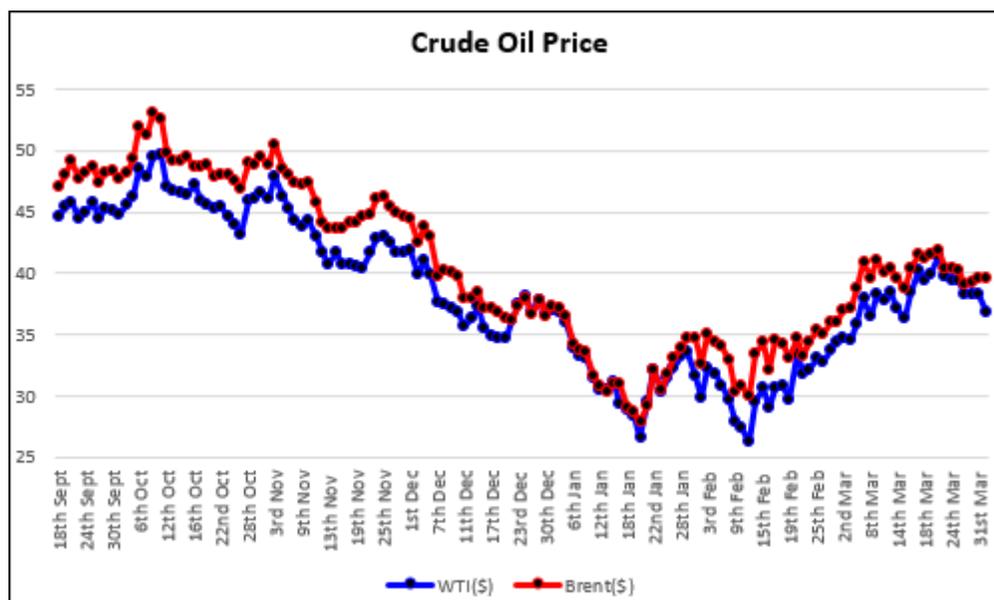


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Calgary, Canada

Some of the news items for this week are as follows:



1. There wasn't much variation in the price of oil during this week, as it fluctuated between \$36 and \$39.
2. All around there were news items about reduced spending or budget cuts, or job losses, or reduced rig counts and shale wells getting efficient and thus profitable with each passing quarter. Nothing unusual or specific. So I won't bother reporting anything specific this week.

So much for the industry news this week.

For the lighter side this week

What is the difference between CNG and LNG?

The other day the Mayor of Calgary was invited to the CSEG luncheon, and during his brief address he said that the buses plying in the city are being converted to natural gas fuel. As we were discussing this later, my colleague Ritesh Kumar Sharma asked me about the difference between CNG and LNG, which of the two is used in vehicles and why? I did not have a convincing answer then. Here is what I have found out.

Compressed natural gas (CNG) or liquefied natural gas (LNG) are two different ways that natural gas is stored and supplied to an engine in a vehicle. Both are delivered to the engine as a gas. LNG is stored at -162°C in liquid form at atmospheric pressure. CNG is stored as a gas but at high pressure (20 or 25 MPa or 3000-36000 psi). As both CNG and LNG are less dense forms of energy compared with diesel or

petrol (gasoline), the vehicles employing natural gas need larger storage tanks for getting the same amount of energy.

CNG is a good fuel for light and medium to heavy duty vehicles that run less than 400 km a day. It is stored in cylinders on board the vehicles and is a low cost installation.

LNG is good for heavy duty vehicles (<400 km/day) as it stores twice the energy per volume as CNG and thus vehicles will need to be refueled less often. However, CNG or LNG vehicles occupy more space than petrol/gasoline vehicles.

When natural gas is cooled at atmospheric pressure, it condenses to a liquid (LNG), whose volume is 1/600th of the volume of natural gas. It weighs less than half as much as water. It is colourless, odourless and non-toxic. It is composed mainly of methane, as during liquefaction oxygen, carbon dioxide, Sulphur compounds and water are removed, and thus is a clean product. It is a very convenient way of transporting natural gas by tankers. The main drawback of LNG is the high cost cryogenic storage, whether on vehicles, or dispensing stations or production plants.

CNG stores natural gas at high pressures as stated before and so is not liquefied. It contains mostly methane, but ethane and propane as well. A sulphur-based odourant is generally added to CNG to detect its leakage. CNG occupies less than 1% of the volume it occupies at normal atmospheric pressure.

CNG and LNG are both clean fuels in that they produce the least emissions of all the fossil fuels. When used in vehicles, they reduce pollution. More and more vehicles are getting converted to CNG/LNG fuels for economy and reduced emissions.

Another form of fuel is referred as LPG (or liquefied petroleum gas), which is produced during the refining of crude oil. It consists mainly of propane, butane and small amounts of other gases. It is stored at low pressures (2 to 5 bars at atmospheric temperature) in metal cylinders, However, it has a high calorific value than natural gas and so is used for cooking.

Did you know that the birds are descendants of dinosaurs?

Yes, it is true. It is usually said that 64-66 million years ago the dinosaurs went extinct due to some catastrophic event. Not all dinosaurs became extinct. Some of them survived and have descended from those survivors.

I hope you find this interesting.

So much for this week! Till the next post, stay safe and happy!

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