



# Membrane Hybrid Process for Deep Decarbonization of Industry

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**DE-FE0032462**

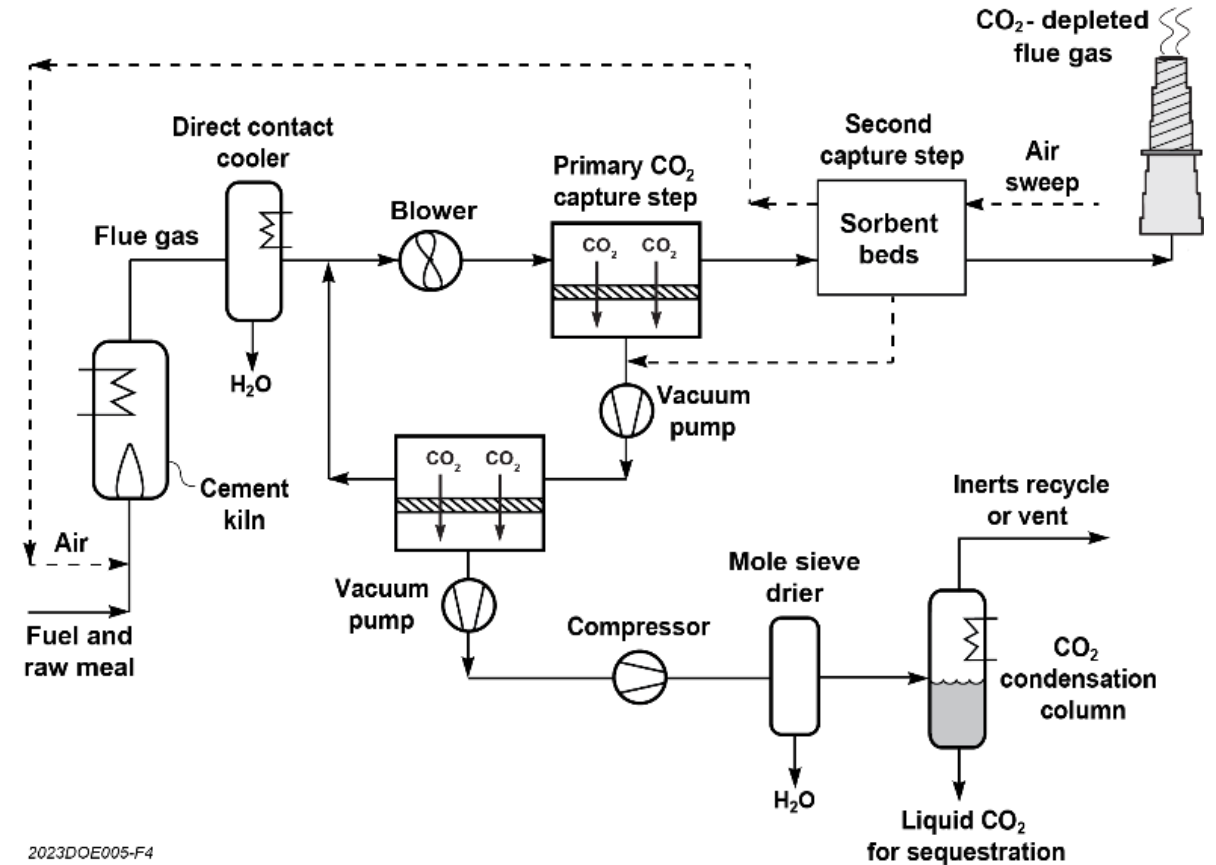
**DOE Project Manager: Andy O’Palko**

**FECM/NETL Carbon Management Research Project Review Meeting**

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# MTR Hybrid Process Design for Post-Combustion CO<sub>2</sub> Capture

- MTR two stage post-combustion CO<sub>2</sub> capture process will be utilized along with TDA sorbent to achieve high (>95%) capture rates
- Advanced Polaris membrane and planar modules will be utilized in this project
- Project activities in Budget Period 1 will identify a range of capture rates for membrane and sorbent unit operations and potential tie-ins for enriched CO<sub>2</sub> gas stream from sorbent unit
- 6-month field test in Budget Period 3 will include parametric testing to identify the optimal hybrid configuration, quantify co-capture benefits, and evaluate system dynamic response
- Performance data from the hybrid field test will be used in the project final TEA report



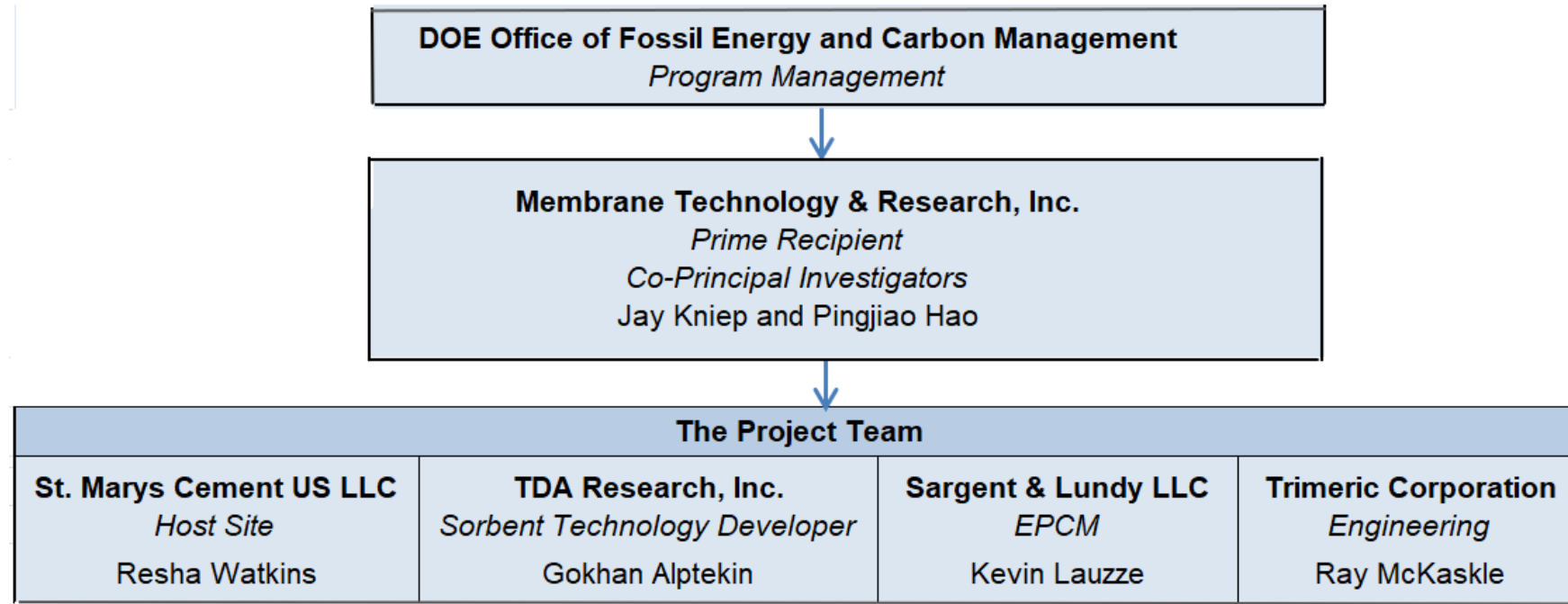
# Host Site: St. Marys Cement Charlevoix Plant (Charlevoix, MI)

St. Marys Cement is a part of Votorantim Cimentos' US operations

- Year of Installation: 1967/upgraded 2017
- Volume of Production
  - 2,054 kt cement/year
  - 1,911 kt clinker/year
- Products
  - Slag Cement
  - Portland Cement Type III
  - Masonry Cement Type M, N, and S
  - Blended Hydraulic Cement Type II
- Markets Served
  - Michigan, Illinois, Wisconsin, Indiana, Ohio, Canada



# Membrane Hybrid Cement Pilot Test Project Team



MTR has assembled an experienced team to execute the project:

- S&L has worked on a number of previous DOE projects, including the recent engineering study of a full-scale MTR CO<sub>2</sub> capture system at a cement plant (DE-FE0031949)
- Trimeric has worked with MTR on various post-combustion DOE projects over the past decade
- MTR and TDA have collaborated on previous DOE-funded hybrid CO<sub>2</sub> capture field test projects