



A Holistic Analysis of Energy Storage Systems Applied to Single-Family Residences in California

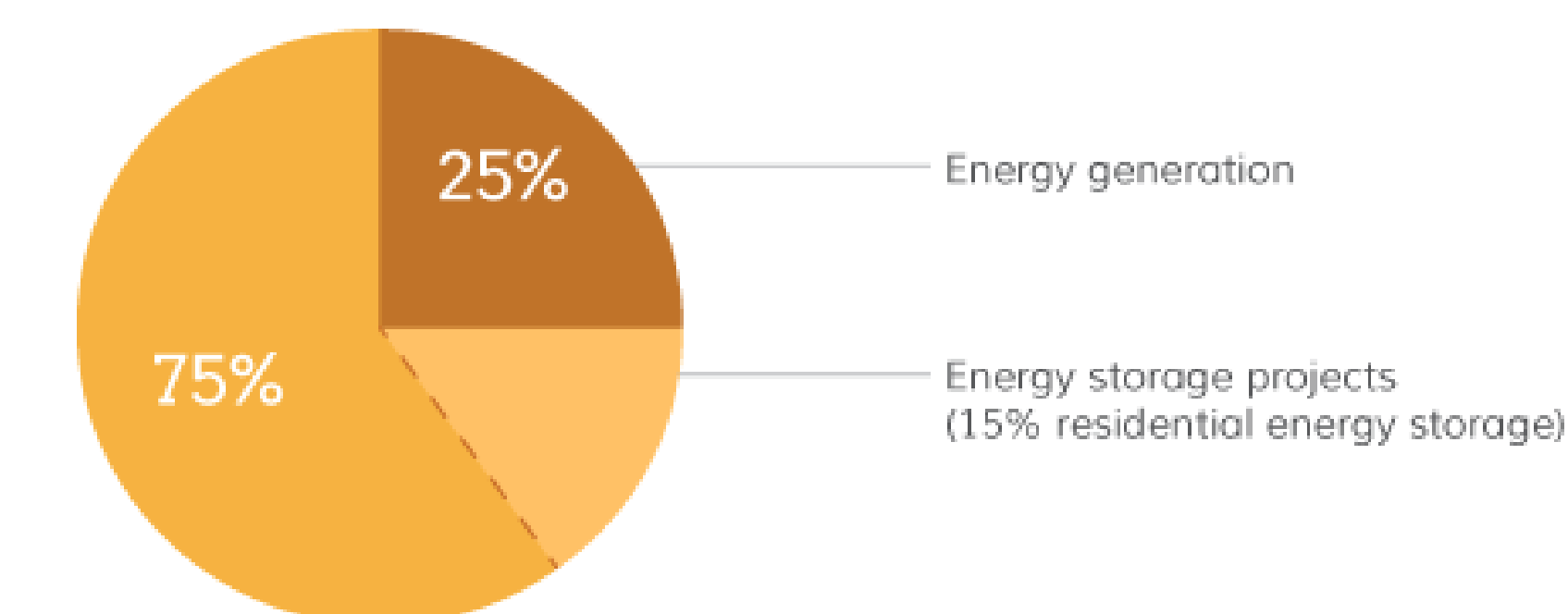
Vehicle-to-Home



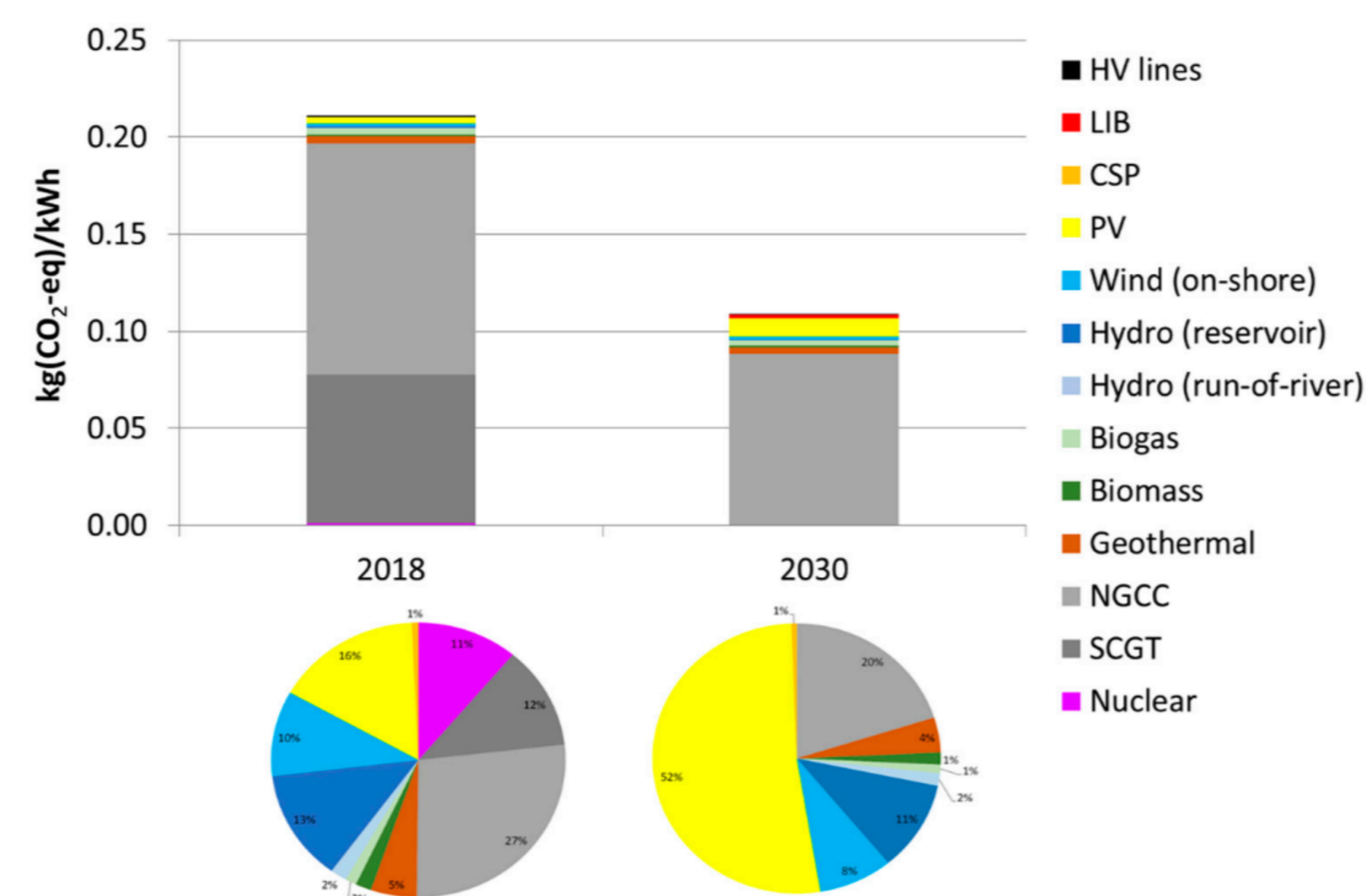
The technology this paper focuses on is energy storage systems applied to single-family residences in California. This relatively new technology consists of a stationary battery that is connected to a power source, most notably photovoltaic panels on the roof. The holistic nature of this research paper is meant to incorporate the principle aspects surrounding the current state and affordability of these systems, which includes the type of batteries used, government incentives, benefits to the environment, and emerging trends that will dictate the future of these systems. The information was gathered by conducting an extensive literature review and interviewing ten energy storage experts which provided contemporary information that was not found in databases. The most popular batteries were the LG Chem RESU 10H and the Tesla Powerwall. The main factors that increased affordability was the Federal Investment Tax Credit, Self-Generation Incentive Program, and the reduction of on-peak electricity prices from investor owned utilities. Aside from the return on investment, homeowners can achieve peace of mind from having backup power to withstand power outages, as well as reduce carbon emissions by increasing photovoltaic capabilities. Lastly, emerging trends such as NEM 3.0 and vehicle-to-home will likely shape the future of energy storage.

Key Words: Energy Storage, Battery, Single-Family Residence, Sustainability, California

Incentive 1 (CA) SGIP Program Funds Distribution



50% Reduction in CO₂ by 2030



Most Popular Batteries



Incentive 2 (US)

Receiving Tax Credit for Energy Storage

