



Regeneration Questionnaire

1. University/Team Name:
2. Regeneration Method Chosen:
3. What sorbent/sorbent method are you using in your cube?



4. Why does the selected regeneration method your team selected appropriately apply to your sorbent? Why is the selected regeneration method a good choice for your DAC process?



5. Are there any complexities/unique features for your cube design that would cause a deviation from the selected regeneration method? Explain in detail what these are and how it applies to evaluating the scale-up of the technology.



6. Describe a commercial embodiment of your regeneration process. Include a simplified flow/block diagram of the key steps. Define where, how, and in what state your sorbent is delivered to the regen process. Consider all relevant commercial process steps (i.e. how material gets transported from A-B).



7. Provide a calculation of the theoretical energy needed to take your sorbent through the regeneration process (i.e. Heat of Reaction, Heat of Vaporization, Latent Heat). Include reference to literature when using non-standard values. Consider whether you will be fully regenerating your sorbent, or if you will have a “working” adsorption/regen cycle where you only partially recover the adsorbed CO₂ for energy/CAPEX purposes. If so, please clearly state your working capacities.



8. What are the ins/outs of your regeneration process? Try to create a battery-limits “black box” material and heat balance (i.e. Wastes, Energy, Fuel, Reagents)



9. Calculate the cost of your total regeneration process on a \$/ton captured basis. Use your state's latest standard costs of electricity, natural gas, steam, etc. for commercial use. Please consider available market size for by-products that are "sold" to recoup costs and state all assumptions clearly.



10. Calculate the cost of your regeneration process on a \$/ton **abated** basis. This will require you to evaluate the carbon intensity of your regeneration processes and include additional costs if your flowsheet contains other CO₂ capture technologies. State all assumptions clearly.



11. In what ways can this process be improved?



12. What safety considerations need to be made in the commercial process?