

*Developing North America's Unconventional Oil Resources: Focus on Tight Oil*

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On December 7, 2011 the CSIS Energy and National Security Program hosted a group of experts to discuss the resource and production potential of tight oil in the US and the local and regional challenges that must be addressed to ensure responsible development.

As a consequence of access, technology and higher prices, the resource development picture in North America has been undergoing remarkable changes. The shale gas “revolution” has been widely publicized, but Canada and the United States also possess several world-class oil basins, including significant areas of prospective new growth in the Bakken, Eagle Ford, Niobrara and elsewhere. The staggering growth in production from the Bakken has catapulted North Dakota into the top tier of oil producing states in the lower 48 and the promise of additional Bakken –like structures paint a far rosier picture for US output going forward. Of course, realization of this vision requires the prudent and environmentally responsible development of these enormous resources and also requires the installation of scalable infrastructure, thoughtful policies, effective regulation and management of the attendant “above ground” issues. At the CSIS *Developing North America's Unconventional Oil Resources: Focus on Tight Oil* panel, five experts discussed these details, each from a different perspective.

Andrew Slaughter, Business Environment Advisor-Upstream Americas, Shell Exploration and Production Company, discussed the resource and production outlook, focusing specifically on the carbon supply future, ranges of economic expectations, and the environmental management and security of tight oil. Slaughter stressed that tight oil's tremendous growth potential and future access to oil resources over the next 15 years and in the future depends on responsible development and practices.

Jim Sorensen, Senior Research Manager at the Energy & Environmental Research Center and author of the National Petroleum Council White Paper on Tight Oil discussed at great lengths the magnitude of recoverable tight oil resources. Sorensen noted that in 2012, oil production in the Williston basin will be over 500,000 bpd and over 100,000 bpd in the Eagle Ford. Looking out to 2020, North American tight oil production could top 2,000,000 bpd. Sorensen also stressed the sustainability of tight oil—which is a function of access and technological improvements in enhanced oil recovery processes. Sorensen noted two specific ways to mitigate environmental damage that can result from the extraction of tight oil: first, develop and apply a frac fluid recycling program in the United States, and second, utilize flare gas both on and off-site. According to Sorensen, there are legitimate political and social issues that the American public is concerned about and addressing the environmental issues is the first step towards a national solution. The “North Dakota” example is a good model for other basins as it provided economic incentive to improve the tight oil extraction processes and garner public support.

Ben Montalbano, Senior Research Analyst at the Energy Policy Research Foundation, Inc. discussed several of the issues associated with Infrastructure and Transportation in tight oil plays. Montalbano discussed at great length the affect transportation has had on States. First, the lack of transportation has resulted in higher prices for the transport of energy, despite discounts of crude in some states, such as North Dakota. Secondly, pipelines, refineries, trucks and rail roads have created increased traffic or

construction in many states, to the extent that in some cases the result has been increased negative public opinion. Finally, without infrastructure to transport gas, much of the excess gas is flared rather than sold for profit. Avoidance of this lost value requires coordination of infrastructure development and processing capacity, which is currently pending approval in many areas of the United States.

Daryl Dukart, Dunn County Commissioner in Dunn County, North Dakota, discussed the impact that tight oil exploration has had in his community. Dukart relayed his own experiences and presented both statistical and visible changes that have occurred in Dunn County as the tight oil industry has grown over the last 5 years. For the most part, all aspects of the community and government have grown. For example, housing is limited, businesses are stressed (both with a high influx of customers and a low number of adequately skilled employees), and the government is facing limited funds and an increasingly stressed Emergency Medical Service. Even the Dunn County Records Office collections have increased dramatically—by 340% in three years. According to Dukart, however, the main problem is lack of infrastructure development—Dunn County is roughly 2 years behind in developing the necessary infrastructure to support tight oil exploration in the region.

Danny Brown, General Manager of the Maverick Basin, Anadarko Petroleum Corporation, spoke about development beyond the Bakken, especially in the Eagle Ford. Brown began by stating the importance of both the Eagle Ford and the Bakken—both are economically viable and are liquid rich, unlike many other shale plays. However, development of both requires a tremendous rig count and will take quite some time to develop; the Eagle Ford alone will take 16 years to fully develop. Increased time to drill laterally, more capital investment, and longer production times will all need to be taken into account when drilling in either the Bakken or the Eagle Ford. However, Brown reiterated, carried out safely, responsibly, and prudently, the economic benefits of developing both shale plays will be felt throughout the United States.

The realization of large shale gas and tight oil potential in the United States is a positive development for both the energy industry and U.S. consumers. Continued development of best practices and industry standards will go a long way in the emerging tight oil industry, as will community development of infrastructure and company and government involvement in social and societal perceptions of this emerging energy industry.