ENER-CORE

CASE STUDY: PHASE 1 PILOT

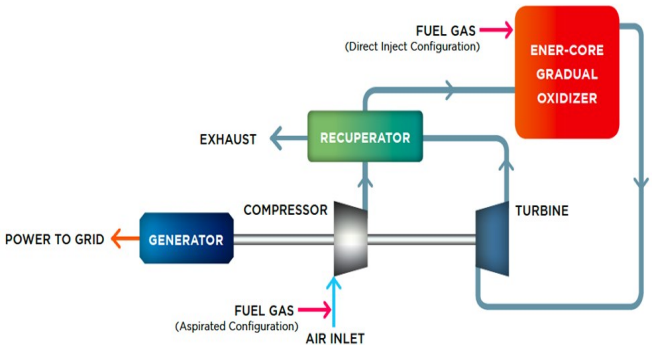
DESCRIPTION

Ener-Core simulated a low energy gas (50-70 Btu/scf) produced during a proprietary drilling process at the request of a large oil and gas customer. The pilot was conducted at Ener-Core's Test Facility, located at the University of California, Irvine. This demonstration was the first phase of the customers FP250 installation process.

Ener-Core's Test Facility

ENER-CORE TECHNOLOGY

Ener-Core's oxidizer technology is developed to convert typically non-utilizable low energy gas into continuous clean energy (<1 ppm NO_X). Integrating Ener-Core's oxidizer technology with a gas turbine allows waste gases to be used as a source of clean electrical power and heat energy. See Power Cycle figure (right).



Power Cycle

Test Summary Table

	1st Condition	2nd Condition
GAS COMPOSITION /TEST DETAILS		
Methane (CH_4)	7.75%	5.80%
Nitrogen (N_2)	84.20%	91.15%
Carbon Dioxide (CO_2)	8.00%	3.00%
LHV (Btu/scf)	71	53
Steady run time (hr)	5.5	3
EXHAUST DETAILS		
Methane (CH_4)	140 ppm	150 ppm
Nitrogen (N_2)	78.7%	81.2%
Carbon Dioxide (CO_2)	3.2%	2.5%
Water (H_20)	3.2%	2.5%
Carbone Monoxide (CO)	37 ppm	34 ppm
Oxides of Nitrogen (NO_X)	<1 ppm	<1 ppm
Oxygen (O_2)	14.0%	13.2%

TESTING/EMISSIONS SUMMARY

To simulate the low-Btu fuel, a portion of the turbine inlet air volume was displaced by CO_2 and N_2. Steady system operation based on internal oxidizer temperatures, emissions and exit temperature was observed throughout the test. The University of California, Irvine independently verified the heating value of the fuel as well as emissions readings. See the Test Summary Table (left) for more details.

RESULTS/CONCLUSION

The Phase 1 Pilot was successful in showing that the Ener-Core Oxidizer system is capable of producing electrical power on ultra-low Btu fuels while maintaining its low NO_X emissions profile and high hydrocarbon conversion rate. The successful results were used for the customer's environmental review with regulators, and enabled the customer to move forward with the installation of Ener-Core's FP250 Powerstation on-site.

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