

First of its kind emissions-free natural gas power plant undergoes first fire

1 June 2018, by Bob Yirka



NET Power's 50 MWth Demonstration Plant in La Porte, Texas

Officials with NET Power, LLC recently reported the first successful firing of the combustor for a new kind of natural gas-based power plant free of carbon emissions, without having to use carbon capture technology.

The new plant, based in La Porte Texas, is a demonstration and test facility to test a new way to make electricity—they call it Allam Cycle technology after Rodney Allam, the inventor of the design. Doing so, engineers report, involves employing a seven-stage process that results in the production of electricity and emission of liquid water. Also, a small amount of CO₂ is collected in a form that can be used for other applications such as [natural gas](#) extraction.

The seven-stage process starts with a device that pulls oxygen from the air which it sends to a combustor. In the combustor, natural gas is combined with oxygen and heated with [supercritical carbon dioxide](#). The hot CO₂ is then used with water to drive an unusually small turbine that produces electricity. At the same time, a heat exchanger pulls energy from the hot exhaust emitted by the turbine and sends it to a device that

uses it to heat CO₂ later in the process. The next step involves allowing the CO₂ to cool and then compressing it. Then, approximately 5 percent of the CO₂ is siphoned away and stored in a sellable form. The final step makes use of the energy from step four to heat the CO₂ before it is returned to the combustor.

NET Power officials also claim that new power [plants](#) based on technology displayed in La Porte will not cost any more to build or run than traditional natural gas burning plants. The next step in the development of the new technology will involve extensive testing surrounding the first fire. Once that has been completed, the team will integrate the [combustor](#) with the turbine and start producing electricity.

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