

# Albertson Hall Replacement Project – Geothermal Summary

Design Comparison	Energy Cost			EUI			CO2			
	Annual Energy Cost	Savings (\$/Yr)	Savings (%)	kBtu/sqft/Yr	Savings (kBtu/sqft/Yr)	Savings (%)	Metric Tons	Savings (metric tons)	Savings (%)	Social Cost of Carbon
Full Geothermal Design	\$84,000	\$12,000	10%	26	16	38%	674	-13	-2%	\$34,300
Hybrid Geo/Central Plant	\$86,000	\$8,000	8%	30	12	27%	650	11	2%	\$33,100
Proposed Design	\$94,000	-	-	42	-	-	661	-	-	\$33,700
Existing ALB	\$256,836	-	-	119	-	-	1819	-	-	\$92,769

	Opportunities	Challenges
<b>Proposed Design</b>	+ No design delays	- Annual energy cost
	+ No additional costs	- Higher EUI
	+ Social cost of carbon is less than full geo	
<b>Hybrid Geo/Central Plant</b>	+ \$8,000 annual energy savings	- Increase in initial project costs
	+ Reduced EUI	- Requires removal/relocation of stormwater containment system under lot R
	+ Reduced bore field size (compared to full geo)	- Additional maintenance cost for 6-pipe chiller system
	+ Reduced CO2 emissions	- Increase sqft requirements for 1st floor mechanical room
	+ Better long-term performance when compared to full geothermal	- Power outage affects building heating
		- Project will be delayed due to engineering design
<b>Full Geothermal Design</b>		- Potential added cost to campus as this is not in the scope of the project
	+ \$12,000 annual energy savings	- Increase in initial project costs
	+ Reduced EUI	- Requires removal/relocation of stormwater containment system under lot R
		- Additional maintenance cost for chiller system
		- Increase sqft requirements for 1st floor mechanical room
		- Power outage affects building heating
		- Slight increase in CO2 emissions
	- Project will be delayed due to engineering design	
	- Potential added cost to campus as this is not in the scope of the project	