TVA To Include GHG Life Cycle Analysis in 2024 Integrated Resource Plan

***Editor's Note**: TVA is embarking on its next Integrated Resource Plan (IRP) to study how it could meet customer demand for electricity between now and 2050 across a variety of potential future states. A programmatic Environmental Impact Statement (EIS) will accompany the IRP to address its environmental effects.*

TVA and the Integrated Resource Plan Working Group (IRP-WG) held a two-hour virtual meeting on October 19, 2023, to discuss greenhouse gas (GHG) life cycle analysis in the context of the IRP.

Presentations were given by Hunter Reed, TVA's IRP Project Manager, and Garvin Heath, PhD, Principal Environmental Engineer and Distinguished Member of the Research Staff at the National Renewable Energy Lab (NREL).

NREL is supporting GHG life cycle analysis for the IRP. Discussion and results of the analysis will be included in the EIS.

Dr. Heath noted that while typical utility studies focus on GHG emissions that result from the direct combustion of fossil fuels, GHG life cycle analysis quantifies emissions during three distinct phases of the life cycle:

- Materials manufacturing and plant construction
- Operations and maintenance
- Dismantling, decommissioning, disposal and recycling.

The analysis of combustion technologies includes analyzing the fuel cycle as well.

A life cycle assessment is a well-recognized method to quantify emissions from all generation resource types, including renewables.

Reed explained that after the IRP modeling is completed, portfolio results will be consolidated into a spreadsheet model. The model will use emission factors from NREL to determine GHG emissions by year for each life cycle phase. Carbon dioxide, nitrous oxide and methane will be studied, and the analysis will provide an associated social cost for each of them.

NREL has extensive experience with GHG life cycle analysis. Its support related to TVA's IRP will include reviewing TVA's GHG life cycle analysis spreadsheet model to check parameter values and calculations; independently calculating life cycle GHG for IRP portfolio(s); and independently publishing the method and model.