

**V-Chmn Zhnag, VP Su, VP Zhang, VP Liu, VP Han, my good friend, VP Lin, Deputy Secretary Sell, Deputy Sec Sampson, Mayor**

**Distinguished guests, ladies and gentlemen. It is a distinct privilege to be here today to discuss coalbed methane and particularly the bright prospects for coalbed methane development in the PRC. Our two nations appear certain to be the leading powers of the world in the 21<sup>st</sup> century, and with the unparalleled growth of PetroChina, Sinopec, and CNOOC - and given the massive energy consumption required to fuel China's racing economy, it appears equally clear that our two nations and our leading energy companies will lead the world in both energy consumption and in energy production for years to come.**

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**Perhaps the most intriguing new weapon in China's struggle to produce more energy to meet its enormous energy appetite while seeking at the same time to improve its environment is coalbed methane. ----- WHY? ----- Because**

- (A) it represents a tremendous domestic energy resource estimated at 31.46 trillion cubic meters (about 1100 Tcf) of gas.**
- (B) It burns substantially cleaner than coal, the current mainstay of Chinese power production and fuel supply, and**
- (C) Actually accomplishes a net reduction in the emission of methane into the atmosphere by capturing methane that would otherwise be vented in mining operations.**

**Furthermore, producing CBM in advance of mining ops can also save many of the lives that are lost each year in methane explosions in China's mines.**

**Add to this the fact that the bulk of China's CBM is located in basins in relatively close proximity to its major cities and industries and you can see why CBM may well be the silver bullet in China's quest for more energy and cleaner energy.**

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**Of late, CBM has played a significant role in US domestic energy supply. From an almost nonexistent role as recently as the early 90s, coalbed methane has emerged to represent about 10% of total US natural gas reserves and perhaps as much as 10% of total annual gas production. This can unquestionably be accomplished in China.**

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**This slide shows most of the major US CBM Basins. A correction – actually total CBM resources in the US are estimated at between 11.3 and 19 trillion cubic meters (about 400 Tcf to 670 Tcf of gas).**

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### **Comparison of USA and Chinese CBM Basins**

**Perhaps with regard to pipelines it would be more accurate to say that China is rapidly developing pipeline infrastructure, but much more must be in place in order to create a robust gas market.**

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**There are many similarities between China and its CBM industry today, and United States coalbed methane in the late 1980s and early 90s. In China, demand for all forms of energy outstrips supply – while in the US in the 80s and 90s demand for gas was growing while the discovery rate of domestic oil and gas was declining due to maturity of our resource base. And, of course the discovery rate of conventional gas in China, while impressive, has been disappointing in comparison to early projections. Thus, as it did in the US in the 80s, for China now, its enormous CBM resource represents a very**

**compelling target. In the US, the availability of Section 29 tax credits drove the incipient technology that made CBM what it is today. Of course, the US had a highly developed, very extensive pipeline network with open access, something that is being rapidly built in China, but which will take many years to reach the US level. And then China has a couple of drivers for CBM development that were not significant factors in US CBM development – namely coal mine safety and strong environmental concerns. On the other hand, two of the primary elements that helped get CBM off the ground in the US have not yet been clearly adopted in China. China has not yet fully developed and codified into law and regulation a menu of government granted incentives to jumpstart Coalbed methane exploration and production, and the pricing mechanism for CBM – a critical element for capital investment - is not clearly established.**

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## **CBM OBSTACLES IN CHINA**

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**What can be done to breakthrough?**

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**Why underbalanced UMH?**

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In 1995 Amoco pioneered a method to overcome low permeability in the Mesaverde formation in the San Juan basin by intersecting an existing vertical well with a horizontal well. This method allowed a vertical well to help unload fluid during production while providing a high conductivity conduit for the gas to the wellbore. In the Arkoma and the other areas in the US this technology is being employed effectively to turn marginal producers into highly profitable economic ventures. It is becoming routine to drill over 10,000 feet of laterals into the coal seams.

In China, the low permeability coal seams make the application of this technology a must to allow the wells to be produced economically. We know the gas is there, the permeability has been confirmed albeit low and the technology is available. This has now become a problem of how to lower the cost of the technology and drill enough laterals in the coal seam to achieve the production rate necessary to achieve the high rates of returns desired by the investing community.

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**Horizontal vs vertical**

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**This slide would be better entitled “Requirements for Maximizing CBM potential in the near term”**

**There are 2 prerequisites for successful production and marketing of gas in China – or for that matter almost**

**anywhere in the world – namely a means to get the gas to market and a pricing regime that is stable and prices gas in such a way as to provide producers an adequate incentive to produce and consumers a viable economic choice (in other words, market pricing). Based on the history of the industry in the US, in order for the PRC to develop a viable gas market and to produce and market its onshore gas and coalbed methane, China should continue to expand its pipeline infrastructure with both national and provincial initiatives, and – it is absolutely critical that there be open access to the pipelines, both national and provincial. In terms of pricing, government established prices do not satisfy the need for long-term commitment that producers and consumers need to explore for, produce and purchase gas – and to invest in the infrastructure that is required to really create a viable gas industry. So, market based pricing is crucial. Pricing incentives or two tiered pricing would be very helpful. For example, internalizing the environmental costs of coal into its**

**price would significantly improve the competitiveness of gas.**

**Gas can replace coal to reduce pollution in the most severely polluted cities.**

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***READ FIRST TWO BULLETS***

***Then read 3<sup>rd</sup> and say: "... in the form of Sec 29 tax credits this was certainly a key in the US and enactment of the proposals to limit the VAT tax to 5% for CBM and to levy no corporate income tax on the first 2 years of production, to cut the corporate income tax in half in years 3 -5 of production and to extend that 50% reduction to a full 15 years in the Western development region would have similar impacts to those of Sec 29 in the US.***

**And again, I close by saying that perhaps the greatest lessons learned in the 70 some odd year history of the US gas industry are that it is essential to create certainty in pricing and in**

**transportation ---preferably by market pricing and open access  
to pipelines at reasonable tariffs.**

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