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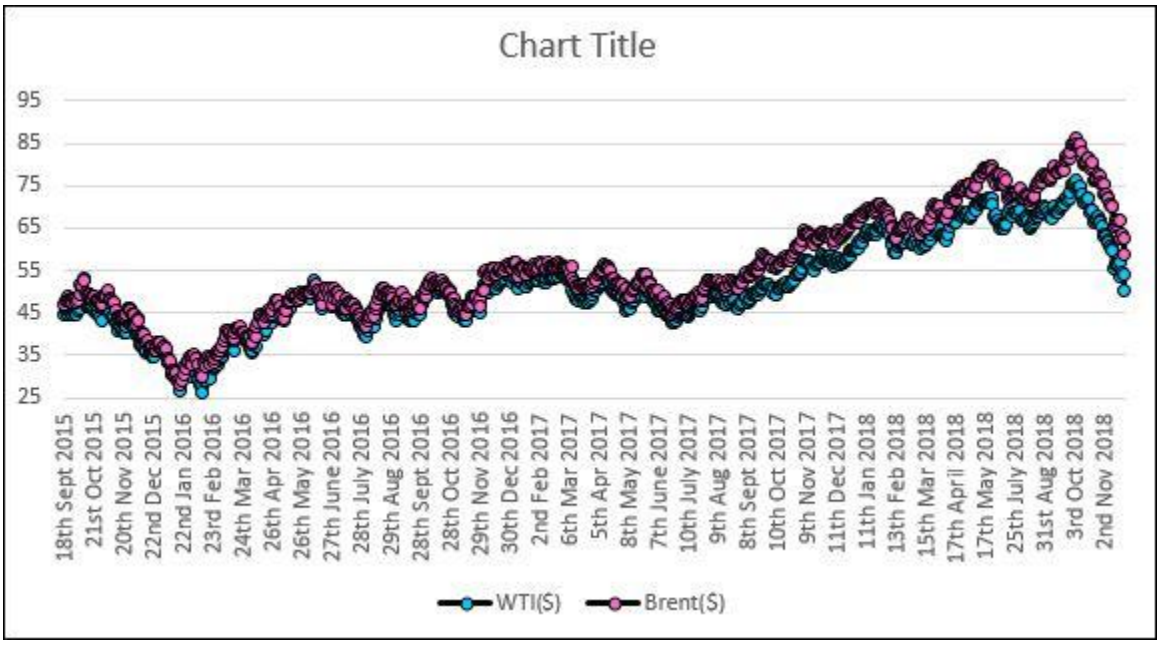

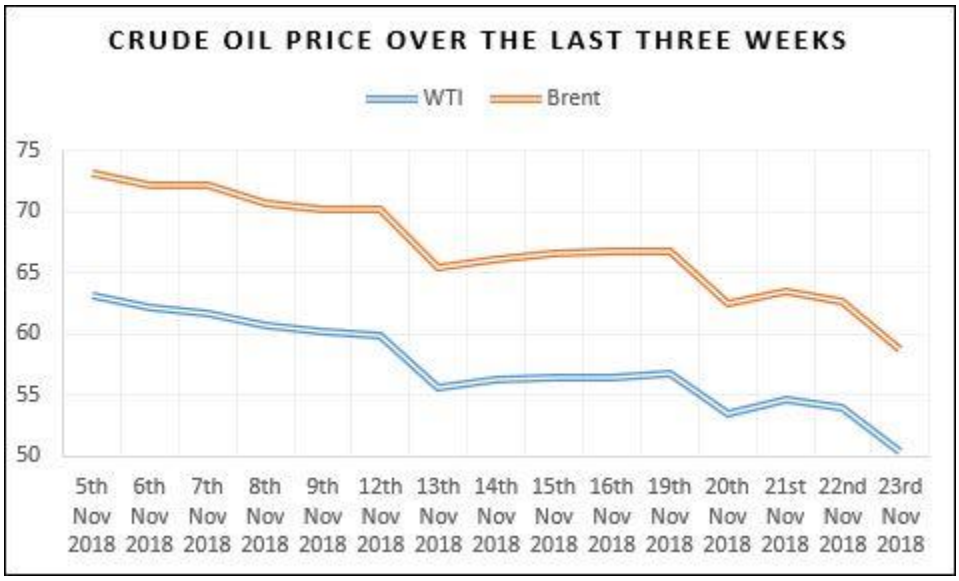

- The price of the barrel dropped this week again to below $54. This was largely due to speculation that OPEC plans for cutting production at their forthcoming December 6 meeting may not be enough to control the glut in the market. This drop in price was also due to an expected increase in US inventories this week. Added to these two developments is the rather frosty enthusiasm shown by Russia to get on board the production cuts at the OPEC meeting next month. As if this was not bad, Friday saw another drop in the price of the barrel to below $51 due to concerns over the prospect of oversupply and dampened demand.

- The Permian Basin in the US is the largest producer of oil at the present time. In August 2018, the US produced 15.9 mb/d in crude and other oil liquids, which was more than what was produced by Russia or Saudi Arabia. The oil companies operating in the area have used rail cars and even trucks to ship oil out of the region. This production is only poised to grow with three pipelines that are expected to be added between August and December 2019. When this happens, the Permian producers expect to add as much as 2 mb/d to the already soaring US production. The situation at present where the price of the barrel has fallen, and OPEC is gearing up to cut production at their meeting on December 6 in Vienna, is only going to get worse with their added production. The OPEC countries need to keep the price of the barrel up to get enough revenue for their oil and balance their budgets. According to the IMF forecast, Saudi Arabia needs the oil price at $73.3 per barrel to balance its budget. The surging US production will only increase their headaches. The energy industry on its part may be heading for a longer draw of cheap crude process.

- Libya has been rebuilding its energy industry and has recently boosted its production from 660,000 b/d in July to 1.3 mb/d recently. Its plans to reach a target of 1.6 mb/d. Nigeria has also been trying to boost its production. In view of the efforts being made by OPEC and its allies to come to a consensus about production cuts so as to balance the market, Libya again expects exemption from them. The OPEC Secretary General, Mohammad Barkindo has said that the group was in talks with Libya and Nigeria.

- In Canada, a divide between the country's pure producers and the large integrated companies is making it difficult for any solutions to emerge in the present crude-price environment. The pure producers are being devasted with low crude prices, while the integrated energy companies are not affected so much. Another rift is between the oil sands producers (who are targeted by the climate change activists) and the fracers and conventional drillers (who have been suffering from the pipeline bottlenecks that are again and again brought about by the environmentalists). Such divisions are reflected by the two industry groups, the CAPP (Canadian Association of Petroleum Producers) and which is a large group dominated by giant oil sands producers, and the EPAC (Explorers and Producers Association of Canada), consisting of smaller firms. The split is preventing the industry from lobbying the government with any consistent message.

- At the meeting of 15 top executives from the top oil producers in Canada, and the Alberta Premier Rachel Notley recently, there was sparring with each other, rather than emphasize the difficulties in a consistent way and press the Alberta government to mandate production cuts and clear the glut in the market. Some companies including Cenovus, CNRL and Nexen favoured a cut, while companies that have refineries and are benefitting from low oil process (including Suncor, Imperial Oil and Husky energy) opposed that move. The government has been non-committal so far. The other aspect to the problem is the carbon tax that was implemented by the Alberta government some time back. While the bigger companies support it by saying it will improve the industry's image after being labelled as 'dirty oil' for many years and the worst contributor to global climate change, smaller drillers are opposed to the policy.

So much for the industry news this week.

For the lighter side this week

The developments and applications in artificial intelligence (AI) have been taking place at an alarming pace. The different applications we hear and read about these days include preventing cybersecurity breaches, better medical diagnosis and treatment, enhanced farming efficiency, making predictions in stock markets, increased efficiency and customer support in financial markets, having robots as personal assistants, handling goods in warehouses and dangerous jobs, and many more. And now you can add one more application to this list and that is, predicting our choices in the future.

A recent news item gives us an idea about where the rising power of AI is going. A group of researchers at Auckland University of Technology in New Zealand have developed the first AI model that can predict a person's choice before that person can even make up his/her mind.

Based on spiking neural network architecture for carrying out the computations, the developed model has been named NeuCube. The researchers performed an experiment with 20 participants, where they were shown a video of different beverage logos, and then asked for their choices. The brain data was recorded with EEG headsets that record the electrical activity going on in the brain using a technique known as electroencephalography (EEG). This data was then sent to the NeuCube. The algorithm in the NeuCube quickly learned and classified micropatterns in the brain data and was able to predict their beverage choices 0.2 seconds before the participants made their choices. Besides this, the algorithm was also able to show the difference between logos that the participants were familiar with, and those that weren't.

We just make 10% of our decisions intentionally, and the rest are made by the brain based on prior experience, history, genetics and some other factors. This interesting experiment is expected to have far-reaching AI applications, including neuromarketing, cognitive studies and crime solving. The researchers will be able to understand the difference between our true preferences in life and those that are biased by our sub conscience. We should be hearing about such experiments more frequently in the future.

There are various applications of AI that are using neural networks, an area of study known as deep learning. Besides other applications, efforts are underway in the use of deep learning AI in self-driving cars. The information from the sensors in the vehicle goes to the artificial neural networks where the data is processed and accordingly the commands are sent to the operational parts of the car (steering, accelerator, brakes, etc.). The cars seem to work like when human drivers are at the wheel, but the concerns about any eventuality are what need to be addressed. What happens if somehow, someday the deep learning network malfunctions. The one downside of neural networks is that it is not possible to locate where and how the malfunction happens, as the whole system is so complicated. Perhaps we will see such deep learning developments in the near future, when we are able to understand them better. Till then self-driving cars may remain experimental.

I hope you find these interesting.

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