Smart Buildings and Neighborhoods Enabling a Sustainable Energy Future

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Residential and commercial buildings account for almost one-third of total global energy consumption worldwide. Recent IEA analysis has suggested that energy intensity in the buildings industry must decrease five times more quickly over the next 10 years than it did in the previous 5 years to reach targets in the Net Zero Emissions by 2050 Scenario. To achieve these aggressive goals, significant development and deployment of smart, connected, and efficient buildings and communities are required. Even more, these buildings and communities must synergistically interact in real time with the electric grid to provide demand flexibility that enables a more optimized, resilient, reliable, and affordable energy system. However, because significant energy inequities are persistent throughout the buildings sector, as a science and engineering community, we must prioritize a transition to a sustainable energy future where the benefits, as well as costs, are equitably distributed.

This talk will discuss smart building and neighborhood technologies and solutions that can enable a sustainable energy future for all communities. It will highlight current Department of Energy and national laboratory research, development, and deployment efforts that advance these clean energy goals. The talk will conclude by challenging the scientific community to look through a lens of equity that prioritizes an equitable distribution of benefits and costs for a sustainable energy future for all.