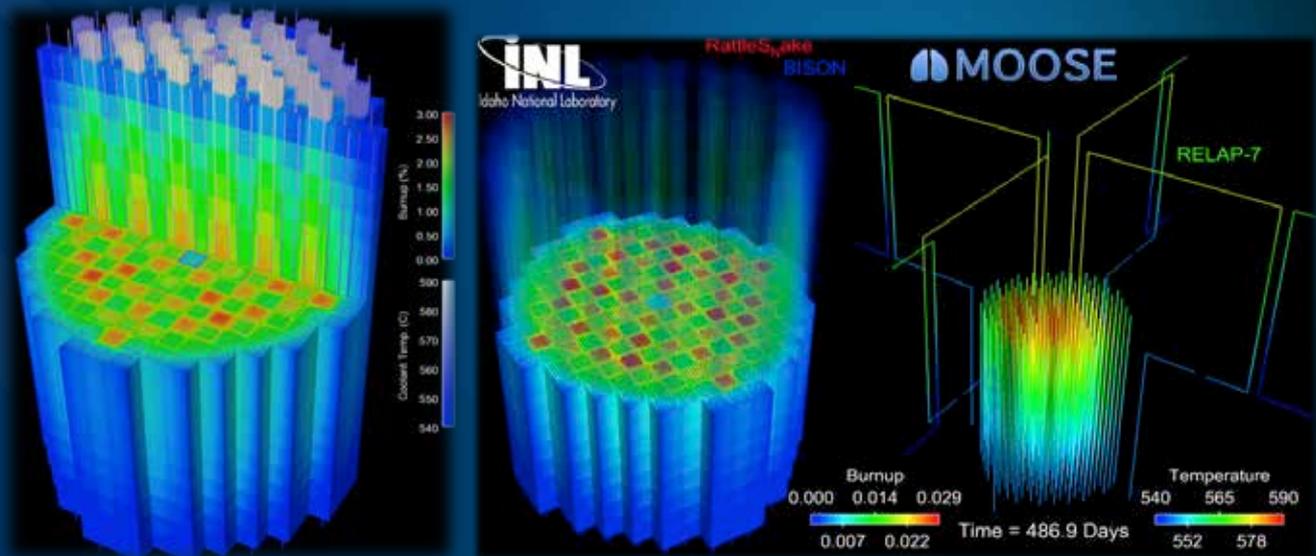
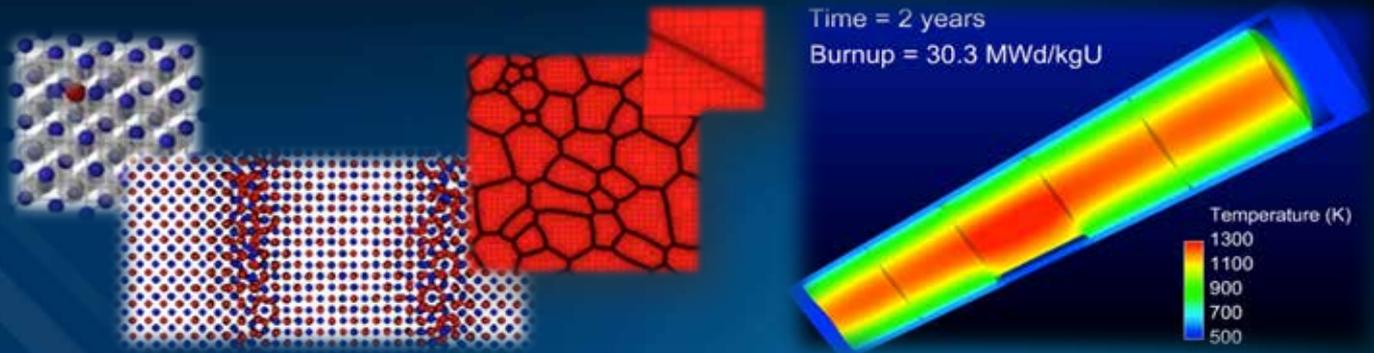


FY 2015 NSUF Annual Program Review

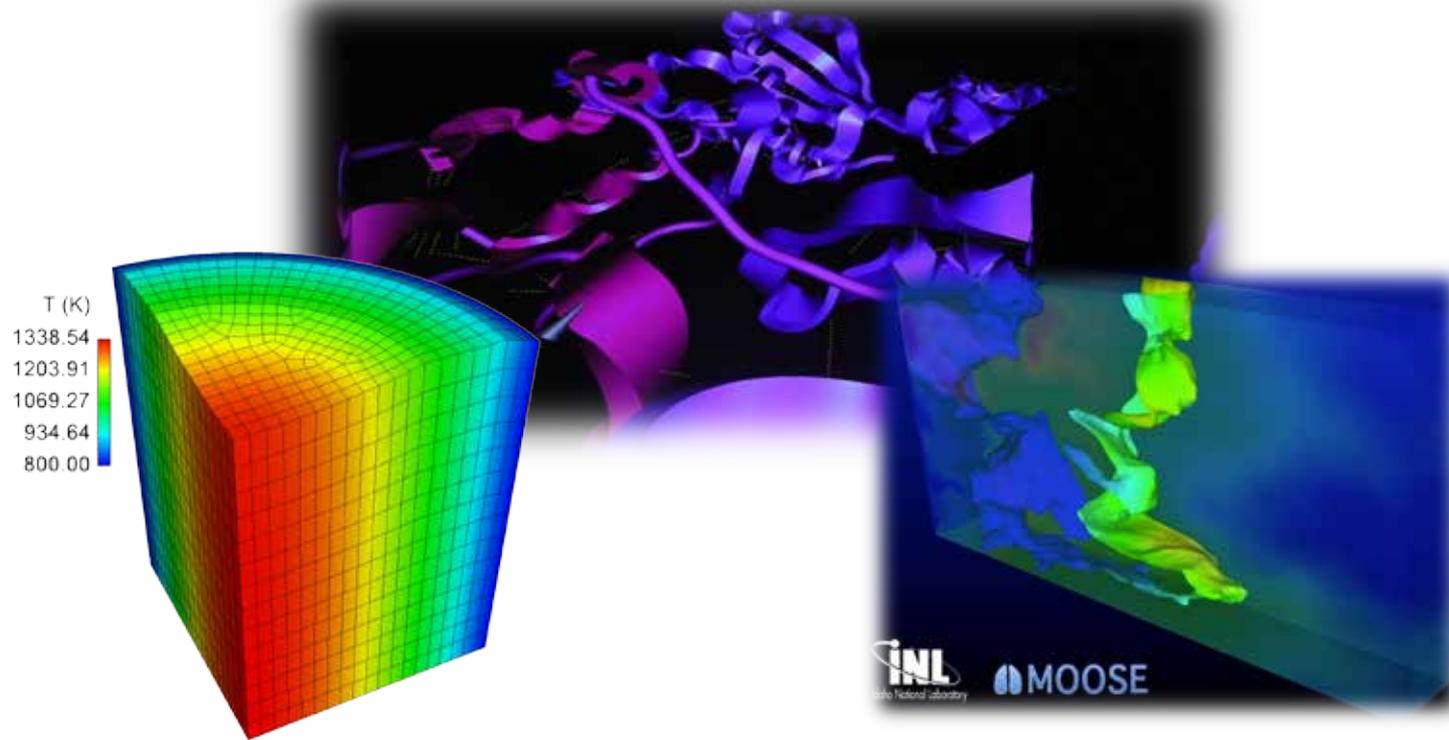


Eric Whiting
Director of Scientific Computing

www.inl.gov



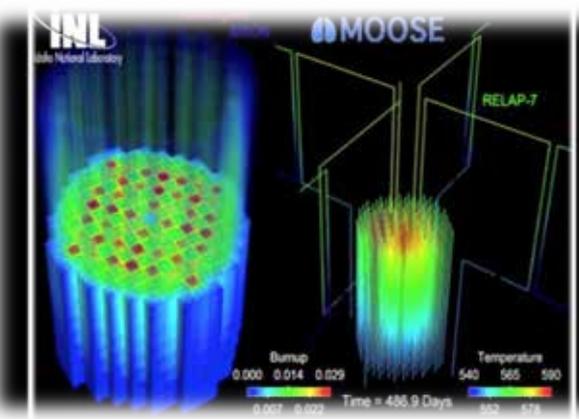
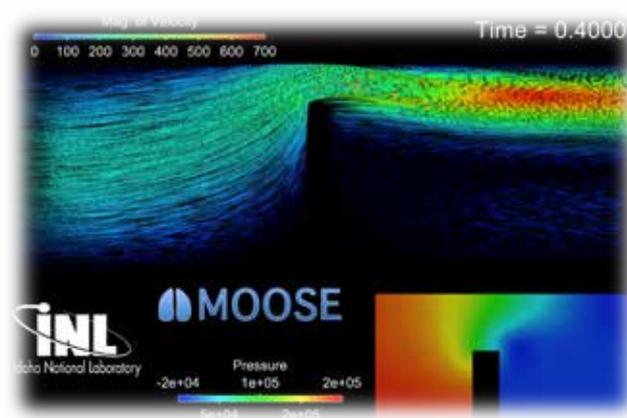
Why do we exist?



We Enable Science that Matters

How does HPC enable DOE missions?

- High Performance Computing (HPC) compliments theory and informs experimental processes.
- HPC functions as a 'microscope' for researchers to better understand physics, chemistry, and engineering principles in ways not otherwise possible.
- HPC resources are supporting NSUF, CASL, NEAMS, NEUP, and GAIN



What does INL's HPC hardware look like?

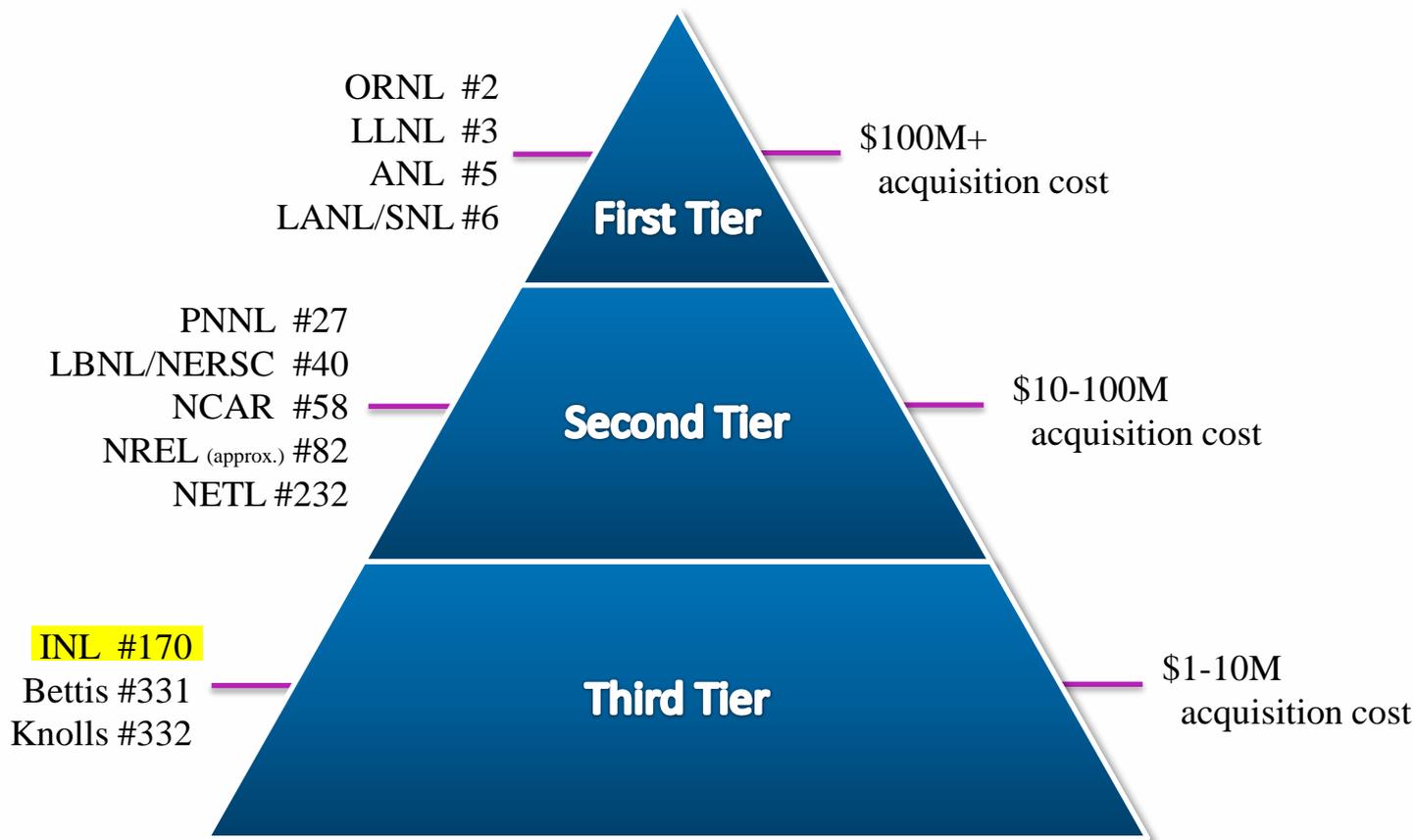


***Falcon - 570 Teraflops per second
(multiplication of 570,000,000,000,000 numbers every second)***

19,200 cores, 12 racks, 800 nodes

24 cores per node, 128G RAM per node, Dual Xeon 2.5Ghz Intel Haswell
100+ network switches, no hard disks, no connected graphics terminals, no keyboards

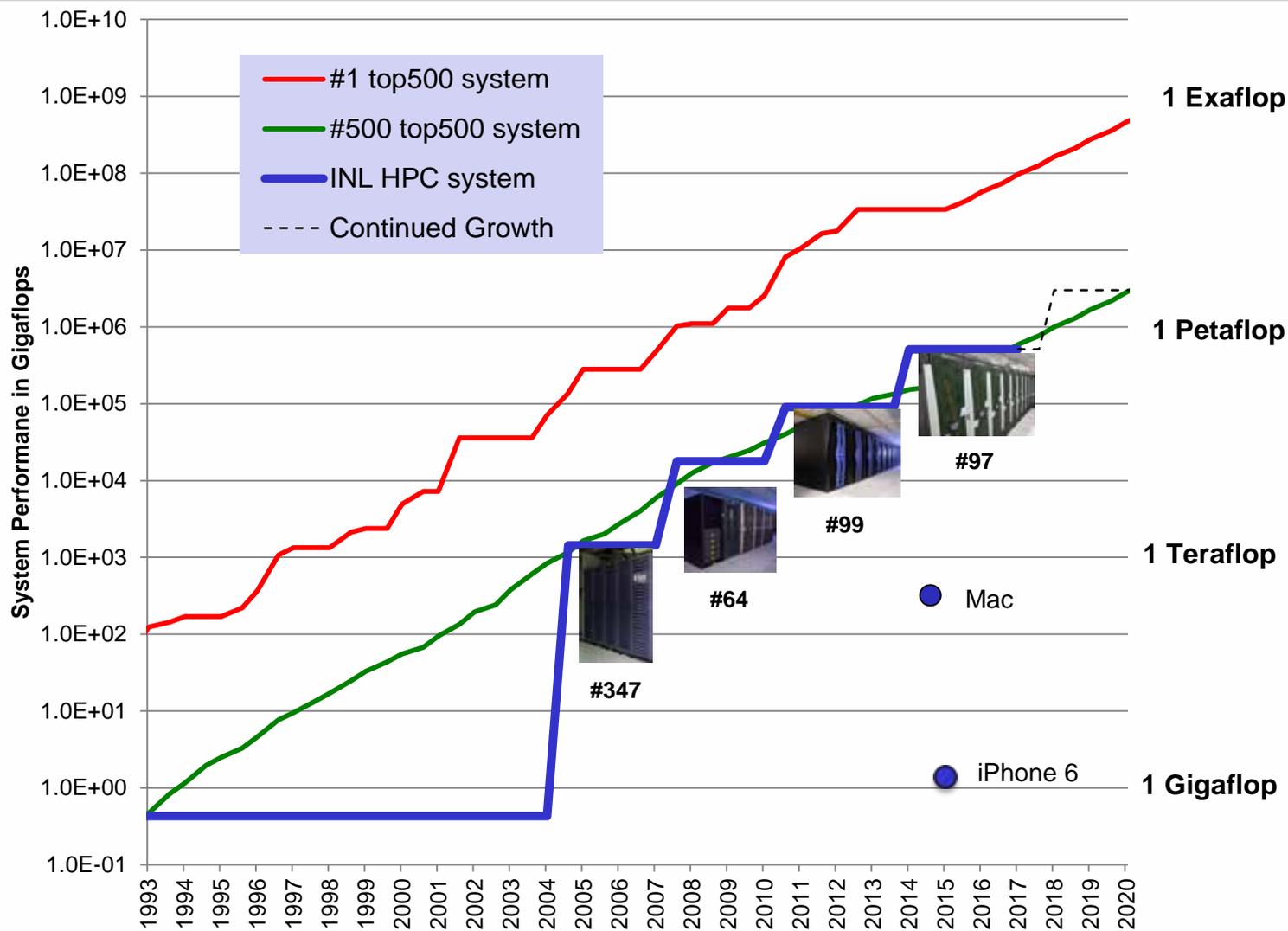
How is INL positioned relative to DOE HPC?



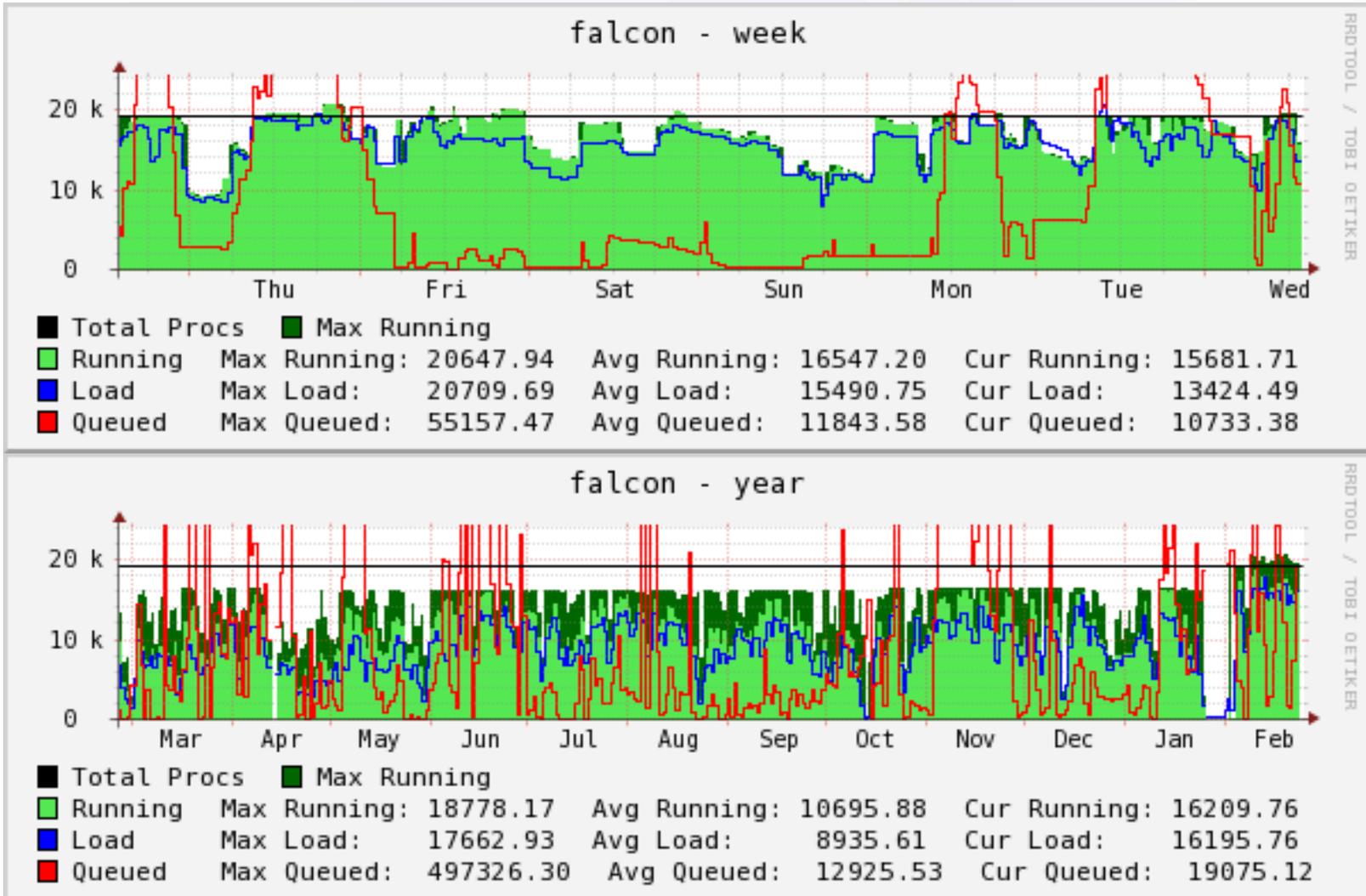
November 2015 Top500 Rankings

INL is strategically positioned in the Third Tier – supporting the applied science missions of DOE

What is INL's history in HPC?

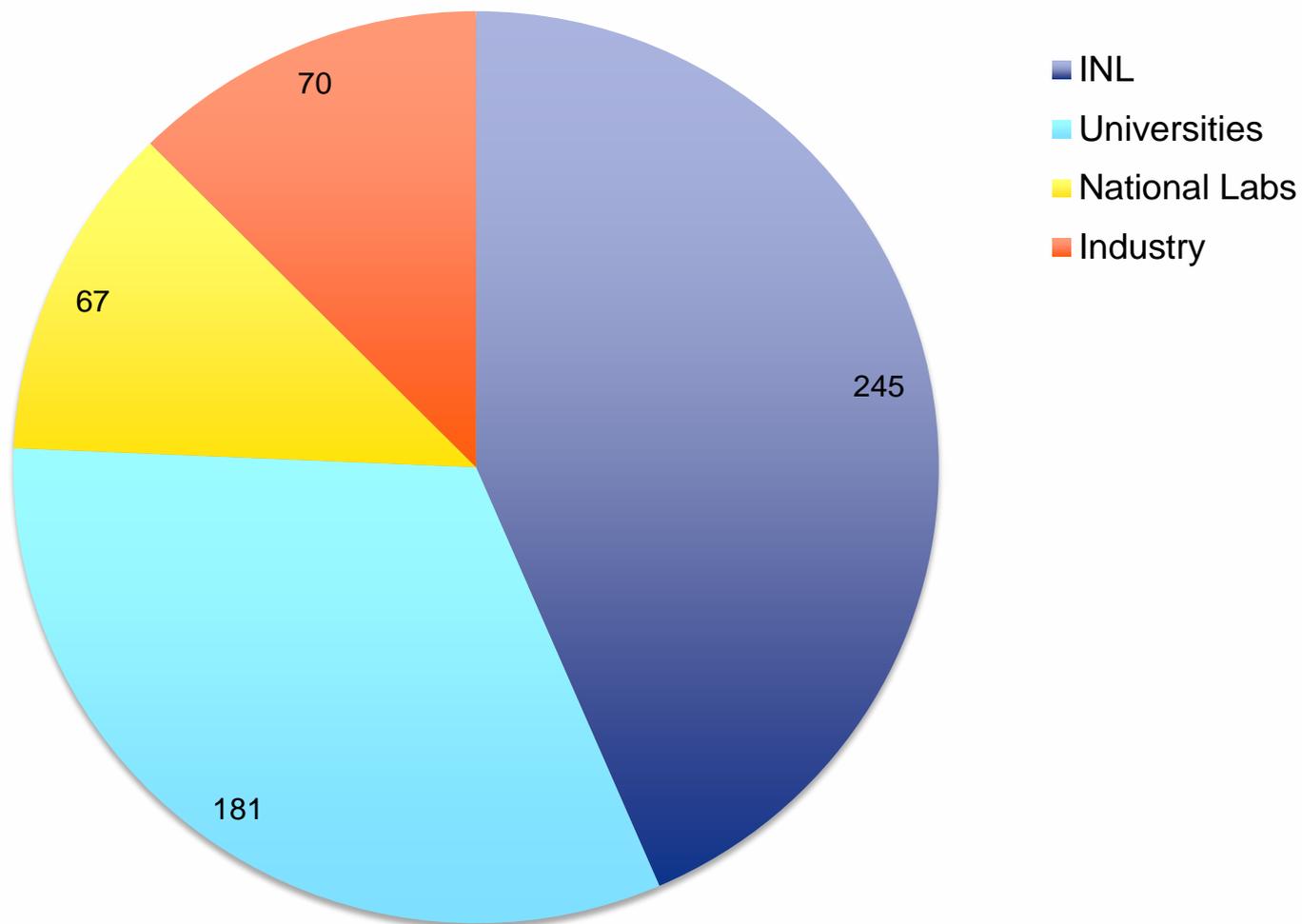


How well are INL HPC systems utilized?

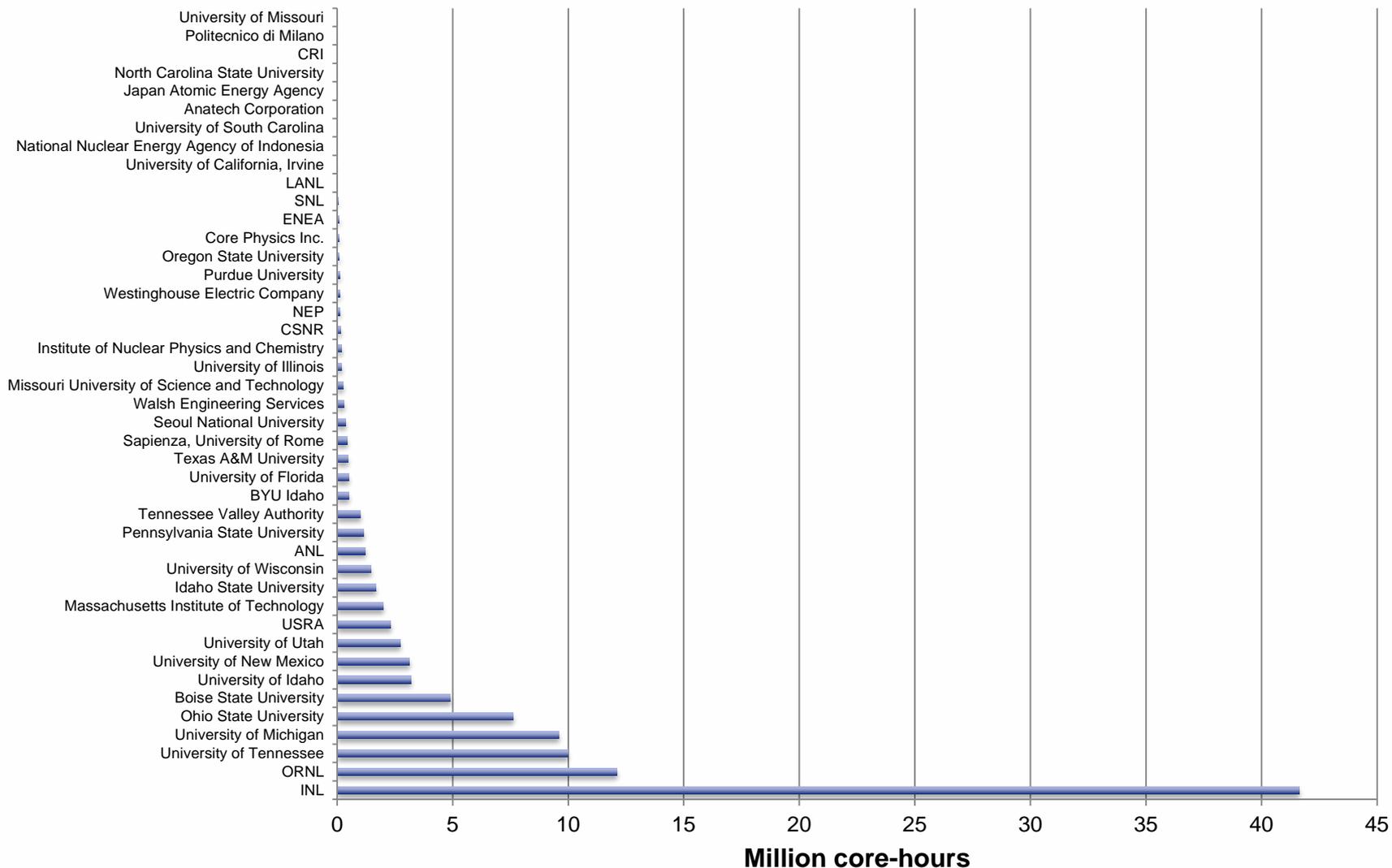


Where do HPC users come from?

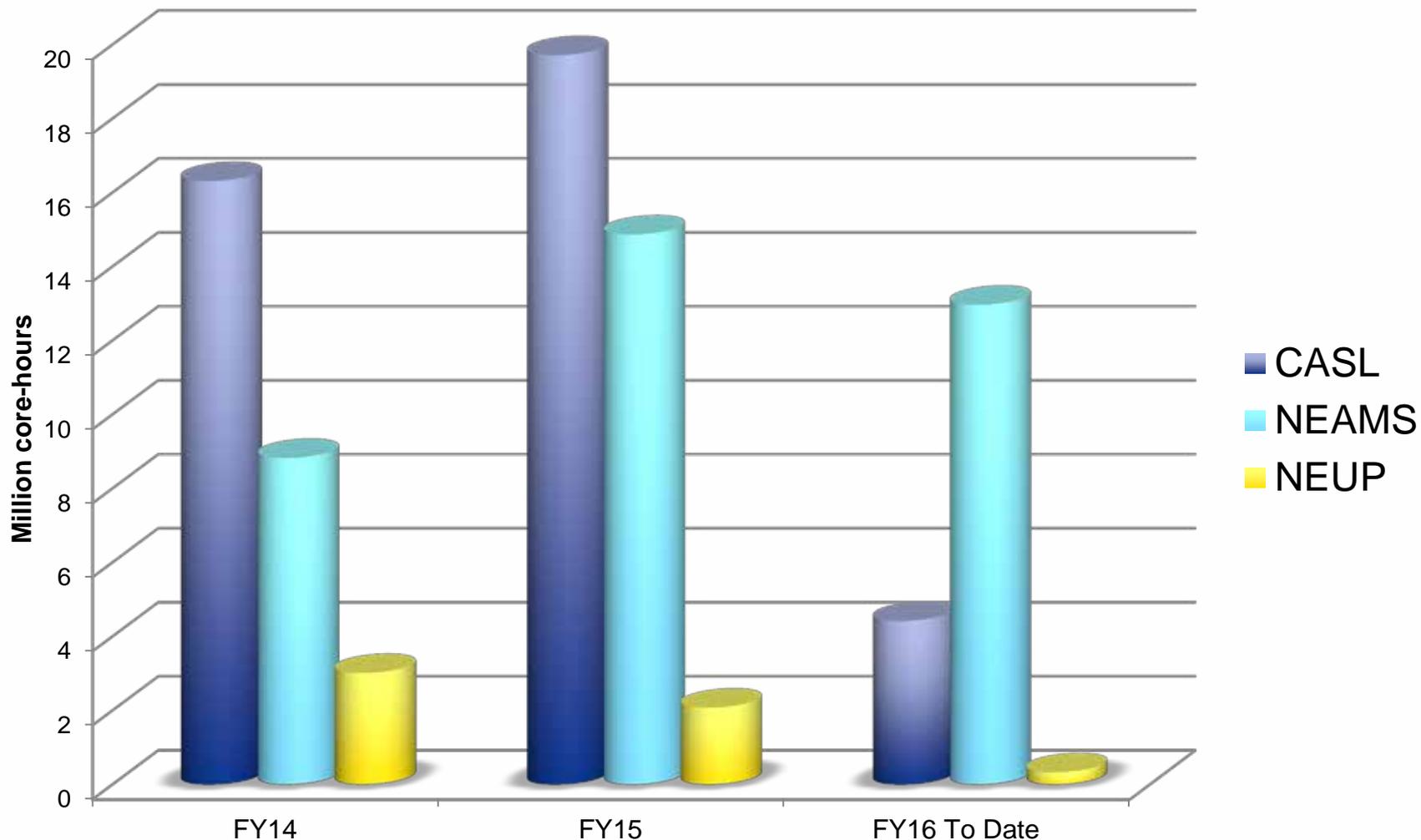
Active HPC Accounts



FY15 HPC usage by institution



What DOE programs are supported?



NSUF and related program support

- System already in place for quickly granting user access and prioritizing work
- Reporting and accounting systems are being modified to better capture NSUF metrics and science impact
- Ensuring that NSUF and related programs have needed support
 - Priority scheduling for milestones upon request
 - Responsive user support
 - Supporting as-run analysis, thermal analytics, neutronics analytics
 - MOOSE/BISON/MARMOT support
- Implementing tools to improve and simplify user experience
 - Falonviz, website, education
- External attribution – ‘This work was supported by as part of the Nuclear Science User Facilities program’

We enable Science: Collaborations



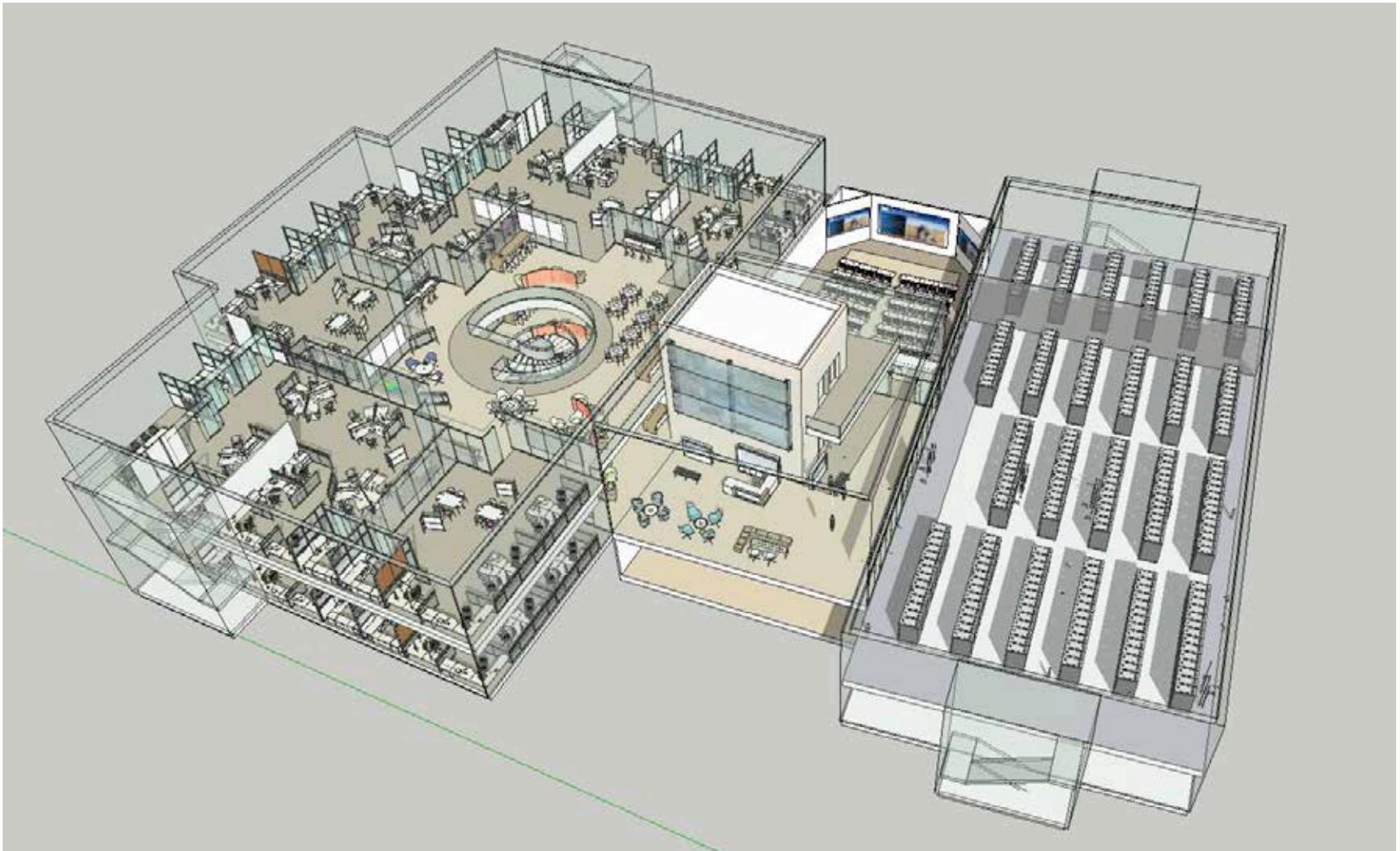
Studsvik



University of Idaho



Computational Science at INL in 2018 (Conceptual design)





iNL

Idaho National Laboratory