

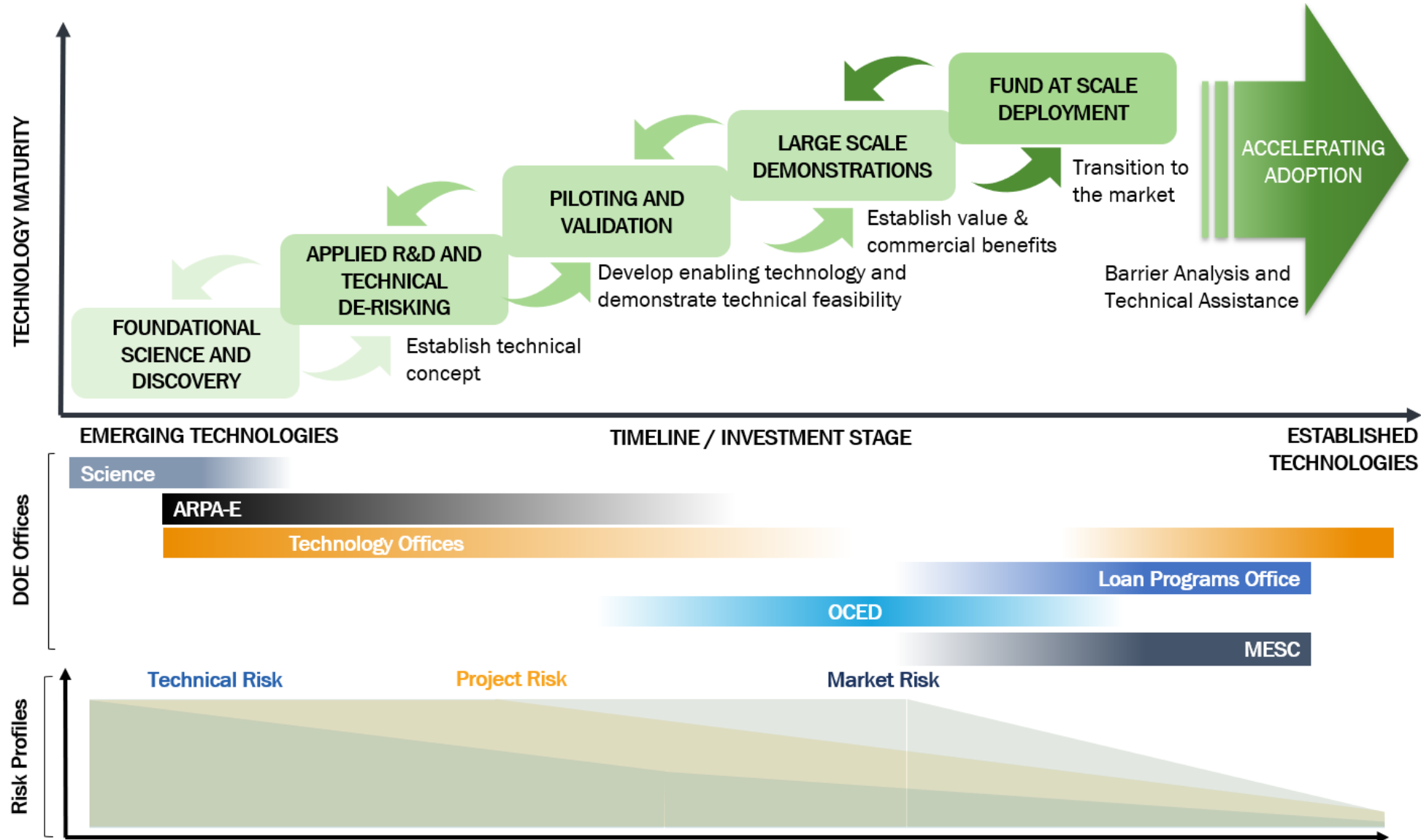
# DOE Coordination on Industrial Emissions Reduction

ITIAC Meeting  
March 21, 2024

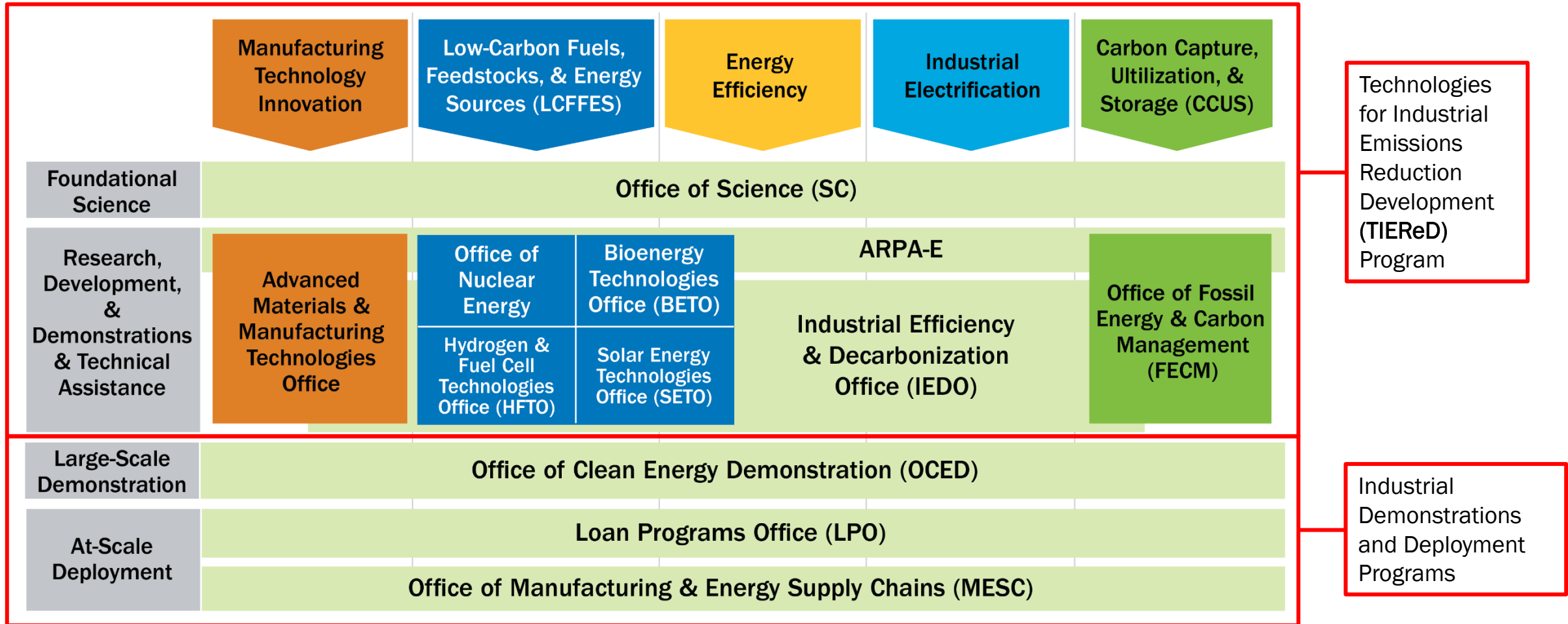
Avi Shultz, IEDO  
Kelly Visconti, MESC  
Melissa Klembara, OCED



# DOE Technology Landscape



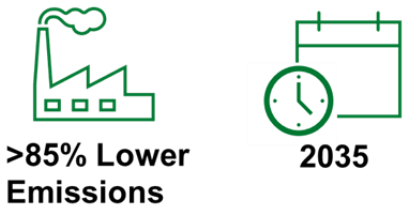
# DOE Offices Share a Common Strategic Framework



# TIEReD is Coordinated through an Undersecretary-level Science and Energy Technology Team (SETT)



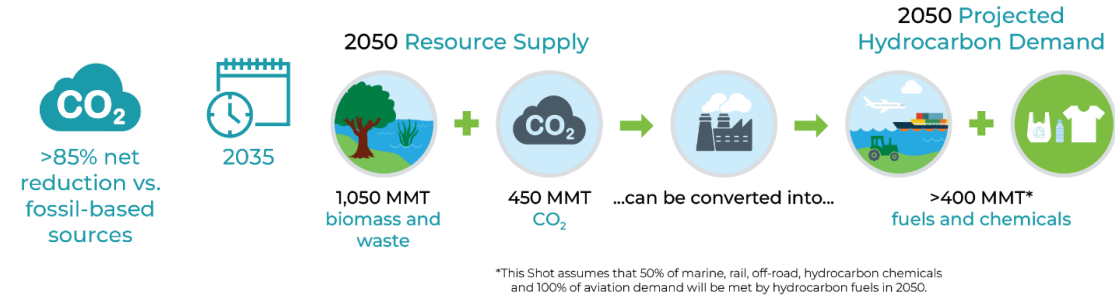
Develop cost competitive industrial heat decarbonization technologies with at least 85% lower greenhouse gas emissions by 2035



Goal: Reduce the amount of heat and/or emissions from heat to make cleaner products

Generate Heat from Clean Electricity	Integrate Clean Heat from Alternative Sources	Innovative Low- or No-Heat Process Technologies
<b>Reduce Emissions:</b> electrify equipment & use clean electricity, improve energy efficiency	<b>Reduce Emissions:</b> switch to low-emissions heat sources and increase thermal storage	<b>Reduce Emissions:</b> new chemistry and emerging approaches to reduce heat demand
<b>Examples:</b> heat pumps, microwave heating, resistive heating, etc.	<b>Examples:</b> solar thermal, nuclear, geothermal, hydrogen, some sustainable fuels, etc.	<b>Examples:</b> advanced separations, electrolysis, ultraviolet curing, biobased manufacturing, etc.

Enabling technologies and systems: e.g. energy storage, materials, modeling, data analytics, etc.



\*This Shot assumes that 50% of marine, rail, off-road, hydrocarbon chemicals and 100% of aviation demand will be met by hydrocarbon fuels in 2050.

<b>Resource/Feedstock Mobilization</b>	<ul style="list-style-type: none"><li>• New technologies to enable low cost, low-emissions feedstocks at scale</li><li>• Increased carbon incorporation into biomass</li></ul>
<b>Carbon-Efficient Conversion Processes</b>	<ul style="list-style-type: none"><li>• New carbon-efficient conversion technologies</li><li>• Innovation to improve CO<sub>2</sub> catalytic conversion efficiency</li><li>• Solar fuels</li><li>• Processes using green electricity and hydrogen</li></ul>
<b>Technology Scaling &amp; Demonstration</b>	<ul style="list-style-type: none"><li>• Integrated pilot and demonstration scale facilities to de-risk technology for rapid industry adoption</li></ul>
<b>Societal Considerations/Impacts</b>	<ul style="list-style-type: none"><li>• Energy equity impacts and differentiated regional strategies</li><li>• Cradle to grave life-cycle analysis and sustainability modeling to prioritize the most impactful R&amp;D</li></ul>

# Industrial Technologies Joint Strategy Team



CHARTERED BY THE SECRETARY &  
DEPUTY SECRETARY TO:

- 1) DEVELOP A STRATEGY
- 2) COORDINATE INTERNALLY
- 3) ENGAGE EXTERNALLY

## SCOPE

Energy efficiency and decarbonization technologies that **reduce emissions and increase competitiveness** of the US industrial sector *in a net zero economy*.

## INITIAL FOCUS AREAS FOR STRATEGY DEVELOPMENT

### END USE SECTORS:

Metals, Chemicals, Cement

### CROSS-CUTTING APPROACHES:

Energy Efficiency, Electrification

MOBILIZING  
STAFF



ACROSS  
**10**  
OFFICES



# Planning & Execution

