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Point Source Carbon Capture

Multi-Year Program Plan (MYPP) – Role of CCSI²

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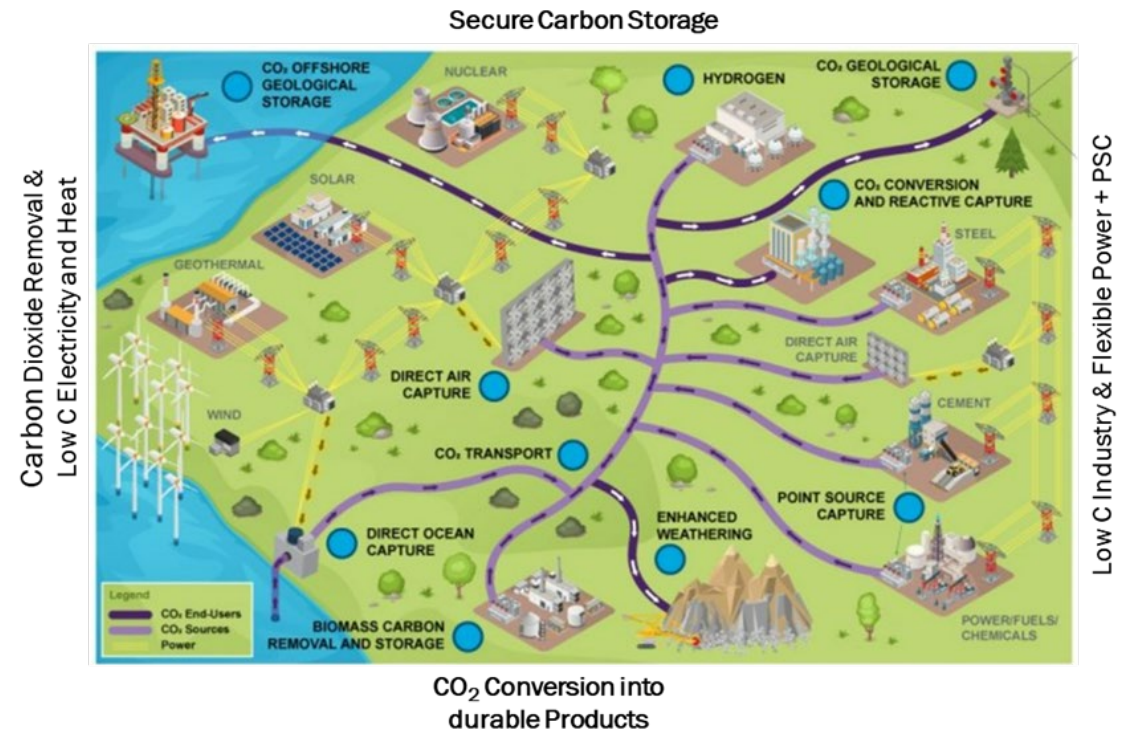
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Point Source Carbon Capture - Strategic Vision

- Support demonstration of first-of-a-kind carbon capture on power and industrial sectors coupled to dedicated and reliable carbon storage, that will lead to commercially viable carbon hub opportunities for widescale deployment and facilitate a carbon-free economy by 2050
- Support just and sustainable deployment of carbon capture technologies - Robust analysis of life cycle impacts and understanding of air/water quality impacts





Point Source Carbon Capture – Multi-Year Program Plan (MYPP)

Focus Area 1: Enabling Point Source Capture (PSC) for Power Demonstrations

- Technology development to support successful demonstration of retrofit CCS projects at power plants (Enabling technologies development – capture media degradation, secondary air emissions, sensors, pre- and post-treatment, modeling tools, etc.)

Focus Area 2: Enabling PSC for Net Zero, Flexible Power Demonstrations

- Technology development to support flexible CCS with high capture efficiency to enable Net-Zero Power Demonstration projects (cross-cutting projects with low-carbon fuels, energy storage, utilization; flexible PSC technologies including carbon capture media and processes; novel equipment design for rapid heating and cooling; high-fidelity flexible process models to improve predictive capability for process scale-up and design for extramural projects)
- FEEDs coupled with CarbonSAFE projects to seed the formation of Carbon Hubs.

Focus Area 3: Enabling PSC for Industrial Demonstrations

- Technology development to support successful demonstration of retrofit CCS projects at industrial facilities

Focus Area 4: Integrated Low-carbon Industrial Processes Coupled with CCS

- Technology development for integrated decarbonized industrial processes coupled with transformational CCS to enable Net-Zero Industrial Demonstration projects
- FEEDs coupled with CarbonSAFE projects to seed the formation of Carbon Hubs.



Multi-Year Program Plan (MYPP) – Role of CCSI²

- To Enable process design, scale-up, and optimization of carbon capture technologies for power and industrial point sources.
- Technical risk reduction of FECM and DOE funded pilots and Demonstrations - Utilizing the CCSI² tools to quantify uncertainty and develop optimal design of experiments.
- Predicting air emissions - Developing a CCSI² *framework* by modelling carbon capture media emissions and applying that framework to on-going and future carbon capture pilots and CCS demonstrations.
- To develop high-fidelity flexible process models to improve predictive capability for process scale-up and design for FECM funded Net Zero, Flexible Power pilot and Demonstration projects.
- To understand the effect of integrating alternate decarbonization strategies with CCS on LCOC and LCOP for industrial facilities - Developing process models of alternative decarbonization strategies (electrification, biomass co-firing, process alternatives, etc.) and integrating these models into base plant models.