

## Power & Operations

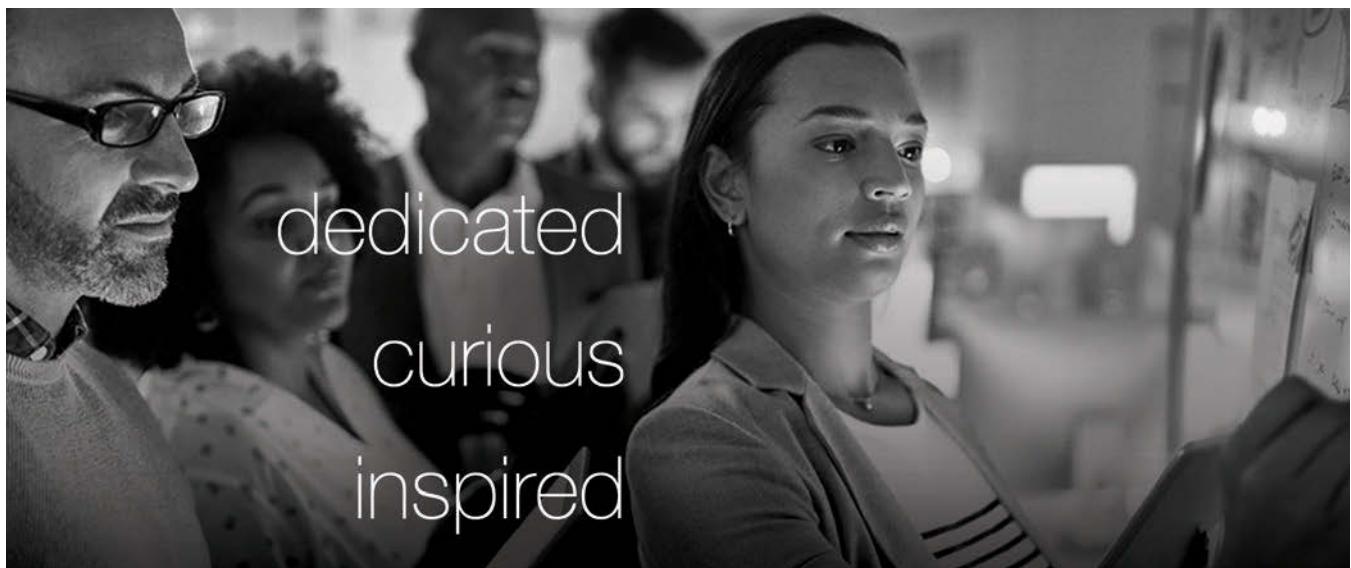
first-of-a-kind advanced reactor designs within five to seven years. TerraPower would like one of those designs to be Natrium, the 345-MWe sodium fast reactor it has developed with GE Hitachi Nuclear Energy.

HALEU, enriched to between 5 and 19.75 percent fissile uranium-235, occupies a middle ground between low-enriched uranium (enriched up to 5 percent U-235 and used in the U.S. power reactor fleet today) and highly enriched uranium (enriched above 20 percent U-235). While HALEU is not yet commercially available, several advanced reactor developers have created designs that would use the fuel, which, thanks to its increased U-235 content, holds potential for improved reactor economics and fuel efficiency. HALEU can be fabricated into different fuel forms, including TRISO fuel particles and solid metallic fuel, such as that proposed for TerraPower's Natrium.

The ARDP requires applicants to "establish a

plan by which they would obtain the fuel/special nuclear material needed for their projects." TerraPower's application proposes that, if selected for the ARDP, the company would work with Centrus to build commercial-scale capacity to produce HALEU and fabricate it into metal fuel assemblies. During the first year of the proposed collaboration, TerraPower and Centrus would initiate facility design and licensing and produce detailed plans and cost estimates. Specific terms of the agreement have not been disclosed.

In addition to creating HALEU production capacity, TerraPower and its partners plan to establish a new Category II metal fuel fabrication facility scaled to meet the needs of the Natrium demonstration program and equipped to produce lead test assemblies for the demonstration. Category II fuel fabrication facilities are authorized by the Nuclear Regulatory Commission to handle uranium at enrichments of 19.75 percent or less, and there are currently no Category II



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