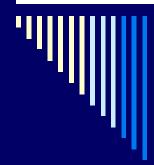


TECHNOLOGY CHANGES FOR OIL & GAS COMPANIES THAT PROVIDE OPPORTUNITIES FOR SUPPLIERS

George Sutherland
Canadian Petroleum Training Institute
April 28, 2015



PRESENTER

George Sutherland

- B. Sc. & M.Sc. Geology (Univ. Alberta)
- President Cdn. Petroleum Training Inst.
- President & CEO CPTI International Inc.

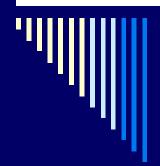




Source CPTI



"Stay where ur to and I will come where ur at"



Basic Requirement to increase business is to have a realistic understanding the Oil & Gas Industry

- 1. Where have they been?
- 2. Where are they at?
- 3. Where are they trying to get to?



Where has the Oil & Gas Industry Been?

- Sometimes up
- Sometimes down



For Example 2008

June 2008

October 2008





Source Alberta Gas



Past Industry Picture

- Find more oil and gas
- Drill more wells
- The high financial returns on production leads to a strategy of watching the cost of exploration and drilling but "Let the good times roll" or "Laissez les bon temp rouler"



Current Industry Picture

- Greatly reduced exploration activity
- Low levels of drilling
- Over supply of oil and gas and lower prices



STRATEGY CHANGE

Current Focus

- Production of Oil and Gas
- Companies now have a cost reduction strategy particularly for production and operations



STRATEGY CHANGE

Current Focus

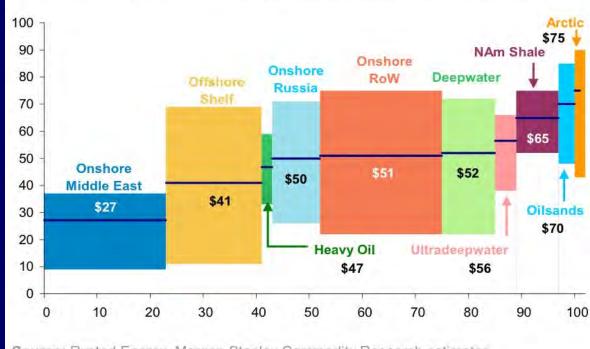
- Move to unconventional has also required companies to reduce production costs.
- No high capital expenditures to achieve cost reduction



CRUDE OIL PRODUCTION COSTS



(x-axis: total liquids production; y-axis: avg Brent-equivalent breakeven price*, \$/bbl)



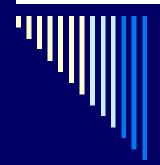
Source: Rystad Energy, Morgan Stanley Commodity Research estimates



PRICE CAPS

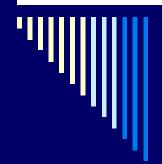
Crude Oil
US \$80.00 per bbl by 2019?

Gas \$4.00 per 1000 ft³ ?



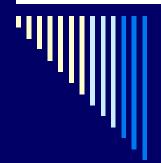
Workovers

- More effective less costly de-watering of wells
- More efficient longer lasting pumps
- Faster and less costly pump replacement



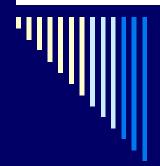
Production

- More effective and less costly demulsifying
- Reduction in transportation costs



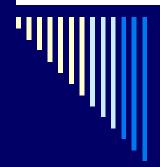
Production

- More efficient steam to oil ratio through delivery of energy directly to the reservoir
- Results in cost reduction by
 - 1. Decrease in energy lost from surface steam generation to the reservoir face
 - 2. Reduction in the volume of steam reduces cost of gas used to produce the steam and reduces the size of the boiler



Environmental

- Driven by regulations which are not an option for companies
- Need new low cost technology to meet the regulatory requirements



Environmental Eg. New Gas Recovery Regulations

- How to recover low volumes of gas cost effectively from a single well
- New regulations on transportation



Questions?

¿Preguntas?



CONTACT INFORMATION

cpti@shaw.ca

www.cpti-international.com