

**WORLD ENERGY COUNCIL**

**Future Energy Leaders Program**

**“Sustainable Petroleum to Meet Global Demand”**

**Dr. Randall Gossen  
President, World Petroleum Council**

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## Speaking Notes

- The topic for this session, “Sustainable petroleum to meet global demand” requires some explanation, particularly the word “sustainable”.
- Obviously sustainability in this context does not mean “forever”.
- Rather, I believe sustainability is more appropriately defined in the context of the petroleum industry as an approach to doing business.
- So this is the definition that I subscribe to:
  - “linking business decision-making to ethical value, legal compliance and respect for people, communities and the environment and at the same time, meet shareholders expectations”
- Furthermore, I believe that sustainability is basically synonymous with corporate social responsibility as they both involve balancing economic, environmental and social considerations into our decision-making.
- The main driver of CSR resides in the corner office as it receives a commitment from the top and involves weaving CSR into the fabric of corporate culture.
- It is not a “flavour of the month” nor is it a public relations exercise. Neither is it rocket science.
- “A good company delivers excellent products and services and a great company does all that and strives to make the world a better place” a quote borrowed from the Chairman of the Ford Motor Co., William Ford Jr.
- So how does this link back to the topic?
- I would like to begin to answer this question with a look at the energy mix required to meet the world primary energy demand as projected by the IEA (2009 World Energy Outlook).

## Slide 1

- Highlights of this chart include the following observations:
  - World primary energy demand is projected to increase by 1.5% pa between 2007 and 2030.
  - Fossil fuels remain dominant source of primary energy worldwide accounting for more than  $\frac{3}{4}$  of the overall increase in energy use between 2007 and 2030.
  - Coal sees by far the biggest increase in demand over the projection period followed by gas and oil.
  - Oil remains the single largest fuel and is projected to grow 1% pa from 85 M bpd in 2008 to 105 M bpd in 2030.
  - All growth comes from non-OECD countries with the transportation sector accounting for 97% of the increase in oil use.
  - The main driver for coal and gas is the growth in need for power generation.
  - The use of non-hydro renewable energy technologies (wind, solar, geothermal, tide and wave energy and bio-energy) will generate the fastest rate of increase.
  - Most of the increase is in power generation.
  - The consumption of biofuels for transport also rises strongly.
- This demand forecast represents a significant challenge for the entire energy sector.
- So how will the petroleum industry respond?

- The role of the petroleum industry in society is to provide an affordable, reliable, sustainable, environmentally sound and socially responsible supply of our products for all consumers.
- The global petroleum industry faces many challenges of a technical, economic, geo-political, environmental and social nature: for example, changing patterns of supply and demand, investment decision making during troubled economic times, access to acreage, exploring new frontiers, non-conventional oil and gas, gaining a social licence to operate, climate change and water to name a few.
- My fellow panelists will/have addressed many of these challenges.
- I will focus on describing what I view as the key drivers that will provide the supply to meet future demand.
- These drivers are:
  - Investment
  - Innovation
  - Cooperation

## Slide 2

- First, investment in new infrastructure.
  - Economic growth and liberalization of markets throughout the world have spurred significant demand for oil and gas over the last decade. In the past 2 years, however, the global financial crisis has resulted in a steep worldwide recession which, along with volatile energy prices, has significantly impacted the oil and gas sector.
  - The effect has not been the same on all companies. Particularly small and mid market capitalization companies have been hurt by the reduced availability of capital and tougher credit terms that have followed the world financial crisis. Although the recession

has resulted in a slowing down in oil and gas activity, the long terms fundamentals of the sector remain positive and well capitalized, progressive companies now have the opportunity to position themselves to benefit from future growth.

- The global economic meltdown has resulted in a major cutback in investing, particularly in mega projects in the industry. The International Energy Agency (IEA) estimates global demand for oil to rise by 1% per year on average, from 85 million barrels per day in 2007 to 106 mb/d in 2030. 80% of all energy comes from fossil fuels and that level is not expected to change very much by 2030. Much of this increase in supply will be coming from unconventional oil and gas which will require higher sustained prices (e.g. for Nexen's Long Lake oil sands project break-even costs are \$80 a barrel).
- These trends call for energy related infrastructure investment of \$26.3 trillion to 2030, which equals just over \$1 trillion/year. About half of that will be required by the oil and gas sector. According to the IEA, 64 mb/d of gross capacity needs to be installed between 2007 and 2030 – six times the current capacity of Saudi Arabia – to meet demand growth and offset decline. In the current economic downturn it is uncertain that these levels of investment will be met. Those that are cash rich and have access to credit will be able to pursue new opportunities but it will be difficult to sustain that level of investment in the near term. So as a potential outcome when we emerge from the economic crisis there could be major supply shortages.

### Slide 3

- Second, technological innovation
  - Conventional reserves of oil and gas that are easy to access and inexpensive to produce are largely gone.
  - Accordingly industry is exploring in ever more challenging new frontiers where large oil and gas discoveries are being made. The development of such new discoveries will require deployment of cutting edge technologies. Some examples include the pre-salt

huge discoveries recently announced offshore Brazil, at water depths of 2,000m to 3,000m, total reservoir depth of approximately 5,000m to 6,000m, located over 300 km from the shore. Other very challenging environments include Lower Tertiary of the Gulf of Mexico, also in ultra deep waters, the deep gas bearing reservoirs of Siberia and the sedimentary basins of the Circum Arctic.

- Enhanced oil recovery is still one of the more promising areas to increase in a fairly short term, the reserve and production of existing field. The development of new technologies are significantly increasing recovery factors and prolonging the life of mature oil and gas fields.
- Unconventional oil and gas resources, such as the oil sands of Canada and Venezuela, and the gas bearing Barnett shale of Texas, are quickly becoming technically feasible and economically very attractive. Advanced technologies, particularly in the completion of gas bearing shale, steam assisted gravity drainage of heavy oils and minimization of environmental impact of oil sands mining and processing are key to the further development of these resources.

#### Slide 4

- In terms of cooperation:
  - Notwithstanding the current economic crisis, many of the largest oil and gas companies are actually maintaining or raising their capital investments to address the ongoing need to add reserves and grow production. Market turmoil is also opening up new acquisition opportunities for cash-rich players, particularly in countries perceived as high risk, where valuations have fallen furthest. This brings about new opportunities for independent oil companies (IOC's) to partner with national oil company (NOC's) on a long term, sustainable basis. Those NOCs that have been affected most by lower prices and the economic recession may now welcome IOC's technological and operational expertise and access to capital. The downturn can therefore be a good time to

focus on forming and strengthening strategic alliances, particularly with NOC's.

- Cooperation between IOC's and NOC's is not without its challenges: there are significant cultural, philosophical and social differences between the two parties that can make working together awkward at best and sometimes impossible. In addition, the possibility of government changing the rules can pose a real risk and induce added uncertainty. Furthermore, government playing the combined roles of policy maker, regulator, partner and investor is a complex mix requiring considerable skill, understanding and flexibility. Notwithstanding these challenges, the potential rewards of enhanced cooperation are significant for both parties and indeed, there are many examples of successful partnerships. The World Petroleum Council (WPC) can facilitate the building of important bridges for the two sides to find ways to work together.
- In the new economy, strategic alliances enable businesses to gain competitive advantage through access to a partner's resources, including markets, technologies, capital and people. Teaming up with others adds complementary resources and capabilities, enabling participants to grow and expand more quickly and efficiently. Many fast-growth technology companies use strategic alliances to benefit from more-established channels of distribution, marketing, or brand reputation of bigger, better-known players. Companies might also consider cooperating with other firms by outsourcing the cost of noncore functions, freeing them to focus on key areas.
- So the future for the oil and gas industry is looking quite bright. However, there is a potential deal breaker and that is attracting and retaining young people to the industry.

#### Slide 5

- The number of young people joining the industry or even graduating in related areas has been steadily decreasing. Therefore, the petroleum industry is now on the edge of a demographic cliff with an ageing workforce retiring shortly while not enough young people are finding the

industry attractive enough to join, lawyers vs. geologists. This growing skills gap may impede the industry's very ability to operate, especially with respect to major exploration and production projects.

- This challenge is particularly significant in the context of the world's rapidly growing demands for energy and calls for greater adherence to responsible social and environmental practices.
- In response to this challenge, the World Petroleum Council created a Youth Committee in 2006 to bring a higher profile to the issue and form an alliance with young people themselves in order to find possible solutions to our challenges. We feel that it is important that young people are at the forefront of resolving this issue as they are the ones who will inherit this industry, and should be involved in crafting its future.
- The Youth Committee prepared a programme of activities for young people at the 19<sup>th</sup> World Petroleum Congress in Madrid last year including a special round table with industry leaders to discuss the question of "Does the industry need an image makeover?"
- The 1<sup>st</sup> WPC Youth Forum was held in China in October 2004 with over 500 young delegates focusing on 'Youth and Innovation – the Future of the Petroleum Industry'. It played an important role in implementing WPC's strategy to attract more young people to WPC activities and the petroleum industry.
- The 2<sup>nd</sup> WPC Youth Forum was held on the 18-20 November 2009 in Paris. Under the theme of "Energize your Future" It provided an innovative approach to the challenges and opportunities facing the oil and gas industry.

## Slide 6

- Finally, one of the greatest challenges we face as an industry is to enhance our reputation and credibility with our many stakeholders. We represent a major part of the solution in meeting the world's future energy demand. We must respond to this challenge in a way that is economically viable, environmentally sound and socially responsible. In order to maximize our contribution to this challenge we need to build

trusting relationships with our stakeholders. We also must level the playing field within our industry, so that all companies recognize and respond to pressing global issues in a clear and consistent manner.

- Like the WEC, the WPC plays a significant role by providing a forum for stakeholder dialogue. The 19th World Petroleum Congress in Madrid in 2008 concluded that there are still ample reserves and resources of oil and gas to be developed, both in mature basins and new frontiers. We have more than enough petroleum to meet demand for many decades for the benefit of all mankind. However, in order to earn a societal license to operate and to be profitable, the industry must invest responsibly and ensure the sustainability of the environment for the next generations. In addition, communities that are impacted by oil and gas activities must enjoy a fair share of the benefits associated with that development.
- Companies that adopt corporate social responsibility as part of their core business strategy and adhere to principles of transparency, business ethics and respect for human rights will gain the license to prosper and be profitable for the long term.
- At WPC we have identified these challenges as the topic for our 20th World Petroleum Congress which will be held in Qatar in 2011. Under its theme of '**Energy Solutions for All – Promoting Cooperation, Innovation and Investment**' the 20th World Petroleum Congress will focus the debate on solutions aimed at providing all humanity with access to reliable, affordable and sustainable energy in both the near and long-term future.
- In order to achieve this goal, all stakeholders, including the energy producers, consumers, governments and civil society need to work in close cooperation to develop innovative ways to find and develop new oil, gas and alternative energy resources, as well as set higher standards for wiser, more efficient and cleaner energy consumption. I am confident that we are up to the challenge.
- Thank you for your attention.