



ENERGY INNOVATION



MANUFACTURING



MATERIALS

HPC4EI: Partnering with US Manufacturers to Bring National Lab Scale Impact to the World

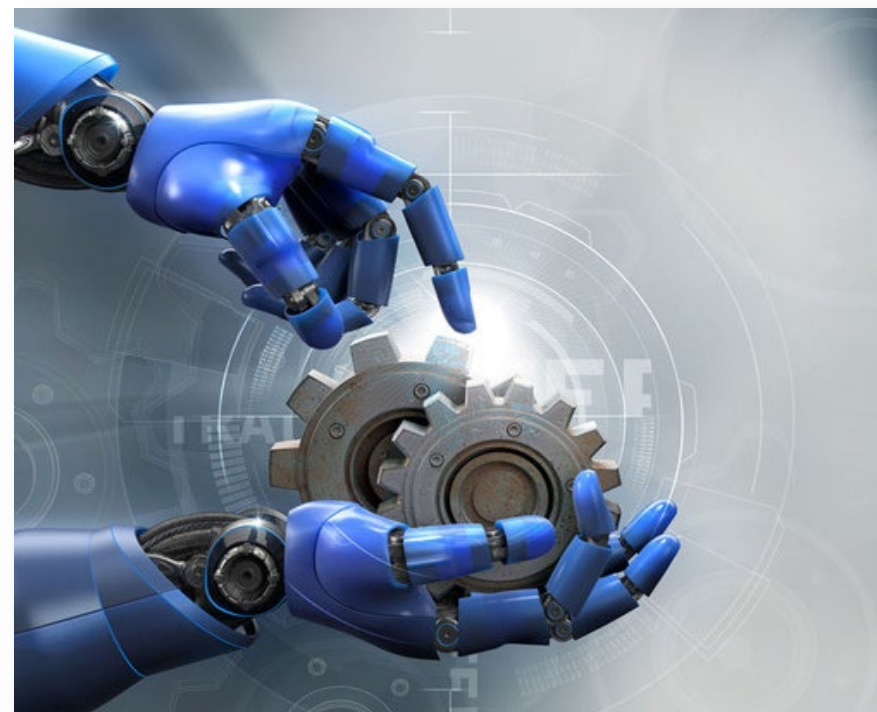
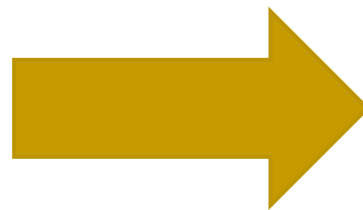
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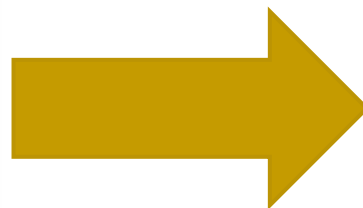


U.S. industry is undergoing a technological revolution



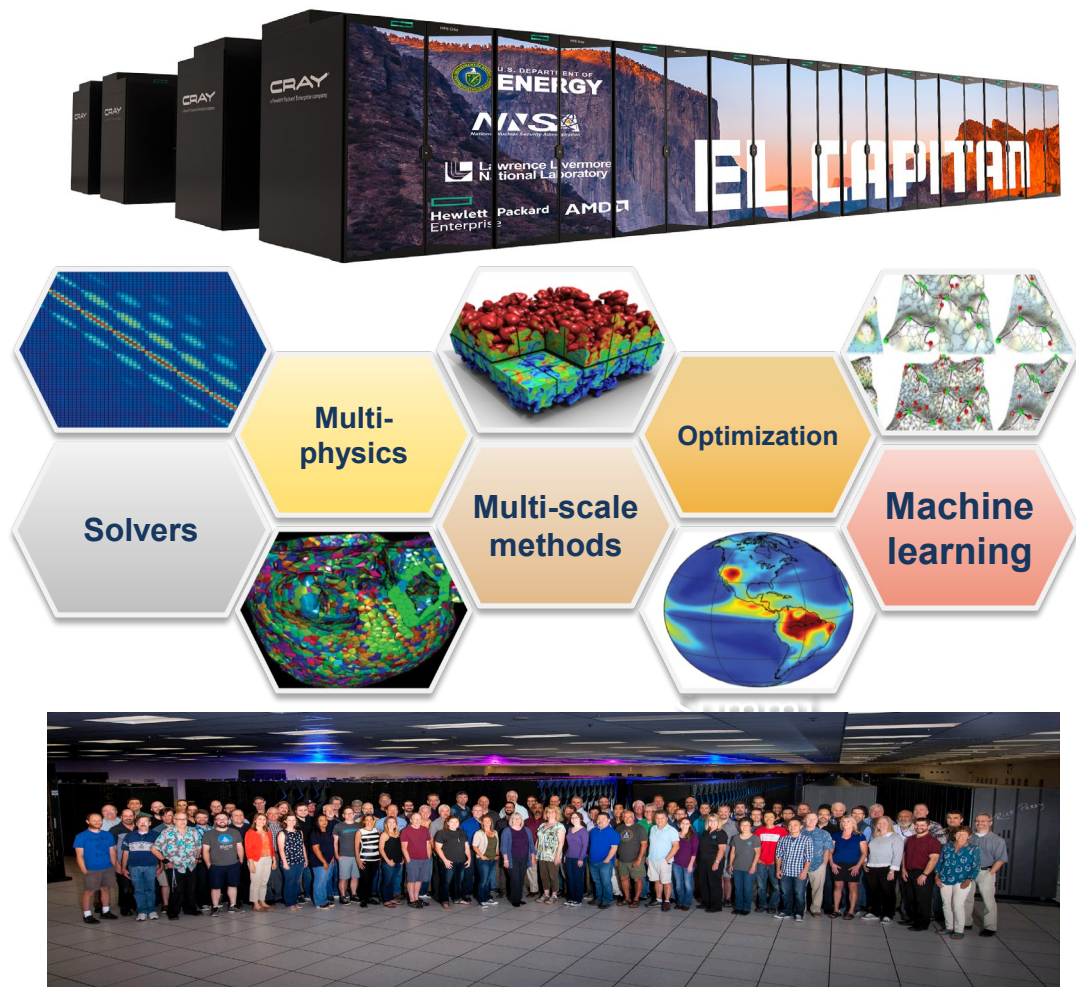
Computer Simulation – Data Analytics/AI – Material Discovery

We are advancing the energy agenda through advanced simulation



Computer Simulation shortcuts the Edisonian approach

HPC4EI connects the DOE HPC ecosystem to US industry



World-class supercomputers
Unique software
Subject Matter Experts



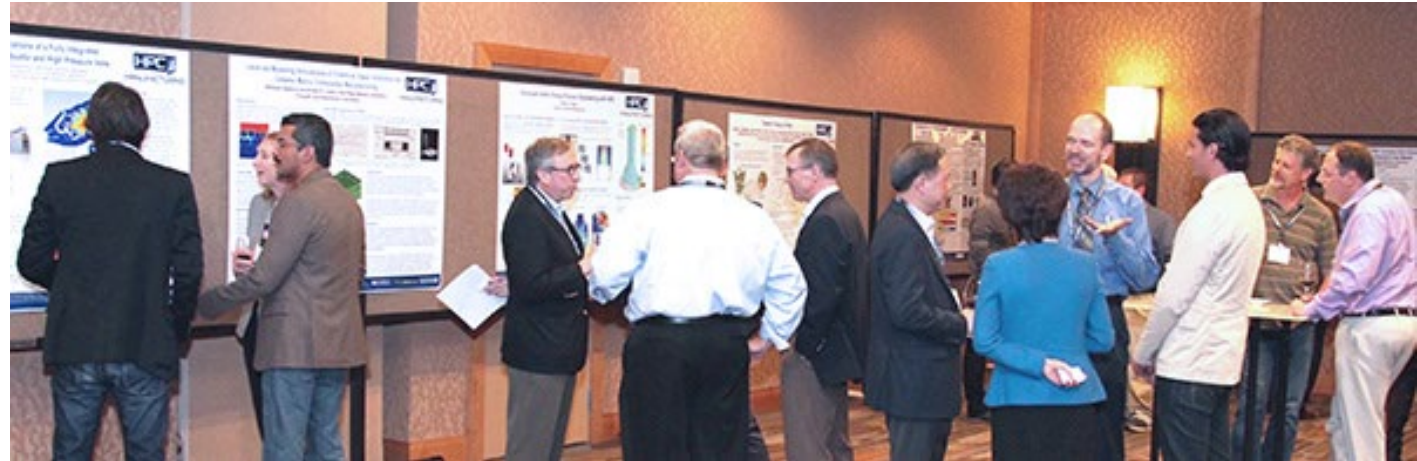


Utilizing DOE computing capabilities to help us Industry:

- ▶ Accelerate innovation
- ▶ Optimize design
- ▶ Reduce testing cycles
- ▶ Shorten the time to market
- ▶ Quality processes
- ▶ Reduce waste/reduce rejected parts
- ▶ Lower energy costs
- ▶ Reduced carbon emissions


The HPC4 Program is building an ecosystem to support HPC adoption by industry/government

- ▶ Showing what is possible with HPC through initial projects
 - ▶ DOE program office funds < \$400K to laboratories
 - ▶ Industry funds at least **20% of total project funding**; either in-kind support or optional cash contribution
 - ▶ Project duration one year
- ▶ Building the HPC4 community
 - ▶ Student intern programs
 - ▶ Hosting Virtual and Hybrid events



HPC4EI strengthens the S&T foundation of DOE National Labs and accelerates innovation in US industry

DOE OFFICES



Energy Efficiency & Renewable Energy
Fossil Energy and Carbon Management
Office of Science

US INDUSTRY



HPC4 ENERGY INNOVATION

NATIONAL LABS



ACADEMIA



- Democratize HPC
- Accelerate energy innovation
- Transfer capabilities from national labs to industry
- Transfer knowledge from industry to national labs
- Develop practical tools
- Generate useful and comprehensive data sets
- Train students and postdocs

HPC 4 ENERGYINNOVATION

HPC 4

MANUFACTURING

 U.S. DEPARTMENT OF
ENERGY | Energy Efficiency &
Renewable Energy

HPC 4

MATERIALS

 U.S. DEPARTMENT OF
ENERGY | Fossil Energy and
Carbon Management



Program Approach

Companies apply to program through a solicitation process



- DOE funds 2 solicitations a year
- \$400k / Project funded
- ~\$7M /yr Budget
- 11 National laboratories participating
- 150+ projects funded with 90+ companies over 7 years

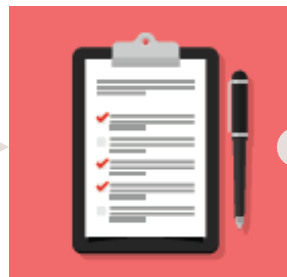
Industry
Concept Paper



PI Match
Full Proposal



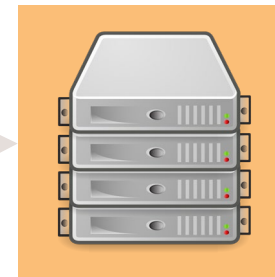
Technical
Review



Signed
Agreement



PI obtains HPC
resources



Over 150 projects have been funded with over 90 manufacturers in US



- ▶ Aerospace leading edge companies
- ▶ Legacy industries
- ▶ Innovative small companies