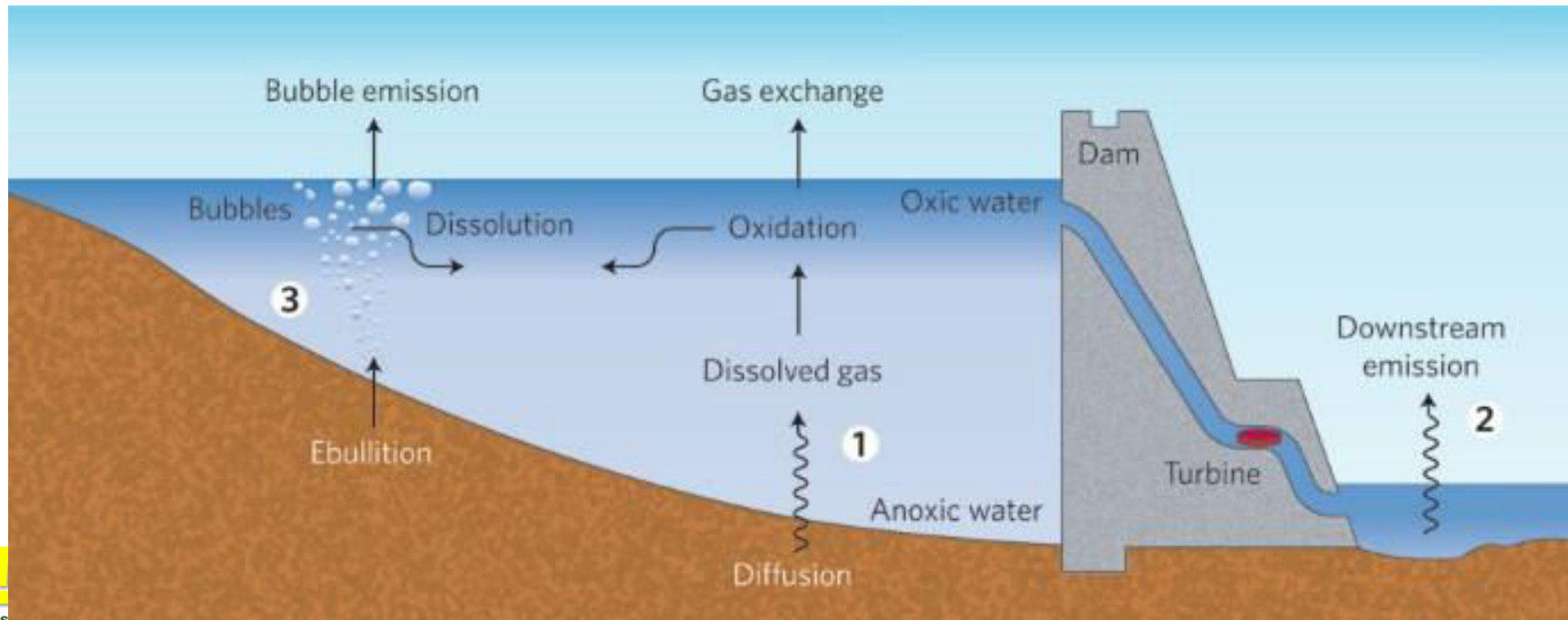


Methane Capture @ Hydroelectric Dams

Oct 2023

How is Methane Produced

- Methane is produced in sediments of freshwater dams and lakes when carbon-rich organic matter is decomposed by microbes in the absence of oxygen.
- Such as in Hydroelectric dams.



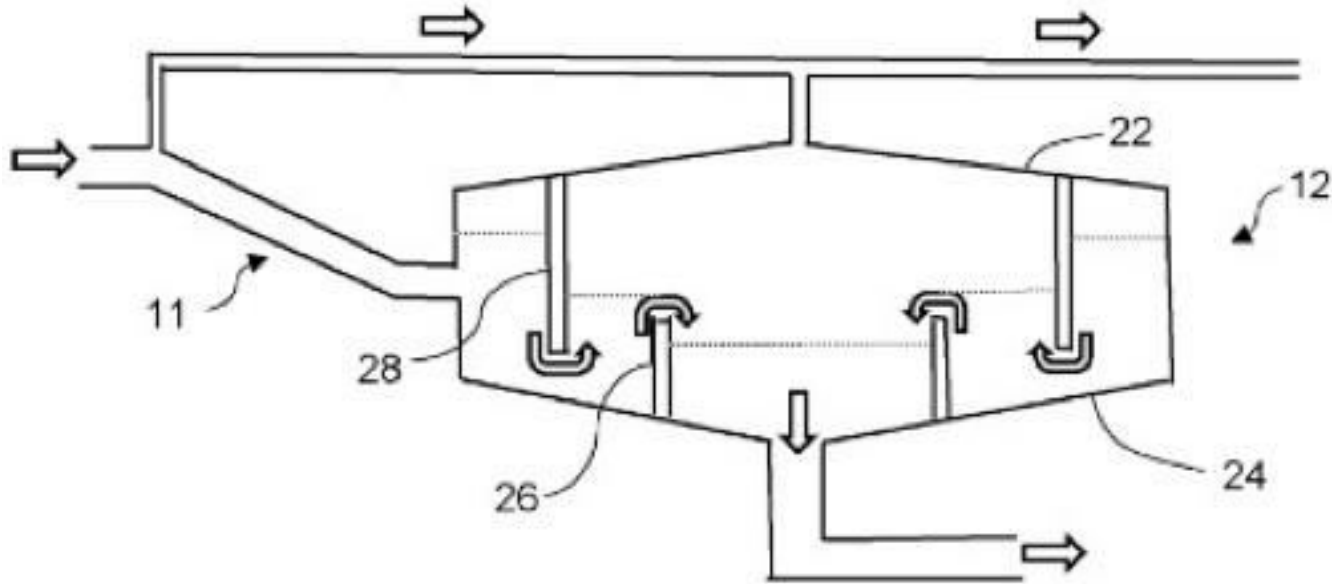
Methane Emissions from Hydroelectric Dams

- Hydroelectric reservoirs are responsible for the release of almost one billion tonnes of carbon dioxide equivalents into the atmosphere, nearly half of net global warming to date – according to Climate Change Initiative.
- At hydroelectric reservoirs, the turbulence of the turbines – like shaking a bottle of fizzy water – triggers the release of methane gas bubbles.

Methane Compared to Carbon Dioxide

- Methane is a greenhouse gas that's more than 30 times more potent than carbon dioxide over a 100-year horizon.
- These hidden emissions shows that hydro-electricity is not as clean as most of us thought.

Methane Capture – How it Works



The flow contains both dissolved methane and methane bubbles, which rise upwards towards the surface. A device, see fig in the above, creates additional turbulence which both;

- 1) Slows down the flow so that the methane bubbles have time to rise to the surface and be collected, and;
- 2) Releases more methane.

Potential Power/Fertiliser Source

- What we propose is to capture the Methane after the turbine, burn and produce power/heat and also attract Carbon Credits. See enclosed spreadsheet for CAPEX/OPEX.
- If there is no capacity to transmit the electricity the Methane can be converted into Hydrogen and Carbon.
- And the Hydrogen used to produce fertilisers.

Way Forward

- Memorandum of Agreement
- Feasibility Study starting with verifying the concentration of Methane. See enclosed sample protocol.
- Bankable Business Plan (including EISA and all necessary permits).
- Funding and Implementation

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