TO: Jonathon Hathaway, Research Program Director, NSDPI
FROM: NSDPI Research Intern Cohort, US Team (Eli Beaubien, Colin Heffern, Cole Leis, and R.J. May)
SUBJECT: Important Data Sources on Next-Generation Energy, Power, and Storage in the US
DATE: June 27, 2025

Grid Infrastructure: Basic Functions, Processes, Vulnerabilities, and Technological Innovation

Intro Paragraph:

The following sources reflect the current landscape of the US power grid and potential avenues of innovation, investment and governmental action to improve it. Each source is written by industry experts, and given the technical nature of power production, consensus on the fundamentals of the grid do not differ. Some are more technical and statistical (see II and IV), whereas others are more overarching and introductory, but not at the expense of being uninformative. None of the sources require advanced knowledge on electrical engineering or statistical methods, but the EIA "Electric Power Annual" requires diligence in sifting through the pages of statistics (revenue, expenditures, total generation/storage/transmission capacities, fuel source quantities etc.). The ASCE will prove most useful, in my opinion, with understanding the current state of the power grid and the vulnerabilities it has.

I. ASCE. "2025 Report Card for America's Infrastructure: Energy (D+)." 2017. American Society of Civil Engineers. https://infrastructurereportcard.org/cat-item/energy-infrastructure/.
   A. Written by a trustworthy collective of experienced engineers, this report goes through almost every facet of existing grid infrastructure–its vulnerabilities, investments, technologies, finances and its relationship to the energy sector at large. It also provides great information on emerging technologies and the policy steps that should be taken to improve the power grid for the short and long-run. It briefly talks about past policies like IIJA and IRA, overarching national goals like transitioning to zero-carbon energy production, and the barriers preventing America from achieving excellence.

II. "Electric Power Annual - U.S. Energy Information Administration (EIA)." n.d. Accessed June 3, 2025. https://www.eia.gov/electricity/annual/table.php.
   A. This database provides a yearly summary of important statistics regarding the grid and its power production capabilities. It incorporates the latest recorded information on power plants' fuel use (and how much), revenue and expenditures for utility companies, average kWh production across

power plants, the number and size of power plants, total investments by utility companies etc. The EIA is a reputable source, and the statistics within this report are the most extensive and newest information points on the web. Navigating the website is very easy, and there are numerous graphs and frequently updating charts to visualize information in a convenient way.

III. Giacobone, Phoebe Skok, Bianca. 2024. "The US Interconnection Queue Is Twice Its Installed Capacity." *Latitude Media* (blog). April 11, 2024. https://www.latitudemedia.com/news/the-us-interconnection-queue-is-twice-its-installed-capacity/.

A. This blog explains the growing issue of interconnection requests (IRs) in the US. An IR is a contract put forth by a developing power plant that seeks to be connected to a portion of the power grid to begin generating power to sell on the wholesale market to utility companies. Currently, there are enough renewable energy plants waiting in the IR queue (which all need to be approved by FERC) to make the power grid carbon free by 2035 if every plant was granted permission to begin development. However, various problems surrounding the efficiency of the IR process and the scalability of the power grid prevent a majority of IRs from gaining a commercial operations contract. There is no shortage of potential power production in the US, in fact, there may be too much potential and no one knows how to properly approach such a significant increase in supply.

B. *(Gorman, Will, Julie Mulvaney Kemp, Joseph Rand, Joachim Seel, Ryan Wiser, Nick Manderlink, Fredrich Kahrl, Kevin Porter, and Will Cotton. 2025. "Grid Connection Barriers to Renewable Energy Deployment in the United States." Joule 9 (2). https://doi.org/10.1016/j.joule.2024.11.008.) SIMILAR SOURCE BUT ACADEMIC ARTICLE THAT USES EXPERIMENTAL METHODS (cost data sample and distributions)*

IV. Andersen, Glen, Laura Shields, and Jeremy Twitchell. 2021. "Energy Storage for a Modern Electric Grid: Technology Trends and State Policy Options." NCSL. https://www.ncsl.org/energy/energy-storage-for-a-modern-electric-grid-technology-trends-and-state-policy-options.

A. Written by energy and research professionals as part of a National Conference of State Legislatures report, this article looks at the basic functions of the power grid in addition to energy storage and even state recommendations on improving the grid within their respective jurisdictions. It is not overtly technical making it a smooth read, and there are also great visuals to help illustrate the workings of the power grid. The state action section is particularly interesting because it provides a forward look (despite having been written in 2021) on what state's should be doing, based on empirical research, to improve the power grid. The report

includes economic, technological, bureaucratic and environmental factors, providing a wide range of criteria for assessment.

V. Cochran, Courtney. 2024. "Fortifying the Grid in the Southeastern U.S. through Microgrids: Navigating an Uncertain Regulatory Environment." *Environmental Progress & Sustainable Energy* 43 (1): 1–16. https://doi.org/10.1002/ep.14337.
    A. This article highlights the importance of finding solutions to vulnerable grid infrastructure because of incremental weather events. The main points of analysis are the positives and negatives of microgrids. This article is much more technical given it's published by The Global Home of Chemical Engineers, but this bolsters their findings that microgrids make a more resilient power grid. It also provides a great background of the basic framework of the power grid–RTOs/ISOs, FERC, utilities, PSC etc. Section 2.6 provides "potential complications and impacts" which offers great counterpoints to their main arguments which demonstrates an ability to think comprehensively about the issue, attempting to solve problems scientifically by making necessary empirical predictions and accounting for error/uncertainty. It even provides a section on public opinion and government involvement, encapsulating all the moving parts that would be involved with making any policy decision regarding microgrids.

Emerging Technologies: How is Innovation Redefining the Power Grid and Energy Sector at Large

I. "Generation IV Goals, Technologies and GIF R&D Roadmap | GIF Portal." Accessed June 16, 2025. https://www.gen-4.org/generation-iv-criteria-and-technologies.
    A. Written by the Generation IV International Forum, an international collaboration of 13 countries focused on R&D of next-generation nuclear systems. It provides the definitive goals of Generation IV Nuclear Power and lists the technology along with the proposed roadmap to implement the technology. Gives succinct details on the types of technology and their differences.

II. "AI and Energy: Will AI Reduce Emissions or Increase Power Demand? | World Economic Forum." Accessed June 16, 2025. https://www.weforum.org/stories/2024/07/generative-ai-energy-emissions/.
    A. Written by the World Economic Forum, an independent international organization, this article discusses the question of if AI will increase emissions or overload our power grid. It discusses how much energy AI uses and how that has increased tech firms greenhouse gas emissions. The article then discusses how AI can improve the grid's energy efficiency.

Finally they highlight some key initiatives needed to make the benefits of AI outweigh the costs.

III. "Grid-Scale Storage Is the Fastest-Growing Energy Technology." Accessed June 16, 2025. https://www.economist.com/the-world-ahead/2024/11/20/grid-scale-storage-is-the-fastest-growing-energy-technology.
   A. This article by the Economist contextualizes the importance and the rapid growth of grid storage. They explain why grid-scale energy storage is more important than ever due to four main factors: rise in renewables, Chinese overcapacity in battery manufacturing, rise in AI demand, and innovations in grid-scale energy storage technology.

IV. Majeed Butt, Osama, Muhammad Zulqarnain, and Tallal Majeed Butt. "Recent Advancement in Smart Grid Technology: Future Prospects in the Electrical Power Network." *Ain Shams Engineering Journal* 12, no. 1 (March 1, 2021): 687–95. https://doi.org/10.1016/j.asej.2020.05.004.
   A. This paper discusses the concept and need for a Smart Grid. They summarize the concept of a Smart Grid and the desirable goals and targets. Additionally they discuss a number of emerging technologies that are being developed for the advancement of the smart grid. Finally they discuss the recent trends and future of the smart grid.

V. US EPA, OAR. "Power Sector Evolution." Overviews and Factsheets, January 13, 2022. https://www.epa.gov/power-sector/power-sector-evolution.
   A. This page gives a general background into historical and recent trends of the power grid. Firstly they discuss the power sector emissions decreasing while electricity demand has increased in recent years. They then discuss trends in Transmission and Distribution systems as the aging power sector requires a turnover. Finally they discuss trends and graphs across all sectors of power generation.

Energy and Grid Policy: New Initiatives, Overarching Goals and the Current Landscape

Introductory Paragraph:

The following sources are a starting point for understanding the Trump administration's context and direction when it comes to energy policy. In terms of future direction, these sources do not tell the full story as there hasn't been energy-focused legislation yet to be passed during the current Trump administration. Therefore, the following sources have been selected for their contributions towards policy surrounding emerging technology, global energy positioning, and the conversation between investment in fossil fuels and renewable energy. Since no major energy legislation has been passed in 2025, President Trump's executive orders serve as context paramount towards future policy.

I. Sivaram et al. Winning the Battery Race: How the United States Can Leapfrog China to Dominate Next-Generation Battery Technologies. *Carnegie Endowment for International Peace. 2024.* *https://carnegieendowment.org/research/2024/10/winning-the-battery-race-how-the-united-states-can-leapfrog-china-to-dominate-next-generation-battery-technologies?lang=en*
    A. This paper overlooks federal policy initiatives and incentives for the battery supply chain. Well researched and a great source that argues for R&D investment in *tomorrow's* batteries, Sivaram et al. emphasizes the need for non-lithium-ion batteries. Furthermore, this paper extrapolates investment potential to manufacturing tax credits from EPA 2005 and Inflation Reduction Act and the importance of policy for investment.

II. *Executive Orders* - White House
    A. There is a page on the White House website that shows all current presidential actions, sectioned off by executive order, nominations and appointments, presidential memoranda, and proclamations. While they cannot be sorted by policy area, their titles are displayed giving you insight into what the order is about. Since there is not an energy policy bill yet passed by the Trump administration through Congress, executive orders are your best bet for learning more about the direction of the current administration.

III. Dabbar, Paul. U.S. Energy Superpower Status and a new U.S. Energy Diplomacy. *Hoover Institute*. 2024. https://www.hoover.org/research/us-energy-superpower-status-and-new-us-energy-diplomacy
    A. This paper analyzes the impact of energy supply policy, giving recommendations for what is dampening energy supply growth and global positioning strengths. U.S. global energy positioning is critical for our national security and Dabbar argues for the need to maintain global energy sovereignty.

IV. Economic and National Security Impacts under a Hydraulic Fracturing Ban. *United States Department of Energy*. 2021. https://www.energy.gov/fecm/articles/economic-and-national-security-impacts-under-hydraulic-fracturing-ban
    A. A great resource for pro-fracking information with a plethora of charts, graphs, and data around gas prices and the importance of energy independence. Includes future projections towards 2025 and is a great cross-reference for previous models and true impact.

V. Donnelly KB. Storing the future of energy: Navigating energy storage policy to promote clean energy generation. *Environ Prog Sustainable Energy*. 2023; 42(2):e14062. doi:10.1002/ep.14062

A. This paper serves as a bouncing off point for energy storage policy as energy generation policy. Excellently weaves the intersection of power generation and power storage on the future grid and the impact of clean and renewable energy.

Investment: Assessing Public Funding and Private Capital Expenditures and the Intersection Between the Two

I. IEA. "World Energy Investment 2025." *IEA*, June 5, 2025. https://www.iea.org/reports/world-energy-investment-2025.
   A. The International Energy Agency (IEA) — a well-respected global organization in the energy sector — released its most up-to-date annual report on global energy sector investment trends, "World Energy Investment 2025," in June 2025. The report offers a comprehensive overview of the energy investment landscape in 2024 and analyzes the emerging trends, priorities, and investment drivers from early 2025 that will shape the remainder of the year along with the years to come. It tracks the flow of capital in the energy sector and discusses how investors view risks and opportunities related to fuel and electricity supply, critical minerals, energy finance, R&D, and efficiency. Moreover, it discusses the sources of finance and investment in the sector. Regarding the U.S. in particular, the report provides data on the amounts of money that have been invested in different aspects of energy systems annually over the previous decade, and it offers projections for the nation's 2035 investment breakdown. It places an emphasis on how the growth of data centers will shape energy investment down the line. Otherwise, the report includes a range of other miscellaneous useful data, many of which are displayed in helpful graphs. The report is a valuable resource for comparing and contrasting energy investment trends across nations (e.g., the U.S. and China) and understanding how the globe's investment in energy is shifting overall.

II. Motyka, Marlene, Keith Adams, Micah Bible, Kate Hardin, Jaya Nagdeo, and Brian Boufarah. "Funding the Growth in the US Power Sector." *Deloitte Insights*, February 26, 2025. https://www2.deloitte.com/us/en/insights/industry/power-and-utilities/funding-growth-in-us-power-sector.html.
   A. The Deloitte Research Center for Energy & Industrials, part of the leading professional services firm Deloitte, published the article "Funding the Growth in the U.S. Power Sector" in February 2025. The article provides estimates of sector-wide capital investment, future electricity demand, and potential future investment in the power sector based on data center growth. It explains that costs are rising in the sector due to increasingly common extreme weather events and worldwide macroeconomic shifts,

and it suggests that the traditional ways that utilities secure funding—raising rates and issuing debt and equity—may soon become inadequate given rising costs. The article details the ways in which utilities are considering securing funding in the future—private capital, cooperation with other industries, and government incentives—and it recommends that utilities consider various methods for reducing consumer prices, including updating the regulatory landscape together with regulators, using more non-wire alternatives, and achieving greater operational efficiency through AI. The article is useful for understanding both where investment in the power sector currently comes from and where it may come from in the future.

III. US EIA. "Grid Infrastructure Investments Drive Increase in Utility Spending over Last Two Decades." *EIA.gov*, November 18, 2024. https://www.eia.gov/todayinenergy/detail.php?id=63724.

A. The U.S. Energy Information Administration (EIA), a federal agency responsible for gathering, analyzing, and publishing information about energy, released this article, "Grid Infrastructure Investments Drive Increase in Utility Spending over Last Two Decades," in November 2024. The article provides data on annual U.S. utility spending on electricity infrastructure by sector (i.e., generation, transmission, distribution, and "other"); annual capital additions by sector; and annual capital spending on distribution infrastructure by type. It discusses the drivers of trends in utilities' power sector spending briefly, but it is most useful for understanding where utilities' investment in the power sector has been focused throughout the past two decades.

DATA SETS

I. https://www.epa.gov/egrid/detailed-data
   a. Offers an excel sheet that provides extensive information on: Unit, Generator, Plant, State, Balancing Authority Area, eGRID Subregion, NERC Region, U.S., Grid Gross Loss (%), and Demographic Data Files. Lists every power plant in the US and their capabilities, and data like emissions, power plants' surrounding population demographics, and data at regional, state, and national levels.

II. https://www.eia.gov/electricity/data/eia860/
   a. Contains yearly generator-level specific information about all existing and planned generators and associated environmental equipment. It contains a ZIP file for each year with specific CSVs for Wind, Solar, Multifuel, Fossil Fuels, Storage, and Environmental Facilities. Each CSV contains all operable, proposed, and retired/canceled facilities. The data is further distilled into facility name, summer capacity, age, and more specific energy source data.

III. https://www.eia.gov/electricity/annual/pdf/epa.pdf
   a. This PDF contains data by state on electricity sales, net generation, generation capacity, environmental, efficiency, and distribution reliability. This consolidates generation, capacity, consumption, price and performance for utility scale and distributed resources as well as breaking it down by state and territory.

IV. https://experience.arcgis.com/experience/bb8c905b75f84d908ab83f579498d085/page/Page
   a. Interactive map showing every power plant in the U.S. and their primary energy source. Can press on each power plant to derive a brief summary that includes utility company, emissions, net capacity (and summer capacity), number of generators, operational timeline. Data is also included across the past 5 years of available data (2018-2023).

V. https://www.ferc.gov/
   a. Offers a variety of data under the "industries and data" section that covers different types of fuel used for power generation and the relevant statistics, as well as market, administrative and compliance analyses.

VI. https://catalog.data.gov/organization/doe-gov
   a. Offers a catalog of over 3,700 datasets that provide extensive information on a variety of factors across public and private energy sectors. It includes utility company rates, state production capacities, carbon-dioxide emissions, renewable outputs, low-income energy affordability etc.

APPENDIX X

Executive Order	Date	Deliverables	Summary
Unleashing American Energy (EO 14154)	January 20th, 2025	Agencies must issue regulatory-review plans within 30 days. Revokes 12 existing climate/environment EOs.	EO 14154 declares that regulatory burdens have crippled U.S. energy production and sets a policy to "unleash" American energy. It orders all agencies to review and rescind rules impeding oil, gas, coal, hydropower, biofuel, nuclear, and critical mineral development, with 30-day agency plans to suspend or rescind burdensome regulations. It revokes a suite of prior climate/environmental EOs (12 Biden-era orders including EOs 13990, 14008, 14037, etc.) and terminates programs like the American Climate Corps. CEQ is directed to rewrite NEPA regulations within 30 days to fast-track energy projects. The outcome is a sweeping rollback of environmental regulations in favor of maximum energy development.
Establishing the National Energy Dominance Council (EO 14213)	February 14th, 2025	Council membership: ~18 top officials (Energy, Defense, Agriculture, etc.). 100-day deadline for strategy/action-plan report. No discernable public records for meetings.	EO 14213 creates the National Energy Dominance Council, chaired by the Interior Secretary (and Vice-Chair by the Energy Secretary). The Council, comprising ~18 Cabinet and agency heads, advises the President on boosting all forms of energy production and streamlining related regulations. It must deliver within 100 days a National Energy Dominance Strategy with long-range goals (cutting red tape, spurring private investment) and action plans (e.g. new pipelines to underserved regions, reopening

			plants, approving small modular reactors). The order integrates this council into the National Security Council (Sec. 6) and requires agencies to cooperate, aiming to accelerate energy permits and production.
Zero-Based Regulatory Budgeting to Unleash American Energy (EO 14270)	April 9th, 2025	Covered agencies include EPA, DOE, FERC, NRC, and Interior bureaus (BLM, BOEM, etc.); All covered energy regs get 1-year sunsets by Sep 30, 2025 (renewable up to 5 years).	EO 14270 mandates a "zero-based" approach to energy regulations. Covered agencies (EPA, DOE, FERC, NRC, Interior bureaus, Army Corps) must justify all existing rules and impose sunset dates on them. Each covered regulation receives an initial 1-year sunset (extensions by 1-year up to 5 years) unless agencies affirmatively reauthorize it. Agencies must propose rescissions of rules that lack current justification. The outcome is a massive rollback of outdated energy regs: agencies effectively rebuild their regulatory code from scratch under this budgeting system.
Protecting American Energy From State Overreach (EO 14260)	April 8th, 2025	Cites "billions in fines" under state laws targeting fossil fuel companies; Targets state regulations/litigation in ~30 states.	EO 14260 directs the Attorney General and agencies to counter state/local measures that unfairly penalize U.S. energy producers. It cites examples of state "climate extortion" laws—such as New York and Vermont imposing retroactive "billions in fines" on past oil and gas production—and orders the DOJ to identify and challenge state taxes, fees, or lawsuits that unlawfully burden domestic energy industries. Outcomes include federal efforts to preempt or invalidate state climate taxes,

			stringent fines, or permitting bans that threaten national energy supply.
Reinvigorating America's Beautiful Clean Coal Industry and Amending Executive order 14241 (EO 14261)	April 8th, 2025	"Hundreds of thousands" of American jobs in coal; reserves worth "trillions". Deadlines: 60-day coal resource report; 30–60-day rescind actions.	EO 14261 proclaims coal a vital and "beautiful" energy resource. It notes coal's importance (supporting "hundreds of thousands" of jobs and containing "trillions of dollars" in reserves). The EO directs Interior to assess federal coal deposits and leasing barriers (60-day report), rescinds the 2016 "Energy Pauses," resumes and expedites coal leasing and exports, and requires EPA and others to rescind rules that disadvantage coal (including tax credits and appliance bans). It also designates coal (incl. metallurgical) as a critical energy mineral. Outcome: reversal of coal restrictions and aggressive promotion of coal mining, power generation, and technology.
Strengthening the Reliability and Security of the U.S. Electric Grid (EO 14262)	April 8th, 2025	30-day deadline for DOE to set reserve margin standards (90-day report). 50 MW threshold: larger generators cannot leave low-capacity regions	EO 14262 uses emergency authority to bolster grid resilience amid rising demand. It directs DOE to invoke Federal Power Act §202(c) to order power deliveries when needed to prevent blackouts. Within 30 days DOE must develop a uniform regional reserve margin metric (with a 90-day analysis) to identify low-capacity areas. Crucially, the order bars generators over 50 MW from relocating out of regions with insufficient reserves, preventing loss of capacity. Outcome: strengthened DOE authority to manage energy supply and new

			rules to maintain adequate grid reserves in key regions.
Unleashing America's Offshore Critical Minerals and Resources (EO 14285)	April 24th, 2025	60-day Commerce report on industry interest and licenses. Target minerals: deep-sea "nodules" containing Ni, Co, Cu, Mn, REEs	EO 14285 promotes U.S. deep-sea mineral development. It highlights U.S. jurisdiction over abundant seabed nodules (rich in nickel, cobalt, copper, manganese, rare earths). Commerce (via NOAA) is ordered to expedite permits/licenses under the Deep Seabed Hard Mineral Resources Act and to report within 60 days on private-sector interest in deep-sea mining. The EO directs agencies (Defense, Energy, etc.) to use defense authorities (stockpiles, Defense Production Act) to finance and support deep-sea mining technology, and to engage allies on benefit-sharing. Outcome: streamlined federal support for offshore minerals exploration and reduced reliance on foreign suppliers.
Immediate Measures to Increase American Mineral Production (EO 14241)	March 20th, 2025	Deadlines: 10-day list of key deposits; 30-day priority land designation. DPA Title III delegated for financing and stockpiling critical minerals.	EO 14241 orders rapid action to boost domestic mining of critical minerals. Agencies must inventory priority mineral projects (oil, gas, helium, REEs, battery materials) and expedite the top sites for permitting. The Defense Secretary is delegated DPA Title III authority to designate strategic mineral projects, and the International Development Finance Corporation is authorized to fund mining ventures. A $10B+ National Critical Minerals Fund is created by reallocating existing DPA funds.

			Outcome: accelerated permits, funding, and project planning to expand U.S. mineral output.
Ensuring National Security and Economic Resilience Through Section 232 Actions on Processed Critical Minerals and Derivative Products (EO 14272)	April 15th, 2025	Section 232 timeline: 90-day interim report, 180-day final report. Focus on value-added imports for batteries, defense, tech industries.	EO 14272 directs Commerce to initiate a Section 232 investigation into imports of processed critical minerals (oxides, salts, metals) and derivative products (e.g. batteries, semiconductors, EVs) essential to security. Noting U.S. reliance on foreign sources, it sets a 90-day deadline for an interim report and 180 days for a final determination. Commerce is to consider tariffs, quotas, or incentives to strengthen domestic processing capacity. Outcome: potential trade actions (like tariffs or quotas) or incentives to reduce strategic import vulnerabilities.
Declaring a National Energy Emergency (EO 14156)	January 20th, 2025	30-day deadlines to report emergency CWA/ESA projects. 60-day DOD assessment of energy vulnerabilities (2808 authority invoked).	EO 14156 declares a national emergency due to inadequate U.S. energy supply and hostile foreign leverage. It orders agencies to use all emergency powers (including eminent domain and the Defense Production Act) to expedite energy projects, and EPA to consider fuel supply waivers. To fast-track infrastructure, it requires within 30 days the identification of projects eligible for emergency Clean Water Act and ESA permitting provisions, and to use those provisions to accelerate approvals. It tasks DOD with a 60-day assessment of military fuel/vulnerabilities and invokes 10 U.S.C. § 2808 for needed construction. Outcome: maximum

			federal action to remove delays on pipelines, drilling, and power projects under the emergency.
Deploying Advanced Nuclear Reactor Technologies for National Security (EO 14299)	May 23rd, 2025	Army reactor deadline: by 9/30/2028 ; 20 metric tons of HALEU committed to a fuel bank; Target 20 new nuclear cooperation agreements.	EO 14299 accelerates advanced nuclear (Gen III+, small modular, microreactors) for defense needs. It requires the Army to operate an on-base reactor by Sept 30, 2028, and designates the Army as DOD's nuclear energy executive agent. DOE must identify AI/data centers as critical infrastructure and select sites for advanced reactors (with the goal of first operation ~30 months out). The order establishes a fuel bank, releasing at least 20 metric tons of HALEU for authorized private reactor projects. It also directs the State Dept to pursue 20 new nuclear cooperation (Section 123) agreements globally, and DOE to approve reactor export licenses within 30 days. Outcome: catalyzes deployment of cutting-edge reactors in U.S. defense and expands U.S. nuclear exports.
Ordering the Reform of the Nuclear Regulatory Commission (EO 14300)	May 23rd, 2025	Nuclear capacity target: ~100 GW today → 400 GW by 2050. License-review deadlines: 18 months for new reactors, 1 year for renewals.	EO 14300 overhauls the NRC to speed nuclear growth. It notes that between 1954–1978 the U.S. licensed 133 reactors, whereas only 2 have since become operational, and it sets a goal to expand U.S. nuclear capacity from ~100 GW to 400 GW by 2050. The NRC must reorganize (streamline staff, cut excess, reduce ACRS oversight and "wholesale" rewrite its regulations: proposed new rules are due in 9 months and final in 18 months.

			New NRC rules must impose strict timelines (≤18 months to approve a new reactor, ≤1 year for license renewal) with corresponding fee caps. It also orders NRC to replace linear no-threshold radiation standards with science-based limits and to create expedited pathways for vetted reactor designs. Outcome: dramatically faster licensing and reduced regulatory barriers.
Reforming Nuclear Reactor Testing at the Department of Energy (EO 14301)	May 23rd, 2025	60-day deadline to define "qualified test reactor," 90-day to finalize DOE review rules.Approve ≥ 3 outside-lab test reactors (critical by 7/4/2026).	EO 14301 reforms DOE's approach to testing advanced reactors. It defines "qualified test reactors" and orders DOE to revise regulations so such reactors can be built and operational within 2 years of a complete application. DOE must create interagency support teams to assist applicants and prioritize qualified test reactor projects. It establishes a pilot program outside national labs to approve ≥3 reactor designs, aiming for all to achieve criticality by July 4, 2026. It also directs DOE, with CEQ, to overhaul its NEPA compliance by June 30, 2025, creating categorical exclusions and expedited reviews for these projects. Outcome: DOE is enabled to rapidly prototype and test advanced nuclear designs.
Reinvigorating the Nuclear Industrial Base (EO 14302)	May 23rd, 2025	Current U.S. nuclear capacity: ~100 GW; goal 400 GW by 2050. DOE to enable	EO 14302 directs broad measures to rebuild the U.S. nuclear supply chain and workforce. It tasks DOE (with DOD and OMB) with, within 240 days, a national policy/report on spent fuel management and

		5 GW uprates and 10 new reactors by 2030. Deadlines: 240-day fuel policy report; 120-day enrichment plan; 30-day DPA agreements.	advanced fuel cycle capability. Within 120 days, DOE and NRC must plan to expand domestic uranium conversion/enrichment to meet future LEU/HALEU needs. It halts the dilute-and-dispose plutonium program, instead directing surplus *Pu* to be processed into advanced reactor fuel. Using DPA authorities, DOE has 30 days to seek voluntary agreements with U.S. nuclear companies for cooperative LEU/HALEU procurement. DOE is also charged to prioritize 5 GW of uprates to existing reactors and 10 new reactors under construction by 2030 via loans/grants. Workforce initiatives include treating nuclear apprenticeships as a priority (per EO 14278) and directing Labor/Education within 120 days to expand nuclear vocational training. Outcome: stronger domestic fuel production (enrichment, recycling), industry-led investment, and skilled labor for a nuclear expansion.