

National Hydropower Association Statement on Reservoir GHG Emissions

Washington, D.C. (September 30, 2016) - The following is a statement on recent news articles on a soon-to-be published research paper on reservoir emissions by Washington State University in BioScience. These articles give the false impression that hydropower is a major source of greenhouse-gas emissions.

"Hydropower, America's single largest source of renewable energy, is helping the nation reduce its carbon footprint. It is also experiencing a renaissance because of its clean energy attributes. To be sure, hydropower is needed to meet federal and state clean energy goals.

"It appears that the paper by Washington State University (WSU) is not based on new research on the issue, but is a review of 100 research papers published on the reservoir emissions since 2000.

"It should be clearly noted that conclusions from the existing research on reservoir emissions is mixed. In fact, the U.S. Department of Energy's Hydropower Vision Report released this July states that studies surrounding GHG reservoir emissions are filled with large uncertainties. Additionally, some of the existing data is for reservoirs in regions with characteristics not comparable to U.S. reservoirs.

"If methane emissions are an issue, it is one for freshwater systems in general, not centered on hydropower generation itself. Determining the net emissions differential between natural rivers and reservoirs and man-made reservoirs, is a complex calculation dependent on many factors for which more investigation is needed and for which the scientific community has yet to reach consensus.

"Without question, the science on reservoir emissions is far from settled as the recent set of news articles appear to imply. In fact, some of the research has found that reservoirs may also act as carbon sinks, absorbing and removing carbon dioxide from the atmosphere.

"Most importantly, ascribing all methane emissions, if any, solely to hydropower generation would be inaccurate. Particularly when hydropower generation - water flowing through a turbine - is a renewable form of producing electricity and reservoirs, in general, are built for many different purposes including: municipal water supply; irrigation; flood control; and navigation. In fact, only 3 percent of U.S. dams even have hydropower plants associated with them.

"Hydropower provides many benefits in the fight to address climate change and for cleaner air. The DOE Report estimates that increasing hydropower's capacity by 50 gigawatts by 2050 reduces greenhouse gas emissions by 5.6 billion metric tons and saves \$209 billion in avoided global damages from GHG emissions, including \$185 billion in savings from the existing hydropower fleet being operated through 2050.

"The Report also finds that the cumulative reduction in other air pollutants such as sulfur dioxide, nitrous oxides, and particulate matter due to the existing hydro fleet results in nearly 5 million fewer cases of acute respiratory symptoms and 750,000 fewer cases of childhood asthma.

"Let's not lose sight of what we know for certain about hydropower - it has greatly contributed to a healthier environment and can sustainably grow to do more."

###

Reservoir GHG Emissions Talking Points

- A newly released study from the Washington State University gives the false impression that clean and renewable hydropower generation is a major source of greenhouse gas emissions (GHG).
- This is a complex issue, one in which continued study and research is needed. However, the science on reservoir emissions is far from settled.
- The Energy Department's Hydropower Vision Report states that studies surrounding GHG reservoir emissions are filled with large uncertainties.
- If methane emissions are an issue, the focus should be on freshwater systems in general, not centered on hydropower generation itself.
- The scientific community should be focused on determining the net differential, a complex calculation that is dependent on many factors and for which the community has yet to come to agreement on.
- Ascribing all methane emissions, if any, solely to hydropower generation would be inaccurate. Particularly when hydropower generation - water flowing through a turbine - is a renewable form of producing electricity.
- According to the DOE Hydropower Vision Report, many of the studies and research currently available focus only on new reservoir construction, particularly in tropical regions with "low to negligible emissions in cold and temperate climates".
- Equally important, some reservoirs have been found to be carbon sinks, absorbing and removing carbon dioxide from the atmosphere.
- Freshwater reservoirs, whether natural or manmade, emit biogenic GHG emissions as a result of bacterial processes in waters and soils.

New Development/Reducing Carbon Footprint

- According to the DOE Hydropower Vision Report, increasing hydropower's capacity by 50 gigawatts by 2050 reduces greenhouse gas emissions by 5.6 billion metric tons and saves \$209 billion in avoided global damages from GHG emissions, including \$185 billion in savings from the existing hydropower fleet being operated through 2050.
- The report also makes clear that adding hydropower at existing non-power dams is "unlikely to lead to changes in biogenic GHG emissions."

- In addition, the report finds \$58 billion in savings as a result of the existing hydropower fleet in avoided damages from the cumulative reduction in emissions from other air pollutants such as sulfur dioxide, nitrous oxides, and particulate matter. Doing so would result in nearly 5 million fewer cases of acute respiratory symptoms and 750,000 fewer cases of childhood asthma.

A Distraction from Hydropower's Growth

- Hydropower is helping the nation reduce its carbon footprint. And is doing so when only 3 percent of the nation's dams even have hydropower plants associated with them.
- Let's not lose sight of what we know for certain about hydropower - it has greatly contributed to a healthier environment and economic prosperity and can sustainably grow to do more.

It would be unfortunate if this issue leads us to forego the significant opportunities to increase the clean air benefits derived from increased hydropower deployment, such as through upgrades at existing facilities and adding generation to non-powered dams.