



Critical Materials Collaborative

Forming Connections Across the Critical Materials
Innovation Ecosystem

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CMC Mission

Critical materials are vital to electrification.

The CMC is the connective tissue within the DOE Critical Materials Program and the U.S. government that aligns our applied RD&D portfolio with DOE climate goals and accelerates adoption of innovative solutions.



Building a robust **innovation ecosystem**



Training the critical materials leaders and workforce across multiple sectors

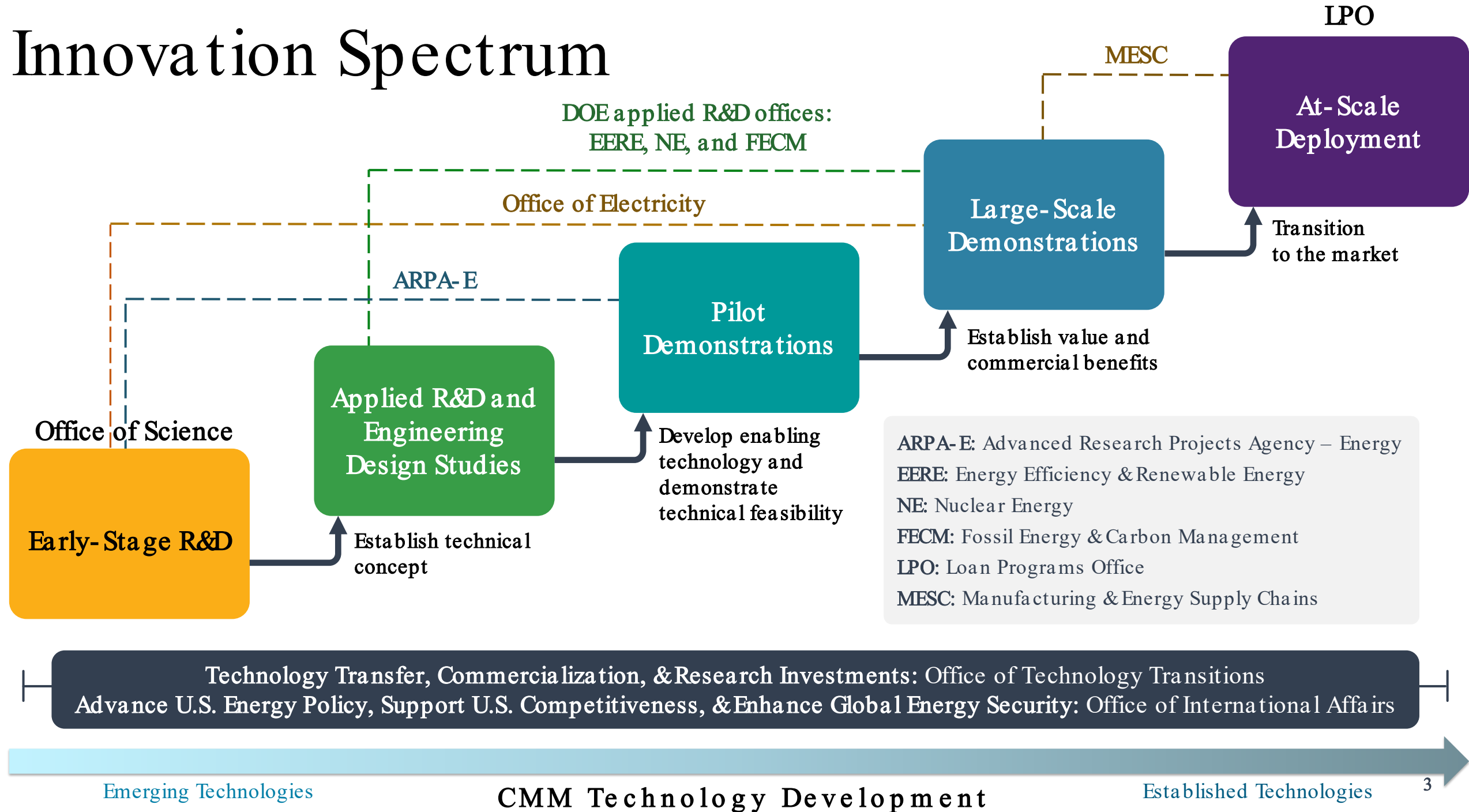


Enabling **industry adoption** of novel, cutting-edge technology



Laying the **scientific and technological groundwork** needed to address emerging challenges

Innovation Spectrum

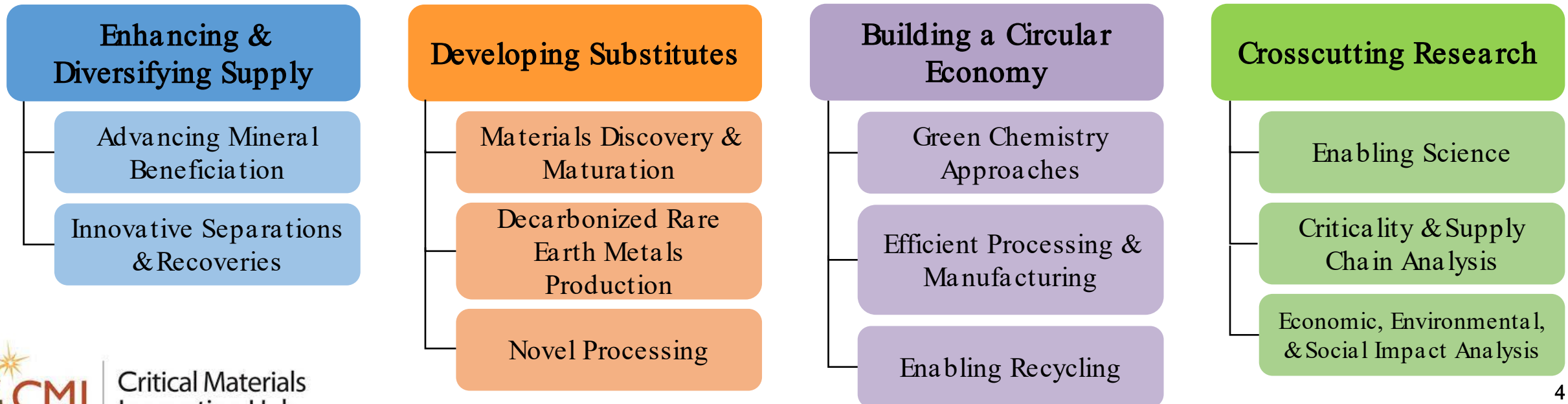


Critical Materials Innovation Hub (CMI Hub)

Portfolio: 32 early-stage research projects

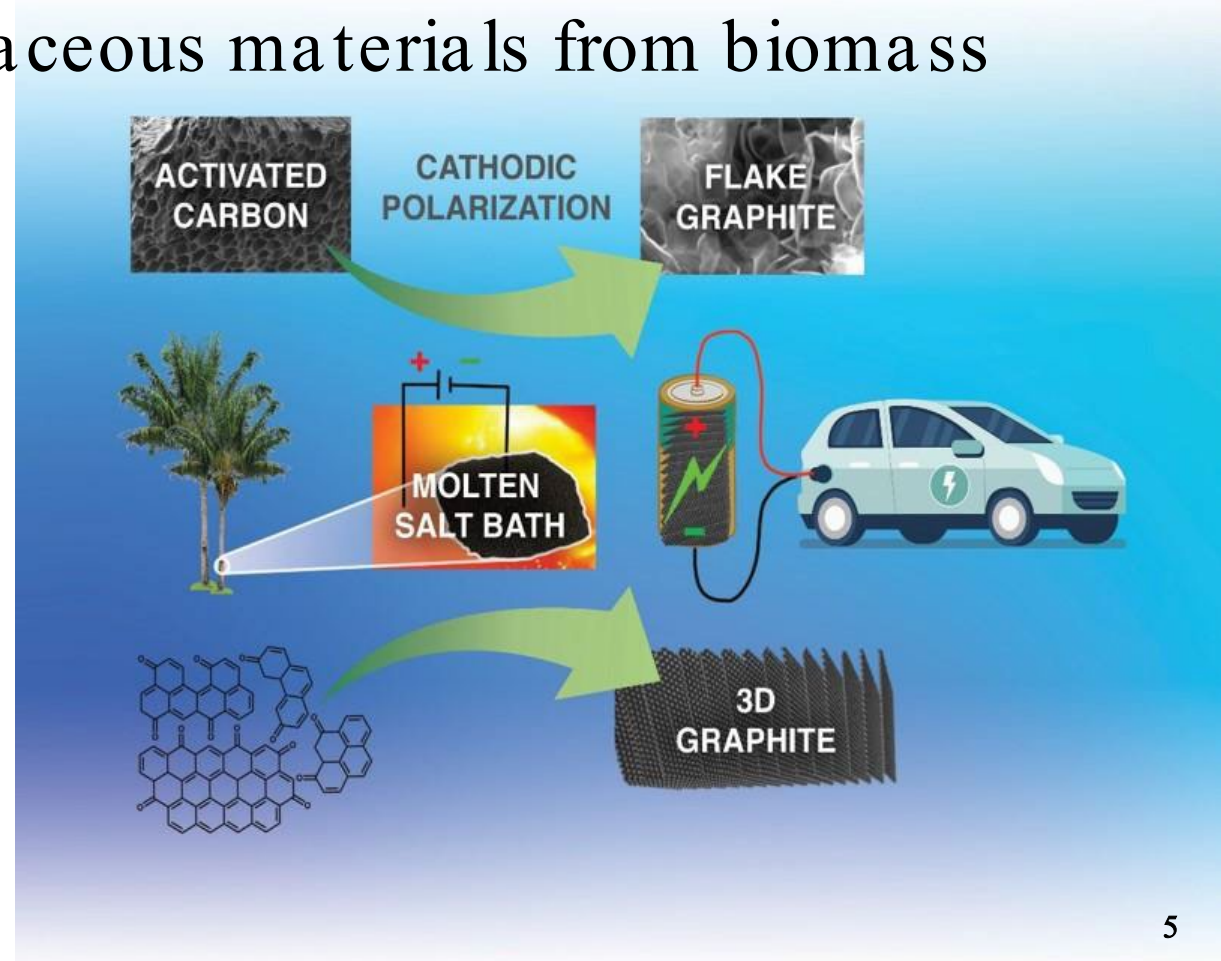
Materials: Magnetic Materials | Energy Storage Materials | Semiconductor Materials

Innovative Ecosystem: Network of 9 DOE National Laboratories, 20 Universities, and ~30 companies



Low-Temperature Graphitization

- **Innovation:** Novel molten-salt technology for low-temperature graphitization of amorphous carbonaceous materials from biomass and polyethylene wastes
- **Achievement:** Synthesis temperature reduced from 3100° C to 800° C
- **Impact:**
 - Over 90% energy savings
 - 50% reduction in unit production costs
 - Reduce synthesis time from 3 weeks to 3 hours



Get Involved



Become a CMC member

Being funded through an opportunity coordinated through the CMC is how to become a member. Funding opportunities will be continually announced on the CMC website.



Contribute to the research roadmap

In 2024, the CMC will create a research roadmap for DOE on critical materials plans and focus for the next 10 years. We need to hear from industry, innovators, analysts, and communities on goals and how best to get there.



Reach out and connect

Email: cmc@hq.doe.gov

Website: energy.gov/cmm/critical-materials-collaborative



CRITICAL MATERIALS COLLABORATIVE

U.S. DEPARTMENT OF ENERGY

www.energy.gov/cmm/critical-materials-collaborative

cmc@hq.doe.gov

What is the CMC?



A **new mode of connection** created by the U.S. Department of Energy (DOE) to increase communication and coordination between the U.S. government and the research communities working on critical materials projects.



Creates partnerships with industry, academia, national labs, and others to expand access to world-class expertise, capabilities, and facilities as part of a growing ecosystem.



Accelerates the commercialization and deployment of innovative solutions to develop globally competitive, environmentally responsible, and sustainable critical material supply chains.

The CMC connects DOE's diverse critical minerals and materials portfolio with industry and beyond, funding and supporting real-world innovation through each stage of the RD&D pipeline.

Why a Collaborative?

2010

DOE completed its **first Critical Materials Strategy**, building off decades of basic materials research and investing in 10+ years of basic and applied critical materials research, development, demonstration, and deployment (RD&D) at every stage in the supply chain.

2013

The **Critical Materials Innovation Hub (CMI)***, was formed, which has been addressing critical materials challenges for a decade.

*formerly known as the **Critical Materials Institute**

2020

The Energy Act of 2020 authorized the DOE Critical Materials Program to **expand critical materials work** to include RD&D and to create a **Critical Materials Consortium** to be a centralized entity for multidisciplinary, collaborative, critical materials research and development.

2021

DOE's efforts were **supercharged by more than \$8 billion for critical materials projects** through the Bipartisan Infrastructure Law and the Inflation Reduction Act.

2023

The **CMC was created** to align RD&D across DOE, the federal government, industry, and the research community. **Connect innovation to basic science discovery and commercialization efforts.**



Funding Opportunities

The CMC has already started to coordinate RD&D programs and funding opportunities across DOE, engaging the membership and supporting investments across the entire innovation pipeline.

These investments represent the first of many DOE programs to be coordinated through the CMC.

FECM's FOA for three projects supporting the design and construction of facilities that produce rare earth elements and other critical minerals and materials from coal-based resources.

FECM's [Critical Materials FOA](#) to advance cost-effective, environmentally responsible processes to produce and refine critical minerals and materials in the U.S.

FECM's FOA for a rare earth element demonstration facility to bring critical mineral supply chains to the U.S. and reduce reliance on competitors.

EERE's [Critical Materials Accelerator Program](#) to prototype and mature new materials, technologies, and processes that address critical materials challenges.

EERE's FOA for research and validation of low-cost, sustainable ways to extract lithium from geothermal brines.

FECM's FOA supporting advanced processing of critical minerals and materials for industrial and manufacturing applications.

EERE's [Wind Turbine Materials Recycling Prize](#) to develop cost-effective and sustainable recycling industry for fiber-reinforced composites and rare earth elements in wind turbines.

FECM's [CORE-CM Initiative FOA](#) to develop regional partnerships supporting the domestic production of critical minerals and materials.