

## CALCULATIONS FOR POSTER

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$$\begin{aligned}
 \bullet E &= Pt \\
 &= [\text{your power plant (kW)}] \left( \frac{720 \text{ h}}{1 \text{ month}} \right) \\
 &= \text{~~~~~} \text{ kWh/month}
 \end{aligned}$$

$$\# \text{ houses} = \left( \text{~~~~~} \frac{\text{kWh}}{\text{month}} \right) \left( \frac{1 \text{ house}}{\text{~~~~~} \text{ kWh/month}} \right)$$

— Summer maximum: 2500 kWh/month

— yearly average: 1250 kWh/month

— choose a value from a group member's power bill

- Generator

- $$V = \frac{P}{I} = \frac{[\text{your power plant (W)}]}{1000 \text{ A}}$$

- $$V = \text{Emf} = NAB\omega$$

solve for  
one of  
these three;  
keep in  
given ranges

- Choose  $N \rightarrow$  between 20 and 100

- Choose  $A \rightarrow$  between  $1 \text{ m}^2$  and  $10 \text{ m}^2$

- Choose  $B \rightarrow$  between  $0.2 \text{ T}$  and  $2 \text{ T}$

- Use  $f = 60 \text{ Hz}$

- Make left and right sides  
equal!

- Increase Emf by 5% - 15%

- change values of  $N, A, B$  to  
make new Emf

- leave  $f = 60 \text{ Hz}$