



**Carbon Capture Utilization &  
Sequestration Roadshow  
January 28, 2020 – Washington DC**

**Commercialization of Captured Co<sub>2</sub>**

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National Coal Council**

# ADVISORS TO THE U.S. SECRETARY OF ENERGY



**NCC is a Federal Advisory Committee  
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**The National Coal Council  
provides advice and recommendations  
to the Secretary of Energy  
on general policy matters  
relating to coal and the coal industry.**

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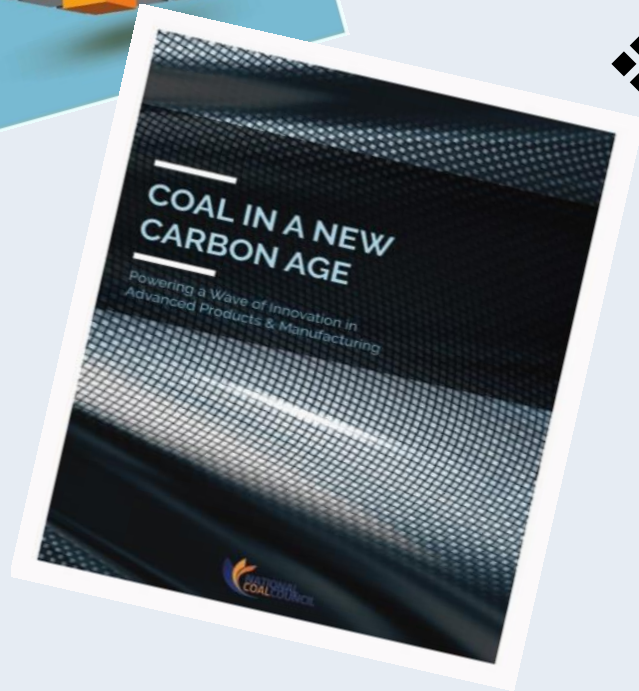
# TWO DECADES OF ENGAGEMENT ON CARBON MANAGEMENT



# PRESENTATION FOCUS



❖ **CO<sub>2</sub> Building Blocks:**  
Assessing CO<sub>2</sub> Utilization Options



❖ **Coal in a New Carbon Age:**  
Powering a Wave of Innovation  
in Advanced Products & Manufacturing



# CO<sub>2</sub> BUILDING BLOCKS

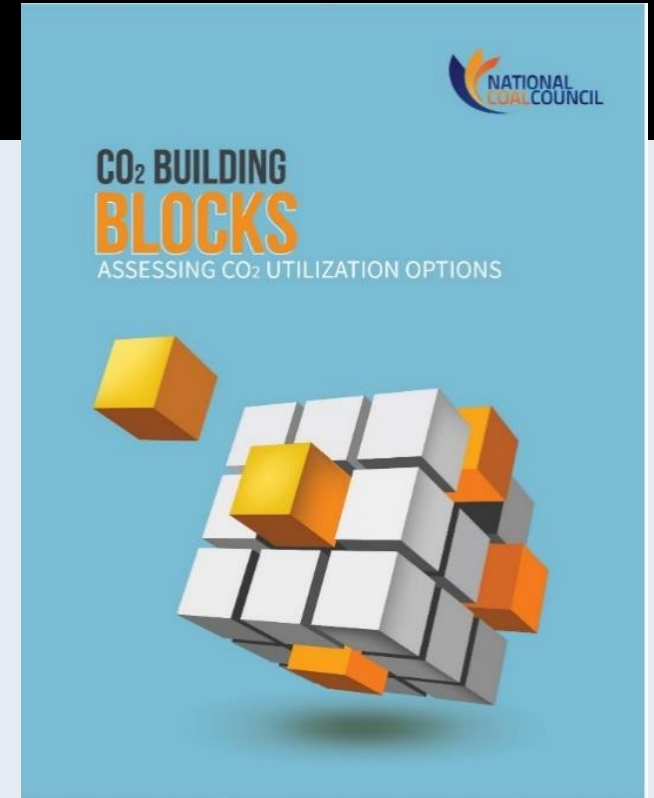
## ❖ CO<sub>2</sub> Utilization Applications

### ➤ *Geologic*

- *EOR/ROZ*
- *ECBM*
- *EWR*
- *Geothermal Energy Storage*

### ➤ *Non-Geologic*

- *Food & Beverage*
- *Chemicals*
- *Plastics & Polymers*
- *Fuels*
- *Fertilizers*

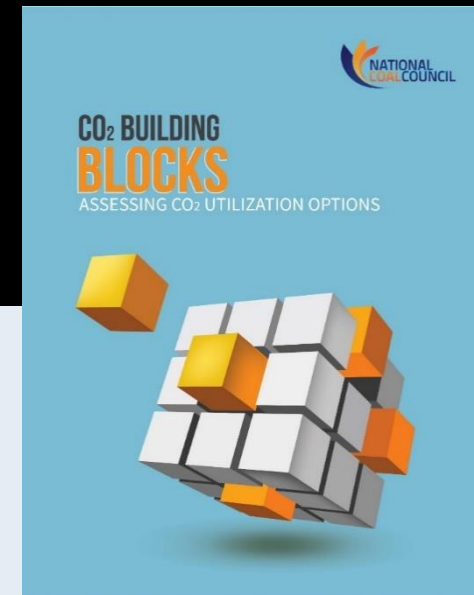


# CO<sub>2</sub> BUILDING BLOCKS KEY FINDINGS

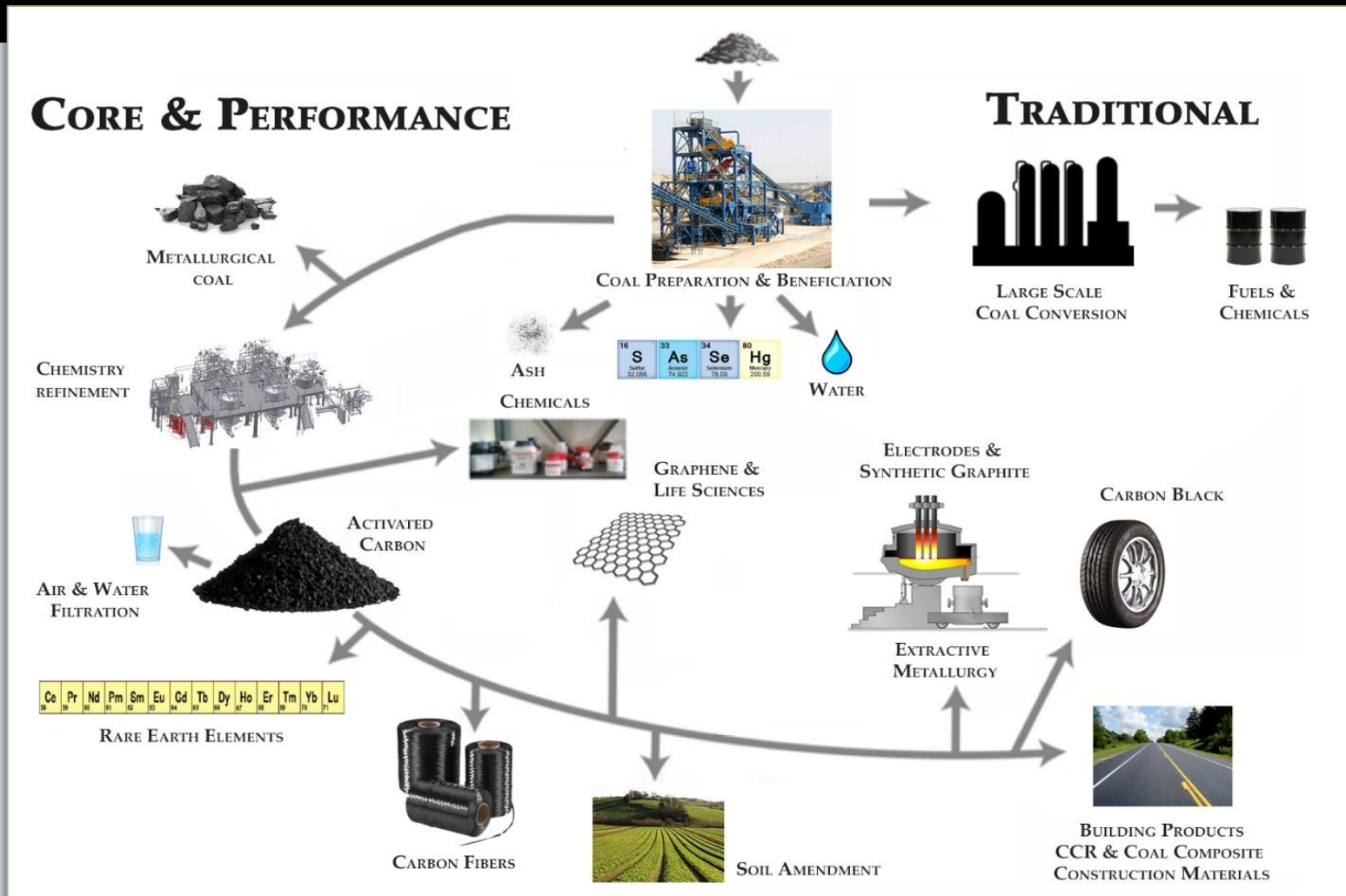
## CO<sub>2</sub> Building Blocks RECOMMENDATIONS

- Policymakers should continue to focus on advancing geological storage options through support for RD&D and adoption of incentives.
- Additional technical and economic research should be directed towards the following non-geologic utilization products and pathways: (1) inorganic carbonates and bicarbonates; (2) plastics and polymers; (3) organic and specialty chemicals; and (4) agricultural fertilizers.

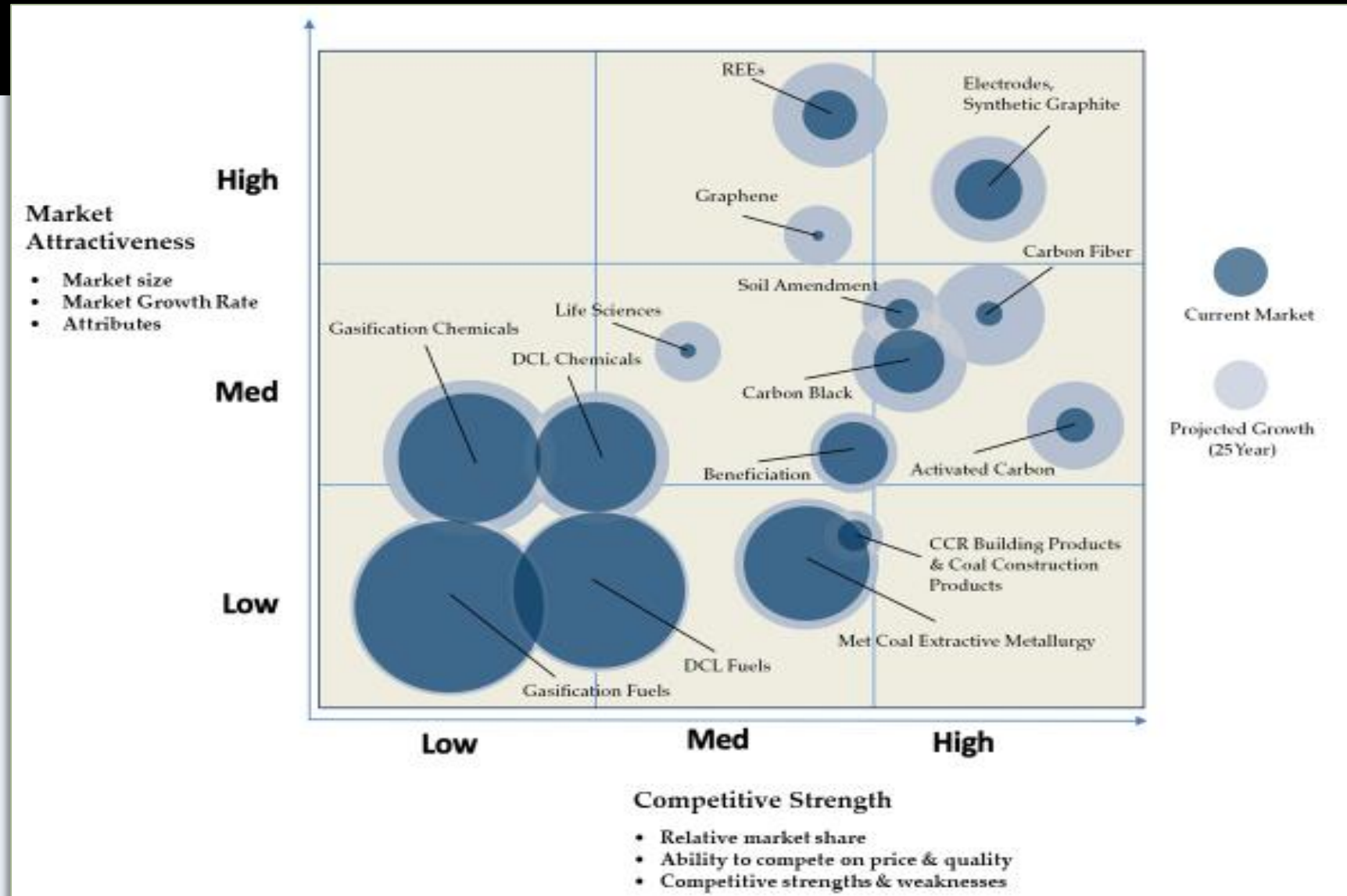
- Geological CO<sub>2</sub> utilization options have the greatest potential to advance CCUS by creating market demand for anthropogenic CO<sub>2</sub>.
- Non-geological CO<sub>2</sub> utilization options are unlikely to significantly incentivize CCUS in the near- to intermediate-term because of technical, GHG LCA considerations, and lack of scalability.
- Non-geologic technologies that can “fix” CO<sub>2</sub> molecules intact hold the most promise and are worthy of continuing evaluation – i.e., inorganic carbonates/bicarbonates, plastics/polymers, organic/specialty chemicals and agricultural fertilizers.



# COAL IN A NEW CARBON AGE



# NINE BLOCK ANALYSIS





# VALUE OF COAL-TO-PRODUCTS



# COAL IN A NEW CARBON AGE RECOMMENDATIONS

## Strategic Recommendations

- Establish a focused R&D program on coal-to-products.
- Accelerate research-to-commercial deployment in coal-to-products market sectors.
- Incentivize private sector investment in coal-to-products production and manufacturing sectors.

## Tactics

- Establish a national R&D program for advanced carbon products and manufacturing within DOE.
- Establish an Office of Carbon Products tasked with building Carbon Advanced Material, Manufacturing & Production (CAMP) centers to accelerate research-to-commercial deployment.
- Provide tax and policy incentives.
- Provide DOE financial support for pre-FEED and FEED projects.



[www.NationalCoalCouncil.org](http://www.NationalCoalCouncil.org)

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