

CCSI

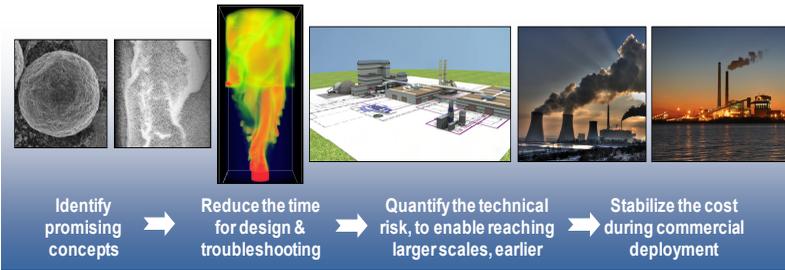
Carbon Capture Simulation Initiative

The U.S. Department of Energy's Carbon Capture Simulation Initiative

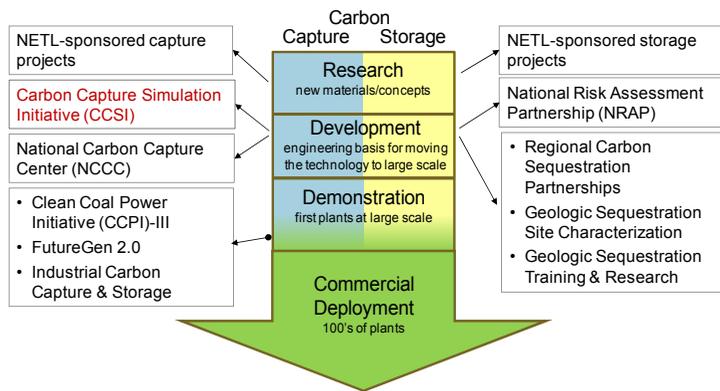
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Overview

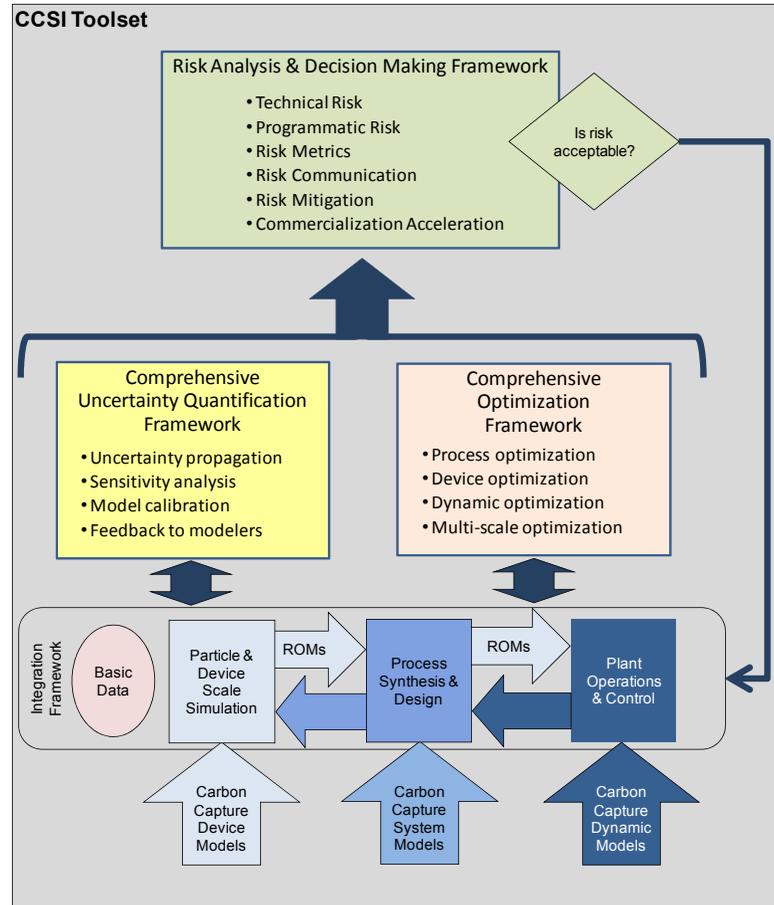
The U.S. Department of Energy's Carbon Capture Simulation Initiative (CCSI) brings together the National Energy Technology Laboratory (NETL), Los Alamos National Laboratory (LANL), Lawrence Berkeley National Laboratory (LBNL), Lawrence Livermore National Laboratory (LLNL), and Pacific Northwest National Laboratory (PNNL) in partnership with academic and industrial institutions to develop and deploy state-of-the-art computational modeling and simulation tools to accelerate the commercialization of carbon capture technologies from discovery to development, demonstration, and ultimately the widespread deployment to hundreds of power plants.



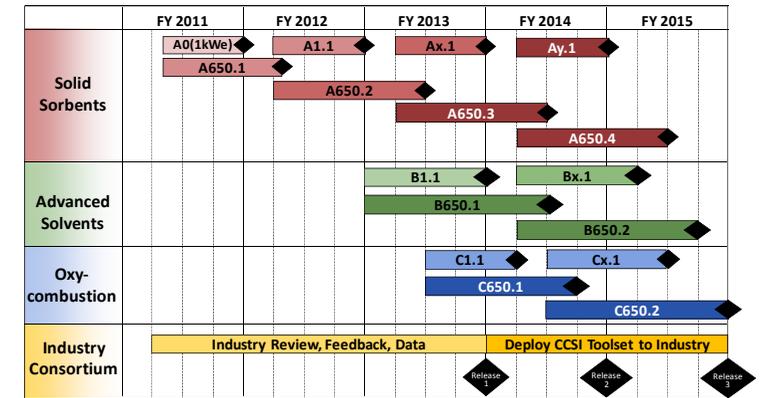
CCSI is part of the DOE CCS RD&D Roadmap.



The CCSI Toolset will provide a validated set of models and tools to accelerate development of carbon capture technology.



5 year plan includes virtual scale up of multiple technologies.



Industry challenge problems focus on technology for PC power plants.

Capture Technology	Technology Status and Characteristics
Solid Sorbents	<ul style="list-style-type: none"> Entering process development. Pilot data/tests in progress. System design/optimization need now.
Liquid Solvents	<ul style="list-style-type: none"> Existing solvents currently in pilot and demonstration tests. Established empirical approach for first generation scale up. Optimization of new solvents/systems is a near-term CCSI opportunity.
Oxy-combustion	<ul style="list-style-type: none"> Commercial designs exist for first generation systems, specific coals. Dynamic operation, optimization, and new fuels is a near-term CCSI opportunity.

Summary

Over five years, CCSI will develop an integrated, validated suite of models and computational tools for accelerating the development and deployment of carbon capture technology. The CCSI Toolset will be used during the scale-up of carbon capture processes to assess and mitigate technical and financial risks, to improve designs, and to shorten the design cycle. This will support decision making to move to larger scales, more quickly and with better designs, thereby considerably reducing the cost and time required for the commercialization of carbon capture technology.

