

Life Cycle Assessment of the Barakah Nuclear Energy Plant: Nuclear Contribution to UAE Net-Zero Goal

Tuesday, 4 November 2025 13:45 (15 minutes)

The global pursuit of net-zero carbon emissions by 2050 necessitates a comprehensive transition to low-carbon energy sources. To achieve this target, a rapid and extensive transition in energy supply is necessary, leveraging all available technologies. Alongside renewable energies such as solar and wind, nuclear energy is considered an important element in reducing carbon emissions.

We present a detailed Life Cycle Assessment (LCA) of the Barakah Nuclear Energy Plant in the United Arab Emirates (UAE), benefiting from the unique opportunity to utilize detailed input data collected during the construction and operation phase of the newly deployed plant in the Middle East and North Africa (MENA). The LCA study demonstrates the low carbon emission of nuclear energy and confirms the success and important role of the UAE's nuclear program in achieving the net-zero goal.

Technical Track

Fuel Cycle and Waste Management

Primary authors: Prof. FOULON, Francois (Khalifa University); CAMMI, Antonio (Khalifa University); ALR-WASHDEH, Mohammad (Khalifa University of Science and Technology); Mrs ALZAABI, Mariam Manea (Khalifa University); Dr ALKHATIB, Ismail Issa (Khalifa University); ADDAD, Yacine (Khalifa University); Dr ACQUAYE, Adolf (Khalifa University)

Session Classification: Fuel Cycle and Waste Management