

HPC4E



Geophysics for energy

- An open benchmark created to evaluate the scalability of geophysical exploration codes
- Shown scalability of FWI applications in petascale machines and its potential for exascale
- Different high order methods compared



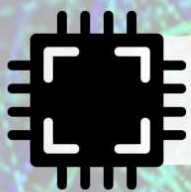
Biomass for energy

- Tabulated chemistry created for different biogas compositions
- Studied the application of biogas in combustion turbines
- Industrial guidelines for the use and operation of biomass-derived fuels



Atmosphere for energy

- Applications for wind farm design shown high scalability in petascale systems and their potential for exascale
- Coupled mesoscale and microscale through dynamic and statistical downscaling
- Error reduced by 10% with respect to other wind farm codes
- Compared RANS vs LES turbulence models for atmospheric flows



Disruptive Exascale Computer Architectures

- Evaluated different computational kernels and shown feasibility of executing applications in project-tested hardware
- Tested linear solvers and libraries showed high scalability
- Started uncertainty quantification for geophysics and wind energy applications

Simulators for Exascale Computations

