

IPTC 12336

Managing Greenhouse Gas Emissions in Upstream Operations in a Carbon-Constrained World

Ajay Mehta, SPE, Sajali Hj-Kip, James Foo, SPE, Shell Exploration and Production, Asia-Pacific, Malaysia

Copyright 2008, International Petroleum Technology Conference

This paper was prepared for presentation at the International Petroleum Technology Conference held in Kuala Lumpur, Malaysia, 3–5 December 2008.

This paper was selected for presentation by an IPTC Programme Committee following review of information contained in an abstract submitted by the author(s). Contents of the paper, as presented, have not been reviewed by the International Petroleum Technology Conference and are subject to correction by the author(s). The material, as presented, does not necessarily reflect any position of the International Petroleum Technology Conference, its officers, or members. Papers presented at IPTC are subject to publication review by Sponsor Society Committees of IPTC. Electronic reproduction, distribution, or storage of any part of this paper for commercial purposes without the written consent of the International Petroleum Technology Conference is prohibited. Permission to reproduce in print is restricted to an abstract of not more than 300 words; illustrations may not be copied. The abstract must contain conspicuous acknowledgment of where and by whom the paper was presented. Write Librarian, IPTC, P.O. Box 833836, Richardson, TX 75083-3836, U.S.A., fax +1-972-952-9435.

Abstract

Society today faces a formidable energy challenge: to meet the ever-increasing demands for more energy, protect against energy supply disruptions and reduce energy's environmental and social impacts. Shell has long recognized the trilemma of providing for cheap, convenient and clean energy and has taken a proactive approach towards managing its greenhouse gas emissions and carbon footprint. In this paper, we discuss how we have addressed the challenge to manage greenhouse gas emissions from Shell's Exploration and Production operations in the Asia-Pacific region to prepare for a carbon-constrained future. We also discuss some of the actions we have taken to support our corporate voluntary target of reducing greenhouse gas emissions in 2010 by at least 5% below 1990 levels, even while continuing to grow the business. These actions include:

- End continuous gas flaring and minimize gas venting from existing operations
- Improve energy efficiency in the design of our assets and in our production operations
- Include the future cost of emitting greenhouse gases into business investment decisions
- Advocate the role of governments to develop a globally applicable CO₂ policy framework
- Support opportunities for capacity-building in carbon capture and sequestration (CCS)

In tandem, at the Shell Group level, we continue to invest and nurture development of alternative clean and renewable fuel options such as solar and biofuels so that they mature as viable alternatives in the fuel-mix portfolio to meet world energy needs. We conclude with a summary of our journey forward to further mitigate greenhouse gas emissions from our operations in the region while continuing to maintain our position as a responsible energy producer capable of delivering profitable, socially responsible, and sustainable growth in a carbon-constrained future.

Introduction

Global demand for energy is growing rapidly, both in the developed and developing world. This step-change in energy use will mean a greater demand for conventional hydrocarbons. Supplies of conventional hydrocarbons however cannot keep up with the projected growth in energy demand. As a result, all sources of energy – including renewables like solar, wind, biofuels and unconventional fossil fuels like oil sands, oil shale and tight gas will have to be added to the mix of conventional oil and gas energy resources. An acceleration of economic development fueled by higher energy demand, also places additional demands on society to responsibly manage its environmental footprint. This is especially critical at a time when climate change looms as a critical global issue with the need to provide more energy, but with less CO₂. The consensus societal imperative is to limit greenhouse gases in the atmosphere to less than 550 ppm (as per the International Panel on Climate Change (IPCC's) Fourth Assessment Report) and this in turn will require strict management of CO₂ emissions from both the production of energy and its use by consumers. These three hard truths – increased energy demand, decreased sources of supply, and reduced CO₂ levels, pose several difficult dilemmas that will require reconciliation through the combined efforts of governments, industry and consumers.

Our role as an energy company is to develop, extract and deliver energy from diverse sources. We are committed to doing so profitably and in a socially and environmentally responsible way across a broad portfolio of conventional and unconventional projects. Within Shell, we have set an aggressive, voluntary target to reduce CO₂ emissions from our operations in 2010 to at least 5% below the 1990 level, even as we continue to grow our business. A large part of this reduction will have to come from reducing flaring from our existing operations and improving our energy efficiency. At the present time, nearly all the