



U.S. Energy Information Administration

For: IRENA

By: Angelina LaRose, Assistant Administrator Energy Analysis

September 9, 2024



Independent Statistics and Analysis U.S. Energy Information Administration

Collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment.

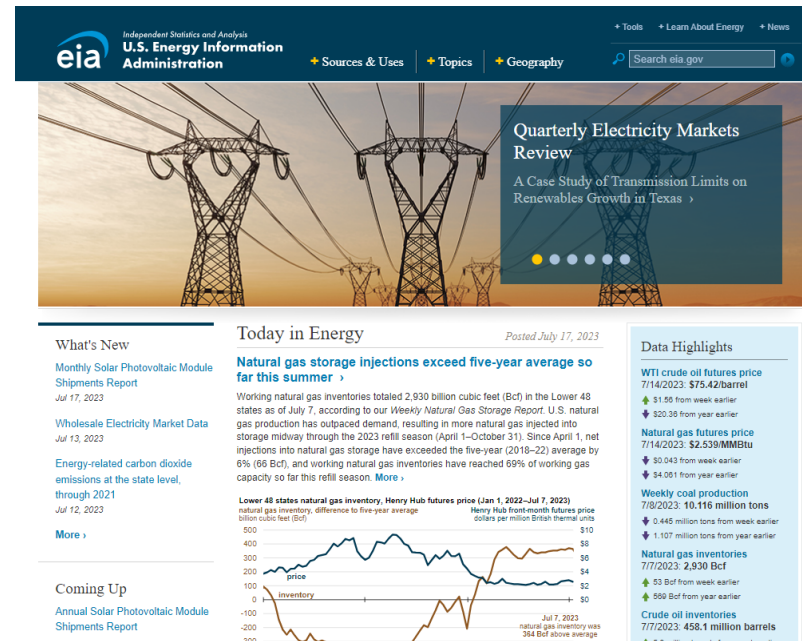
EIA is the statistical and analytical agency within the U.S. Department of Energy (DOE)

One of 13 U.S. federal statistical agencies

EIA has one political appointee, who is a direct report to the U.S. Secretary of Energy, but

EIA's data and reports are released at the discretion of the Administrator

EIA's role is unique – by providing an unbiased view of energy markets, EIA increases transparency and promotes public understanding of important energy issues.



EIA has two publications focused on the long-term outlook of energy markets

The screenshot shows the top of the EIA website. The header includes the EIA logo, navigation links for Tools, Learn About Energy, and News, and a search bar. Below the header, the title "ANNUAL ENERGY OUTLOOK 2023" is displayed, along with the release date (March 16, 2023) and the next release date (March 2024). Navigation tabs for Overview, Data, and Narrative are visible.

Data Tables

Reference case tables

Available formats:
[XLSX](#) | [INTERACTIVE](#) | [API](#)

Side case tables

Available formats:
[XLSX](#) | [INTERACTIVE](#) | [API](#)

Release Event

Release Event Presentation

The *Annual Energy Outlook* (AEO) presents an assessment by the U.S. Energy Information Administration of the outlook for energy markets through 2050.

[PDF](#) | [PPT](#) | [webcast of release](#)

Note: You can access chart data by right-clicking the chart in the PPT file.

Press release

[View release](#)

Issues in Focus

May 23, 2023

[Effects of Liquefied Natural Gas Exports on the U.S. Natural Gas Market](#)

March 16, 2023

[Inflation Reduction Act Cases in the AEO2023](#)

Narrative

Administrator's Foreword

After a 23-year hiatus, I am reintroducing the Administrator's Foreword as part of the *Annual Energy Outlook* (AEO). The Foreword affords me an opportunity to provide context and outline future directions for one of our flagship products. [More](#)

Executive Summary

Our *Annual Energy Outlook* 2023 (AEO2023) explores long-term energy trends in the United States. Since last year's AEO, much has changed, most notably the passage of the Inflation Reduction Act (IRA), Public Law 117-169, which altered the policy landscape we use to develop our projections. [More](#)

Introduction

The *Annual Energy Outlook* 2023 (AEO2023) explores long-term energy trends in the United States. Since we released the last AEO in early 2022, passage of the Inflation Reduction Act (IRA), Public Law 117-169, altered the policy landscape we use to develop our projections. The Appendix in this report explains our assumptions around IRA implementation and how we implemented the IRA in our AEO2023 cases. We are also releasing a separate Issues in Focus paper that explores how these assumptions affect our model-based projections. We have seen significant national and international short-term market volatility associated with economic growth as the world reemerges from the COVID-19 pandemic and political instability associated with Russia's full-scale invasion of Ukraine. We continuously monitor such developments and consider how they may affect our long-term projections. [More](#)

The Electricity Mix in the United States Shifts from Fossil Fuels to Renewables

The screenshot shows the top of the EIA website for the International Energy Outlook 2023. The header includes the EIA logo, navigation links for Tools, Learn About Energy, and News, and a search bar. Below the header, the title "INTERNATIONAL ENERGY OUTLOOK 2023" is displayed, along with the release date (October 11, 2022) and the next release date (TBD). Navigation tabs for Overview, Data, and Narrative are visible.

Data Tables

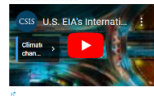
Reference and side case tables
Available formats: [XLSX](#) | [PDF](#)

Interactive table browser
Available formats: [INTERACTIVE](#)

API data and tools
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Release Event

Webcast of release



Release Event Presentation
The *International Energy Outlook* (IEO) presents the U.S. Energy Information Administration's (EIA) assessment of the outlook for international energy markets.
[PDF](#) | [PPT](#) | [XLSX](#)

Narrative

Introduction

Administrator's Foreword

The global energy system is governed by complex dynamics that play out over time across regions and sectors of the economy. Projected increases in population and incomes drive our expectation of rising energy demand through 2050.

Executive Summary

Since our last IEO two years ago, IEO2021, the global energy system has evolved against a backdrop of new energy policies, the transition to zero-carbon technologies, energy security concerns, and economic and population growth.

Introduction

The *International Energy Outlook* 2022 (IEO2022) explores long-term energy trends across the world through 2050. We explore three key findings in separate sections of this report, each containing a series of in-depth explanations that include region- and sector-specific insights across modeled cases.

Analysis

Increasing population and income offset the effects of declining energy and carbon intensity on emissions

Our projections highlight a key global insight—global energy-related CO₂ emissions will increase through 2050 in all IEO2023 cases except our Low Economic Growth case.

The shift to renewables to meet growing electricity demand is driven by regional resources, technology costs, and policy

We project global electricity generation will increase by 30% to 78% in 2050 from 2022 (depending on the case) and will primarily be met by zero-carbon technologies across all cases.

Both the AEO and IEO includes cases that vary technical and economic assumptions

AEO2023	IEO2023
Reference	Reference
Economic Growth	Economic Growth
Oil Price	Oil Price
Oil and Gas Supply	Zero-Carbon Technology Cost (electric power sector)
Zero-Carbon Technology Cost (electric power sector)	
Combinations of Economic Growth and Zero-Carbon Technology Cost cases	

EIA also produces “Issues in Focus” articles associated with the Outlook that target specific timely issues



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ANALYSIS & PROJECTIONS
ANNUAL ENERGY OUTLOOK 2023
Release Date: March 16, 2023 | Next Release Date: 2025 | [AEO Narrative](#)

[BACK TO ANNUAL ENERGY OUTLOOK 2023](#)

Issues in Focus: Inflation Reduction Act Cases in the AEO2023

Release Date: March 16, 2023 | [full report](#) | [figure data](#) (PPTX)



Executive Summary

The *Annual Energy Outlook 2023* (AEO2023) reflects, to the extent possible, laws and regulations adopted through mid-November 2022, including the Inflation Reduction Act (IRA). Adopted in August 2022, the IRA is a complex piece of legislation that requires us to make assumptions regarding how key provisions will be implemented. Under the IRA, qualifying clean energy projects can receive additional credits on top of a base credit value if they satisfy certain requirements. For instance, clean energy technologies that meet minimal eligibility requirements receive a base-level production tax credit (PTC). Projects meeting labor requirements receive a tax credit five times higher than the base amount. Additional increases to the base tax credit are available for projects that meet domestic content requirements or are located in energy communities, which

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Stephanie Tsao is an industry economist in the Office of Integrated and International Energy Analysis. She provides support for the publication of the *Annual Energy Outlook* and the *International Energy Outlook*.

The Inflation Reduction Act (IRA) provisions in the Reference case push wind and solar to 56% of electricity generation by 2050, with a



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[BACK TO ANNUAL ENERGY OUTLOOK 2023](#)

Issues in Focus: Effects of Liquefied Natural Gas Exports on the U.S. Natural Gas Market

Release Date: May 23, 2023 | [full report](#) | [figure data](#) (XLSX)



Executive Summary

To explore the effects of future U.S. liquefied natural gas (LNG) export volumes on domestic natural gas prices, we examined a range of potential LNG price and investment drivers using the same model we used to develop our *Annual Energy Outlook 2023* (AEO2023). The amount of U.S. LNG export capacity that will ultimately be built remains uncertain, and how this incremental capacity would affect domestic prices, consumption, and supply is a topic of interest in energy markets.

We designed three additional cases (beyond those in our AEO2023) that looked at lower international natural gas prices (Low LNG Price), higher international natural gas prices (High LNG Price), and higher prices with faster development of export facilities than we allowed in our AEO2023 cases (Fast Build Plus High LNG

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Stephen York is an Economist on the Petroleum and Natural Gas Modeling Team in the Office of Long-Term Energy Modeling. He is the lead modeler for the AEO's Natural Gas Market Module (NGMM) and is focused on natural gas pipelines, trade, and prices.

The Gulf Coast supplies most of the incremental natural gas destined for LNG export terminals in Texas and Louisiana

EIA is occasionally requested to run specific policy scenarios through its models and analytic framework



Effects of Removing Restrictions on U.S. Crude Oil Exports

September 2015



Analysis of the Impacts of the Clean Power Plan

May 2015



Effect of Increased Natural Gas Exports on Domestic Energy Markets

as requested by the Office of Fossil Energy

January 2012



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