

Preliminary Sedimentary Geothermal and Lithium Resource Assessments in the Great Salt Lake and Wendover Areas, Utah, USA

Franek J. Hasiuk¹, Hannah S. Gatz-Miller¹, Jennifer M. Frederick¹, Carolina Muñoz-Saez², Petra M. Peirce²

¹Sandia National Laboratories, Albuquerque, New Mexico; ²Cornell University, Ithaca, New York

¹fjhasiu@sandia.gov

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ABSTRACT

The Basin and Range Province of the United States is an area of interest for geothermal power development due to the extended continental crust of the Basin and Range Province providing a tectonic mechanism to bring mantle heat close to the Earth's surface. In addition, the thick accumulations of highly permeable Cenozoic sedimentary rocks that have accumulated in many of the basins may provide large pore volumes that at depth could be quite warm based on prospective geothermal gradients in some areas. The closed nature of many of the Basin and Range basins ensures that weathering products from igneous rocks (such as lithium and critical minerals) are trapped within the same pore volumes of water.

This study examines the Great Salt Lake area (Utah, USA) extending as far west as Wendover for its potential to host stratiform geothermal resources as well as lithium and other critical minerals. Based on mapping by the US Geological Survey, three prospective basins with thick sedimentary accumulations were identified for resource assessment. The Wendover Graben was chosen because of high local geothermal gradients, active potash brine mining from both shallow and deeper brines, lithium presence in produced brines, and local domestic direct use geothermal activity. Two larger basins under the Great Salt Lake were chosen for the presence of geothermal springs in the vicinity, presence of lithium in the Great Salt Lake water, and proximity to a large offtake for geothermal power (Salt Lake City).

Preliminary in-place geothermal and lithium resource assessments were developed based on high, medium, and low values for porosity, lithium concentrations, and geothermal gradient. In the mid-case, these suggest approximately 10^{10} MWh reservoir thermal energy and 8,300 ktonnes of LiCO_3 -equivalent for the Wendover Graben, and for each of the two basins under Salt Lake approximately 13×10^{10} MWh reservoir thermal energy and 230,000 ktonnes LiCO_3 -equivalent. Recoverable values are likely lower.

INTRODUCTION

The United States faces a growing demand for energy, particularly electricity. Forecasts suggest a period of prolonged electricity demand growth, driven by the expansion of hyperscale datacenters and rising living standards in developing nations (Melek, 2024; EIA, 2025). Simultaneously, several new energy technologies are maturing, including enhanced geothermal systems, small modular nuclear reactors, geologic hydrogen, and battery electric storage. While these and traditional energy technologies often develop as standalone systems, there is increasing interest in system integration. For example, water brought to the surface for geothermal power production could also yield useful minerals before re-injection (Stringfellow and Dobson, 2021; Szanyi et al., 2023; Reich and Simon, 2025; Subasinghe et al., 2025).

This study assesses the combined sedimentary geothermal and lithium resources in the Great Salt Lake (GSL) region of northwest Utah, which represents the easternmost extent of the Great Basin and the Basin and Range. Two key features indicate this area's potential for lithium-geothermal resources. Firstly, the extended continental crust exhibits higher heat flows compared to other parts of North America (Blackwell et al., 2011), suggesting that hot rock and water may be accessible at shallower depths. A viable geothermal resource requires three essential components: a heat source (from elevated geothermal gradients or shallow magmatic bodies), sufficient permeability (typically from faulting and fracturing for fluid circulation), and an available fluid reservoir (meteoric groundwater, basin brines, or other hydrothermal solutions). Shallower depths facilitate all these components.

Prospecting for lithium deposits requires a robust lithium source, ultimately originating from igneous rocks (cf., Bradley et al., 2013). Once liberated, lithium must be transported by surface waters, groundwater, or geothermal fluids and eventually trapped in suitable geological settings, most commonly within closed-basin evaporite deposits or concentrated in lithium-rich clay horizons. The Great Basin's internally draining nature has caused much of the dissolved load from its eroding mountain ranges to accumulate in adjacent basins rather than flowing into the global ocean. In northwest Utah, volcanism occurred from 2.2 Ma to as recently as 28 ka, potentially providing a lithium source to the region (Blackett et al., 2014). The weathering of these volcanic rocks may contribute to the Great Salt Lake's lithium concentration, which ranges from 5 to 75 mg/l (Rupke, 2025).

Numerous authors have developed methods for assessing the geological resources and economic viability of mineral and energy commodities in the Earth's crust (Singer and Mosier, 1981; Meneley et al., 2003). While broadly similar, methods for assessing geothermal resources account for their specific nuances (Muffler and Cataldi, 1978; Williams et al., 2008; Ciriaco et al., 2020).

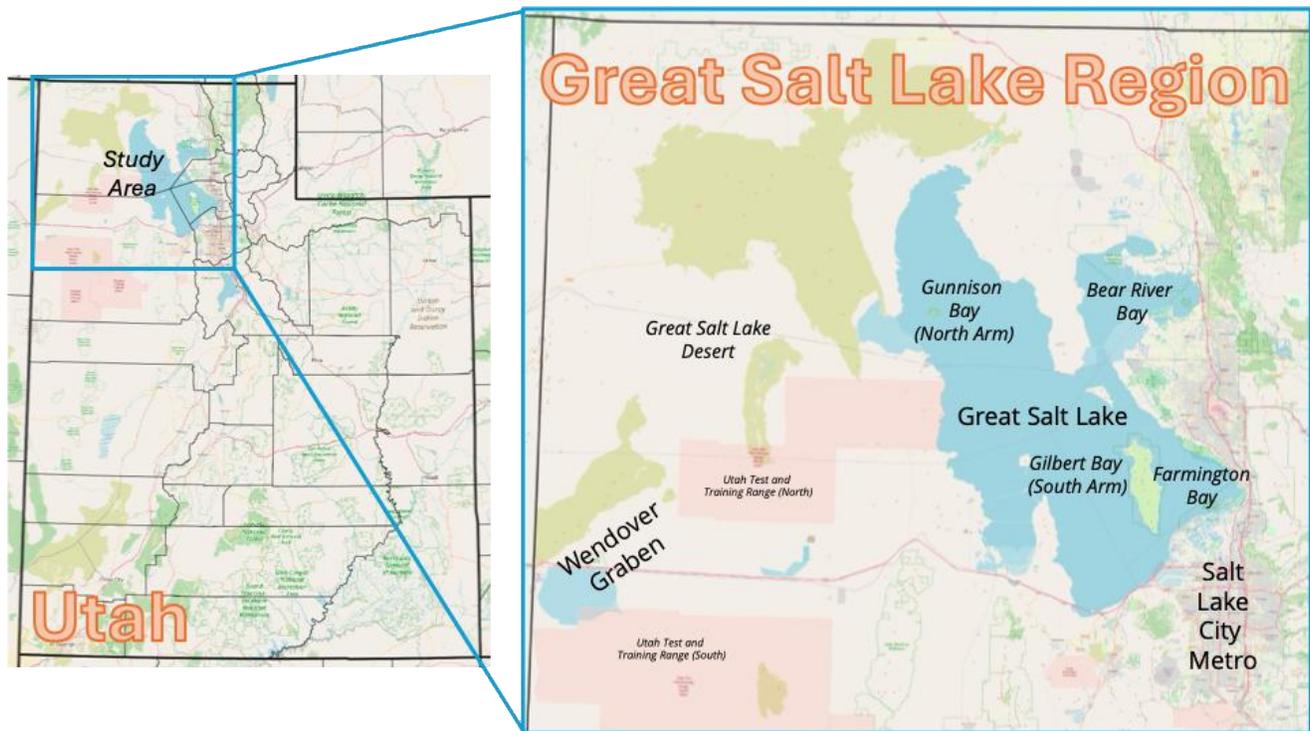


Figure 1: Location map of study area in Utah and the Great Salt Lake Region.

GEOLOGIC BACKGROUND

Stratigraphic geothermal reservoirs utilize naturally occurring porous and permeable layers within sedimentary sequences, where variations in lithology and porosity control fluid flow and heat exchange (Allis et al., 2011; 2016). In these systems, porous rock units like sandstones, carbonates, or conglomerates serve as primary conduits and storage zones for heated fluids. Overlying fine-grained or low-permeability layers act as seals, confining the reservoir. Heat, derived from the regional geothermal gradient or deeper magmatic intrusions, transfers upward into the stratigraphic column through conduction and convection within pore spaces. Unlike fracture-dominated reservoirs that rely on fault networks for permeability, stratigraphic reservoirs offer more predictable flow paths and can often be mapped using conventional well logs, core data, and seismic surveys. Successful development requires detailed geological and hydrogeological characterization to identify the extent and connectivity of target strata, along with careful assessment of fluid chemistry to mitigate scaling and corrosion during production. These reservoirs hold significant potential in sedimentary basins worldwide, offering an alternative for harnessing geothermal energy where structural permeability is limited. However, their commercial potential in the U.S. is currently uncertain as they are not yet utilized for electricity production.

Blackett et al. (2004) reviewed high-temperature geothermal sites across Utah, developing a ranked list for potential development. Crystal-Madsen, Utah, Hooper, and Ogden hot springs near the Great Salt Lake were classified as “third tier” resources based on “past exploration and industry interest.” Geothermometry indicated that deep waters could reach 190°C at these sites, though current use is limited to recreational geothermal water at the surface. Allis et al. (2011) reviewed the potential for sedimentary geothermal resources in the deep basins of the Great Basin, suggesting temperatures of 200°C could be reached at approximately 5 km depth due to a slightly lower estimated heat flow (85 mW/m²). Geothermal resources at the Utah Test and Training Ranges (UTTR, between Wendover and the Great Salt Lake) have also been assessed (Smith et al., 2011; 2012), including geophysical analysis of potential fields data and borehole logs near Wendover to evaluate geothermal potential in the UTTR south of Wendover. Blackett et al. (2014) provided a comprehensive review of regional geology, geophysical surveys, and borehole temperature data for the GSL region, citing a higher average heat flow of 100 mW/m² based on a more recent thesis (Edwards, 2013). Allis et al. (2016) highlighted the likelihood of adequate permeability and geothermal heat in deeply buried sedimentary strata of deep basins in the Great Basin to support geothermal development, especially in deep carbonate horizons where porosity might be preserved despite overburden pressures.

Recent work by Gunderson and Hardwick (2024) proposed a geothermal play in deep sedimentary basins of the GSL region, suggesting temperatures could reach nearly 150°C at depths as shallow as 2 km. Extensive geological and hydrogeological mapping, modeling, and simulation were undertaken in a series of studies by the U.S. Geological Survey to better understand groundwater flow in the Great Basin (e.g., Heilweil and Brooks, 2011; Brooks et al., 2014). These compilation studies provide a useful, unified structural and stratigraphic framework for the GSL region, which was utilized in this study to produce preliminary geothermal and lithium resource assessments.

Based on these geological models for the GSL region and the play models for deep stratigraphic geothermal systems mentioned above, this project chose to evaluate three sub-basins within the GSL region (Figure 20):

- Wendover Graben, which has active potash solution mining, geothermal direct use, and elevated lithium in shallow brine
- West and East sub-basins of the Great Salt Lake (roughly underlying Gunnison and Gilbert Bays and Bear River and Farmington Bays, respectively) , which have nearby geothermal springs and direct use, elevated lithium in the Great Salt Lake water, and are the most areally extensive and thick sub-basins in the GSL region.

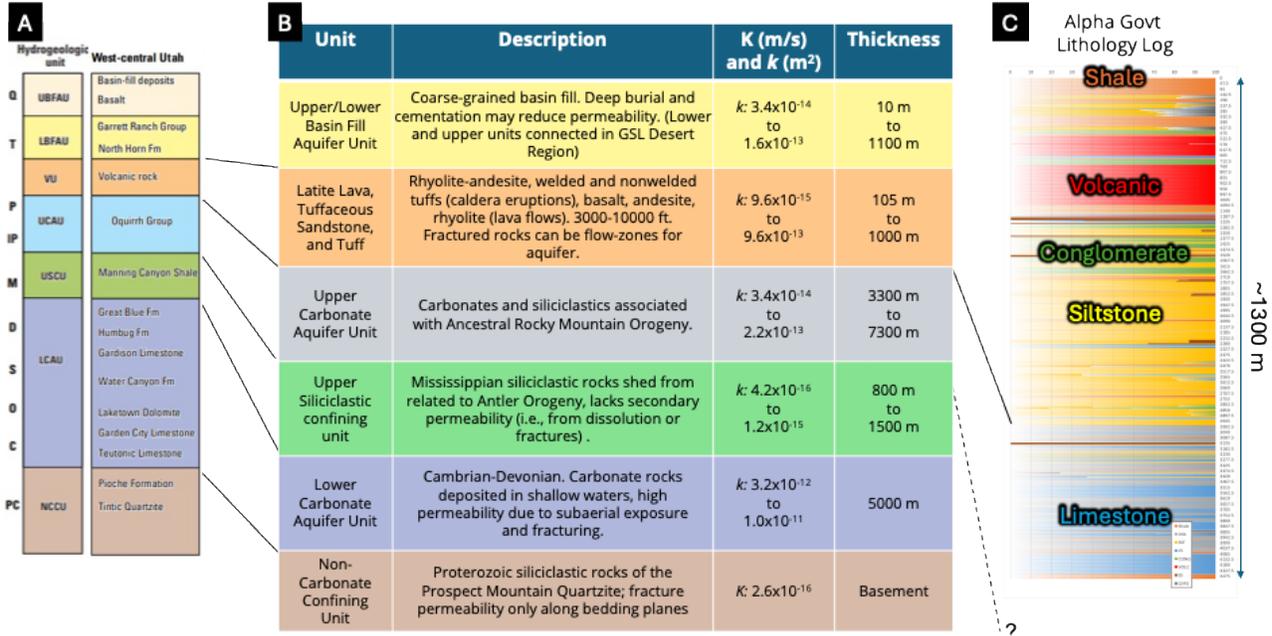


Figure 2: A,B) Stratigraphic chart for the Great Salt Lake Region (after Sweetkind et al., 2011) correlated to lithological log for Alpha Government 1 well.

METHODS AND RESULTS

The volumetric method is a fundamental, deterministic approach for estimating the in-place quantity of a geological resource by multiplying its spatial dimensions with its material characteristics where each parameter is derived from geological mapping, cross-section interpretation, and drilling data. This straightforward calculation provides a first-order estimate of ton of ore, barrels of oil, cubic meters of gas, or megawatt-hours of heat-in-place, depending on the commodity. For a study involving a subsurface resource hosted in a porespace fluid, volume can be calculated from area (A), thickness (T), and porosity (φ), and concentration (C):

$$R = A \times T \times \phi \times C \text{ (Equation 1)}$$

The volumetric method is useful during early exploration efforts because it does not require detailed data or analysis. It can also be employed to make back-estimates of the physical extent of deposits needed to yield a certain amount of resources.

Preliminary lithium resource assessment

Volumetric Equation for Lithium: The volumetric equation (Equation 2) was modified to account for the resource being assessed, lithium dissolved in porewater thusly:

$$m = V \times \phi \times C \text{ (Equation 2)}$$

- m = mass of mineral resource in kg, the calculated resource
- V = reservoir volume of layer in km³, calculated in GIS
- φ = porosity (decimal), estimated from literature data
- C = concentration of element in mg/L, estimated from literature data

Concentration: Little data exists in the public domain for lithium concentrations in deep strata of the Great Salt Lake region. For the is reason, 10, 30, and 100 ppm (roughly equivalent to mg/L) were used as low, middle and high case values, respectively. These

approximately represent geothermal water values in the Great Basin (10 ppm, Penfield et al., 2014), Great Salt Lake values (30 ppm; rough middle of range from Rupke, 2025), and values thought to be the economic lower limit for lithium production (100 ppm, Daitch, 2018).

Porosity: Porosity is the rock property representing the void volume per unit volume of a solid. Estimates for porosity (Table 1) were chosen to represent siliciclastic formations that are dominated by interparticle porosity (Nelson, 2004).

Table 1: Porosity values (fraction) estimates for each stratigraphic unit. Stratigraphic unit

Stratigraphic Unit	Unit Abbreviation	Porosity (fraction)		
		Low	Middle	High
Upper Basin Fill Aquifer Unit	UBFAU	0.05	0.10	0.20
Lower Basin Fill Aquifer Unit	LBFAU	0.05	0.10	0.20
Upper Carbonate Aquifer Unit	UCAU	0.02	0.05	0.10
Upper Siliciclastic Confining unit	USCU	0.00	0.00	0.05
Lower Carbonate Aquifer Unit	LCAU	0.05	0.05	0.10

Volume

Basin volume was calculated from published depth structure maps for the tops of stratigraphic unit (Sweetkind et al., 2011) using QGIS, an open-source geographical information system using the following method:

1. Basin-bounding polygons were mapped based on GIS data for faults from the USGS Great Basin Geoscience Database (Raines et al., 1996).
2. Isopach maps for each basin were generated by subtracting subjacent from superjacent depth structure maps representing the top of each stratigraphic unit (Sweetkind et al., 2011) (Figure 3)
3. Isopach maps were analyzed using the QGIS Raster Surface Volume tool to calculate reservoir volume.

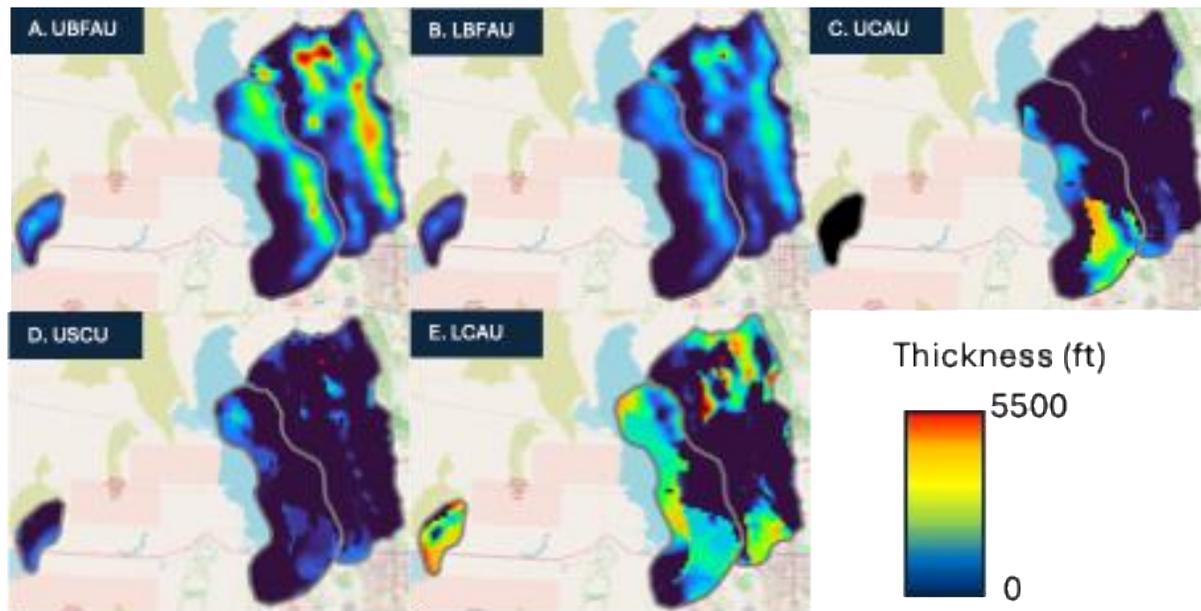


Figure 3: Thickness maps (isopach maps) in feet for aquifer and confining units for each basin assess in this project.

Table 2: Preliminary lithium resource assessment for the three studied basins based on the volumetric method.

	Strat Unit	Area	Volume	Porosity	Pore Volume	Li	Li by Layer	Li (LiCO ₃ equiv) by Layer	Li (LiCO ₃ equiv) by Basin	
										km ²
High Case	Wendover	UBFAU	385.9	198.7	0.20	3.97E+10	100	3.97E+06	2.08E+07	
		LBFAU	385.9	99.4	0.20	1.99E+10	100	1.99E+06	1.04E+07	
		UCAU	0.0	0.0	0.10	0.00E+00	100	0.00E+00	0.00E+00	
		USCU	176.1	75.5	0.05	3.78E+09	100	3.78E+05	1.97E+06	
		LCAU	352.2	458.3	0.10	4.58E+10	100	4.58E+06	2.40E+07	5.7E+04
	GSL-W	UBFAU	2551.1	2327.6	0.20	4.66E+11	100	4.66E+07	2.43E+08	
		LBFAU	2512.3	1162.4	0.20	2.32E+11	100	2.32E+07	1.22E+08	
		UCAU	1183.6	1975.5	0.10	1.98E+11	100	1.98E+07	1.03E+08	
		USCU	1113.7	467.1	0.05	2.34E+10	100	2.34E+06	1.22E+07	
		LCAU	2017.6	3782.4	0.10	3.78E+11	100	3.78E+07	1.98E+08	6.8E+05
	GSL-E	UBFAU	3600.1	4647.6	0.20	9.30E+11	100	9.30E+07	4.86E+08	
		LBFAU	3597.5	2329.6	0.20	4.66E+11	100	4.66E+07	2.44E+08	
		UCAU	492.1	212.4	0.10	2.12E+10	100	2.12E+06	1.11E+07	
		USCU	857.3	332.1	0.05	1.66E+10	100	1.66E+06	8.68E+06	
		LCAU	1761.2	2183.2	0.10	2.18E+11	100	2.18E+07	1.14E+08	8.6E+05
							<i>Total tonnes</i>	<i>3.06E+08</i>	<i>1.60E+09</i>	
						<i>Total ktonnes</i>	<i>305797</i>	<i>1599320</i>		
Middle Case	Wendover	UBFAU	385.9	198.7	0.10	1.99E+10	30	5.96E+05	3.12E+06	
		LBFAU	385.9	99.4	0.10	9.94E+09	30	2.98E+05	1.56E+06	
		UCAU	0.0	0.0	0.05	0.00E+00	30	0.00E+00	0.00E+00	
		USCU	176.1	75.5	0.00	0.00E+00	30	0.00E+00	0.00E+00	
		LCAU	352.2	458.3	0.05	2.29E+10	30	6.87E+05	3.60E+06	8.3E+03
	GSL-W	UBFAU	2551.1	2327.6	0.10	2.33E+11	30	6.98E+06	3.65E+07	
		LBFAU	2512.3	1162.4	0.10	1.16E+11	30	3.49E+06	1.82E+07	
		UCAU	1183.6	1975.5	0.05	9.88E+10	30	2.96E+06	1.55E+07	
		USCU	1113.7	467.1	0.00	0.00E+00	30	0.00E+00	0.00E+00	
		LCAU	2017.6	3782.4	0.05	1.89E+11	30	5.67E+06	2.97E+07	1.0E+05
	GSL-E	UBFAU	3600.1	4647.6	0.10	4.65E+11	30	1.39E+07	7.29E+07	
		LBFAU	3597.5	2329.6	0.10	2.33E+11	30	6.99E+06	3.66E+07	
		UCAU	492.1	212.4	0.05	1.06E+10	30	3.19E+05	1.67E+06	
		USCU	857.3	332.1	0.00	0.00E+00	30	0.00E+00	0.00E+00	
		LCAU	1761.2	2183.2	0.05	1.09E+11	30	3.27E+06	1.71E+07	1.3E+05
							<i>Total tonnes</i>	<i>4.52E+07</i>	<i>2.36E+08</i>	
						<i>Total ktonnes</i>	<i>45214</i>	<i>236467</i>		
Low Case	Wendover	UBFAU	385.9	198.7	0.05	9.94E+09	10	9.94E+04	5.20E+05	
		LBFAU	385.9	99.4	0.05	4.97E+09	10	4.97E+04	2.60E+05	
		UCAU	0.0	0.0	0.02	0.00E+00	10	0.00E+00	0.00E+00	
		USCU	176.1	75.5	0.00	0.00E+00	10	0.00E+00	0.00E+00	
		LCAU	352.2	458.3	0.05	2.29E+10	10	2.29E+05	1.20E+06	2.0E+03
	GSL-W	UBFAU	2551.1	2327.6	0.05	1.16E+11	10	1.16E+06	6.09E+06	
		LBFAU	2512.3	1162.4	0.05	5.81E+10	10	5.81E+05	3.04E+06	
		UCAU	1183.6	1975.5	0.02	3.95E+10	10	3.95E+05	2.07E+06	
		USCU	1113.7	467.1	0.00	0.00E+00	10	0.00E+00	0.00E+00	
		LCAU	2017.6	3782.4	0.05	1.89E+11	10	1.89E+06	9.89E+06	2.1E+04
	GSL-E	UBFAU	3600.1	4647.6	0.05	2.32E+11	10	2.32E+06	1.22E+07	
		LBFAU	3597.5	2329.6	0.05	1.16E+11	10	1.16E+06	6.09E+06	
		UCAU	492.1	212.4	0.02	4.25E+09	10	4.25E+04	2.22E+05	
		USCU	857.3	332.1	0.00	0.00E+00	10	0.00E+00	0.00E+00	
		LCAU	1761.2	2183.2	0.05	1.09E+11	10	1.09E+06	5.71E+06	2.4E+04
							<i>Total tonnes</i>	<i>9.03E+06</i>	<i>4.72E+07</i>	
						<i>Total ktonnes</i>	<i>9032</i>	<i>47238</i>		

Preliminary geothermal resource assessment

Volumetric Equation for Reservoir Thermal Energy

The volume method (Williams et al., 2008) was used to estimate geothermal resources in the basins' pore fluids:

$$TE_R = V_P \times \phi \times \rho C \times (T_R - T_0) \quad \text{(Equation 3)}$$

- TE_R = reservoir thermal energy in MWh, the calculated resource
- V_P = pore volume in m³, calculated for the reservoir during lithium assessment above
- ρC = volumetric specific heat of water, from literature data (4200 J/kgK)
- T_R = characteristic reservoir temperature in °C, from literature data
- T_0 = mean annual temperature in °C, from literature data

Characteristic reservoir temperature, T_R

For the Wendover area, these were calculated using literature geothermal gradients estimated from bottomhole temperatures measured in the Wendover Graben (Smith et al., 2011): low (48°C/km), middle (56°C/km), and high (176°C/km). For the Salt Lake basins, literature bottomhole temperature measurements (Blackett et al., 2014) were used to calculate geothermal gradients for low, middle, and high cases (Figure 4). The middle case was the linear regression ($R^2 = 0.84$), while the low and high gradients were estimated to be near the base and top of the data distribution, respectively.

Mean annual temperature, T_0

This was taken to be the mean annual temperature of Salt Lake City (11.2°C, NWS Climate, 2025).

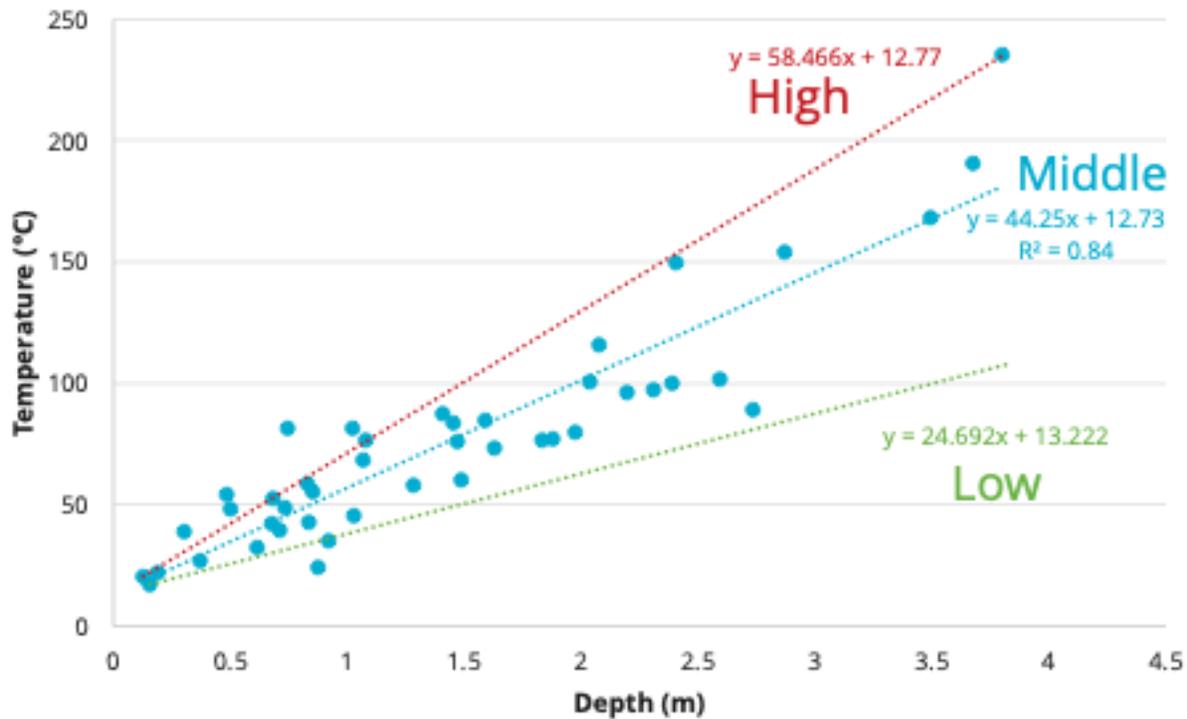


Figure 4: Bottomhole temperature measurements used to calculate geothermal gradients for low, middle, and high cases for preliminary geothermal resource assessment for east and west Great Salt Lake basins. Data summarized in Blackett et al. (2014).

Table 3: Preliminary geothermal resource assessment for the three studied basins based on the volumetric method.

		Fluid Mass	Specific Heat of Water	Surface Temp	Geothermal Gradient	Reservoir Depth	Reservoir Temp	Energy by Layer	Energy by Layer	Energy by Basin
		(kg)	(J/kgK)	(°C)	(°C/km)	(km)	(°C)	(J)	(MWh)	(MWh)
High Case	Wendover	4.0E+13	4200	11.2	176.0	0.5	88	5.8E+19	1.6E+10	
		2.0E+13	4200	11.2	176.0	1	176	1.4E+19	3.8E+09	
		0.0E+00	4200	11.2	176.0	2.5	440	0.0E+00	0.0E+00	
		3.8E+12	4200	11.2	176.0	5	880	1.4E+19	3.8E+09	
		4.6E+13	4200	11.2	176.0	6	1056	2.0E+20	5.6E+10	8.0E+07
	GSL-W	4.7E+14	4200	11.2		0.5	41	5.8E+19	1.6E+10	
		2.3E+14	4200	11.2		1	69	5.6E+19	1.6E+10	
		2.0E+14	4200	11.2		2.5	153	1.2E+20	3.3E+10	
		2.3E+13	4200	11.2		5	293	2.8E+19	7.7E+09	
		3.8E+14	4200	11.2		6	349	5.4E+20	1.5E+11	2.2E+08
	GSL-E	9.3E+14	4200	11.2		0.5	41	1.2E+20	3.2E+10	
		4.7E+14	4200	11.2		1	69	1.1E+20	3.1E+10	
		2.1E+13	4200	11.2		2.5	153	1.3E+19	3.5E+09	
		1.7E+13	4200	11.2		5	293	2.0E+19	5.5E+09	
		2.2E+14	4200	11.2		6	349	3.1E+20	8.6E+10	1.6E+08
							<i>Total energy</i>	1.65E+21	4.59E+11	
Middle Case	Wendover	2.0E+13	4200	11.2	56.0	0.5	28	1.4E+18	3.9E+08	
		9.9E+12	4200	11.2	56.0	1	56	1.9E+18	5.2E+08	
		0.0E+00	4200	11.2	56.0	2.5	140	0.0E+00	0.0E+00	
		0.0E+00	4200	11.2	56.0	5	280	0.0E+00	0.0E+00	
		2.3E+13	4200	11.2	56.0	6	336	3.1E+19	8.7E+09	9.6E+09
	GSL-W	2.3E+14	4200	11.2		0.5	34	2.3E+19	6.3E+09	
		1.2E+14	4200	11.2		1	54	2.1E+19	5.9E+09	
		9.9E+13	4200	11.2		2.5	114	4.3E+19	1.2E+10	
		0.0E+00	4200	11.2		5	214	0.0E+00	0.0E+00	
		1.9E+14	4200	11.2		6	254	1.9E+20	5.4E+10	7.8E+10
	GSL-E	4.6E+14	4200	11.2		0.5	34	4.5E+19	1.3E+10	
		2.3E+14	4200	11.2		1	54	4.2E+19	1.2E+10	
		1.1E+13	4200	11.2		2.5	114	4.6E+18	1.3E+09	
		0.0E+00	4200	11.2		5	214	0.0E+00	0.0E+00	
		1.1E+14	4200	11.2		6	254	1.1E+20	3.1E+10	5.7E+10
							<i>Total energy</i>	5.18E+20	1.44E+11	
Low Case	Wendover	9.9E+12	4200	11.2	48.0	0.5	24	5.3E+17	1.5E+08	
		5.0E+12	4200	11.2	48.0	1	48	7.7E+17	2.1E+08	
		0.0E+00	4200	11.2	48.0	2.5	120	0.0E+00	0.0E+00	
		0.0E+00	4200	11.2	48.0	5	240	0.0E+00	0.0E+00	
		2.3E+13	4200	11.2	48.0	6	288	2.7E+19	7.4E+09	7.8E+09
	GSL-W	1.2E+14	4200	11.2		0.5	26	7.1E+18	2.0E+09	
		5.8E+13	4200	11.2		1	38	6.6E+18	1.8E+09	
		4.0E+13	4200	11.2		2.5	76	1.1E+19	3.0E+09	
		0.0E+00	4200	11.2		5	138	0.0E+00	0.0E+00	
		1.9E+14	4200	11.2		6	163	1.2E+20	3.4E+10	4.0E+10
	GSL-E	2.3E+14	4200	11.2		0.5	26	1.4E+19	3.9E+09	
		1.2E+14	4200	11.2		1	38	1.3E+19	3.7E+09	
		4.2E+12	4200	11.2		2.5	76	1.2E+18	3.2E+08	
		0.0E+00	4200	11.2		5	138	0.0E+00	0.0E+00	
		1.1E+14	4200	11.2		6	163	7.0E+19	1.9E+10	2.7E+10
							<i>Total energy</i>	2.71E+20	7.53E+10	

DISCUSSION: COMPARISON WITH SALTON SEA

This study analyzed preliminary ranges of possible lithium and geothermal resources in all strata within three basins (Table 4). Geothermal estimates are likely conservative because they only account for the heat content of one pore volume of water, excluding the heat from the rock and from additional pore volumes that may enter the basin during production. This estimate will be refined in the next project phase through geological modeling and reservoir simulation to yield per-well geothermal resource estimates, which will be more useful for assessing system performance and economics.

Assessed lithium values were higher than those reported for the Salton Sea (Table 5, Dobson et al., 2023). However, the methodology used in this study, a 2-D map-based approach, is less precise than the 3-D geological models and reservoir simulations used for the Salton Sea deposits.

Table 4: Summary of preliminary geothermal and lithium resource assessment.

Assessment	Lithium (ktonnes)	Lithium (ktonnes LCE)	Geothermal Heat (MWh)
Low	9,000	47,000	0.8 x 10 ¹¹
Middle	45,000	240,000	1.4 x 10 ¹¹
High	310,000	1,600,000	4.6 x 10 ¹¹

Table 5: Estimated lithium in brins of the Salton Sea (Dobson et al., 2023).

Assessment	Lithium (ktonnes)	Lithium (ktonnes LCE)
Proven	760	4,100
Accessible	2,600	13,700
Probable	3,400	18,000

CONCLUSIONS & FUTURE WORK

Preliminary in-place resource estimates for geothermal heat and lithium were conducted for three basins in the Great Salt Lake region of northwest Utah. Lithium resources were 0.5 to 1 order of magnitude higher than for the Salton Sea, though these estimates will likely be revised downward as additional geological modeling and reservoir simulation refine the recoverable resource. Future work includes:

- Building a stratigraphic model for the basins based on petrophysical well logs and surficial geological studies.
- Applying stratigraphic models to create 3-D geological models of each basin to accurately depict key properties (e.g., rock volume, porosity, temperature) and improve in-place resource estimates.
- Using these 3-D geological models for 3-D reactive transport simulations to improve flow rate estimations from hypothetical production wells, providing another dimension for potential resource economics.

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