

Addressing the scale and complexity of the global energy challenge.



RE-EVALUATING THE HUBBERT CURVE AND THE GLOBAL PETROLEUM REVOLUTION: A NEW ERA

Department of Geological Sciences Colloquium

Thomas Ahlbrandt, Ahlbrandt Consulting, Conifer, Colorado

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Summary:

Why have the predicted global oil and natural gas shortages and demise of civilization by 2010 related to these vanishing supplies not occurred? The static view has created a pessimistic outlook based on historical perspective such as the Hubbert curve analysis which results in the inescapable and inevitable depletion that will result in catastrophic consequences for civilization. A new paradigm, a dynamic or petroleum system view demonstrates a different and more optimistic hydrocarbon scenario. Evidence for this new view was initially demonstrated for natural gas. Natural gas was thought to be in critical shortage a decade ago, but is now plentiful in the U.S. and globally so much so that gas prices are falling and the debate currently centers around a 100 or 200 year supply? This can be explained by a global revolution in petroleum and engineering sciences to explain a new paradigm which has completely altered how and where we find and develop petroleum. Most hydrocarbons (75% or more) have remained in the source rock (where thermally mature), yet developing them relies on new technologies not available until the last decade. The conventional (or static) approach to exploration is rapidly changing to the dynamic (petroleum system) approach, and this transformation is the most profound shift in the petroleum business in a century. Molecular level studies of petroleum now abound requiring wholly new techniques and evaluation parameters to determine economic viability. This in turn requires new research and educational pathways, and conversely some geosciences research areas will likely atrophy in the light of a new set of paradigms. This revolution has now extended to unconventional (also called resource) plays which are economically preferable to natural gas resource plays in the current market. The significance of an oil resource play is the Devonian Bakken play in the Williston Basin which has catapulted the basin from the 98th ranked oil province in the world to the 13th in the last five years. Are we really in the sunset of the petroleum age or a new era?

Thomas Ahlbrandt, Ph.D.

Thomas Ahlbrandt formed a consulting group specializing in conventional and unconventional resources globally. Previously he was the Vice President of Exploration for Falcon Oil and Gas in Denver, Colorado, where he managed unconventional oil and natural gas exploration in Hungary (Mako Trough), Australia (Beetaloo Basin), and South Africa (Karoo Basin). He previously served as CEO and Chairman of the Board at PetroHunter Energy Corporation. He was the World Energy Project Chief for the U.S. Geological Survey (USGS) in Denver, where he managed a group of 41 employees and led the recent USGS World Petroleum Assessment 2000. The USGS World Petroleum Assessment is the first of its kind to provide a rigorous geologic foundation for estimating undiscovered energy resources for the world. In addition to his 22 years of service with the USGS, Dr. Ahlbrandt has 22 years of industry experience in exploration and research with ExxonMobil, BPAmoco, Amerada Hess and several independents including MRO Associates and was a founding partner of Petrostrat Exploration. He received his B.A. (1969) and Ph.D (1973) in geology at the University of Wyoming.

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