



## Supercritical Reforming Of Fuels, Without Separate Water Supply, For Internal Combustion Engines

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### The Invention

An engine/reformer system accepts a first fuel and reforms it into syngas for use as a fuel in an accompanying internal combustion engine. Prior to reforming, the first fuel is pressurized and/or heated to at or near supercritical fluid conditions, such that the resulting syngas leaves the reformer in a supercritical fluid state. Injection of the supercritical syngas into an engine cylinder avoids the autoignition problems that occur when gaseous syngas is used. The first fuel is a fully self-reforming fuel (one that needs no separate water supply for complete conversion to syngas), and can beneficially be a "wet" fuel, such as ethanol containing water, allowing the system to use intermediate products of an ethanol production process (such as hydrous ethanol and stillage wastewater) as fuel, and reducing the overall cost of fuel production and engine operation.

### Additional Information

#### For More Information About the Inventors

- [Sage Kokjohn](#)

#### Tech Fields

- [Engineering : Engine technologies](#)

For current licensing status, please contact Michael Carey at [mcarey@warf.org](mailto:mcarey@warf.org) or 608-960-9867