TECHNOLOGY EVALUATION
Metrics Used/to be Used

- $\text{MJ}_s/(\text{km or kWh})$
- $\$/ (\text{km or kWh})$
  - Money consumers pay
- $\text{gCO}_2/(\text{km or kWh})$
- Operating cost
- Capital cost
- Resiliency
- Lead/Lag time
PROBLEMS AND SOLUTIONS

Possible Issue:

Level of detail

• Geographically limited technology
  ▪ Solar, wind, hydro
• Operating costs are dependant on fuel prices
  ▪ Price prediction?
• Using different feedstock yields different results
  ▪ GHG from grain EtOH differs from cellulosic EtOH
  ▪ H₂ production pathways
    ▪ Biomass, coal gasification, electrolysis
PROBLEMS AND SOLUTIONS

Possible Solution:

- Report “ball park” values
  - Saves time
  - Still gives reasonable answers for first model
  - Data for transportation fuels already in this format

- More detail can be added after first model is running
PROBLEMS AND SOLUTIONS

Possible Issue:

Recording & Coping with uncertainty
  • Different reports yield different results
    ○ Which is more correct?
PROBLEMS AND SOLUTIONS

Possible Solution:

Currently reporting averaged value
- Could also report high and low values
- Potentially draw upon data from other models
OTHER THOUGHTS

- Data format
  - Need something that is preferably easy to use and integrate into our program
  - Currently using Excel

- Making and handling assumptions
  - Default set of assumptions
  - Allow user defined assumptions
WHAT I NEED TO DO...

- Finish collecting data
  - Continue literature review
    - Wrap up transportation fuels
    - Collect more info on power generation
    - Collect info on energy storage

- Determine appropriate level of detail for prototype model

- Switch existing data into desired format (if needed)
WHAT I NEED TO DO...

- Become familiar with other models
  - Similar, smaller scope, models to ours are out there
  - Ex:
    - GREET (transportation fuels)
    - EMINENT (early stage technologies)
    - CO2DB (environmental and economic costs)
    - MARKAL (very similar to our model)
    - IKARUS (also similar to ours, but based in Germany)