



California Energy Commission

Flexible Demand Appliance Standards

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SB 49 on Appliance Standards

Promote Flexible Demand Technologies in Appliances

- Cost-Effective, GHG Reductions, Grid Benefits
- Consumer Consent
- Open Source & User-Friendly
- Cybersecurity & Communications
- Interface with Load Management / DR Programs
- Labeling and Certification



Evaluating Appliances

Initial Assessment


- Load Shift Potential (MWh)
- Flexible Capacity (MW)
- Cost-Effective (\$)
- GHG Emission Reductions (mmtCO₂e)

Important Factors

- Technically Feasible
- Equity & Disadvantaged Communities
- Innovation & Market Growth
- Synergies with Policies
- Challenges and Risks



Load Shape of Appliances



U.S. DEPARTMENT OF
ENERGY

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Use of Residential Smart Appliances for Peak-Load Shifting and Spinning Reserves

Cost/Benefit Analysis

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December 2010



Pacific Northwest
NATIONAL LABORATORY

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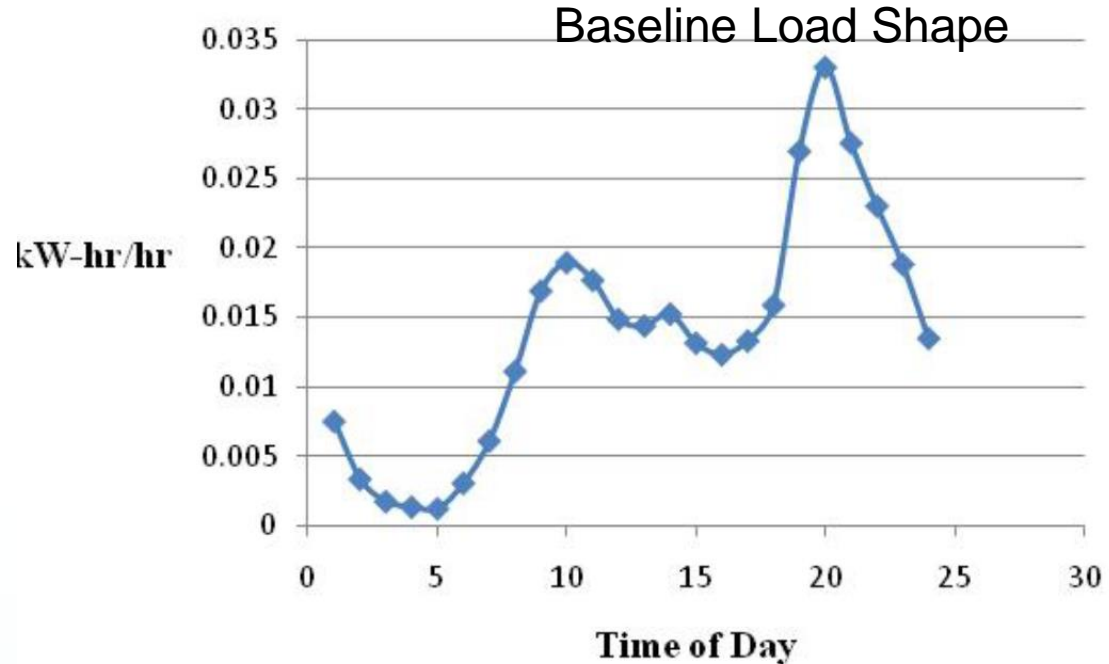


Figure 3.2. ELCAP Dishwasher Load Shape for an Average Annual Day

Table 3-11. ELCAP Dishwasher Hourly Consumption on an Average Annual Day

Hour	1	2	3	4	5	6	7	8	9	10	11	12
kW-hr/hr	0.0075	0.0034	0.0017	0.0014	0.0012	0.0031	0.0061	0.0111	0.0169	0.0190	0.0177	0.0149
Hour	13	14	15	16	17	18	19	20	21	22	23	24
kW-hr/hr	0.0144	0.0153	0.0132	0.0123	0.0133	0.0159	0.0270	0.0330	0.0276	0.0230	0.0188	0.0135

The dishwasher load shape based on the data shown in Table 3.11 is shown in Figure 3.2 below.



Building Standards & Flexible Demand

Existing Title 24 Standards

- **Appendix JA5** - Specifications for Occupant Controlled Smart Thermostats
- **Appendix JA13** - Requirements for Heat Pump Water Heater Demand Management
- **Section 110.12** - Mandatory Requirements for Demand Management
- Building Codes and Reach Codes Adoption for **EV Charging**

Proposed Standards for 2022

- **Section 140.10** - Requirements for **Photovoltaic** and **Battery Storage** Systems
- Sizing requirements based on building space type and climate zone



Load Management Standards (LMS)

LMS Supports Customer Access to Lower Rates

- **MIDAS** (Market Influenced Demand Automation Server) electricity rate database – **2021**
- Customer education and outreach – **2022**
- Rate **access tool** to support third-party providers – **2023**
- Develop locational electricity rates – **2024**



Contact Information

CEC Flexible Demand Standards Webpage:

<https://www.energy.ca.gov/proceedings/energy-commission-proceedings/flexible-demand-appliances>

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