Achieving Commercial Lift Off

An Introduction to the American Approach to Clean Energy Commercialization

Global Clean Energy Action Forum Business Forum Pre-Read
LPO has five major programs

- **Advanced Technology Vehicles Manufacturing**: Loans and loan guarantees to support the manufacture of eligible vehicles and qualifying components
- **Innovative Clean Energy Loan Guarantee Program**: Loan guarantees to accelerate the commercial deployment of innovative energy technology
- **Tribal Energy Loan Guarantee Program**: Direct loans or partial loan guarantees to support tribal investment in energy-related projects
- **Carbon Dioxide Transportation Infrastructure Finance and Innovation (CIFIA) Program (New)**
- **Energy Infrastructure Reinvestment (EIR) Program (New)**

The value of working with LPO

LPO loans and loan guarantees are differentiated in the clean energy debt capital marketplace in three primary ways:

- **Access to patient capital** that private lenders cannot or will not provide
- **Flexible financing** customized for the specific needs of individual borrowers
- **Committed DOE partnership** offering specialized expertise to borrowers for the lifetime of the project

LPO serves as a bridge to bankability for breakthrough projects and technologies, de-risking them at early stages of commercialization so they can reach full market acceptance
Overview of the role of commercialization and objectives for the GCEAF Business Forum

To stabilize the climate, global greenhouse emissions must fall nearly 40% by 2030 and to net zero by 2050.

The central challenge in meeting these goals is deployment not matching the pace of innovation – each critical clean energy sector will need to attract on the order of $100B to achieve “lift off” for deployment at scale.

America’s clean energy industrial strategy is private sector-led and government-enabled, with growth companies and institutional investors driving the pace of deployment, supported by targeted public intervention to de-risk investment.

GCEAF Business Forums will focus on facilitating open dialogue between industry, investors, government, and the broader stakeholder ecosystem on how to accelerate deployment to build momentum for scale.

1. IEA Net Zero by 2050 report
Meeting climate goals means accelerating deployment and charting the path to $100B by technology sector

U.S. climate goals

- Cut greenhouse emissions in half by 2030
- Decarbonize the grid by 2035
- Achieve net zero by 2050
- Grow domestic supply chains and create good-paying jobs
- Ensure an equitable transition with 40% of benefits flowing to disadvantaged communities

Role of deployment...

- To meet these goals, the central challenge is deployment not matching the pace of innovation
- Unprecedented funding has been pledged for clean energy, but it is restricted to solar/wind/batteries/few others
- The US alone requires ~$300B/year in incremental capital formation to reach net zero goals

...and capital formation

- Critical emerging technologies for the energy transition must achieve on the order of $100B+ of deployment to achieve lift off
- At that scale, technologies have generally demonstrated a level of market adoption and bankability to access low-cost capital
- Early projects are able to find funding more easily when they fit into the $100B story
We are working to slash the time to $100B and commercial lift off for 20+ clean energy technologies

Wind and solar scaled up exponentially after ~$100B in capital formation

20+ technologies will need to reach ~$100B to unlock commercial scale

- Capital formation leads to predictable cost declines driven by learning curve impacts on unit economics for some technologies
- For scaling other critical technologies, sustained policy support may be needed
- In the next decade, 20+ technologies will need to reach these milestones to stabilize the climate
- We aspire to slash the time required for lift off

Additionally, from 2009-2020, the levelized cost of electricity of wind and solar fell 70% and 90% respectively
America’s clean energy industrial strategy is private sector-led and government-enabled

**The private sector will lead pathways to commercial scale**

- Entrepreneurial dynamism is central to major advancements in the global economy and will continue to lead in innovation
- Growth companies and institutional investors will be especially critical in accelerating deployment:
  - Growth companies drive disruption, pushing incumbents to transition faster
  - Institutional investors operate at the trillion-dollar scale needed to execute the energy transition

**Successful execution requires public sector de-risking**

- Government support must be targeted to the most critical barriers to deployment, e.g.,
  - De-risk investment inherent with early commercialization (e.g., loans, loan guarantees, tax credits, grants)
  - Create demand certainty (e.g., advance market commitments, government procurement, state mandates)
  - Improve execution (e.g., workforce and capacity building, streamlined permitting)
GCEAF Business Forum objectives

- Bring industry, investors, government and the broader stakeholder ecosystem together around the technologies we need to scale globally

- Facilitate an open and honest dialogue around barriers to capital formation that are holding back deployment

- Generate ideas, partnerships, and momentum that can be carried forward into the fall that enables the private sector to move at pace with the right policy framework and execution to support

- Key questions will include:
  - What are the current barriers to commercialization and capital formation?
  - What questions will institutional investors need answered (including the form the investments need to take) to unlock $ trillion scale investment?
  - What are the most critical places for government support and intervention – now and in the future?
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