USA Energy Development Update

EGNRET-56

United States (Virtual)

April 6-7, 2022

Annual Energy Outlook 2022 Highlights*

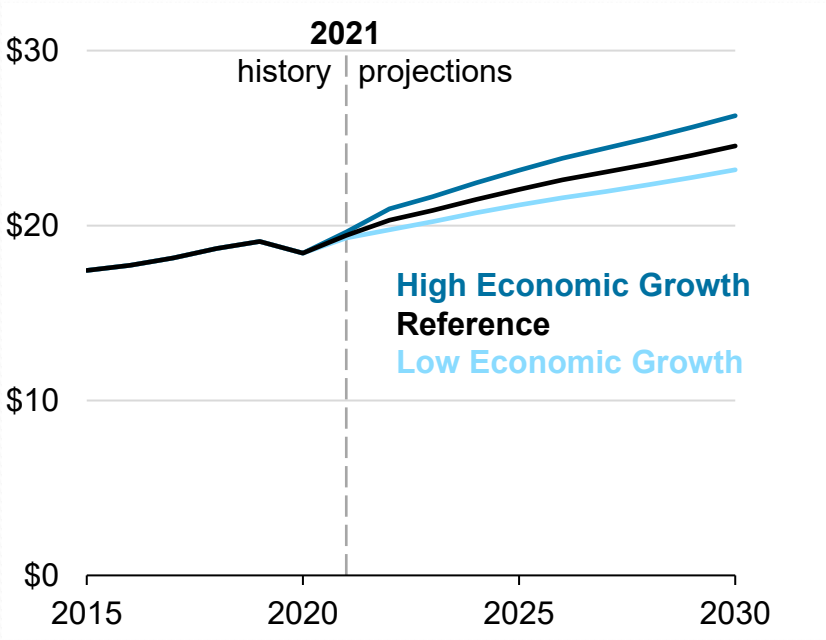
- Petroleum and natural gas remain the most-consumed sources of energy in the United States through 2050, but renewable energy is the fastest growing
- Wind and solar incentives, along with falling technology costs, support robust competition with natural gas for electricity generation, while the shares of coal and nuclear power decrease in the U.S. electricity mix
- U.S. crude oil production reaches record highs, while natural gas production is increasingly driven by natural gas exports

*US Annual Energy Outlook 2022
https://www.eia.gov/outlooks/aeo/

Changes in AEO2022: Pandemic and Legislation

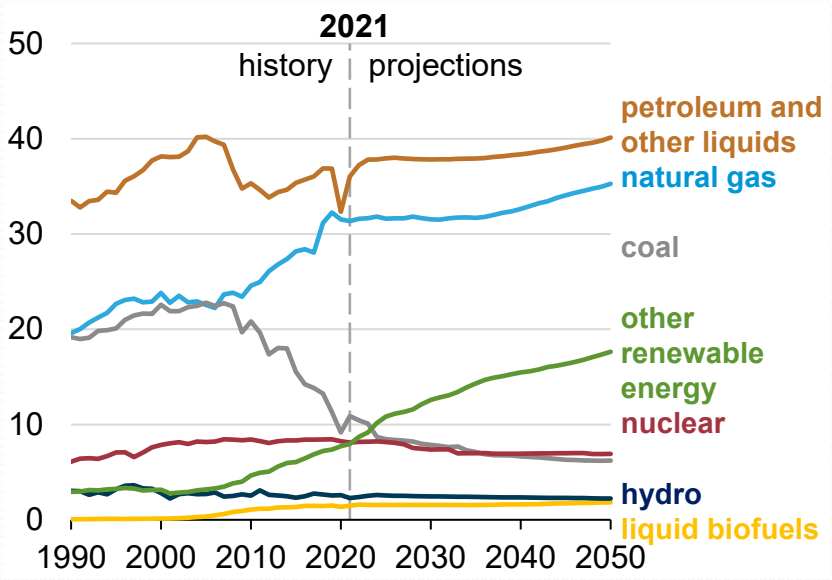
- COVID-19 continues to be a major source of uncertainty, especially in the near term.
- AEO2022 includes provisions from the Bipartisan Infrastructure Law

U.S. gross domestic product assumptions
AEO2022 economic growth cases
trillion 2012 dollars

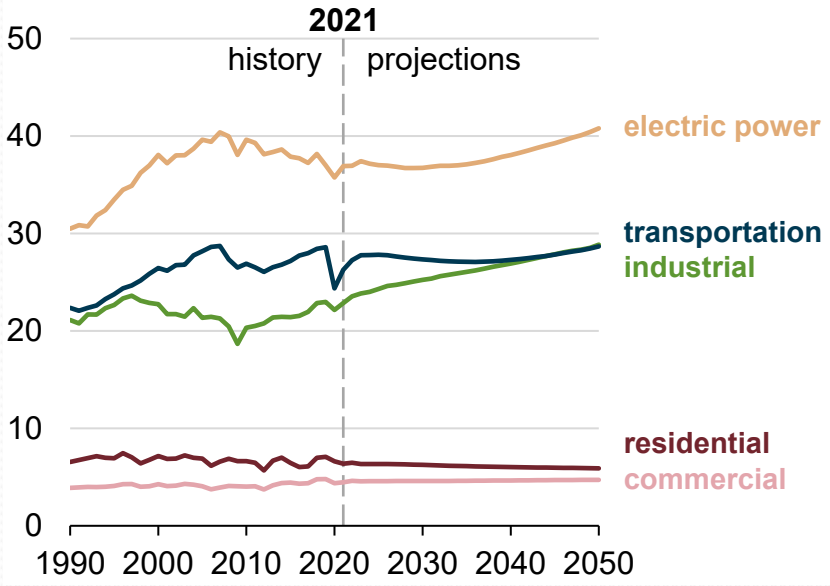


Renewables consumption grows fastest but remains far below petroleum and other liquids consumption in 2050

Energy consumption by fuel
AEO2022 Reference case
quadrillion British thermal units



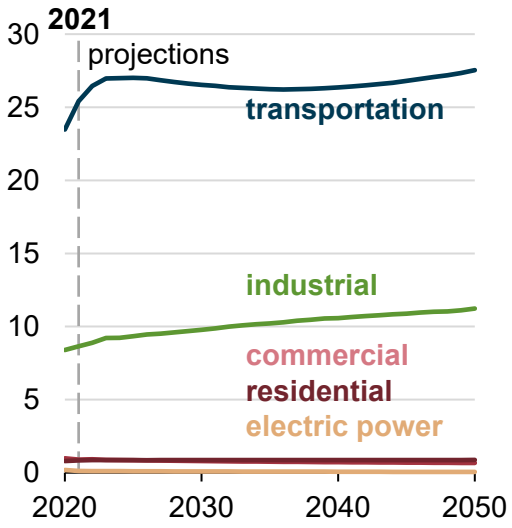
Energy consumption by sector
AEO2022 Reference case
quadrillion British thermal units



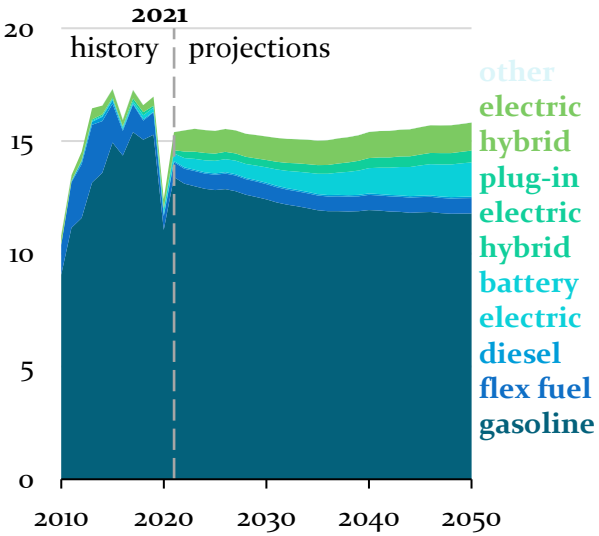
Note: Biofuels are shown separately and included in petroleum and other liquids.

Petroleum and other liquids are largely consumed by sectors with slow turnover to electric equipment

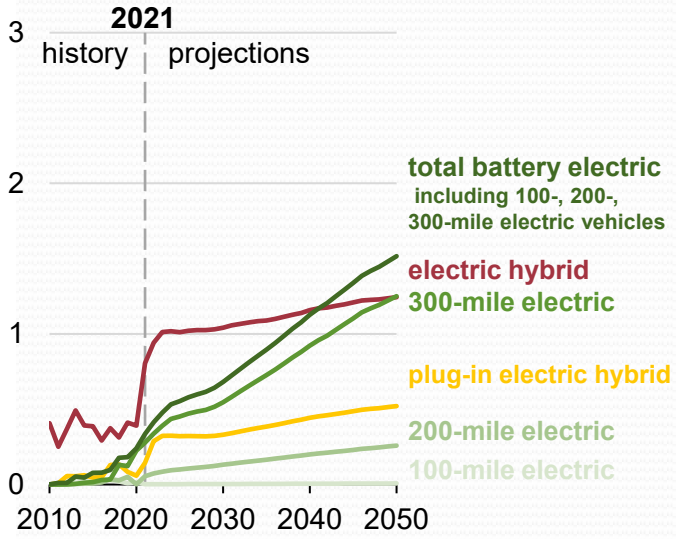
Petroleum and other liquids consumption by sector
AEO2022 Reference case
quadrillion British thermal units



Light-duty vehicle sales by technology or fuel
AEO2022 Reference case
millions of vehicles



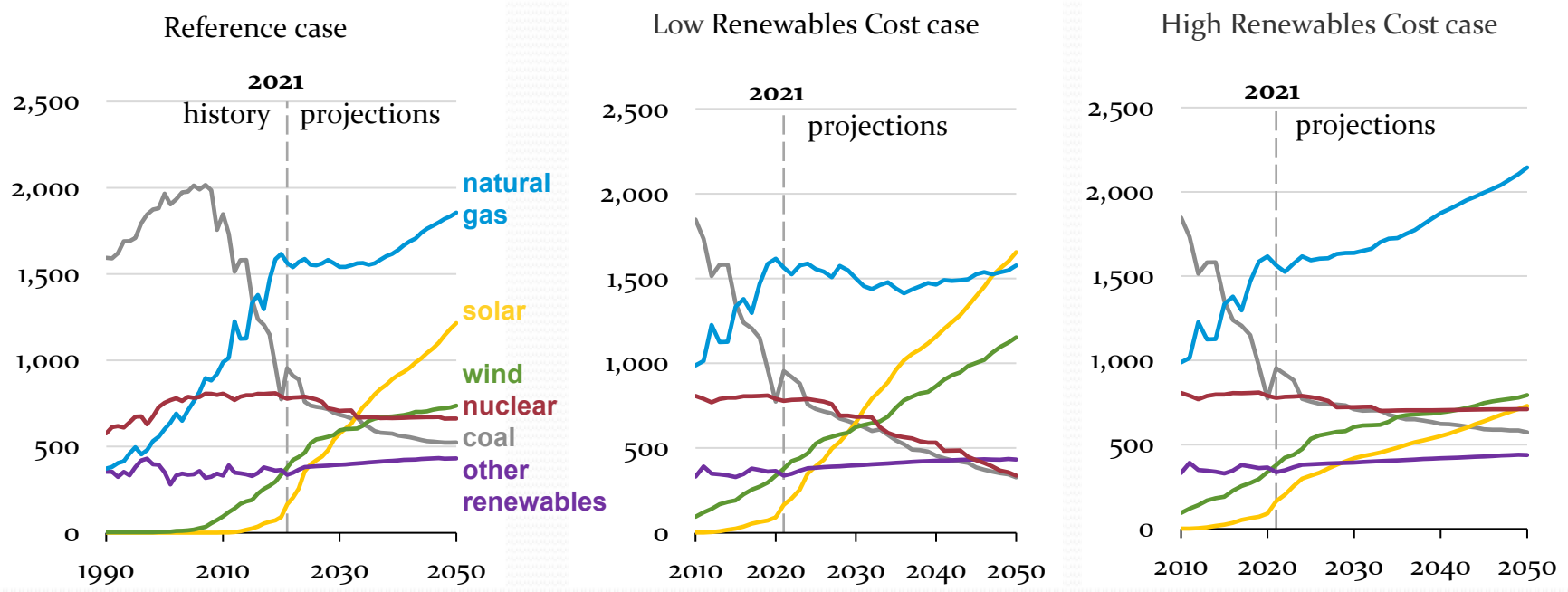
New vehicle sales of battery-powered vehicles
AEO2022 Reference case
millions of vehicles



AEO2022 Press Release
March 3, 2022

Renewables consumption for electricity generation grows significantly in all cases, even as it trades off with nuclear, coal, and natural gas

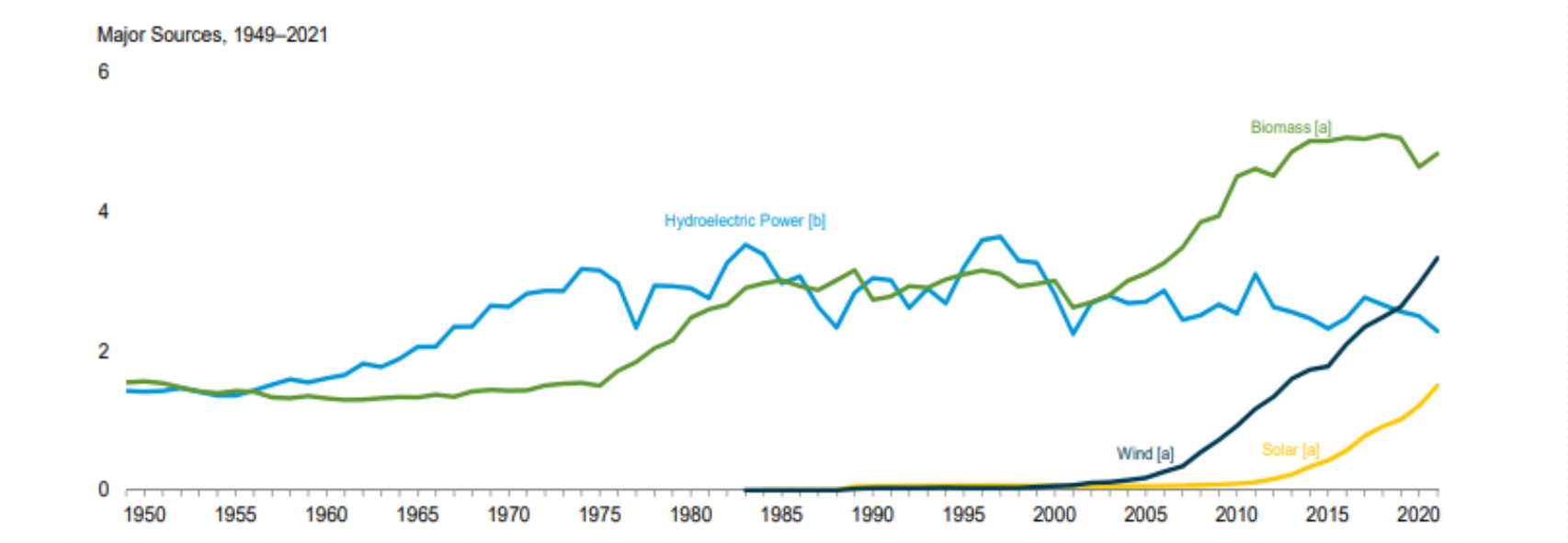
U.S. electricity generation
billion kilowatthours



Note: Other renewables category includes electricity generation from hydroelectric, geothermal, wood, and other biomass sources.

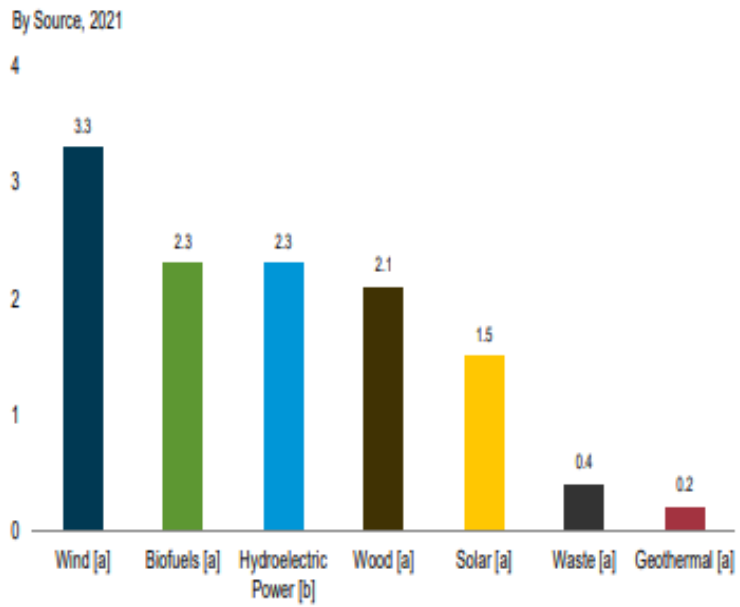
Renewable Energy Consumption*

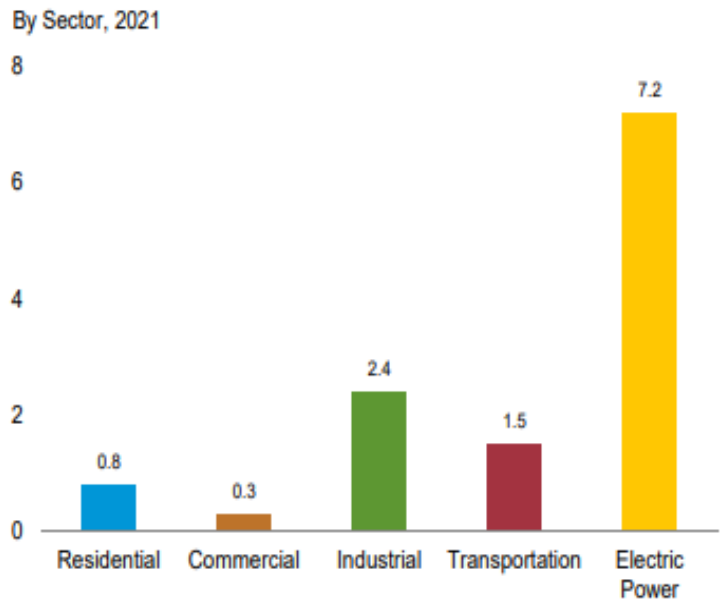
(Quadrillion Btu)



*US EIA Monthly Energy Review- March 2022
https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf

Renewable Energy Consumption by Source and Sector*
(Quadrillion Btu)

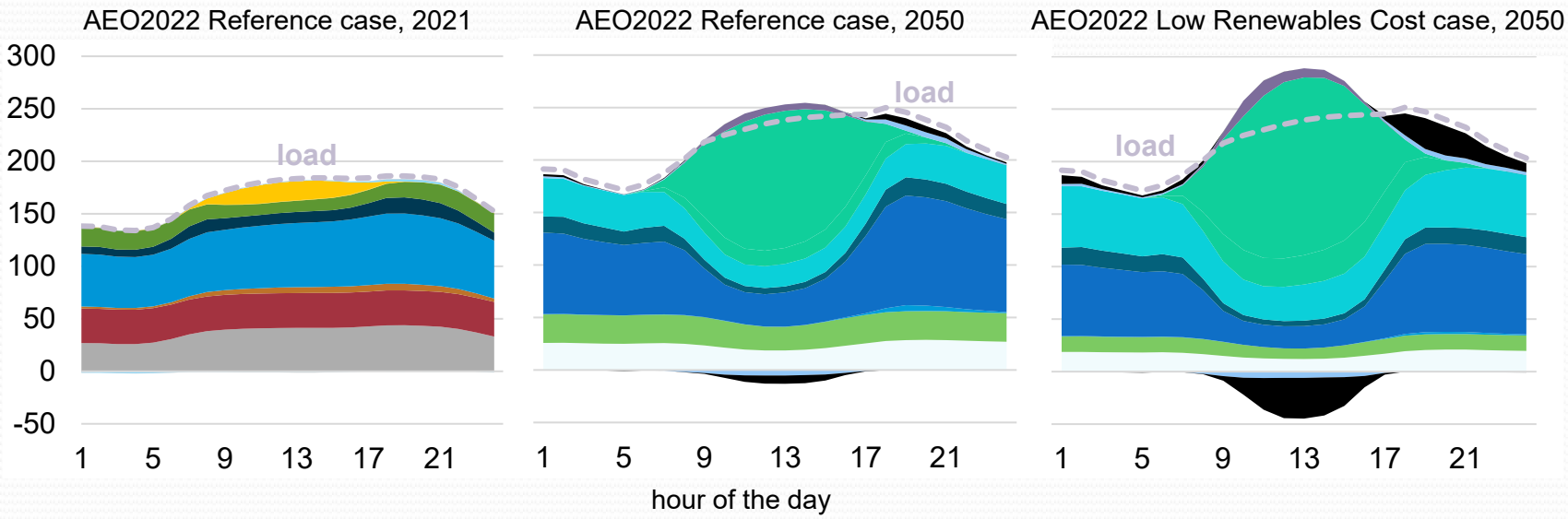




*US EIA Monthly Energy Review- March 2022
https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf

Significant renewables growth leads to additional battery storage

Hourly U.S. electricity generation and load by fuel for selected cases and years
billion kilowatthours

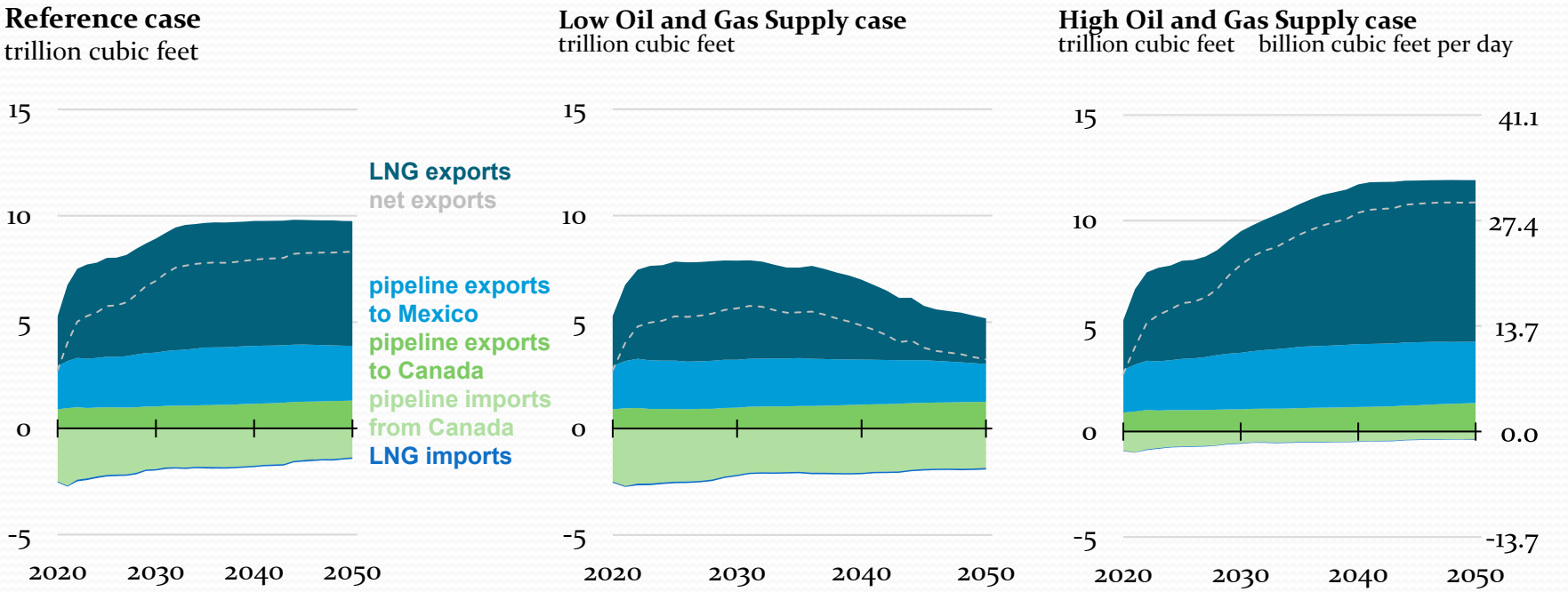


Note: Negative generation represents charging of energy storage technologies such as pumped hydro and battery storage. Hourly dispatch estimates are illustrative and are developed to determine curtailment and storage operations; final dispatch estimates are developed separately and may differ from total utilization as this figure shows. Solar includes both utility-scale and end-use photovoltaic electricity generation.

AEO2022 Press Release
March 3, 2022

Natural gas and liquefied natural gas (LNG) trade reaches 8 trillion cubic feet in the Reference case

U.S. natural gas trade, AEO2022 oil and natural gas supply cases

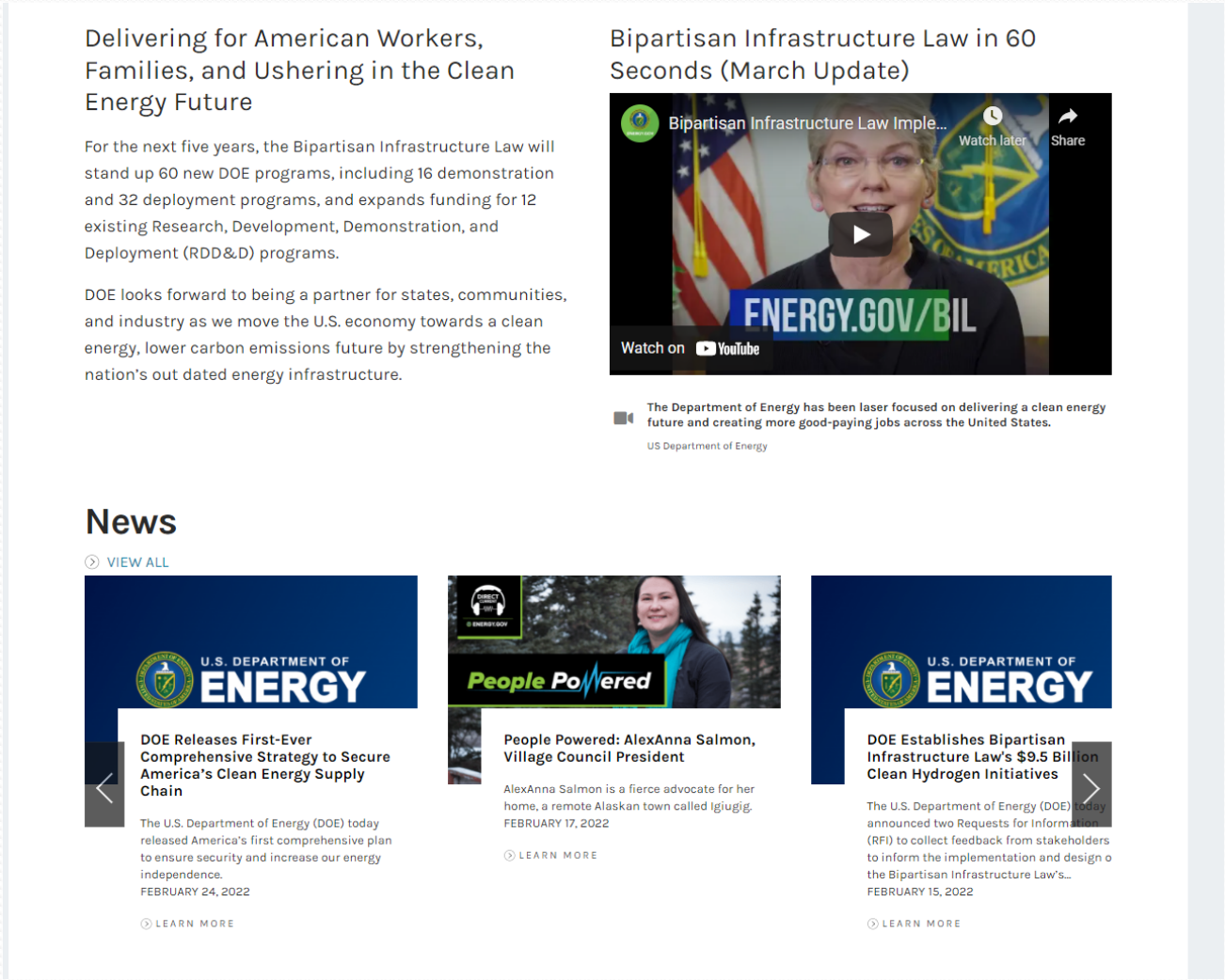


The 2021 US$1.2 trillion (1,200,000,000,000) Bipartisan Infrastructure Law provided US$62 billion to US DOE to deliver a clean energy future*

- Investing in American manufacturing and workers
- Expanding access to energy efficiency and clean energy for families, communities and businesses
- Delivering reliable, clean, and affordable power to more Americans
- Building the technologies of tomorrow through clean energy demonstrations

*https://www.energy.gov/articles/doe-fact-sheet-bipartisan-infrastructure-deal-will-deliver-american-workers-families-and-0

DOE Infrastructure activities are updated on a monthly basis*



Delivering for American Workers, Families, and Ushering in the Clean Energy Future

For the next five years, the Bipartisan Infrastructure Law will stand up 60 new DOE programs, including 16 demonstration and 32 deployment programs, and expands funding for 12 existing Research, Development, Demonstration, and Deployment (RDD&D) programs.

DOE looks forward to being a partner for states, communities, and industry as we move the U.S. economy towards a clean energy, lower carbon emissions future by strengthening the nation's out dated energy infrastructure.

Bipartisan Infrastructure Law in 60 Seconds (March Update)

The Department of Energy has been laser focused on delivering a clean energy future and creating more good-paying jobs across the United States.

US Department of Energy

News

VIEW ALL

U.S. DEPARTMENT OF ENERGY

DOE Releases First-Ever Comprehensive Strategy to Secure America's Clean Energy Supply Chain

The U.S. Department of Energy (DOE) today released America's first comprehensive plan to ensure security and increase our energy independence.
FEBRUARY 24, 2022

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People Powered

People Powered: AlexAnna Salmon, Village Council President

AlexAnna Salmon is a fierce advocate for her home, a remote Alaskan town called Igiugig.
FEBRUARY 17, 2022

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U.S. DEPARTMENT OF ENERGY

DOE Establishes Bipartisan Infrastructure Law's $9.5 Billion Clean Hydrogen Initiatives

The U.S. Department of Energy (DOE) today announced two Requests for Information (RFI) to collect feedback from stakeholders to inform the implementation and design o the Bipartisan Infrastructure Law's...
FEBRUARY 15, 2022

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*https://www.energy.gov/bil/bipartisan-infrastructure-law-homepage

New programs are organized across five major categories

- Clean Energy Demonstrations
- Grid Infrastructure
- Manufacturing & Supply Chains
- Research & Development
- State, Community & Tribal

Bipartisan Infrastructure Programs: Grid Infrastructure*

Bipartisan Infrastructure Law » Bipartisan Infrastructure Law Programs at Department of Energy

Search:

Program Category

- ☐ Clean Energy Demonstrations
- ☑ Grid Infrastructure
- ☐ Manufacturing & Supply Chains
- ☐ Research & Development
- ☐ State, Community & Tribal

New Program?

- ☐ No
- ☐ Yes

DOE BIPARTISAN INFRASTRUCTURE PROGRAMS

Showing 1 to 12 of 12 entries (filtered from 70 total entries)

PROGRAM NAME	DOLLARS
Civil Nuclear Credit Program	$6,000,000,000
Cybersecurity for the Energy Sector Research, Development, and Demonstration Program	$250,000,000
Energy Sector Operational Support for Cyberresilience Program	$50,000,000
Maintaining and Enhancing Hydroelectricity Incentives	$553,600,000
Modeling and Assessing Energy Infrastructure Risk / Advanced Energy Security Program to Secure Energy Networks	$50,000,000
Power marketing administration transmission borrowing authority	$10,000,000,000
Preventing Outages and Enhancing the Resilience of the Electric Grid / Hazard Hardening	$5,000,000,000
Program Upgrading Our Electric Grid and Ensuring Reliability and Resiliency	$5,000,000,000
Rural and Municipal Utility Advanced Cybersecurity Grant and Technical Assistance Program	$250,000,000
Smart Grid Investment Matching Grant Program	$3,000,000,000
Transmission Facilitation Program	$2,500,000,000
Western Area Power Administration Purchase of Power and Transmission Services	$500,000,000

*https://www.energy.gov/bil/bipartisan-infrastructure-law-programs-department-energy

Thank you for your attention!