



THE OHIO STATE UNIVERSITY

DE-FE0032463: Engineering-Scale Design and Testing of Transformational Membrane Technology for CO₂ Capture from Cement Gas

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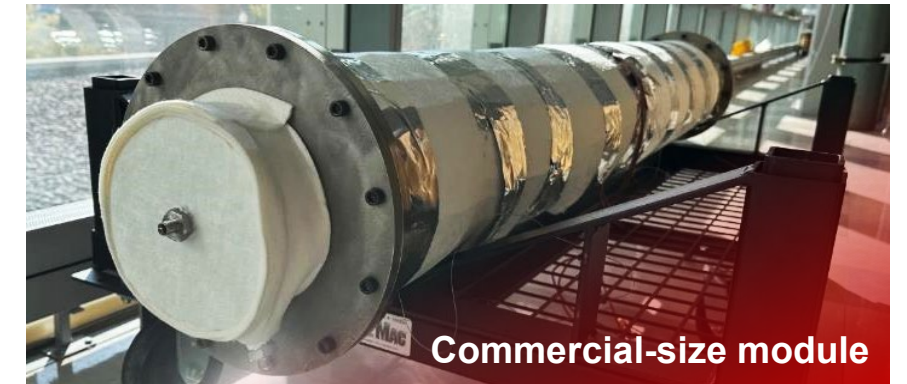
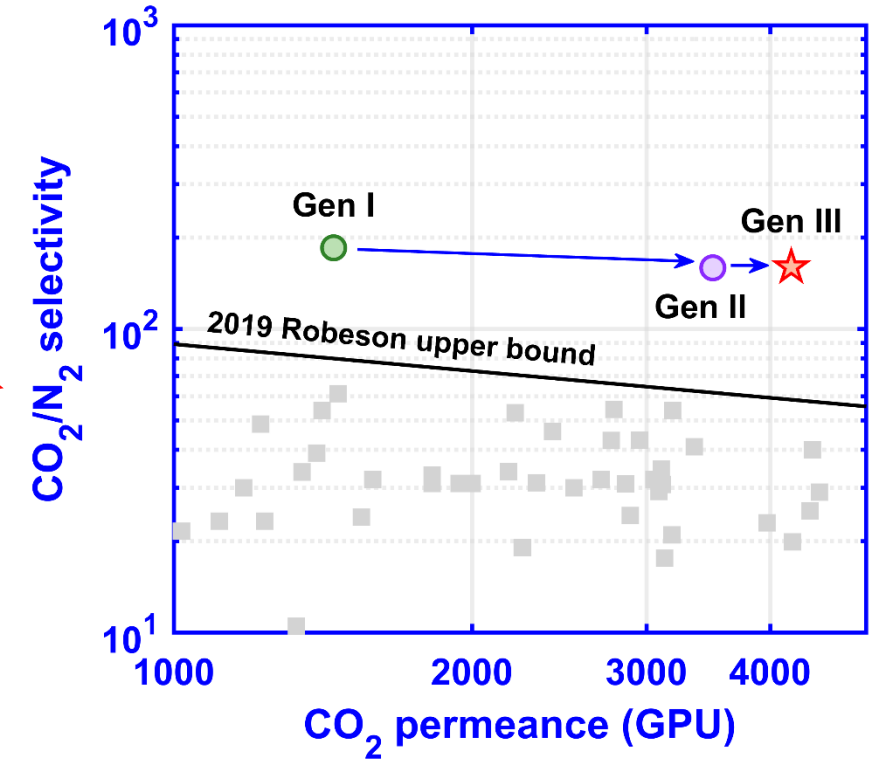
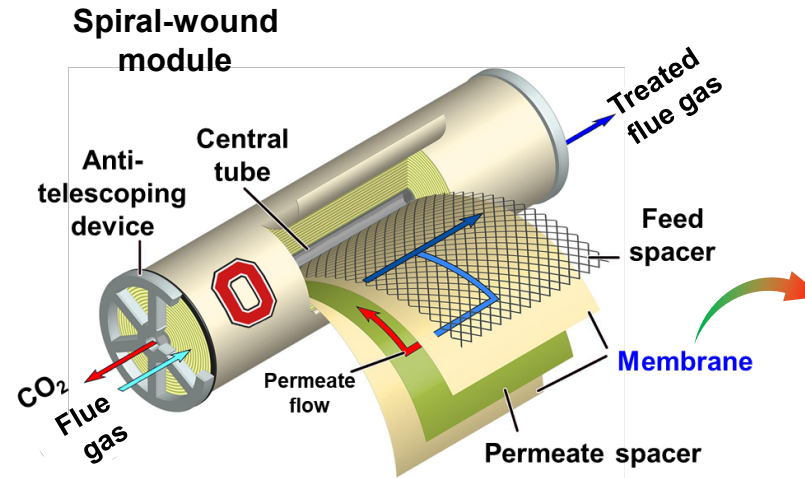
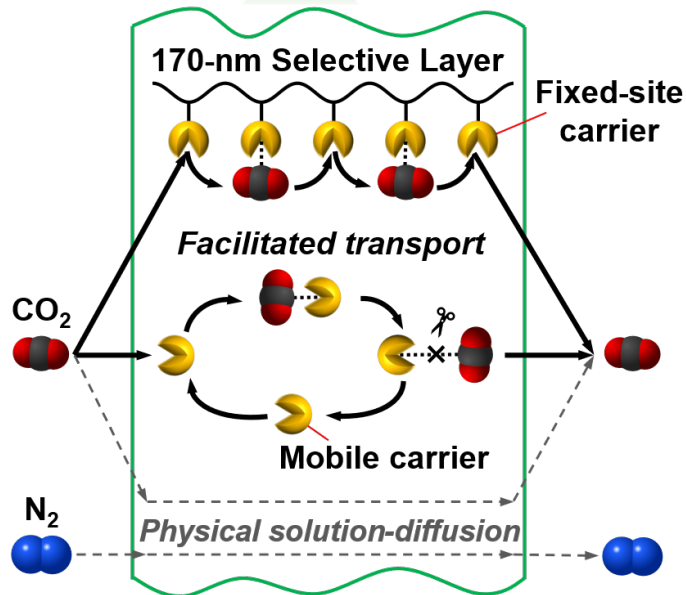
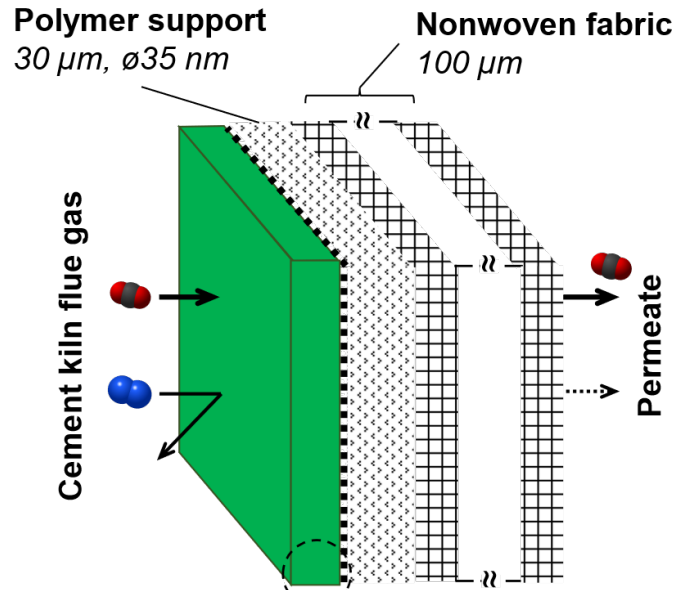
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The Ohio State University, Columbus, Ohio

2024 FECM/NETL Carbon Management Research Project Review Meeting

August 7, 2024

OSU's Facilitated Transport Membranes



Holcim US Holly Hill Cement Plant

- Holly Hill Plant is a 2.2 million metric tons per year preheater/precalciner kiln with associated crushing, storage and grinding equipment
- For the project, Holly Hill is the plant of choice for various reasons:
 - Representative of Holcim's worldwide cement plants (modern precalciner kiln, high alternative fuel and raw material rates)
 - Plot place and utilities easily available
 - Easily accessible plant (close to Charleston, SC)
- Stack gases are monitored using a Continuous Emissions Monitoring System for flow, temperature, pressure, moisture and various criteria pollutants
- Cement flue gas characteristics:
 - >10 vol.% CO₂ at stack; higher CO₂ conc. available in other process locations
 - SO₂ and NO₂ polishing needed for membrane skid
 - 75% of the required heat is provided by alternate fuels; coal and natural gas provide the rest

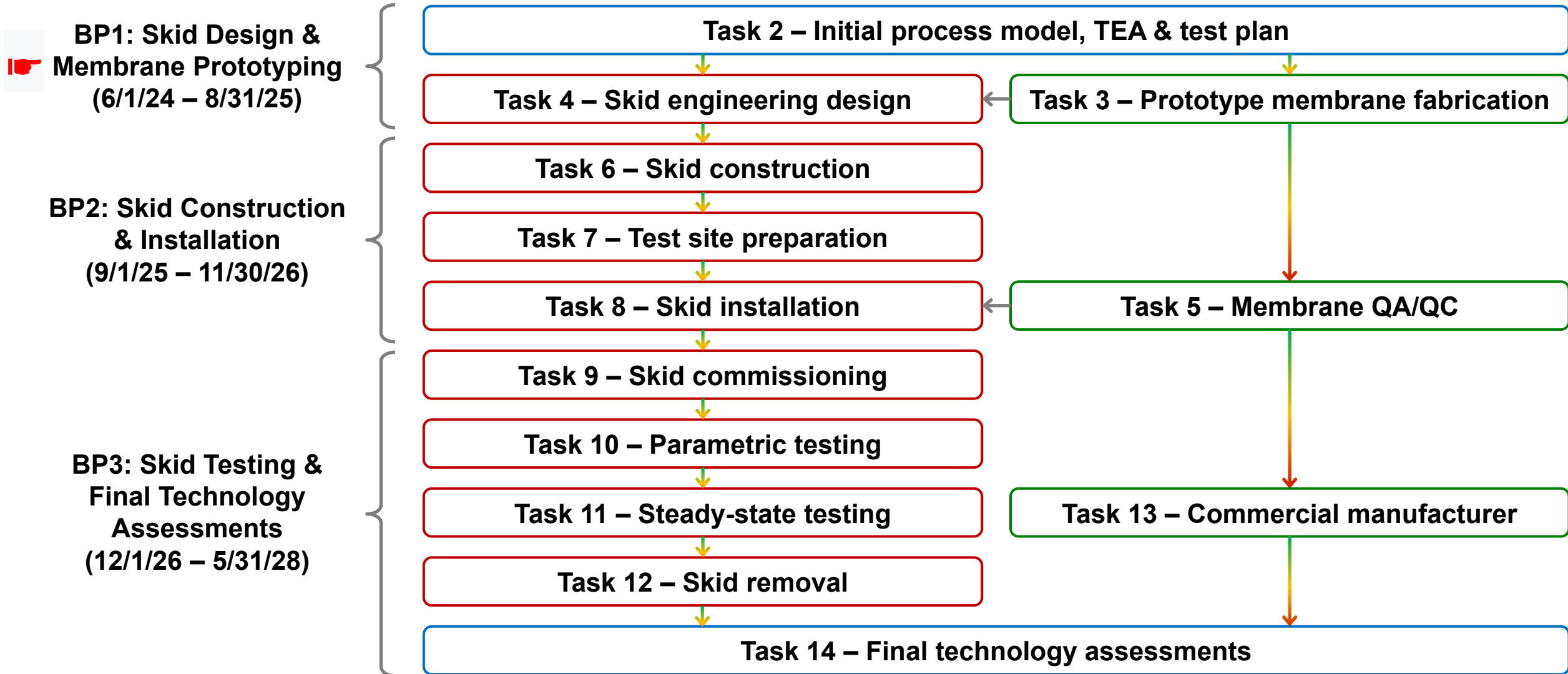


Planned Approach

- Performance period: 6/1/2024 – 5/31/2028

System Prototyping

Membrane Prototyping



Acknowledgments

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- DE-FE0032463



- **Project Management**

- Dylan Leary
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- **Partners**



TRIMERIC CORPORATION

