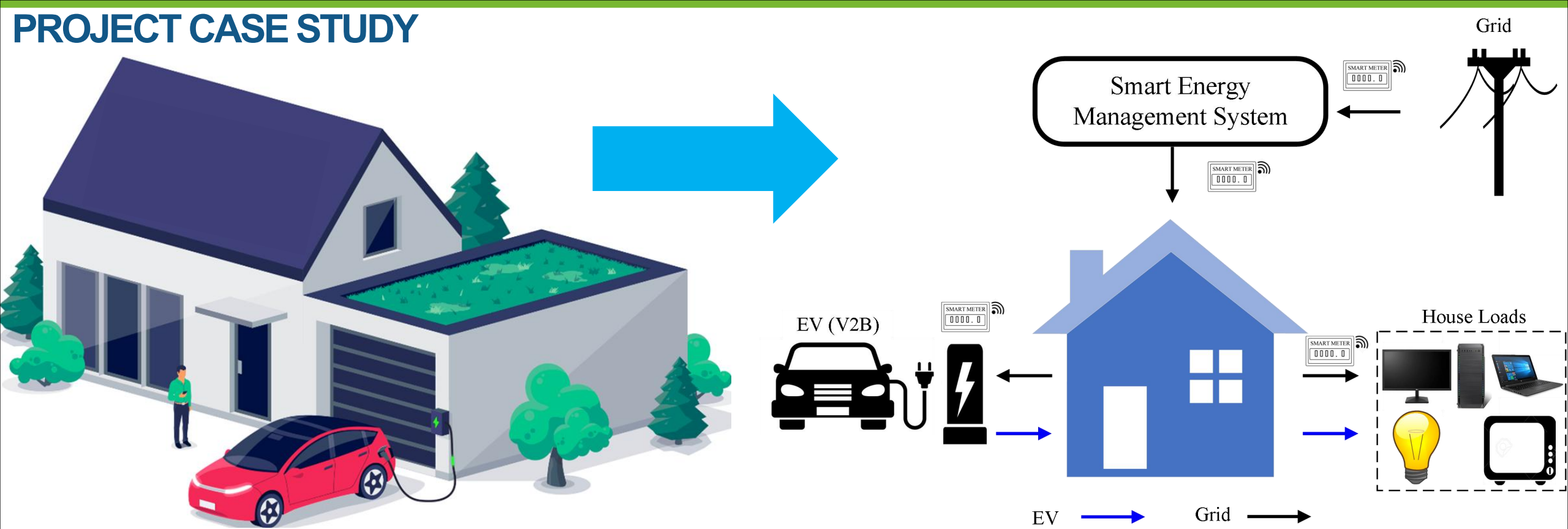


PROJECT CASE STUDY

- Step 1: Choose the type of user (house or apartment) to create the load profile.
- Step 2: Where the user is located in terms of Energy Price (SE1, SE2, SE3, SE4)?
- Step 3: Which user type is defined in your project (student, nurse, farmer, professor)?
- Step 4: Make an assumption for the SoC% in the morning and afternoon.
- Step 5: Add a PV system production in the project (Scenario 2).

Max Power for the User	Energy Price Zone	Max PV Production	Daily PV Production	BESS Capacity	BESS CH & DIS	EV Battery Capacity	EV Battery SoC (M & E)	Daily Energy from Grid	Daily Energy Cost	Daily Energy from Grid
➤ Step 6: Add a PV system production in the project (Scenario 2).	SE1									

PROJECT CASE STUDY



OF=Min (Total Energy Costs)

$$P_{grid}(t) = P_{gridtoHouse}(t) + P_{gridtoEV}(t)$$

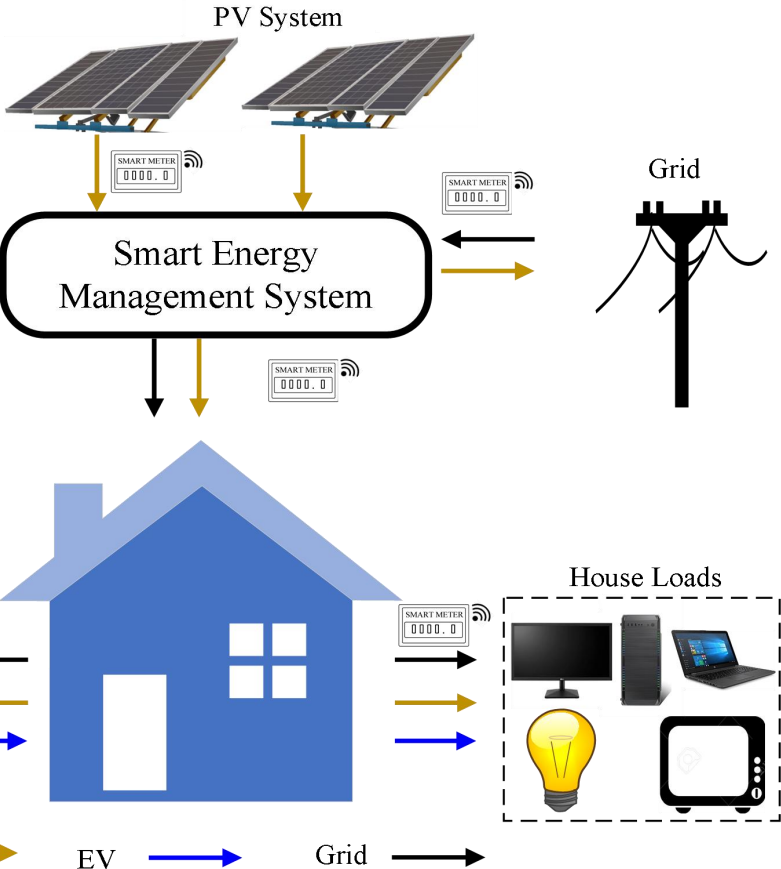
Max Power for the User	Energy Price Zone	Max PV Production	Daily PV Production	BESS Capacity	BESS CH & DIS	EV Battery Capacity	EV Battery SoC (M & E)	total Daily Energy from Grid	new Daily Energy Cost	Daily Energy from Grid
6,5	SE3	NE	NE	NE	NE	44	85, 40	89	78,53	49

PROJECT CASE STUDY

For determining the size of grid PV system, the electricity generated can be achieved by the equation (2):

$$P_{pv}(t) = GHI(t) \times S \times \eta$$
$$P_{pv}(t) = \frac{1000}{GHI} \times \left(\frac{44 \times 1.667 \times 0.99}{S} \right) \times \frac{0.16}{\eta} = 11.814(kW) \tag{2}$$

The GHI is the global horizontal irradiation (W/m²), S is the total area (m²), and η is efficiency.

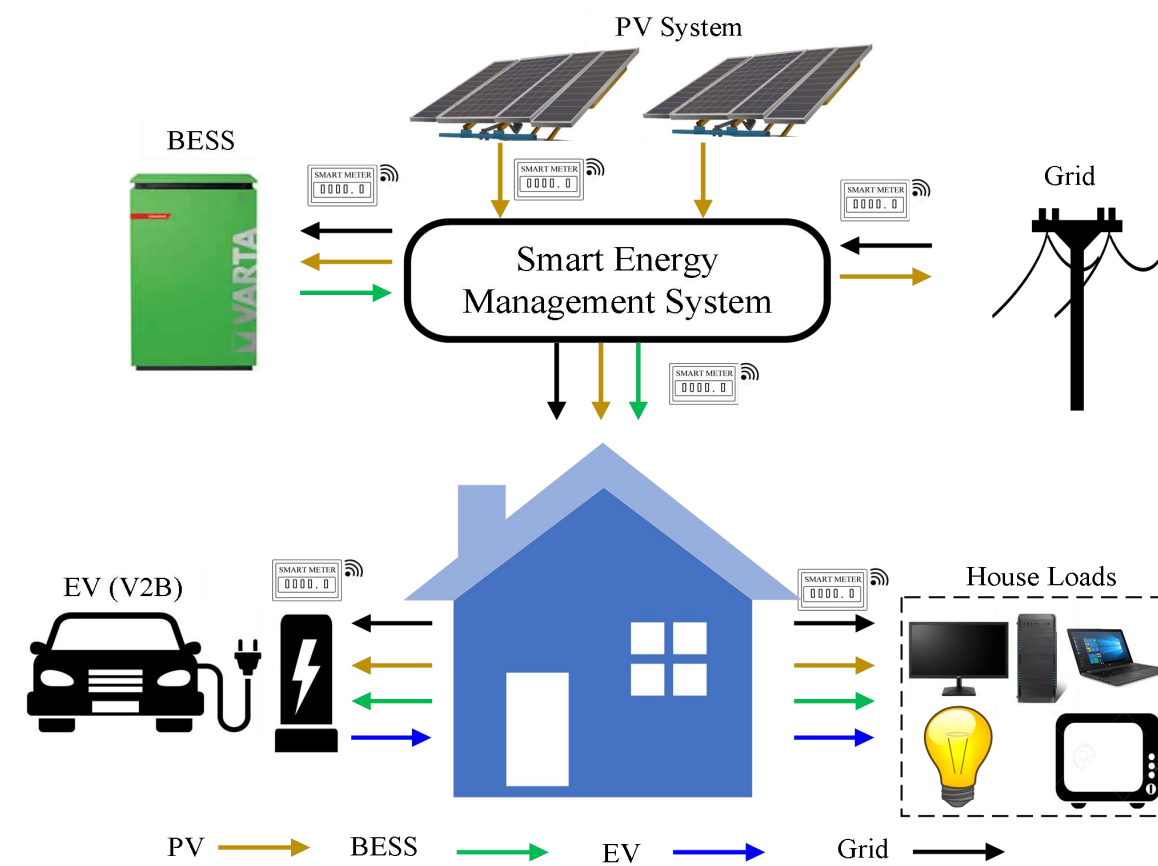
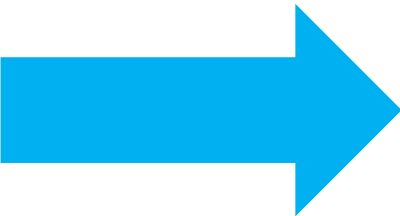


OF=Min (Total Energy Costs)

$$P_{grid}(t) = P_{gridtoHouse}(t) + P_{gridtoEV}(t)$$

Max Power for the User	Energy Price Zone	Max PV Production	Daily PV Production	BESS Capacity	BESS CH & DIS	EV Battery Capacity	EV Battery SoC (M & E)	Daily Energy from Grid	total Daily Energy Cost	newDaily Energy from Grid
6.5	SE3	11,71	51.56	NE	NE	NE	76, 40	89	49	73

PROJECT CASE STUDY



OF=Min (Total Energy Costs)

$$P_{grid}(t) = P_{gridtoHouse}(t) + P_{gridtoEV}(t)$$

Max Power for the User	Energy Price Zone	Max PV Production	Daily PV Production	BESS Capacity	BESS CH & DIS	EV Battery Capacity	EV Battery SoC (M & E)	Daily Energy from Grid	total Daily Energy Cost	new Daily Energy from Grid
6.5	SE3	11	56	18	18	44	85..40	89	49	73