INFLATION REDUCTION ACT AND ENERGY R&D OPPORTUNITIES

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LEWIS–BURKE ASSOCIATES LLC

AGENDA

1. Inflation Reduction Act
2. Infrastructure Investment and Jobs Act
3. FY 2023 Appropriations Outlook
4. CHIPS and Science Act

- Not a ton of research $$ in IRA
- Participation through advisory committees & comments inprotant fo next steps
- Researchers can work with states on funds flowing to states

INFLATION REDUCTION ACT - TOPLINE ESTIMATES

Investments

- Domestic Clean Energy and Climate Change - $370 Billion
- Extension of Affordable Care Act Advanced Tax Credits - $64 Billion
- Combating Drought - $4 Billion

Revenue

- 15% Corporate Minimum Tax - $222 Billion
- 1% Tax on Stock Buybacks - $74 Billion
- IRS Tax Enforcement - $124 Billion
- Limitation on Deduction of Business Losses - $52 Billion
- Medicare Prescription Drug Price Negotiation - $265 Billion

Total Savings

- Deficit Reduction - $300 Billion

Sources: Congressional Budget Office; Joint Committee on Taxation

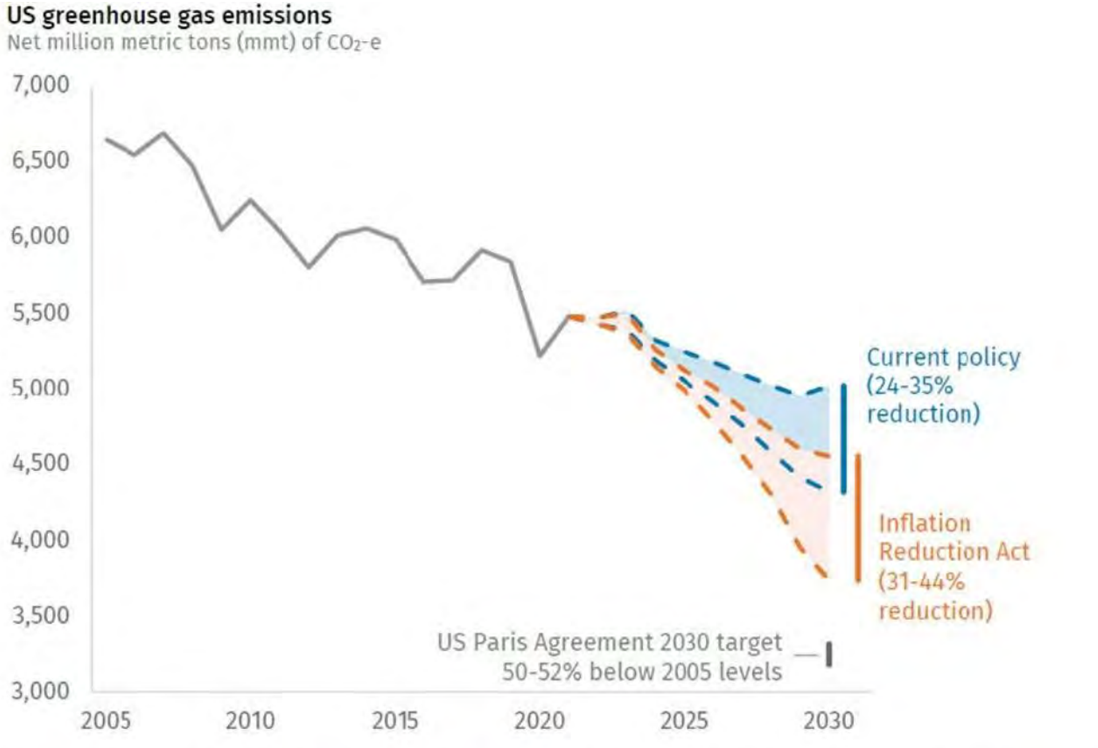
ENERGY AND CLIMATE CHANGE

Meeting the Biden Administration's Goals

The law provides $370 billion to support the deployment of clean energy technologies and reduce greenhouse gas emissions to help combat climate change and help meet the Biden Administration's target of cutting emissions by 52 percent from 2005 levels by 2030.

Key elements:

- $222 billion for clean energy production and investments tax credits
- $148 billion for expanded or new climate and clean energy programs



Source: Rhodium Group. The range reflects uncertainty around future fossil fuel prices, economic growth, and clean technology costs. It corresponds with high, central, and low emissions scenarios detailed in Taking Stock 2022.

TAX CREDITS FOR DAC AND CARBON MANAGEMENT

Carbon Capture and Sequestration Tax Credit (45Q)

Enhances the tax credit for carbon capture and direct air capture (DAC).

- Extends the deadline for construction to January 1, 2033 and increases the credit amount.
  - From $50 to $85 per ton for CCUS for industrial facilities and power plants for saline geologic formations.
  - From $35 to $60 per ton for utilization of captured CO2 and its precursor carbon monoxide to produce low and zero-carbon fuels, chemicals, building materials and other products, or for enhanced oil recovery (EOR).
  - From $50 to $180 per ton for DAC stored in saline geologic formations and from $35 to $130 per ton for utilization or EOR.
- Decreases minimum plant size eligibility threshold:
  - From 100,000 to 1,000 tons per year for DAC.
  - From 500,000 to 18,750 metric tons per taxable year for Electric Generating Facility paired with design capacity requirements.
  - From 25,000 to 12,500 metric tons per taxable year for any other facility.

New Clean Electricity Production Tax Credit (45Y)

This newly established, tech-neutral PTC replaces the Renewable Electricity Production Tax Credit once it phases out at the end of 2024. 45Y is an emissions-based incentive that is neutral and flexible between clean electricity technologies.

- Facilities may use CCUS to reach qualifying emissions levels.

Advanced Energy Project Credit (48C)

Extends the 30% investment tax credit to clean energy projects to strengthen domestic energy manufacturing and support the production and recycling of clean energy products. It also expands credit to include projects at manufacturing facilities that want to reduce their GHG emissions by at least 20%.

- Can be applied to carbon capture, transport, utilization and storage systems.

USDA Assistance for Rural Electric Cooperatives

$9.7 billion for the Department of Agriculture (USDA) until 2031 for financial assistance (including loans) to improve resiliency, reliability, and affordability of rural electric systems, including purchase and deployment of carbon capture and storage systems.

- Maximum award is $970 million and must not exceed 25% of the total project cost.

METHANE EMISSIONS REDUCTION PROGRAM

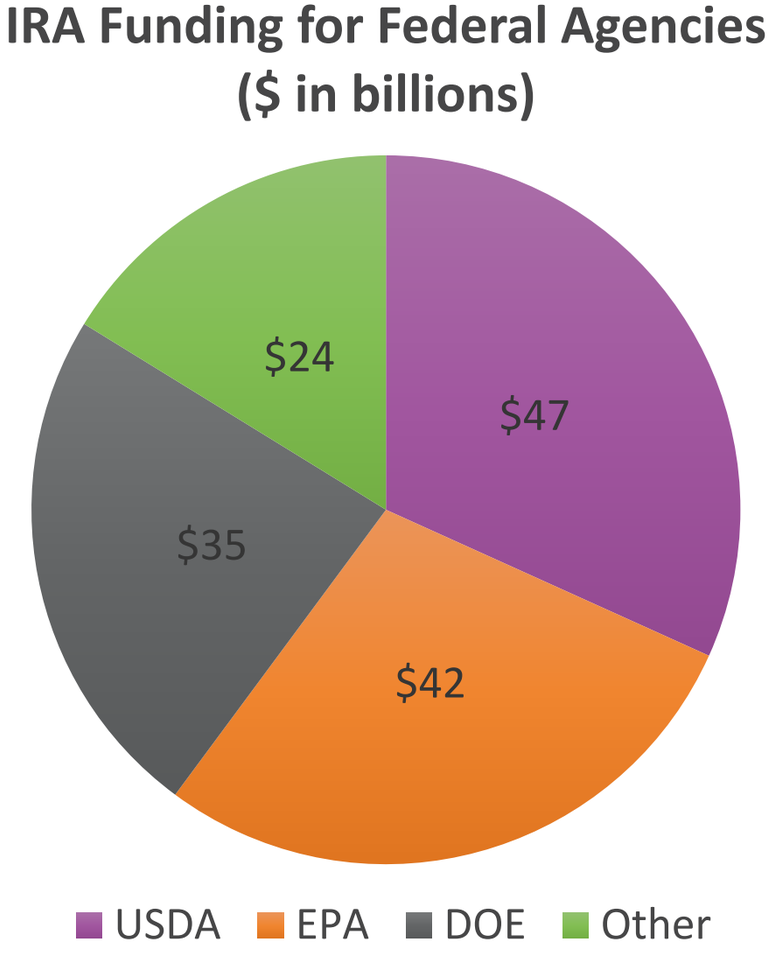
Carrot

$1.55 billion for EPA to provide incentives, grants, contracts, loans, and rebates for facilities, well operators, and communities to enable methane emission reduction activities like monitoring, reporting, source plugging, obtain technical and financial assistance, install innovative solutions, mitigate negative health impacts, and perform environmental restoration.

Stick

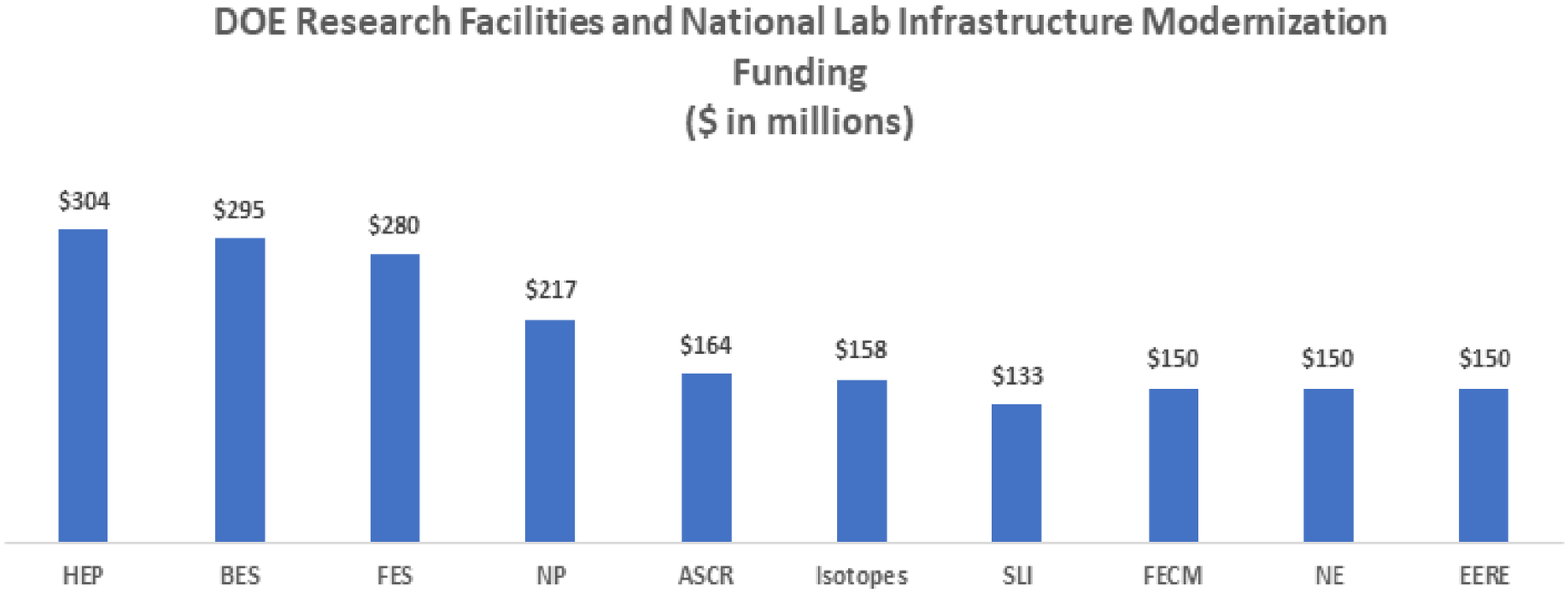
Establishes a maximum annual methane waste emission rate of 25,000 metric tons of CO2e (vented, released, or flared) for a facility and imposes penalty charges starting at $900 per ton in 2024 and increasing to $1,500 per ton by 2026 for facilities emitting more than that.

CLIMATE AND CLEAN ENERGY APPROPRIATIONS FOR FEDERAL AGENCIES—$148 BILLION



Agency	Total Appropriation
USDA	$46.684 billion
EPA	$41.491 billion
DOE	$35.292 billion
DOI	$6.646 billion
DOT	$5.442 billion
GSA	$3.375 billion
DOC	$3.310 billion
USPS	$3.015 billion
HUD	$1 billion
DHS	$500 million
DoD	$500 million
FPISC	$350 million
FERC	$100 million
CEQ	$62.5 million
GAO	$25 million
OMB	$25 million
TOTAL	***$147.817 billion***

DOE National Lab Research Facility and Infrastructure Modernization—$2 billion



DEPARTMENT OF ENERGY

Nuclear: $700 million for **High-Assay Low-Enriched Uranium Availability Program** to establish and carry out of a program to support the availability of HA-LEU for civilian domestic research, development, demonstration and commercial use. This includes:

- $100 million to carry out licensing and regulatory programs in support of HA-LEU research and development with commercial entities, including transportation packaging design;
- $500 million for acquisition, stockpiling and stakeholder assessment; and
- $100 million for support of civilian domestic R&D and commercial use of HA-LEU.

Manufacturing and Industrial Grants: $2 billion for the **Domestic Manufacturing Conversion Grant Program** for the domestic production of efficient hybrid, plug-in electric hybrid, plug-in electric drive and hydrogen fuel cell electric vehicles and $5.8 billion for the **Advanced Industrial Facilities Deployment Program** for projects aimed at reducing emissions from energy intensive industries, including producers or iron, steel, steel mill products, aluminum, cement, concrete, glass, pulp, paper, ceramics, chemicals and other energy-intensive processes.

Clean Energy Financing: $12 billion for the **DOE Loan Guarantee Program** to open up an additional $68 billion in financing (commitment authority) for clean energy technologies, critical minerals production, electric vehicles, energy infrastructure, and Tribal energy projects.

Electric Transmission: $2 billion for **Transmission Facility Financing**, $760 million for **Grants to Facilitate the Siting of Interstate Electricity Transmission Lines**, $100 million for **Interregional and Offshore Wind Electricity Transmission Planning, Modeling and Analysis.**

Residential Energy Efficiency and Electrification: $4.3 billion for **Home Energy Performance-Based, Whole House Rebates**; $4.5 billion for **High Efficiency Electric Home Rebate Program**; and $200 million for the **State-Based Home Energy Efficiency Contractor Training Grants.**

Building Efficiency and Resilience: $1 billion for **State Assistance Grants for Building Energy Code Adoption.**

ELIGIBILITY FOR INSTITUTIONS OF HIGHER EDUCATION

EPA Environmental and Climate Justice Block Grants ($3 billion):
Grants for community-led projects in disadvantaged communities and community capacity building centers to address disproportionate environmental and public health harms related to pollution and climate change.

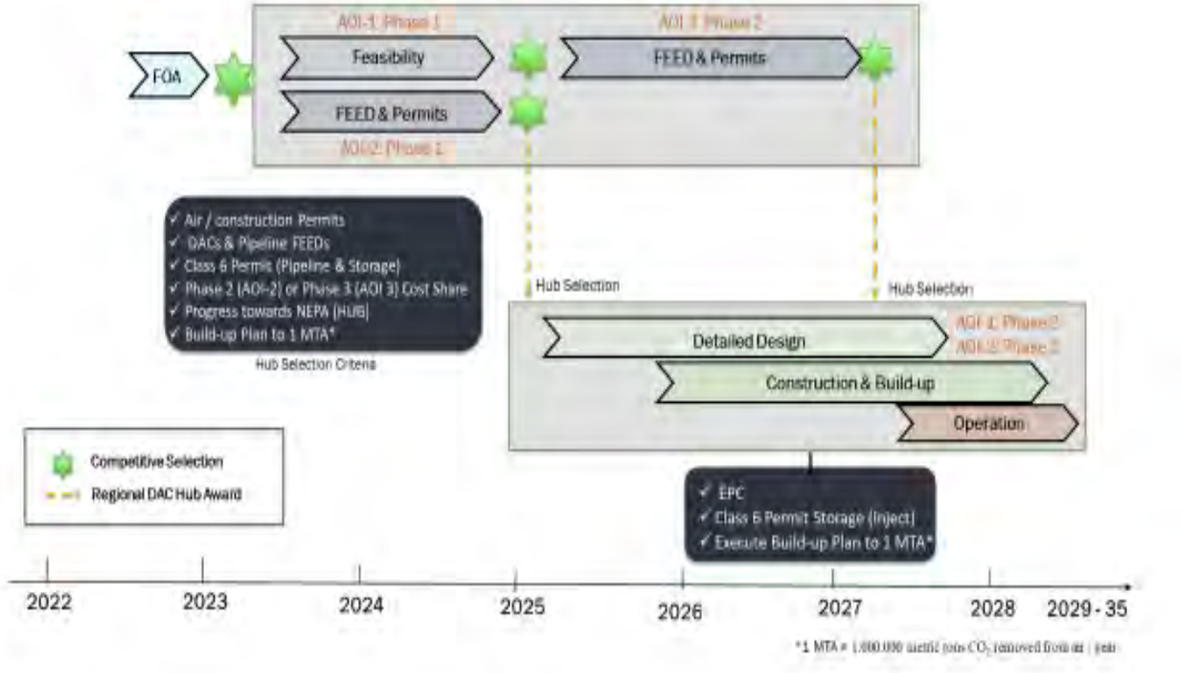
- Eligible funding recipients will be community-based nonprofits or organizations, or a partnership between community-based nonprofit organizations and a tribe, a local government or an institution of higher education.
- Eligible activities include:
  - community-led air and other air pollution monitoring, prevention and remediation, investments in low- and zero-emission and resilient technologies, and workforce development that help reduce GHG emissions and other air pollutants;
  - mitigating climate and health risks from urban heat islands, extreme heat, wood heater emissions and wildfire events
  - climate resiliency and adaptation;
  - reducing indoor toxics and indoor air pollution; or
  - facilitating engagement of disadvantaged communities in state and federal public processes.

Department of Transportation Alternative Fuel and Low-Emission Aviation Technology Program ($300 million)
Competitive grant program for higher education institutions, among others, for projects that develop, demonstrate or apply low-emission aviation technologies or produce, transport, blend or store sustainable aviation fuels (SAF), including:

- $244.53 million for production, transportation, blending, and storage of SAF;
- $46.53 million for low-emission aviation technologies, and
- $6 million for administration and oversight.

NOAA Investing in Coastal Communities and Climate Resilience ($2.6 billion)
For conservation, restoration and protection of coastal and marine habitats and resources, including fisheries, to prepare for extreme storms and climate change effects, as well as for projects that support natural resources to sustain coastal and marine resource dependent communities.

REGIONAL DIRECT AIR CAPTURE HUBS—$3.5 BILLION FOA EXPECTED FALL/WINTER 2022



DOE plans to fund 4 regional DAC Hubs that must:

- facilitate the deployment of direct air capture projects;
- has the capacity to capture and sequester, utilize, or sequester and utilize at least 1,000,000 metric tons of carbon dioxide from the atmosphere annually from a single unit or multiple interconnected units;
- demonstrate the capture, processing, delivery, and sequestration or end use of captured carbon; and
- could be developed into a regional or interregional carbon network to facilitate sequestration or carbon utilization.

Key technologies and approaches DOE plans to support include:

- chemical direct air capture technologies,
- biomass carbon removal and storage,
- ocean-based carbon removal (Direct Ocean Capture), and
- enhanced mineralization.

Example CDR Pathways

Direct Air Capture with Storage (DACS)
Machines and processes that suck carbon dioxide directly out of the atmosphere and put it underground or into products

Bioenergy with Carbon Capture and Sequestration (BECCS)
Machines and processes that capture CO_2 from bioenergy facilities and store it underground

Enhanced Mineralization
Crushed rocks that are spread over land to absorb CO_2 from the air or from carbon dioxide-rich fluids (and others)

REGIONAL DIRECT AIR CAPTURE HUBS

A "regional direct air capture hub" means a:

- network of projects,
- potential CO2 utilization off-takers,
- connective carbon dioxide transport infrastructure,
- subsurface resources, and
- sequestration infrastructure located within a region.

Key criteria:

- **Carbon intensity of local industry**: Preference will be given to Hubs located in a region with existing carbon-intensive fuel production or industrial capacity or carbon-intensive fuel production or industrial capacity that has retired or closed in the preceding 10 years.
- **Geographic diversity**: DOE is seeking Hubs located in different regions of the country.
- **Carbon potential**: DOE would like to support Hubs located in regions with high potential for carbon sequestration or utilization.
- **Fossil-producing regions**: DOE must support at least two Hubs located in economically distressed communities in the regions of the United States with high levels of coal, oil, or natural gas resources.
- **Scalability**: DOE should give priority to eligible projects that, as compared to other eligible projects, will contribute to the development of Hubs with larger initial capacity, greater potential for expansion, and lower levelized cost per ton of carbon dioxide removed from the atmosphere.
- **Employment**: DOE must give priority to eligible projects that are likely to create opportunities for skilled training and long-term employment to the greatest number of residents of the region.

HYDROGEN HUBS SCOPE

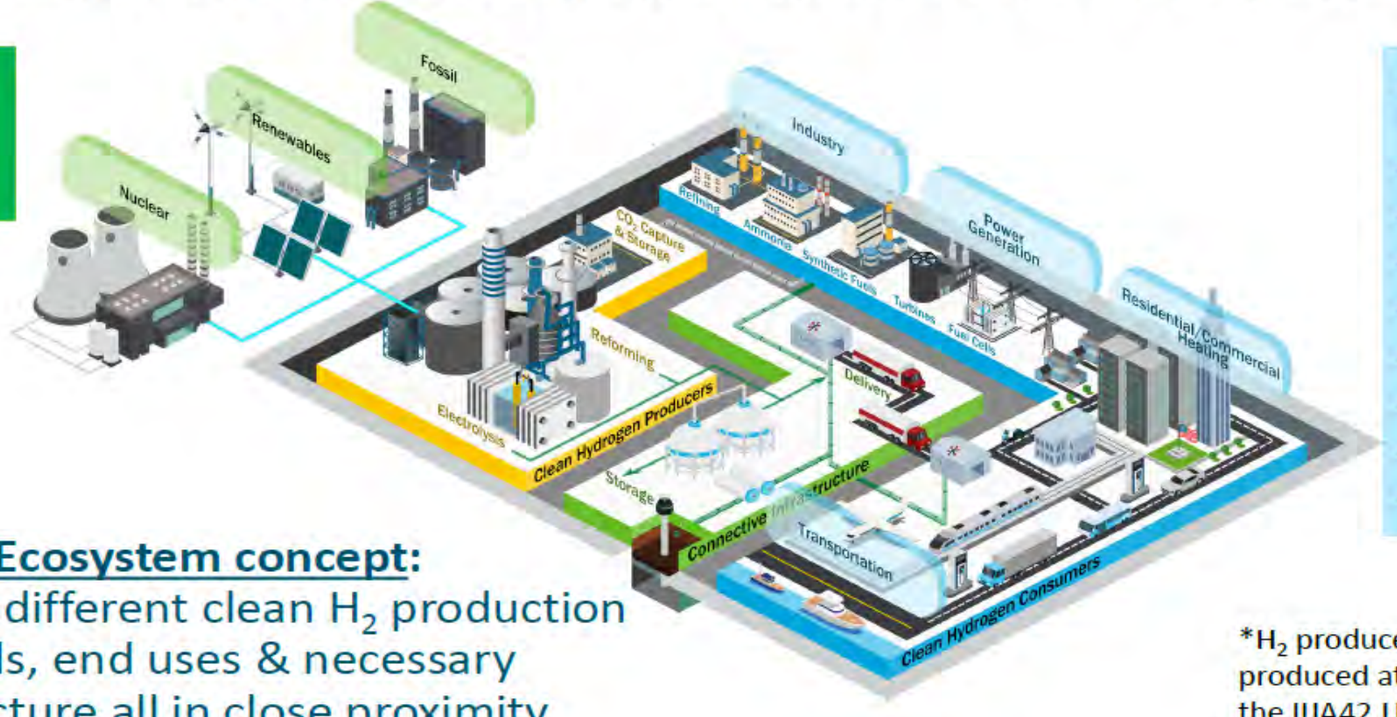
BIL's Stated Purpose: "Establish a program to support the development of **at least 4 regional clean hydrogen hubs** that:

(1) demonstrably aid the achievement of the **clean hydrogen production standard*** developed under section 822(a);

(2) demonstrate the **production, processing, delivery, storage, and end-use** of **clean** hydrogen; and

(3) can be **developed into a national clean hydrogen network** to facilitate a clean hydrogen economy."

$8 Billion over 5 years



Additional Key Items beyond H_2 Technology:

- Environmental Justice
- Community Engagement
- Job Creation
- Workforce Development
- Labor Standards
- Diversity, Equity, Inclusion
- Commercial Sustainability
- U.S. Manufacturing

H_2 Ecosystem concept:
Potential for different clean H_2 production methods, end uses & necessary infrastructure all in close proximity

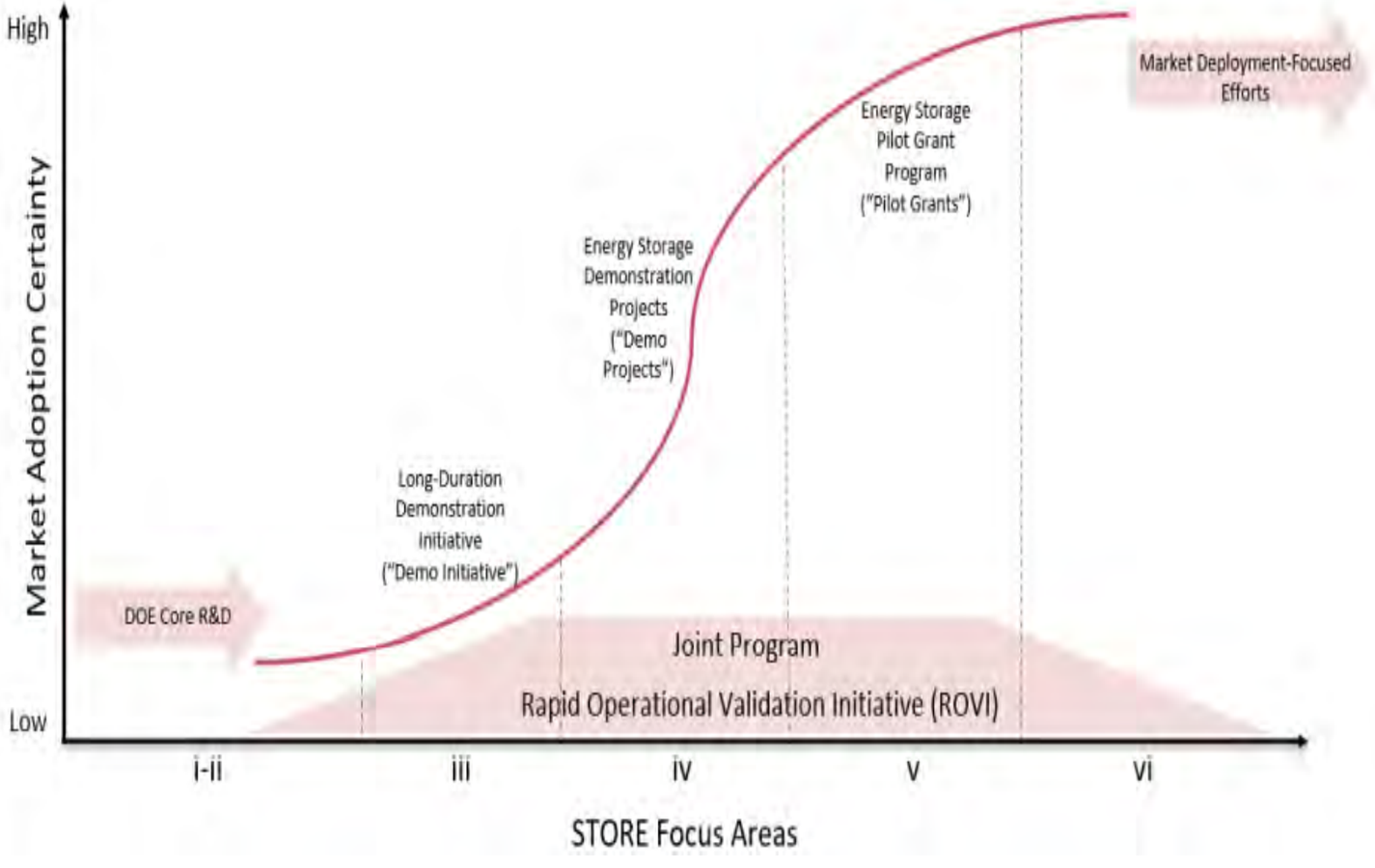
*H_2 produced with carbon intensity ≤ 2 kg CO_2e/kg H_2 produced at the site of production [Section 40315 of the IIJA42 U.S.C. § 16166(b)(1)(B)]

Source: DOE.

ENERGY STORAGE – $505 MILLION

Energy Storage Programs		
Long-Duration Demonstration Initiative	Energy Storage Demonstration Projects	Energy Storage Pilot Grant Program
$150 million	$200 million	$155 million
September 2022	September 2022	September 2023

ENERGY STORAGE PROGRAMS



DOE will use a Storage Technology Opportunity Readiness Evaluation (STORE) scale to lay out specific technical guidelines for the maturity of a storage technology. This is similar to technology readiness levels.

$7.5 BILLION FOR ELECTRIC VEHICLE CHARGING NETWORK

In December 2021, DOE and the U.S. Department of Transportation (DOT) launched a Joint Office of Energy and Transportation to implement $7.5 billion of DOT funding to support a national network of 500,000 electric vehicle chargers and charging stations.

- This effort is intended to support President Biden's Executive order setting a national goal of half of all new vehicles sold in the United States being electric by 2030.

The new office is initially focused on:

- supporting the development of guidance and standards for electric vehicle charging programs,
- providing technical assistance to State and localities to strategically deploy EV charging infrastructure, and
- providing the data and tools needed to help develop State EV charging plans.

Joint Office of Energy and Transportation

$5 BILLION FOR THE NATIONAL ELECTRIC VEHICLE INFRASTRUCTURE FORMULA PROGRAM

The $7.5 billion in funding includes:

- **$5 billion over five years for National Electric Vehicle Infrastructure Formula Program**: Provides funding to States to deploy electric vehicle charging infrastructure and to establish an interconnected network to facilitate data collection, access, and reliability.
  - Initial funding made available in February 2022.
  - To access these funds, each State is required to submit an EV Infrastructure Deployment Plan to the new Joint Office of Energy and Transportation that describes how the state intends to use its share of NEVI Formula Program funds consistent with Federal Highway Administration guidance.
  - These plans are expected to build on Alternative Fuel Corridors that nearly every state has designated over the past six years of this program.
    - These corridors will be the spine of the new national EV charging network.
    - The Joint Office will play a key role in the implementation of the NEVI Formula Program by providing direct technical assistance and support to help states develop their plans before they are reviewed and approved by the Federal Highway Administration, which administers the funding.

- **$2.5 billion over five years for the Discretionary Grant Program for Charging and Fueling Infrastructure:** Competitive grant program to deploy publicly accessible electric vehicle charging infrastructure and other alternative fueling infrastructure along designated alternative fuel corridors.
  - At least 50 percent of this funding must be used for a community grant program where priority is given to projects that expand access to EV charging and alternative fueling infrastructure within rural areas, low- and moderate-income neighborhoods, and communities with a low ratio of private parking spaces.
  - Funding not yet released.

ENERGY EARTHSHOTS

Hydrogen Shot seeks to reduce the cost of clean hydrogen by **80%** to $1 per 1 kilogram in 1 decade ("1 1 1").

1 Dollar | 1 Kilogram | 1 Decade

Long Duration Storage Shot

Reduce storage costs by **90%***...

...in storage systems that deliver **10+** hours of duration

...in **1** decade

*from a 2020 Li-ion baseline

The Carbon Negative Shot target is durable and scalable CO_2 removal under $100/net metric ton CO_2e within a decade.

<100 Dollars | 1 Ton | 1 Decade

Enabling Scale

Carbon Negative Shot requires that multiple CDR approaches be enabled at scale to support the U.S. Government in meeting its net-zero emissions goal by 2050.

A few of these approaches include, but are not limited to, the following:

Direct Air Capture with Storage

Soil Carbon Sequestration

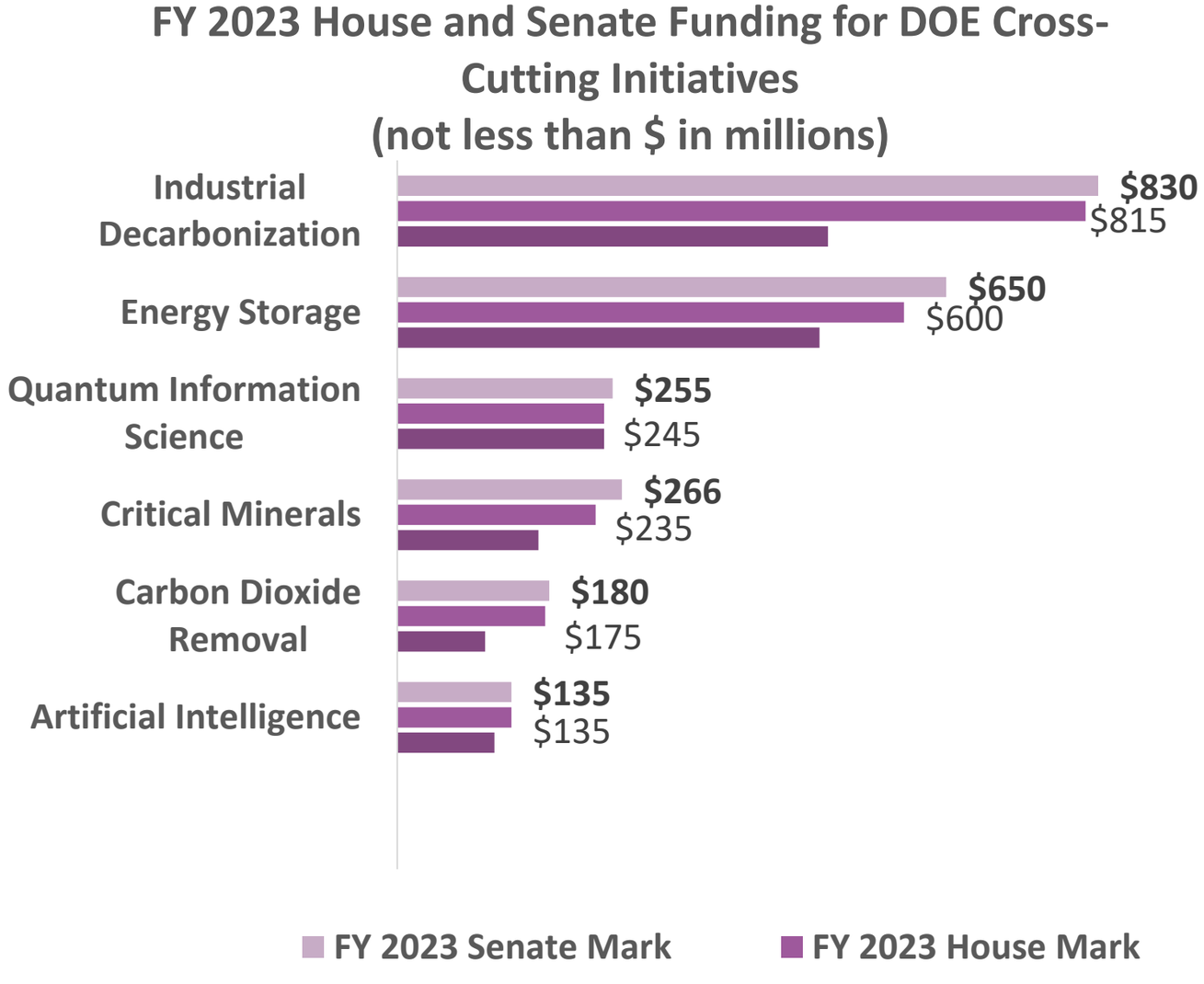
Biomass Carbon Removal and Storage

Enhanced Mineralization

Ocean-Based CDR

Afforestation/ Reforestation

FY 2023 APPROPRIATIONS CROSS-CUTTING INVESTMENTS



Carbon Dioxide Removal Crosscut

Funding by Appropriation and Program Control
($K)

Appropriation and Program Control	FY 2021 Enacted	FY 2022 CR Annualized	FY 2023 Request	FY 2023 vs FY 2021 ($ Change)
Advanced Research Projects Agency - Energy	**84,478**	**0**	**TBD**	**TBD**
Advanced Research Projects Agency - Energy*	84,478	0	TBD	TBD
Energy Efficiency and Renewable Energy	**88,750**	**13,000**	**26,000**	**-62,750**
Advanced Manufacturing	0	0	10,000	+10,000
Bioenergy Technologies	88,750	10,000	13,000	-75,750
Water Power Technologies	0	3,000	3,000	+3,000
Fossil Energy and Carbon Management	**40,000**	**40,000**	**65,000**	**+25,000**
Carbon Dioxide Removal	40,000	40,000	65,000	+25,000
Science	**35,500**	**36,700**	**170,950**	**+135,450**
Advanced Scientific Computing Research	0	0	25,000	+25,000
Basic Energy Sciences	12,500	13,700	77,950	+65,450
Biological and Environmental Research	23,000	23,000	68,000	+45,000
Grand Total	**248,728**	**89,700**	**261,950**	**+97,700**

FUTURE INVESTMENTS

Carbon Farming Workshop

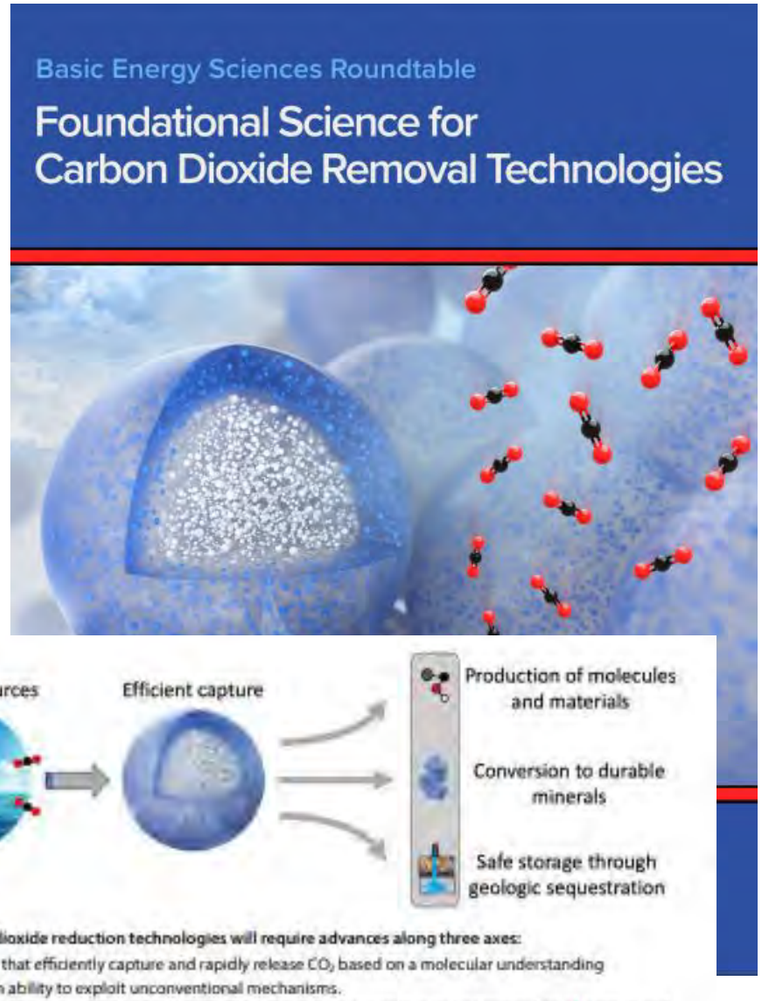
06/28/2022 - 06/29/2022

The Advanced Research Projects Agency - Energy (ARPA-E) within the U.S. Department of Energy hosted a workshop to convene technical experts and thought leaders to explore opportunities and challenges related to energy efficient carbon removal via advanced terrestrial ecosystems and bioeconomy supply chains. The workshop included technical and market focused presentations, panel discussions, and facilitated breakout groups, with the overarching goal of identifying disruptive R&D pathways related to low-energy, low-cost, and large-scale technologies and strategies for terrestrial carbon dioxide removal, management, and sequestration, or "carbon farming."

Marine Carbon Sensing Workshop

06/15/2022 - 06/16/2022

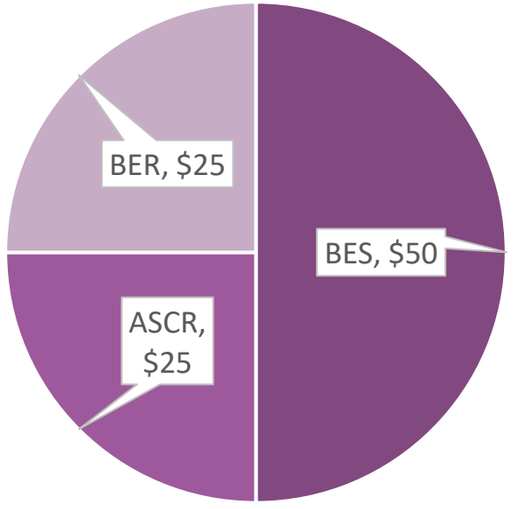
ARPA-E is exploring a potential program to develop scalable and economic technologies for the measurement, reporting and verification of ocean carbon dioxide removal (CDR). This workshop convened experts in ocean sensing, sensor platforms, modeling and carbon economics to identify innovative research paths for the development of disruptive technologies that will provide a quantitative basis for ocean CDR in carbon markets.

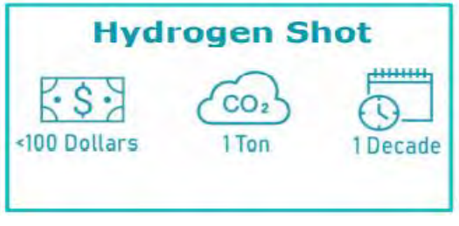


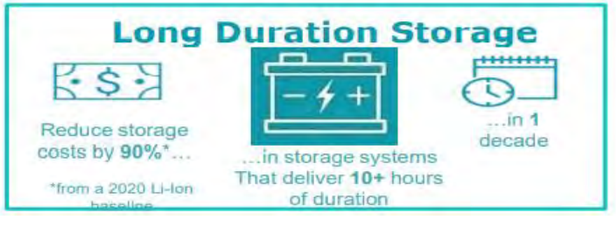
ENERGY EARTHSHOT RESEARCH CENTERS (EERC)—$100 MILLION REQUESTED, $50 MILLION LIKELY APPROPRIATED (MARCH 2023)

- New multi-investigator, multi-disciplinary Centers.
- Funding will likely be $5 million to $10 million per year for each center over five years.
- The purpose would be to address research challenges of the three existing Energy Earthshots—Hydrogen, Long Duration Storage, and Carbon Negative Technologies—as well as any other Earthshots DOE may announce.
  - Teams would focus on energy-relevant research with a scope and complexity beyond what is possible in standard single investigator or small group awards.
  - The EERCs are intended to address research challenges at the interface of basic and applied research with a lot of input and direction from the applied energy offices and hence more attention to translational science.
- Unlike Energy Frontier Research Centers (EFRCs), the EERCs would be jointly funded and managed by three Office of Science programs—Basic Energy Sciences (BES), Advanced Scientific Computing Research (ASCR) and the Biological and Environmental Research (BER) program, in addition to close coordination with the DOE applied energy offices.
- The EERCs would also cover a much broader scope of scientific disciplines and activities than EFRCs, which are primarily focused on materials and chemistry research.

Planned EERC Funding Distribution ($ in millions)







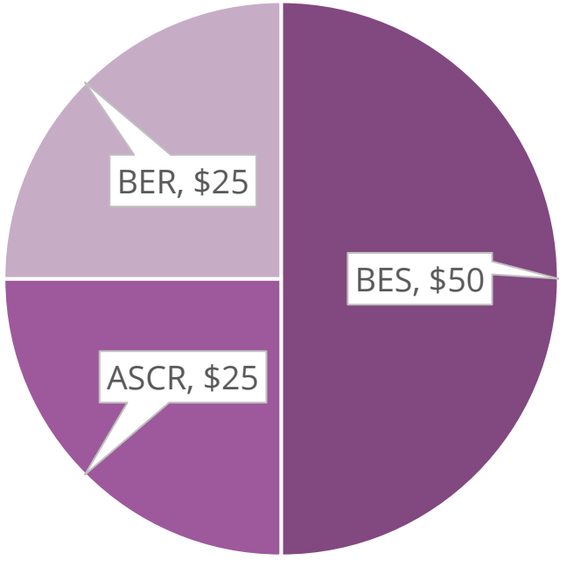
ENERGY EARTHSHOT INNOVATIVE RESEARCH—$100 MILLION REQUESTED, $50 MILLION LIKELY APPROPRIATED (MARCH 2023)

EERCs will be complemented by single Principal Investigator and small group awards focused on use-inspired fundamental research to address knowledge gaps that limit achievement of the Energy Earthshot goals.

Examples of research priorities to support Energy Earthshots:

- Advance foundational knowledge and state-of-the-art capabilities in experimental, theoretical, and computational sciences, such as applied math and computer science solutions that focus on incorporating Artificial Intelligence and machine learning in use-inspired fundamental research.
- New materials, chemistries, and components.
- Multiscale computational and modeling tools with new artificial intelligence and machine learning technologies.
- Real-time characterization including in extreme environments.
- Carbon dioxide removal using soil carbon sequestration practices, including crops that increase the amount of carbon stored in the soil.

Planned Research Funding Distribution ($ in millions)



NSF HAS A MAJOR FOCUS ON CLEAN ENERGY RESEARCH

Clean-energy investments in high-risk, high-reward ideas focused on:

- Increased energy efficiency
- Enhanced Sustainability
- Mitigating climate change
- Social benefits from clean energy production

Clean Energy Technology Funding

(Dollars in Millions)

	FY 2021 Actual	FY 2022 (TBD)	FY 2023 Request[2]
BIO	$45.00	-	$59.28
CISE	24.22	-	31.12
ENG	143.38	-	223.57
MPS	132.07	-	128.56
OISE	0.01	-	5.00
TIP[1]	37.21	-	52.47
Total	**$381.89**	**-**	**$500.00**

[1] FY 2021 funding for TIP is shown for comparability across fiscal years.

[2] Funding includes resources for agency-wide initiatives.

NSF: CLEAN ENERGY TECHNOLOGY

- FY 2023 budget request would significantly increase funding for Climate and Clean Energy activities across NSF.
- NSF Clean-energy technology goals:
  - Support fundamental research
  - Support convergent research engaging teams
  - Develop energy research infrastructure
  - Translate innovations
  - Develop the workforce of the future
- Clean energy investments complement and align with NSF investments to advance climate change understanding, adaptation, and mitigation.
- Clean Energy/Climate related fundamental research and education is supported across NSF Directorates

NEW CLEAN ENERGY OPPORTUNITIES PLANNED IN FY 2023

- **Regional-scale convergence accelerator** platform to support cohorts of convergence accelerator teams on challenges in agriculture, energy, transportation, and other specific areas.
- **Regional climate impact integration hubs**, focused on climate innovation, mitigation, adaptation, and equity.
- **National Discovery Cloud** (NDC) for Climate that would include input from NSF-funded advanced computing resources and other NSF facilities.
- A new Directorate for Geosciences (GEO) investment that would support **large-scale interdisciplinary work on climate change**, including a focus on forecasting/climate modeling at scales needed for decisionmakers.
- **Open Science Initiative** for data infrastructure, which would provide expanded support for computation and cyberinfrastructure development and focus on revolutionizing data structures and architectures to address critical questions on climate.
- **Global Centers program** would support interdisciplinary and international teams focused on use-inspired research and education, focused on climate and clean energy.

UPCOMING FUNDING OPPORTUNITIES

Focused Clean Energy/Climate Opportunities

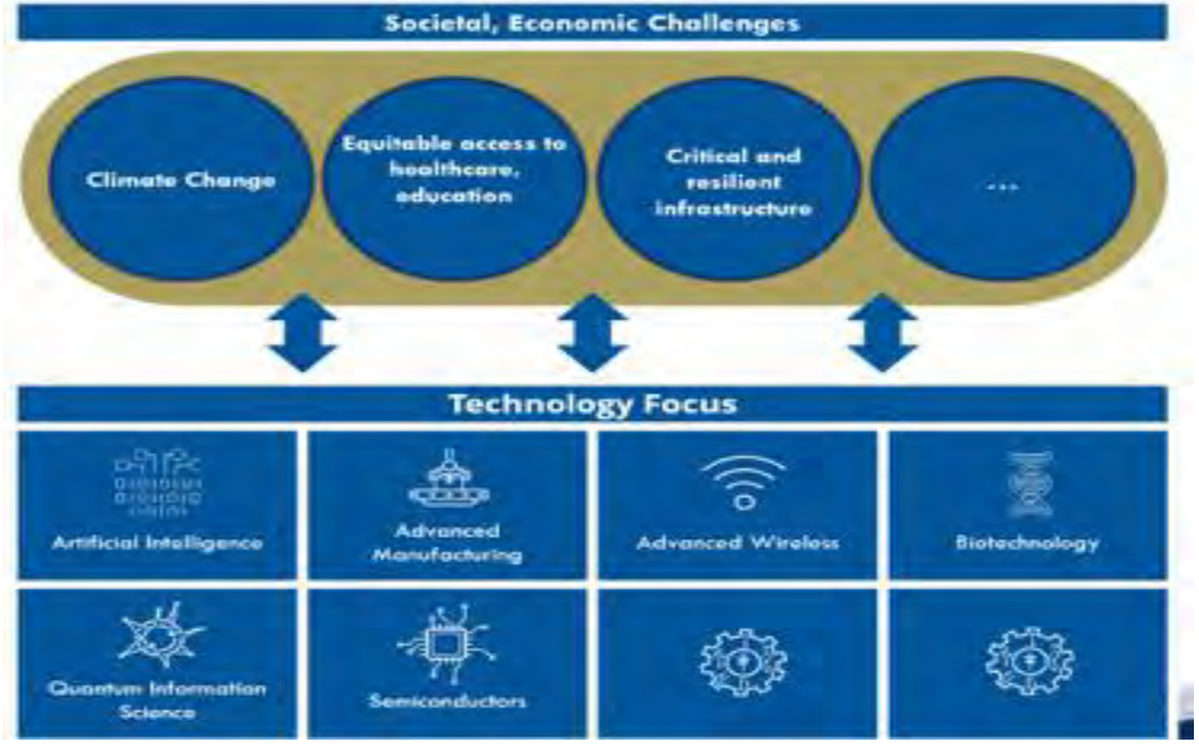
- Funding supported through standing programs across NSF
- Sep 2021 – Dear Colleague letter on Critical Aspects of Sustainability (CAS): Innovative Solutions to Climate Change
- Environmental Convergence Opportunities in Chemical, Bioengineering, Environmental, and Transport Systems (ECO-CBET)
- Future Manufacturing, Catalysis, Thermal Transport Processes
- CIVIC Innovation Challenge – climate change and improving access to critical services

Center-level opportunities

- Engineering Research Centers (Letters of intent due September 2022)
- Science and Technology Centers (Next competition expected in 2024)
- Materials Research Science and Engineering Centers (Preliminary proposals due June 21, 2022)
- Partnerships for International Research and Education (Current competition proposals were due May 25, 2022; PIRE typically runs every 2-3 years)
- AI Institutes Round 4 (spring 2023)
- Mid-scale Research Infrastructure (Fall 2022)
- Convergence Accelerator (March annually, topics vary)

NEW DIRECTORATE FOR TRANSLATION, INNOVATION, AND PARTNERSHIPS (TIP)

- TIP will work in close collaboration with all of NSF's directorates to "advance use-inspired and translational research in all fields of science and engineering, giving rise to new industries and engaging all Americans — regardless of background or location — in the pursuit of new, high-wage jobs in science, technology, engineering and math (STEM)."



TIP: REGIONAL INNOVATION ENGINES (NSF ENGINES)

Flagship TIP Program - Use-Inspired Research Around Societal and Technology Challenges

- NSF plans to provide up to $160 million per Engine over 10 years. The House Appropriations bill would provide $170 million and the Senate would provide $200 in FY 2023.
- Concept papers were due June 30, 2022, and almost 1,000 were submitted. Type 1 letters of intent were due August 31, 2022 and type 2 are due December 15. A list of submitted concept papers can be found at: https://beta.nsf.gov/funding/initiatives/regional-innovation-engines/find-potential-nsf-engines.
- Regional focus – consider regional challenges/opportunities and existing resources to promote innovation across more diverse geographies.
- *Key Components:*
  - *"Advance critical technologies*
  - *Address national and societal challenges*
  - *Foster partnerships across industry, academia, government, nonprofits, civil society, and communities of practice*
  - *Promote and stimulate economic growth and job creation*
  - *Spur regional innovation and talent"*
- Long-term, Engines will…
  - "Drive R&D innovation to achieve regional economic growth"
  - "Build an inclusive innovation ecosystem that will **thrive for decades** to come"

CHIPS AND SCIENCE ACT

$50.3 Billion

Office of Science

$15.2 Billion

Emerging Technologies and Lab Infrastructure for Applied Energy Offices

$1.5 Billion

Advanced Nuclear Energy R&D and University Nuclear Infrastructure

$975 Million

Microelectronics R&D and Centers

$505 Million

Technology Transfer and Development Programs

NEW PROPOSED DOE CENTERS

- 4 Microelectronics Research Centers
- High Performance Computing For Fusion Innovation Center
- 2 Carbon Storage Research and Geologic Computational Science Centers
- At least 5 Regional Clean Energy Innovation Centers
- At least 2 Fusion Reactors System Design Teams
- 2 Carbon Materials Research Centers
- Midscale Research Centers for Earth and Environmental Systems Science
- 2 New Bioenergy Research Centers