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Are electric cars viable? Editor-in-Chief Irina Mironova takes a personal look at the purported rise in electric autos and whether they can realistically replace the classic internal combustion engine. [Read More](#)



Norwegian Officials celebrate 50,000 electric car milestone. By Norsk Elbilforening (Norwegian Electric Vehicle Association) - Flickr, CC BY 2.0, Accessed via Wikipedia Commons



Energy New Blog

What if I Drive an Electric Car in Saint Petersburg?

– Irina Mironova

Last Sunday, September 11, I have started this academic year by giving a lecture at the [EUSP Orientation Weekend](#). I had to tell freshmen about electric cars and their future role in the energy system. One of the most important questions here is whether electric cars can ever cut the world's thirst for oil enough to depress crude prices significantly.

Modern passenger cars use 18 million barrels a day of oil products, which is 18.7% of the 96 mln barrels consumed daily, [according to the IEA](#). The drop in oil prices post-2014 shows how vulnerable prices are to a relatively small shift in demand. The IEA explains that the drop in prices has been a result of oversupply in global oil market. So potentially, if electric cars can enter the global car market in numbers that are large enough, this would mean permanent oversupply in the oil market and hence low oil prices (more on that in the [Financial Times](#)).

I got so excited about the topic, that decided to run a little case study: what if I was one of those electric car owners who can change the patterns of oil demand? What if I drove an electric car in Saint Petersburg instead of my lovely Ford Fiesta?

Here's what I have found.

An electric car doesn't have to be expensive. But the ones that I actually like are.

My first idea of an electric car was Tesla. [Tesla Model S](#) to be exact. And that car, of course, cannot exactly be called easily affordable at 4 mln roubles. A brief market survey has demonstrated that there are other electric cars available in Russia, including the Chinese [Damer E-Car](#) (sales temporarily halted currently, but used to be available at half a million roubles, which is cheaper than my Ford Fiesta) and [Lada Ellada](#) (That's an electric Kalina produced in Russia, exciting but expensive at over 1 mln roubles). I would nevertheless go for an analogue of a city car, something like Mitsubishi i-MiEV or Nissan Leaf. Both of them are being used as test-cars in the process of developing the [network of charging stations in Saint Petersburg](#). The prices for both cars excel 1 mln roubles.

Electric cars drive for reasonable distances.

One battery charge gives between 150 and 200 km for Mitsubishi and Nissan, and about 400 km for Tesla Model S. This does not seem to be a lot. However, when I compared it with my own mileage: over the past 4 years that I have my current Ford Fiesta, I drove 745 km a month on average. Charging the car several times a month does not seem like a huge problem in my case. The issue is the absence of infrastructure for express-charging of the electric cars. Currently [there are records of two charging stations in the city](#), one of them at Galereya shopping center near the Moskovsky railway station, and the second at the Pulkovo airport. Handy locations if you have to do some shopping or pick up a friend at the airport, but a bit of hassle if you don't actually need to go to those places.



Figure 1. Tesla Model S

Charging is a bit of a problem (unless you want to go shopping at Galereya where one of the two charging stations is supposed to be), but charging your EV at home is cheaper than buying gasoline for your Fiesta.

In fact, charging an electric vehicle at an express-charging station is not the only option. Electric cars can be charged from regular electricity network; this only takes somewhat longer (several hours instead of 30 minutes). Plugging in your EV for the night is actually an effective solution if charging station is not on your route. Under current electricity tariffs (3,91 RUB/kWh during the day and 2,30 RUB / kWh during night), it would cost me between 220 and 375 roubles a month to charge a 16 kWh battery (to drive my monthly 745 km). To drive that distance with a gasoline car, I am, by the way, spending 1966 roubles a month.



Based on fuel cost savings, would I rather have bought an electric car back in May 2012?

Actually, I don't think so. Besides, fuel cost, I also had to spend money on technical maintenance and insurance, but still, the total amount of money spent on my Ford Fiesta has not climbed up to the price of a Mitsubishi i-MiEV, let alone Tesla Model S (Figure 2).

And so, the verdict is: I have to do extra research about hybrid cars.

In the case of Saint Petersburg, the cost of electricity is competitive with the cost of gasoline for personal use in transportation. The main bottleneck is not the cost of fuel, but the cost of equipment (in this case, of the electric vehicle). Significant increases in the number of electric vehicles have been registered in countries with significant subsidies (e.g.

Norway). "You can subsidize 10 000 cars, but not 10 million," – says IEA's Laszlo Varro. And electric cars subsidies are sort of out of discussion in present day Russia. It's also important to mention some general points. An electric engine does not automatically mean efficiency. You can still drive more than you need (and consume more electricity than you need). Energy will still be consumed, but in another form. The electric engine basically transfers transport from being part of oil supply chains to electricity supply chains (Electricity does not come from nowhere!) The cut in emissions, as well as the fuel cost, are both function of gasoline sector and electricity sector organisation in any given country.

Oh and yes. It would take 50-100 mln electric cars to displace 1 mln barrels a day of oil, while [today's fleet is 1,2 mln plug-in vehicles on the road](#), and today's demand from passenger fleet is 18 mln barrels a day. The electric dream really seems to be a dream.

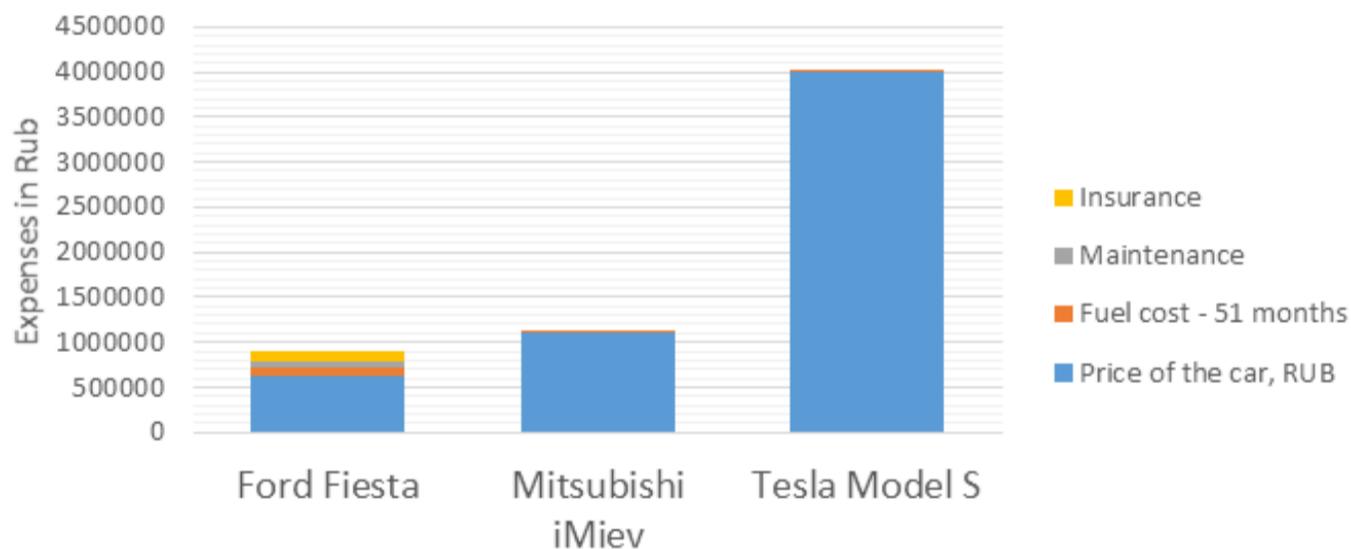


Figure 2. Comparison of costs associated with owning Ford Fiesta, Mitsubishi i-MiEV and Tesla Model S over the period of 51 months



The Week in Review

Egypt to Use Gas from Cyprus

In the end of August, Cyprus and Egypt signed an agreement under which natural gas from offshore fields located in Cyprus' will be supplied to Egypt. The agreement (which is the first in the series of three) includes construction of a subsea pipeline between the two countries. The pipeline is expected to become operational in 2020-2022. This development is significant in two ways. Firstly, it clearly improves the Mediterranean relations and reinforces its Energy union. Secondly, it fills the gap in Egypt's own natural gas supply, which has suffered after the revolution of 2011.

[*NGW Magazine: Cyprus and Egypt Sign Gas Agreement. Natural Gas Europe, September 7, 2016.*](#)

Russia-Saudi Deal

During the G20 summit in Hangzhou, China, the Russian Energy Minister Alexander Novak and the Saudi Arabia Minister of Energy, Industry and Natural Resources Khalid bin Abdulaziz Al Falih signed a joint declaration for the stabilization of the oil market. Novak and Al Falih agreed that oil output freeze is the most effective measure in stabilizing the oil market and ensuring the stability of long-term investments. After this message Brent crude from the North Sea for November delivery rose by 5.4% and reached USD 49.15 per barrel. This "historical deal" between OPEC member and non-OPEC member a part from the economic significance has a political message. Russia and Saudi Arabia have different policies on many issues, like Syria and Iran, but both experience high budget pressure, because of the low prices of oil. Therefore, the common interest of market stabilization is leading the two countries to cooperate. Saudi Arabia is sending signals to the United States, that it has alternative partners, while Russia is showing that it does not support Iran on all cases. The actual freeze volumes are expected to be agreed upon at the meeting in Algiers.

[*Rascouet A. Oil Pares Gains as Saudi Arabia, Russia Fall Short of Freeze. Bloomberg. September 5, 2016.*](#)

Norwegian Sovereign Wealth Fund Divests from Duke Energy

Norway's USD 900 bln oil fund has added Duke Energy to a list of companies it has barred from investment due to risk of severe environmental damage. This is one more example of ethical measures applied to entities receiving investment from the fund: the list of barred entities includes more than 110 organizations, where the Fund refuses to hold shares based on environmental aspects of these companies' activities. The Norwegian fund is in fact one of the most influential investors in the world. The fund owns on average 1.3 percent of all listed companies globally

[*Milne Richard. Norwegian oil fund sells shares in Duke Energy. Financial Times. September 7, 2016.*](#)

Algeria-Russia Energy Dialogue

Russia-Algeria energy cooperation dialogue started off with a visit from top Algerian officials to Moscow in the beginning of September. Russia is in search for new partners and allies, and tries to diversify the economy by exporting its expertise and technology, over reliance on the export of commodities. The visit to Moscow is actually a part of large tour undertaken by the Algerian Minister of Energy; he plans to visit his Saudi counterpart and the head of OPEC soon. Another crucial point in this context is that later this month there will be an important meeting of oil producers in Algiers, and Russia would like to expect a warm welcome from the host.

[*Boutarfa: Algeria, Russia commit to boosting energy cooperation. Algeria Press Service. September 9, 2016*](#)



New Shale Play Discovered by Apache

America is the land of shale oil. Hydraulic fracturing and horizontal drilling made of the USA a big oil producer, around 4 mln barrels a day are produced from sources previously considered as 'unconventional'. While companies have experienced some difficulties with high oil prices (meaning high operational costs), lately Apache Corporation has held its finances under control. The current oil price has not discouraged American shale oil companies from researching and planning investments. On September 7, Apache announced that after more than two years of geologic research, testing, and drilling it could confirm the discovery of a new resource play which will be called "Alpine High". This new field is located in the southern part of the Delaware Basin in Texas. The company estimated that the possible resources are 75 trillion cubic feet of rich gas and 3 bln barrels of oil. The Delaware Basin has good midstream connections, which were created for previous extraction sites.

[*DiLallo M. Apache Corporation Just Unveiled a Monster New Oil Discovery. The Motley Fool. September 7, 2016.*](#)

Israel and Turkey: A Breakthrough

Diplomatic negotiations between Israel and Turkey are now underway. Since the Israeli army entered a Turkish aid boat (flotilla) attempting to break the Israeli blockade and enter Gaza, an incident which left 8 Turkish citizens dead, ties between the two countries have been frozen. Recent renegotiations might bring a change to the current energy situation in the Middle East and Europe, with consequences for Russia. In 2009 and 2010 Israeli companies discovered two major gas fields off the Mediterranean coast. It is expected that gas might be sold as soon as 2017, a development which has major implications on the region. The first major impact is on Israel's energy independence; currently Israel imports most of its energy, which costs it around 5% of its GDP. Secondly, Turkish energy dependence, which is currently greatly reliant on Russian gas, would be diminished with a new source of gas closely available. The last impact, which is a long term one, is for the EU's energy security. If Israel manages to build pipelines towards Europe, the EU might be able to diversify in its energy suppliers with a new partner in a relatively stable democracy. This might be a great gift to the EU's 2030 climate and energy framework.

[*Coats C. Israel, Turkey Clear the Way for Natural Gas Projects with Diplomatic Thaw. Forbes. June 27, 2016.*](#)

Russia, Iran and Venezuela to Democratize?

A report published by Renaissance Capital describes positive outcomes of the latest oil crash. According to Charles Robertson, a chief economist at the company, history shows that sharp falls in oil prices could lead to a democratization of the oil supplying countries. He comes with examples of Mexico, Iran, Algeria and the Soviet Union, that all underwent structural changes in its institutions after a fall in oil prices between 1988 and 1990. This theory perfectly fits within the theory of the resource curse. He explains that this impact is only with countries whose oil exports are small in net per capita terms, since these countries also depend on taxation. Since this might mean those countries would depend more on taxation since revenues on oil exports will fall. Under increased taxation, the population will automatically also expect representation, when this fails history has shown that this can lead to revolutions and even the creation of new nations

[*Barnato K. Russia, Iran and Venezuela may 'democratize' by 2020: Research. CNBC. September 7, 2016.*](#)



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