labor-management training programs for:
 - Training center modernizations, expansions, or repairs.
 - The purchase, installation, maintenance, or repair of equipment used for training program instruction.
 - The purchase of new, modern training centers.
 - The provision of supplementary services or supplies for students or incumbent workers enrolled in labor-management training programs, including transportation subsidies, childcare, tools, or books.
 - Curriculum development.
- Focus on **constant community engagement, education, and buy-in** for new energy projects, especially around nuclear siting and waste concerns.
 - Begin early in the process of new construction or retrofits.
 - Balance streamlining permitting timelines with ensuring proper opportunities for community engagement.
 - Expand options for virtual community input meetings and ensure that relevant agencies have the necessary infrastructure to host them.
- Uphold federal obligations to American Indians and Alaska Natives through **proactive and thorough tribal consultation** where relevant.
 - Educate agency workforces about federal obligations to tribes and establish best practices.
- Fund and expand targeted **federal support for workforce development programs**, including registered apprenticeships, labor-management training programs, community college programs and university partnerships, to train the next generation of energy workers.
- Incentivize worker retention during the transition period to maintain stability for workers and families.
 - Create a refundable payroll tax credit for employers who retain workers displaced by plant closures or capacity reductions while they work to transition workers to new opportunities with comparable wages and benefits.
- Ensure **equal or better quality pay, benefits, and protections** in new industries as legacy energy industries.
 - Effectively enforce labor standards on new projects to ensure that new jobs in future energy sectors adhere to the prevailing wages, registered apprenticeship standards, and fair labor practices critical for sustaining middle-class careers.
 - Promote unionization in new industries, including encouraging labor neutrality during union drives.
 - Encourage collaboration between the Department of Labor's Occupational Safety and Health Administration, Wage and Hour Division, and Employment and Training Administration and unions to develop standards and enforcement strategies. Properly fund these agencies to ensure robust enforcement.

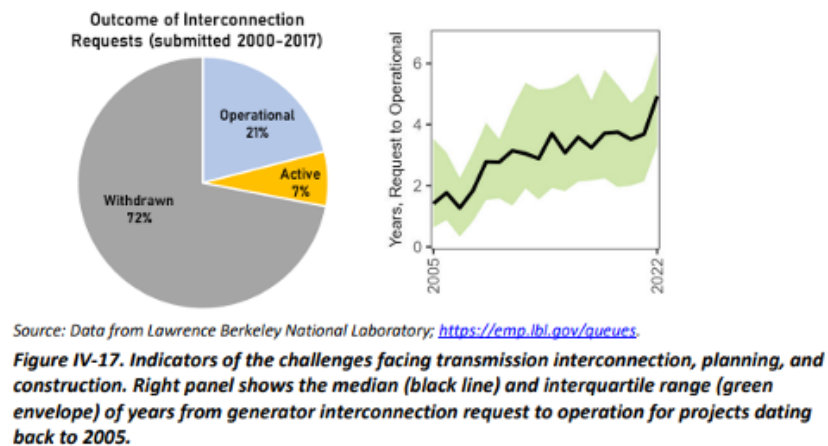
*Get Power Where it
Needs to Go*

5

PILLAR 5: GET POWER WHERE IT NEEDS TO GO

As energy demand across the United States expands, transmission systems will need to be prepared to move more energy from where it is generated to where it will be used. Studies estimate that the national transmission system will need to at least double in size by 2050 in order to maintain reliability and keep costs low.^{lviii} And as more energy projects come online, the demand for transmission will continue to grow. In 2023, there were 2,600 gigawatts of generation and storage capacity actively seeking grid interconnection – more than the capacity of the U.S. grid at the time.^{lix}

The bottleneck in grid connection creates uncertain timing and makes development far more challenging. Rising demand for project approval has grown the backlog substantially. Additionally, interstate and inter-regional transmission siting and permitting require the participation of state, local, federal, tribal, and private entities.^{lx} If multiple agencies are involved, the process may slow even more. To address long permitting timelines, some transmission lines may receive expedited permitting under the FAST-41 program or categorical exclusions to NEPA.^{lxi}



There is also room for improvement in the efficiency of existing transmission lines. While the American transmission and distribution system is among the most efficient in the world, it still loses around 5% of generated electricity.^{lxii} There have been many recent innovations in Grid Enhancing Technologies, which could safely increase the power flows in existing transmission lines by up to 40%.^{lxiii} These innovations could improve efficiency in the short-term as federal permitting conversations continue.

PILLAR 5 RECOMMENDATIONS

- **Improve transmission timelines** and increase certainty for connections.
 - Streamline interagency communication for large-scale transmission permits and create more ownership within the lead agency.
 - Enhance communication between states, private entities, and federal agencies around permitting requirements and timelines.
 - Use existing rights of way when possible so that multiple components are located in the same place, avoiding new siting requirements.

- Expand **categorical exclusions** for:
 - The development of electric transmission or distribution facilities that are within recently approved rights-of-way corridors.
 - Modifications or upgrades to existing transmission, distribution, and grid infrastructure within existing rights-of-way. This could also apply to previously developed land, which could be retrofitted to include grid-enhancing technologies or more efficient wires.
 - The deployment of batteries or other energy storage technologies on previously disturbed or developed land (for example, those collocated with an existing power plant).
- Deploy **grid-enhancing technologies** to maximize the efficiency of existing transmission infrastructure, adjust capacity, and optimize routing.^{lxiv}
- Increase **interoperability and communication** between regional transmission entities, including increasing data accessibility and model compatibility.





WATCH
FOR
ROCKS





C O N C L U S I O N

Many of the ideas included in this plan have been supported by energy leaders, scientific experts, and facets of the energy industry in the past. What is missing is not the science to prove that these are good ideas, but rather the political will to see them through.

Safe, reliable, and affordable energy is a necessity to ensure that communities across the United States can continue to grow and thrive. If our federal government does not rise to meet the current moment, we will miss out on jobs and innovations that will find homes elsewhere. Whether your concern is the artificial intelligence race, strategic competition with China, the environment, or rising temperatures, we all have a shared interest when it comes to energy.

Whatever part of this plan caught your interest is something that I want to work with you on. Energy policy can build bridges, and we can move our common interests forward. Together we can build a cleaner, safer, and literally brighter future.

ENDNOTES

ⁱ<https://www.pbs.org/newshour/economy/u-s-inflation-increases-to-3-percent-groceries-and-gasoline-prices-heading-higher>

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RUBEN GALLEGO
UNITED STATES SENATOR for ARIZONA