Meeting Minutes 10-9

Present:

- Emily
- Jakob
- Dr. Rezaie
- Ray

SnapShot Comments:

E-idea from Dr. Swenson. Scrub coal plant emissions to get co2 for project

Re- Start making more phone calls

Re-Lab equipment companies for smaller version

Manufacturers for Solar Troughs:

- E-Skytrough
- J-siemens
- R- we can build with wood and make tracker ourselves

    ->E-that works with mirror film (skytrough)

Pros and Cons of Ideas

Fresnel Lenses:

- Re-accuracy of Fresnel lens a con. They need to be very accurate
- Ra- Fresnel lense good because you can make it ourselves
- E-but they do have shield to catch stray rays

Parabolic Disc

- J-For small scale -parabolic disk, but doesn't do well with larger group

Solar Concentrator

- J-Small scale solar tower doesn't tend to work because law of cosines (lower focusing point makes less efficient mirror system)

Note: Re- Add consistent units

Fluid Comments

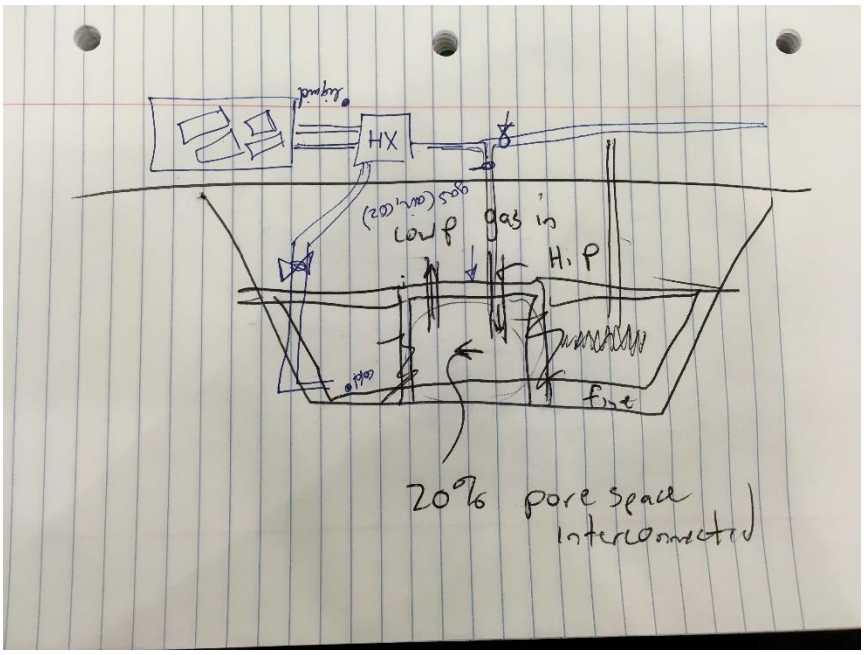
- Ra-CO2 is denser than O2- don't want co2 leak in valley so that people suffocate
- Ja- would leak underground come up?
- Ra- depends on pressure, if higher than 1 atm it will be forces up
- Ra- Pro to co2 -CCUS
- Ra- always value to using CO2 federal funding for research
- Ja- Good for coal because it makes Coal look better

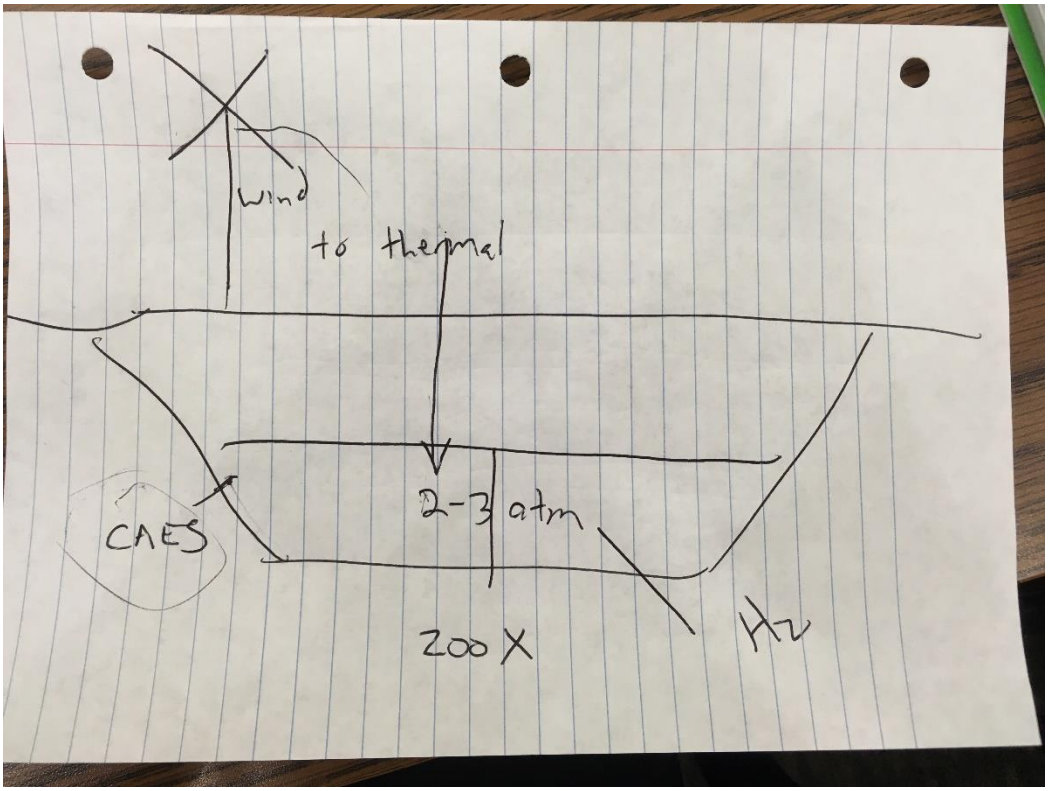
- Ra- Want volumetric heat capacity at working temperature
- Need to do analysis of heat transfer in
- Re- have heat end at top then investigate out at top or bottom
- There will be ashes in the rock so be careful because you could dirty medium, consider using heat exchanger instead

Re- look into what sort of valves you will need

Mining Rock information/cont. debate on heat transfer:

- Ra- ~1million J/ton k specific heat of rock and typical mine waste rock p=2 metric ton/m^3. Mix of rocks crushed up with big and little crushes rocks
- Ra- If gas medium you don't need tubes, but if you use liquid you need pipes
- Ra- Pipes will break as rock settles
- Ra- Rock has about 20%porosity
- High p in with low P out to the left creates pressure gradient
- Vertical pipes won't break because the rocks will just slide
- Bottom cold high-pressure gas. Consider taking pipe for the cold air up to heat exchanger to heat up. Wouldn't need pump because of pressure differential
- Consider glycol for liquid in closed circuit before heat exchanger
- Ra-wind to thermal – If generator runs piston system to compress air, now hot air. During the summer use as hot air compressed thermal system
- Re- Solve for pressure to determine the 100 degree temp difference required
- Ra Siemens compresses air and takes out heat for thermal generation then pumps down for CAES
- Jake- Split in half and have half and half with compressed air in one side and heat on other




wind
to thermal
CAES
2-3 atm
200 X
H2