




U.S. DEPARTMENT OF
ENERGY

Pathways to Commercial Liftoff: Introduction





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Comments

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Purpose of DOE “Liftoff” Reports

The Department of Energy (DOE) plays a critical role in accelerating the commercialization of clean energy technologies and enabling the nation’s broader industrial strategy – creating high quality American jobs, strengthening domestic supply chains and global competitiveness, and facilitating an equitable energy transition. These investments are intended to drive commercialization and unlock trillions in private investment over the same period, to set the nation on a course to hit critical long-term energy objectives.

DOE’s Pathways to Commercial Liftoff provide public and private sector capital allocators with a perspective as to how and when various technologies could reach full-scale commercial adoption– including a common analytical fact base and critical signposts for investment decisions. Given the constantly and rapidly evolving market, technology, and policy environment, the Liftoff Reports are designed to be “living documents” – and will be updated as the commercialization outlook on each technology evolves.

These reports are intended to reinforce dialogue with the private sector, and DOE will be seeking continuous feedback from industry as these reports are updated and revised over time.¹ The DOE will continue to solicit input through industry forums, requests for information, and regular interaction in the context of our authorities; we also welcome direct public input which can be submitted via email to liftoff@hq.doe.gov.

The insights and takeaways found in these Liftoff Reports were developed through extensive stakeholder engagement and a combination of system-level modeling and project-level financial modeling. Taken together, these sources of insight shed light on a set of common themes and expose the interplay between the technologies of focus. They do not reflect DOE official policy or strategic plans; they are a resource intended to inform decision making across industry, investors, and the broader stakeholder community.

¹ Note: The Pathways Report initiative does not represent a policy position for the DOE or the US government; nor does it reflect intentions for DOE program execution or funding.

How to read the Liftoff Reports

As of January 2025 thirteen Liftoff Reports have been developed. Each Liftoff Report takes the view of a single technology and is designed to provide a shared understanding on the current state, pathways to commercial scale, and challenges to liftoff for each technology. The reports are organized accordingly. An Executive Summary is provided for each report that captures the key insights and takeaways. The full report also includes appendices of analysis and existing research. Each full Liftoff Report is organized into the same chapters for consistency and ease of use:

1. Introduction & Objectives
2. Current State of the Technology (e.g., value proposition, landscape, and business models)
3. Pathways to Commercial Scale
4. Challenges to Commercialization and Potential Solutions
5. Metrics and Milestones
6. Appendices of exhibits and further analysis

You can access available Liftoff Reports and corresponding Executive Summaries at <https://liftoff.energy.gov>. The Department of Energy welcomes input and feedback on the contents of these Pathway to Commercial Liftoff. Please direct all inquiries and input to liftoff@hq.doe.gov. Input and feedback should not include business sensitive information, trade secrets, proprietary, or otherwise confidential information. Please note that input and feedback provided is subject to the Freedom of Information Act.



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