
First ANEEL thorium-based advanced nuclear fuel pellets manufactured

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US-based Clean Core Thorium Energy said the first fuel pellets of its proprietary thorium-based nuclear fuel called Advanced Nuclear Energy for Enriched Life (ANEEL) have been manufactured by Texas A&M Engineering Experiment Station's Nuclear Engineering and

Science Center in partnership with the US Department of Energy's Idaho National Laboratory (INL).

Clean Core's ANEEL fuel technology uses a combination of thorium and high assay low-enriched uranium (HALEU) for a much-improved fuel performance in CANDU reactors and in other pressurised heavy-water reactor (PHWR) designs. It is a [proliferation-resistant advanced nuclear fuel](#) that enables reactors to operate more economically while significantly minimising waste and proliferation risk.

ANEEL can also be optimised for use in PWRs, BWRs, HTGRs and related SMRs, a statement said.

"The successful production of ANEEL advanced nuclear fuel pellets brings us a step closer to our goal of providing a clean energy solution that can benefit people around the world. We applaud Texas A&M University and INL for successfully fabricating these innovative advanced nuclear fuel samples. Our ANEEL advanced fuel technology employs an innovative design using thorium and HALEU to provide better performance from nuclear power plants," said Mehul Shah, CEO of Clean Core Thorium Energy.

"It is one thing to talk about designing an advanced nuclear fuel; it is another level of accomplishment to announce its fabrication. Our team

here at the Fuel Cycle and Materials Laboratory at Texas A&M has worked extensively to develop ANEEL fuel pellets, and we are thrilled to have established a fabrication process to blend HALEU and thorium oxide successfully. This is the first of its kind nuclear fuel, in that it combines HALEU and thorium in proprietary unique compositions that can drive a global clean energy future,” said Dr. Sean McDeavitt, director of the Nuclear Engineering and Science Center and professor in the Department of Nuclear Engineering at Texas A&M University.

Texas A&M is fabricating the ANEEL fuel pellets for accelerated irradiation testing and qualification at INL’s Advanced Test Reactor starting in 2022. Clean Core is pursuing this testing and qualification as part of its pathway towards commercialisation of its advanced nuclear fuel technology by late 2024.

Photo: ANEEL advanced nuclear fuel pellets produced by Texas A&M University. Source: Clean Core Thorium Energy

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