



An interesting story on the electric car impact on oil demand. It seems minimal but the trend is in place, particularly in China, where air quality is an issue.

While none of the Georgian Capital Team owns a Tesla, Volt, or Leaf, the idea of driving past a service station has definite appeal! (Note that Tesla is now beginning to charge for a re-charge!)

We are interested but not invested, and maintain small energy holdings at present.

Thoughts or questions welcome, as always!

David Knight

Georgian Capital Partners
Scotia Plaza
40 King Street West, Suite 3405
Toronto, ON M5H 3Y2

Toronto: (416) 640-4100
Victoria: (250) 595-7955
www.georgiancapital.ca

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Spot WTI Crude \$US/B	Edmonton Light \$US/B	Spot Henry Hub \$US/MMBtu	Spot AECO \$Cdn/GJ	Spot AECO Basis \$US/MMBtu	Currency \$US/\$Cdn
48.70 ↓	45.45 ↓	2.65 ↓	2.85 ↓	0.41 ↓	0.7469 ↓

Chart Watch

- 6** The CAD has fallen to its lowest since March
- 12** US crude oil production rose 51 kB/d in August
- 23** US crude stocks drew by 0.6 MMB
- 33** Sabine Pass LNG has come back online
- 43** The US added 20 gas rigs in the last 3 weeks

What Part of the Barrel is Under Threat?

By Jackie Forrest

In response to a flurry of mistaken news stories, Mark Twain was once quoted as saying “reports of my death have been greatly exaggerated.” If an oil barrel could talk, it would no doubt be sharing the same sentiment.

Not a day goes by when you don’t read a story about how electric vehicles (EVs) are going to sink oil demand in the near future. In reality, the EVs that are first coming to market only threaten about 20% of the uses for petroleum. Our feature chart this week breaks-out the uses for petroleum in the United States, the world’s largest crude oil consumer, and also the place with the most transparent data for understanding demand.

The largest slice of US petroleum demand comes from individual passenger cars and trucks, also known as the light duty vehicle (LDV) fleet.¹

The consumption of petroleum from LDV’s can be dissected into two categories. The first

consumption category tracks the smaller, more efficient cars; for example the Toyota Camry and compact sport utility vehicles (SUVs) like the RAV4. This, smaller vehicle end of the LDV spectrum consumes just over a fifth of a barrel in the US market and is the most susceptible to EV substitution.

There are two types of EVs that plug into a power source. Plug-in Hybrid Electric Vehicles (PHEVs) plug-in at night, but still have the safety net of a small gasoline tank and generator so they don’t run out of battery charge; and the purer form, BEVs (Battery Electric Vehicles) have no auxiliary backup.

Today, US consumers can choose from around 30 different models of BEV and PHEV’s. The top selling US PHEV is the Chevy Volt, and the bestselling BEV is the Tesla Model S. With the exception of one large model - the Mercedes S550, which has sold just over 250 units year to date - EV sales are exclusively replacing the smaller sized LDVs, attacking only the top 20% slice of petroleum demand in Figure 1.

In the first half of 2016, EVs were still a very small fraction of all new US small car sales, making up less than 2%. But even in a hypothetical scenario where today’s smaller LDV fleet could be swapped out quickly with EVs, almost 80% of today’s petroleum demand would remain intact.

The other half of the LDV market falls to larger

1. The EIA defines Light Duty Vehicles as those vehicles with fewer than 6 wheels and a rated weight of less than 10,000 lbs.

Sources Bloomberg, CAODC, Baker Hughes, EIA, NOAA, CPC, IEA, Natural Resources Canada, Canadian Gas Association, ARC Financial Research
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**Figure 1: US Uses for Petroleum
Based on 2015 Consumption**



Source: EIA, ARC Financial Corp.
*Includes crude oil and natural gas liquids, does not include biofuels

vehicles; bigger sedans, upsized SUVs and the ever fashionable pickup trucks (the top three bestselling American vehicle models this year are pick-up trucks).

Could EVs eventually gain more market share by attacking the larger LDV vehicle market, the trucks and larger SUVs? Maybe, but the current challenge is that these heavier, larger passenger models require more power to move their heavier weight. EV substitutes would need to compromise range or shoulder a much larger battery pack. Companies are targeting the larger LDV space, but heavier and larger vehicles will be more challenging to displace with electric locomotion, because the utility of internal combustion engines increases with size.

Replacing petroleum's use is even more challenging when we look at the heavy duty vehicles (HDV) like long-haul trucks. Another 20% slice of the

barrel goes to powering the commercial fleet, most of which includes tractor-trailers that move freight. This HDV grouping also includes wide range of industrial vehicles and buses; everything from bulldozers to cross country coaches. At the largest end of the transportation spectrum are large ships, rail locomotives and jet planes – these modalities consume about 10% of the barrel.

Finally, about 30% of all petroleum is allocated for non-transportation uses. This segment includes a wide range of applications such as lubricants, waxes and petrochemical feedstocks used to make plastic goods. For most of these non-transportation uses, there are few economic alternatives to oil.

By analyzing the spectrum of uses for a barrel of oil, and the limited market share under threat by the electric vehicles on offer now, the end of the oil age is still a long way out.

Peter Tertzakian,
ptertzakian@arcfinancial.com

Jackie Forrest,
jforrest@arcfinancial.com

Kara Jakeman,
kjakeman@arcfinancial.com

Marcus Rocque,
mrocque@arcfinancial.com

Megan Lancashire,
mlancashire@arcfinancial.com

Look for our commentary on www.arcenergyideas.com

Twitter: @PTertzakian, @JackieForrest