Supercomputing Centers (SCs) have high and variable power demands, which increases the challenges of the Electricity Service Providers (ESPs) to ensure efficient electricity distribution and reliable grid operation. High penetration of renewable energy generation further exacerbates this problem. In order to develop a symbiotic relationship between the SCs and their ESPs and to support effective power management at all levels, it is critical to understand and analyze how the existing relationships were formed and how these are expected to evolve.

In this paper, we first present results from a detailed quantitative survey-based analysis and compare the perspectives of the European grid and SCs to the ones of the United States (US). We then show that contrary to the expectation, SCs in the US are more open toward cooperating and developing demand-management strategies with their ESPs. In order to validate this result and to enable a thorough comparative study, we also conduct a qualitative analysis by interviewing three large-scale, geographically-distributed sites: Oak Ridge National Laboratory (ORNL), Lawrence Livermore National Laboratory (LLNL), and the Leibniz Supercomputing Center (LRZ). We conclude that perspectives on demand management are dependent on the electricity market and pricing in the geographical region and on the degree of control that a particular SC has in terms of power-purchase negotiation.