

Supplementary Material

Table S1. Nomenclature

| ρ | Density, kg/m ³ . |
|-----------|---|
| A | Coefficient. |
| C | Thermal capacitance, J/°C. |
| c_p | Specific heat capacity, J/kg-°C. |
| E | Energy capacity of the battery, kWh. |
| EIR | Energy input ratio, w/w . |
| $EIRMod$ | Modifier for HVAC EIR. |
| G | Received solar irradiance, W/m ² . |
| P_C | Power charged from the battery, W. |
| P_D | Power discharged from the battery, W. |
| P_{PV} | Output power from PV, W. |
| P_R | Power rating of PV, W. |
| Q | Heat, W. |
| $QMod$ | Modifier for HVAC capacity. |
| R | Thermal resistance, °C/W. |
| SOC | State of charge, %. |
| T | Temperature, °C. |
| t | Time, s. |
| \dot{V} | Volume flow rate, m ³ /s. |
| v | Velocity, m/s. |

To gain access to the models, test-bed code, the application software, and data (test results), please contact ozmeno@ornl.gov.