

U.S. DEPARTMENT OF
ENERGY

Office of
ENERGY EFFICIENCY &
RENEWABLE ENERGY

Breaking Out the New Moves: How Resource Flexibility Benefits Utility Operations Panel *Grid Interactive Efficient Buildings*

David Nemtzow

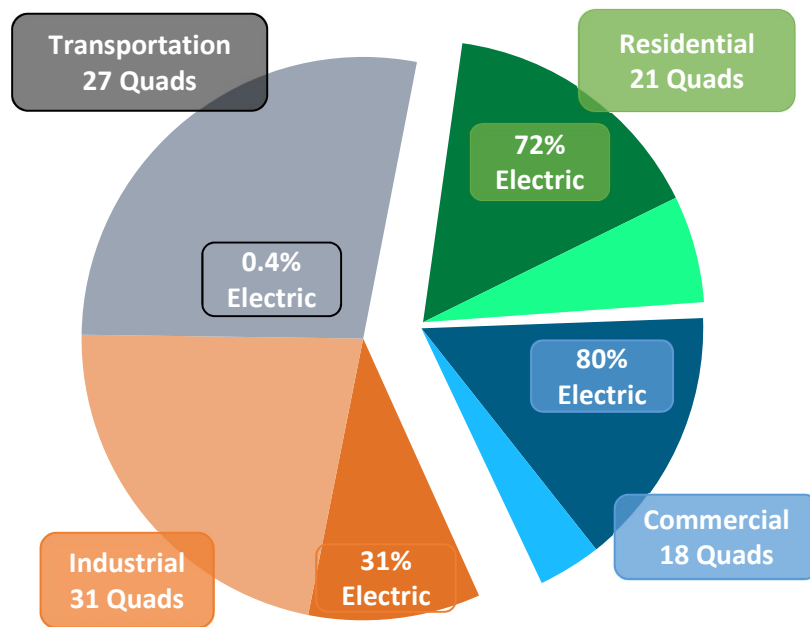
Director, Building Technologies Office
November 14, 2018

<https://www.energy.gov/eere/buildings/geb>

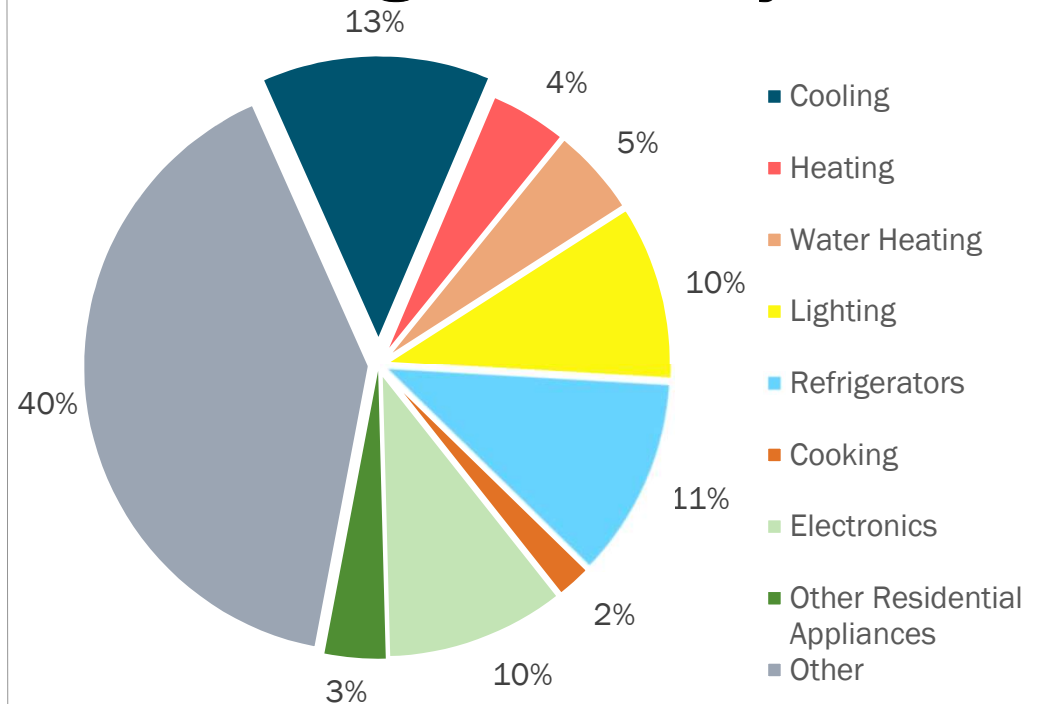


Energy use in the U.S. building sector

Energy Use



Building Electricity Use



Buildings Energy Use: 40% of U.S. total

Buildings Electricity Consumption: 75% of U.S. total

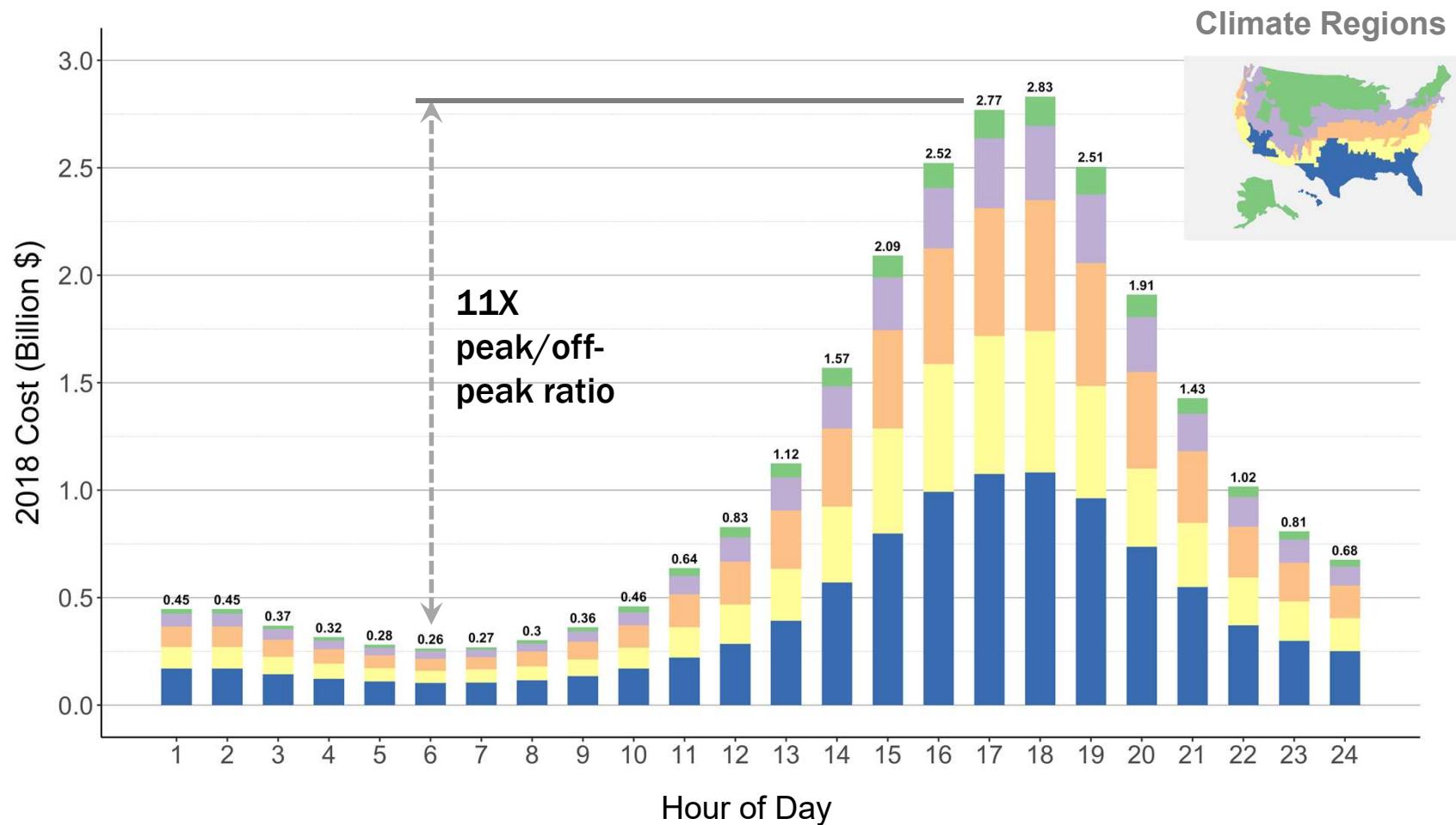
Buildings Peak Electricity Demand: ~80% of regional total

U.S. Building Energy Bill: \$380 billion per year

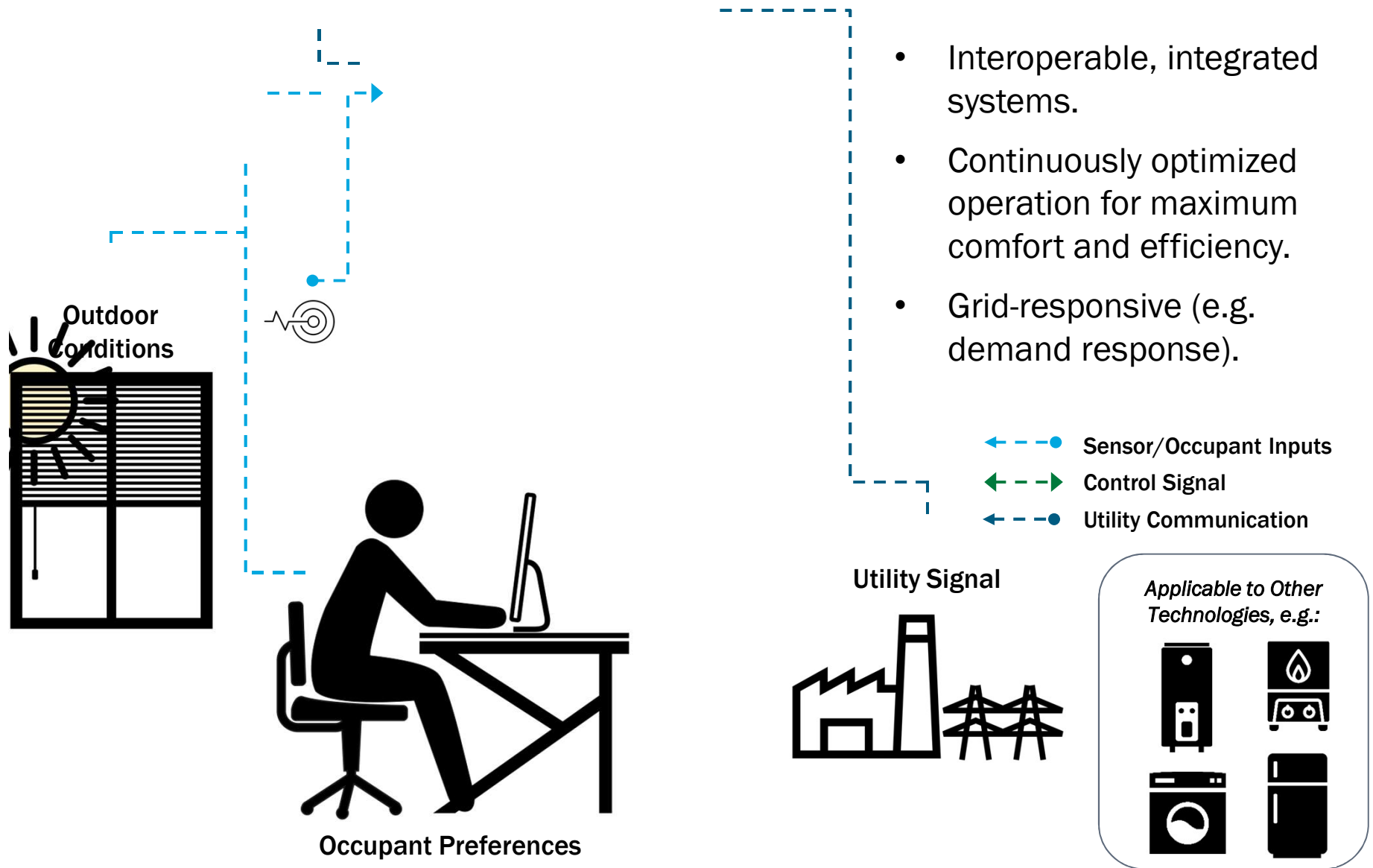
Source: EIA 2017 Annual Energy Outlook

“When” matters for some regions/loads more than others

Hourly Residential Cooling Cost Totals by Climate Zone in 2018 (May-Sep)



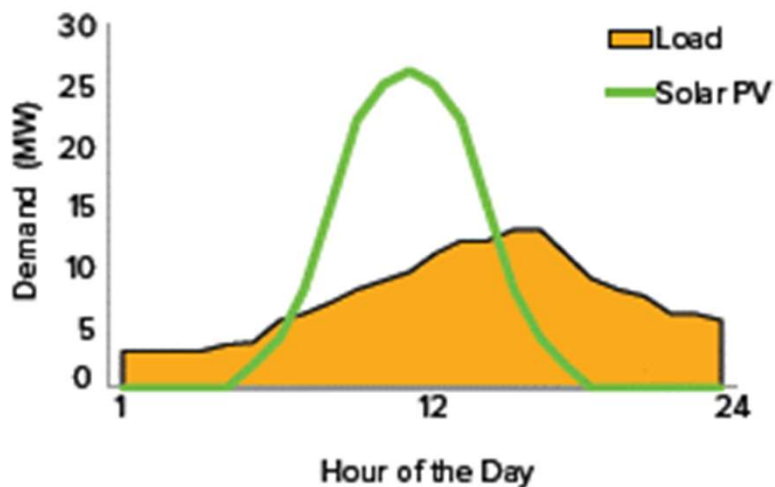
Interactions with Building Occupants



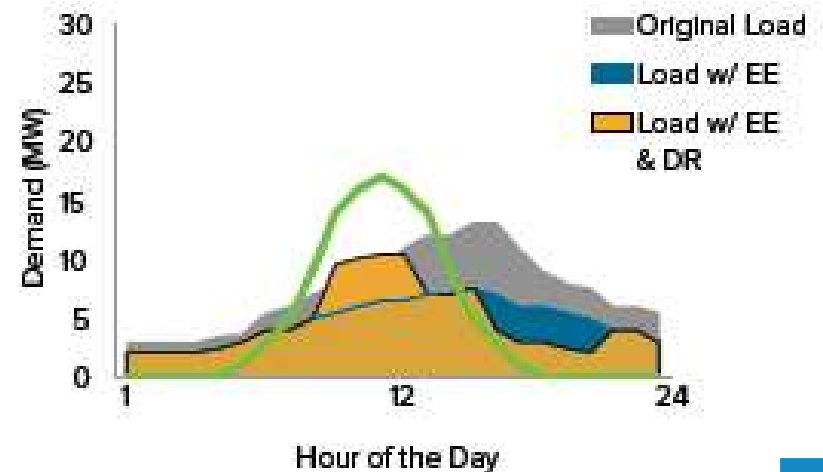
Impact on a Building's Energy Use



Solar PV
Daily 30 MW grid usage



Energy Efficiency, Demand Response, then Solar PV



Images and data
courtesy of PG&E

