SITES RESERVOIR

August 2023

Frequently Asked Questions:

Sites Reservoir Greenhouse Gas Emissions Evaluation

Background

A recent Boiling Point Newsletter from LA Times reporter Ian James raises questions about the analysis of greenhouse gas emissions (GHGs) from the future Sites Reservoir. The report cites a new analysis, called the All Res Tool, which was developed by Tell the Dam Truth/Friends of the River (TTDT/FOR) groups opposing the building of the reservoir. The following FAQ addresses the questions raised in the article about the Sites Project's greenhouse gas emissions and provides a comparison of the analyses done by TTDT/FOR and the Sites GHG experts.

1. Do water storage reservoirs emit greenhouse gases?

Yes, water storage reservoirs, such as dams, can emit greenhouse gases under certain conditions. These emissions primarily come from the decomposition of organic matter that is submerged in low or no oxygen environments when the reservoir is created. It's important to note that not all reservoirs emit significant amounts of greenhouse gases. The emission levels depend on various factors such as reservoir size, climate, water management practices. The Sites Project Final EIR/EIS attempts to estimate greenhouse gas emissions conservatively. Actual levels are expected to be lower than estimated.

2. What does a side-by-side comparison of the results for Sites Reservoir using the two methods of analyzing greenhouse gases referenced in the Boiling Point Newsletter article look like?

Emissions Comparision	Sites Project Final EIR/EIS		TTDT/FOR Report	
Annual Emissions (MT CO_2e/year)	Construction	11,622 - 11,712		
	Operations	56,613 - 72,736		
	Total	**68,235 - 84,363**	**Total:**	**362,000**

3. Why is there such a large difference in the results of greenhouse gas emissions?

The evaluation of greenhouse gas emissions has many complexities and is still a developing area of science. The Sites Final EIR/EIS analysis uses an internationally recognized standard method called the "global warming potential" approach that is endorsed by the Intergovernmental Panel on Climate Change and is used extensively to analyze greenhouse gas emissions for activities all over the world. The method used in the TTDT/FOR Report is newly developed, not widely used, and specifically geared toward evaluating water storage reservoir emissions. It is also unclear if the TTDT/FOR analysis has been peer reviewed and if the assumptions and ranges used are applicable to an off-stream reservoir like Sites Reservoir. These groups are generally not in favor of any dams and reservoirs built on rivers. The proposed Sites Reservoir is an off-stream reservoir that would not dam a major river system. The TTDT/FOR Reports recognizes that tracking emissions from reservoirs is complicated and highly variable. As noted in Mr. James article, John Harrison, a professor at Washington State University that reviewed the report, says "due to a lack of supporting data and relevant studies, many of the flux estimates put forth in this report are necessarily quite uncertain."

Here's a table that analyzes each component involved in both analysis:

Analysis Component	Sites Project Draft and Final EIR/EIS	TTDT/FOR Report
Construction Emissions	Included in Draft and Final	Included (uses DEIR/EIS estimate)
Facility operations & maintenance	Included in Draft and Final	Included (uses DEIR/EIS estimate)
Facility decommissioning	Not included	Included
Reservoir surfaces (CH4 only)	Included in Final	Included
Decay of organic matter on exposed banks	Not included[1]	Included
Degassing methane through hydropower turbines & non-hydropower spillaways	Included in Final	Included
Land use changes away from the reservoir (Carbon leakage)	Not included[1]	Included
Land use changes beneath the reservoir (CO2 only)	Partially included in Final[2]	Included

[1] Not included in IPCC guidance for Flooded Lands.

[2] Does not include loss of sequestration; ecosystem carbon loss from dewatering of wetlands, riparian areas or mangroves; or emission releases from decaying riparian vegetation due to fluctuating river levels.

4. What is Sites planning to do to address greenhouse gas emissions from the construction and operation of the Project?

Sites Reservoir is a 21st century project that will have an overall positive outcome for society and the environment as we face the impacts of climate change. Regarding greenhouse gas emissions specifically, the environmental document for Sites finds that, without mitigation, greenhouse gas emissions could be significant. However, the Sites Project Authority commits to a "net zero" threshold for greenhouse gas emissions over the life of the project. This is a high bar for any project and means actions will be taken by the Authority to avoid and minimize emissions resulting from the project construction and operations, and when needed to offset for actual emissions in excess of baseline conditions.

Below are a few examples of how Sites will achieve net zero emissions, and the table below provides a summary of all of the actions currently under consideration:

- Proactive assessment of upcoming construction activity and early investment in GHG reduction efforts prior to the emissions occurring (such as prior to construction and operational activities)
- Use a whole toolbox of measures included in the upcoming Final EIR/EIS to avoid, reduce, and then offset GHG emissions
- Increasing the proportion of renewable energy purchases for the Project's electricity needs to the highest amount that is feasible with 60% of the Project's power needs from renewable, carbon-free sources starting in 2030
- Removing vegetation and material from the bottom of the reservoir before we fill it with water

As part of achieving net zero, the Project will prioritize strategies to reduce emissions in the following order (1) onsite measures for construction or operations, (2) offsite measures, and (3) carbon credits. The order of priority for the location of selected measures is as follows (1) within the Project footprint, (2) within communities in the vicinity of the Project site, (3) in the Sacramento Valley Air Basin, (4) in the state of California, and (5) in the United States. The Authority will seek opportunities to implement GHG reduction measures in minority and low-income communities in and near the Project site and report on the effort and outcomes in the annual reporting required. The Authority is also committed to monitoring, reporting and enforcement requirements to achieve net zero. This includes full and open public disclosure on the Authority's website on annual emissions along with avoidance, minimization and offsetting measures.