

IS is defeated but not vanquished

Editorial

The fall last week of Raqqa, Syria, capital of the self-declared caliphate of the Islamic State extremist group, is a reason to rejoice. The mass surrender of insurgents who had vowed to fight to the death is an indicator of the state of an organization that had an impressive string of victories in Iraq and Syria. At its apogee, IS controlled land equivalent in size to the United Kingdom and reigned over 10 million people. A concerted push by allied forces has pushed IS out of all but a few remaining outposts and forced its members to flee.

This victory does not mean that the war is over, however. IS has lost a caliphate and its leaders driven underground, but it has vowed to return to its roots as a guerilla organization and take up terrorist activities with new determination. Vigilance and equal determination from law enforcement and security agencies are needed now more than ever.

IS leaders and adherents are well acquainted with the vicissitudes of war. Formed in 1999 as an Islamic militant group, it later emerged as al-Qaida in Iraq and played an important role in the chaos after the United States-led invasion of that country. The military surge in 2007 and 2008 inflicted heavy losses on the group — it was estimated that the Islamic State of Iraq, the IS predecessor, had just 700 fighters by the time U.S. forces withdrew from Iraq in 2011 — but it tapped resentments of the Sunni community after a Shiite government took power in Baghdad to sustain itself.

The incompetence and intolerance of the Iraqi government fanned the flames of Sunni grievance, which led to a resurgence for IS. The bloody civil war in Syria provided a second front. IS fighters won a string of victories that culminated in the June 2014 declaration of a caliphate that would rule the world in the name of Islam.

Those successes won followers hailing from countries around the world. They also focused the attention and efforts of governments seeking stability in the Middle East or which felt threatened by a militant Sunni presence. A counteroffensive was launched at the end of 2015 that has unraveled the caliphate and restored most of the land seized to the governments in Baghdad and Damascus.

The war will continue, however. IS remains a formidable force, with an estimated 6,000 to 10,000 fighters in Iraq and Syria, eight to 14 times the number it had in 2011. More ominously, remaining forces are true believers.

The chief concern now is that fighters will disburse to other parts of the world, taking up residence in or creating new IS cells. IS reportedly began planning for defeat over a year ago and is ready to resume as an insurgency. Counterterrorism officials warn that sleeper cells have been established in the Middle East, Europe and Asia, and fighters trained for battle in Iraq and Syria will instead use their skills there. After all, even as IS was losing ground in its caliphate, it claimed responsibility for terrorist attacks in Britain, Turkey and seven other countries — all in 2017 alone.

Asian governments must be alert to the militant presence in Southeast Asia. The Maute group in the Philippines declared itself the Islamic State of Lanao and pledged allegiance to IS in 2015. Philippine President Rodrigo Duterte declared victory over Maute on Oct. 17, after retaking the city of Marawi from the group, a battle that took five months and over 1,000 lives. Many fighters left the caliphate to join that struggle. Other disaffected Muslim groups in Southeast Asia could also be ripe for recruitment.

One of the most worrisome elements of IS is its ability to inspire followers to take action on their own. IS has proved masterful in its use of social media, capable of recruiting the angry and the disaffected all over the world. Adherents do not need formal training and IS directed some attacks remotely.

There are several obvious lessons. First, security officials must anticipate stepped-up attacks after IS defeat. Particular attention needs to be paid to its social media and online presence and attempts to recruit and direct followers.

Second, the IS defeat creates opportunities for rival militant groups to reclaim status and prominence in the fight against the West. Al-Qaida has been chaffing since being eclipsed by IS. It has promoted Hamza bin Laden, the son of Osama, as its leader to attract young followers.

Third, governments must remain sensitive to Sunni grievances. Islamic State, al-Qaida and other militant groups have followers because they are angry, disenfranchised and marginalized. IS spokesman Abu Mohammed al-Adnani, killed last year by a U.S. drone strike, told followers that “True defeat is the loss of will-power and desire to fight.” He is right: The best way to stop terrorism is to give the terrorists no reason to take up arms.

What electric vehicles portend for the future

The EV revolution could drastically cut CO2 emissions but may bring large-scale job losses

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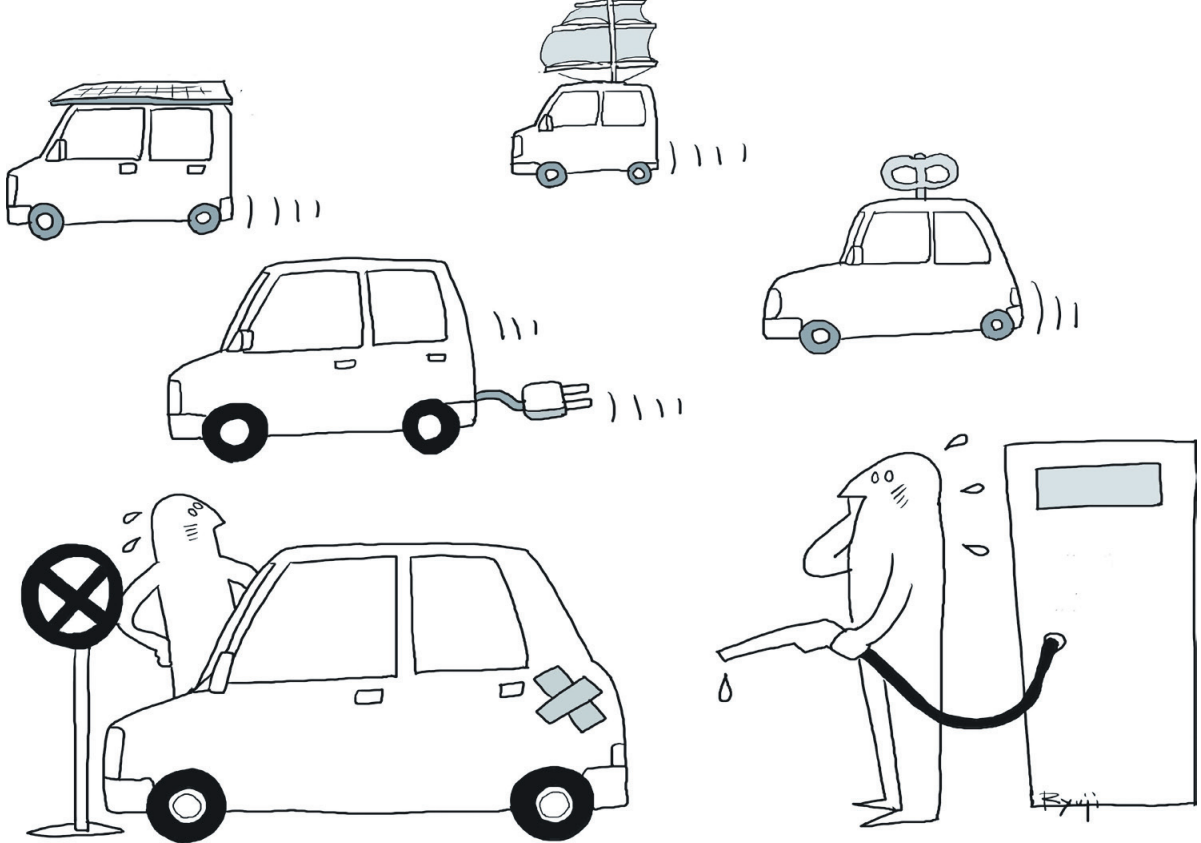
Britain and France announced recently that the sale of gasoline- and diesel-powered motor vehicles would be banned by 2040. The Chinese government has also moved up by 10 years to 2030 the date for prohibiting the sale of such vehicles, while also obligating automakers to power at least 10 percent of new vehicles produced or sold in and after 2019 with new energy sources, like electric vehicles (EVs), plug-in hybrid electric vehicles and fuel cell cars.

To attain the goals under the Paris agreement on climate change, it is imperative to replace vehicles powered by conventional engines emitting huge amounts of carbon dioxide with EVs and other new energy vehicles. The Chinese government defines “new energy vehicles” as those that emit little or no CO2. A motor-driven EV carrying a storage battery certainly does not emit CO2 when driven. However, CO2 is still emitted at the source of electric power generation to varying degrees.

Here, I would like to first quantify how an EV serves to reduce the per-unit-distance emission of CO2 compared with a gasoline-powered vehicle (and dispel the misunderstanding that such a reduction is achieved only when nuclear power is the primary source of electricity supply), and second discuss the possibility that such an EV revolution might give rise to a serious unemployment problem.

Of the total CO2 emissions in Japan, the transportation sector accounts for 17 percent, according to 2015 statistics. Of that portion, passenger cars account for 51 percent and trucks and buses for 36 percent, with the remaining 13 percent attributed to railways, airplanes and ships.

The structure of an EV, in which a motor and a storage battery are mounted, is quite simple compared with a conventional engine-powered vehicle. It's so simple that proud engineers who have built automobiles



may lose interest. One of the reasons that long hampered new entry into the car industry was the high skills required in developing engines that, in the past, competed for more horsepower and rapid acceleration and, more recently, greater fuel efficiency. Improving engine performance must have been the pride of automotive engineers more than anything else. The hybrid vehicle, which Toyota Motor Corp. commercialized in 1997, and the subsequent plug-in hybrid car, are the ultimate form technological development in engine-powered vehicles.

Burning one liter of gasoline emits 2,300 grams of CO2. Since motor vehicles, including trucks and buses, account for nearly 15 percent of Japan's total CO2 emissions, improving vehicle fuel efficiency is an urgent task for combating climate change.

How much less CO2 does an EV, which indirectly emits carbon dioxide at the source of electricity generation, emit per unit distance compared with a gasoline-powered car? The CO2 emission per 1 kilowatt-hour

of power generation depends, of course, on the composition of energy sources at power plants. A thermal power plant emits more CO2 than any other type. Greater use of hydraulic power, nuclear power and renewable energy can reduce CO2 emissions. In fiscal 2010, just before the March 2012 disaster at Tokyo Electric Power Company Holding's Fukushima No. 1 nuclear power plant, the national average CO2 emission was 416 grams per kilowatt-hour. In fiscal 2013, after all nuclear power plants were idled, the figure rose to 570 grams.

Fuel economy is about 10 km per liter for gasoline-powered passenger cars and a little over 20 km per liter for hybrid cars. The comparable figure for EVs is some 10 km per kilowatt-hour. Even with all nuclear power plants idled, an EV emits only about half as much CO2 as hybrid vehicles. Even if all power stations used coal, the CO2 emission per kilowatt-hour would be 864 grams, making CO2 emissions from an EV less than from a hybrid car.

A serious social problem that the EV revolution entails is a possible large-scale loss of job opportunities.

Can EVs sow the seeds of Detroit's comeback?

U.S. automakers focus on achieving future dominance in the burgeoning EV market

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Internal combustion engines, transmissions and overall vehicle structure are the core competencies of major vehicle manufacturers. They outsource and rely on others for quality control of seats, dashboards and the like. With regard to the future, that puts them at a disadvantage. Electronics, computers and the like are not what they do well.

The principal barriers to profitable production and wide adaptation of electric vehicles (EVs) have been range, high costs and the availability of charging stations.

**Government help needed?**

As previously in U.S. industrial history — just think of emergence of the railroads via their land grants and rights of way and the airlines with their postal contracts and municipal financing of airports — aggressive government intervention may prove necessary to create a broad enough market to overcome those challenges in the United States.

That option, however, may well be an anathema to Republican policymakers who dominate U.S. politics these days.

General Motors and others are introducing vehicles that can go up to 320 km before recharging. That range will gradually improve and recharge times will come down. Eventually, this will provide the practical range necessary for most family trips — and not just for errands and commuting.

However, until a mass market truly emerges to spur more rapid innovation and drive down the cost of batteries, EVs will remain an expensive fashion statement. In that regard, cheap gas is not an advantage.

With U.S. gas prices likely to stay around \$2.50 per gallon (3.8 liters) for the foreseeable future, electric vehicles simply cost too much more than conventional SUVs to purchase and operate overall.



A Tesla car recharges at a Shanghai mall on Monday. Tesla has reached an agreement with Shanghai authorities that would make it the first foreign automaker to build its own plant in China, putting the U.S. firm in the driver's seat in the world's biggest electric-vehicle market. AFP/Jiji

Difficult urban landscape

It does not help that too many families, especially in large cities where consumers may be favoring EVs, actually lack potential charging stations. Just consider the many metro areas, like New York City, that are built straight up. Even more spread-out cities like Washington have many homes with no driveway and whose drivers park on the street. Systems of charging stations must be constructed in front of homes across a vast swath of America to recharge batteries overnight.

Paying for charging stations?

Cash-strapped U.S. cities can hardly maintain water and sewage systems, ambulance services and roads now, never mind build out systems of electrical charging stations more complex and difficult to keep safe than underground cable TV systems.

In all likelihood, city governments will have to turn to private investors who must be assured of enough subscribers to make such large investments attractive.

The federal government provides tax credits up to \$7,500 for the first 200,000 EVs sold by each manufacturer. That can have a boomerang effect on individual companies. For example, Tesla will soon cross that threshold and lose its subsidies — without yet producing a vehicle whose price can cover costs.

China leads the race

Beijing is more aggressively underwriting domestic manufacturers and building a vast system of charging stations. It has earmarked \$1.3 billion to help replace 70,000 city cabs with EVs. It is also restricting license plates for new gas-powered vehicles in seven major Chinese cities.

Along with the United Kingdom, France and India, China has also signaled its intention to eventually ban the sale of gas-powered vehicles.

With a large indigenous auto sector and a market for motor vehicles about twice the size of the United States or Europe, this could easily drive down the costs of Chinese manu-

facturers to levels competitive with or even lower than gas and diesel vehicles.

The Chinese may very well have appetite for more — including flooding the U.S. market with their EVs. Given the lower complexity of electric vehicles, it stands to reason that the traditional concerns about the quality of cars made in China will not apply.

**What's the U.S. to do?**

Faced with that challenge, a competitive response is in order. Americans may not like their government similarly meddling in their market for personal transportation.

However, the past experiences with boosting the rail and air transportation sectors and having them penetrate our continental economy demonstrate that is exactly what may be necessary to keep American manufacturers in the game.

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