

# 1 What information do we need from the user?



## Customer Details

1. Customer Name
2. Customer ID / Meter Number
3. Country
4. State
5. City/Town (optional)

*(Country and State are required because rates and taxes differ by location.)*



## Electricity Usage Details

6. Previous Meter Reading (kWh)
7. Current Meter Reading (kWh)



## Solar Power Details

8. Solar Units Exported to Grid



## Rate & Charges Details

9. Grid Rate per Unit
10. Solar Export Credit Rate
11. Fixed Charges
12. Tax Percentage
13. Subsidy (if any)

## **2. What calculations need to be done?**

### **Step 1: Calculate Total Units Consumed**

Total Units Consumed = Current Reading - Previous Reading

### **Step 2: Calculate Grid Energy Charge**

Grid Energy Charge = Total Units Consumed × Grid Rate

### **Step 3: Calculate Solar Credit**

Solar Credit = Solar Units Exported × Solar Credit Rate

### **Step 4: Add Fixed Charges**

Subtotal = Grid Energy Charge + Fixed Charges

### **Step 5: Calculate Tax**

Tax Amount = (Subtotal × Tax Percentage) / 100

### **Step 6: Calculate Final Bill Amount**

Final Bill Amount = Subtotal + Tax Amount - Solar Credit - Subsidy

### 3. What result should be shown?

The program should display:

#### Location Details

- Country
- State

#### Usage Details

- Total Units Consumed
- Solar Units Exported

#### Charges Breakdown

- Grid Energy Charge
- Fixed Charges
- Tax Amount
- Solar Credit
- Subsidy
- **Final Electricity Bill Amount Payable**

## **Part 2: Step-by-Step Instructions (Recipe Style)**

**Step 1:** Ask the user:

**"What is your name?"**

**Step 2:** Ask the user:

**"What is your Customer ID or Meter Number?"**

**Step 3:** Ask the user:

**"Which country do you live in?"**

**Step 4:** Ask the user:

**"Which state do you live in?"**

**Step 5:** Ask the user:

**"What is your previous meter reading?"**

**Step 6:** Ask the user:

**"What is your current meter reading?"**

**Step 7:** Ask the user:

**"How many solar units did you export to the grid?"**

**Step 8:** Ask the user:

**"What is the grid rate per unit?"**

**Step 9:** Ask the user:

**"What is the solar credit rate per unit?"**

**Step 10:** Ask the user:

**"What are the fixed charges?"**

**Step 11:** Ask the user:

**"What is the tax percentage?"**

**Step 12:** Ask the user:  
"Is there any subsidy amount?"

## Now Perform the Calculations

**Step 13:** Calculate total units consumed:

Total Units = Current Reading – Previous Reading

**Step 14:** Calculate grid energy charge:

Grid Energy Charge = Total Units × Grid Rate

**Step 15:** Calculate solar credit:

Solar Credit = Solar Units Exported × Solar Credit Rate

**Step 16:** Add fixed charges:

Subtotal = Grid Energy Charge + Fixed Charges

**Step 17:** Calculate tax:

Tax Amount = (Subtotal × Tax Percentage) ÷ 100

**Step 18:** Calculate final bill:

Final Bill = Subtotal + Tax Amount – Solar Credit – Subsidy

**Step 19:** Check if the final bill is less than 0.

If yes:  
Set Final Bill = 0  
(Because the bill cannot be negative.)

If no:  
Keep the bill as calculated.

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**Step 20:** Display the complete bill:

- Customer Name
- Country
- State
- Total Units Consumed
- Solar Units Exported
- Grid Energy Charge
- Fixed Charges
- Tax Amount
- Solar Credit
- Subsidy
- **Final Electricity Bill Amount**

# Electricity Bill Calculation (With Solar Credit)

## Customer Details

- Name: Ajey
- Country: India
- State: Tamil Nadu

## Given Data

- Previous Meter Reading = **1200 units**
- Current Meter Reading = **1450 units**
- Grid Rate per Unit = **₹6 per unit**
- Solar Units Exported = **40 units**
- Solar Credit Rate = **₹4 per unit**
- Fixed Charges = **₹150**
- Tax Percentage = **5%**
- Subsidy = **₹100**

# **Step-by-Step Calculation**

## **Step 1. Calculate Total Units Consumed**

TotalUnits = CurrentReading - PreviousReading

TotalUnits = 1450 - 1200

TotalUnits = 250 units

## **Step 2. Calculate Grid Energy Charge**

GridEnergyCharge = TotalUnits × Rate per Unit

GridEnergyCharge = 250 × 6

GridEnergyCharge = ₹1500

## **Step 3. Calculate Solar Credit**

SolarCredit = SolarUnitsExported × SolarCreditRate

SolarCredit = 40 × 4

SolarCredit = ₹160

## **Step 4. Add Fixed Charges**

Subtotal = GridEnergyCharge + FixedCharges

Subtotal = 1500 + 150

Subtotal = ₹1650

## **Step 5. Calculate Tax (5%)**

Tax Amount = (Subtotal × Tax %) / 100

Tax Amount = (1650 × 5) / 100

Tax Amount = ₹82.50

## **Step 6. Calculate Final Bill Amount**

Final Bill = Subtotal + Tax - Solar Credit - Subsidy

Final Bill = 1650 + 82.50 - 160 - 100

Final Bill = ₹1472.50

# **Final Electricity Bill Amount**

**₹1472.50**