Dear Ruth/OSG Council Chair,

The purpose of this letter is to record intent for collaboration between the NEEScomm Center, manager of NEES operations, with Open Science Grid (OSG). The objectives of this collaboration, continuing the current partnership, are: 1) provide continued access to OSG resources for NEES users through the NEEShub cyberinfrastructure; 2) seek to expand the community of earthquake engineering researchers who can use OpenSees and other computational simulation tools through the NEEShub; 3) continue to explore joint projects that provide mutual benefit to the OSG and NEES communities. This letter is also to respectfully submit Dr. Thomas Hacker as a possible member of the OSG Council representing NEEScomm interests and collaboration with OSG. NEEScomm recognizes, together with OSG, the value in continuing joint efforts in developing an effective and responsive high throughput computing capability for the NEES community.

Computational and Hybrid (computational and physical) simulation are essential elements of the NEEScomm and NEES community efforts to provide a comprehensive set of resources needed to support earthquake engineering research. NEEScomm operates the NEEShub, which provides a computational infrastructure that allows users to run single processor applications on the NEES science gateway within a web browser window. To provide large-scale high performance computing resources for the NEES community, NEEScomm has been awarded an allocation on NSF XSEDE computational resources, specifically the Kraken system at NICS and the Ranger system at TACC. NEEScomm in collaboration with the University of California, Pacific Earthquake Engineering Research (PEER) Center, has deployed OpenSees, a building simulation package, on both local NEEShub computational resources as well as on Kraken and Ranger. NEEShub and Kraken represent two ends of a continuum of computing capabilities: single processor applications running in the NEEShub at one end; and large-scale simulations using hundreds to thousands of processors on Ranger and Kraken. Within the middle of this continuum, there is a need to provide access to computational resources for parallel applications that cannot efficiently scale or do not need the high performance communication fabric.

The Open Science Grid (OSG) has developed a community and a shared computational facility to support distributed high throughput computing (DHTC) that is a good fit to this need. DHTC is an ideal approach for simulating physical systems in which researchers run a simulation in parallel using input parameters selected from a large range of values, or for parallel applications with modest needs for communication among computational nodes. The OSG has successfully demonstrated the use of resources accessible through its infrastructure for OpenSees in pilot activities with Dr. Andre Barbosa at Oregon State University and Patricia Clayton at the University of Washington, Seattle. The individuals and the NEEScomm IT team have been collaborating over the past year to develop a job submission capability from the NEEShub to OSG resources to allow NEES users to run OpenSees on the OSG.

We appreciate your continued role, in addition to being Chair of the OSG Council, as chair of the NEEScomm CyberInfrastructure Sub-committee of the Project Advisory Committee of the NEEScomm Center. Sincerely, Julio Ramirez…