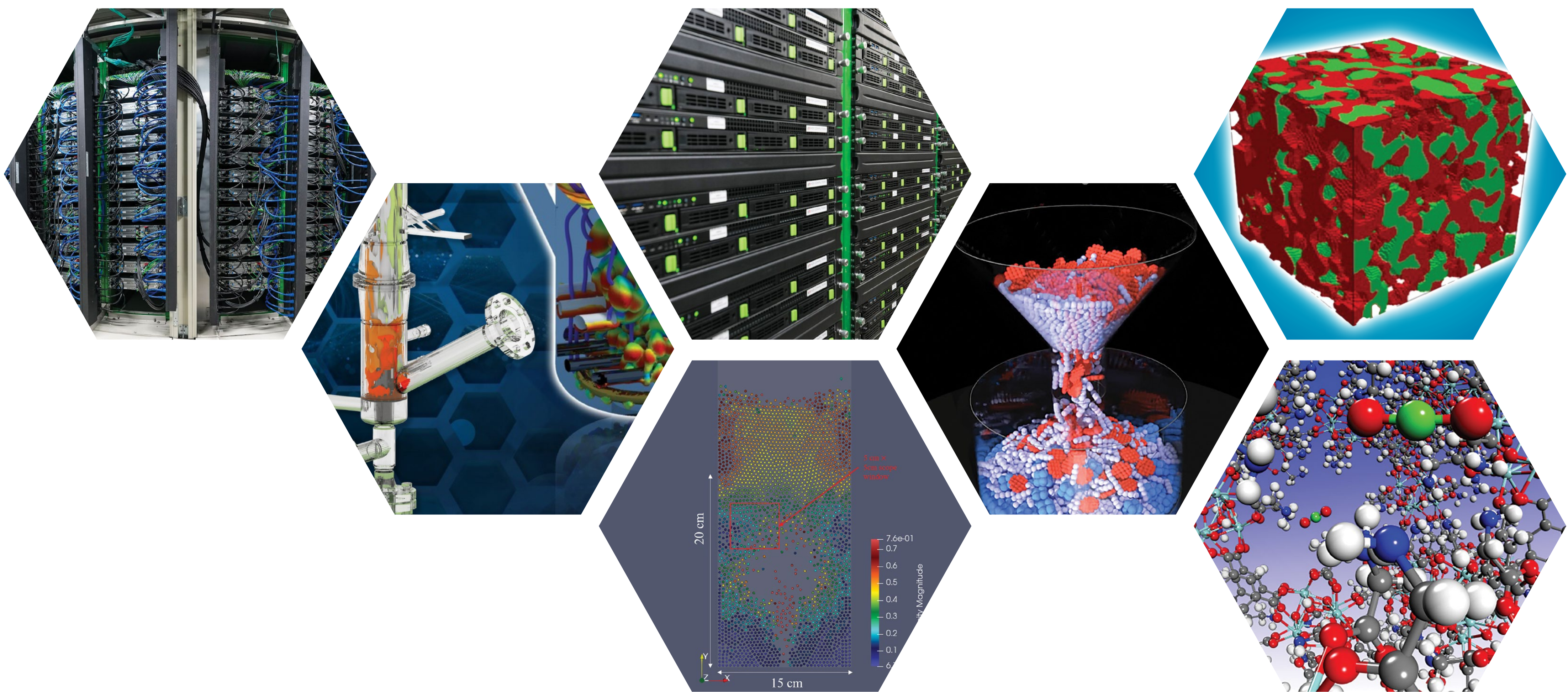


# Computational Science and Engineering Accelerates Development of Technology for the Decarbonized Economy

*Analysis and simulation of complex phenomena at unprecedented fidelity accelerates the discovery, design and deployment of fossil energy materials, processes and devices essential to economy-wide decarbonization.*



NETL's computational science and engineering capabilities (spanning architectures, algorithms and data) accelerate the production of critical carbon management technologies.

Key capabilities include:

- Development, validation and application of multiphase flow tools, exemplified by NETL's MFIX Suite, help solve demanding multiphase flow problems such as those in reactor design, saving time and money.
- Discovery, design and process optimization using first-principles computational materials simulations combined with artificial intelligence/machine learning for energy applications including catalysis, sensors, fuel cells, carbon capture and storage, hydrogen storage and transport.
- Leveraging high-performance computing (HPC), the Wafer Scale Engine (WSE), and quantum computing to unravel the mysteries of complex scientific phenomena. NETL's groundbreaking R&D on the WSE has demonstrated 1000x improved power efficiency and 100x faster time-to-solution than traditional HPC.

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