ARPA-E NATURAL GAS WORKSHOPS
APRIL 22-24, 2013
ROCKY MOUNTAIN INNOSPHERE
FORT COLLINS, CO

Day 0 – Field Trip to Natural Gas Production Facilities - Monday, April 22nd, 2013	
Time	**Event**
8:30 am	Gather at Fort Collins Hilton (425 West Prospect Road) for departure
9:00 am	Depart for Encana (USA) Longmont Office
10:00 am	Arrive at Encana; Welcome & Introductions
11:00 am	Depart for Production Facility #1
12:00 pm	Return to Encana/Lunch and Q&A
12:45 pm	Depart for Production Facility #2 and drive-by tour of active drilling operations
3:00 pm	Return to Encana Longmont Office for final Q&A
3:45 pm	Return to Hilton Fort Collins

Day 1 - Methane Detection - Tuesday, April 23rd, 2013	
Time	**Event**
7:30 - 8:00	Registration & Breakfast
8:00 - 8:15	**Welcome & Introduction to ARPA-E** *Eric Rohlfing, ARPA-E*
8:15 - 8:35	**ARPA-E Vision for METHANE Program: Motivations, Objectives & Structure** *Bryan Willson, ARPA-E*
8:35 – 10:35	**Participant 10 min Presentations** • Phil LaRochelle – Results from ARPA-E SNIFFER Workshop • David Allen, Environmental Defense Fund – EDF Study Findings • Radislav Potrailo, General Electric - Microsensors • Marina Kalyuzhnaya, University of Washington – Biological sensing • John Bruno, Thor Labs - Laser technology/Optical Spectroscopy • Eric Von Giesson, Defense Threat Reduction Agency - Unmanned aerial vehicles for sensing • Chip Miller, NASA JPL – Satellite based sensing • Bill Calahan, Earth Networks – Data fusion and analytics
10:35 – 10:50	**Break**
10:50 – 13:00	**Breakout 1: Enabling Components** *Room A: Low cost, massively deployable single point sensors* *Room B: Medium cost, high accuracy sensors; remote sensing* *Room C: Commercial structures; Data fusion and analytics*
13:00 - 13:45	Lunch
13:45-14:15	**Breakout 1 Report Out**
14:15 - 15:45	**Breakout 2: System Approaches** *Three parallel breakouts exploring sensing systems & commercialization models*
15:45 - 16:00	Break
16:00 - 16:45	**Breakout 2 Report Out**
16.45 - 17:00	Wrap up
17:00 - 19:00	Reception & Informal Networking

Day 2 - Methane Mitigation - Wednesday, April 24th, 2013	
Time	**Event**
9:00 - 9:30	Registration & Breakfast
9:30 - 9:45	**Welcome & Introduction to ARPA-E** *Eric Rohlfing, ARPA-E*
9:45 - 10:05	**ARPA-E Vision for METHANE Program: Motivations, Objectives & Structure** *Bryan Willson, ARPA-E*
10:05 – 11:35	**Participant Presentations** • Jack Lewnard, Gas Technology Institute - Small scale power, fuel cells • Uttam Ghoshal, Sheetak - Small scale power, thermoelectrics • Zoran Filipi, Clemson University – Small, high reliability engines • Jim McCoy, Hoerbiger – Modern flares • Jeremy Semrau, University of Michigan –Low temperature biological oxidation • Pat McGrath, Booz Allen Hamilton – Low temperature catalytic oxidation • Owen Zinaman, NREL - Operating well sites as a grid supplement
11:35 – 11:50	**Break**
11:50 – 13:30	**Breakout 1: Enabling Components** *Room A: Reliable solid state <3kW onsite power; Well-pad microgrids* *Room B: Alternative solutions to flaring and venting; Liquids unloading* *Room C: Low temperature oxidation*
13:30 - 14:15	Lunch
14:15 - 14:45	**Breakout 1 Report Out**
14:45 - 16:15	**Breakout 2: Natural Gas System of the Future** *Three parallel breakouts exploring Natural Gas system redesigns*
16:15 - 16:30	Break
16:30 - 17:15	**Breakout 2 Report Out**
17.15 - 17:30	Wrap up