



# Problem

- Increasing energy needs and decreasing energy resources
- Power loss during the transmission of power

Calculation:

300W being transmitted at 12V with a 100m cable. Resistance of the wire is  $0.25\Omega$  and current is traveling at 25 Amps.

What is the power loss?

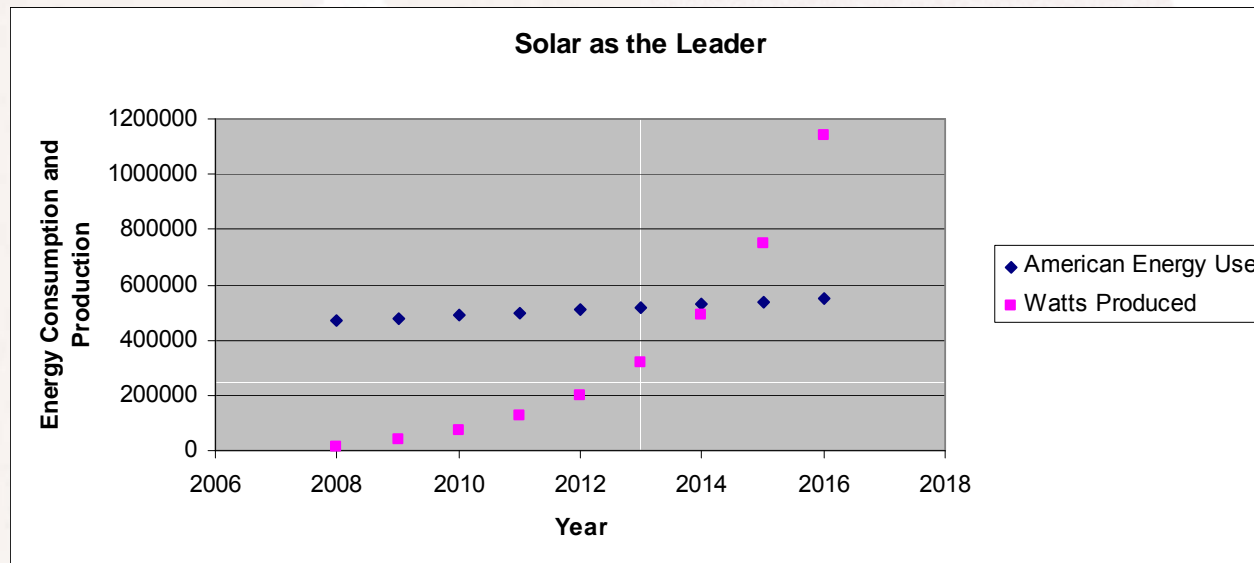
$$\begin{aligned}\text{Power Loss} &= I^2R \\ &= 25^2 \times 0.25 \Omega \\ &= 156 \text{ W}\end{aligned}$$

Over 50% of the power was lost during the transmission as heat!!



# Deployment

- US Energy Use increasing at 2% annually
- Solar Energy production capacity increasing at 50% annually
- At these rates, Solar takes over in 4 years.





# *Markets and Applications*

- Rooftop Installation
- New York City has 20 km<sup>2</sup>, which can account for 27, 3200 MW

Graph of [SolarBuzz Retail Module Index](#) removed due to copyright restrictions.

[1] <http://www.solarbuzz.com/Moduleprices.htm>

- Decreasing costs → increasing acceptability



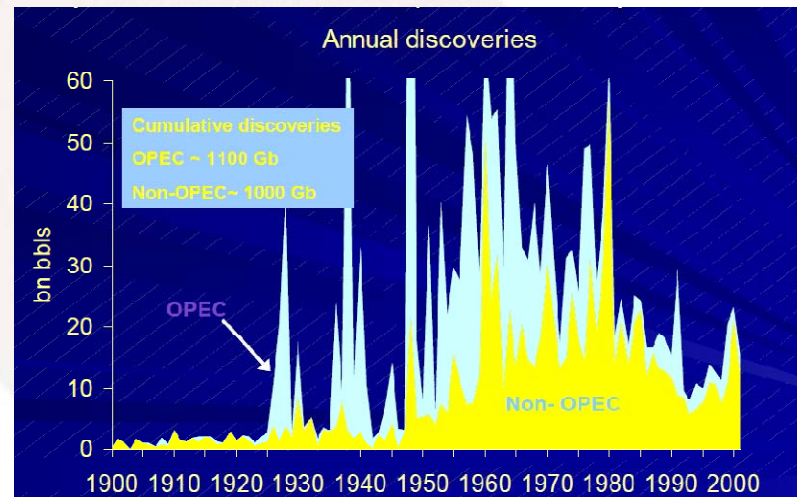
# *Constraints*

- Infrastructure
- Materials Supply
- Battery Technology
- Labour
- Government
- Costs



# Consequences

- 4 years, but conservative estimate: 10 – 15 years
- Increased jobs
- New Industry – economy, green
- Compare to Oil:



- 2 purposes:
  - Oil Industry Development
  - Depleting Resource

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