

Methane capture from hydropower reservoirs

Hydropower is the largest renewable energy source, accounting for 70% of global renewable energy and 17% of global energy production.

But hydropower reservoirs emit around a billion tonnes of greenhouse gases (GHG) including an estimated 22 million tonnes of methane every year.

What does the global hydropower community know about methane emissions and is there a case to capture and utilise them?

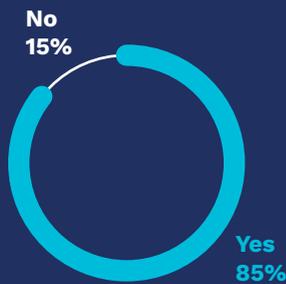


We surveyed 239 hydropower professionals, with experience in 84 countries, about GHG emissions from hydropower reservoirs.

Key insights

1

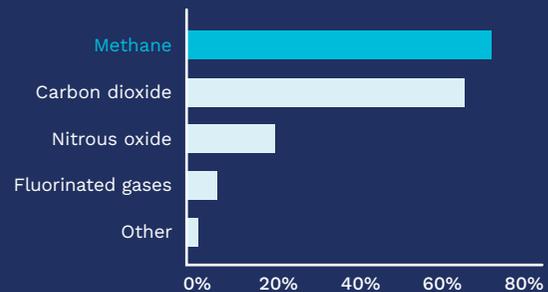
85% of hydropower stakeholders are aware that hydropower dams emit GHG emissions.



Are you aware that hydropower dams emit greenhouse gases?

2

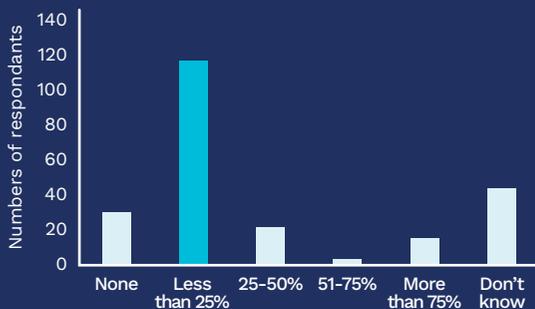
Two thirds of respondents are aware of either methane (73% of respondents) or CO2 (69% of respondents) being emitted from hydropower reservoirs.



Which greenhouse gases are you aware are emitted by hydropower dams?

3

Less than 25% of hydropower projects measure their GHG emissions. However, measurements are needed to develop insights, understand the scale of the problem, and enable tools to mitigate and reduce these GHG emissions.



In your experience, what proportion of hydropower projects are measuring greenhouse gas emissions?

4

There is a low awareness of GHG measurement initiatives

There is no consensus about measuring techniques available to measure GHG emissions. Even the most well-known measuring techniques are only known by a third of respondents.



How are GHGs estimated or measured at hydropower dams?

5

Beyond pre-impoundment vegetation management, there is low awareness of strategies to reduce GHG emissions.

Only a quarter of 239 survey respondents suggest technical mitigation strategies.

20% of respondents are not aware of any strategies to reduce GHG emissions at hydropower dams.

Strategies to reduce GHG emissions	Responses
Environmental	155
Technological	66
Don't know	48
Social	4
Financial	3
Political	3

6

Taking no action could pose a risk to accessing project finance and impact the hydropower owner's reputation.

Consequences of ignoring greenhouse gas emissions at hydropower dams

	Likely	Neutral	Unlikely
Increased reputational risk	74%	19%	7%
Difficulty accessing finance	64%	21%	15%
Paying carbon taxes	50%	25%	25%
Strained local community relations	46%	29%	25%
Delay to hydropower development	43%	23%	34%
Increased risk of fines or penalties	40%	29%	31%
No consequences	23%	27%	50%

7

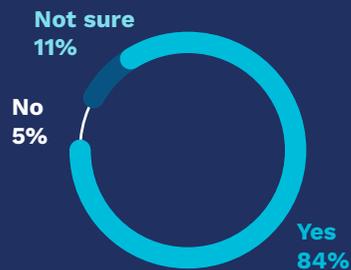
Reducing emissions requires financial incentives, legislation and regulation, and more accurate measuring.



Frequency enablers were referenced during interviews

8

84% of survey respondents think operators have a responsibility to reduce GHGs at hydropower dams.



Do you think hydropower operators have a responsibility to reduce greenhouse emissions?

Bluemethane is developing a data platform and hardware solution to measure and capture methane emissions from hydropower plants and reservoirs to unlock a new source of data, power and revenue for the hydropower owner.

Want to know more?

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