

## Ahead of the Herd Newsletter - 2018 Issue Forty Seven

Saturday October 20th



*As a general rule, the most successful man in life is the man who has the best information*

### **An open letter to President Trump re America's energy future**

Dear President Trump,

I applaud your change of mind regarding climate change and that you now believe the Earth is warming, that our climate is changing, and after alluding to an increasing number of and storms of higher intensity while visiting Florida you realize not for the better.

As the leader of the free world, we know you've got your hands full with this tricky little Saudi problem, and keeping control of the House of Representatives, looks like the Senate is safe so congratulations. We promise we won't take up too much of your time.

### **The Khashoggi incident**

Saudi Arabia and its royal family is a long-time ally of the United States. So what was the Crown Prince of Saudi Arabia, Mohammed bin Salman aka MbS, thinking when he strongly implied a few days ago that his country, the world's largest oil exporter, would retaliate against any "punitive measures" linked to the disappearance of Jamal Khashoggi, the Washington Post columnist who has disappeared, and likely died, at the Saudi Arabian consulate in Istanbul, Turkey?

"The Kingdom affirms its total rejection of any threats and attempts to undermine it, whether by threatening to impose economic sanctions, using political pressures, or repeating false accusation," a government source [reportedly told the official Saudi Press Agency](#). "The Kingdom also affirms that if it receives any

action, it will respond with greater action.”

The United States still buys a lot of oil from Saudi Arabia ([close to a million barrels a day in 2017](#), or 9% of the total; 40% comes from Canada) even with all that fracking going on, so we know you were paying attention.

Top sources and amounts of U.S. petroleum imports (percent share of total), respective exports, and net imports, 2017 million barrels per day			
Import sources	Gross imports	Exports	Net imports
Total, all countries	10.14	6.38	3.77
OPEC countries	3.37 (33%)	0.19	3.17
Persian Gulf countries	1.75 (17%)	0.01	1.73
Top five countries <sup>1</sup>			
Canada	4.05 (40%)	0.87	3.18
Saudi Arabia	0.96 (9%)	<0.01	0.95
Mexico	0.68 (7%)	1.08	-0.40
Venezuela	0.67 (7%)	0.06	0.61
Iraq	0.60 (6%)	<0.01	0.60

But we also know you’ve threatened “severe punishment” against the Saudis, and it seems to be gaining momentum as a bi-partisan issue, if it’s shown that Khashoggi, a Saudi national but US resident, was killed inside the consulate. So we shouldn’t be surprised that bin Salman got his back up.

But you don’t really want to get into a fight with these guys. They’re keeping Iran in check. We need their oil. And we sell them weapons. A lot of weapons. Saudi Arabia was the first foreign country you visited after becoming President. [You signed a \\$110 billion arms deal](#). That’s a lot of dough, and bullets, planes and bombs. Stopping that investment into the US because of just one mistake, apparently a questioning gone bad, by bin Salman (the Khashoggi incident) would hurt US companies and jobs. The opposite of what you promised you would do as President.

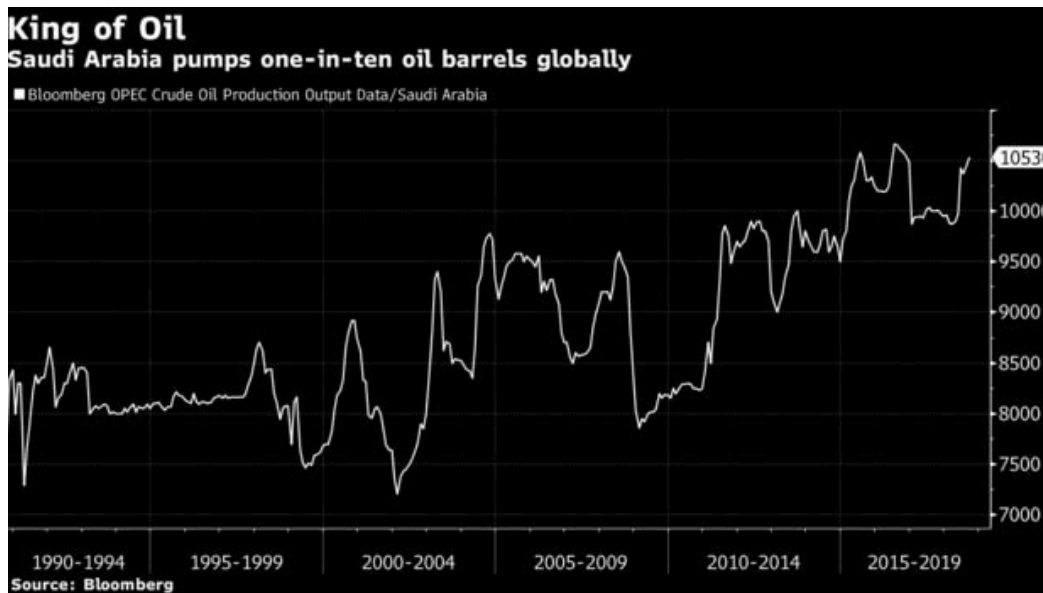
Back to that Saudi government oil as a political weapon statement. Didn’t sound that bad, but it was actually a pretty big deal. You see, ever since the 1973 energy crisis, OPEC has tacitly agreed not to mix politics with oil - the business of making gazillions of dollars – it’s just good business practice. As a shrewd real

estate developer, we know you know and understand a dollar is a dollar, no matter where it comes from. When [Canada's Foreign Affairs Minister insulted Saudi Arabia](#) for arresting women activists, there was no threat of shutting off Saudi exports of oil to a refinery in Eastern Canada. Even though everything else was on the table for nixing by the Saudis, that's the business of not mixing oil and politics.

So who were the Saudis to imply that they could slow down the flow of oil, should any country, including the United States, punish them with sanctions, for eliminating a journalist? Of course we're hearing if Saudi Arabia doesn't pump enough barrels to replace the ones lost to sanctions on Iranian oil, it [could push the price up to \\$100 a barrel](#), or higher. They think they have the west bent over a barrel Mr President. And you do have the mid-term elections coming up, so the last thing you need is a big hike in gas prices. Wouldn't look good.

However this Khashoggi thing goes, it does indicate how vulnerable you are to foreign oil imports - despite all the talk of US energy independence. (More on that below)

Not to be alarmist, but if the Saudis retaliate using oil, it could have a major impact on the world economy. I'm sure you're aware, the Kingdom supplies one in 10 barrels of oil worldwide. It's the swing producer, which means it holds nearly all the spare capacity available to respond to any supply concerns. When OPEC shut off its oil supply because the US backed Israel in the Yom Kippur War, there was widespread demand destruction. The same thing could happen if oil prices head north of \$100 a barrel. Gasoline prices would shoot up too. If Saudi Arabia, the biggest OPEC producer, actually embargoed its oil and gas, we could have shortages, just like we did in 1973. That's right, lineups for gas.



On the other hand, it could be the catalyst that pushes the Western world (actually all the buyers of OPEC oil) away from gas-powered vehicles and toward electric ones. Would that be such a bad thing?

## Climate change

If you accept that planet Earth is warming, and [you said recently that you do](#), then it follows that making a switch from gas-powered to electric vehicles would make a huge dent in global greenhouse gas emissions. Just ask China who supplies us with most our lithium-ion batteries. EVs are a major strategy for reducing pollution in Chinese cities. They are putting a lot of people to work and China is the far and away leader in green tech exports. Wouldn't be hard to take all that away from them sir.

The Chinese understand the importance of a dollar just as well as you do sir. They also understand that our time to make any kind of difference to a warming planet is running out, and they are taking advantage of it, leaving us in the west in their dust. It's happening a lot quicker than scientists predicted. According to the UN's Intergovernmental Panel on Climate Change, the world's ecosystems would be in much better shape if we could limit warming to just 0.5 degrees C rather than the agreed-upon 1 degree C.

The 728-page report by 90+ scientists says to meet the more ambitious goal of 1.5 degrees would require "draconian cuts in emissions of heat-trapping gases

and dramatic changes in the energy field," [CBC News reported](#). If nothing is done, temperatures will increase by 1.5 degrees between 2030 and 2052.

### [A smarter scenario](#)

#### [Global warming of 1.5degrees](#)

We're already seeing feedback loops that occur when one change causes another change to occur, worsening the first change. NASA states that climate feedbacks could double the amount of warming caused by carbon dioxide alone. The space agency points to snow and ice, water vapor, clouds and the carbon cycle as the main climate feedbacks. A well-known feedback loop is the disappearance of snow and ice at the poles. This exposes dark ocean to sunlight, warming the oceans. When ice covers the poles, the sunlight is reflected back to the atmosphere, keeping the oceans cool. As the planet keeps warming, more ice disappears, exposing more water, further raising ocean temperatures, and sea levels.

The poles are warming at a much faster rate than the rest of Earth. This means the most dramatic effects of climate change are being felt in the Arctic and Antarctic. One of the most potent examples of this is melting permafrost. As the Arctic tundra thaws, it exposes methane, a greenhouse gas that is about 30 times more powerful than CO<sub>2</sub>, in terms of its ability to trap heat.

The impact of thawing permafrost could mean the equivalent of adding two more Germany's to the planet in terms of carbon emissions. And that doesn't count the existence of [strange Arctic cauldrons](#) that emit methane at a much faster rate.

So climate change is real, and eventually, it's going to hit the United States. Hard. Already we have more frequent hurricanes, forest fires and a persistent drought in the MidWest. As the seas keep rising, things are going to get bad. Climate Central ranked the 25 US cities most at risk of coastal flooding and sea level rise. It found that New York is most likely to have problems, Miami second. Twenty-two of the 25 cities are in Florida.

### **Still dependent on foreign oil**

Back to the Khashoggi incident, some will argue it doesn't matter if Saudi Arabia

cuts the United States off from its oil and gas. After all, the US is practically energy-independent. According to the EIA, [net imports of crude oil and petroleum products are expected to fall to their lowest levels since 1958](#).

That's because of two factors: the massive increase in oil and natural gas production over the last decade due to fracking, and the lifting of the crude oil export ban in 2016.

But is the US actually energy independent? In 2017 the US imported 10.1 million barrels of oil a day, and exported 6.3 mbod, leaving net imports of 3.7 mbod. In other words, your country is roughly 4 million barrels of oil a day short of energy independence. You see nearly a million of those barrels comes from Saudi Arabia.

While some analysts ([like Goldman Sachs](#)) see US energy independence occurring by 2019 or 2021, there is an elephant in the room that not many have noticed: [depleting shale oil fields](#).

While production in the main shale formations grew steadily from 2007, in the past year and a half, rates have declined. The lower numbers have some predicting that US shale oil production could peak before 2025. This is because shale oil wells are gushers in their first year, then deplete rapidly. Shale companies are therefore money losers because they have to keep ploughing more money into production just to keep output flat, a phenomenon known as "[The Red Queen Syndrome](#)." Shale wells typically bleed off 70 to 90% in their first three years, and drop by 20 to 40% a year thereafter without new drilling. According to consultancy Wood Mackenzie, Permian production could peak in 2021 versus the more optimistic 2025. A report from the Post Carbon Institute argues that the EIA's rosy forecast of strong US oil and gas growth for several decades – with shale oil not peaking until the 2040s – is wrong. So, while you could dismiss Saudi Arabia's threat of another oil embargo, the fact is the US will most likely have to keep importing oil, as shale wells continue to decline, and eventually dry up.

## **Pipeline pressures**

Of course the US could just get the oil from Canada. Your friends to the north supply 40% of US oil. The problem is, Canadian oil companies don't get a lot for their oil, and they're pretty mad about it. We're talking 50 bucks a barrel less

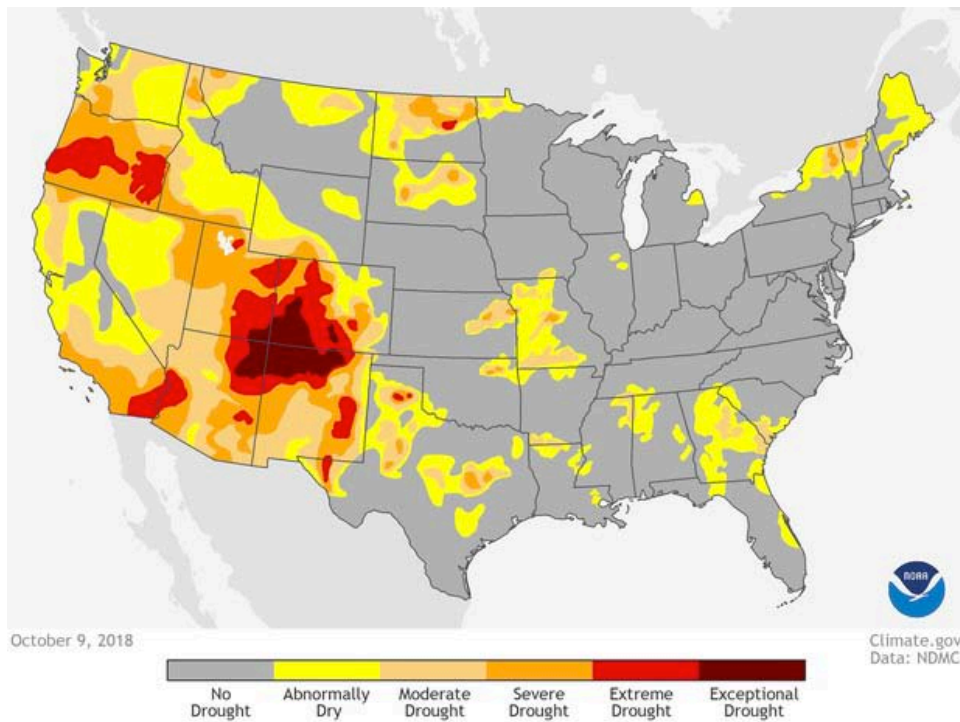
than WTI. The discount is HUGE. The Canadian oil sands are pretty much dead. Not growing at all. They need more pipelines to take away the glut of Canadian heavy crude, but it's not happening. So everybody is moving to [north east British Columbia to frack for 80 trillion cubic feet of tight natural gas and send it as LNG to Asia](#).

Even in the US, your having trouble getting oil to market. Shale oil production is supposed to double in Texas over the next five years. You need more pipelines too, if you want to keep expanding shale, and you might as well, because of that Red Queen Syndrome thing. [They're turning to trucks and rail](#) to move their product. A big [glut in Oklahoma is keeping prices down](#). The shale guys aren't happy. There's also [bottlenecks due to shortages of frac sand, power and workers](#). But then again, if it's all over in a few short years why bother?

## **Go electric**

We know, they're building more pipelines. You did the right thing in overturning your predecessor's rejection of Keystone XL, and killing his new stronger EPA, because you needed it to happen to 'Make America Great Again.' But come on, let's give it a doubt on this fracking stuff, is it really worth it? [Fracking is terrible for the environment](#). We're poisoning the water supply, and we can't afford to do that, what are we going to drink when, after all the ice melts, we're forced to move inland away from coastal flooding and increased levels of storm surge penetrating deep into the heartland? There's also a prolonged drought in the MidWest; they need all the fresh water they can get, fracking uses billions of gallons of it and it ain't reusable.

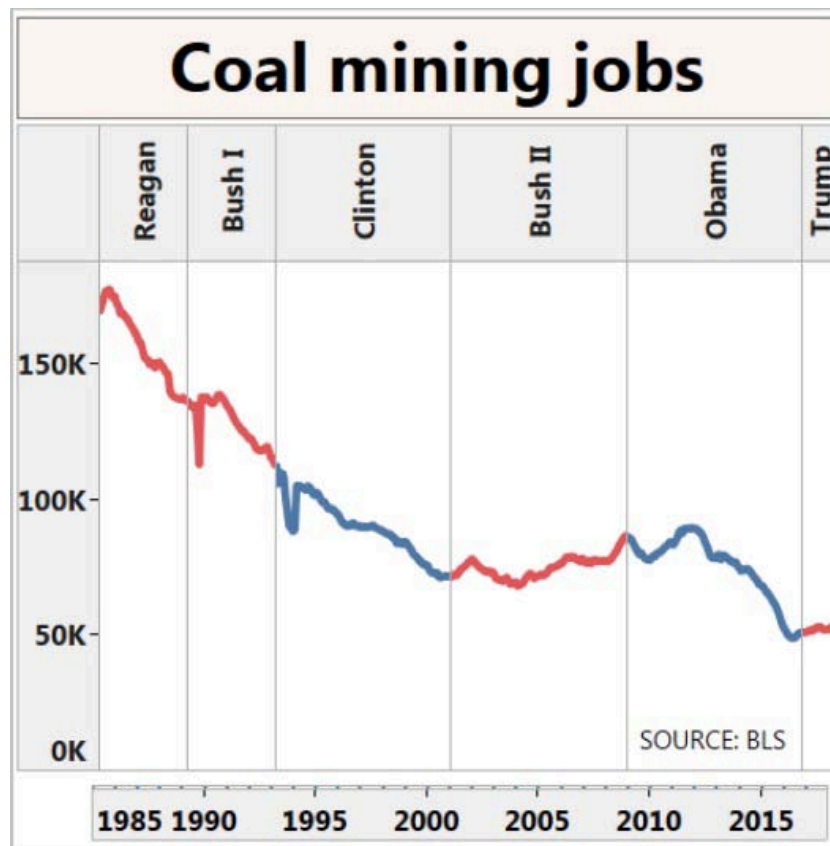




There *is* coal. We know you promised the good people of Appalachia that you'd revive the coal industry, but it's not happening. Those jobs aren't coming back. Time to face facts: coal is dying, and in a lot of countries, it's already dead. Coal power plants are being shut down and banned all over the place.

Obama pretty much hammered the last nail in the coal coffin and you, despite the long term job decline in the industry, over several presidencies, took that and ran with it. Brilliant. But it's time to recognize that coal dog don't hunt no more.





But we also know that coal and steel towns built America. A lot of them are hurting. A lot of them voted for you. They need jobs, cash flow to pay their bills. They need hope for the future. But let's not flog a dead horse. Promising what you can't deliver is no way to treat hard-working coal miners. Instead, what about investing in a new industry, one that has a real future? We are talking about electric cars. Not Tesla's expensive, fancy ones driven by celebrities and those making six figures, but affordable electric vehicles, made by Americans for Americans!

So we ask you Mr. President, why not go electric?

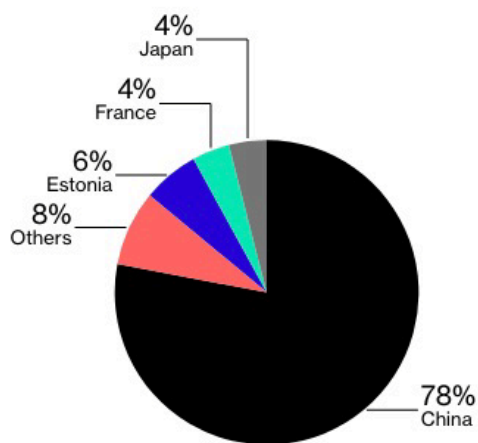
### **Lithium, rare earths**

How would you do it? Well, the first step would be to source the materials required for electric vehicles. The really tough ones to get are rare earths and lithium, not so much because there isn't enough lithium in the US but all of the larger projects except one have off-take agreements already in place with Chinese or Australian companies. You used to have a rare earths mine, but it got sold to the Chinese and they undercut the price of REE's so bad a start-up supply

chain industry was destroyed in its infancy. Not good. China controls over 90% of the rare earths market, so it would be great if you could break that monopoly. In fact you have to, otherwise your just substituting one dependency for another Ie. dependence on Saudi and Canadian oil for Chinese rare earths. Most US rare earths come from China. (see chart below). We noticed [your Administration backed off tariffs on critical minerals from China](#), so this dependency must be on your radar.

### China Dependent

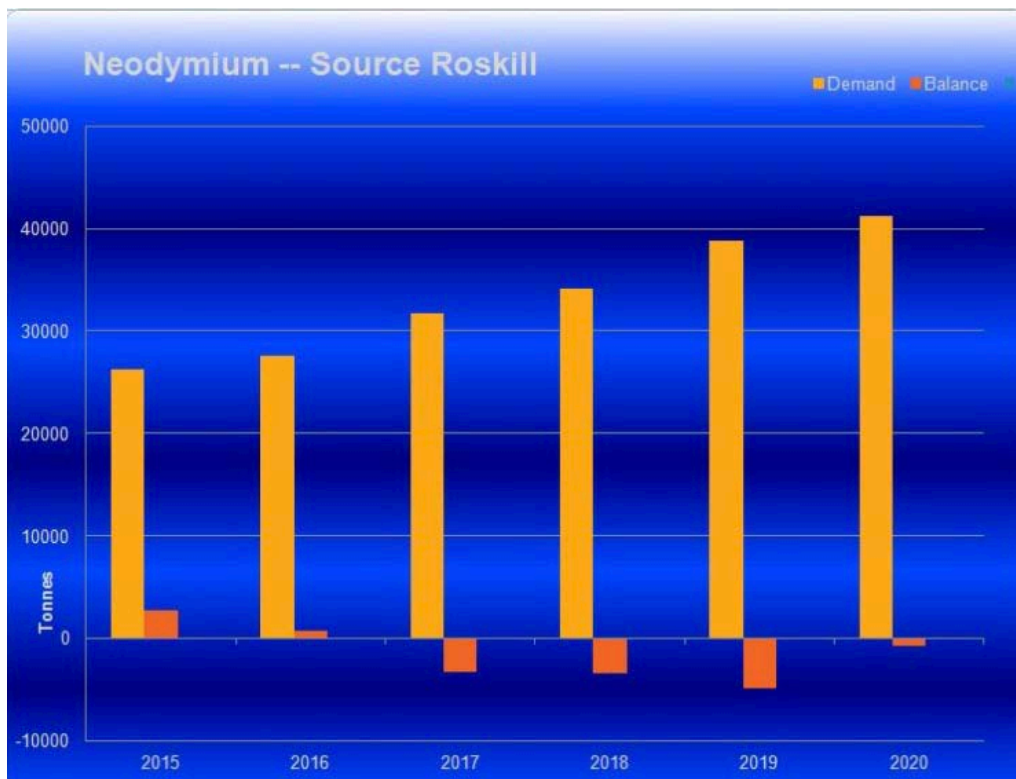
The U.S. imports most of its rare-earths needs from China



Source: USGS

Imports of rare-earths compounds and metals; Imports from Estonia, France, and Japan were derived from mineral concentrates produced in China and elsewhere

The rare earths needed for electric vehicles are neodymium and praseodymium - used for making the magnets in electric motors and generators. The market for the neodymium-iron-boron magnet, [installed in Tesla's Model 3 Long Range electric car](#), is estimated at \$11.3 billion. You can see in the chart below that demand for neodymium has been growing steadily.



The Chinese are also locking up supply from Australia and South America - particularly the lithium triangle of Chile, Argentina and Bolivia - where 70% of lithium is mined.

### [How China is muscling in on Lithium-ion batteries](#)

Currently, if we want to build a mine to battery to EV industry in the US, we'll have to import most of our lithium. It'll be expensive. Battery-grade lithium carbonate goes for US\$16,000 a tonne, not including shipping and tariff costs.

We could get it from Chile, or Argentina, but placing a long-term supply bet on these countries is risky. They sway back and forth between governments that support foreign mining companies, and those that want to keep the resources for themselves. Their economies are also fragile. The Argentinian economy is a basket case, and while Chile is doing better, its government has an itchy trigger finger on the resource nationalism button. Chile is having water problems and the government is cracking down on miners that use a lot of water. Albemarle, the world's largest lithium miner and owner of the Silver Peak Mine, is [having trouble getting its quota increased](#), for the lithium it produces in Chile.

All of this points to the conclusion that the US needs a mine to battery to EV supply chain in the United States, if you are to successfully move the US from ICE (internal combustion engine) vehicles to EVs. This includes not only supporting mining in the US, but building the infrastructure for electric vehicles. Millions of charging stations will be required. There will need to be government subsidies to give people an incentive to trade in their electric Nissan's, VW's etc for an American built EV that doesn't require a mortgage. And to car companies. The European Union just announced [they're planning to allow state aid for EV battery research](#) and will offer billions to companies willing to build large battery plants. You, President Trump, could do the same.

## **Thorium**

Then there's the power, batteries are energy storage devices. Where will the power come from to charge them? If America ramps up its production of EVs beyond what is already going on – very little, you are going to need a lot more juice. Natural gas? It's cheap, but drilling for it involves fracking/methane, and we've already shown that isn't such a good idea. We've dammed all the rivers we can or want to. Coal? Forget about it. Solar and wind power are getting price-competitive, but there's the problem of such large requirement energy storage.

Nuclear energy produced using uranium is going to be the short to medium term solution, but it's controversial. A lot of the nation's nuclear plants are old, and need upgrading, this is going to be done. But building new plants takes years, then there's the problem of what to do with the radioactive waste. It's dangerous and lasts hundreds of years.

We have a solution for you: [thorium](#). Fukushima started scientists looking more closely at thorium as a greener alternative. While conventional nuclear plants are only able to extract 3-5% of the energy in uranium fuel rods, in molten salt reactors favored by thorium proponents, nearly all the fuel is consumed and there is zero chance of a meltdown. Because plutonium is not created as a waste product in a thorium reactor, it cannot be separated from the waste and used to make nuclear weapons.

## **Conclusion**

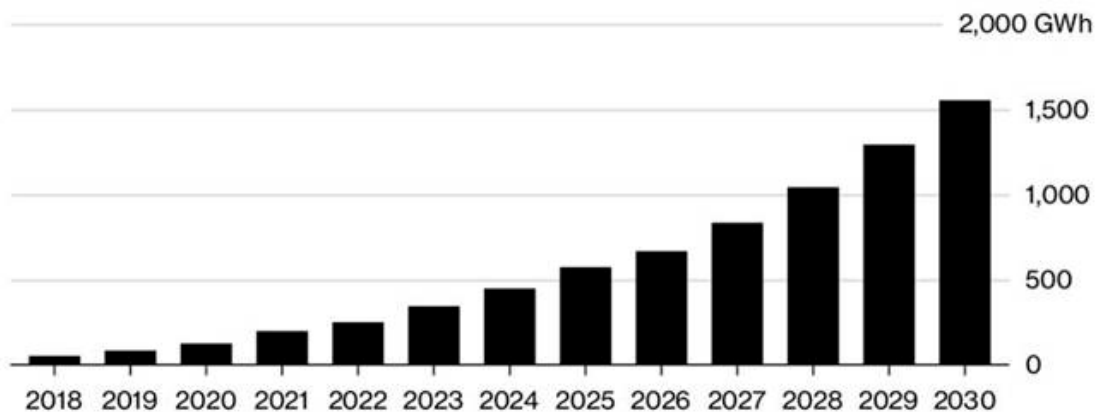
Mr. President, you campaigned on a promise to return America to its former glory,

to emancipate workers from the grip of foreign companies who are stealing America's jobs and America's technology. To rip up bad trade deals and negotiate new ones, at fairer terms to the United States. And to put more money in the pockets of average Americans, by cutting income taxes, and helping businesses, by slashing corporate taxes. You've done all these things, and we applaud you for it.

With respect, we suggest that the way forward is to put your energies and tax revenue into the global electrification trend. This trend has been ongoing for the last decade or so, and it's unstoppable. The IEA has said it expects the number of EVs to more than triple by the end of the decade, from 3.7 million last year to 13 million in 2020.

## Powering the Future

Battery demand will soar as electric cars become the norm in the next decade



\* Figures reflect passenger car battery demand only  
Source: Bloomberg New Energy Finance

**Bloomberg**

According to the organization the biggest adopters will be Europe and China, due to credits and subsidies provided by the Chinese government, and tighter fuel emissions standards plus higher fuel taxes in Europe. Notice the United States isn't mentioned here. But you could be part of it. A big part, the leader if you so desired.

Your country is divided. Republicans and Democrats are at each other's throats like never before. This could be the BIG IDEA that everyone, Republicans, Democrats and everyone in between, gets behind. A truly bi-partisan deal only

you could broker. Obama could not get it done sir. You can. Make America Great Again through electrification - building a mine to battery to electric vehicle industry right here in America - eliminating your dependence on foreign suppliers and taking leadership in supplying critical metals that are needed for both civilian and military uses. Rare earths are not only used in EVs, but a host of other civilian applications, including cell phones, computer hard drives, wind turbines, TVs, cameras and lighting. Guided bombs and night vision are just two applications used by the US Military. Building mines that can process lithium and rare earths, which would attract companies to spend money on gigafactories like Tesla's that can make batteries in America and sell them to American automakers.

Go electric, Mr. President. You and your coal miner buddies won't regret it.

Sincerely,  
Richard (Rick) Mills  
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