

Reducing Methane Emissions and Improving Profits in Upstream Oil and Gas,
James E. Rice, ICF International, 33 Hayden Ave., Lexington, MA 02421,
jrjce@icfi.com; and Donald Robinson, ICF International, 9300 Lee Highway, Fairfax VA
22031, drobinson@icfi.com

The Natural Gas STAR program, introduced by U.S. EPA in 1993, is a voluntary partnership that encourages member companies to adopt cost-effective technologies and practices that improve operational efficiency and reduce emissions of methane. Best management practices in production, gathering, and processing, and transmission and distribution are shared with member companies through technology transfer workshops and case studies. Within the production sector, studies have identified specific reservoir factors and common well operating practices that lead to excessive methane emissions, and Gas STAR partners are reducing those emissions cost-effectively. This presentation discusses several such technologies, including hydraulic fracturing tight formations and the excessive gas venting or flaring during flow-back where Gas STAR partners are employing “green completions” or “reduced emissions completions” to maximize gas recovery and sales during flow-back. The problem of downhole liquid loading suppressing gas production in mature fields was addressed by Gas STAR partners by employing “smart automation well venting” in conjunction with “plunger lifts” to minimize well venting to the atmosphere to expel liquids. The Gas STAR partners have identified several other wellhead practices that have economic alternatives to gas venting now that the price of natural gas is much higher than recent past, including vapor recovery of casinghead gas, aerial optical leak imaging of remote wells and flowlines, and solar powered pumps in remote, non-electrified locations.