



CLIENT:

US-Department of Energy (DoE) & Largest Integrated steel Producer in North America

PROJECT DESCRIPTION:

Preliminary Front End Engineering Design (Pre-FEED) for Pre-combustion carbon capture in an Integrated Steel Plant (ISP) for low-carbon emission steel production.



IMPACT

- ⊙ Unique system architecture offered lowest possible cost of capture, highest train for a single amine absorber column, and over 80% CO₂ abatement from Blast Furnace (BF) gases.
- ⊙ Overall low-pressure system design to avoid any penalty for compressor power
- ⊙ Optionality to produce H₂ from H₂-rich fuel gas.

FINANCIAL MATRICS:

- ⊙ Estimated CO₂ capture cost including transport & Storage < \$ 70/ ton of CO₂.

CLIENT OBJECTIVES

Decarbonization of BF-BOF based 5 Mtpa integrated steel plant with lowest possible cost impact for meeting sustainability goals.

SOLUTION DESCRIPTION

Scope under Pre-FEED included:

- ⊙ Design basis, process modeling, PFDs, utility flow diagrams, and heat & mass balance
- ⊙ Suitability and impact of H₂-rich gas in existing boiler
- ⊙ Analysis of sourcing options and configuration for steam and electricity generation
- ⊙ Constructability review, Permitting study, and waste & emission disposal study
- ⊙ P&ID, instrumentation and control strategy, and HAZOP
- ⊙ Economic analysis considering capital cost estimate & operating cost estimate.
- ⊙ Life cycle cost analysis and sensitivity analysis.
- ⊙ Risk assessment and mitigation plan for project implementation.
- ⊙ Technology maturation plan describing expected TRL of the proposed technology at end of the project.



ABOUT DASTUR ENERGY

Dastur Energy Inc. is an Austin, Texas, based energy technology company specializing in conceptualization, design and development of commercial scale clean energy transition and carbon management solutions for the Power, Industrial and Government sectors. These solutions maximize ROI potential by leveraging existing assets, site level energy landscape, market models and government initiatives. Dastur Energy's offerings include – market analysis, technology options analysis, policy design, concept & feasibility studies, techno-economic analysis, integrated process design & engineering, technology licensing and project management from concept to commissioning.

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