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CHINA

the overtake

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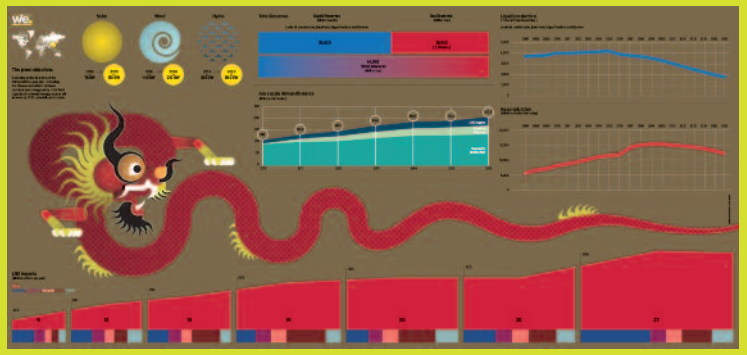
C O N T E N T S

6

CHINA'S RISE AS A GLOBAL ECONOMIC POWER
by Elenoire Laudieri Di Biase



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ERRATUM CORRECTION.
In the map on page 42 of the previous issue of **WE** (#36) the Republic of Armenia was not included. We apologize for the inconvenience to the Armenian Embassy in Italy and have re-published the correct map here.

All opinions expressed in **WE** represent only the personal viewpoints of individual authors.

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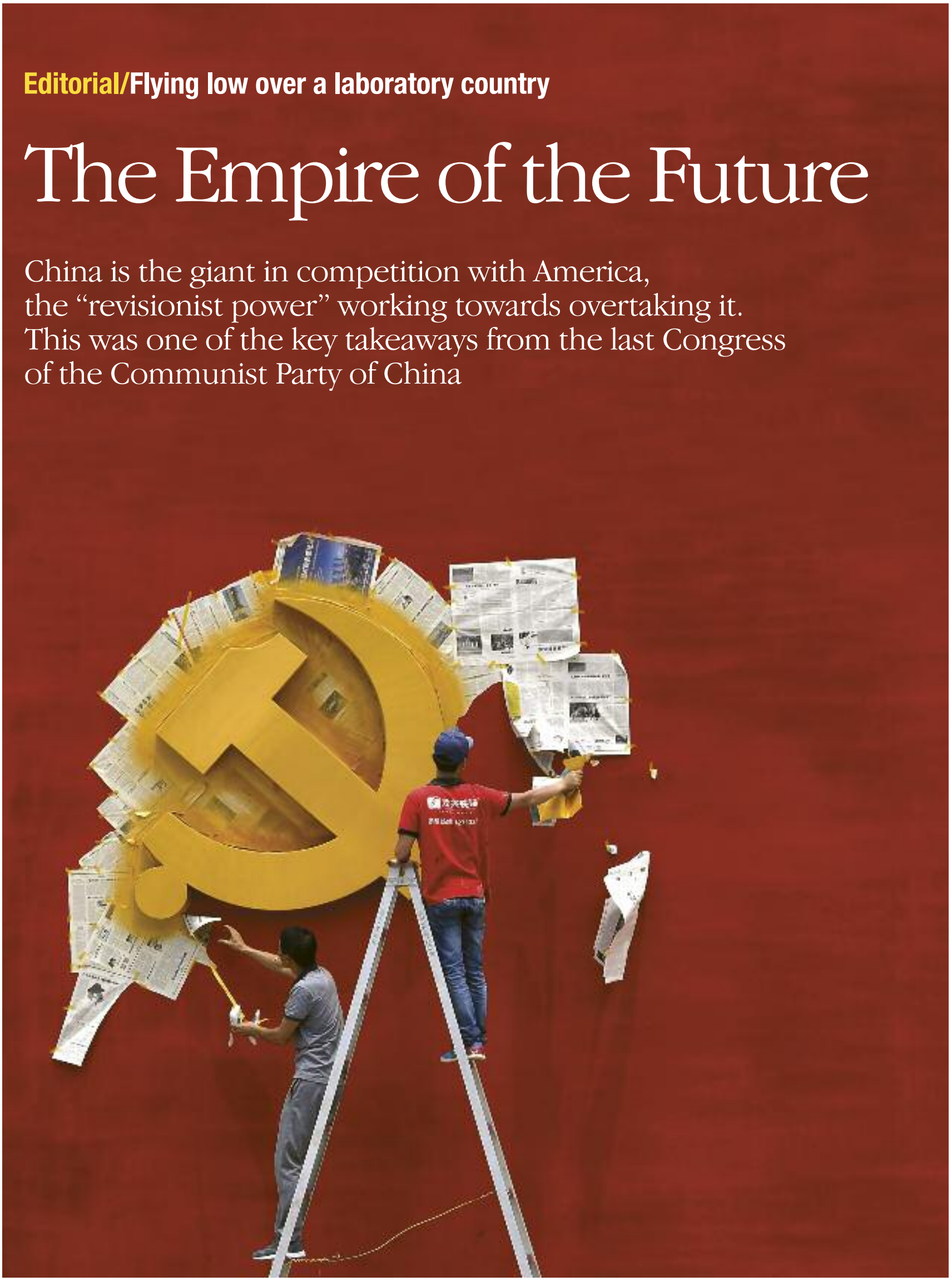
Editorial/Flying low over a laboratory country

The Empire of the Future

China is the giant in competition with America,
the "revisionist power" working towards overtaking it.
This was one of the key takeaways from the last Congress
of the Communist Party of China



uring the U.S. presidential campaign, a video comprised of snippets of Donald Trump obsessively repeating "China! China! China!" went viral. The fixation of the then-candidate for the White House has since become the reality of daily politics, with President Xi Jinping as the opponent—and, let's not forget, the partner—to be reckoned with on a daily basis. The Trump administration's new National Security Strategy, a document putting America First in black and white and the national strategy paramount, acknowledges the renaissance of power politics in international affairs. It makes the sensitive issue with Beijing all the more clear: "China and Russia challenge American power, influence, and interests, attempting to erode American security and prosperity. They are determined to make economies less free and less fair, to grow their militaries, and to control information and data to repress their societies and expand their influence. At the same time, the dictatorships of the Democratic People's Republic of Korea and the Islamic Republic of Iran are determined to destabilize regions, threaten Americans and our allies, and brutalize their own people."

The giant competing to overtake America

Beijing. And Moscow. Xi Jinping. And Putin. Two massive countries and two charismatic leaders. But China is the giant in competition with America; it is the "revisionist power" working towards a goal of overtaking it. This was one of the key takeaways from the last Congress of the Communist Party of China. This issue of **World Energy** flies low over this scene, over a laboratory country where the largest social experiment in the world has been underway for decades. It is no coincidence that Moscow and Beijing form part of the same picture. China has close ties with Russia, with oil and gas under its permafrost, and the talented tactician Vladimir Putin in the Kremlin. Trump's America First is Xi's China First, in reverse. Washington's fortress mentality is similar to Beijing's insular movements. In the end, the two highly disparate cultures both have a centuries-old vocation of imperialism. Trump's recent visit to Beijing ended with the signing of a valuable contract for $250 billion for the Americans, although this is only a tactic by Xi to buy the time China needs from the Americans, as we will see in this issue of **WE**, time to speed up their transformation. The nation, the empire, the framework. We face a new era of globalization. The pillars of the first were the galleons of the Spanish Armada, the ships of the Royal Navy, the Amsterdam of the East India Company, plotting the route with compasses and sextants. The energy came from the sails blown by the trade winds and the thunder of cannon. It was that flat, crowded, warm world where exploration and conquests began. This is the basis for the unrelenting drive of modern times, forming the future every day before our eyes. The "new" is constant making and unmaking. When we see a light on the horizon, that is a change of pace, a door speeding up change that, in truth, never stops. This pathway is set out beautifully in Carl Schmitt's Land and Sea, where we discover two strategic dimensions (with a third, space), one arena and one goal: world domination. The search for physical space, power, energy. China is like Jupiter in our solar system, immense and mysterious, with its swirling great red spot, its storms and its huge expanses of solitude and multitude. While the European powers

were committed to the race for the Modern, China had already developed a highly sophisticated economic, political and cultural system. In the 9th century, Chinese alchemists had already discovered gunpowder. The oldest gun and rocket in the world are both Chinese. War. And energy.

Looking to the past to understand the future

This issue of **World Energy** offers a view of the present and the future. I like to look forward, keeping in mind a few old books, signs of remote civilizations, and the blinking lights of yesteryear that show us the precise direction of tomorrow. Many are still amazed by the incredible development of Chinese capitalism. Just read Adam Smith in Beijing, a book by Giovanni Arrighi, to understand the inevitable reversal. Karl Marx in Detroit and Adam Smith in Beijing. The figureheads of ideology are not as reversed as it may seem. They are only driven by the winds of history towards the position imposed by the facts, events and milestones of "civilization." It is not human whimsy, but the Zeitgeist, the Sign of the Times, that fills the album of Mankind. This flow of capital, the organization of all the inputs (with energy the initial spark) towards the East is inevitable and inexorable, driven as it is by the forces of demographics and technological developments at ever-lower cost. I was fortunate enough to present at the **World Energy** Outlook conference a few weeks ago, alongside Claudio Descalzi, Fatih Birol, Carlo Calenda and Gianluca Galletti (see page 20). Once again, it was confirmed that when populations increase, so does production and demand for energy. China and India will produce a wave of innovation destined to change a picture already disrupted by the United States, now #1 in the Oil & Gas sector. However, it is not yet game over, nor will American primacy go on forever. The story told in this issue of **World Energy** confirms the great dynamism and all the unknowns that the two "Empires"— China and the United States—must face in the near future. Personality, human choices, aspirations, peoples' wishes and the unpredictable, powerful movements of the masses all come into play here. To understand the strengths (and weaknesses) of China, read the words of the uninformed yet eager masses in Elias Canetti's Crowds and Power, in its luminous passages on the power of the silent, the masses, and the difficulty of governing them. While we in the West quote Machiavelli's *The Prince* to evoke dark forces, reason and the drive for power, in the East, *The Book of Lord Shang* is evoked to reveal "a political theory of unscrupulousness, up against which modern formulations —Machiavelli and Hobbes included—seem timid." Governing events and people in China is smoothed by the incessant drip-drop of history and the superficially-calm yet ardent flow of the rivers at its base.

Energy speaks of a country's development

China's energy mix, the exponential growth in the use of renewables and the transition to natural gas, in parallel with the still-huge demand for oil, provide a far better explanation than we might think of the history of China and its relationship with the government, the exercise of power and the distant gaze of its leaders of the past, present and future. Tradition, change, persistence. The Chinese songsheet is made up of ties and chromatic signs that highlight diversity, yet are also bound to tradition. This transition and picture of innovation must still take into account coal and oil. Transformation of infrastructure requires time, planning, action, capital, and a vision. The statements from the Congress of the Communist Party of China plot the route, but the U.S. cannot be overtaken by just explaining a plan. It has to be implemented. The change in the energy landscape is the engine of this project. The Trump administration's National Security Strategy mentions China on 16 of its 53 pages, and the word "energy" on 10 pages. These two words are inextricably linked to their final outcome, power. In turn, in a passage evoking Nietzsche, power is linked to desire. China's strength is to come first, to overtake, to regain the domination it had many centuries ago. There is nothing unusual in all this —in history's cycle of eternal recurrence. It is natural, and only a matter of dates. It is the pendulum swinging between East and West, the drill of time ultimately finding the deposit of the present after exploring memory and excavating the ancient Great Wall.

Energy power is juxtaposed with that of data, information, and computing capacity. Combining these elements is essential for an interpretation of the contemporary world. In the first issue of **World Energy**, I wrote that defining energy as a "sector" is an error, a source of ambiguities, understatement, misunderstandings, and deviations in public debate. Those who extract the raw materials for energy transform them, distribute them, make them available to those who need them. They are the blacksmiths beating the iron of modernity like no other. Now only the architects of the digital world have the same ability to shape the future, although there is a slight difference. If there is no energy, super computers and algorithms do not work. Energy is a crucial factor in change, and is now closely linked to the development of pervasive computing and big data. China is a huge technology laboratory, transforming its manufacturing and energy grid to become the #1 world power. In a scenario that recalls the politics of the Westphalian great powers, this play of atoms and molecules, extractions and refining, liquefaction and compression, startups and shutdowns is the forest drum beating out China's rhythm of growth, contraction and expansion. Since the days of the ancient Silk Road, China has been connection and disconnection, understanding and misunderstanding, the encounter and the clash between the East and West. Readers of the works of René Guenon know these refined, incisive insights, the Great Game admirably recounted by Franco Cardini in this issue of **World Energy**. This ping-pong—no coincidence in the reference to Nixon and Kissinger's ping-pong diplomacy—on the table of geopolitics is played on raw materials and their transformation, their distribution and efficiency. The U.S. remains the leader in technology research, but it is on thin ice and is no longer only related to military research development. Digital development began at DARPA (the Defense Advanced Research Projects Agency, the U.S. government agency responsible for the development of emerging technologies for use by the military), then became a mass reality in the garages of Silicon Valley kids. The entry threshold—even in energy research, still in need of major investment—has been lowered. A dwarf can stand on the shoulders of giants. It may seem like Tolkien's Middle Earth of giants and dragons, but this is the reality of harking back to where the story began, in the East, to the world where Emperor Qianlong replied to King George III of England: "Our Celestial Empire possesses all things in prolific abundance and lacks no product within its borders."

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Scenario/The future in light of the past

China's Rise as a Global Economic Power

If the 20th century has been the American Century, the 21st is definitely shaping up as the century of China, whose political and economic strategy looks potentially beneficial for all

ELENOIRE LAUDIERI DI BIASE

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China's phenomenal rise as a global economic power is a source of wonder to the rest of the world and continues to puzzle many political analysts and economists alike.

How could an underdeveloped and poverty-stricken country with over 1.3 billion people become the world's largest manufacturing powerhouse in just three decades the world largest manufacturing powerhouse? Such transformation is almost beyond belief, though China is not new to astonishing achievements.

China was first with many breakthroughs and engineering feats of global significance including three great inventions that changed the world, namely papermaking, gunpowder and the compass.

Since Marco Polo, seven centuries ago, first disclosed its marvels to the West, the wealth of China's major cities and the level of craftmanship amazed many first-time European travellers. In 1750, China produced 33 percent of the world's manufactured goods, and for more than two thousand years, the so-called silk-road was an intercontinental trade route for export of Chinese silk, textiles and porcelain wares to Europe.

In the 19th century came the British warships, the Opium Wars, the collapse of China's imperial system, the dysfunctions of the first republic, the Japanese invasion, the civil war, the →

A Great Leader

Xi Jinping is one of the most prominent leaders in the history of China

If Machiavelli were alive today, he would probably consider the current president of China as the epitome of the ideal ruler. As a matter of fact, in the first speech Xi Jinping pronounced in 2012 upon becoming China's supreme leader, he used an expression that seemed suited to "Machiavelli's *The Prince*." Referring to the need to eradicate corruption, he said that "to forge an iron, you need a strong hammer." Yet it is not because of the sternness of this statement that Machiavelli would like Xi Jinping. Contrary to popular opinion, the Florentine thinker did not just expect a leader to be unscrupulously forceful. His views of course reflected the Italian reality of his times but if we put them in a modern context, his ideal ruler, besides being iron-willed, should be a charismatic and intelligent figure devoted to the progress and well-being of his people.

birth of the "People's Republic of China" under Mao's communist regime and finally the human and economic devastation brought about by the Cultural Revolution.

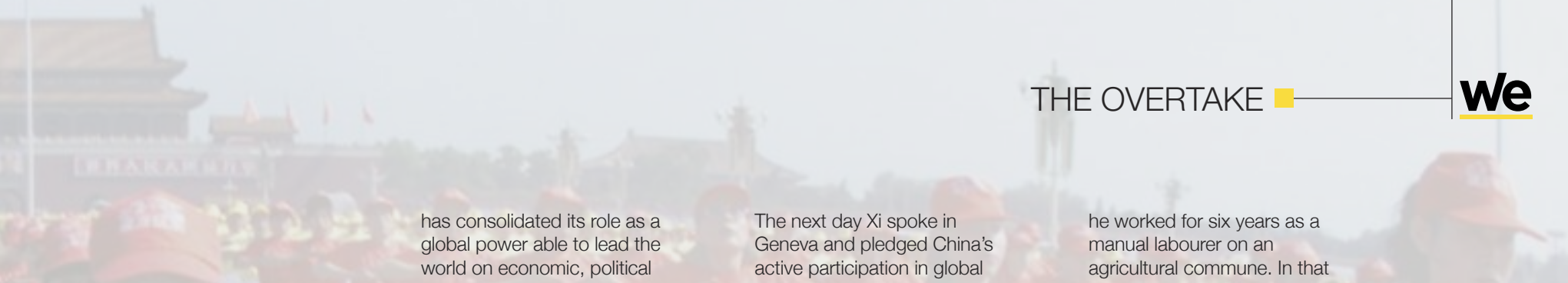
It seemed that what was once one of the world's richest and most advanced country had fallen apart, but it was just a matter of time for it to rise again, like a phoenix from the ashes. China's communism changed its skin by opening to a market economy and adopting a dual-track system of government and private enterprise. A plan of reforms was undertaken with a low-key and gradualist agenda that eventually burst into a spectacular economic upswing.

The economic boom and the demand for energy resources

It was a bottom-up evolution that started from the agricultural industry and moved up the industrial ladder, from light to heavy industries, from labor to capital-intensive production, from manufacturing to financial capitalism, and from a high-saving state to a consumeristic welfare state. Today China produces nearly 50 percent of the world's major industrial goods, including 50 percent of crude steel (800 percent of the U.S. level); 60 percent of cement, 50 percent of coal; more than 25 percent of vehicles and industrial patent applications (about 150 percent of the U.S. level).

China is also the world's largest producer of ships, high-speed trains, robots, tunnels, bridges, highways, chemical fibers, machine tools, computers, cell phones and all sorts of other hi-tech products.

Its road network comprises 2.6 million miles of public roads of which more than 70,000 miles of express



These are qualities that have allowed Xi Jinping to become one of the most consequential leaders in Chinese history.
Since assuming office, he wasted no time in getting a firm hold on power and outlining his vision. In that same speech, he laid a new course for his country aimed to achieve "the rejuvenation of the Chinese nation [that] has been the greatest dream of the Chinese people since the advent of modern times."
In saying so he declared the end of Deng Xiaoping's tiptoed policy of "hiding your strength and biding your time" which underlaid China's historical shift to a market economy.
During Xi's first term, China has consolidated its role as a global power able to lead the world on economic, political and environmental issues.
His anti-graft campaign has freed China from thousands of corrupt public servants and politicians, while raising the suspicion that he also used it to purge his rivals and their allies, even if there was no evidence of political antagonists able to challenge his leadership. Under Xi Jinping, China has extended its role in international affairs, establishing its first foreign military base in Djibouti and sponsoring the vast "One Belt One Road" intercontinental infrastructure project. The decline of the American ascendancy has come as a bonus.
At the World Economic Forum in Davos earlier this year, Xi Jinping positioned himself as the champion of globalization, free trade and action on climate change. He said that "we should commit ourselves to growing an open global economy to share opportunities and interests through opening up and achieve win-win outcomes."
Ian Bremmer, president of Eurasia Group—the world's largest organization concerned with political risk and security—suggested that the reaction to Xi's speech by the Forum attendants was "success on all counts—miles away from any official Chinese speech before."
The next day Xi spoke in Geneva and pledged China's active participation in global governance and international and multinational bodies to build a "community of shared future for mankind." He added that "we should build a world of common security for all through joint efforts" and "stay committed to building a world of lasting through dialogue and consultation."
At the recent 19th congress of the Chinese Communist Party (CCP), as expected, he was confirmed in his role as party secretary and president of the nation. He gave a marathon speech that laid out a program so grand that it took over three and a half hours to delineate.
Xi Jinping's China is clearly stepping in to fill the gap left by the United States which, under Trump and his policy of "America first," appears to have abdicated its position at the helm of the global order it created after the Second World War and has since dominated.
As the son of Xi Zhongxun, one of the Communist party's first-generation leaders, Xi Jinping seemed predestined to a prominent political career, but his ascent to power was all but an easy one. When he was a teenager his father was persecuted for not complying with party doctrine and lost touch with his family.
During the Cultural Revolution Xi Jinping was sent to a remote country village where he worked for six years as a manual labourer on an agricultural commune. In that period, he developed an especially good relationship with the local peasantry, which would sustain Xi's eventual rise through the ranks of the CCP.
An anecdote from a book about the story of his family recounts that when finally reuniting with his two sons, Xi's father had been tortured so badly that he could hardly recognize them. Confused and disoriented after years of isolation and interrogation, the old man wept, and when Xi offered him a cigarette, he asked him: "How come you also smoke?'" Xi answered: "I'm depressed. We've also made it through tough times over these years." The father went quiet for a moment and said: "I grant you approval to smoke."
An episode like this explains why being in a position of enormous power has not gone to his head.
Interviewed by the Chinese Times long before becoming China's supreme leader, he thus defined his approach to politics: "I look past the superficial things: the power and the flowers and the glory and the applause. I see the detention houses, the fickleness of human relationships. I understand politics on a deeper level."

E.L.D.B.

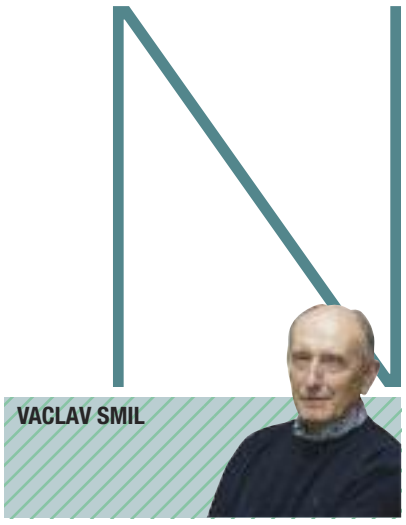
highways (46 percent more than in the U.S.). Twenty-eight provinces (out of 30) have high-speed trains (with total length exceeding 10,000 miles, 50 percent more than the total for the rest of the world).
As the economy and exports boomed, the demand for energy resources went up, making China the world's largest consumer of coal, and its electricity sector the largest single source of coal consumption.
As for oil, last July, demand rose by 69,000 BPD over the previous year, reaching an annual total of 11.67 million BPD. Year-to-date data shows an average growth of 550,000 BPD, more than double the 210,000 BPD growth recorded during the same period in 2016.
Petrol consumption was higher by around 0.10 million BPD, driven by robust sports utility vehicle (SUV) sales, which were around 17 percent higher than one year ago. China's overall vehicle sales in July rose by 4 percent, with total sales reaching 1.7 million units.
These statistics seem to contradict China's adherence to the Paris Climate Agreement. But while it is a long way from reining in its oil consumption growth, China is currently pursuing a shift to the more environmentally friendly natural gas, demand for which swelled in the middle of last summer.
Imports in July jumped by 55 percent over the previous year and are up by almost 21 percent for the entire year. That's on top of a 8.8 percent increase in domestic output during the first seven months of the year, according to the National Bureau of Statistics.
A surge in LNG imports and production boosted global output to a record high in July. New plants will ensure there's ample supply for Chinese buyers, even as they are expected to increase imports this winter by 30 percent from last year.

Rebalancing exports and internal consumption

Meanwhile, private sector wages in China have gone up almost 15 percent annually over the past decade, and, although productivity has improved, China's unit labor costs have increased sharply. This factor together with the decline of the working-age population, is today pushing China away from lower-end, labor-intensive exports to more sophisticated, higher-value goods.
On the whole, the Chinese economy is also rebalancing exports and investments towards domestic consumption and the tertiary industry as new drivers of growth, a major structural change that will affect what China imports from other countries.
After decades of large trade surpluses and surging foreign direct investment, Beijing accumulated the largest foreign exchange reserves in the world (currently at USD 3.185 trillion).
If the 20th century was America's century, the 21st is definitely shaping up as China's. As the United States, after World War II, presided over and fostered the rebuilding of the western economy with benefits for all nations involved, China is pursuing win-win development strategies too, through global business engagement and international infrastructure build-up regardless of religion, culture, political system and national boundary. How other nations can benefit from China's economic ascendancy depends on their own adaptability, resolve and foresight.

The Dark Side of Growth

China's advances have worrisome implications: The use of coal has made it one of the world's most polluting countries, and the new economy has created massive income disparities. A successful future will require determined approaches to these challenges



VACLAV SMIL

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o country has expanded its energy consumption as rapidly, and as comprehensively, as China since 1990. In order to appreciate the speed and the extent of this progress it is necessary to understand some of the country's history.

Ancient China pioneered two key energy conversions: it was the first country (during the Han dynasty two millennia ago) to use metallurgical coal in producing liquid (cast) iron for plows and cooking pots, and the first to use natural gas (extracted from wells drilled by percussion tools and transported in bamboo pipes) to evaporate brines and produce salt in land-locked Sichuan.

China maintained its technical leadership until the 18th century, when its economy was still the world's largest, and when its average per capita income and energy use were comparable to the richest countries of continental Europe.

When China had a backward economy

Subsequent economic stagnation and conflicts during the 19th century (wars with Britain and Japan, domestic uprisings), the collapse of the imperial power in 1911 and decades of war (civil and against Japan) left the new China (PRC was established in October 1949) a backward economy with very low energy use. In 1950, average per capita availability of modern energy was no more than 2.5 GJ (equivalent to just 100 kg of coal), and all but a small fraction of China's population relied on an inadequate supply of wood and straw. Annual output of coal was only about 40 million tons (Mt), oil production was just 200,000 t and natural gas extraction and hydroelectricity generation were negligible. Maoist industrialization, based on the Stalinist model, boosted coal mining and at the end of the first five-year plan in 1957, coal output had nearly quadrupled. But the following years of profound economic mismanagement (the famine of the Great Leap Forward between 1958 and 1961 followed by the Cultural Revolution of 1966-1976) did little to improve personal access to energy or to promote the transition from coal.

Mao Zedong died in 1976, Deng Xiaoping assumed power in December 1979, and his bold economic reforms slowly began in 1980. At that time China was still an overwhelmingly rural economy with major energy shortages. In 1980 wood, charcoal and straw supplied no less than 25 percent of the country's total primary energy and 70 percent of the rural household demand, and 500 million peasants (63 percent of the total rural population) suffered from serious, months-long fuel shortages. Coal (1980 output of about 600 Mt) supplied 72 percent of all primary energy, crude oil production had just surpassed 100 Mt and gas extraction remained negligible.

Rural access to energy finally improved during the 1980s, when rising output from small local coal mines and the return of privately owned woodlots raised the supply, while mass adoption of improved stoves reduced combustion losses. Biomass use fell to 13 percent of all energy in 2000, but in absolute terms it peaked in 2006, when it was equal to nearly 200 Mt of oil equivalent. Only the subsequent surge in fossil fuel consumption cut the contribution of traditional biofuels to less than 5 percent of the total by 2015, a figure comparable to that of America.

The role of coal in the last thirty years

Coal has always dominated China's modern energy supply, but the post-1990 surge in its extraction has no precedent in history. During the 1990s, output rose by nearly 30 percent, but during the first decade of the 21st century, China added 2 billion tons (or Gigatons, Gt) to its annual output, reaching nearly 3.5 Gt and then setting a new mining record, close to 4 Gt in 2013, when it accounted for 48 percent of the world's coal output. Not surprisingly, coal-based generation has recently produced nearly 60 percent of electric power, and a large part of this historic coal surge was energy embodied in China's impressive increased crop harvests and in unprecedented infrastructure expansion. Coal and hydrocarbons were used both as fuels and feedstock to boost ammonia synthesis. China has been the world's leading user of nitrogenous fertilizers since 1979, and thanks to intensive applications it can now feed its 1.38 billion people and provide on average a daily per capita food supply higher than that of Japan while being less dependent on food imports (now about 20 percent of all grain, while Japan imports about 60 percent of its food energy). Metallurgical coke has driven China's rise to become by far the world's largest producer of steel (half of the world's output of 1.6 Gt/year), and China has also become the world's dominant producer of cement (2.4 out of 4.2 Gt in 2016). This mass-scale supply of steel and cement has made it possible to carry on the largest urbanization program in history (the share of urban population rose from 20 percent in 1980 to 56 percent in 2015) and to build the world's most extensive multilane highway and high-speed rail systems. The intensity of this effort is best conveyed by the fact that recently China has been emplacing more concrete in its infrastructures every three years than the U.S. did during the entire 20th century. China's National Trunk Highway System reached 123,000 km in 2015, 60 percent longer than the U.S. interstate network (the two countries have nearly identical area) while the high-speed rail links now surpass 22,000 km.

But there has been a price to pay for these advances: coal resources have provided a rapidly rising and reliable supply of energy, but environmental and health consequences have been predictably negative. The dangers begin with mining that is mostly underground. During the first decade of the 21st century, accidental deaths in China's coal mines were nearly 40 times the U.S. mean (U.S. coal is extracted mostly in open-cast mines) and even after recent improvements, fatalities per ton of coal are still more than ten times the U.S. rate. Air pollution in large northern cities, where emissions from coal combus- →

tion have been augmented by emissions from millions of newly sold cars (record of 28 million in 2016, 10 million above U.S. sales), reached levels without precedent.
An air quality index (AQI) of less than 50 indicates clean air, and levels between 151 and 200 are generally unhealthy. Since 2010, some Chinese cities have experienced days with AQI surpassing not just 300 but even 500 and, exceptionally, as high as 700, compared to the mean AQI of about 30 for more than 600 monitored U.S. sites. And in 2006, much sooner than expected, China had also become the world's largest emitter of CO_2 from fossil fuel combustion; by 2015, it produced twice as much as the second-place U.S., whose emissions have been declining thanks to a massive shift from coal to natural gas. Reducing China's dependence on coal will take time. In 1980, 72 percent of energy supply (excluding biomass fuels) came from coal. In 2015, the share was still 64 percent and domestic output declined a bit after having reached a record level in 2013. But while the plans are to reduce coal extraction capacity by 800 Mt by 2020 (mostly by closing outdated mines), coal consumption is expected to rise by 2020 to 4.1 Gt.

Following the American example

Given its minimal demand for refined fuels (no private cars, chemical industries based largely on coal, growing, but still limited, crude oil extraction), demand rose from 106 Mt in 1980 to 162 Mt by the year 2000, making China a small net exporter until 1994. Rising demand necessitated higher imports; by 2004 they surpassed 100 Mt, and in 2016 were, at about 380 Mt, just 3 percent lower than U.S. imports. Higher dependence on imports led China to follow the U.S. example and set up a new large strategic oil reserve. But even the combination of rising production and higher imports could not prevent a slight decline in crude oil's share of primary energy supply, as it fell from a peak of 22 percent at the beginning of the 21st century to about 18 percent by 2015. Production of natural gas had nearly quadrupled during the 1990s (from a low base) but by 2015, the fuel's share in primary supply reached only 6 percent, double the 1980 level.
Coal's share in China's primary energy supply should fall due to rising domestic oil output and plans to make natural gas a major component of overall energy supply. A 2016 assessment of potential gas resources raised the previous total by nearly 160 percent, the fuel's share should reach 10 percent of primary supply in 2020, and 2015 extraction should triple by 2030. Starting in 2006, China joined other East Asian countries as a major importer of LNG (from Australia, Indonesia and Qatar); three parallel pipelines already bring natural gas from Turkmenistan, Uzbekistan, and Kazakhstan to China's Xinjiang, and in 2014, a long-term deal was signed with Russia to import natural gas from Eastern Siberia (Chayanda field in Sakha) and Kovykta (west of the Lake Baikal) starting in 2018.
Besides pushing coal extraction, post-1980 China had also embarked on record-breaking development of its water power (its generating potential is the world's largest). Hydrogeneration had more than tripled between 2000 and 2010, the decade that saw the completion of the world's largest hydro project, the Three Gorges Dam (22.5 GW) on the Yangzi connected to coastal load centers by extra-high-voltage direct current (± 500 kV) transmission. Other megaprojects are underway or in planning stages, insuring that hydroelectricity will remain much more important than nuclear generation (37 reactors are now in operation, 20 under construction). Given its high levels of air pollution and its position as the world's largest emitter of greenhouse gases (besides CO_2 from fuel combustion there is also CH_4 from rice fields and N_2O from nitrogenous fertilizers) it is not surprising that China has promoted both wind and PV generation, and in 2016, their combined contribution surpassed that of nuclear generation but equaled only about a quarter of more predictable hydro generation. Moreover, hasty, subsidized construction has resulted in some inferior load capacity factors. In 2016, China's PV generation had an overall load factor of just 10 percent.

A relatively rich country

All of China's post-1980 economic aggregates are stunning: since 2009, the country has been the world's largest energy consumer. When the comparison is done in terms of purchasing power parity, it is now also the world's largest economy (ahead of the E.U. and the U.S.). But in relative terms the country is still far from rich, clearly being a middle-income economy, In per capita terms China ranked only 79th in 2016, just ahead of Brazil and behind Thailand, and Italian per capita GDP is 2.5 times

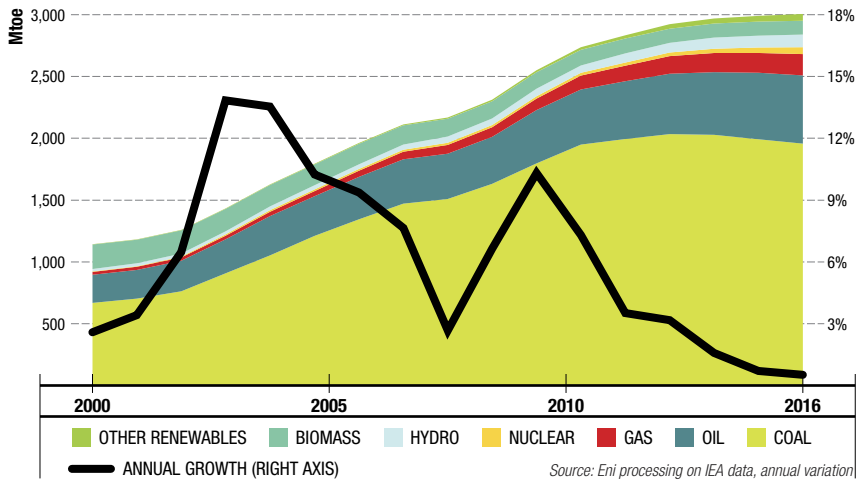
Energy trends

COAL AND ENERGY USE IN INDUSTRY

Source: Eni processing on IEA data, annual variation

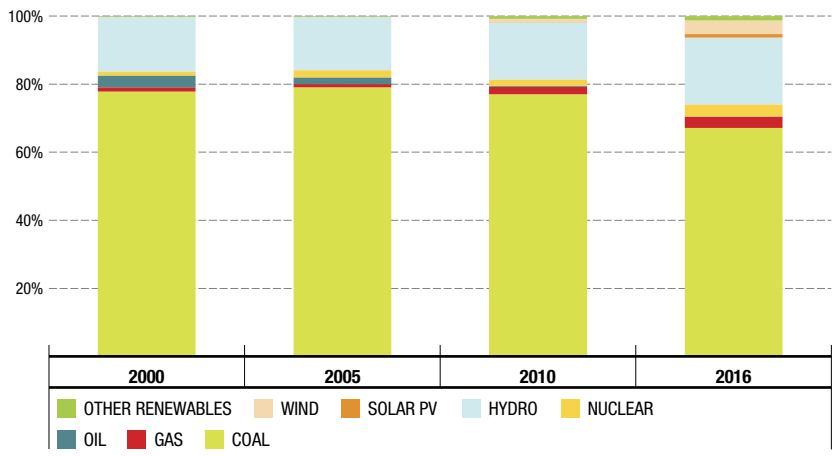
Coal now accounts for almost two-thirds of China's primary energy demand, catering to much of the country's huge industrial demand for energy and providing the backbone of China's immense power system, which has accommodated a quadrupling in electricity demand since 2000. Despite the recent changes in momentum and direction, the starting point for our energy outlook is still an energy economy that, compared with the global average, has an atypical mix of primary fuels and a structure of consumption that is very heavily weighted towards industry.

PRIMARY ENERGY DEMAND BY FUEL



Source: Eni processing on IEA data, annual variation

POWER GENERATION MIX



Source: Eni processing on IEA data, annual variation

Over the last decade, some new features have emerged more prominently in the primary energy mix, as China's policies have sought to move away from the strong reliance on coal, bring more diversity to its energy mix and tackle some burgeoning environmental issues, notably the deterioration in air quality. Growth in energy demand has slowed, coal has peaked, developments suggest that China's energy future may look quite different from its past.

In terms of renewables, China ranks first in the world in installed capacity of hydropower, wind and solar photovoltaic (PV) power. The switch towards renewables in new power investment decisions has boosted their share in China's capacity to more than one-third from less than a quarter ten years ago. Wind power, which now accounts for almost 10% of China's total capacity, has edged past nuclear and natural gas to become China's third largest source of power supply (after coal and hydropower).

and Germany's GDP more than three times higher. Increase in annual per capita primary energy use has been impressive, from only about 25 GJ in 1980 to almost 40 GJ/capita in the year 2000 and then to 95 GJ (about 2.25 tons of oil equivalent) in 2015, the latter rate comparable to the Spanish mean in 1990 or to the French average of the mid-1960s.

But the allocation of China's energy use is very different from the norms in the E.U. and North America. Chinese energy consumption is highly skewed: according to China's Statistical Bureau in 2015, almost 70 percent of the total was claimed by industrial production. This is hardly surprising given China's enormous output of infrastructural materials (the world's larger producer of basic metals, cement, bricks, glass, synthetics) and its post-1990 role as the workshop of the world, exporting industrial and transportation machinery (from large ships to bicycles) and a huge array of consumer products (from apparel and kitchenware to furniture and smart phones). In contrast, in 2015, only about 10 percent of all energy went into transportation and 12 percent is claimed by households (annual equivalent of only about 10 GJ/capita).

These rates should be kept in mind when seeing the images of China's modern downtowns (the country leads in the total number of skyscrapers) and when noting the ostentatious consumption of China's newly rich, at home and abroad. Post-1980 developments did lift about 500 million people from poverty (as defined by the World Bank), another unprecedented achievement. But a notable rural-urban divide still persists (in 2015 44 percent of the population was still rural), new economic opportunities have also brought very high levels of corruption, now a major concern for the government. Transparency International puts China on par with India at 79th place in the worldwide corruption rankings, and the country has experienced increasing income inequality. China's rise could not have taken place without the hundreds of millions of migrants who left their families in villages and now live in often dismal conditions while building new cities. By 2015, this floating population (this is an official Chinese term) reached 250 million people, and none of them is buying coastal properties abroad and paying excessive prices for cars or paintings.

As with any historical appraisal, a closer look reveals a mixture of commendable advances and worrisome developments. Coal has energized China's economic rise, but its use has exacted a high environmental price and made the country the world's largest emitter of greenhouse gases. Surging energy use has created a new economy that has lifted hundreds of millions from the decades of Maoist misery, but previously unthinkable income disparities and ubiquitous corruption are affecting China's social foundations. Given the country's importance in the global economy, and now also in geopolitics, the world's future will be determined to no small degree by how successfully China will tackle these enormous challenges.

Analysis/China's timetable for becoming more ecologically friendly

A New Energy Model

The plan to upgrade China's energy mix announced by President Xi Jinping during the 19th National Congress of the CCP, which is expected to contribute to reducing CO_2 emissions, faces five political and economic challenges that could hinder its implementation

POLITICS REVOLVES AROUND THE NATIONAL CONGRESS
Nurses in Huaibei, in the Anhui province, wave the national flag to celebrate the latest Chinese Communist Party congress, held on October 19, 2017. The National Congress is the meeting of all the country's CCP delegates and is officially the party's highest organ of power. It normally lasts for a week and is held at the Great Hall of the People in Beijing.

MOISÉS NAÍM

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he year 2049 marks the 100th anniversary of the founding of the People's Republic of China. It is also the year when, according to President Xi Jinping, China would have become a "fully developed nation." At least that is his goal. This enormously ambitious goal has myriad implications and even more unknowns and unintended consequences. There is, however, one clear implication for which there are no uncertainties: to attain such a lofty goal China needs both more energy and new ways of procuring, distributing and using it.

President Xi obviously understands this. He has repeatedly stressed the imperative of becoming a more ecologically-friendly nation, a purpose that requires drastic changes in the kinds of energy the nation uses to fuel its development.

In October 2017, Xi gave an important speech to the 19th National Congress of the Chinese Communist Party. He said "The entire Party and the whole country have become more purposeful and active in pursuing green development… in taking a driving seat in international cooperation to respond to climate change, China has become an important participant, contributor and torchbearer in the global endeavor for ecological civilization."

Xi went on to outline a specific timetable for reaching this goal. By 2035, he said, the environment will be significantly improved and by the mid of the century "new heights [will be] reached in every dimension of… ecological advancement." He also promised to "step up efforts to establish a legal and policy framework that promotes green production and consumption, and promote a sound economic structure that facilitates green, low-carbon development..

Fulfilling Xi's energy and ecological promises will not be easy given the current situation of China's energy sector. Although the country has been aggressively trying to upgrade the quality of its energy mix and change its consumption patterns, significant obstacles remain in the path of China's desire to combine energy self-sufficiency with a high quality, less polluted, environment.

There are at least five aspects of China's current energy situation that will greatly influence the outcomes of Xi's efforts in this area.

1 Adverse initial conditions

Although China has made impressive strides on its road to a lower carbon environment, it still generates about 29 percent of total global warming emissions, twice as much as the U.S. (14 percent) and almost three times as much as the European Union (10 percent). Projections by the International Energy Agency, IEA, indicate that by 2035, Xi's important milestone, the country would still be the world's largest emitter of greenhouse gases. This frustrating outcome will obtain despite a dramatic increase in the utilization of cleaner, renewable sources of energy, which, in 2035, are expected to provide up to one quarter of Chinese energy needs.

2 A wasteful energy situation

Currently, China not only uses energy from the most polluting sources, but it is also very inefficient and wasteful in its energy usage. Each one percent of economic growth in China requires four times more energy than the average of OECD countries and three times as much as the Latin American average.

The reasons for this extreme energy inefficiency are varied, complex and not easy to overcome. Perhaps the most important factor is that China's industrial plant and equipment still in use are obsolete and extremely polluting.

This is especially true in the case of electric power plants. Large scale industries such as steel, aluminum, cement, glass and chemicals are also extremely inefficient in their energy use. Chinese buildings, both commercial and residential, are well known for having above average energy requirements for heating and air conditioning.

3 A lingering coal addiction

A third factor is related to China's overdependence on coal, the most polluting of all fossil fuels. Not only is China the largest coal consumer in the world, with almost half of global consumption, but also the largest coal importer. Low prices for coal stimulate its large scale use. Changing this is a politically explosive task everywhere and China is not an exception. Attempts by the government to minimize this dependence by closing down coal mines have met with fierce resistance from coal miners, who have taken to the streets in protest against a government's proposed cut of over one million jobs. Moreover, complex policy →

A Challenging Transition

UNFAVORABLE INITIAL CONDITIONS
Although renewables will cover a quarter of China's energy requirement by 2035, the country will remain the world's largest contributor to greenhouse gas emissions.

INEFFICIENT ENERGY USE
China's obsolete industrial plant and equipment and the high energy requirement for heating its buildings generate inefficiencies that the country pays for by "devouring" four times as much energy as the average in OECD countries.

DEPENDENCE ON COAL
China accounts for almost half of the world's coal consumption. Despite the pollution and risks to human health, the country is struggling to take tough political decisions to drastically limit the use of this energy source.

BOOMING POLLUTING ENERGY
Beijing imports some 7.6 million barrels of oil per day, including Ural blend from Russia and heavy oil from Venezuela, both of which are highly polluting. Using this energy source could have a negative impact on China's 2035 environmental goals.

A LOT OF SHALE, BUT NO WATER
Over 60 percent of China's shale gas reserves, estimated at 1,200 trillion cubic feet (World Resources Institute), are located in regions affected by water scarcity, and water is essential for developing these resources.

contradictions now bedevil the government's efforts. Perhaps the most revealing one is that at the same time that Beijing is trying to close down coal mines, it is also planning to build some 700 new coal-fueled power plants. The current overdependence on coal is exacting a high price in human lives and overall quality of life. A 2016 World Health Organization report reveals that up to 1.3 million people will die prematurely in China as a result of air pollution, as compared to second place India, where 645,000 premature deaths are forecasted. A study by Tsinghua University professor Teng Fei shows that over 70 percent of China's population is exposed to levels of pollution that are ten times higher than those considered safe. While such a critical situation should accelerate China's efforts to minimize its dependence on coal it also poses thorny political decisions.

4 Booming imports of polluting energy

A fourth factor is that China energy imports, mostly heavy oil and coal, are on the rise and projected to increase from 16 percent of total consumption in 2015 to 21 percent in 2020. The country is now importing about 7.6 million barrels of oil per day, including over one million barrels per day of a largely heavy Ural blend from Russia and some 300,000 barrels per day of heavy Venezuelan oil, both of which are highly contaminating. Unless replaced by cleaner sources of energy, these imports of contaminating oil will impact negatively Xi's 2035 environmental goals.

5 It's not shale, it's water

According to the World Resources Institute (WRI) China has about 1200 trillion cubic feet of shale gas, the world's largest reserves. The problem is that a large-scale development of these resources needs massive volumes of water that China may not have.

Water is essential for hydrofracking, the technology used to extract hydrocarbons from shale formations. The WRI report stresses that over 60 percent of these shale gas resources are located in arid regions of China where water is critically scarce.

The water used for hydrofracking is less available for agriculture or other competing uses. This poses a difficult tradeoff for any country. In fact, large scale hydrofracking in China could conflict with another of Xi's objectives, which is to "ensure China's food security" by mid-century. Although data on water availability is still inadequate, there is no doubt that the full exploitation of China's giant shale oil and gas reserves could be constrained by insufficient water availability.

For the past several decades, China has surprised the world with its continued economic growth and its ability to translate this growth into massive poverty alleviation. Perhaps China will also surprise us by rapidly moving from a polluting and inefficient high carbon energy model into a low carbon, ecologically friendly one. Making this shift will be as challenging as it is indispensable, for China and for the entire planet.

When China changes

TOWARDS

2040

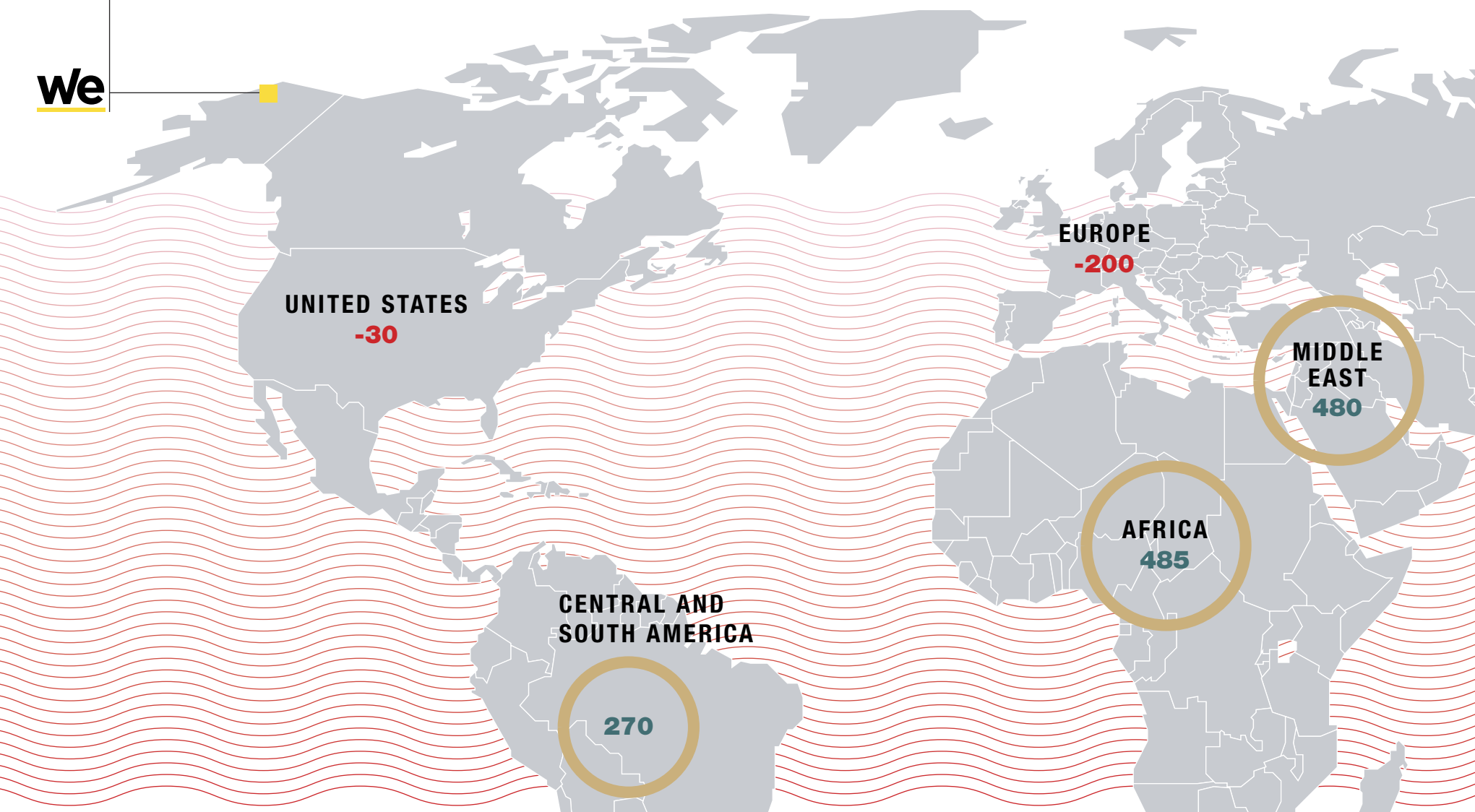
Sources: OECD/IEA 2017 data, texts and forecasts IEA-New Policies Scenario *

so does everything else

BY EDITORIAL STAFF

Any consideration of the international energy markets, their dynamics and future prospects must include China. This was emphasized by Fatih Birol, Executive Director of the International Energy Agency during his presentation at the **World Energy Outlook 2017** in Italy, hosted by Eni in Rome on December 1, 2017. Birol's speech included demand, energy mix, renewables, electricity, gas and LNG, and constantly cited China as the linchpin of the global energy markets. There follows an account of the most important aspects of Chinese energy policy to 2040, when China will change. And so will everything else.

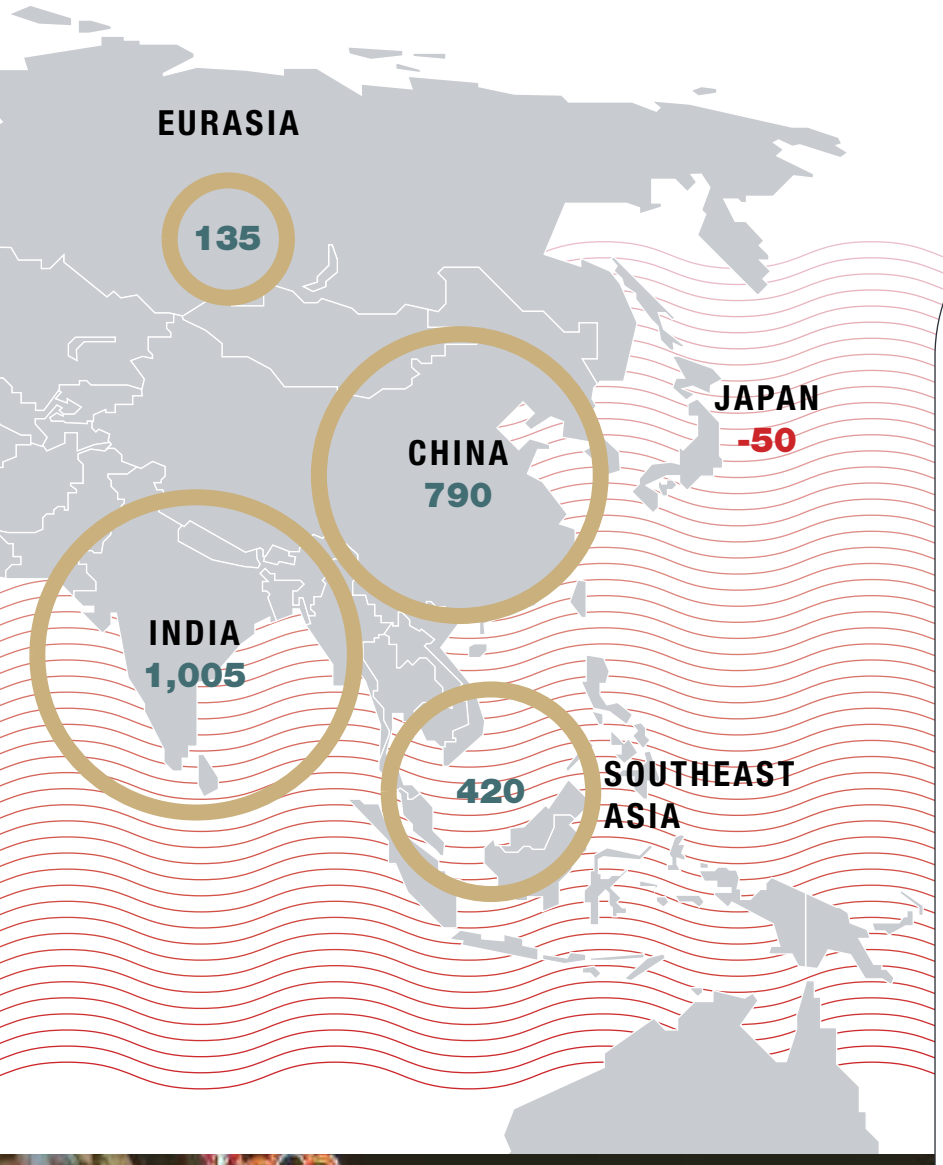
*The New Policies Scenario is the central scenario of the IEA's World Energy Outlook. It incorporates not just the policies and measures that governments around the world have already put in place, but also the likely effects of announced policies, as expressed in official targets or plans.



China is entering a new phase in its development, with the emphasis in energy policy now firmly on electricity, natural gas and cleaner, high-efficiency and digital technologies. The previous orientation towards heavy industry, infrastructure development and the export of manufactured goods lifted hundreds of millions out of poverty – including energy poverty – but left the country with an energy system dominated by coal and a legacy of serious environmental problems, giving rise to almost 2 million premature deaths each year from poor air quality.

The president's call for an "energy revolution," the "fight against pollution" and the transition towards a more services-based economic model is moving the energy sector in a new direction. Demand growth slowed markedly from an average of 8 percent per year from 2000 to 2012 to less than 2 percent per year since 2012, and in the New Policies Scenario it slows further to an average of 1 percent per year to 2040. Energy efficiency regulation explains a large part of this slowdown, without new efficiency measures, end-use consumption in 2040 would be 40 percent higher. Nonetheless, by 2040, per-capita energy consumption in China exceeds that of the European Union.

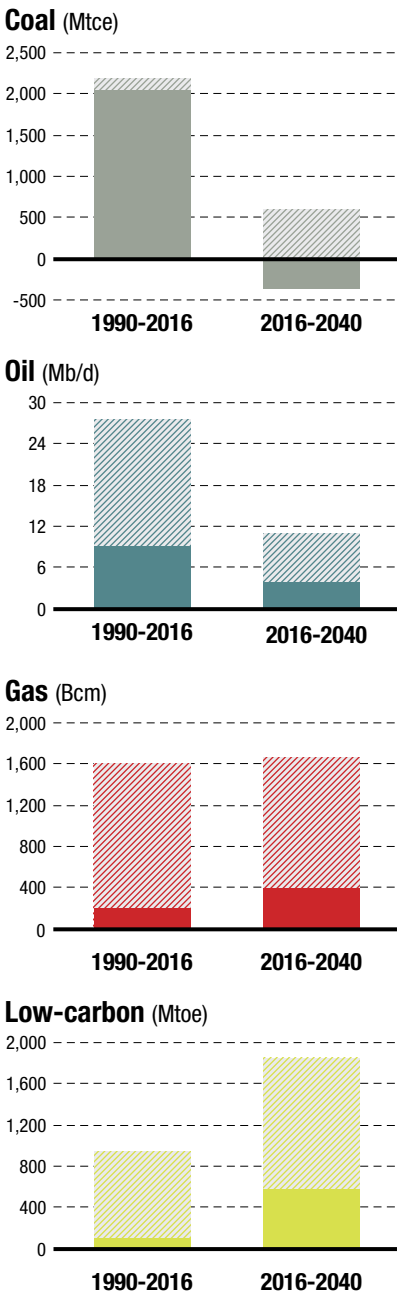
China's choices will play a huge role in determining global trends, and could spark a faster clean energy transition. The scale of China's clean energy deployment, technology exports and outward investment makes it a key determinant of momentum behind the low-carbon transition: one-third of the world's new wind power and solar PV is installed in China in the New Policies Scenario, and China also accounts for more than 40 percent of global investment in electric vehicles (EVs). China provides a quarter of the projected rise in global gas demand, and its projected imports of 280 billion cubic metres (bcm) in 2040 are second only to those of the European Union, making China a lynchpin of the global gas trade. China overtakes the United States as the largest oil consumer around 2030, and its net imports reach 13 million barrels per day (mb/d) in 2040. But stringent fuel-efficiency measures for cars and trucks, and a shift which sees one-in-four cars being electric by 2040, mean that China is no longer the main driving force behind global oil use – demand growth is larger in India post-2025. China remains a towering presence in coal markets, but our projections suggest that coal use peaked in 2013 and is set to decline by almost 15 percent over the period to 2040.



INDIA TAKES THE LEAD, AS CHINA ENERGY GROWTH SLOWS

In the New Policies Scenario, global energy needs rise more slowly than in the past but still expand by 30% between today and 2040. This is the equivalent of adding another China and India to today's global demand. A global economy growing at an average rate of 3.4% per year, a population that expands from 7.4 billion today to more than 9 billion in 2040, and a process of urbanization that adds a city the size of Shanghai to the world's urban population every four months are key forces that underpin our projections. The largest contribution to demand growth – almost 30% – comes from India, whose share of global energy use rises to 11% by 2040 (still well below its 18% share in the anticipated global population). Southeast Asia is another rising heavyweight in global energy, with demand growing at twice the pace of China. Overall, developing countries in Asia account for two-thirds of global energy growth, with the rest coming mainly from the Middle East, Africa and Latin America.

CHANGE IN WORLD PRIMARY ENERGY DEMAND BY FUEL IN THE NEW POLICIES SCENARIO



China has accounted for more than 40% of growth in global primary energy demand since 1990, giving it a defining role in global energy markets. In the New Policies Scenario, China remains an important driver of global energy demand growth to 2040. But China's policy focus is now increasingly on energy efficiency and restructuring its economy, and its share of energy demand growth through to 2040 is reduced to one-fifth of the global total, falling behind that of India. Across fuels, the most significant change in the New Policies Scenario is China's contribution to global coal demand growth. Since 1990, China's coal demand has risen by 2 000 million tonnes of coal equivalent (Mtce), accounting for more than 90% of global growth. With the projected decline in industrial coal use and the plateau in coal consumption in the power sector, China's coal demand is projected to fall to 2040. Nonetheless, by some distance, China remains the largest coal consumer in the world. At more than 2,400 Mtce, China accounts for nearly 45% of global coal demand in 2040, 50% more than India, the world's second-largest coal consumer by that time.

Fatih Birol is Executive Director of the IEA and, according to the Financial Times, *Energy Personality of the Year*. Some of his key statements are offered here.

A DIMINISHING APPETITE FOR COAL AND OIL, AND A GROWING APPETITE FOR LOW-CARBON AND NATURAL GAS

COMPARISON SCENARIOS

Eni hosted the World Energy Outlook 2017, the main report of the International Energy Agency (IEA), a point of reference for the development of governmental energy policies and business strategies of the sector. The event was attended by: Fatih Birol, Executive Director of the International Energy Agency, Carlo Calenda, Italian Minister of Economic Development, Gian Luca Galletti, Italian Minister for the Environment, Claudio Descalzi, CEO of Eni and Mario Sechi, Director of WE World Energy.

“No country is an energy island on its own. Many countries will be affected by what's happening in Africa, the United States, China and India. We are all affected by the energy decisions taken by other countries.”

“There are four main disruptions in the energy market. One of these is China, which is changing, so the energy markets are changing, too. In the last ten years, the development of the Chinese oil and coal energy markets has of course affected prices. China has now changed its economic policy, moving from a manufacturing-based industrial economy to other sectors. This will change and rebalance the economy.”

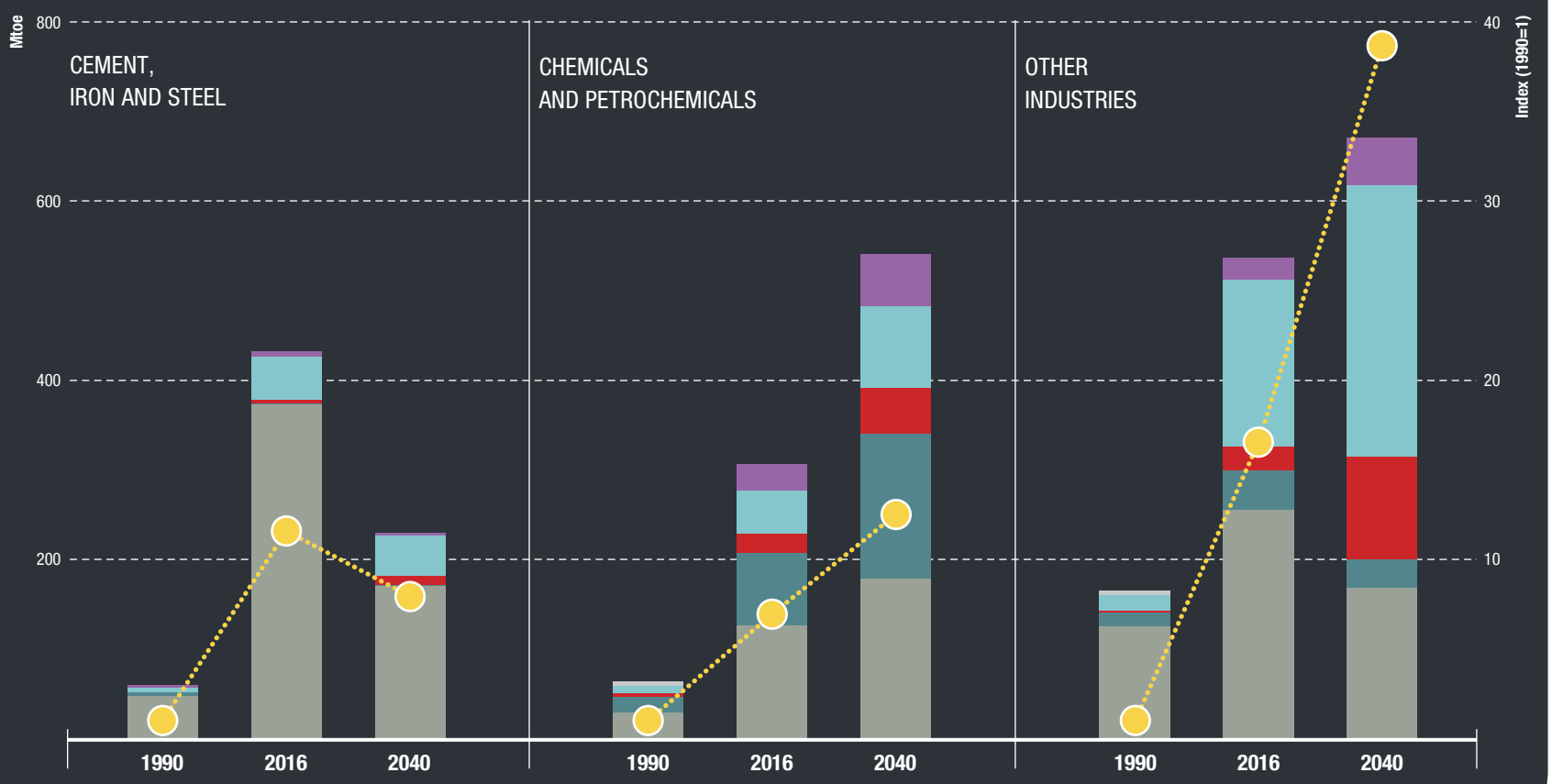
“Three weeks ago, at the Congress of the Communist Party of China, there was a historical speech by the Communist Party leader, inviting the government and its officials to make the skies of China blue again. China is now number one in terms of solar, wind, hydro and energy efficiency, as well as in electric cars. Given the importance of China in the energy market, it will definitely have a big impact.”

石油

[OIL]

CHINA INDUSTRY ENERGY MIX AND RELATED OUTPUT BY SECTOR

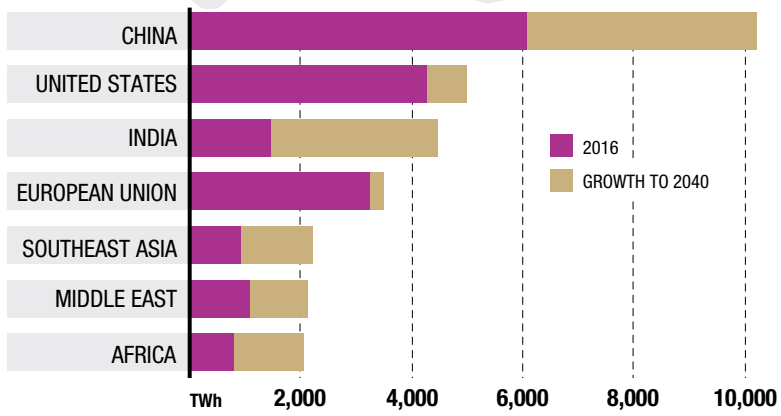
In the New Policies Scenario, industrial restructuring makes a big difference to future energy demand. Today, four heavy industry sectors (iron and steel, chemicals and petrochemicals, cement and aluminium) represent almost three-quarters of industrial energy use, 80% of industrial coal consumption, 70% of industrial oil demand, and 55% of each industrial gas demand and industrial electricity demand. Over the Outlook period, the weight of these sectors in industrial energy use decreases to around two-thirds by 2040, around ten percentage points below its current level. Energy demand from the steel and cement industries decreases greatly, by a combined 250 Mtoe, driven both by efficiency improvements and by declining production. Despite the importance of chemicals and petrochemicals for energy demand growth, the bulk of the growth in gas and electricity demand comes from less energy-intensive industries like electronic equipment or machinery manufacturing: these sectors tend to be more reliant on natural gas and electricity than traditional energy-intensive sectors, and to have less need for high-temperature heat or fossil fuels as feedstocks or reducing agents. Rebalancing industrial activity increases energy efficiency and changes the fuel mix. The chemical subsector becomes the main industry source of energy demand growth.



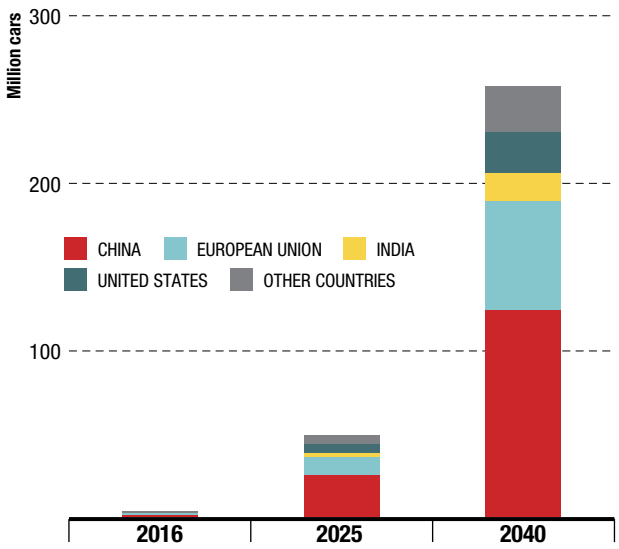
THE FUTURE IS ELECTRIFYING

ELECTRICITY GENERATION BY SELECTED REGION

Electricity is the rising force among worldwide end-uses of energy, making up 40% of the rise in final consumption to 2040 – the same share of growth that oil took for the last twenty-five years. India adds the equivalent of today's European Union to its electricity generation by 2040, while China adds the equivalent of today's United States. China accounts for more than 40% of global investment in electric vehicles (EVs).

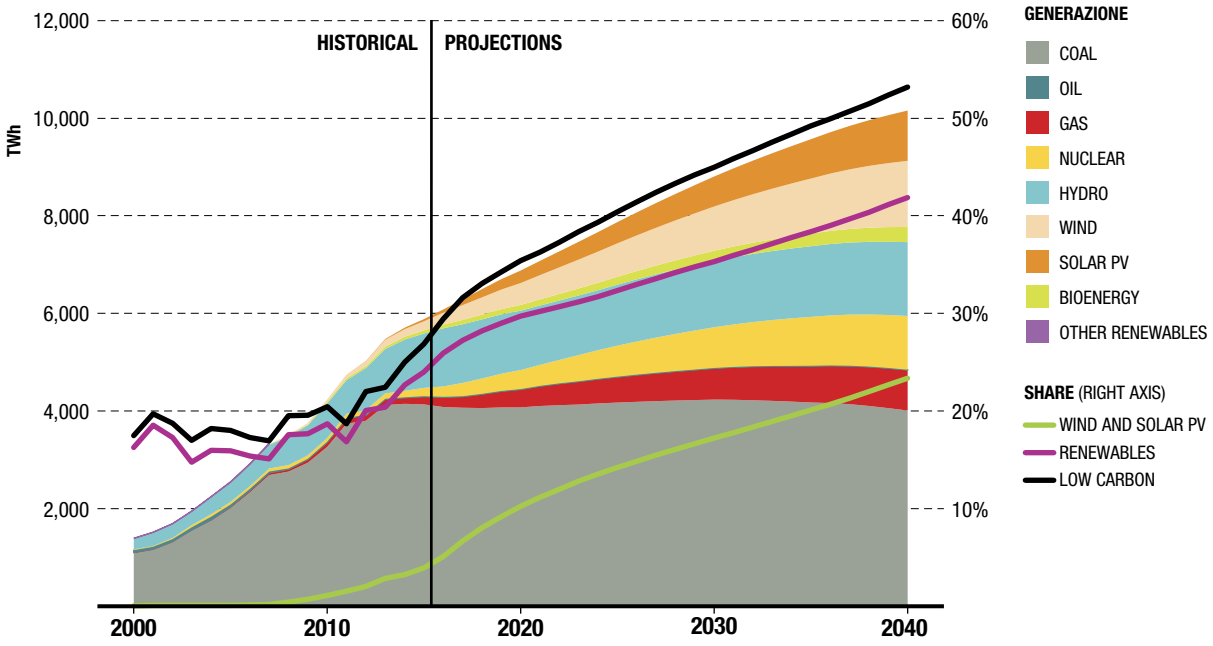


ELECTRIC CAR FLEET



China overtakes the United States as the largest oil consumer around 2030, and its net imports reach 13 million barrels per day (mb/d) in 2040. But stringent fuel-efficiency measures for cars and trucks, and a shift which sees one-in-four cars being electric by 2040, means that China is no longer the main driving force behind global oil use – demand growth is larger in India post-2025.

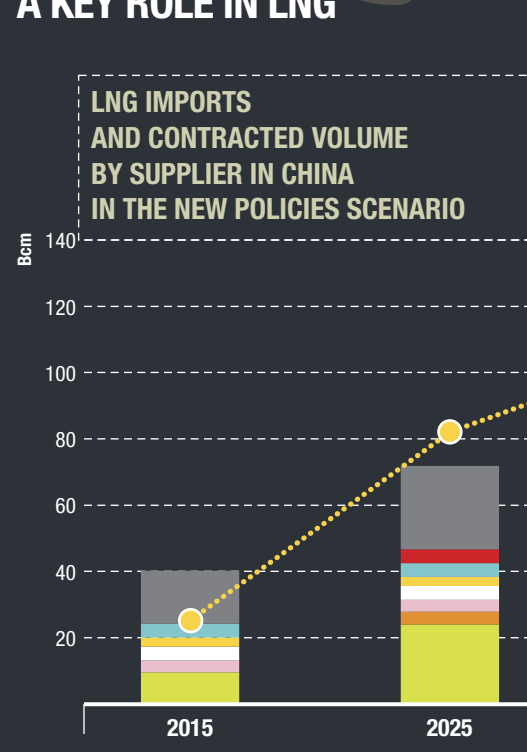
ELECTRICITY GENERATION BY FUEL IN CHINA IN THE NEW POLICIES SCENARIO



Total electricity generation increases by 70% to 2040, an absolute increase that is nearly equivalent to the current electricity demand in the United States. Renewables grow to about two-fifths of total generation, of which slightly over half comes from wind and solar PV. Wind generation in 2040 reaches about 1 350 TWh, more than a five-fold increase from 2016, and almost equivalent to today's total annual electricity generation in India. Solar PV generation surpasses 1 000 TWh by 2040, a fifteen-fold increase from today. Together, the share of wind and solar PV in total generation steadily climbs from 5% in 2016 to 23% in 2040. Nuclear electricity generation increases five-fold to 11% of total generation in 2040. Collectively, the share of fossil fuels declines, falling below half of electricity supply by 2040.

A KEY ROLE IN LNG

LNG IMPORTS AND CONTRACTED VOLUME BY SUPPLIER IN CHINA IN THE NEW POLICIES SCENARIO



China plays a pivotal role in the global LNG balance in the New Policies Scenario. Based on a detailed analysis of supply contracts (concluded primarily by China's three large national oil and gas companies), our projections indicate that China is set to remain over-contracted through the early 2020s. Chinese importers have agreed to take more LNG than they currently need, but by the early 2020s, projected imports of the New Policies Scenario are exceeding contracted volumes. This implies that Chinese importers will play an important role in the

[WIND]

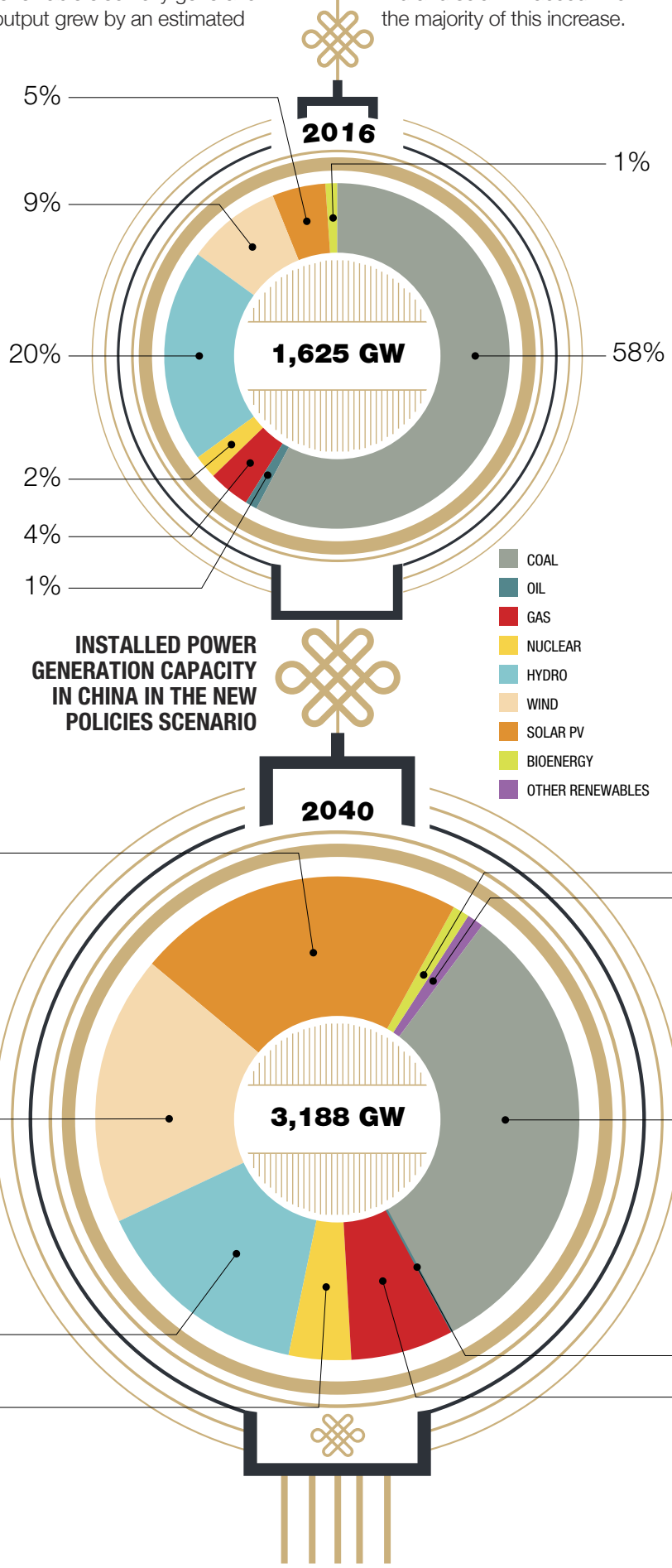
global LNG trade as they resell their over-contracted volumes. However, from the mid-2020s onwards, our projections also indicate that Chinese importers are short of contracted gas, which implies that they will need to enter the market to buy more. Higher than expected Chinese shale output in the 2020s would push back the point at which they need substantial additional volumes, potentially prolonging today's period of oversupply and sparking another round of fierce competition among exporters for market opportunities.

PORTFOLIO
RUSSIA
QATAR
MALAYSIA
INDONESIA
CANADA
AUSTRALIA
PAPUA NEW GUINEA

LNG IMPORTS

THE LEADER IN SOLAR AND RENEWABLES

China is the world's largest renewables market. It added net electricity capacity of 68 GW in 2016 (more than 40% of global renewable capacity additions) and continued strong growth in 2017. Technology-specific feed-in tariffs and national targets drove the majority of this increase. China saw higher levels of growth than any other country in all three major renewable technologies – solar PV, onshore wind and hydropower – and its renewable electricity generation output grew by an estimated 12% to reach 1,577 TWh in 2016, accounting for more than a quarter of total generation. Hydropower contributed most to China's overall renewable generation output, but wind and solar generation are growing rapidly (by 30% and 45% year-on-year in 2016, respectively). In the New Policies Scenario, the expansion of renewables is largely concentrated in the power sector, with their share of capacity rising to almost 60% of the total by 2040. While the use of hydropower and bioenergy increases over the Outlook period, the growth of wind and solar PV account for the majority of this increase.



INSTALLED POWER GENERATION CAPACITY IN CHINA IN THE NEW POLICIES SCENARIO

Over the borders/Energy as a means to gain international influence

A Globalized Version of Marco Polo

China's aim in constructing a modern Silk Road stretching from Southeast Asia to Europe, as part of its One Belt One Road project, is to consolidate its global geopolitical and economic influence

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The One Belt One Road (OBOR) project is a massive undertaking driven mostly by China. It involves gigantic investments in energy, transport, communications, water, and many other infrastructural, industrial and other projects. OBOR is changing the faces, economies and even politics of many countries, and not just throughout Asia (but especially South Asia, Southeast Asia and Central Asia), but also in Latin America, Africa and Europe. It will also have significant effects in North America, Australia and in the Pacific Basin. Indeed, there could be very few areas of the world not affected by it if it goes as planned, and the money is still available to complete, maintain and build upon OBOR projects. That is, its influence will continue if the internal politics of China and the countries it is investing in, and, according to some, imposing itself on, do not go sour.

OBOR can also be a flexible concept, and deciding whether a project is part of it or not can sometimes be an art form. There are already indications that some projects have been slowed down or even just plain stopped due to anti-China sentiments in some countries, or because the Chinese have not been hiring enough local workers. There have also been complaints in some countries of shoddy work on sometimes major infrastructure and energy projects. These shoddy results have not helped relations between the local governments, the local people and the Chinese government and the companies the Chinese government contracts to execute the projects. Not all is happy in OBOR land, but there are massive changes happening, and some are positive, across the globe.

Turning the tables after the "Century of Humiliation"

Why is China doing this? There are numerous reasons, some of which are public and many, my guess, which remain in the shadows – and may remain there for some time. A psychological one is that China wants to recover from what they call the "century of humiliation,"when Chi-

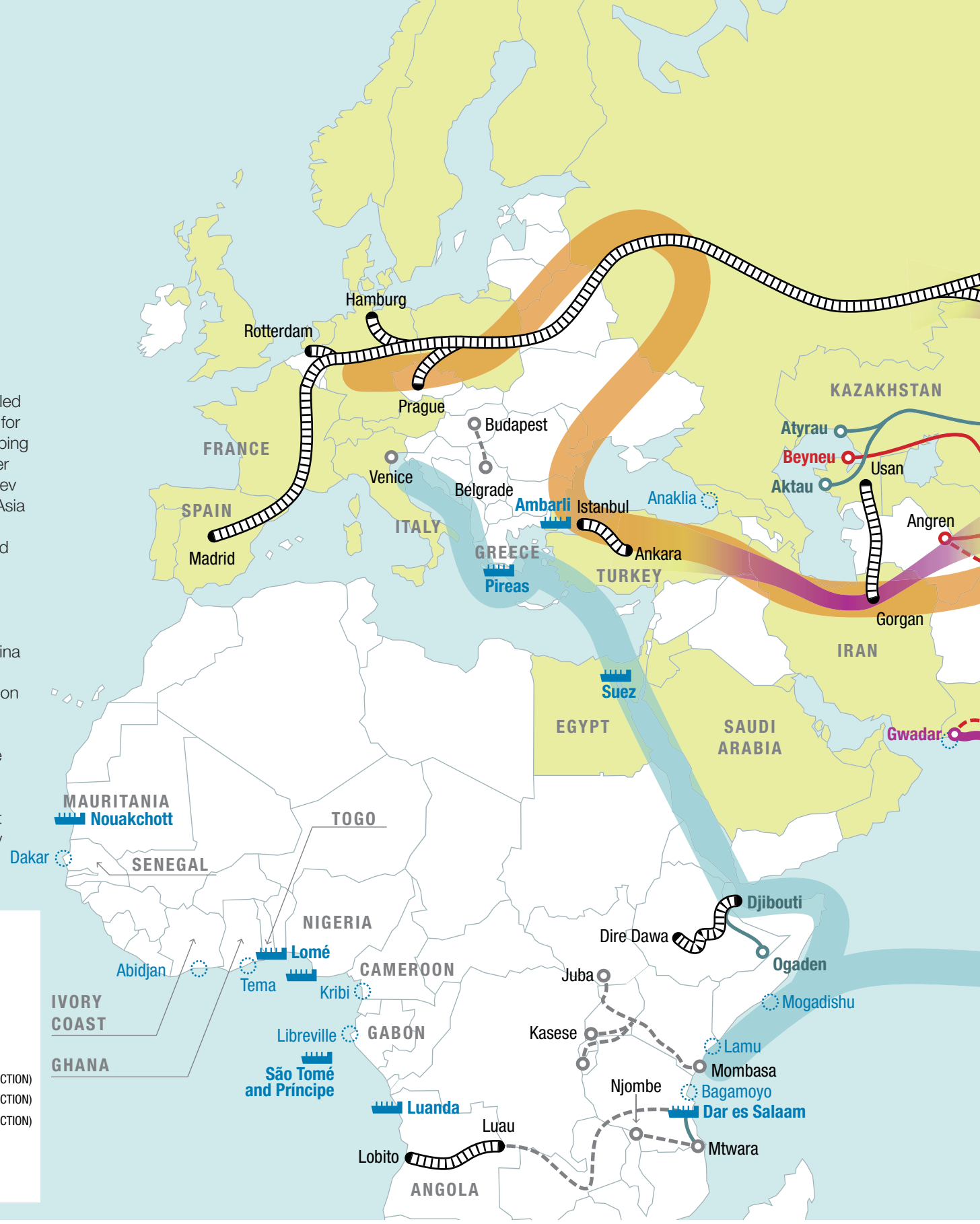
na was controlled and exploited by the western powers and Japan. China was at times in the deep past one of the largest and richest economies on the planet, along with the area that is now known as India. For many in China, its recent return to the top of many world measures of economics, technology, energy and other realms seems right, given their position in the past. The Chinese name for China is not China, but Zhoughgou, which means "Middle Kingdom." In the past, the Chinese often saw themselves as the center of the planet, surrounded by barbarian states. They ruled the center, and the rest followed. History, of course, has shown things to be a bit more complex; consider the Mongol conquests of China, and the century of humiliation, as well as in-fighting and other sources of weakness, including the civil war that lead to the creation of the People's Republic of China. Nonetheless, the Chinese are looking to regain what they see as their rightful place in the world. Others may see a difficult path. China's economy has been slowing down in the last few years. Its trade balance has not been as good as it has been since the heady years after they joined the WTO in 2001. There is considerable overcapacity in the Chinese trucking, steel wire and construction industries, as well as in other industries intended as a big part of OBOR, such as energy. Chinese consulting and engineering companies that built up during the economic race of the early 2000s now need to branch out even more so internationally. Each year there are about 13 million new Chinese born, so the Chinese need to create millions of jobs each year. With a slowing economy that has become more difficult than in the recent past. China has some restive regions, such as the Xianjiang region to the northwest, where the Uyghurs can be found, and Yunnan Province in the south, one of the country's poorest regions. China is hoping to develop these two areas and others they see as vital for their economic and national security by tying them to the regions near them economically and through infrastructure. For Xianjiang it is through Central Asia, with its vast mineral and energy reserves and wind and solar energy capacity, as well as its countries in need of economic development and wealth. For Inner Mongolia, Gansu, and Heilongjiang, China wants to connect them with the countries to the north and west in a cross-China, inter-regional economic plan to improve life in these regions. For Yunnan it is a focus towards Southeast Asia, and most particularly Myanmar and Laos. Vietnam is a tougher business to develop given the difficult history between China and Vietnam, including some disputes about the South China Sea. One could even link developments in the South China Sea and East China Sea with OBOR, given that most of Chinese trade goes across these seas.

An unprecedented plan in the history of modern trade

Part of the OBOR is by land. Part is by sea. Both parts expand well beyond the borders and lands and seas near to China, but they also begin at the edges of China, are developing for China, and will change the geopolitics and geo-economics of the globe for a long time to come. As noted above, few countries will be unaffected by this project that some describe, with some accuracy, as the biggest infrastructure-trade-public diplomacy project ever conceived. The U.S. response to OBOR has been tepid at best, and counter productive at worst. Tossing out the Trans-Pacific Partnership (TPP) was a huge win for China, and a big loss of increased prestige and strategic leverage for the U.S. The TPP would not have improved the U.S. trade balance or employment much, but the TPP was mainly a strategic document that would have allowed the U.S. to have more say on many aspects of trade across the Pacific Basin. This would also have meant greater leverage on other issues in that vital region that holds over 40 percent of global GDP, and includes some of the fastest growing regions →

First Steps in a Global Plan

The “One Belt One Road” project, modeled on the ancient Silk Road, was illustrated for the first time by Chinese President Xi Jinping during a visit to Kazakhstan in September 2013. In a speech delivered at Nazarbayev University, Xi suggested that China and Asia should cooperate in building a modern economic belt that could bolster a shared and strategic development process. In October of the same year, President Xi delivered a speech to the Indonesian parliament, proposing the creation of a community of joint activities between China and the Association of South East Asian Nations (ASEAN), and offering guidance on how to build an international route to promote maritime cooperation. In that speech, Xi proposed for the first time the establishment of the Asian Infrastructure Investment Bank (AIIB) to finance infrastructure linked to the OBOR project and to promote regional interconnectivity and economic integration.



in the world. The Chinese recently developed the Asian Infrastructure Investment Bank (AIIB), which now has 80 countries signed up for it – and many are not in Asia. The Chinese developed the Silk Road Fund, their massive EXIM Bank, the China Development Bank, and other truly gigantic banks that have helped them expand internationally in the past, but now are likely to be some of the biggest enablers for OBOR. The World Bank and IMF may be institutions of the past as China emerges, and the world realizes that these two organizations are not keeping up with the changes. The Chinese are developing new international organizations directed at trade, investment, and even new security infrastructures and agreements, such as the Shanghai Cooperation Organization, which grew out of the Shanghai Five. Like the OBOR from past trade and investment ideas this group grew from a close regional organization to one that cuts across many areas, including into the Middle East, South Asia, West Asia, Central Asia, and Russia. Combining China's quickly increasing defense and security budgets, its expanding into, and development of, new international strategic and economic organizations, and the OBOR and related projects, it is easy to conclude that the China juggernaut of power and influence building is far from ending. But it is changing directions and focus and will be an even greater challenge to the U.S., Japan, South Korea, and Europe in the future, more than ever before. China's geo-strategic and geo-economic influence is heading in many powerful directions, whereas the U.S. is becoming more insular. This should be a concern for all of us. It is time for the U.S., Japan, and many others to wake up to what is happening and what the OBOR and other activities can bring their way. Japan is in competition with China in funding energy and other infrastructure projects in many parts of the world, but it is often in a weaker position given that China has the massive advantage of its growing economy and developing diplomatic and military influence in many parts of the world, which Japan cannot match. This is happening even in countries nearby to Japan, such as Vietnam. The U.S. State Department is in some turmoil these days, and staff is being cut, not increased, as China builds global power. U.S.A.I.D. is being cut back. Other U.S. development institutions seem in a state of depression, and not just in funding. As the U.S. weakens its diplomacy and aid institutions, China powers forward with theirs. China is developing resource influence by tying itself, its economy, and its people to resource sources globally. It is also developing energy influence by connecting with energy resources in many parts of the world, and selling, constructing, and managing energy facilities, infrastructure, and technologies globally.

A project with vast implications

In a short article it is not possible to even list all the OBOR projects happening now, in the pipeline of development or being considered. The

Source: Mercator Institute for China Studies 2016

infrastructure of roads, pipelines, hydropower facilities and other energy facilities, the Port of Gwadhar, etc., are there to improve trade, investments and relations between China and its complex partner Pakistan. The China-Pakistan Economic Corridor is a very big deal in the region, and will be a factor globally if this works out and changes some of the economic and political balances and imbalances within Pakistan and some of its neighbors. China is also there to help develop restive and potentially restive parts of southwest China and dangerous and truly restive parts of Pakistan. China's energy and related projects in Pakistan are being done to increase Pakistan's connection to China and thereby counter India's power in the region. They are also a bit of a snub to the U.S. The port of Gwadhar is also there to link China more to the rich oil and gas resources of the GCC, Iraq, and Oman. The port could take in large LNG carriers and oil tankers, which will offload their cargoes to storage facilities built by China and send these energy resources north to parts of Pakistan, but also to China, so China could have another route to bypass the Malacca Straits, through which about 80 percent of China's energy imports travel. The relatively new oil and gas pipelines and energy ports in Myanmar have also been set up for China to bypass the Malacca Straits. Hydropower and other energy facilities being built in Myanmar could also be nominally tied to OBOR, even though some started, like Gwadhar in Pakistan and the Kyaukphyu Port energy connections in Maynamar, before Mr. Xi even announced OBOR. But many of these past energy and energy-related projects are part of the same idea of a greater China via international expansions, which is the real spirit of OBOR.

AIIB website has partial lists of such projects, but these just touch the tip of the iceberg. OBOR has a focus on Central Asian energy for uranium production, electricity production, transmission and even distribution (and that electricity will be produced by oil, gas, coal, solar, wind, hydropower and more). Natural gas and oil are very important aspects of this, most particularly Kazakh oil, and Turkmen gas. Sometimes the energy project flows are from Central Asia to China. Other times the flows are from China to Central Asia. Rail, road, and air networks being developed with Central Asian states are also energy-related given that the energy equipment, people, and even the energy itself must be transported via rail and road. Air networks improve not only transport of vital expertise and some energy technologies between one and the other, they also improve communications. Communications networks in some parts of Central Asia are also being improved by China, for example, cell towers and networks. Energy systems are embedded within other systems connected with other systems nested in still other systems—and the Chinese know this very well. Energy developments in Central Asia by China also affect other systems' developments, such as those related to water, transport, communications, finance, governance, and so much more. With energy developments, many Central Asian countries can move forward, but in the end, they will owe China for this improvement. This debt may result in a loss of some national freedom of movement in some international and national projects and policies. China is not doing all of this out of pure altruism, or even just for the profit motive. Many of its OBOR investments in Central Asia result from cold strategic calculations across many realms, including military and diplomatic. China's "march west" through Central Asia and beyond is an anti-terrorism project at the same time it is an economic and energy development project. Khorgos and Kashgar are not chosen for their great governance and infrastructure, but for the leverage their development could bring to lessening pressures causing extremism in China's northwest and neighboring regions. The Karakoram Highway linking Pakistan to China over massive mountains is certainly a fantastic feat of engineering, but the

New developments for Southeast Asia's interstate relations

Cambodia is one of the most China-dependent countries in Southeast Asia in regard to its energy developments. China supported the Khmer Rouge, and now supports its progeny in the present government of Cambodia, as it builds many hydropower dams, transmission and distribution facilities for electricity and much more. Laos is also becoming even more dependent on China for energy investments, especially in hydropower and related transport and communications networks. There have been tense times with these developments in Laos as some Laotians see China as more of an imperialist economic power. Vietnam sees China in a darker light than →

AN ENERGY ALLIANCE
Iranian President Hassan Rouhani (L) and Chinese President Xi Jinping (R) review troops during a welcoming ceremony on January 23, 2016, in the capital Tehran. In addition to being a major trading partner for Beijing, Iran has been an important source of energy supplies for China in recent decades.

many others in the region because of past conflicts with China that go deep into its history. OBOR is having a much tougher time developing energy, rail, and road networks in Vietnam than in any other Southeast Asian country. This difficulty is related to the aforementioned historical grievances, but also to tensions related to oil and gas fields off Vietnam that China covets. Sri Lanka has also invited China and OBOR to develop major port and energy facilities, amongst other things. Hambantota Port in Sri Lanka is one of the "String of Pearls" ports that will aid China's overall trade, energy trade and development, and strategic balance with India. Others in the "String of Pearls" include Gwadhar in Pakistan, Marao in the Maldives, Kyaukphyu Port, and the Coco Islands in Maynamar, as well as Lamu in Kenya, Port Sudan, Djibouti, Hong Kong, many islands in the South China Sea and other island and ports from China to Sudan and beyond likely to be developed. This can be seen as a new "Great Game." India seems to be accepting the challenge. The U.S., on the other hand, seems to be in the back seat watching, and this will prove to be a big mistake. The Bangladesh-China-India-Myanmar Forum (BCIM) is also developing into an enabler of energy, trade transport and other infrastructure and economic developments and is yet another subsidiary to OBOR.

Africa, the Middle East and elsewhere

China was involved with energy projects in Africa well before the birth of the OBOR idea as it exists now, but, again, the development of Africa energy, infrastructure, trade, and other projects has carried the spirit of OBOR for decades. Modern China's influence in Africa started in the 1960s with their modest help to newly independent states to bring them into the Chinese communist orbit. OBOR is a more sophisticated update of that behavior, and China has more money, knowledge, and power to pull it off now. China has shown interest in the IPO for Aramco. It has invested in developing oil fields in Iran. It has large investments in Egypt, and especially in the Suez Canal Zone. It is investing in LNG with the Russians in the Arctic. It has more icebreaker ships than the U.S.. One might expect China to develop a new "String of Ice Pearls" across the northern routes in the Arctic in the future as climate change picks up pace. China is moving investments and influence into Latin America for oil, gas, food, agricultural goods, lithium, copper, and other minerals. It's also one of the largest trading partners or the largest trading partner of many countries in Asia, Africa, Latin America, Europe, North America, and globally. The choice to be a globally diverse trading partner was not entirely economically based. A diversity of trading partners ties those trades to both sides, and makes China an especially diverse and powerful geostrategic and geo-economic player. China is also a massive investor in many developing countries across the world. That gives them further influence. It also gives them more power in the international forums where important strategic and economic issues are discussed. Some would call this economic imperialism. Others see it as political imperialism. Still others see this as smart chess moves in a very long game to develop China and keep it safe from internal and external threats. It seems to be a combination of these in some way or another. Huge trade and investment accounts can buy a lot of leverage. Massive energy and other investments can eventually, possibly, weaponize capital. China wants to be a hub, the Middle Kingdom, for the spoke of energy and other sources and investments. The spokes from the hub are developing globally. This is a complex sort of hegemony, but hegemony nonetheless. However, there are some risks. China has warmed up to certain dictators and autocrats. If they are tossed out of power, then China is out of luck in those countries for some time. There is also a certain degree of corruption involved in some of the projects. That may also backfire eventually in some places. On the other hand, if China starts to determine how the energy and other businesses are built in many parts of the world, that could produce another sort of path dependence. The U.S., Japan and others need to wake up to OBOR. Being a bystander or a minor player means that China builds more influence and economic power in the world with OBOR and other activities. The results might be more startling than some may think right now. Sleepwalking into the future is not a policy. It is possible to work with the Chinese and have a give and take in the future, but one must be in the game and understand what the game is to do that.

Iran's New Role

Tehran is set to become an even more important trading hub between East and West thanks to China's One Belt One Road project

Iran has always been at the center of East-West trade. For this reason, and even more so in the last ten years, Tehran has been one of the leading energy suppliers for the Chinese market. Moreover, Beijing supplied military technology to Iran during the war against Iraq (1981-1989) and has often been pointed to as one of the main suppliers and consultants for Iran's nuclear program. A major innovation was introduced in Iran in the 1990s with the creation of free trade areas known as "Special Economic Zones" or "Free Trade Zones," which are actually based on the Chinese model. Also, through their control of the Foundation of Martyrs and the Astan Quds Razavi organization, the families of former president Hashemi Rafsanjani and Iran's current Supreme Leader Ali Khamenei have controlled Iran's extensive business with Asia since the 1980s.

A trading hub

Tehran is set to become an even more important hub for East-West trade thanks to China's One Belt One Road (OBOR) project. Beijing has pledged more than USD 1 trillion in infrastructure investments for bridges, railway lines, ports and energy links. In eastern Iran, workers are already busy modernizing old regional railway lines and rebuilding roads and bridges to improve connections between Tehran, Turkmenistan and Afghanistan. Work is also in full swing in western Iran to improve the lines of communication between Tehran and Ankara in Turkey, and from there through to Europe, while projects are waiting to be approved for connecting Tehran with the Shia Muslim holy city of Mashhad on one side, and with Iran's southern cities overlooking the Persian Gulf on the other.

During the years when Iran's local economies were being hard hit by international sanctions against its nuclear program, Tehran looked to China, Russia and India for investments and trade. Yet Tehran has always feared manipulation by China, as it lacked trust in Russian technology, which local officials regarded as being of poor quality and obsolete. The same could turn out to be the case with China's ambitious projects. On one hand, they could frustrate Russia's ambitious aims in the regions, while, on the other hand, Beijing could find alternative routes to Europe by using Russia's vast territory at Iran's expense. But, noted Iran's Deputy Minister for Urban Development Asghar Fakhrieh-Kashan, China will have to choose Iran if it wants to have the fastest route to Europe, one that would save millions of dollars. Yet within Iran's conservative establishment, there is still considerable resistance to such openings towards Beijing, and their significance could grow if the United States should unilaterally withdraw from the nuclear deal with Iran following Donald Trump's announcement that he will not recertify Iran's compliance with the Vienna agreement and impose fresh financial sanctions against Tehran. Despite this ever more imminent risk—which could bring a return to the years of isolation as millions of dollars worth of oil revenues lie frozen in U.S. banks—Iran's Ayatollahs don't want to accept the consequences of a long period of economic over-dependence on China, already Iran's largest trading partner.

A key market for oil exports

China has been a key market for Iranian oil for decades. With reference to this, Iranian economics professor Mehdi Taghavi said "China is dominating Iran," echoing a widespread view within the moderate political establishment of Hassan Rouhani, Iran's current President and Rafsanjani's political heir. Iran is a favorite destination for Chinese entrepreneurs, whose Iranian irfactories are busy manufacturing a wide array of goods. The number of Chinese entrepreneurs visiting Iran has grown by the dozens since China launched the OBOR project in 2013, and many of them have decided to start up their first pioneering businesses and to invest millions of dollars in the country. Many investors expect to see a 50 percent growth in their profits due to infrastructural improvements linked to the OBOR project. When completed, the new rail line will stretch for 3,200 kilometers, running from Iran to Xinjiang, and connecting Kazakhstan, Kyrgyzstan, Uzbekistan and Turkmenistan. In 2016, China and Iran performed the first general test runs of the project. One train drove non-stop for the first time from Shanghai to Tehran in just 12 days. This is less than half the time it takes for the 30-day journey by sea. In 2021, the new generation trains expected to run on this new line will be capable of running at a speed of up to 200 kilometers an hour. But Chinese and Iranian ambitions do not stop here. As Deputy Minister Fakhrieh-Kashan pointed out, the OBOR project includes not only infrastructure, but also commercial agreements, investments and tourism.

Trade relations between Iran and China have grown exponentially since 2007, particularly following Iran's economic isolation due to the tightening of international sanctions against Tehran. Beijing remains the largest buyer of Iranian crude oil despite the partial lifting of sanctions against Iran since January 2016 and growing European investments. China's state-owned companies are actively engaged across the country in highway construction, mining and steel production. "The Chinese plan is designed in such a way that it will establish Chinese hegemony across half of the world," said Deputy Minister Fakhrieh-Kashan. But he added that Iran will be putting its own economic and strategic interests first, providing access to new markets for Iranian entrepreneurs and goods.

A growth opportunity

The OBOR initiative is providing huge growth opportunities for the Iranian economy and local employment, which years of economic stagnation had brought to a standstill. Chinese investments have already enabled the Iranian economy to offset the effects of international sanctions imposed by the members of the United Nations Security Council and Germany (P5+1). The OBOR project could also allow Tehran to overcome the pressure of any fresh U.S. sanctions advocated by President Trump. But for the Ayatollahs, the danger of economic dependence on Beijing is lurking around the corner, in a context of strong competition with Russia and India.

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The Steep Road to Transition

Despite the leap forward in the production of green energy, which is expected to cover 15 percent of energy requirements by 2020, Beijing is struggling to define a clear regulatory framework, while investments in the sector have not always paid off

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he energy revolution is an important sign of global industrial development and technological progress. Traditional fossil fuels have driven industrial development while at the same time exposing the world to the limits of energy resources and their contribution to the progressive deterioration of the ecosystem.

In the wake of the energy crisis, the global environmental and climatic crisis of the second half of the 20th century and the explosion of the economic crisis, humanity is making tremendous efforts to move from the traditional system based essentially on the use of coal and oil, to a new energy model based on clean and renewable resources, including natural gas, hydroelectricity, wind, nuclear, photovoltaic and biomass energy. This transformation is known as the "new energy revolution" or "energy revolution 4.0."

According to predictions contained in the 2016 Annual "World Energy Outlook" Report published by the IEA (International Energy Agency), by 2035, energy consumption in China will account for 25 percent of world consumption, with a proportional net increase of 32 percent compared to global energy consumption. This clearly shows how China is destined to have even greater relevance in the global energy market and in energy policies.

New energy planning and expansion in China

China may have started to develop and use new energy sources later than others, but growth in the industry has been quite fast and has attracted worldwide attention. Development in the Chinese new energy sectors is mainly focused on sustainable energy, wind, biomass and blue energy. The creation of sustainable energy industrial facilities has many applications. Thanks to greater public awareness, an ever-increasing focus on new energy in national policies and new market requirements, the new energy sector's development has gradually accelerated and is attracting increasing attention from industry.

New energy parks have sprung up all over the country, allowing progress in the shift to renewable energy and enabling further expansion of the market, which has led to giant steps being taken. By the end of 2016, wind farms had an accumulated power of 149 GW, increasing annually by 13.2 percent, i.e., 9 percent of the country's entire energy production; total photovoltaic energy production had reached 77.42 GW, increasing annually by 81.6 percent, corresponding to 4.7 percent of the country's energy production capacity; while data for blue and biomass energy production, amongst others, also showed significant growth. Today, China has overtaken other developed countries, including Germany, the U.S. and Japan, reaching pole position in terms of new energy consumption and the production capacity of its new energy plants. In 2015, non-fossil fuel energy consumption in China was around 12 percent, higher than its consumption in Japan, Belgium, the U.K. and the other leading developed countries. In the same year, the world's total installed wind energy capacity was 63 GW, 48 percent of which was represented by China. In the first half of 2017, the distributed photovoltaic capacity was 17.43 GW: 17 percent of total installed production capacity. Also in the first half of 2017, production capacity increased by 7.11 GW, around 3 times the amount produced during the same period of the previous year.

A rapid and unexpected development

Development in the photovoltaic industry in China has two characteristic features: increasing speed of distribution capacity and a very clear trend toward development in the sector, which is moving toward the eastern regions of the country.

The main aspects of the development of new energy in China are the following:

- First, a constant increase in the demand for new energy sources. According to the "13th five-year energy development plant," China's energy requirement will continue to expand quickly. It is expected to reach 0.5 billion tons of coal equivalent (tce) by 2020. Among other things, the plan includes an objective for photovoltaic energy, aiming for a distribution capacity of 60 GW, for which it is crucial to expand distribution and consumption in the eastern and southern regions of China, in the knowledge that the development of energy resources can improve efficiency in the use of the whole energy system.
- Second, the ratio between reserves and production of energy from traditional fossil fuels is far lower than the global average, which is the very reason why new energy sources have become such a significant part of the national energy strategy. The "13th five-year energy development plan" clearly illustrates how the percentage of renewable energy will account for an ever-increasing portion of overall energy consumption, rising from 8 percent in 2011 to 15 percent in 2020, with a total market value of around 2,000 billion RMB (including 1,000 billion in new energy and 1,000 billion in environmentally-friendly cars).

According to data from the National Bureau of Statistics of China, in the first four months of 2017, clean energy production—excluding blue energy, which is influenced by seasonality—peaked, with solar power, for example, having risen by 31 percent compared to the same period of the same year.

Based on the "China Energy Outlook 2030," published by the China Energy Research Society (CERS), by 2030, new energy plants will have grown to 14.4 TW, with a total installed capacity of 60 percent, which will contribute to covering 90 percent of the increase in energy consumption in 2020-2030.

- Third, national policies will support expansion in the new energy sector. The government will support this strategic sector to make it profitable, →

attracting big investments, while also dealing with issues relating to the uniform production surplus. In future, industrial policies will be aimed at promoting innovative efforts and making demand grow in the new energy sector.

Constantly evolving legislation

In terms of organic legislation, China has consistently innovated its regulatory framework and policies to stimulate new energy production and eliminate traditional energy sources. This framework includes the "People's Republic of China Law on Renewable Energy," the "Medium and Long-Term Plan for Renewable Energy," and the "Energy Conservation, Creation and Distribution Code (undergoing testing)." The country has also supported wind power policies with great commitment through the "Provisions for the Development of Decentralized Access to Wind Power of the National Energy Agency (NEA), the "Provisions for tax relief policies on new energy vehicles for the period 2016-2020," and the "Management and warranty provisions for the full acquisition of wind and solar energy." Furthermore, based on the information contained in the 2017 "Government Activities Report," the objectives set to regulate the energy produced from coal by eliminating, canceling or suspending plants with a production capacity of 50 GW upwards will lead to a cascade analysis of these objectives in 2017, with a view to defining and implementing stricter legislation to guarantee that each objective is actually met.

Finally, continuous innovation in energy storage and the use of IT tools in the field of new energy sources. China is currently the world leader in the CAES (Compressed Air and Energy Storage) sector. Technological innovation introduced by thin-layer solar cells has gradually entered the energy distribution market and its use by companies is growing steadily. Over the next 10 years or so, the requirement for energy storing solar panels can be estimated to grow to 8.5 TW, demand in the market for lithium ion batteries for next-generation vehicles is expected to reach 50 GW, while the value of the market for energy saving batteries is estimated to grow to several thousand billion.

Risk factors and adapting the development model of energy sector companies

According to the "13th five-year plan for the development of renewable resources," by 2020, new wind farms will be able to deliver 80 GW, based on an investment of around 700 billion Yuan, while 100 billion Yuan will be invested in different types of photovoltaic energy plants. This shows how China now has a historic development opportunity in the field of new energy sources. However, despite the rosy development prospects, the current data show uneven growth that will require the sector to deal with a variety of risk factors and problems:

1 | THE NUMBER OF PATENTS HAS FALLEN RAPIDLY

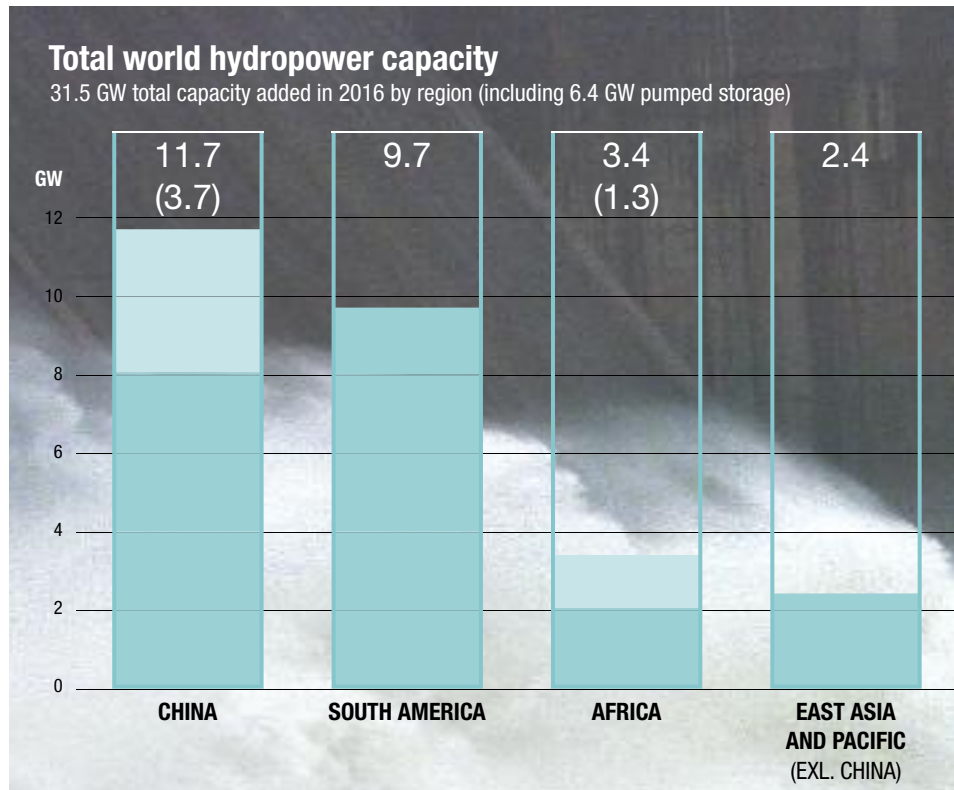
Both innovation by existing companies in the new energy sector and the growth of new companies have decreased. Between 2006 and 2008, China filed the highest number of patent applications in the wind, photovoltaic and blue energy sectors (followed by Japan, the U.S. and the U.K). However, following the acceleration of the industrialization and urbanization process, along with an increased interest in traditional sectors, the innovative vigor of companies in the new energy sector has decreased in recent years, leading China to fall behind Japan and other developed countries.

2 | THE FINANCIAL CAPACITY OF COMPANIES IN THE NEW ENERGY SECTOR IS INSUFFICIENT

Indirect financing has encountered problems. The origin and most important channels for this kind of financing are commercial banks, which primarily concentrate their investments in medium to large state-owned companies, given that there are restrictions on granting credit and loans. The requirements that companies have to fulfill to be granted loans are fairly stringent, which means that most companies operating in the new energy sector do not fulfill the minimum requirements set by banks for credit financing. Only around 10 percent of financial support for the sector comes from direct financing, a much lower percentage than in other countries. There is little confidence in making venture capital investments as there is little specialization in most risk capital investment companies. Difficulty is often encountered in understanding the industrial model of projects and the effectiveness of investing in new energy sources, leading to a cautious approach to investments in the sector.

3 | A DEVELOPMENT MODEL THAT DEPENDS ON POLITICAL RIGOR

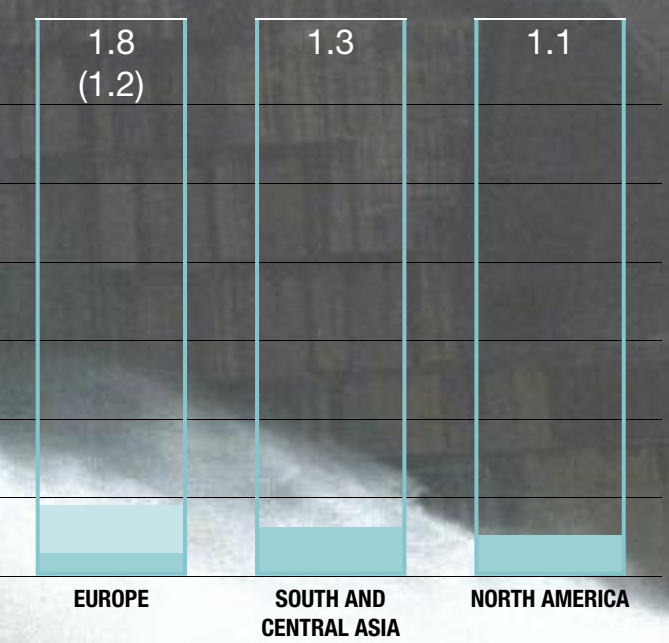
The new energy sector is currently at an initial stage in many respects. The industrial model and financial valuations are difficult to interpret and, in many circumstances, there is a need for preferential policies that provide for State contributions, without which it is difficult to achieve a financial balance and continue with the venture.

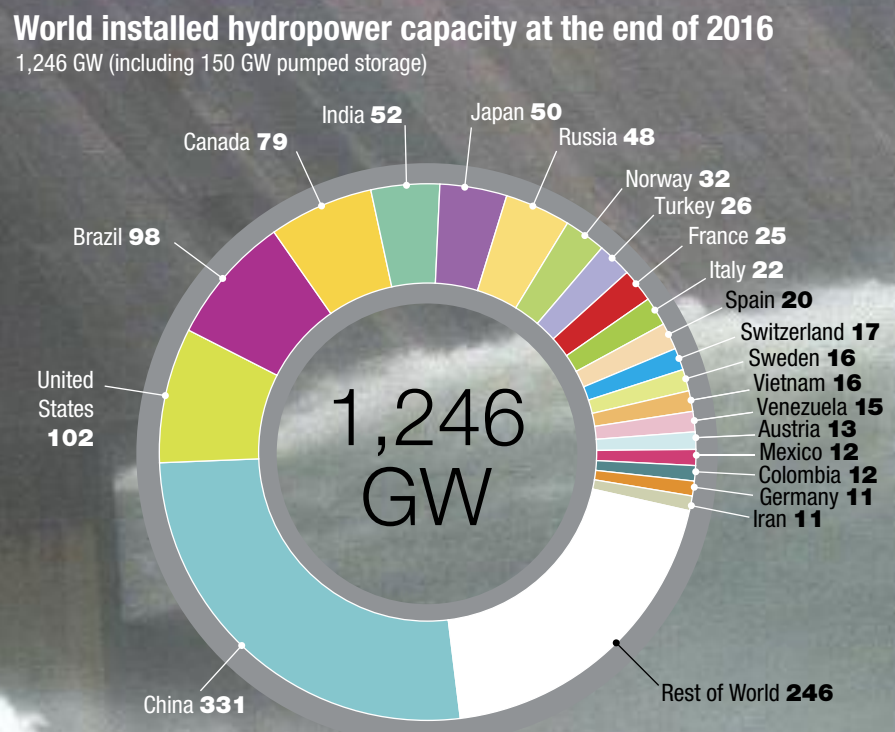


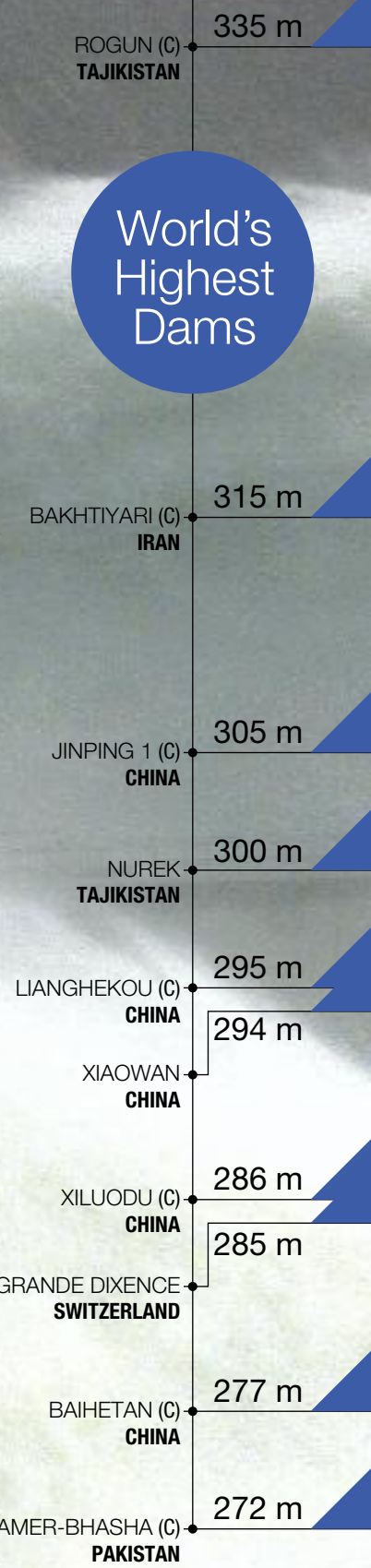
A River of Energy

The development of renewables in China starts with water. Well before Beijing decided to enthusiastically engage the path of solar and wind energy, its dominant focus was on hydropower, largely due to the vast network of rivers spanning the length and breadth of the country. China has over 1,500 rivers with drainage basins exceeding 1,000 square kilometers; of these, 64 percent of the country's surface area is drained by rivers flowing into the sea, while the remaining 36 percent is drained by rivers that flow into continental lakes or evaporate in deserts or saline sands. It is perhaps partly due to these vast water resources that China is the world's largest constructor of dams. According to the latest data released by the International Commission on Large Dams, there are roughly 23,820 large dams in China. Large dams are usually defined as those with a height of at least 15 meters, from lowest foundation to crest, or a dam between 5 meters and 15 meters with a reservoir capacity of more than 3 million cubic meters of water. China's large dams account for just under half of the total number of large dams found in the world, which according to ICOLD estimates is approximately 58,519 (2016). The goal of the Chinese government's 13th Energy Five Year Plan is to increase total installed hydropower capacity to 380 GW by 2020, of which 40 GW would be pumped hydro, a type of hydropower that works like a battery, pumping water from a lower reservoir to an upper reservoir for storage and later generation. This new hydropower capacity could generate approximately 1.25 TWh of power, which is equivalent to around 42 percent of national non-fossil energy consumption.

According to rankings compiled by the International Commission on Large Dams, five out of the world's ten tallest dams are in China. The tallest is the Jimping 1 dam, at 305 meters, situated on the Jinping Bend of the Yalong River, in the Sichuan region. Construction work on the dam began in 2005 and was completed in 2014. Its power station has a 3,600 MW capacity and produces between 16 and 18 TWh annually. One of the largest hydro power stations in China in







terms of installed capacity, is the Three Gorges Dam on the Yangtze River, in the Hubei province. The facility, completed in May 2006, has a current capacity of 22.5 GW. The dam is 185 meters tall and stretches across more than 2.3 kilometers. Its reservoir, with a surface area of over 1,000 square kilometers and extending for more than 600 kilometers, moves turbines that generated 87 billion kilowatt-hours in 2016. Less well-known than the Three Gorges Dam is the Xiluodu dam, located between the Yunnan and Sichuan provinces, on the Jinsha River, the upper course of the Yangtze. Construction on the facility began in 2005 and the dam opened in 2013. It has an installed capacity of roughly 13.8 GW. It is one of the world's tallest stations, standing at 285.5 meters (and is 700 meters long). Construction of several other dams is underway, notable among them the Baihetan and the Shuangjiankou dams. The Baihetan dam is on the Jinsha River, a tributary of the Yangtze, and is situated between the Sichuan and Yunnan provinces, in southwest China. It is a 277 meter tall double-curvature arch dam with a crest elevation of 827 meters. The dam is due to be completed in 2022, and in terms of total installed capacity, it will be the world's second largest after the Three Gorges Dam. According to the China Three Gorges Corp, the builders of the dam, it will have an average annual output of more than 62 billion kilowatt-hours. The facility will generate power utilizing 16 turbines, each with a generating capacity of 1,000 MW, taking the generating capacity to 16 GW. Once completed, it will be China's third largest dam and the fourth in the world in terms of dam volume. The Shuangjiankou dam, set on a tributary of the Yangtze River, is also expected to be completed in 2022. The facility, with a projected cost of CNY 36 billion, will be 314 meters tall. But China's dam building efforts are not confined to its national territory. In response to a saturated domestic market, Chinese investments in the construction of new facilities are moving abroad. There are currently over 330 dams built by Chinese firms worldwide, 40 percent of which are located in South Asia and a third in Africa.

Global classification of dams by installed capacity with energy

	Installed Cap. (Mw)	Energy (GWh/year)
INGA III - **DEM. REP. OF CONGO**	40,000	
SANXIA - **CHINA**	22,500	84,900
ITAIPU - **BRAZIL**	14,000	
ITAIPU - **PARAGUAY**	14,000	90,000
BAIHHETAN (C) - **CHINA**	14,000	51,500
XILUODU (C) - **CHINA**	13,860	57,120
BELO MONTE - **BRAZIL**	11,234	
GURI - **VENEZUELA**	10,000	52,000
TUCURUI - **BRAZIL**	8,370	
TA SANG (C) - **MYANMAR**	7,100	35,446

Sources: International hydropower association - International Commission on large dams

4 | THE CREDIBILITY OF COMPANIES IS WEAK AND LEGAL DISPUTES ARE INCREASING

Between 2007 and 2014—a period of 7 years—legal disputes due to the credibility of companies increased from 6 to 640. Some Chinese companies are facing big challenges related, for example, to international intellectual property and to an inability to sell their products effectively.

5 | DEVELOPMENT TRENDS IN THE ENERGY SECTOR AND RESULTING PRESSURE ON THE TRANSFORMATION OF ITS MODEL

Development trends in the energy sector are putting a lot of pressure on the new energy sector. There are two aspects to consider: first, the difficulty of maintaining the traditional energy model, which does however have an advantage in price terms, and second, the fact that development in the new energy sector is struggling to keep pace with the development of demand.

6 | THE NEW ENERGY SECTOR IS HAMPERED BY A LACK OF FAIR MARKET-DRIVEN COMPETITIVENESS

China's lack of vision regarding the new energy development process and the lack of scientific and rational technological innovation have so far prevented it from implementing a far tax policy that will allow the new energy sector to serve the country's energy security.

New development prospects in the sector

1 | IMPROVING ENERGY SECTOR REGULATION AND PROMOTING STRONG AND HEALTHY DEVELOPMENT OF THE NEW ENERGY REVOLUTION

The government must devise policies and measures aimed at supporting the energy sector, enticing companies in all sectors to undertake an energy revolution and encouraging them to replace technologies which use traditional forms of energy with green production. Beijing should also further improve protection for intellectual property rights and introduce a system that rewards innovation,, supporting the creation of new energy products with the help of grants for environmentally sustainable technologies, green taxes and other measures. Environmental protection legislation will have to be further improved. Technical standards need to be set for industrial energy storage and for cutting emissions, establishing a threshold for carbon emissions, encouraging companies in different sectors to implement measures for innovation and improvement in the field of energy, while also improving the exit mechanism for companies, establishing a plan for the elimination, within the established period of time, of uncompetitive companies that have a high environmental impact, low productivity and high levels of pollution.

2 | ADAPTING THE INDUSTRIAL STRUCTURE AND THE ENERGY CONSUMPTION STRUCTURE, PROMOTING THE GREEN TRANSFORMATION OF INDUSTRY

The Chinese industrial fabric, which is dominated by heavy industry, has long maintained a structure based on the use of fossil fuels. A green transformation of the Chinese industrial sector is needed, involving adapting the production structure and forcing a structural reform of energy consumption. The adaptation of the production structure should aim to reduce environmental costs for greater energy efficiency. For these reasons, it is necessary, first of all, to redirect drilling and mining activities relating to coal, oil, natural gas, ferrous metals and other heavy industries toward the healthy development of key industries in fields of energy conservation and emission reduction. Furthermore, the lever of the high-tech industry must be used to focus on the development of modern services and manufacturing, using the development of production to transform and redirect the industrial structure, optimizing and improving the energy structure, thus creating a mechanism that will encourage the green transformation of industry. Finally, more in-depth work needs to be done on factors that can reform the market and play a fundamental role in reconfiguring the energy product, focusing on investments driven by economic efficiency rather than being government-led, further defining the endogenous strength of green industrial transformation.

3 | THE NEW ENERGY SECTOR NEEDS A MASSIVE INJECTION OF VENTURE CAPITAL FUNDS, STATE INVESTMENTS, SHARE CAPITAL AND FINANCIAL SUPPORT IN EVERY RESPECT, SO THAT DIVERSIFIED CAPITAL CAN FLOW INTO THE INDUSTRIAL DEVELOPMENT OF NEW ENERGY SOURCES

This involves intensifying the use of share capital, replacing the technologies commonly used in the sector with recently patented technologies and continuing to plow the technological revolution and innovation furrow.

4 | INCREASING INVESTMENTS IN TECHNOLOGICAL INNOVATION, GROWING THE GREEN ECONOMY OF COMPANIES IN THE ENERGY SECTOR

The margin for improvement of Chinese green technology companies is enormous, but investments in R&D and the plan to expand the green technological transformation are still hampered by the lack of sup-

China alone is responsible for over

40%

of global renewable capacity growth

Chinese companies produce about

60%

of the total annual production capacity of solar cells globally

Solar photovoltaics in China could reach a total of

320 GW

by 2022

Source: IEA_Renewables 2017

port for the production structure of companies. The technological reform of traditional technologies must therefore be boosted, promoting new energy technologies and expanding the use of new manufacturing processes, improving the efficiency of energy recycling, constantly moving the frontier for industrial production further and improving the competitive strength of companies, stimulating and promoting a green economic approach by companies.

5 | IMPROVING THE PATH TOWARD INTERNATIONALIZATION AND INTERNATIONAL COOPERATION

The New Silk Road (One Belt One Road Initiative) is a national strategic initiative promoted at a high level to ensure that countries along the same line focus on common needs. The initiative has created new and better opportunities for development, liberalization and complementarity. All along the New Silk Road there are many countries with a wealth of traditional and innovative energy resources, which are developing coal resources destined for Chinese companies, for which the expansion in the coal trade has been beneficial. China is a world leader in coal extraction and processing technology, coal mining machinery, engineering services and other aspects, with a considerable competitive advantage internationally. The countries along the New Silk Road are, for the most part, emerging and developing economies with a high demand for infrastructure, a big market for coal and a great deal of room for investments. By the end of 2012, China had 65 coal mining projects abroad, involving investments of over USD 7 billion, and controlled 40 million tons of coal resources.

6 | THE INTERNET AS A MEANS OF INVOLVEMENT

With increasingly in-depth research being done into e-distribution (energy distribution via the Internet), renewable energy could supplant fossil fuels on a large scale, thus creating ample space for the development of e-distribution, giving new impetus to a reform of the energy system.
In general, between 2017 and 2022, renewable energy could grow globally by a margin of more than 40 percent, increasing in total by around 8.6 TW, with photovoltaic energy increasing by around 3.8 TW, overtaking wind power for the first time. China remains the global leader in the market for renewable energy, making a 36 percent contribution to future photovoltaic energy production. It is therefore reasonable to assume that the content of the Chinese "13th five-year plan" for renewable energy could give rise to a new definition and environment for development.

A 100% GREEN HOTEL

The Chinese government promotes new policies aimed at replacing traditional energy for the benefits of a "green" production. An example is the Solar Valley Micor-E Hotel, in Dezhou, the most eco-sustainable hotel structure in the world.

Shale gas/Forecasts for an unconventional recources

The Future is the Shale

China has become the world's third largest producer of shale gas, surpassed only by the U.S and Canada. Beijing considers shale the country's new strategic energy source and has increased its investment in exploration and production

XIAOLAI ZHOU

She is the President and founder of Energy China Forum (ECF), President and founder of Shanghai United Institute for Unconventional Resources, and Executive Deputy Director, Energy Economy Committee of Shanghai Economist Association. Ms. Zhou spearheaded the establishment of Energy China Forum as a leading and independent China Energy Think Tank & cross-boarder, muti-disciplinary energy cooperation platform.

he year 2017 marks another milestone for China's unconventional resource development, and we have China becoming the world's third largest shale gas producer, after the U.S. and Canada. During the current industry downturn, economic feasibility has become the main concern about the full-scale development of China's shale gas, a reflection of the energy sector's common dilemma. To many, it may seem that importing crude oil and LNG is better than the short-term option economically, making shale gas less attractive to the domestic industry. However, in order to meet the nation's energy security, China has declared shale gas the country's new strategic energy source and drastically increased investments in shale exploration and production. The shale revolution resembles a mirror, reflecting China's growing and flourishing energy industry. The first round of China's shale gas exploration rights concluded in 2011, and Energy China Forum (ECF) has observed China's scale of shale gas commercial development expand at an unprecedented rate within the brief period of six years. As we at ECF became China's largest international shale gas think tank, we have both witnessed the growth and development of China's shale resources and grown alongside it ourselves.

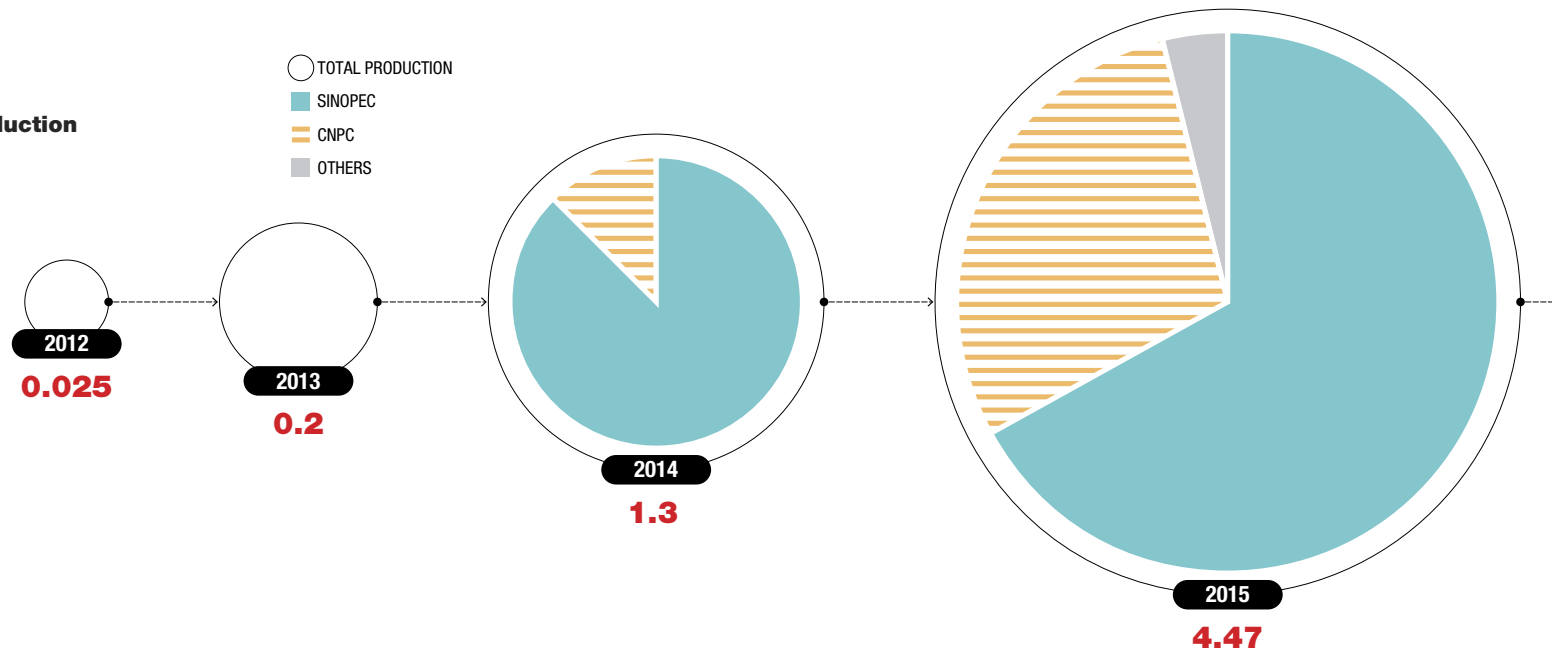
Economic globalization, cross-boarder and multidisciplinary energy cooperation

Global energy crises have been a major headache for countries worldwide early in the 21st Century, and this is what inspired and encouraged the shale revolution in the United States. Other countries are now striving to follow that lead,in order to address rising demand for domestic energy security and to collaborate to solve energy supply challenges. As the largest energy consumer in the world, China itself is experiencing an ongoing increase in foreign energy dependence, and urgently needs a cross-boarder, muti-disciplinary energy cooperation platform, and that need catalyzed the birth of the Energy China Forum. In the year 2011, when China had just started exploring and utilizing its shale gas resources, ECF organized its first annual summit in Shanghai. Other countries, including the U.S., Great Britain, Poland and Russia were paying close attention to China's shale progress. Government agencies, energy companies, equipment manufacturing corporations, think tanks, as well as legal and financial firms were collaborating to prepare for the policy, technology, finance, laws and regulations required for China's shale revolution. The entire world was watching China's energy sector and was expecting massive business opportunities and significant impacts on the global energy and economy resulting from China's shale development plans. ECF has grown rapidly from an emerging forum to become China's leading shale gas platform within the past 7 years, and it is steadily gaining a reputation on the global stage. This is exactly a microcosm of China's booming development against a background of globalization. Having benefitted from the development of China's energy sector, especially the shale industry, as well as from progress in economic globalization, China and Asia's growth is inseparable from global development as a whole.

Looking back on ECF's past conference agendas, it's easy to identify some of the conference "keywords," in-

THE SHALE BOOM

China's shale gas production volume in bcm. Over the past 5 years, China's shale gas production has risen from 25 million cubic meters (mcm) in 2012 to 7.88 bcm in 2016. Total production for 2017 is expected to reach 10 bcm.



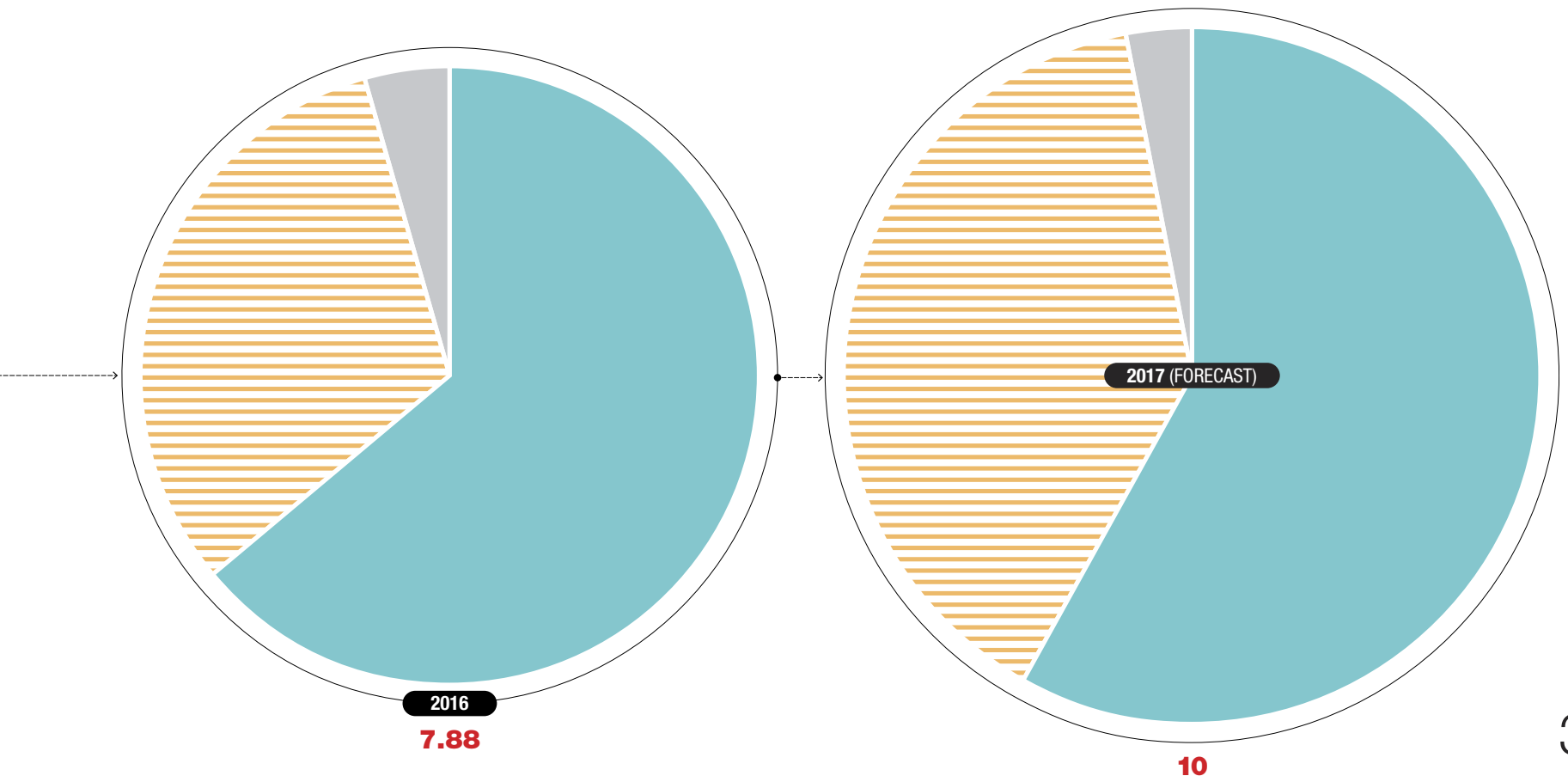
cluding "China's opening energy market," "international cooperation," "multidisciplinary approach," "technical development," "innovative technology," "environmental protection" and "sustainable development."

During the early days of ECF, ECF's summit participants focused on North America and other regions' advanced technologies, equipment and services to learn from them. By 2017, China had developed its initial and unique technical system to explore and develop its shale gas resources, customized to China's geological conditions. Since 2014, an increasing number of East and Southeast Asia countries have come to China to study China's shale development history and experiences, as well as the lessons learned during field applications. This is a rather fast transition and is a perfect indication of China's "soft skills" as an emerging economic superpower. China is now exporting energy technology, equipment, services, capital and professionals to the world, and it is getting more confident about actively promoting global common development in the energy industry. Its Belt-and-Road initiative drove energy cooperation between China and the Belt-and-Road countries, paving China's road to become the world's major energy technology exporter.

The Belt-and-Road initiative is a development strategy focusing on international connectivity and cooperation. China's domestic energy technology providers also embrace the global tide of technical diffusion for shale gas and shale oil. Backed by the largest shale gas reserve in the world and a proven history of rapid technical development, China eyes a massive development potential in the area of international energy cooperation for mutual benefit.

A coming period of strategic opportunity

Due to the rising demand for environmentally-friendly growth, China's energy structure has been shifting towards lower pollution, instead of lower costs, during recent years. Natural gas represents the cleanest fossil fuel available for commercial uses. Analysts predict that the 21st century is the century of natural gas, and that natural gas will surpass crude oil after two decades. By the year 2040, China's shale gas is expected to contribute over 50 percent of China's total domestic gas pro- →



MAJOR SHALE GAS PRODUCING AREAS

	Operator	Geological Area	Reserve (0.1 bcm)
Fulin	Sinopec	Eastern Chongqing	4,767
Changning	CNPC	Sichuan Yungui Boundary	19,000
Weiyuan	CNPC	Sichuan & Chongqing	39,000
Zhaotong	CNPC	Sichuan Yunnan Boundary	55,000
Fushun-Yongchuan	CNPC	Sichuan	5,000
Total			**122,767**

China's major shale gas producing areas concentrate around the Sichuan Basin, critical zones include the Fulin, Changning, Weiyuan, Zhaotong, Fushun-Yongchuan areas. Sinopec operates the Fulin Shale Gas area, while the rest were operated by CNPC.

Source: China Geological Survey (CGS)

GEOLOGICAL RESERVES OF INTEREST

	Geological Area	Geological reserve (0.1 bcm)
Xuanhan-Wuxi	Chongqing	2,000
Jingmen	Western Hubei	3,240
Chuannan	Southern Sichuan	2,386
Chuandong	Southeastern Sichuan	9,485
Meigu-Wuzhishan	Southwestern Sichuan	13,500
Yanan	Ordos Basin	5,630
Total		**36,241**

China is accelerating exploration tasks in other shale gas areas, and plans to achieve the exploration and surveying work in the Xuanhan-Wuxi, Jingmen, Chuannan, Chuandong, Meigu-Wuzhishan, and Yanan areas before 2020. Total geological reserves in these above areas are approximately 3,624 bcm.

Source: China Geological Survey (CGS)

duction, making China the world's largest shale gas producer. It is widely believed that China's shale gas industry has massive industrial potential.

Shale gas was confirmed as China's new mineral variety, independent from natural gas, in 2011, and in order to promote and encourage domestic shale development, China has promulgated a series of policies supporting the domestic shale industry. Some local governments also confirmed their own regulations and economic development plans for shale gas, making it a new point of growth for the local economy, and numerous emerging shale gas companies have been registered across China. In September 2016, China's Energy Administration declared shale gas as an important clean energy baseline industry, pushing shale gas towards an unprecedented strategic position.

In December 2016, China published its 13th Five-Year Plans for Energy Development, and the 13th Five-Year Plan for Energy Technology Innovation, establishing a bottom-line thinking strategy, enhancing domestic energy supply capability, promoting the reserve evaluation for shale gas and other unconventional resources, and developing these resources commercially to meet China's demand for energy independence and security. In January 2017, China's State Council published the Notice on Several Measures for Promoting the Growth of Foreign Investment and the Active Use of Foreign Investment to further relax restrictions on foreign capital entering the areas of shale gas and other unconventional resources. In May 2017, the Central Committee of the Communist Party of China, as well as China's State Council, published Several Opinions on Deepening Oil and Gas Sector Reform. In July 2017, Opinions on Accelerating the Use of Natural Gas announced support for the construction of shale gas complementary pipelines and the nearby connection of shale gas sources with major pipeline systems. The policies encouraged shale gas pipeline and infrastructure construction operations, and opened up the market of petroleum pipelines to social organizations from the political side. China's Ministry of Finance and National Energy Administration have reiterated that domestic shale gas development will continue to receive policy subsidies from 2016 to 2020, and the subsidies have been modified to 0.3 CNY/cubic meter during the first 3 years, and 0.2 CNY/cubic meter for the rest. China continues to subsidize shale gas development with the backdrop of increasingly strict subsidies for renewable energies.

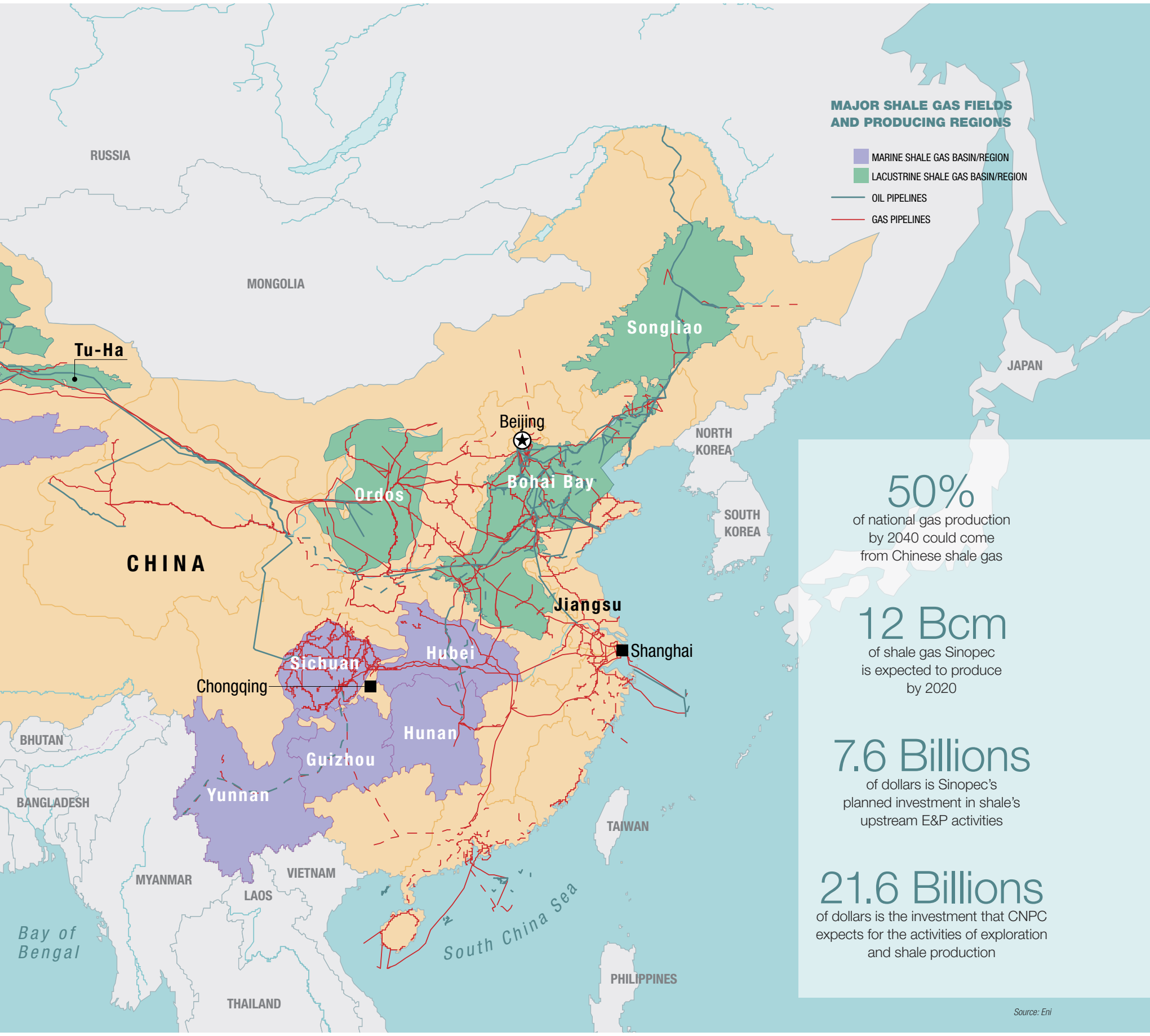
E&P for shale gas: pros and cons

At current technical and market conditions, China's shale gas E&P appears to have characteristics that include high capital investment, high risk, long project cycles, slow payback and low economic returns. According to statistics, cumulative domestic investment reached 36.5 billion CNY by 2015. The central and local governments invested approximately one billion CNY, bid-wining companies invested approximately two billion CNY, and the rest of the pool came from China's national oil and gas giants.

Sinopec is planning to invest 50.5 billion CNY in the upstream E&P sector, representing a 5.4 increase compared with last year. CNPC, on the other hand, will invest 143.6 billion CNY, an increase of approximately 10 percent. So far, domestic investment for shale gas comes mainly from Sinopec, CNPC and the government. The scope of investment is limited, however, mainly due to uncertainties of economic return, and that could negatively impact shale development in China. Sound business models need to be developed that will attract social involvement.

By 2020, Sinopec plans to achieve shale gas production of over 12 bcm, and that requires an annual average increase greater than 40 percent. In the long term, PetroChina Southwest Oil and Gasfield Company aims to achieve annual production of 30 bcm of shale gas, and this number is expected to reach 50 bcm by 2030. China is also accelerating exploration in other shale gas areas, and plans to complete exploration and surveying work in Xuanhan-Wuxi, Jingmen, Chuannan, Chuandong, Meigu-Wuzhishan, and Yanan areas before 2020. Total geological reserves in these areas are approximately 3624 bcm.

China has a fair command of the technologies related to geophysics, drilling, completion, fracturing and testing techniques for shale gas development. These technologies can solve many of the challenges encountered during operations, but they are still deemed uneconomic by many. The very high costs of project life cycle has retarded the development pace of China's shale gas resources. The next focus for China's shale technology is to transform technical recoverable reserves into economic recoverable reserves. As a result, major technical breakthroughs are necessary to lower operational costs. Currently, China is establishing major national science and technology programs across the shale industry chain. Critical tasks include "sweet spot" identification, deep horizontal well drilling and completion, shale development environmental evaluation and protection, and shallow horizontal well staged fracturing technologies for shale wells. CNPC is planning to utilize shallow shale sectors, reduce average platform cycles by 70 days, and reduce average costs per well to 40 million CNY, thereby fulfilling the target production of 12 bcm of shale gas production.



Environmental protection system is imminent

Chairman Xi has pointed out that the environment has to be treated with the same respect as human lives, and a strict system to monitor and control environmental impact must be developed. However, China's environmental protection mechanisms for shale gas development are still under construction, especially those regarding ground water, fracturing fluids and induced seismic activities.

Meanwhile, China's existing petroleum regulating systems are insufficient to solve potential challenges brought by the rapid development of shale gas.

China's increasingly strict environmental protection policies conflict with the still-developing shale gas regulation systems. Currently the industry does not have a clear guideline, or answer, regarding environmental monitoring and regulating standards. As a result, there is obvious inconformity between environmental regulations across cities and provinces, and this has apparently restricted the effective development of China's shale reserves. Energy China Forum's achievements and progresses can be viewed as a perfect reflection of China's energy and technology sector.

I believe China will be ready to welcome a prosperous new era for shale gas full-scale commercial development, technical innovation and global cooperation. China's energy foreign dependency will be further addressed, and a balanced development for the environment and economy is only steps away. Technical breakthroughs brought the world many uncertainties regarding energy sources and will certainly reshape the global energy structure. I believe China will become increasingly influential during this process.

China vs. United States/The evolving competition between the two global powers

The Race for the Future

While both sides know it's in their interest to avoid a military conflict or an all-out trade war, 2018 is likely to see greater tension between Washington and Beijing, particularly on trade and technology issues

IAN BREMMER

He is the President and founder of Eurasia Group, a global political risk research and consulting firm. Bremmer created Wall Street's first global political risk index, and has authored several books, including the bestseller *The End of the Free Market: Who Wins the War Between States and Corporations?*

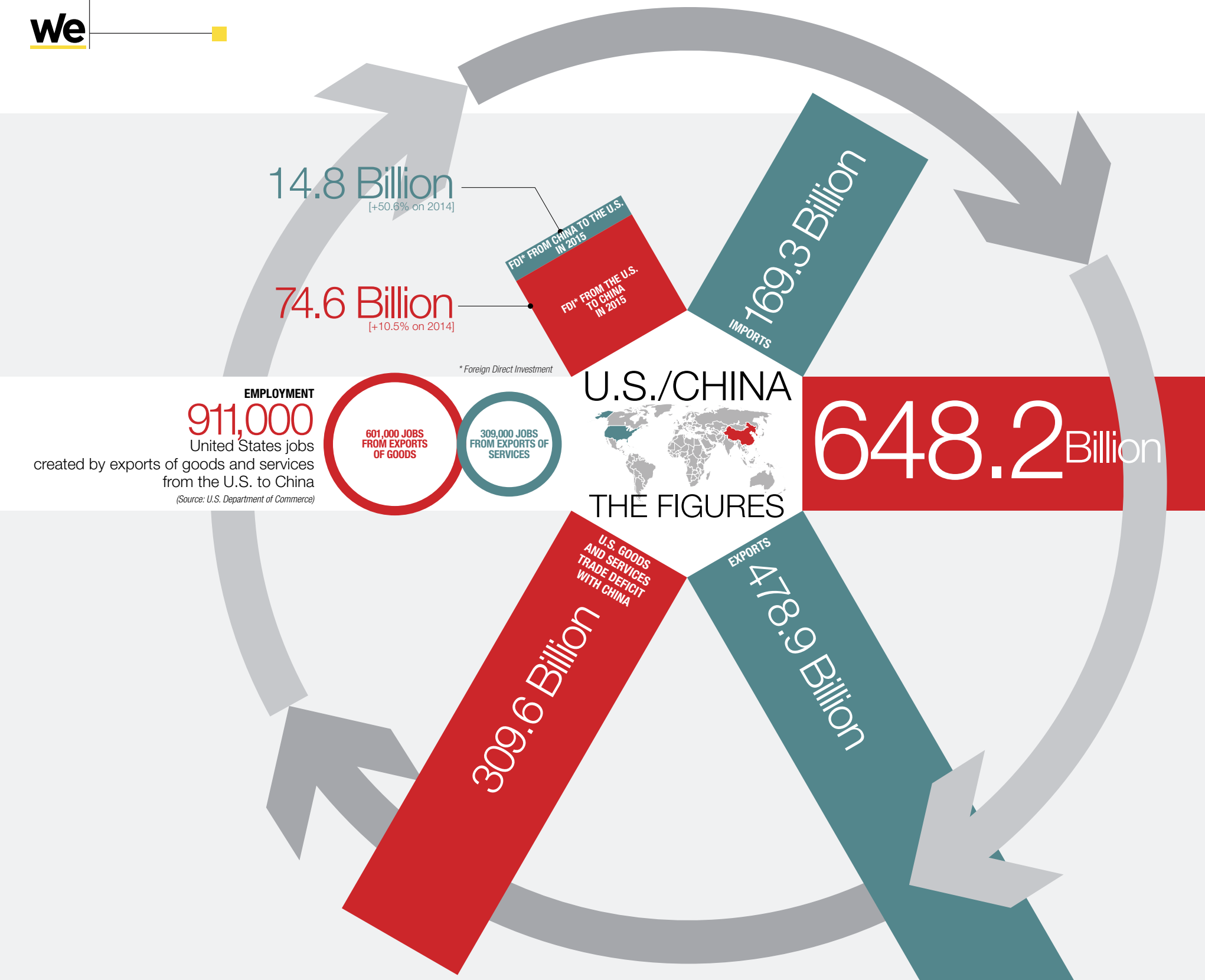
China and the U.S. aren't going to war, but great power rivalries play out in many other ways. Beijing sees the expansion of its economic influence as the key to its future, and it's in this arena that the U.S. and China are most likely to find themselves at odds. A year into the Donald Trump administration, the biggest surprise is that the U.S. has (so far) ceded the ground on which Beijing can assert itself. That won't last. When Trump first announced his opposition to the Transpacific Partnership (TPP) trade deal—governing the trade rules of 12 countries that together comprise 40 percent of the world economy—he was in the middle of a bruising campaign for the U.S. presidency. And since TPP would have given Barack Obama a signature accomplishment for his legacy, Trump presented himself to anti-Obama voters as the man to kill the deal. Given the political appeal of an anti-trade message in a country that has lost so many manufacturing jobs over the past 25 years, even Hillary Clinton, who had once praised the deal, began to oppose it.

Donald Trump withdrew the U.S. from TPP just three days after taking office. Trump ignored the protests of those who said TPP would provide Asian countries a U.S.-led alternative to China's expanding web of trade and investment projects—and the risks of too-deep a dependence on Beijing's good will that might come with it. For Trump the business mogul, leverage is everything, and the U.S. sacrifices its leverage as the world's sole superpower every time it signs a multilateral deal. But China's leaders understand that the largest and most important country in a multi-country agreement gets to set the terms of trade, as well as the rules, regulations, and technical standards that will govern future agreements. As the U.S. relinquishes that role, Beijing will make the most of the opportunity.

An alternative to the U.S. for trade and global investments

While the U.S. remains the world's largest economy, it is state capitalist China that has the more promising trajectory. Beijing channels its economic power through its state-run corporations to magnify its political influence—China spends, lends, and invests in many countries with governments that don't want to pursue painful political and economic reforms in exchange for Western aid. This is especially true at a time of political dysfunction in Washington. China's investment comes with far fewer conditions. That's why, despite an economy that's still 40 percent smaller in terms of GDP than the U.S. economy, China has become the world's single most influential actor. In addition, China, unlike the United States, is pursuing a coherent global strategy.

It has established the Asian Infra- →



structure Investment Bank (AIIB) as a direct competitor to the U.S.-led World Bank and Asian Development Bank. Its ambitious One Belt, One Road infrastructure plan unites China and neighboring regions through a network of roads, tracks, ports and pipelines that spans 60-plus countries. While Trump is focused on renegotiating better deals to prove to U.S. voters that he's a tougher negotiator than his predecessors, China is building an alternative trade and investment architecture.

China is also working hard to promote and protect domestic companies and industries. Chinese firms are expanding their global presence in high-tech areas such as cloud computing while Beijing sharply limits the ability of foreign firms to do the same inside China. It provides subsidies and political pressure to advance the interests of its champions. As China moves up the value chain, the U.S. goods and services trade deficit with China—totaling USD 309.6 billion in 2016—will become wider still.

During the first year of his presidency, Trump has adopted a less confrontational approach to commercial conflict with China than his campaign speeches would suggest. That is mainly because he hopes that China will play a lead role in containing threats from North Korea. But it is already becoming evident that China will not apply the level of pressure on North Korea that Trump has hoped for, and we're already seeing early signs that Washington will adopt a tougher approach to what Trump still insists are unfair Chinese trade practices.

The battle over new technologies

China is also building a long-term advantage through significant investment in artificial intelligence (A.I.). A breakthrough in A.I. will be transformative because its implications touch every aspect of our lives and our economies.

As a maker of new rules and standards, those responsible for those breakthroughs will hold the predominant influence in tomorrow's global economy. If there is an economic title fight looming between the U.S. and China, A.I. will provide the arena in which it is fought.

Victory in this competition will depend on the type of research that produces the critical breakthroughs. We must first recognize that the battle will be waged not between Beijing

+504%

In 2016, China was the third largest export market for U.S. goods and services. U.S. exports to China have grown by 504 percent since 2001, i.e. since China officially became a member of the World Trade Organization (WTO).

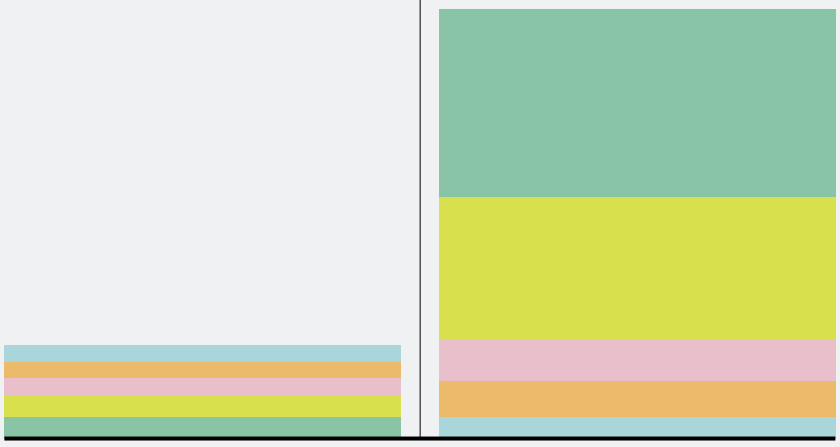
TOTAL U.S. TRADE IN GOODS AND SERVICES TO AND FROM CHINA (IMPORTS + EXPORTS)

MAIN EXPORT PRODUCT GROUPS FROM THE U.S. TO CHINA

- Vehicles **11 billion**
- Machinery **11 billion**
- Electrical machinery **12 billion**
- Aircraft **15 billion**
- Cereals, seeds, fruit **15 billion**

MAIN IMPORT PRODUCT GROUPS TO THE U.S. FROM CHINA

- Electrical machinery **129 billion**
- Machinery **97 billion**
- Furniture **29 billion**
- Toys, sports equipment **24 billion**
- Footwear **15 billion**



Source: Office of the United States Trade Representative

and Washington but between Beijing and Silicon Valley. If A.I. development is like the space race, and breakthroughs flow from a single large-scale effort to assemble the best minds and provide them with the greatest resources, China and its state-directed model will have a clear advantage.

The determined Soviets put the first man in orbit, but the deeper-pocket Americans won the race to the moon. But if the race to develop A.I. is more like the battle to combat climate change, one in which a variety of technologies are developed in competition with one another, then we should bet on Silicon Valley and its decentralized culture of innovation. The companies on which this success would depend are "American," but their primary responsibility is not advance U.S. national interests but to profit shareholders around the world. Conflict between the U.S. and China is inevitable, and we will likely see a significant escalation in 2018. Fortunately for all of us, neither military confrontation nor an all-out trade war is in the interest of either country, and both sides know it. That won't prevent a spike in tensions that leads to much greater trade friction between the world's two largest national economies.

And it won' t promote the cooperation in technological development that might benefit both sides—and everyone else.

Climate Change speaks Chinese

In recent months, the fight against climate change has undergone a process of reorganization at the top. President Trump's decision to disengage from the Paris agreements has effectively placed Europe and, most notably, China in pole position. This is an extremely attractive opportunity for Beijing, which now finds itself leading, somewhat reluctantly, and with all the associated responsibilities and privileges, the group of countries that have confirmed their commitment to the goals set out at the COP21 conference in 2015. The official adoption of the stance embraced by the White House was not unexpected. Trump had made his skepticism about the problems associated with global warming one of the key issues of his presidential campaign, and once in the White House, he lost no time in reiterating his opposition to the restrictions imposed by the Paris accords, doing all he could to thwart any attempt to strengthen the global climate cooperation that his predecessor, Barack Obama, had so keenly pursued. Trump's positions on climate change had already caused divisions among the G7 leaders who gathered in Taormina, Italy, at the end of May 2017. The heads of state and government leaders of Canada, France, Germany, Japan, Italy and the United Kingdom had hoped to the very end that the U.S. would reconsider its position. Not even the appointment of Scott Pruitt, whose climate change denial was unambiguous, as head of the U.S. Environmental Protection Agency (EPA)—and the agency's consequent loss of powers—had convinced the conference participants of President Trump's determination and readiness for a clash on climate change issues. Even Pope Francis, the author of the encyclical "Laudato si," had tried to soften Trump's stance by publicly presenting him with a volume on climate change. He, too, obviously, without success.

A path already charted

The rest of the world, however, seems to have no intention of backtracking on the pledges made, and is proceeding along the path of decarbonization. The new development, if it can be seen that way, is the change in leadership of the 'eco-friendly' group, with China now standing at the helm alongside the group of European countries. The latter have in fact long been engaged in an all-out battle for an environmentally sustainable future, with the goal of reducing greenhouse gas emissions by 80-95 percent compared to 1990 levels by 2050. The two Asian giants have already started to move on this front, too, with China (the world's leading emitter, accounting for 29 percent of global emissions) strongly engaged in a decarbonization path that is as necessary on the domestic front as it is welcome globally. It is important to note that China's commitment, in partnership with the United States, was one of the key drivers of success for the Paris Accord. And while on the Atlantic coast, the Trump Administration has decided to rip up the Clean Power Plan for energy transition, the government of the Celestial Empire, in 2015 alone, invested USD 103 billion in renewable energy sources (twice as much as the United States), and aims to allocate a further USD 360 billion from now through 2020.

As one country leaves, many others grow stronger

During the 19th Congress of the Chinese Communist Party held in late October 2017, President Xi Jinping solemnly pledged that his country would take "a driving seat in international cooperation to respond to climate change." Beijing has made this goal one of its priorities for the future. The impact of China's lead over the United States on the path towards decarbonization will also be felt outside its national borders. In 2016, while Trump was planning to dismantle the EPA, Beijing invested USD 32 billion in renewables outside China, both in industrialized countries such as Australia and Germany, and in emerging economies like Brazil, Chile, Indonesia, Egypt, Pakistan and Vietnam. Like it or not, climate change is also a business opportunity.

As mentioned earlier, a significant development is the convergence between China and the European Union in the fight against climate change, confirmed simultaneously—as it happens—with the announcement of Washington's withdrawal from the Paris Accord during the E.U.-China Business Summit. References to the rules and the mechanisms of international cooperation signal Beijing's acknowledgment of its responsibilities and global role. And while the U.S. is positioning itself in the rearguard with respect to one of the global issues that will have the greatest impact in the coming decades, neglecting its economic and industrial implications as well as its geostrategic consequences for Washington, the Chinese response to America's isolationism looks almost like a case of passing on the baton.

NICOLÒ SARTORI

China vs. Russia/Dialogue returns

An Increasingly Solid Axis

After years of sometimes bitter confrontation, Beijing and Moscow have re-established a relationship based on their mutual interest in strengthening cooperation in the field of energy and in more effectively managing the North Korean crisis

LELLO STELLETTI AND LIVIO CIPRIANO

For more than five years Lello Stelletti worked for *Agenzia Nova*, where he deals with energy, defense and Eastern Europe. On these topics he also focused his university studies.

Livio Cipriano works for the news website *Agenzia Nova*, where he is responsible for the Far East desk. In the past he also worked on the Balkans region, with a particular focus on issues related to energy, defense and international politics.

Allies and rivals, China and Russia are increasingly converging in the realm of policy. The two countries are members of the group of emerging economies known as the BRICS (Brazil, Russia, India, China, and South Africa), and are following a path of rapprochement mainly due to Western actions against Moscow as a result of the 2014 Ukrainian crisis. At the same time, Russia and China remain competitors, above all because they are competing for supremacy in the same geographical area, known as Central Asia during the communist era and today as Eurasia. A prime example of this competition is Beijing's One Belt One Road initiative, aimed at securing dominance over Eurasia and relegating Moscow to the status of second-rate power within this macro-region. It is no coincidence that the large-scale New Silk Road project involves Russia only marginally, sometimes choosing alternative routes to ones already present, an approach especially notable in the exclusion of the Trans-Siberian route.

Historical rivals growing closer

China and Russia share a land border of over 4,000 kilometers, a border separating the Russian Far Eastern District and Manchuria that has only been clearly defined within the past ten years. Prior to the current phase in China-Russia relations, there were periods of considerable tension, most notably in the 1960s when, as a result of the friction between their two leaders, Mao Tse-tung and Nikita Khrushchev, the two countries deployed about a hundred military divisions facing each other along this very boundary line as a display of strength that contributed to further deterioration in their relationship. Furthermore, there are few other regions where the Russian central state is as weak as it is in the Far East, weakness mainly due to geographical and demographic factors. Moscow is separated from Vladivostok, the region's main urban center, by a distance of 9,000 kilometers and the ethnic Russian population in the area numbers approximately six million inhabitants. A further significant factor is the Chinese northward migration into the Siberian hinterland, which began after the Second World War. China is also, at least in part, performing well in Central Asia at the expense of its Russian neighbor. Thanks to the China National Petroleum Corporation (CNPC), controlled by the Chinese government via SASAC (State-owned Assets Supervision and Administration Commission of the State Council), the Commission that oversees Chinese state-owned companies - Beijing dominates the region's energy routes. China also controls some strategic oil pipelines in Kazakhstan and Turkmenistan, and has made considerable investments in the construction of electricity grids and transport infrastructures, an important part of the backbone of the One Belt One Road Initiative. The New Silk Road would allow Beijing to achieve some strategically important goals, turning China into a de facto superpower. In recent years Russia has not just stood by and watched. In 2014, the Eurasian Economic Union (EAEU), which also includes Armenia, Belarus, Kazakhstan and Kyrgyzstan, was formally created under Moscow's aegis. As a transnational economic organization, as its name suggests, the EAEU was specifically designed with an anti-Chinese function in mind, as an attempt to contain Beijing's influence in the Eurasian region. At the same time, China has consolidated its presence in Eastern Europe, setting foot in all the countries formerly under the Soviet sphere—Bulgaria, Romania, the Czech Republic and Poland—with major investments, especially in the energy sector. Beijing, moreover, also has a presence in Greece, which became an easy target after years of strained relations with the European Union due to the debt review program, and it is ideally placed with the port of Piraeus as one of the arrival points on the New Silk Road.

The Power of Siberia to overcome distances

In this dynamic relationship between China and Russia, profoundly marked by historical legacy and current strategic objectives, the convergence point is the Arctic, a region where the two countries are working closely to-

gether. The planned route for the Power of Siberia, the over three-kilometer long pipeline, will transport gas from the Irkutsk and Yakutia deposits to Russia's Far Eastern District, and to China. The gas will cross the Russian-Chinese border via a pipeline section passing under the Amur River. In order to build the connection between the Russian and Chinese networks, a special checkpoint has been opened to allow the free movement of personnel and equipment through the same border, which 50 years ago was close to becoming a battleground. The Power of Siberia project is the result of an agreement signed in 2014 between the Russian Gazprom and the Chinese CNPC for the supply of 38 billion cubic meters of gas per year to China for a period of thirty years. According to Gazprom's forecast, the longest section of the pipeline, measuring about 2,200 kilometers and linking Chayanda, in Yakutia, with Blagoveshchensk on the Russian-Chinese border, is expected to be completed by the end of 2018. Still within this deadline, the Russian energy giant claims it will create a section connecting Chayanda with the Kovykta deposit in the Irkutsk Region (about 800 kilometers in length) and another from Svobodny, in the Amur region, to Khabarovsk (about 1,000 kilometers in length), in the Russian Far East. With this final stretch, the Power of Siberia pipeline will be connected to the Sakhalin-Khabarovsk-Vladivostok gas transmission system. The benefits of a project with such astronomical costs—in excess of EUR 11 billion for the construction of the pipeline, and a further EUR 6 billion for gas production—lie in the apparent solidity of the agreement between Gazprom and CNPC, an agreement supported by the governments of the two countries.

It is clear that, with the European Union placing restrictions on projects like the South Stream first (now finalized) and the Nord Stream II next, Russia is turning its gaze to more reliable allies, and China fits this role perfectly. A reasonable amount of certainty has been reached by Beijing and Moscow regarding the solidity of each other's government, and there is confidence that even if there were to be governmental changes, those changes would not jeopardize the agreements reached. Moreover, the possibility of any such changes seems unlikely at the moment since Xi Jinping's leadership was confirmed during the last Chinese Communist Party congress held in October, and while Vladimir Putin has not formally stated that he will run in the March 2018 presidential election, there are as yet no serious rivals who could challenge his leadership. In addition, for Russia, the scope of this large-scale project extends well beyond China insofar as, with the Power of Siberia project, Moscow will connect all its Siberian deposits to the Vladivostok liquefaction terminal, its own true gateway to international markets, first and foremost those of South Korea and Japan.

The Yamal Peninsula, the new frontier of cooperation

In addition to the gas pipeline, however, China and Russia have further cooperation opportunities in the Arctic, an area estimated to hold 30 percent of the world's as-yet-undiscovered gas and oil reserves. Far-reaching changes in the international energy market have led Russia to step up its activities in the region, in particular in the Yamal Peninsula. However, with regard to gas, the expansion strategy defined by Moscow has been delayed by several factors, including the European Union's effort to diversify its energy sources, the American "shale gas revolution," which has reduced Russia's potential to enter new markets, and the crisis with Ukraine, which remains the third largest consumer of Russian methane. With regard to oil, it has become clear that, due to the fall in oil prices in recent years, investments in Arctic deposits are not particularly profitable, and, due to the region's difficult climatic and environmental conditions, developing these sites poses far greater challenges than for those located in other areas of the world. However, the current geopolitical context obliges Moscow to seek partners it can rely on. After the 2014 crisis following Russia's annexation of Crimea, the United States and the European Union imposed sanctions against Moscow. These involve measures laid down in July 2014 prohibiting the transfer of technologies to carry out drilling below 150 meters, the exploration and exploitation of shale oil reserves, and strict financial restrictions on loans with maturity exceed- →

Russia

IMPORTS FROM CHINA

(USD THOUSAND)

MINERAL FUELS **17,862,379**

WOOD **2,593,279**

MACHINERY **1,201,374**

FISH **1,032,561**

USD 38,086,969,000

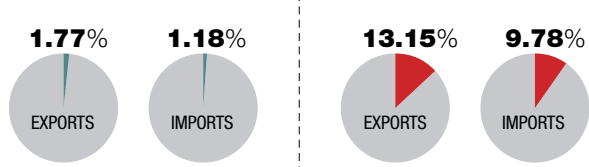
RUSSIAN FEDERATION

GDP (million current US$, 2016)	**1,280,731**
GDP per capita (US$, 2014-2016)	**10,946**
Current account balance (% GDP, 2016)	**1.7**
Trade per capita (US$, 2014-2016)	**2,622**
Trade (% GDP, 2014-2016)	**24.0**

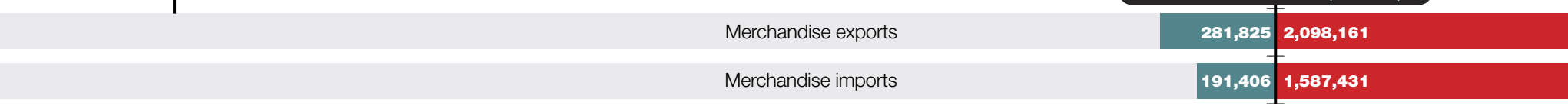
RANK IN WORLD TRADE, 2016	EXPORTS	IMPORTS
Merchandise	17	24
excluding intra-EU trade	*11*	*17*
Commercial services	25	18
excluding intra-EU trade	*14*	*12*

RUSSIA / CHINA
BILATERAL TRADE STATISTICS
2016
VALUE: USD THOUSAND

SHARE IN WORLD EXPORTS/IMPORTS 2016



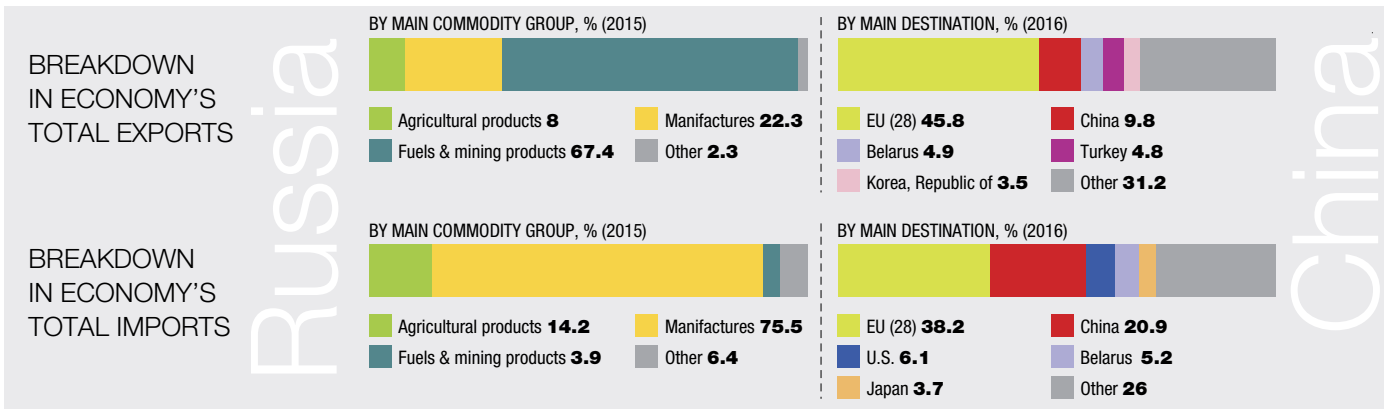
MERCHANDISE TRADE 2016 (Million US$)



ing 30 days. These restrictive measures have forced major companies from the American company ExxonMobil to Norway's Statoil, to suspend cooperation with their Russian counterparts in the Arctic. In addition, leading Russian energy companies such as Rosneft, Gazprom Novatek and Lukoil remain subject to sanctions, and this restricts their ability to obtain funding. This is the context in which China comes into play. Beijing sees Russia as a partner it has to work with in order to consolidate its position in the Arctic, an area that China needs in order to meet its requirements for raw materials. Despite the slowdown in China's rate of economic growth compared to a few years ago, domestic energy demand continues to rise, driving companies such as CNPC to look for new markets and areas to work in and for which to obtain exploration and drilling licenses. Siberia and the Arctic, but also the Russian Far Eastern District, fit this description as they have great potential in terms of resources and, with respect to Vladivostok, they are access points for export markets. In addition, the Chinese could invest in major infrastructure through projects related to the One Belt One Road initiative and thereby also secure greater Russian involvement. Currently, in fact, Moscow is only marginally involved in the large-scale Chinese project with the "New Eurasian Land Bridge," which should reach western Russia from the west of China through Kazakhstan, and with the China-Mongolia-Russia corridor.

A deal based on mutual energy interests

Against this background, China's presence in the Arctic has been intensifying for some years. In 2013, an agreement was signed between the Russian company Novatek and China's CNPC for the sale of 20 percent of the Yamal LNG liquefaction plant (located in Sabetta, in the northwestern area of the Yamal Peninsula). The agreement provides for a long-term contract for the supply of approximately 3 million tons of LNG per year to China, about 18 percent of the total system capacity. The Ukrainian crisis and international sanctions have forced Novatek to seek more foreign partners and, in view of the situation, the Chinese began with a clear advantage. For this reason, in 2015, the Russian company sold a further share equal to 9.9 percent of the liquefaction plant to the Silk Road Fund (a Chinese state-owned investment fund) for about EUR 1.09 billion, also receiving in exchange a loan of EUR 730 million for a period of 15 years in order to fund the project. Last year, however, Eximbank and the Chinese Development Bank in turn opened two 15-year credit lines in favor of Yamal LNG for a total value of EUR 9.3 billion. Beijing will thus provide approximately 60 percent of the capital necessary to implement a project which nevertheless still carries risk since, due to the economic challenges caused by sanctions, Novatek has had great difficulty providing adequate safeguards for the Chinese loans. Beijing, however, maintains a position of advantage since about 80 percent of the equipment necessary for completing the development of the liquefaction plant will be produced by Chinese shipbuilders. China's strategy is clear: there is a broad desire to cooperate with Russia and to strengthen its position in an area of strategic importance for China's energy needs, but only under economically acceptable conditions. Moscow will thus be "forced" to provide an advantageous business environment to its Chinese partners, while still trying to safeguard its own position. On one hand Russian companies need the funds of Chinese companies, and, on the other, they fear that the latter's role in energy projects, such as Yamal, could become too dominant. Companies like CNPC enjoy such a strong position that they could hardly accept a role that does not involve significant control and management functions. Factors such as these, the fruit of the afore-



Source: World Trade Organization

Source: Export Genius Association_Report 2016

RUSSIA EXPORT TO China

(USD THOUSAND)

MACHINERY	**11,098,182**
ELECTRONICS	**9,070,868**
PLASTICS	**1,312,571**
TEXTILES	**1,190,186**

USD 28,021,250,000

CHINA

GDP (million current US$, 2016)	**11,218,281**
GDP per capita (US$, 2014-2016)	**7,995**
Current account balance (% GDP, 2016)	**1.8**
Trade per capita (US$, 2014-2016)	**1,601**
Trade (% GDP, 2014-2016)	**20.0**

RANK IN WORLD TRADE, 2016	EXPORTS	IMPORTS
Merchandise	1	2
excluding intra-EU trade	*1*	*3*
Commercial services	5	2
excluding intra-EU trade	*3*	*3*

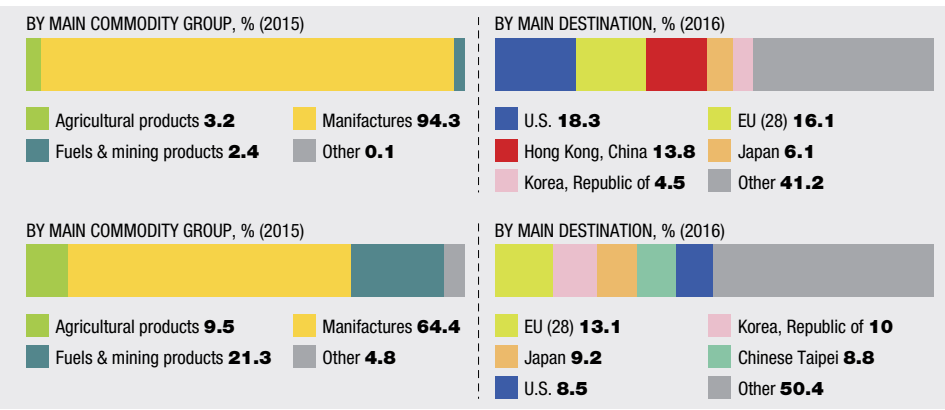
Merchandise exports

Merchandise imports

mentioned historical mistrust between the two countries and differences in their respective current strategic objectives, could constitute a serious obstacle to cooperation between the two powers in the energy sector.

Working towards agreement on North Korea

Russia and China show several similarities with regards to their approach to resolving a number of regional crises, as demonstrated by the proposal shared by the two countries concerning the presence of nuclear facilities in the Korean peninsula. Moscow welcomed the idea presented in June by Beijing calling for a "dual suspension," namely suspending the North Korean nuclear program in exchange for suspending large-scale U.S.-South Korean joint military exercises in the area. The initiative was supported by Russia, but rejected by the United States. The closeness between China and Russia on the issue was also illustrated by China's support for the Russian proposal to increase diplomatic efforts to solve the Korean crisis. The Chinese government expressed its support for the Russian Foreign Ministry's initiative to focus on consultations and negotiations, a desire shared by the international community. The crisis in the Korean peninsula epitomizes the utilitarian nature of this new Russia-China axis. Both countries believe that if the North Korean regime were to collapse, this would lead to a stronger American military presence along their eastern borders, an expansion of the U.S. nuclear umbrella and a consequent weakening of their strategic deterrents. China and Russia also share some key factors of internal vulnerability linked to the multi-ethnic and multi-confessional nature of their populations and the porous and, in some sections, unstable nature of their national borders. Containing these domestic vulnerability factors is a priority for both China and Russia, and at the same time is a root cause of the rivalry between the two countries, which today seems to be mostly marginalized in the face of the common recognition of a useful juncture to weaken the global supremacy of the United States under Donald Trump. Russia and China both aim to extend their influence in the Central Asian Republics, in a region where both face the destabilizing effects of Islamic nationalism such as that of the Uighur. As for North Korea, Beijing is mainly interested in preventing the United States from moving northwards in the Korean peninsula. China, however, does not seem to exclude, and has even openly discussed, the possibility of pre-empting the U.S. in the event of a conflict in the peninsula, occupying North Korean territory first. The scenario of a Chinese occupation of North Korea, which could even take place with the consent of the United States, would enable Beijing to prevent the spread of American forces in the area and at the same time eliminate the Pyongyang regime which is becoming increasingly difficult and unreliable for the Chinese leadership. Russia, by contrast, has every interest in preserving Kim Jong-un's regime, and any other scenario would in fact be disastrous for Moscow as it could involve the opening of an "eastern front" with the United States or the extension and strengthening of the presence of China, whose historical appetites for the vast and unpopulated expanses of the Russian Far East are well known. This explains the differing approaches of China and Russia with respect to the North Korean regime, despite the apparent harmony between the two countries at the international level. In recent weeks China has drastically decreased trade with Pyongyang, and for months has been silently but effectively reducing North Korean commercial and financial activities at home. Russia, on the other hand, has remained close to Pyongyang, not only avoiding any punitive measures on an economic and commercial level, but actually making efforts to avoid isolating the country, recently inaugurating a new Internet connection through its state company TransTeleCom. Until last October, North Korea was entirely dependent on the Chinese provider Unicom. Since then, however, thanks to Russia, the North Korean regime has benefited from a second web link with the outside world, which also makes any attacks on its network infrastructure even more complicated.



Continuing tensions causing instability

In recent months the situation on the Korean peninsula has worsened as a result of Pyongyang's repeated ballistic missile launches and of a nuclear test conducted on the night of November 29th, all carried out in breach of UN Security Council resolutions. In September, the U.N. Security Council adopted stricter resolutions against North Korea, limiting exports of oil and the country's access to gas, and banning imports of its textile products. The growing tensions have led to an exchange of threats between Washington and Pyongyang, with Trump saying he is ready to carry out a "devastating" military option to "destroy" North Korea if the United States were to be threatened. China and Russia, however, seem unwilling to break the international sanctions front against the regime, despite the fact that both countries have questioned the additional sanctions imposed unilaterally against Pyongyang by the U.S. and other countries. North Korea seems to have moved increasingly apart from its historical Chinese ally after Pyongyang's criticism of the support expressed by Chinese President Xi Jinping for the U.N. Security Council sanctions against the North Korean regime. The cooling of relations between the two countries was also illustrated by North Korean leader Kim Jong-un's decision not to meet with President Xi's representative Song Tao during his official visit to Pyongyang. China, however, remains North Korea's main trading partner, and Beijing has stated that it will not agree to stop oil supplies to Pyongyang as requested by the Trump Administration after the last ballistic missile test. In Beijing's view, the route of unilateral sanctions threatens to trigger a serious humanitarian crisis in North Korea and would only strengthen the intransigence of Kim Jong-un's regime. Although China agreed to impose only partial sanctions against Pyongyang, North Korean exports to Beijing fell by 62 percent in October compared to the same month last year, with a value of just USD 90 million. This figure also shows a 38 percent drop compared to the month of September, when North Korean exports amounted to USD 145.8 million. Official figures from Beijing show that last month China did not import any iron ore, lead or coal from North Korea, and that the world's second largest economy has also blocked exports of diesel, gasoline and corn to its historical ally.

J. Peter Pham

Vice-President for Research and Regional Initiatives at the Atlantic Council, where he is also Director of the Council's Africa Center. Has taught law, political science and African studies at James Madison University. Among other roles, he is former Vice-President of the Association for the Study of the Middle East and Africa (ASMEA).

China vs. Africa/The Atlantic Council's J. Peter Pham weighs in

A Strategic Continent

China's investment in many African countries is reshaping both the economic world map and global diplomatic equilibrium, inevitably involving the U.S. and Europe

n recent years, the perception of Chinese investment in Africa has undergone a transformation. In the late 1990s and early 2000s, the countries and peoples at which China's financial commitments were aimed often considered them as a tool to increase Beijing's power in the region. Currently, however, China's presence is increasingly seen as an opportunity for development. Africa has become the stage for the growing competition between overseas powers in terms of direct investment and development programs.
The most important players are China, the U.S. and European countries, but also India and Japan, with other countries eyeing the region. How should we assess the current U.S. strategy in Africa? Has the previous U.S. administration's "Power Africa" plan been replaced by another public/private action plan? And how does Washington perceive China's growing influence there? In addition, how does energy play into China's Africa strategy? We put these other questions to J. Peter Pham, Vice-President of the Atlantic Council and Director of its Africa Center.

CLARA SANNA

She works in Eni as Publications Manager for External Communication Department, Media Production.

In the last few years, the perception of Chinese investments in Africa has changed. During the late 1990s and early 2000s, recipient countries and populations viewed these investments as a tool to increase China's influence in the region and exploit its natural resources. More recently, Chinese presence is increasingly seen as a development opportunity. What is your assessment?

I would argue that it is not only the external perception of Chinese investments in Africa that has changed, but that the internal strategic motivation behind them has evolved over time. Under Jiang Zemin (president, 1993-2003), the People's Republic of China launched a national strategy of "going out" (*zouchuqu zhanlue*), which encouraged investments abroad to secure access to stable supplies of natural resources for which the increasing demand could no longer be met by domestic production. Under Jiang's successor, President Hu Jintao (president, 2003-2013), the policy concept became that of China's "peaceful rise" (*heping jueqi*) to political and economic "great power" status which, of course, required not only natural resources, but also diplomatic and commercial access—the latter to export the goods which Chinese factories, using the imported energy and primary resources from Africa and elsewhere, turned out at ever-increasing volumes and speed. China's demand for resources—it is the world's second-largest consumer of petroleum (after the United States) and accounts for over 40 percent of the global demand for base metals—is reflected in the country's investment portfolio in Africa. While Chinese companies have investments in virtually every corner of Africa, nearly 75 percent of that total is concentrated in just ten countries: Nigeria, Algeria, South Africa, Ethiopia, the Democratic Republic of the Congo, Chad, Angola, Niger, Sierra Leone, and Cameroon. Moreover, just under half of these investments are in either the energy or mining sectors. Since Xi Jinping took over as general secretary of the Chinese Communist Party in 2012 and president in the following year, Chinese grand strategy has been animated by the idea of the "China dream" (*Zhongguo meng*) of recovering what many Chinese believe to be their country's rightful place in the world.
In Africa, this has meant interests that go beyond access to natural resources and markets to what Chinese representatives will describe as a "new type" of relations, by which they mean they will engage across the continent on a wider spectrum of areas—on an equal footing with what Africa's traditional partners, including the United States and European countries, have been doing for decades. This approach includes burgeoning developmental and military links: in addition to more than 2,500 development, public works, and other construction projects in all but a handful of Africa's fifty-four countries, China's first-ever overseas military base was opened last year in Djibouti. In short, China's engagement with Africa has evolved as the country's global strategy has shifted and one can say that it is an important element in that larger plan. For Africans, this presents a great opportunity—as well as some risks.

Africa is experiencing growing competition from external powers in terms of foreign direct investments and development programs. China, the United States and European countries are the most important players, but other countries (India and Japan, in particular) are looking to increase their presence. Do you consider this new "Scramble for Africa" will have a positive impact for the continent?

Increased trade and along with it, potentially greater diplomatic leverage can be good news for Africans if African states make the most of the opportunity. In theory, greater demand generates more attention and the latter can be exploited by statesmen with competence and vision to advance the interests of their countries. The question, however, is whether African leaders will rise to the occasion or whether they will settle for deals which may deliver short-term gains, but at significant long-term cost. For example, particularly concerning to many analysts is the trend among some of Africa's newer partners, including China, to offer much-needed major infrastructure, but under terms that are not necessarily trans- →

China is the second largest consumer of oil in the world (after the United States), accounting for over 40% of global demand for base metals. President Hu Jintao (2003-2013) established the political concept of the "Peaceful Rise" (heping jueqi) of China to the status of a "great power", politically and economically. This required great availability of natural resources.
Photo: Addis Ababa railway station, built by China.

parent, including mortgaging of natural resources, sometimes years, if not decades, into the future.

> What is your view about the current U.S. strategy in Africa and, in particular, what is the U.S. perception of China's growing influence in the African continent? Will the "Power Africa" plan supported by the previous U.S. administration be replaced by any new public/private investment plan in the continent?

U.S. Secretary of State Rex Tillerson—whom, it should be noted, having come from his prior role in the private sector as chairman and chief executive officer of ExxonMobil, arguably has had more operational knowledge of doing business in Africa than any of his predecessors—recently articulated America's strategy towards Africa in an address to a conference of ministers from across the continent which he hosted in Washington in November 2017.

The strategy is built around three pillars: promoting trade and investment, encouraging good governance, and countering terrorism. The secretary rightly noted that each of those three pillars requires the other two in order to thrive. Thus, while the U.S. administration intends to refocus the economic relationship with African countries squarely on trade and investment, encouraging policies that increase openness and competition, economic growth will only occur where there is good governance and accountability—the presence of these last two, moreover, improves security. I do not think that policymakers in the administration have the view that there is or should be a zero-sum competition between the United States and China in Africa—and I am certain that African countries would not welcome such an approach in any case—that does not mean that there are not some legitimate questions about Chinese actions across the continent and their impact not only on America's interests, but also the long-term social, economic and political development of our African friends.

Since 2009, China has surpassed the United States as Africa's largest trading partner. Since more than 80 percent of China's imports from Africa are in the form of crude oil or other raw natural resources, part of the relative decline America's trading position vis-à-vis Africa is attributable to the decline in demand for energy imports with the growth of domestic production, including the rapid growth of shale oil production. But there also is no denying that American firms—and those from other Western countries with robust anti-corruption laws—are at a comparative disadvantage

when competing with players, including Chinese companies, who do not face similar constraints, a point underscored by the recent indictment by a court in New York of a former African minister and a former member of the Hong Kong government of bribery in connection with energy deals in two African countries. So, a level playing field for American (and other) firms is one concern. Another concern is the potential for China's "no-strings-attached" approach to making deals in Africa propping up undemocratic or otherwise unaccountable regimes, to say nothing of undermining good governance. Beyond economic concerns, the United States should also be watchful of China's pursuit of a more multipolar political and economic global order under the guise of its version of "democracy in international relations" (*guoji guanzi minzhuhua*) as well as the burgeoning military footprint that the Chinese have on the African continent, not only with the base in Djibouti, but with their participation in United Nations peacekeeping operations as well as their bilateral security ties with a number of African countries.

The expansion of the Chinese Communist Party's direct links with ruling political parties in several African countries and the impact these relations will have on good governance should also be monitored. The Obama administration's "Power Africa" initiative focused attention on an extraordinarily important issue, the cost and reliability of electricity in Africa, which is one of the top barriers to business growth on the continent. Moreover, the United States has some major technological, commercial, and commercial capabilities that could be leveraged in the effort to increase Africa's installed generation capacity by one-third by 2030, bringing online 30,000 megawatts of new power, the goal announced by the former U.S. president when he unveiled the program in 2013. That said, however, what has been delivered so far has been only a fraction of this target and it is fair to question whether some of the private-sector and non-U.S. public-sector commitments to the scheme truly represent new mobilization or were already in the pipeline when "Power Africa" was announced. Part of the difficulty with the program so far is that it is an ad hoc cooperation between a dozen different U.S. government agencies and more than one hundred partners of various kinds outside the U.S. government, making it somewhat unwieldy. One could see very easily where the Trump administration, as part of its overall reform of government in general and its reorganization of diplomatic and development efforts in particular, might want to revisit how to structure this effort.

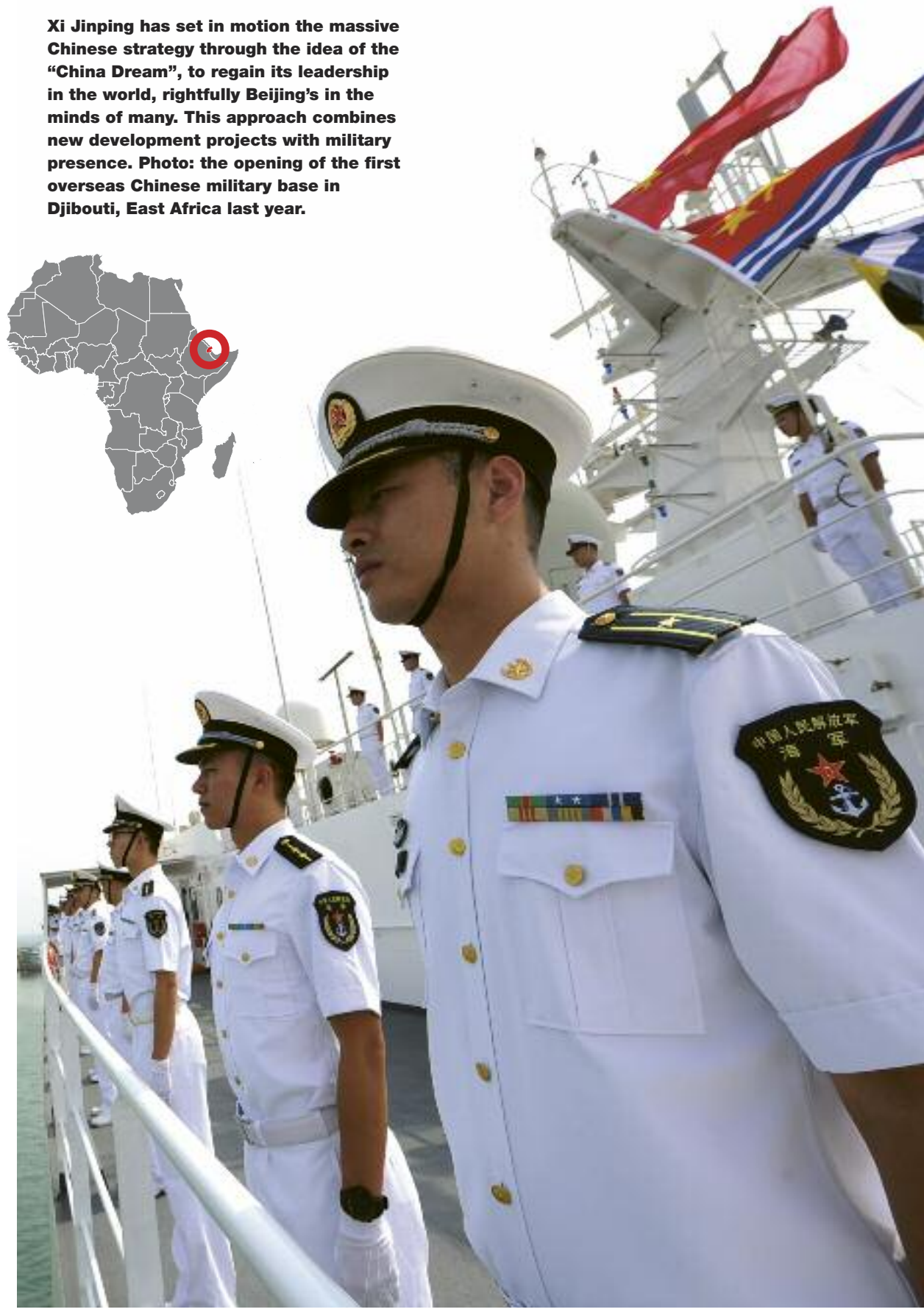
What are the priorities of China's strategy in Africa with regard to energy, and what is its contribution to addressing the key challenge of access to energy in the continent?

Even as Africa is increasingly important to China in terms of that country's energy security, accounting for a little less than one-fourth of oil supply, China is also growing in importance to the energy needs and infrastructure of African countries. This is a radical shift from just a little more than a decade and a half: before 2000, the three Chinese state-owned petroleum companies were active in just one African nation, Sudan, where CNPC held a major stake in Greater Nile Oil Project. Nowadays, CNPC, Sinopec, and CNOOC are active upstream in close to twenty countries. In addition, Chinese firms are increasingly active in downstream operations.

They also account for roughly one-third of the new power capacity built in Sub-Saharan Africa in the last five years. For example, in July 2017, the South African state-owned utility, Eskom, secured a $1.5 billion loan from the China Development Bank for the Medupi power station that, when completed, will be the fourth-largest coal-fired plant in the southern hemisphere and the biggest dry-cooled power station in the world.

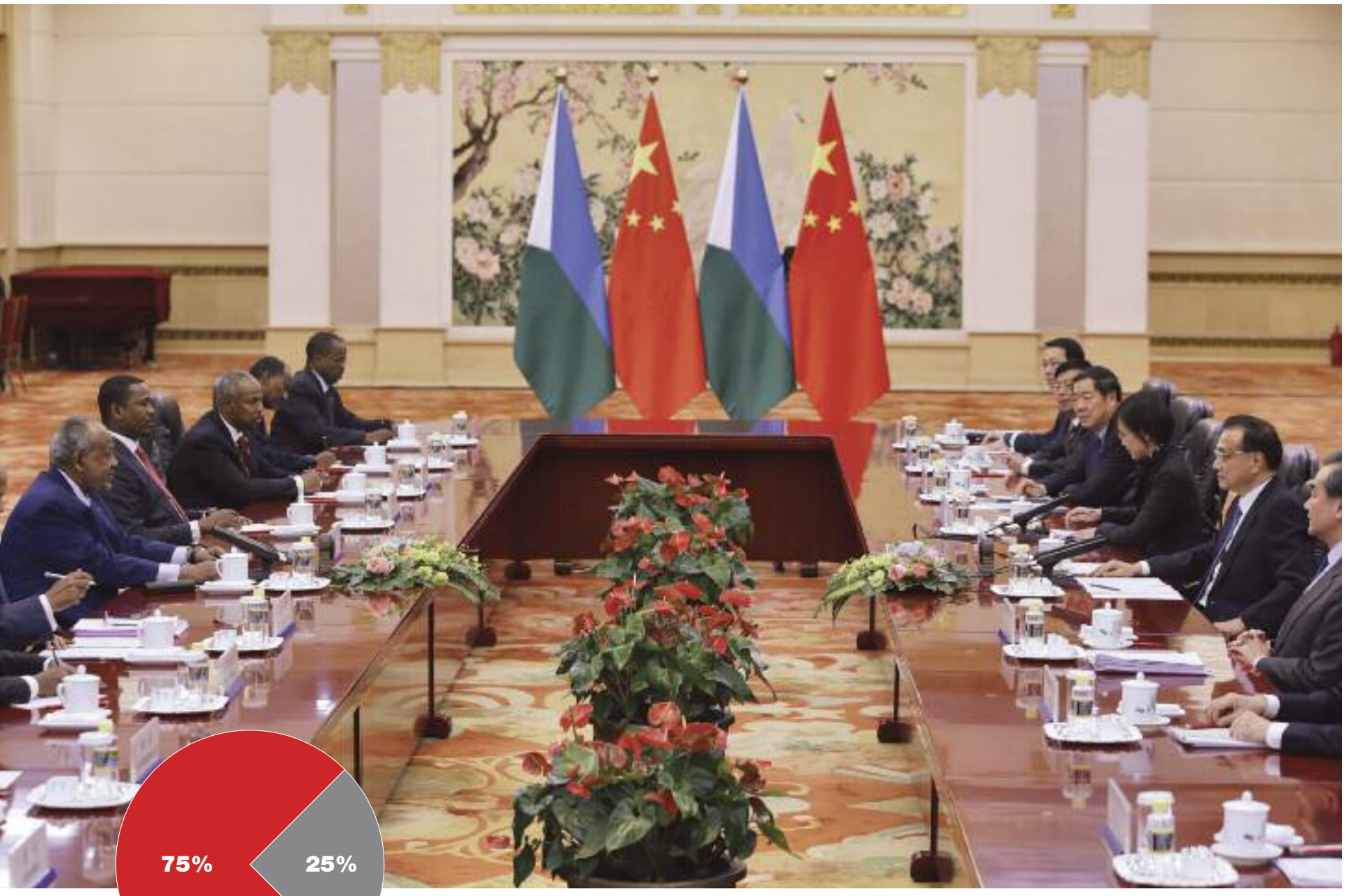
In light of China's growing role in Africa, could you assess China's contribution to countering piracy, in particular in East Africa?

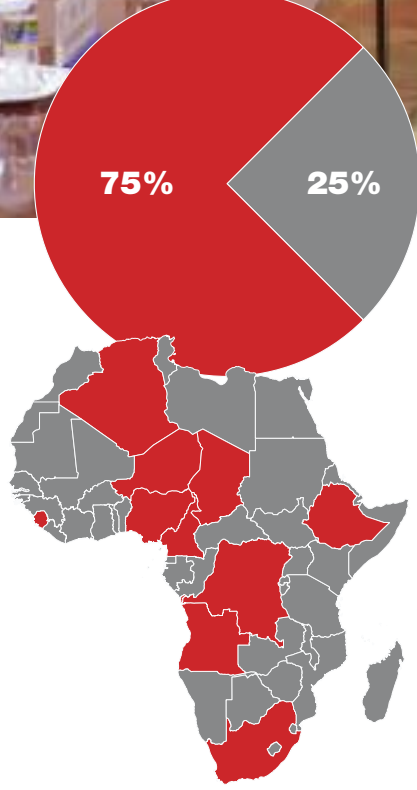
Xi Jinping has set in motion the massive Chinese strategy through the idea of the "China Dream", to regain its leadership in the world, rightfully Beijing's in the minds of many. This approach combines new development projects with military presence. Photo: the opening of the first overseas Chinese military base in Djibouti, East Africa last year.



In January 2009, two destroyers and a supply ship from the China's People's Liberation Army Navy (PLAN) began counter-piracy operations off the coast of Somalia. The mission of this modest task force was to offer protection to Chinese merchant vessels passing through what was, at the time, the pirate-infested waters of the Gulf of Aden.

The unprecedented deployment also had the strategic effects of burnishing the international image of mainland China as a contributor to international security and giving the PLAN a platform to hone its expeditionary capacity, especially in Africa, where, as we have noted, the country has considerable political and economic interests. Since then, the Chinese have rotated nearly two dozen task forces as part of ongoing patrols.



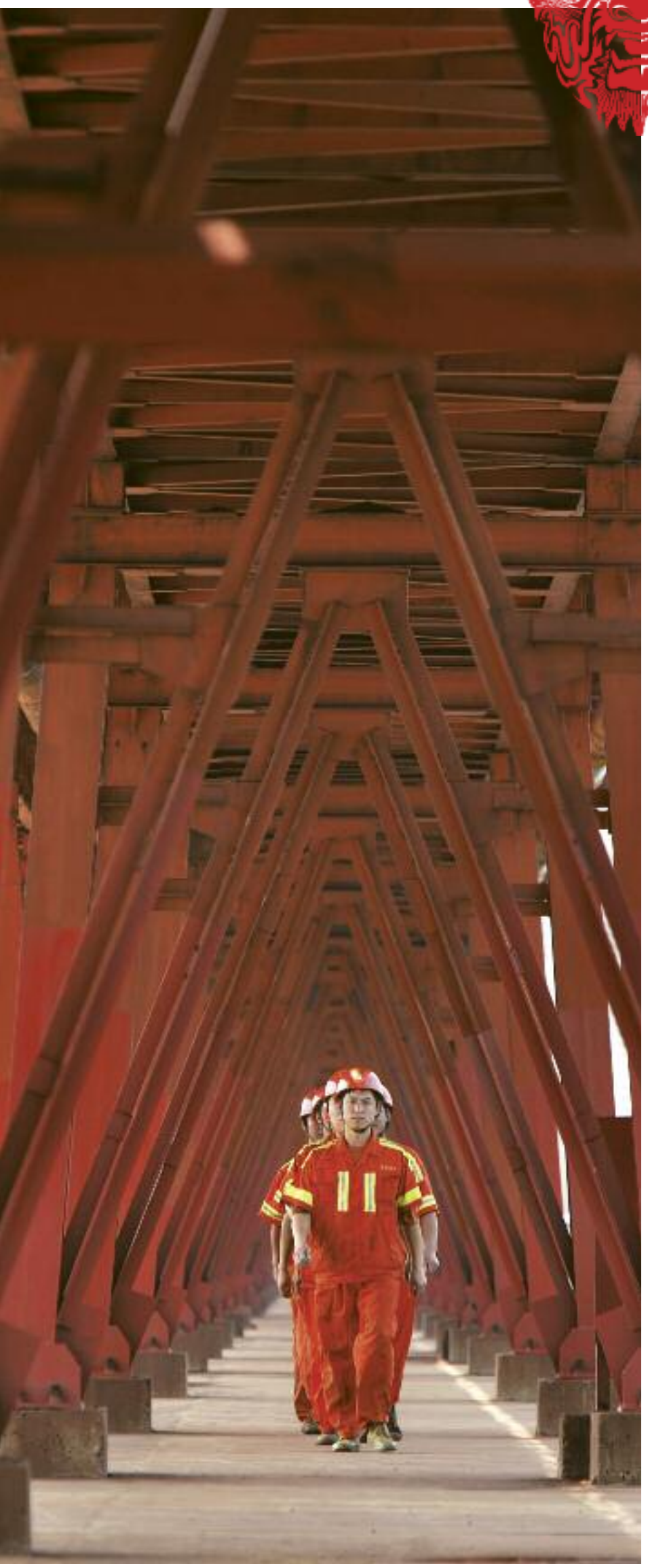


About 75% of total Chinese investment in Africa is concentrated in no more than 10 countries: Nigeria, Algeria, South Africa, Ethiopia, Democratic Republic of Congo, Chad, Angola, Niger, Sierra Leone and Cameroon.
Photo: Chinese Premier Li Keqiang meeting the President of Djibouti Ismail Omar Guelleh in Beijing (November 24, 2017).

The broader strategic nature of the operation off the eastern coast of Africa was underscored when a warship taking part in the anti-piracy operations, the frigate *Xuzhou*, was subsequently sent through the Suez Canal during the Libyan crisis of early 2011 in what was the China's first-ever wartime operational deployment in the Mediterranean Sea, when it was stationed off Tripoli to coordinate the evacuation of Chinese nationals working in the country.
Thus, the PLAN's counter-piracy operations can be interpreted as proof of China's increasing willingness to bear its share of the burden for the maintenance of the freedom of the seas and other global commons.
Of course, it is in China's interest to do so, considering that almost three-quarters of its petroleum imports, along with similarly prodigious quantities of other raw materials and natural resources which country gets from Africa to sustain its industries—together with some 40 percent of all goods bound for China—had to pass through the pirate-infested waters of the Gulf of Aden and the western Indian Ocean.
At the same time, the accelerated modernization of the PLAN, the resulting enhancement of its capabilities for operations in waters distant from its former coastal focus and the political willingness to project power abroad may also be indicative of a significant shift in regional and, indeed, global balances of power.

A significant proportion of the investments planned by China to boost its economy through the "Belt and Road" initiative will go to Africa. If African raw materials remain a strategic resource for Beijing, the Chinese presence in Africa has diversified and African leaders, worried by the increase in debt with their Asian partner, are pushing more and more for a real partnership. How do you view this situation?

I have always held that the more suitors African countries have, the more opportunities they have to strike the best deal for themselves and their peoples.
So, China's increased engagement with Africa—along with the renewed interest of the continent's traditional partners like the United States and Europe, as well as attention from a host of emerging powers like Japan, India, Turkey, and others—can be a good thing, if African leaders manage it well.
On the other hand, the Chinese preference for a "no-strings-attached" approach to doing business in Africa, in contrast to Western countries' linkages to governance, human rights, and other criteria, may find favor in precisely the sorts of poorly-governed or conflict-plagued places where such conditionalities may be most needed for long-term sustainable development.
In fact, it is an African leader, former Nigerian Central Bank Governor (and now Emir of Kano) Lamido Sanusi, whose father served as ambassador to China, who has labeled that China's dealings with African countries a "new form of imperialism" because primary resources are extracted and manufactured goods sold back without much by way of technology and skills.
One does not have to agree entirely with Sanusi's dire analysis to realize that, if "win-win" is to be more than a clichéd slogan, it is incumbent on Africans themselves to ensure that it is so.



China vs. Africa 2/A relationship that produces mutual benefits

Double Stroke Tie

Oil and gas from sub-Saharan countries, a historic destination for Chinese investments abroad, have for years been a fundamental support to the growing growth of the Dragon's economy, in exchange for infrastructural interventions essential for the growth of the Continent

WENRAN JIANG

He is the President of Canada-China Energy & Environment Forum and its annual conference since 2004, a Senior Fellow at the Institute of Asian Research at the University of British Columbia, a Global Fellow at the Woodrow Wilson International Centre for Scholars, and Special Advisor to the U.S. and Canada-based Energy Council.

n China's heavily promoted "Belt and Road Initiative (BRI)," the African continent is strategically positioned as a major destination of China's massive infrastructure building, investment and trade. From the sea routes of the Indian Ocean to the African coast, Beijing has proposed an unprecedented vision linking much of the developing world together across continents, a project that far exceeds the scale of the U.S. Marshal Plan for Europe after the Second World War.

China is well prepared for playing such a role given the fact that it has been the largest trading partner of Africa since 2009, now doing twice as much trade with African countries as its trade with the United States. As China-Africa economic ties intensify, so is Africa's increasing role in China's global search for energy security, especially in terms of oil supply. Unlike the United States, which has increased its domestic oil and gas production dramatically in recent years due to the shale revolution, China's dependency on imported oil and gas has increased substantially, with two thirds of oil and one third of gas now coming from abroad. Africa now ranks second to the Middle East as the major source of China's oil imports. Thus, investing in Africa energy sources and importing them to China have been central to Bei- →

STRATEGIC RELATIONS
Chinese President Xi Jinping and the president of Djibouti Ismail Omar Guelleh preside at the ceremony at the Great Hall of the People in Beijing on November 23rd 2017. There is a real possibility that growing interests can promote development local economy.

jing's strategic planner and to its national oil companies.

Keeping up energy investment in Africa

Africa is one of the earliest destinations of Chinese overseas energy investment. China National Petroleum Corp. (CNPC), the top Chinese national oil company (NOC), entered the Sudan oil fields as early as the 1990s. Despite the controversies over the Darfur conflict, the separation of South Sudan and the civil war between the North and the South, Chinese NOCs survived, adjusted and consolidated their positions in the country, with a strong equity oil production presence in both Sudan and South Sudan, controlling as much as 75 percent of Sudanese oil production, according to one estimate. Prior to South Sudan's succession in 2011, China had invested more than USD 20 billion in Sudan's energy sector. While CNPC reduced its worldwide investment due to the declining oil prices in recent years, Sudan was an exception, and the Chinese Ambassador to Sudan Li Lian promised more investment in 2015 in an effort to boost Sudanese oil output. While Sudan opened the door to Chinese oil companies, it is today a relatively small player in terms of both oil production and export to China. Chinese NOCs and private energy companies have expanded in the continent, currently operating in Angola, Nigeria, Chad, Uganda, Gabon and other African oil producing countries. The original Chinese energy investment model in Sudan, by focusing on upstream production, has been modified with many investment forms, and one of them is the well-known "infrastructure in exchange for resources" formula. In Angola, which has occupied the top three spots in China's oil import (together with Russia and Saudi Arabia), China provided integrated energy investment focusing not only on upstream but midstream and downstream as well, such as the USD 2 billion loan for refinery construction. The Chinese government also provided USD 14.5 billion loan credit to build road, airport, port and other infrastructure projects. From 2010-2016, China gave Angola around USD 25 billion under their "infrastructure-in-exchange-for-oil" arrangement. In Nigeria, the largest oil and natural gas producer in Africa, China had to play catch-up as most of the country's oil and gas development blocks have long been monopolized by Western IOCs. And here again Beijing plays a long-term game. While Nigeria was hit hard by the sustained low oil and gas prices after 2014 and domestic turmoil and violence, China extended its financial support to the country by pledging a USD 6 billion infrastructure loan, followed by a massive USD 80 billion energy specific MOU to upgrade Nigeria's oil and gas infrastructure, both in 2016, a year in which the Nigerian economy was hit by its first contraction in 25 years. These agreements will take time to implement, but some of the provisions may have been implemented in the spring of 2017 and there is no doubt that these are life saving measures to a government that depends more than 90 percent on petrodollar income to sustain itself. Overall, China's foreign aid and investment in Africa are now rivaling that of Western countries. In 2016 alone, China poured USD 36.1 billion into Africa, which accounted for 39 percent of the continent's total foreign investment.

In a continent where Western international oil companies (IOCs) have dominated the energy sector for decades, Chinese oil companies have managed the challenge of being the newest kid on the block with inexperience in host countries and a lack of advanced technology and management knowhow. They caught up by providing large-scale local investment in areas traditionally neglected by Western countries, thus taking a strong foothold in many African oil-producing countries.

An important source of oil for China

With the deepening of Chinese investment in Africa in general and energy related investment in particular, the continent has become an important source of oil for China. Angola, Nigeria, Libya and Algeria are among the top oil exporting countries to China, but Angola has taken an even more significant spot in recent

years. During September to October 2017, Angola topped Russia as the largest supplier of oil to China, and the Top Ten list of China's oil exporters also includes Congo and Gabon.

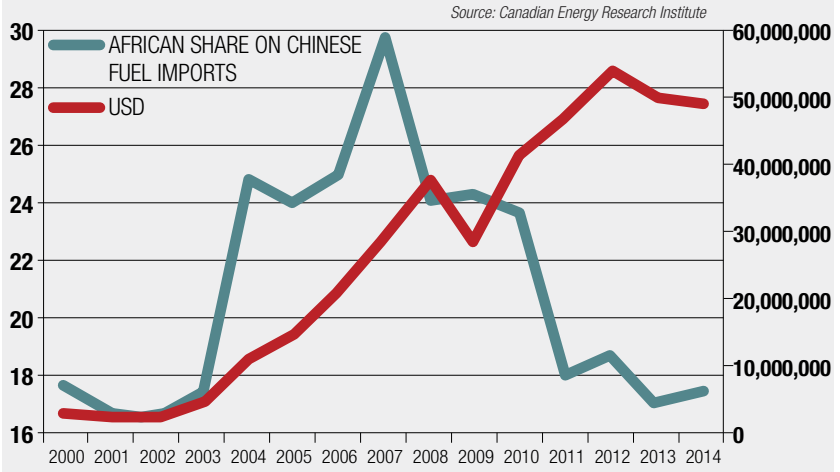
Some reports attributed the surging demand of China's growing regional refineries and the reduced U.S. imports from Africa and the Middle East as causes of the growing exports from Angola and Saudi Arabia to China. However, a key factor in Angola's case is that the structure of its "loan for oil" arrangement with China requires using oil as the repayment index of the loans. So the higher the oil price, the less oil it requires for processing the scheduled payment. But when the oil price declines, as has been the case over the past several years, Angola needs to allocate a lot more oil to repay the debt. The same logic applies to Angola's arrangement to pay the services IOCs perform in its oil fields. This arrangement has left Angola with much less oil to sell in the open market to earn income and to finance its own government programs. Other countries with similar agreements with China, such as Nigeria and Venezuela, are facing the same problem, and they may face increasing debt repayment pressure under the sustained low oil prices scenario.

On the other hand, one recent study reveals that while the total volume and value of Chinese oil imports from Africa have increased substantially in the past 15 years, both the share of African oil on China's fuel imports and China's share on African fuel exports have in fact decreased from the peak period of 2007-2009. This points to China's accelerated efforts to diversify its oil import sources as well as Africa's rapid expansion in oil exports to the rest of the world.

The data also demonstrate that China's overseas investments in the energy sector do not necessarily translate into its moving equity energy production abroad back to China. In fact, most of China's overseas equity oil and gas production, be they in Canada or in Nigeria, are sold to the open market rather than shipped home. Such a shift in strategic thinking is very different from China's initial rationale for its energy "go-out" strategy over a decade ago, when Chinese policy makers felt overseas acquisition of upstream assets and moving the products home would be the best way to secure China's increasing dependence on imported oil. In terms of supply and demand dynamics, the growing downstream capacities of China's refineries, both NOCs and private, lead it to buy certain crude products that maximize their profit margin. For example, China is reluctant to import high quality light oil from Nigeria due to its higher price tag. Chinese oil companies prefer to import lower quality but cheaper crude oil to further refine back home—this despite the fact that China has invested extensively in Nigeria's energy sector.

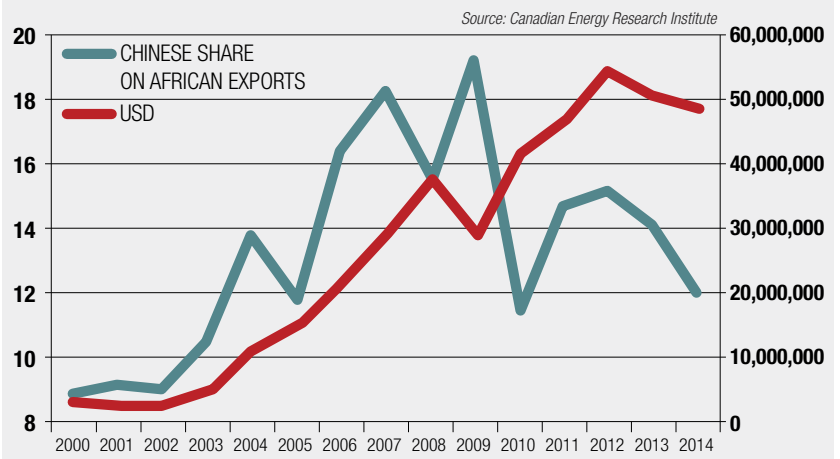
CHINESE FUEL IMPORTS FROM AFRICA 2000-2014

Source: Canadian Energy Research Institute



AFRICAN FUEL EXPORTS TO CHINA 2000-2014

Source: Canadian Energy Research Institute



A recent study revealed that while the total volume and value of Chinese oil imports from Africa have increased substantially in the last 15 years, both the share of African oil on Chinese fuel imports and the Chinese share on African fuel exports have decreased compared at the peak of 2007-2009. This is due to the attempt of China to diversify its sources of oil imports as well to the rapid expansion of African oil exports to the rest of the world.

Navigating new challenges and opportunities

While China continues to strengthen its traditional energy investment and trading relations with Africa, it is also confronted with many difficulties. In the host state, there are political risks of instability, unrest and civil war; there are the lack of established legal frameworks and consistent policies to sustain stable operations; there is rampant corruption and "rent seeking" behavior for implementing projects; and there are places where local resistance to China's presence is strong. Internationally, there is competition from other NOCs and IOCs for energy resources; there is consistent criticism of China's behavior in Africa from the Western press, and there are accusations of China's "new colonialism." At the enterprise level, Chinese companies face unfamiliar cultural, language and social environments. Thus the learning curve is deep. These challenges, coupled with prolonged low energy prices, may have been behind Sinopec's recent decision to sell its assets in Nigeria and Gabon, something unthinkable only a few years ago. With Sinopec also selling its energy assets in Argentina, China's overseas energy engagement may enter a more complex era. On the positive side, Chinese President Xi Jinping's Belt and Road Initiative has injected new developments with China's energy engagement with the continent in recent years. One development is that more non-NOC investors and enterprises from China have entered the energy sectors in African countries. These new actors follow similar developments in China where some reforms have allowed other state owned enterprises, local investors and the private sector to complete with NOCs in energy related sectors. Another emerging trend of China's energy investment in Africa is going beyond traditional oil and gas sectors to include other forms of energy investment, such as the close to USD 6 billion massive hydro project in oil and gas rich Nigeria. The focus on new energy sectors mirrors China's rapid growth as the world leader in renewable and alternative energy sources. Chinese enterprises have quickly entered Africa in these new energy sectors since 2010. They have noted that two thirds of the population in sub-Saharan Africa still have no electricity, making the potential for hydro, solar and wind energy sources very attractive. For example, five of every six solar production firms in the world are Chinese, and these Chinese companies have expanded their operations in African countries in recent years. As documented by China-Africa Trade Research Centre, Chinese solar, wind and nuclear power companies have successfully bid on renewable and alternative energy projects in South Africa, Kenya, Namibia, Ethiopia and other sub-Sahara African countries. In the summer of 2017, the China-Africa Renewable Energy Cooperation and Innovation Alliance (CARECIA) was established in Beijing under the broader framework of the BRI. Therefore, Africa to China is now more than a key supply source of energy and other resources. It is also a growing energy market with a population almost as big as that of China. Just like the penetration of Chinese manufactured commodities, electronics and mobile services in the continent, we can expect large scale Chinese energy products and services to enter into the African market as economic development and urbanization pick up pace in many African countries. If managed well from both sides, there is a distinct possibility that fast growing Chinese interests in Africa's new energy sectors may promote local economic development by facilitating many countries to leap frog over the current fossil dependency situation and help the continent's one billion population attain more renewable and alternative energy sources, thus accomplishing the goals of the Paris Climate Accord both in China and in Africa. But to such an end, Beijing may need to think carefully about how its new energy investment activities are indeed beneficial to the local economy and local jobs, and not predatory plans designed to seize the emerging lucrative market.

Asia vs. Africa/Two worlds seeking a mutual understanding

In Search of a New Role

The recent proliferation of international summit meetings indicates a willingness to investigate and rethink relations between the two continents, with considerable potential to lead global growth in the coming years

ALEX VINES

He is Head of the Africa Programme at Chatham House and a senior lecturer at Coventry University. A version of this paper was presented at the 2018 Beijing Forum.

China's re-engagement in Africa over the last decade resulted in many countries reassessing their own Africa strategies. The China-Africa Summit (FOCAC) in particular was a watershed for Africa's international relations in the 21st century. China's Africa engagement has since evolved and its One Belt One Road (OBOR) initiative marks a new phase for China-Africa cooperation. The OBOR is also mirrored by India and Japan in particular, who are also increasing their engagement in Africa. More international engagement in Africa is not necessarily unwelcome; the key question is how this can be managed to be mutually beneficial and provide prosperity for all.

Summits and top-level meetings to understand mutual needs and objectives

In August 2014, President Obama hosted America's first summit in Washington, D.C.; that April, the E.U. hosted its fourth E.U.-Africa Summit in Brussels; the BRICS Summit was held in South Africa in March 2013; and in June 2013, Japan hosted their 5-yearly Tokyo International Conference on International Development (TICAD) in Yokohama. In 2015, the 6th China-Africa Summit (FOCAC) was held in Africa, and South America, South Korea and Turkey, who have all held summits with African leaders in recent years, have pledged return matches in Africa in coming years. Israel had planned its Africa summit in Togo in 2017, but this has been postponed. Such summits have become a key feature of demonstrating engagement with Africa. The first was Japan, who held the inaugural TICAD in 1993, though only four Heads of State attended. The conference has always focussed as much on business partnership as on traditional development and has always, until now, been held in Japan. Africa remains an important export market for cars, electronics and machinery and a source of raw materials—though two-thirds of the latter come to Japan from a single country, South Africa. China adapted TICAD and in October 2000 launched its First Ministerial Forum on China-Africa Cooperation (FOCAC). President Jiang Zemin delivered a speech at the first ministerial conference of FOCAC in Beijing. President Jiang Zemin, Premier Zhu Rongji of the State Council and Vice President Hu Jintao of the People's Republic of China, President Gnasinbe Eyadema of the Republic of Togo, President Abdelaziz Bouteflika of the Democratic People's Republic of Algeria, President Frederic Chiluba of the Republic of Zambia, President Benjamin William Mkapa of the United Republic of Tanzania, and Secretary-General of the Organization of African Unity Dr Salim Ahmed Salim attended the opening and closing ceremonies and delivered speeches. More than 80 ministers from China and 44 African countries, representatives of 17 regional and international organizations and people from the business communities of China and Africa were invited to the conference.

The conference charted the direction for the development of a new, stable and long-term partnership featuring equality and "mutual benefit" between China and African countries. China has held such summits regularly every three years since then, alternately in Beijing and Africa. Its own trade with Africa has grown dramatically in the past decade: from about USD 5 billion each way in 2001, to over USD 110 billion imports (almost all raw materials) and USD 85 billion exports (predominantly transport, clothing and machinery) by 2012. In 2017, China is a destination for 15 to 16 percent of sub-Saharan Africa's exports and is the source of 14 to 21 percent of the region's imports.

An unprecedented military commitment for Beijing

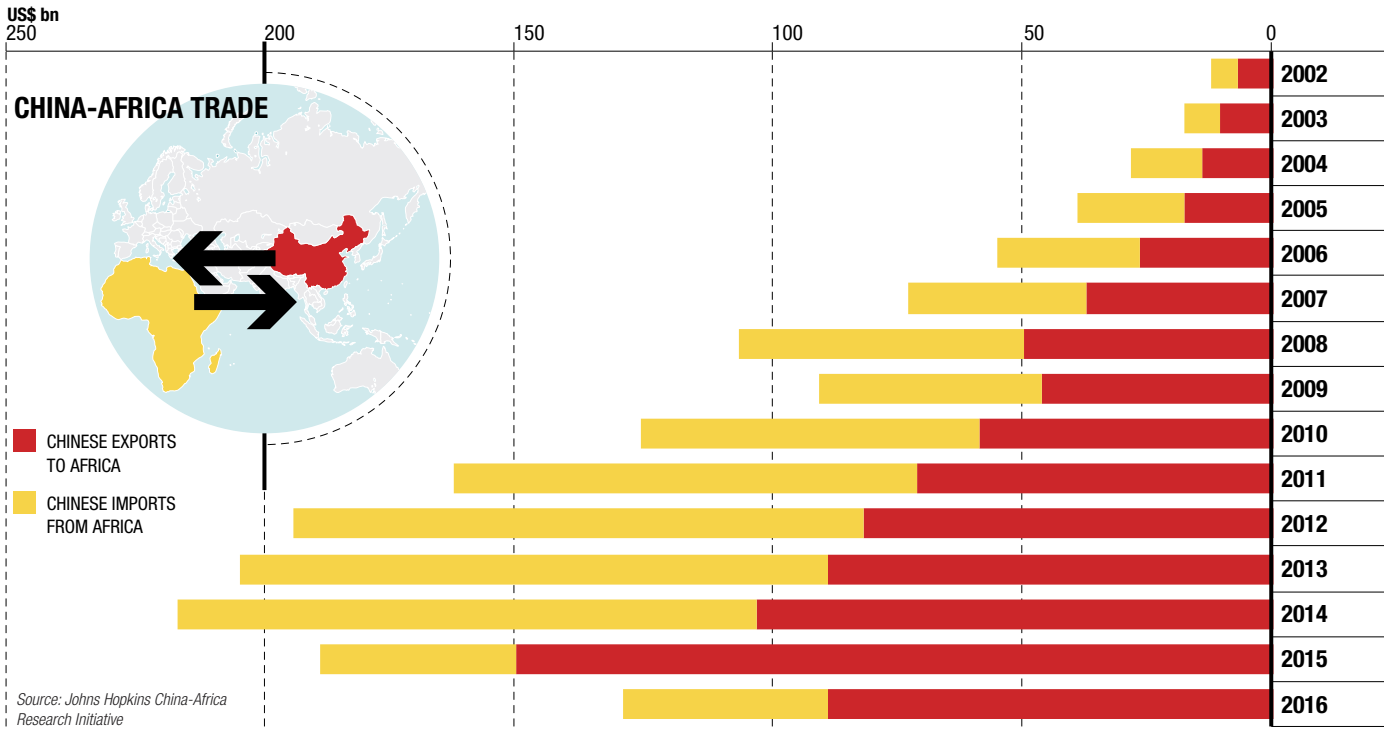
By 2018, more than 2,500 Chinese troops, police, and military experts had been deployed to six U.N. peacekeeping missions in Africa, four of which are in Darfur, DRC, Mali, and South Sudan; there are smaller contingents in the Côte d'Ivoire and Western Sahara. President Xi Jinping pledged USD 100 million in military aid to the African Union in 2015, and China supports African countries' capacity building in areas like defence and counterterrorism. Since 2008, China has supported counter piracy operations in the Gulf of Aden and significantly in August 2017, China opened in Djibouti its first military base overseas (to support its naval efforts). The watershed for Sino-Africa relations was the FOCAC Summit of November 2006, themed "friendship, peace, cooperation and development." Over 5,000 people, including heads of government or their representatives from over 48 African countries, and representatives from 24 international and regional organizations, such as the United Nations and the African Union, attended the forum. Chinese and African leaders exchanged views on how to deepen China-Africa cooperation and jointly published the Declaration of the Beijing Summit of the Forum on China-Africa Cooperation, and the Beijing Action Plan (2007-2009). The Chinese government announced eight measures for China-Africa cooperation. The next FOCAC summit is in Beijing in 2018. The size of this FOCAC summit and the scale of China's ambitions toward Africa forced Africa's traditional partners to reassess their own African engagement Although the E.U. had held its first Africa summit in Cairo in April 2000, it had failed to hold a subsequent summit; the FOCAC Summit of November 2006 jolted European policy makers into organizing a new and more ambitious E.U.-Africa summit in Lisbon in 2007. Other Africa summits by emerging and re-emerging powers quickly followed, resulting today with such profusion that African leaders themselves are reviewing whether they can really spend so much of their time cruising the world from summit to summit given their domestic priorities, the bi-annual African Union Summits and the regular regional summits of SADC, ECOWAS, IGAD, ICGLR, ECCAS, and the EAC, not to mention U.N. meetings, that demand their attendance.

Human rights come before commercial relations

A question to ask is whether this was a signal of Africa rising and that the rest of the world should take it seriously as a partner? Or is it simply a reflection that Africa has what the rest of the world wants: a rapidly growing population of consumers and an abundant (for now) stock of natural →

The role of FOCAC

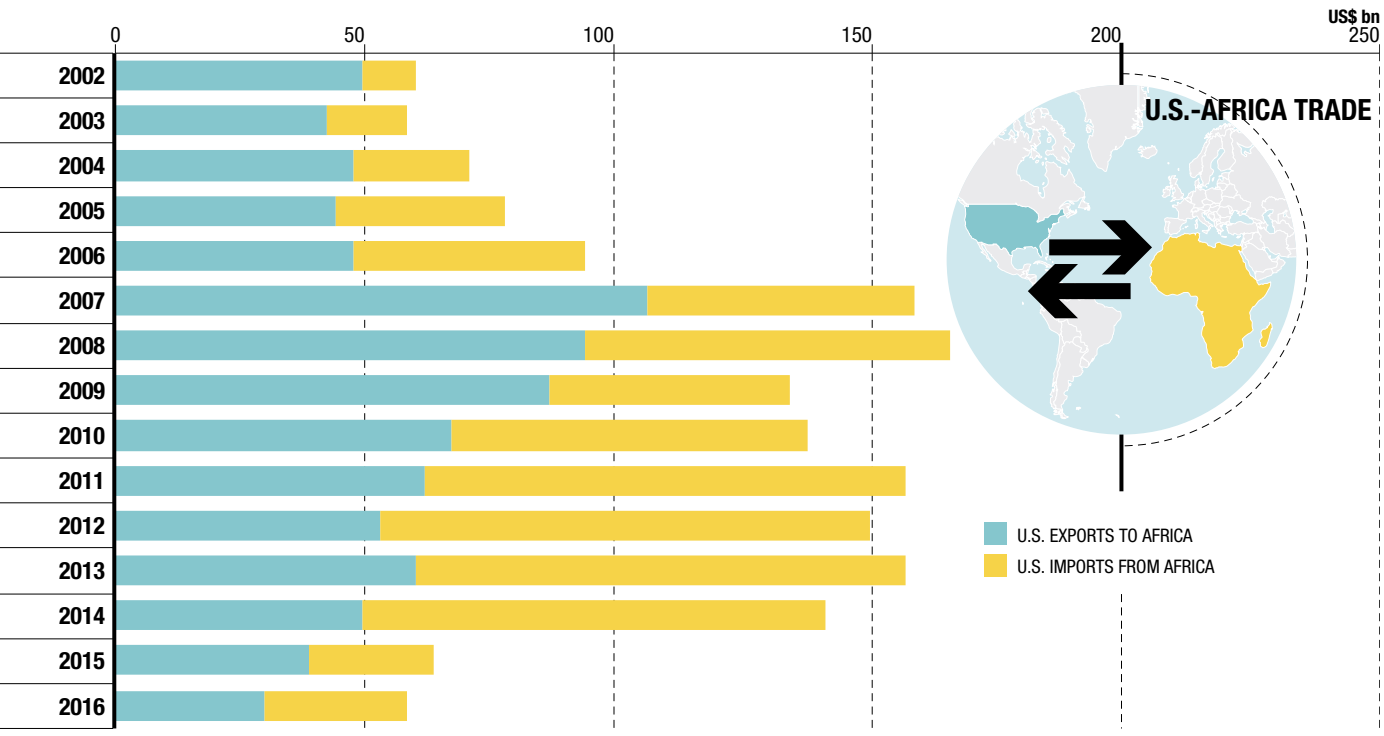
At the beginning of the new millennium, China consolidated and formalized its strong interest in Africa. Indeed, in October 2000, the first "Forum on China-Africa Cooperation" (FOCAC) was held in Beijing. This was a very important event for the consolidation of commercial relations between the two countries. To emphasize the strategic importance of the meeting, the attendees included the Chinese President Jiang Zemin and Premier Zhu Rongji and the Presidents of Togo, Algeria, Tanzania and the African Union, along with over 80 Chinese ministers and 44 from various African countries. Since then, FOCAC has become an opportunity for China to announce massive funding plans, and to confirm its significant role in Africa. The financial commitments announced at each conference (held every three years, alternately in China and in Africa) have grown steadily. The $5 billion earmarked in 2006 increased to $10 billion in 2009, $20 billion in 2013 (with another $10 billion added on one year later), and reached $60 billion at the latest FOCAC, the 6th, held in Johannesburg, South Africa in December 2015.



resources— markets to which everyone wants access? Is there substance behind these summits? They are a reflection of growing economic engagement with Africa and an attempt to redress the balance for a continent hitherto hitched too closely to former colonial powers and western multinationals. As China's engagement with Africa grows, its interests grow closer to those of the rest of the world. It was even one of the first to provide medical help to tackle the Ebola crisis in West Africa. The European Union and its member states still have the closest, deepest, broadest and most complex relations with Africa. The shadows of history lie long and sometimes dark over the relationship, though there have for many years been regular E.U. meetings with the African, Caribbean and Pacific (ACP) nations under the Lomé Convention. As mentioned above, the first E.U.-Africa Summit took place in Cairo in 2000. It then took seven years before the second Summit, in Lisbon, could agree on a Joint E.U.-Africa Strategy to guide the relationship for the future. The E.U.'s 2014 Summit was the largest Summit yet held, with 40 African and 20 European heads of state or government present. The November 2017 Africa-EU summit in Abidjan was also underpinned by a sharpened strategic focus on Africa by Europe, triggered by anxiety about migration and African demographic trajectories. The economic relationship between Europe and Africa continues to grow – not as fast as that with emerging economies like China, but the E.U. remains Africa's largest economic partner. A significant proportion of European imports from Africa (around 35 percent) were value-added food, drink or manufactured goods, indicating that Europe is moving away from the traditional view of Africa as merely a source of raw materials. Both trade and investment therefore combine with more traditional E.U. development cooperation, worth around 3-4 billion (5 billion) per annum, plus E.U. member states bilateral programs contribute materially to the continent's economic transformation. The E.U. has always emphasized that good governance, including the rule of law and the respect of human rights, is essential to achieve the political stability necessary for economic development. A significant part of E.U. aid goes to promote those goals, shared by the A.U. The E.U. is the largest funder of Africa's own peace support operations, as well as the provider of training missions and protective deployments in a number of countries. In Somalia (through AMISOM), in Mali and the Sahel, and now in the CAR, the E.U. and African Union are working hand-in-hand with the U.N. to combat terror and disorder and to deliver lasting African solutions. Different countries have different interests. The U.S. clearly was playing catch up when it held its first U.S.-Africa leader's summit in August 2014. Business and counter-terrorism increasingly drive the partnership that had previously been focused on humanitarianism. For the others—Brazil, India, South Korea, and Turkey—the interest in Africa remains fundamentally economic but also about U.N. Security Council reform. Competition for markets is growing, but from Africa's point of view, the potential access to increased investment and trade from whatever source is welcome. For each partner, the growing economic links will increase their interest in the continent's stability, likely to be reflected in continued support for an active U.N. role alongside the A.U., E.U., U.S. and niche engagements by China, India, Gulf States and Turkey and others to build that peace and stability.

The Asia-Africa Growth Corridor

The announcement of the Asia-Africa Growth Corridor in partnership with Japan at the annual meeting of the African Development Bank at Gandinager by Indian Prime Minister Narendra Modi is a more recent example of a mirrored response to China's deepened engagement in Africa – and in this case the One Belt One Road (OBOR) initiative. Like China, India's trade has seen a significant increase from USD 11.9 billion in 2005-2006 to USD 56.7 billion in 2015-16. Multilateral engagement was also launched with the first India Africa Forum Summit (IAFS) in 2008. Three such summits have been hosted by the Indian government (the last was in 2015). What is new is that the Asia-Africa Growth Corridor initiative is a trilateral initiative, between India, Japan and Africa. Japan has a longstanding relationship with Africa. The most important initiative is the Tokyo International Conference on African Development (TICAD) which has been meeting since 1993, and the latest was the Sixth Tokyo International Conference on African Development (TICAD VI) which was held in Nairobi in August 2016. This was the first time that TICAD was held in Africa, and it brought together 32 Heads of State and Government from Africa, the Prime Minister of Japan, co-organisers and over 18,000 accredited participants. As already mentioned, TICAD predates all other summit initiatives on Africa, and following the end of the Cold War,



it helped refocus attention on African development in a period of declining western strategic and economic interest. TICAD meets every five years and is in collaboration with the U.N. Office of the Special Adviser on Africa, the United Nations Development Program, the World Bank and the African Union Commission. This distinguishes TICAD from Delhi's IAF process as it is much more a bilateral effort although India has been examining triangular cooperation with African partners in specific areas, for example with the United States on promoting African agricultural growth, security and health and women's empowerment.

The Africa-India-Japan triangle

Dialogue between India and Japan on Africa began in 2010. It was, however, during Indian Prime Minister Narendra Modi's visit to Japan in November 2016 that the idea of promoting a growth corridor between Asia and Africa first emerged. In their joint statement: "The two Prime Ministers underscored the importance of India-Japan dialogue to promote cooperation and collaboration in Africa, with the objective of synergizing their efforts and exploring specific joint projects including the areas of training and capacity building, health, infrastructure and connectivity. In this regard, they also expressed their intention to work jointly and cooperatively with the international community to promote the development of industrial corridors and industrial networks in Asia and Africa." At the African Development Bank meeting in India in June 2017, India unveiled a vision document for an Asian-Africa Growth Corridor (AAGC). Indian and Japanese officials stated that the prime objective of the corridor is to enhance connectivity between Asia and Africa and that the corridor has four key areas:

- Development Cooperation Projects
- Quality Infrastructure and Institutional Connectivity
- Enhancing Skills
- People-to-People Partnership

Priority areas for development cooperation are agriculture, health, technology, and disaster management. The AAGC is a statement by both India and Japan that they are not interested in collaborating in China's Belt and Road initiative. Indian think-tanker Ruchita Beri wrote that: "Its refusal to participate in the Chinese initiative is due to sovereignty concerns given that the China Pakistan Economic Corridor (CPEC), a part of the Belt and Road, passes through Indian territory under Pakistan's control. There is no doubt that comparisons will be made regarding the merits of the Indo-Japanese and Chinese initiatives. Be that as it may, the AAGC marries India's brand of human resources development and capacity building with Japan's objective of delivering quality infrastructure in the region." India and Japan have shared strategic maritime goals but this initiative is probably more about an effort to counter-balance China's ambitions. Japan has signalled that it is ready to commit USD 30 billion towards the AAGC, and India has signalled it will allocate some USD 10 billion but this is small compared with China's OBOR. Some Indian and Japanese think tank analysis is anxious about OBOR and China's ambitions in the Indian Ocean. One speech claims that: "India sits at the centre of this vast and populous region where China is aggressively expanding its presence. China, under President Xi Jinping, has abandoned Deng Xiaoping's (1978-1989) "hide and bide" policy, which sought to put a conciliatory, non-threatening face on its rapid economic rise, for an aggressive, money-fuelled drive for global influence." Indian officials worry about the speed and scale at which the Chinese economy grew, had both a regional and global growing impact and especially the OBOR initiative. In all, 64 countries are partners in the OBOR, 57 of which participated in the Belt and Road Forum, held in Beijing on 14-15 May 2017. Of the 36 countries located in the Indian Ocean Rim (India's primary focus), 15 are among the designated partners and were represented at a high level. Of the remaining IOR countries, all except India and Oman participated. Anxiety about China has made India expand its own activities and influence with the countries of the Indian Ocean Rim. India has converted its 'Look East' policy into 'Act East' vis-a-vis South East Asia. It has also focused on the Security and Growth for All in the Region (SAGAR) strategy towards the western Indian Ocean countries, and the AAGC is another response. The AAGC aims to create a 'free and open Indo-Pacific region' through reopening 'ancient maritime networks' and new sea corridors that will integrate African and Asian economies. Both initiatives emphasize their focus on development and infrastructure but the AAGC focus on the comparative strengths of Indian and Japanese engagement in Africa-health, pharmaceuticals and agro-processing for example. Unlike the OBOR initiative, AAGC has no land corridor, and unlike the OBOR, does not have a core focus on Eurasia. Africa seems to have become a bolt-on for OBOR (and in 2018 OBOR is likely to be written into the next FOCAC summit agenda). AAGC claims to be more inclusive although this may be more on paper than reality, and it lacks the depth of funding that China is prepared to commit to OBOR. East Africa and the Western Indian Ocean seem to be the primary region of competition for China, India and Japan. It has the potential to be a geo-strategic gateway for Africa-Asia trade and has enjoyed some of the fastest growth rates in Africa. The OBOR initiative has prioritized Kenya, Tanzania, Egypt and Djibouti – while AAGC planners talk of the whole coast from Somalia to South Africa being a focus. Although there will be some competition, these initiatives could complement each other. The OBOR initiative is mostly focused on trade-related infrastructure projects and commodities for infrastructure development, while on paper AAGC emphasizes the training of human capital. Japan in particular is also looking for new infrastructure deals but is finding China a tough competitor on price. India and China have collaborated. They worked together at global forums on issues such as trade and climate change and combating Somali piracy. India and China also conduct rudimentary joint military and naval exercises, and India cooperated in the creation of financial institutions, such as the Asian Infrastructure Investment Bank (AIIB), and the BRICS bank. China's increased engagement in Africa since 2000 has capitalized on learning from past initiatives such as those by Japan (TICAD especially). It has also forced other nations to think more deeply about Africa and its strategic value to their interests. This is a positive development and is part of a normalisation of international relations in a world where Africa demonstrates greater agency. The reality is that Africa has more freedom and choice than ever before. Money is available—if African countries can guarantee their own stability and economic openness. Far from trying to control it, the world wants Africa to control itself. The answer lies in Africa's own hands but there is also increased competition, and African leadership will need to be more strategic and focused on what it wants from these relationships. There are clear lessons for Africa on how to navigate the competing offers in this changing world such as China's OBOR initiative and Indian and Japan's AAGC equivalent. Potentially they could both provide a win-win for Africa's longer term developmental needs.

China vs E.U./Quiet environment in the wake of the low carbon

So Far, yet so Close

A vacuum in leadership caused by the Trump Administration's disavowal of the Paris Agreement has led to a new alliance between Beijing and Brussels, with broad implications for their international standing as well as efforts to promote sustainable development around the world

NICOLÒ SARTORI

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In light of U.S. President Donald Trump's peculiar positions on the implementation of the Paris Agreement, a remarkable new global alliance seems to have taken shape. The European Union, a first mover in global policies to combat climate change, has never been so close to China on the issues of decarbonization and sustainability, and is focusing strongly on cooperation with Beijing in a bid to achieve the two-degree target needed to secure the continued livability of planet Earth. With only 8 percent of global CO_2 emissions, Europe has embarked on what is certainly one of the most solid and credible trajectories, compared to the world's leading powers, to reduce its environmental impact. Europe has already reduced its emissions by 22 percent compared to 1990 levels and is thus fully in line with the tar-

gets of its 2020 Package. It is now aiming for a 40 percent reduction by 2030. Over the long term, Brussels seeks to reach near zero emissions (80-95 percent reductions by 2050), although the target is still not fully consistent with the European Union's climate policies and with Europe's current trajectories.

In spite of its commitment to decarbonization and sustainability, China is currently in a diametrically opposite situation from the E.U. With over 10 million tons of greenhouse gas emissions (overtaking the U.S. in 2006), it accounts for almost one third of total global CO_2 emissions. The rise in China's emissions has been huge—doubling over a period of 10 years—and to some extent is still unpredictable. In recent years, a succession of projections for China's emission peaks has produced grossly inaccurate or contradictory results. After an extremely modest decline in the two previous years, China's emissions have grown once again in 2017 by a significant 3.2 percent (pushing global CO_2 up by 2 percent), fueling the dissatisfaction, but most of all the concern of those monitoring the fight against climate change. This growth shows no signs of slowing down, despite China's ongoing efforts to reduce its carbon footprint and its new role as a global player in decarbonization policies and in the fight against climate change.

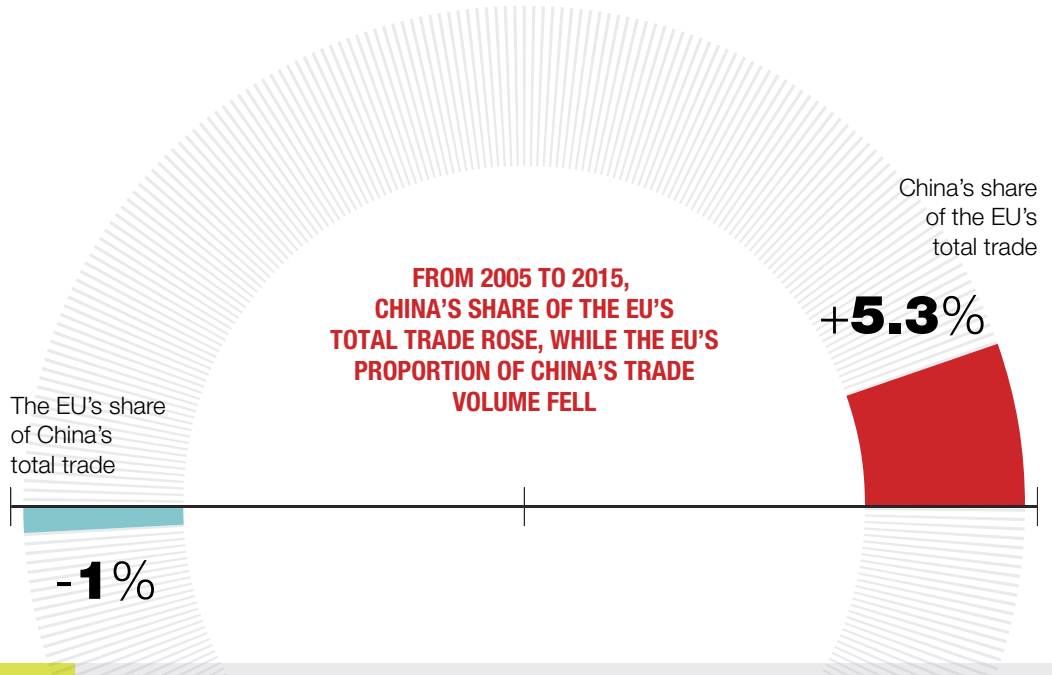
At the international level, China's commitment and its partnership with the United States under President Obama in 2015 made a significant contribution to the success of COP21 and the signing of the Paris Agreement. And despite the subsequent decision by Washington (under the Trump Administration) not to adhere to its international pledges on climate change, Beijing seems committed as never before to maintaining—and even bolstering—its leadership role. Trump's decision effectively cemented the global climate partnership between the E.U. and China, which reaffirmed their joint commitment to the Paris Agreement immediately after the White House announcement. During a concurrent bilateral summit held in Brussels on June 1, they had the opportunity to discuss and reaffirm their intent to forge ahead on the path set out at COP21 despite America's withdrawal. Although a series of disagreements on trade issues prevented their adoption of a joint declaration formalizing their full adherence to the 29 articles enshrined →

A PACT FOR THE PLANET

Relations between China and the E.U. on energy policies date back to 1994, since when organizes the Energy biennial Cooperation Conference. On the sidelines then of the E.U.-China 2005 Summit Brussels e Beijing have signed a joint Declaration on Climate Change.

Partners for over Forty Years

Since 1975, i.e. since China and the European Union (the then European Economic Community – E.E.C.) have had trade relations, these major international players have both radically changed. China has become the largest global economy in terms of purchasing power parities, and the E.E.C. has changed its name and has grown to become the world's largest single market, with a single currency and free movement of goods and services. In view of this process, it is unsurprising that the E.U. has become Beijing's leading trading partner, and that China is now the E.U.'s largest export market.



THE EU AND CHINA ARE EACH OTHER'S LARGEST SOURCE OF IMPORTS AND ONE ANOTHER'S SECOND LARGEST EXPORT DESTINATIONS

2016

20.2% of imports are from China

9.7% of exports go to China

13.1% of imports are from the EU

16.1% of exports go to the EU

TRADE IS CENTRAL TO THE EU–CHINA RELATIONSHIP BUT WHILE TRADE IN GOODS IS WELL DEVELOPED, TRADE IN SERVICES LAGS BEHIND

2016 trade between China and the EU comprised

€515 Billion trade in goods

€65 Billion trade in services

STOCKS OF FDI* BETWEEN THE EU AND CHINA REMAIN MUCH LOWER THAN THE EQUIVALENT AMOUNTS BETWEEN THE EU AND THE U.S.

€168 Billion EU FDI stock in China

€35 Billion Chinese FDI stock in the EU

€2.6 Trillion EU FDI stock in the US

€2.4 Trillion US FDI stock in the EU

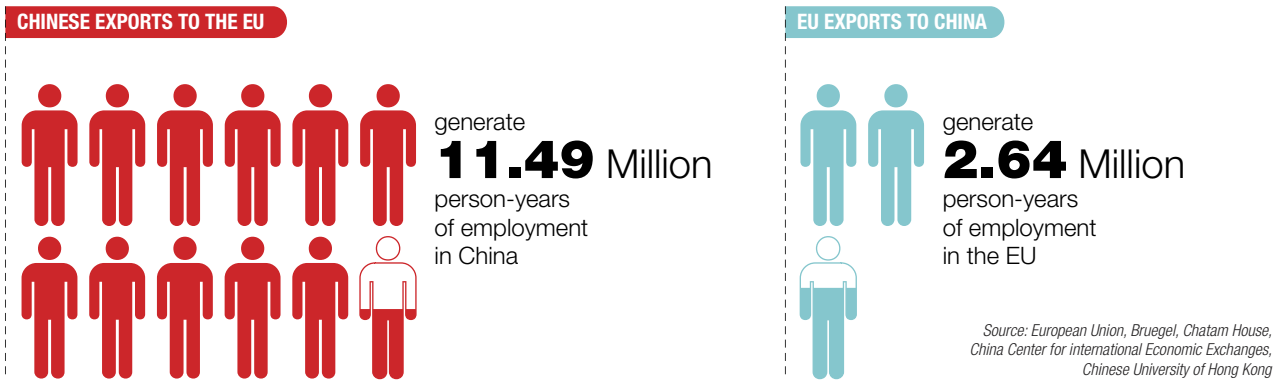
*Foreign Direct Investments

in the Agreement and their mutual commitment to the irreversible energy transition processes underway, China and the E.U. have never before been in such close agreement on the fight against climate change.

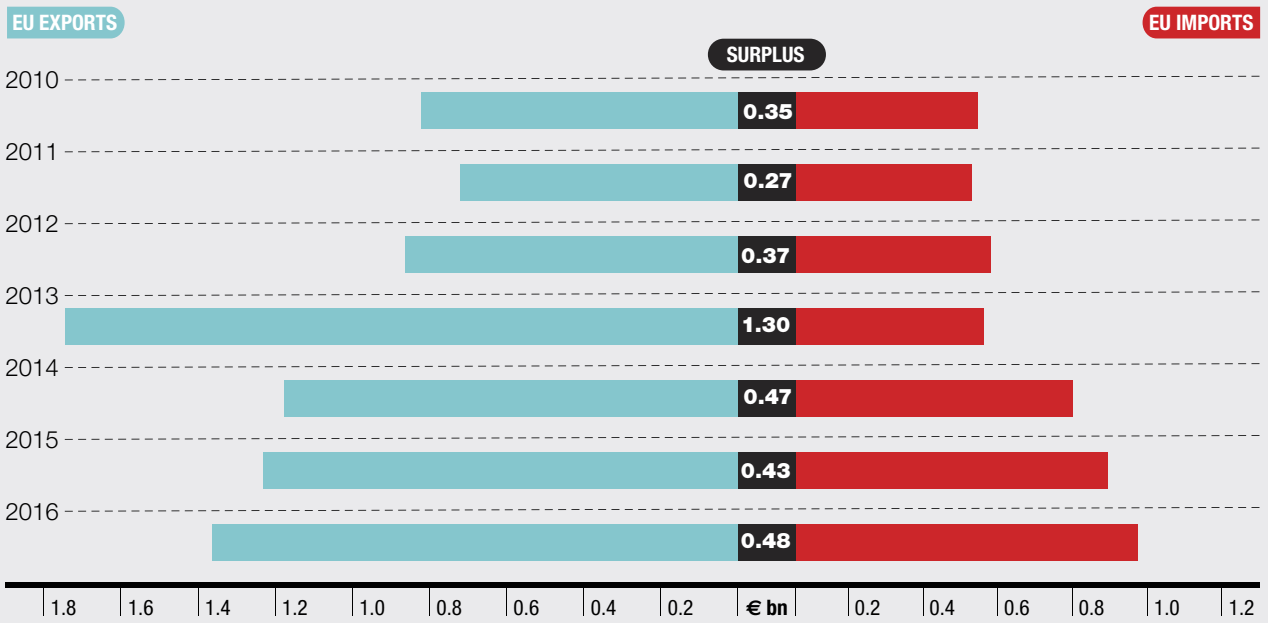
A shift from dialogue to joint leadership?

Bilateral ties between the E.U. and China actually date back to well before Trump's recent U-turn, specifically to the mid-1990s, when European emissions were 25 percent higher than China's (4 billion tons of CO_2 vs. 3 billion tons). The sectoral dialogue on energy policies launched in 1994 (which gave rise to a biannual Energy Cooperation Conference) and the dialogue on environmental issues launched in 1996 laid the foundations for the first interactions between European and Chinese institutions,. Then, on the sidelines of the 2005 E.U.-China Summit, Brussels and Beijing signed a Joint Declaration on Climate Change formalizing their partnership in that regard. This was followed by a series of initiatives (Joint Statement on Dialogue and Cooperation on Climate Change and E.U.-China Environmental Governance Program, 2010; E.U.-China Environmental Sustainability Program, 2012; E.U.-China 2020 Strategic Agenda for Cooperation, 2013;.-China Joint Statement on Climate Change, 2015) that gradually contributed to strengthening bilateral ties, while also reflecting Europe's need and intent to include Beijing as a credible player in the international arena. For various reasons, first and foremost China's dramatic environmental conditions, which are fueling growing mass protests throughout the country, the Chinese government has in recent years embarked on a serious review of its energy and climate policies in an attempt to find a compromise model that can satisfy the need to sustain its high economic growth rates while also limiting emissions. In this respect, the European Union's experience certainly offers a potential model. The E.U. has created the most sophisticated and effective model of sustainable development thanks to which, as European Climate Action and Energy Commissioner Miguel Arias Cañete pointed out, GDP has grown by over 50 percent since 1990 while CO_2 emissions have fallen by 22 percent. Despite the challenges posed by carbon leakage and the delocalization of its industrial activities, Europe can make a significant contribution to Chinese efforts on this front. The E.U. is the undisputed global leader in low-carbon technologies, with over 44 percent of all patents registered in European territory, and is therefore a key actor for Beijing to look to if it seeks to scale up its decarbonization trajectory in a credible manner. At the same time, a key objective of the E.U.'s export policies and of its industrial actors is access to China's huge market (it is estimated that there have been 300,000 low-carbon technology transfers from Europe to China since 2009), especially in view of Beijing's further acceleration on the green front. But the partnership now seems to have gone beyond this purely bilateral dimension of learning/transfer. As a result of China's step change in preparation for COP21, its key role in mobilizing and encouraging developing countries to adopt a proactive and responsible approach, and its huge domestic investments to tackle an unsustainable environmental situation, the relationship between Brussels and Beijing now seems to be more balanced and solid. Their joint commitment is contributing to more credible and effective global climate governance. The E.U. and China can thus act as promoters of a broad North-South alliance between industrialized and developing countries, without which any attempt to implement the Paris Agreement could ultimately fail. This role would boost the international standing of both, helping Europe to reap the political dividends of its climate leadership, which it is still struggling to capitalize on despite its large-scale investments, and encourage China—as a pillar of the energy transition—to finally act as a key (and credible) player in the mechanisms of global governance. This joint leadership can certainly provide an impetus for driving global decarbonization policies forward. But due to the major economic and strategic implications of decarbonization, among other things, it could also trigger several

CHINESE EXPORTS TO THE EU HAVE A GREATER IMPACT ON DOMESTIC EMPLOYMENT THAN EXPORTS IN THE OTHER DIRECTION



BILATERAL EU–CHINA TRADE IN TOTAL FINANCIAL SERVICES



competitive, and possibly even conflictual, mechanisms between Brussels and Beijing.

A common enemy in coal

Coal is certainly the greatest common enemy of the E.U. and China. The problem in Europe can be simply summed up by noting that while coal contributes to just under 25 percent of Europe's power generation, it accounts for 75 percent of E.U. emissions. And while Brussels is at the forefront of the fight against the most polluting of all combustible fuels, some E.U. member states are still heavily reliant on coal for their electricity sectors, accounting for 80 percent of power generation in Poland and over 40 percent in the Czech Republic, Bulgaria, Greece, and Germany. The problem of coal, and its devastating effects on health and the environment, is one with which the Chinese are very familiar. Coal still accounts for almost three quarters of China's total electricity production, with a total installed capacity of over 900 Gigawatts (GW), and is actually the main cause of death from air pollution in the country: 86,000 deaths caused by coal burning at power generation plants, 55,000 deaths from coal used in industrial processes, and over 170,000 deaths from coal and biomass combustion in households. In order to tackle these staggering figures, the Chinese government has announced a freeze on a hundred new coal-fired power plants, these to be replaced with additional generation capacity from renewables. Despite these efforts, if China is to limit the devastating impact of existing power plants, it needs new technologies for the capture and storage of CO_2, as well as efficient mechanisms for "pricing" emissions and incentivizing emissions reduction using market dynamics. In this respect, joint initiatives like the China-E.U. Near Zero Emission Coal (NZEC) project and the E.U.-China ETS Project in particular, the latter a three-year project supporting the design and implementation of emissions trading systems in China, are important pillars of cooperation. Cities are also playing a central role in the joint efforts by the E.U. and China to combat climate change. Chinese cities led the way in voicing the alarm that led the Beijing government to step up its low carbon trajectory. And their collaboration with European cities—through the E.U.-China Low Carbon City partnership—can bring significant benefits by bolstering bottom-up dynamics that are still too difficult to implement in the Chinese socio-political system.

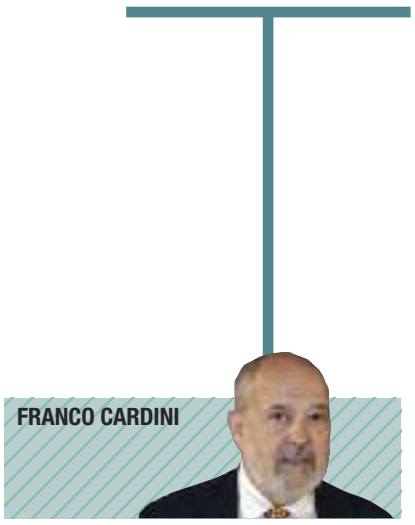
Focus on Africa

Although the many challenges associated with climate changes require a joint (or at least a coordinated) response, the honeymoon between the E.U. and China could face difficult times ahead. This is because while the energy transition process is inevitable in order to secure the continued viability of the planet, it also involves a strong economic and industrial component that could trigger geopolitical competition. Given the potential value of the investments required to implement the Paris Agreement—USD 23 trillion between now and 2030, according to the World Bank—decarbonization could be a highly attractive game for Brussels and Beijing to play. With some 170 countries (out of the 197 signatories) that have now ratified the Agreement and are set to implement the mitigation and adaptation measures to comply with the Nationally Determined Contributions (NDCs) agreed in Paris, the potential for intervention is huge. Both China and the E.U. will therefore want to be ready—the former with its financial leverage and the latter with its technological leadership—to enter these vast markets with their respective industries. Africa is undoubtedly one of the areas in the world where energy transition and decarbonization processes will take hold most spectacularly. Data from the International Renewable Energy Agency (IRENA) show very clearly the African continent's vast low carbon potential, with 300,000 GW of solar power and 7,000 GW of wind power. In a region where 600 million people still have no energy access, this potential provides an excellent opportunity for European and Chinese low carbon companies. Gaining privileged access to these vast and rapidly expanding markets is an important driver for the export of technologies, know-how and services to countries and regions that are building their energy sector virtually from scratch. Brussels and Beijing already have a strong presence on the continent, with diplomatic efforts (bilateral as well as multilateral) overlapping with industrial initiatives and development cooperation actions. But technological-industrial penetration in the low-carbon sector—in Africa as elsewhere—could also have clear geopolitical and strategic implications. Infrastructure, technologies and processes designed to tackle the energy transition and to make it increasingly efficient and sustainable will actually become tools and factors of political cooperation, with the potential to determine the directions, choices and tactical positioning of several actors in the global arena. In this context, the E.U. has every intention to maximize the efforts (economic as well as social) it has made over the last decade to secure its leadership role in the transition. China's exponential growth in this field—in 2015, Beijing spent two and a half times more than the E.U. on clean energy, and over the last five years its R&D investments have grown by 73 percent compared to 17 percent in the E.U.—threatens to rapidly undo the advantage that Brussels has built over recent years. This is certainly good news for the planet's sustainability, not quite so good perhaps for Europe's industrial growth and strategic ambitions.

History/Events at the turn of the 21st century

The Great Game Revisted

A new race to control the Central Asian region is underway, repeating the great 19th century struggle detailed in Peter Hopkirk's magisterial 1990 book. Only the players have changed



He is a historian and essayist. He is Professor of Medieval History at the University of Florence, and he writes for the cultural sections of several newspapers. Emeritus Professor of the Italian Institute of Human Sciences at the Scuola Normale Superiore of Pisa, for the past fifty years he has specialized in the crusades, pilgrimages and relations between Christian Europe and Islam, spending long periods of study and teaching abroad.

he publication of The Great Game: On Secret Service in High Asia by the British journalist Peter Hopkirk (1930-2014) was truly a great historic event. Published in 1990, it cast light on facts that should have been known for over a century, the ignorance of which led to the West losing countless battles. The expression "The Great Game" was coined by Rudyard Kipling in Kim to refer to the events between the 1830s and the late 19th century that marked the extraordinary race run by Britain and Tsarist Russia to control as much of Central Asia as they could, from the Caspian to the Hindu Kush and the Punjab. Britain was moving north from India, with Russia coming south from Siberia. The Muslim Turco-Mongol nomads and the Emirs and Khans of Central Asia could expect little support from their "Caliph," the Sultan in Istanbul. He had been made to bow to the European powers and was never properly recognized as Sultan by the Ottoman rulers.

A theater of tensions and tremors

Central Asia had long been the scene of unsettled tensions and tremors that heralded renewal. Escapees from a desperate yet valiant Europe were drawn there like iron filings to a magnet.

One of these, Paolo Avitabile, born in Agerola, near Amalfi, Italy in 1791, was a Napoleonic soldier who adventurously ended up in the Punjab and became Governor of Peshawar, where he was known for hangings, cutting out tongues and running a harem. Avitabile retired to his native Campania, was decorated by King Ferdinand II and died in his hometown in 1850. What we call adventurers were something else entirely over there.

Of course, the Russians and the Brits were not the only soldiers. A whole army of spies disguised as geographers, ethnographers and merchants spread out into the deserts and rugged slopes of the roof of the world. There were great explorers and brilliant scientists among them, such as Nikolai Mikhailovich Przhevalsky, a Russian general and internationally-renowned naturalist.

Another was Shoqan Walikhanov, the descendant of a Kazakh khan, who had been a cadet at Orenburg and then a Tsarist secret agent among the Kazakhs and the Kyrgyz. He was a botanist, geographer, painter, friend of the exiled Dostoyevsky and a liberal democratic thinker. He died in 1865 at the age of only 30.

After the breakdown of the Empire of Timur, Central Asia became a patchwork of khanates and emirates waging pitched battles, whose alliance was fought over by the Ottoman, Persian and Chinese empires. Russia and Britain unscrupulously forced their way into these delicate balances. Thwarted in their attempts to break through to the Mediterranean in the Crimean War, the Russians threw themselves into the region then generically known as Turkestan. In 1865, General Mikhail Grigorievich Chernyayev conquered Tashkent against the Tsar's orders. He was sent a diamond-studded sword and orders to resign, but the die was cast. In 1868, the city of Samarkand fell to General Konstantin von Kaufman. In 1881, the conquest of Central Asia was completed by General Skobelev, and the Russian railroad from Astrakhan reached the Amu Darya.

The Turco-Mongol khans did attempt resistance. In 1863, the Khan of Kokand sent a Tajik official, Yakub Beg, over the Tian Shan mountains to Kashgar, where Uyghurs and Dungans (Chinese Muslims) had rebelled against the Chinese Qing Dynasty government. He soon took over modern-day Xinjiang, then, from 1867, ushered in a personal policy of able maneuvers between Turkey, Britain and Russia.

However, Yakub Beg's ambitious plan foundered, due to the rivalry between the Russians and the Brits, who were contending for the friendship of the Chinese Emperor, from whom Beg had taken Xinjiang.

When he died in mysterious circumstances in 1877, his kingdom did not survive him. His only hope was the Sultan in Istanbul, the acknowledged leader of the Turco-Mongol Sunnis. However, there was plenty more to deal with on the Bosphorus.

Nevertheless, the Central Asian nomads constantly looked to the Ottomans, given the close links of the religious community through ethnic and linguistic affinity. The new buzzword of the late 19th century was Nationalism, and with it, Pan-Turkism—based on Pan-Germanism—began to wend its way into Turkey, at least among the urban bourgeoisie and the military.

In India, the game seemed to be up on August 2, 1858, when the British Parliament transferred the government of the subcontinent from the East India Company to the crown. Meanwhile, in Central Asia, while it was clear that the likewise-crumbling Persian and Chinese empires could not aspire to a hegemony similar to His Britannic Majesty's to which they had had to bow, or now to the Tsar of all Russia's, it seemed that the divide between Britain and Russia had somehow been confirmed atop the ridges of Tian Shan and Karakoram. Not so.

On Newsstands

The Silk Route. A thousand years of history between East and West, written by Franco Cardini and published this year, is a book that tells the story of the land and sea routes along which men, goods and knowledge traveled over the centuries from the eastern tip of Asia to the Mediterranean and Europe. Known as the silk route, it was the scene of wars and conflicts but was also animated by the fervor of commercial, cultural and political exchanges. Spices, animals, ceramics, cobalt, paper and, of course silk, all traveled across mountains and highlands along this route. Alexandria, Chang'an, Samarkand, Bukhara, Baghdad and Istanbul are just some of the stops along a historic journey that leads right up to the present day, "Because the silk route is not just a story about the past, it has to do with our global future."

Enver and the bolshevik Frunze's "Pan-Turkic" dream

The decisive chapter in this crazy, fascinating story was written between 1918 and 1925, by two extraordinary characters, Enver Pasha and Mikhail Frunze.

Born in 1881, Enver, the star of the 1908 Young Turk Revolution, a great admirer of Pan-Germanism, a volunteer in Libya against the Italians in 1911, Turkish Minister of War from 1914, exiled from 1917—first in Berlin, then in Moscow, had begun a close collaboration with Lenin on the Central Asia issue. When he was post- →

To the Conquest of the East: the Protagonists

Paolo Avitabile
In 1791 he became governor of Peshawar

ed to Turkestan in 1921, the mask soon fell. His "Pan-Turkic" dream was to be the foundation of a Turkish empire from the Caspian to Tian Shan, with Bukhara as its capital, to be tied to Mustafa Kemal Atatürk's Turkey. Enver's allies included remarkable Turkish and Tajik warriors, known to the furious Russians as the "Basmachi" (killer bandits), who became worthy opponents of the fledgling Red Army.

In the meantime, the Soviets had found their own Central Asian hero. It's a great shame that history has all but forgotten Mikhail Vasilyevich Frunze, a formidable Bolshevik Napoleon, born in Bishkek in modern-day Kyrgyzstan, where he is remembered with a bronze equestrian statue and a small museum. Frunze gave one of his sons a fateful name: Timur, after the Turkic conqueror. In a way, there were parallels between Enver and Frunze.

The Turkish revolutionary Enver was barely 40 when, in defiance of the Red Army, he asked for help from the Emir of Afghanistan, calling himself "commander in chief of the armies of Islam, kin of the Caliph, envoy of the Prophet." His jihad ignited the Muslims of Central Asia. In spring 1922, he conquered much of the Emirate of Bukhara, but died soon after on August 4 of that year. It was said he had led a kamikaze cavalry charge against Soviet machine guns. The "Basmachi" continued their resistance through the 1930s, hunted down and repressed only less ferociously than the lies and slander used to defame their heroism.

Three years after Enver's, his enemy Frunze, the true founder of the Red Army, met a similar fate in no less ambiguous circumstances. The Soviet leaders in Moscow insisted he had a stomach ulcer; of course, the surgery went wrong. The Central Committee entrusted Frunze's sons to one of his few real friends, Voroshilov. Boris Pilnyak's *The Tale of the Unextinguished Moon* is an almost unique account of one of the most repugnant crimes of a revolution that devoured its own children. Most of all the best of them.

The life and times of Roman von Ungern-Sternberg

Roman Nicolaus Maximilian, Freiherr von Ungern-Sternberg, born in Graz in 1885 to a noble Estonian family, is worthy of at least a mention in this bloody Central Asian saga.

The von Ungern-Sternbergs were descended from the noblest of familial cocktails, unimaginable to non-central Europeans. They even—seemingly truthfully—claimed lineage from Batu Khan, a Tatar prince who conquered the Germans and Polish at Liegnitz in 1241.

Roman's family had been Buddhists for two generations. His grandfather, a pirate in the Indian Ocean, took on a new faith in Transbaikalia, to which he had been deported. After turbulent teenage years in Tallinn, Roman became a cadet at 18, then a naval officer, first in the infantry in Manchuria, later in the Zabaikal Cossacks during the Russo-Japanese War, when he was barely 20. He stayed with the Cossacks, joining a Siberian regiment in 1909.

He was in some ways a quiet ascetic: he drank no alcohol and did not smoke. But he was also an avid gambler and ended up in serious fights—he was dismissed from his regiment after one of these fights. First he headed for Vladivostok to sail to Estonia,

Nikolai Mikhailovich Przhevalsky
General and internationally-renowned naturalist

Shoqan Ualikhanov
Tsarist secret agent among the Kazakhs and the Kyrgyz

Mikhail Grigorevoich Chernyayev
General who conquered Tashkent in 1865

Konstantin Kaufman
General who conquered Samarkand in 1868

Skobelev
General who completed the conquest of Central Asia in 1881

Yakub Beg
Took over modern-day Xinjiang

Enver Pasha
Star of the Young Turk Revolution

Mikhail Frunze
The Bolshevik Napoleon born in Bishkek

Roman von Ungern-Sternberg
Chief of Staff of the White Army

then had second thoughts and crossed Siberia alone on horseback with only his dog Misha for company to what he considered his homeland, Mongolia. While there, he spent time with Tatar lamas, consulted shamans and lived in a yurt. Back in Europe, he took his grand tour of the major capitals, although the already-decadent belle époque seemed to him futile and seedy. He then returned to Mongolia in 1913, where he met Ataman Semenov. Life took him back to Paris in the final days of peace in Europe; there he apparently met his great love in that remnant of happy days, just like in all good novels. But it was already summer of 1914 and the baron had to return to the army. He set sail on the Baltic adventurously to avoid crossing Germany, then lost the woman he loved in a shipwreck while she was following him. Desperate, he threw himself into the war, first battling the Austro-Hungarians in Galicia, then the Turks in the Armenian Caucasus. He was wounded several times, was awarded many medals and clashed with Baron Wrangel, later the commander of the White Army. Meanwhile, Russia had lost its war, then the Revolution broke out, followed by civil war. With the Cossack Ataman Semenov, von Ungern organized a regiment of Tatar cavalry, alongside Buryat Siberians and others from the Caucasus mountains. He was then appointed Chief of Staff of the first regiment of the White Army, made up of 500 Russian, Cossack, Serbian, Tatar, Buryat and even Chinese, Korean, Manchu and Japanese officers and soldiers. He spent 1918 crossing Siberia and Manchuria, then in early 1919 organized a pan-Mongolian conference, incurring the wrath of his very own "White" front.

After this, he became increasingly isolated, shutting himself into his Eurasian dream. He hated the Bolsheviks and despised the West, which he considered cowardly and immoral. He founded an Asian Cavalry Division, with insignia in the colors of the old imperial flag. Instead of the black eagle in the gold part of the flag, he added a black U in his name. He dreamed of a Buddhist and continental renaissance of Eurasian civilization. His conquest of Urga (modern-day Ulaanbaatar) is still legendary, during which the Chinese and Bolsheviks held the "Living Buddha" Bogd Khan prisoner. The savagery of the Bolsheviks, who left the woeful center swimming in blood, was met with equal savagery from von Ungern.

The Tatars viewed him as a liberator, as Ungern-Khan. He was invincible, immortal, impervious to enemy bullets. He had drafted his definitive doctrine, a kind of revival of the sacred universal monarchy of Genghis Khan. The role of the free, strong men of the world was to restore monarchy, as per the natural order in a universal monarchy. On May 20, 1921, his Cavalry Division departed Urga. They had become the afterglow of the White Army. What was Ungern-Khan fighting for? For the shamanist-warrior asceticism of his Buddhist brotherhood? For the universal monarchy of the Great Khans, gone since the mid-14th century? For the unimaginable restoration of monarchies collectively wiped out in 1917-18? For the Nothingness of Nirvana his grandfather had taught his father and his father him? The Supreme Soviet sent the 5th Soviet Army in against him. They entered Urga on July 7. The Tatar dream was at an end.

Ungern-Khan tried to regroup his forces, but even his most faithful loyalists were deserting him. He was betrayed and captured in August, then in September, after numerous "interrogations", subjected to the usual kangaroo court in the city that is now Novosibirsk. He was accused of acts of unheard-of savagery. They were true, although his accusers had little right to judge any crime of the sort. They said he was in the service of the Japanese Emperor and wanted to restore the Tsar. It was a unique way to capture the heart of the matter yet at the same time understand nothing. He was shot on September 17, 1921, in a rush because they were still scared of him.

The modern, even more brutal "Great Game"

Why did Hopkirk take the trouble in 1990 to tell these old stories? Why should we learn about them now? When Hopkirk was writing, the Soviet Union was collapsing and it was very possible that a new, even more brutal "Great Game" could begin. Over a quarter of a century later, we can see this is exactly what happened, with slightly different players and maybe in an area partly shifted southwest from Central Asia. The main players now are the U.S. and China, plus Iran, Turkey, Pakistan, India, certain Arab countries, to some extent Israel, and alongside them a raging horde of lobbyists. It's up to you to decide whether "history is repeating itself," or, in the words of the Italian philosopher Benedetto Croce, whether "all history is contemporary history."

Climate change/China's energy mix must take urban pollution into account

Alarm over Emissions

Urban pollution is the most compelling reason for reducing the use of coal and promoting greater electricity consumption in industry and households. Electric cars and renewables are a step forward, but they are not as effective as generally believed

DAVIDE TABARELLI

He is chairman and co-founder of Nomisma Energia, an independent research company in Bologna that deals with energy and environmental issues. He has always worked as a consultant for the energy sector in Italy and abroad, dealing with all the major aspects of this market. He publishes on major magazines dedicated to energy issues.

THE REAL CHALLENGE IS THE SMOG. The real challenge is the smog rather than the climate or high-sounding commitments ot use less coal. In the photo, a singer of the Qinqiang Opera wearing an antismog mask while he performs in Xi'an, in the Shaanxi Province, China.

The future depends on climate. Climate is affected by emissions, whose increase has been driven largely by energy consumption in China, where 1.4 billion people are seeking a better quality of life. China's energy demand has been the main reason for the 40 percent increase in global CO_2 emissions between 2000 and 2016, a growth of 10 billion tons per year. Of these, 5 billion are due to higher emissions from the coal-fired plants that produce the electricity used to manufacture the cheap goods that China exports throughout the world, including to virtuous Europe. Between 2000 and 2017, China's demand for coal tripled to a total of 2.9 billion tons, which accounts for half the current global demand.

China's plans show that electricity demand is set to grow from the current 6 billion kilowatt-hours, accounting for a quarter of the world's total demand, to over 10 billion in 2040, equivalent to almost a third of the total. China's per capita CO_2 emissions have already grown to levels that are in line with European emissions, from around 4 tons per person to over 6 tons in 2015.

Any action aimed at limiting global CO_2 emissions will need to involve China, for reasons related to its size, and its electricity system in particular. Two fundamental aspects of the Chinese system make improvement in this respect more feasible:

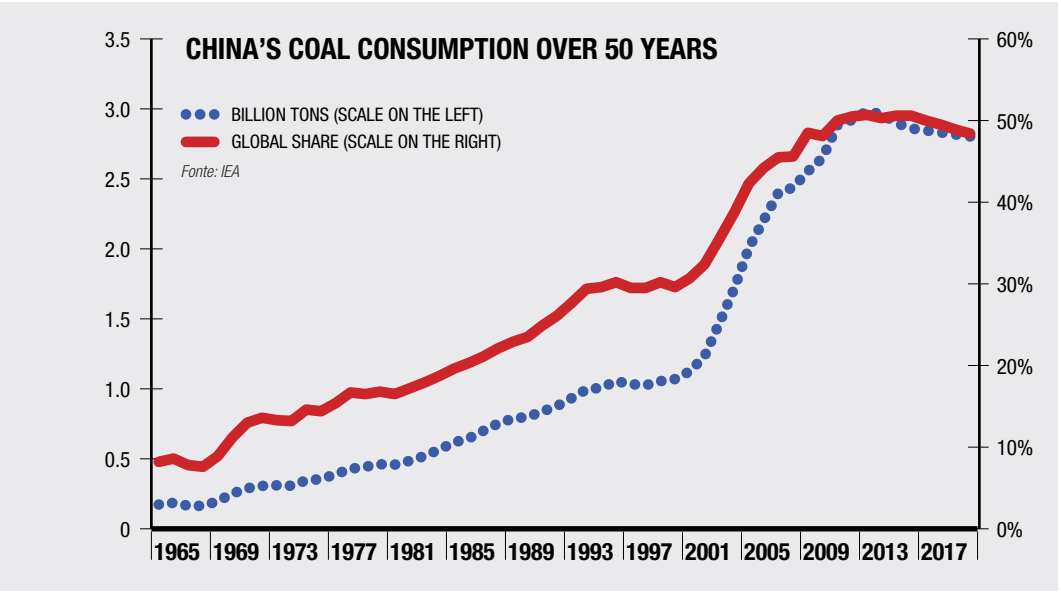
1 | Being a recently industrialized country, China has the potential to adopt new generation technologies for electricity production and consumption.

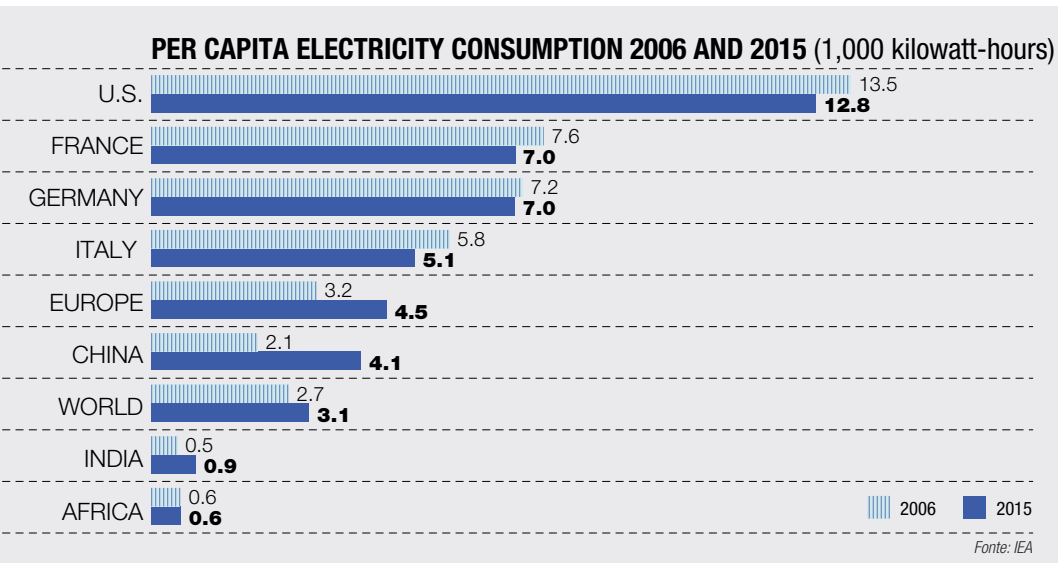
2 | China applies command and control policies typical of communist countries, which are more effective in steering energy demand and production towards solutions more compatible with environmental protection. The system gains popular support by improving living standards across the population through planning, a goal that so far has been easily achieved thanks to the conditions of extreme poverty from which China started.

As in all modern countries, the electrification process in China is unstoppable. Per capita consumption has doubled to 4 kilowatt-hours over the last ten years, although this figure is still lower than that of the most advanced industrialized states.

Electricity is the key to reducing emissions

Increased electricity use is crucial to limiting emissions from end-user consumption by industry, households and transport. It is essential, however, to limit the environmental impact of the phase upstream of production by building more efficient coal-fired power plants or by employing low-im-





pact technologies such as natural gas combined cycles and renewable energy sources. Electric power is an energy carrier that has to be produced, and to date the main source of electricity generation in China has been coal. The Beijing government is clearly aware of the problem and has long had policies in place to address it. But China is still constrained by the fact that coal remains the only plentiful energy source in China, with vast as yet unexploited deposits. On the one hand, coal reduces dependence on energy imports, while, on the other, and no less importantly, it keeps electricity generation costs low, with consequently low charges to companies exporting worldwide the goods they manufacture with coal-generated electricity. In China, coal-fired power plants receive an average charge of around EUR 0.04 per kilowatt-hour, and in some provinces it can be as little as EUR 0.02. Taking into account transport and distribution costs, this means a price to industry of around EUR 0.06-0.08 per kilowatt-hour. In Italy, one of the world's most advanced countries in terms of the transition towards fuels with low carbon content, in late 2017, the generation costs from natural gas combined-cycle plants are EUR 0.05-0.06. But the price to Italian industries rises to EUR 0.15-0.20, mainly due to the cost of supporting renewables through direct incentives or investments on the grid system to manage intermittent generation. Despite China's abundant reserves, its domestic production is gradually declining since many small mines with inhumane working conditions have had to shut down. Official sources estimate that around one thousand individuals die annually as a result of mining accidents. Some consolation can be derived from the fact that the number of deaths before 2000 stood at 7,000 per year, suggesting that things are improving. In addition to the safety aspect, the government still has much to do on the efficiency front. The average annual output of a Chinese miner is 800 tons, whereas in Australia, the world's largest global exporter and China's main supplier, a miner's output is almost 10 times as much. China can import coal from the international market, where coal is still by far the cheapest energy source. In late 2017, despite a 30 percent price rise to USD 90 per ton in a year, coal is still 33 percent more competitive than liquefied natural gas (LNG), which is now back to EUR 27 per megawatt-hour in Asia, still almost half the peaks of 2012.

Urban pollution is the heart of the problem

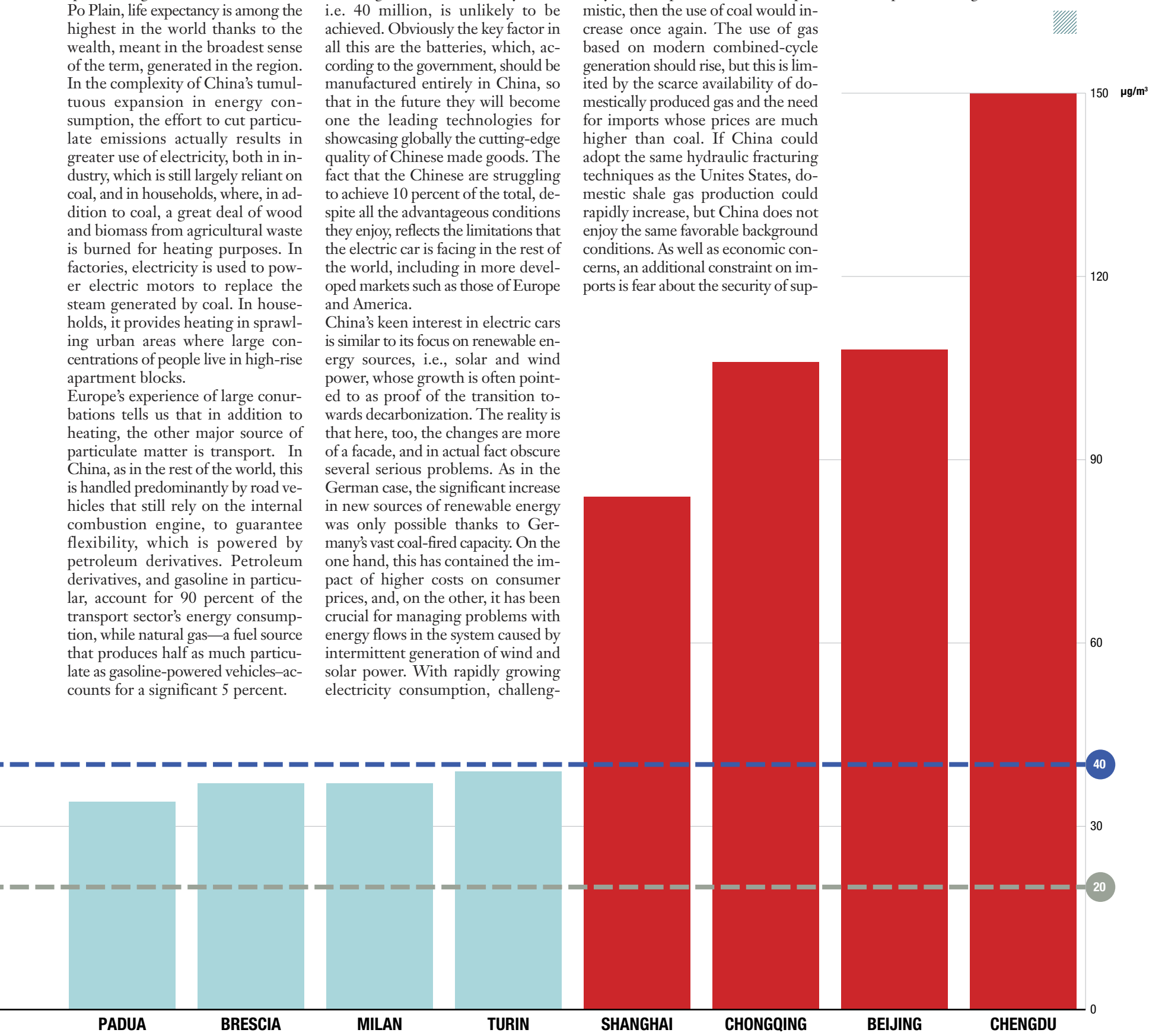
The most compelling reason for reducing the use of coal is not so much climate change, or high-sounding international pledges. A more pressing challenge is the pollution problem in urban areas, where most of the Chinese population is gradually converging. One of the major causes of urban pollution is the fine particulate matter expelled from the smoke stacks of many coal-burning power plants without filtration equipment. The World Health Organization (WHO) estimates that in China, urban pollution causes one million premature deaths each year from respiratory diseases, strokes, heart attacks and lung cancer. These problems are far more urgent than the predicted long-term climate changes which, though catastrophic, are still linked to probabilities rather than certainties. The data on urban pollution gathered by the WHO speaks loud and clear: in Beijing the mean concentration of particulate matter PM10 (with a diameter of one hundredth of a millimeter) averaged out over the year is 93 micrograms per cubic meter, compared to an optimal guideline value of 20, below which there are no adverse health effects whatsoever. Concentrations of the more dangerous PM2.5, which travels through the lungs and enters the blood cells, are at 85, against a WHO guideline value of 10. In Europe, the most polluted area is the Po Plain in Italy, due to both the high concentration of human activities and the mountainous topography around the plain that

Source: NE Nomisma on World Heath Organization data

limits air circulation and causes air stagnation. In Milan, which with 1.3 million inhabitants is the largest city in the area and therefore the most polluted, PM10 concentrations in 2013 were at 37, and PM2.5 concentrations were at 17. The European Union, which is at the forefront of preventive health care through strict environmental regulations, sets the annual average limit value for PM10 at 40 micrograms per cubic meter, and a target value for PM2.5 at 25. Were it not for Italy's widespread use of natural gas for electricity generation, these limit values could never be complied with. It should also be pointed out that despite the high emission levels in the Po Plain, life expectancy is among the highest in the world thanks to the wealth, meant in the broadest sense of the term, generated in the region.
In the complexity of China's tumultuous expansion in energy consumption, the effort to cut particulate emissions actually results in greater use of electricity, both in industry, which is still largely reliant on coal, and in households, where, in addition to coal, a great deal of wood and biomass from agricultural waste is burned for heating purposes. In factories, electricity is used to power electric motors to replace the steam generated by coal. In households, it provides heating in sprawling urban areas where large concentrations of people live in high-rise apartment blocks.
Europe's experience of large conurbations tells us that in addition to heating, the other major source of particulate matter is transport. In China, as in the rest of the world, this is handled predominantly by road vehicles that still rely on the internal combustion engine, to guarantee flexibility, which is powered by petroleum derivatives. Petroleum derivatives, and gasoline in particular, account for 90 percent of the transport sector's energy consumption, while natural gas—a fuel source that produces half as much particulate as gasoline-powered vehicles–accounts for a significant 5 percent.

The "green" goals of electric cars and renewables

The diffusion of electric cars has become one of China's most interesting goals for the global energy industry. The goals are clearly ambitious, but reality has already proved to be very challenging, dampening the initial enthusiasm of a few years ago. The Chinese market for electric cars is the most important in the world, with around 700,000 cars, although it accounts for just 0.5 percent of the market share in relation to the 160 million vehicles on the road in China. The number of cars is expected to rise rapidly to 400 million, compared to today's 135 million, but the 10 percent target for electric cars by 2030, i.e. 40 million, is unlikely to be achieved. Obviously the key factor in all this are the batteries, which, according to the government, should be manufactured entirely in China, so that in the future they will become one the leading technologies for showcasing globally the cutting-edge quality of Chinese made goods. The fact that the Chinese are struggling to achieve 10 percent of the total, despite all the advantageous conditions they enjoy, reflects the limitations that the electric car is facing in the rest of the world, including in more developed markets such as those of Europe and America.
China's keen interest in electric cars is similar to its focus on renewable energy sources, i.e., solar and wind power, whose growth is often pointed to as proof of the transition towards decarbonization. The reality is that here, too, the changes are more of a facade, and in actual fact obscure several serious problems. As in the German case, the significant increase in new sources of renewable energy was only possible thanks to Germany's vast coal-fired capacity. On the one hand, this has contained the impact of higher costs on consumer prices, and, on the other, it has been crucial for managing problems with energy flows in the system caused by intermittent generation of wind and solar power. With rapidly growing electricity consumption, challenging grid issues and the costs of renewables remaining high, it will be difficult for China to avoid relying increasingly on coal. In the next twenty years, China's electricity demand is expected to rise to 4,000 billion kilowatt-hours, a leap that would take it to the current levels in the Unites States, the world's most energy hungry nation. This new demand should be largely met by renewable energy sources, whose share is expected to increase from the current 6 percent to 20 percent of the total. These are difficult targets to achieve and, in any case, they would not affect coal production, which would remain at current levels. If, as is likely, they should prove to be overoptimistic, then the use of coal would increase once again. The use of gas based on modern combined-cycle generation should rise, but this is limited by the scarce availability of domestically produced gas and the need for imports whose prices are much higher than coal. If China could adopt the same hydraulic fracturing techniques as the Unites States, domestic shale gas production could rapidly increase, but China does not enjoy the same favorable background conditions. As well as economic concerns, an additional constraint on imports is fear about the security of supplies, obviously a very sensitive issue for the Chinese central government. Nevertheless, on December 8, 2017, the first icebreaker left the Yamal peninsula in the Russian Arctic carrying LNG bound for China. It came from the new LNG plant jointly owned by Novatek, Total and the China National Petroleum Company with a Chinese state investment fund. It is the first tanker that is expected to carry up to 20 billion cubic meters of gas per year from the vast Siberian gas fields to China across the Arctic Sea, which, due to rising temperatures, has become navigable. Warmer temperatures, in this case, are beneficial, since they enable coal to be replaced with gas in China.



Growth: The Middle Kingdom at the forefront

China remains the major driver of global growth. Its decision to open up to overseas companies, announced at this year's Congress of the CPC, will give the U.S. access to Chinese savings. But it will also support the internationalization of the yuan

DEMOSTENES FLOROS

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Forecasts by the World Economic Outlook, published by the International Monetary Fund on April 23, 2017, estimate that global Gross Domestic Product (GDP), calculated in nominal terms, will reach USD 77.99 trillion in 2017. However, according to the Purchasing Power Parity (PPP) calculation method—aimed at standardizing differences in the cost of living in different countries—the 2017 global GDP forecast is USD 126.69 trillion. Using PPP, the world economy will therefore be 1.62 times larger than it is in nominal terms.

Based on data in the same report, the U.S. and China are the largest economies in the world, both in nominal terms and in terms of purchasing power parity.

In particular, 2017 U.S. GDP is estimated to grow by 2.2 percent to a total of USD 19.42 trillion, 24.9 percent of the global economy. Chinese GDP is forecasted to increase 6.8 percent to a total of USD 11.80 trillion, 15.1 percent of global GDP. In terms of purchasing power parity since 2014, China takes the lead with USD 23.19 trillion (18.3 percent), compared to the United States' USD 19.42 trillion (15.3 percent).

In 1981, when Ronald Reagan became U.S. President, the Chinese economy was only10 percent of the size of the American economy. It is now 115 percent (in PPP). Never in the history of mankind has a country grown so quickly on so many levels.

Analysis of the ranking of the top 10 economies in the world, calculated in nominal GDP, shows that only three of them are in Asia: China (in 2nd place), Japan (3rd) and India (6th). In PPP terms, five of the top 10 are Asian countries, with three in the top five: China in first place, India in 3rd and Japan, 4th. The Russian Federation has risen from 11th to 6th place, Indonesia from 15th to 7th.

The major driver of global growth

The *Economic Survey of China 2017*, published by the OECD (Organization for Economic Cooperation and Development) on March 21, 2017, stresses that China remains "the major driver of global growth."

When founded in 1949, the People's Republic of China was the poorest country in the world. What are the more recent causes of such fast, consolidated growth following the economic (but not political) reforms launched by Deng Xiaoping in 1978, reforms aimed at increasing the role of private capital and overseas investment to develop China's manufacturing power? What are the main changes taking place?

During the 10th and 11th Five-Year Plans (2001/2010), the percentage of Chinese investment in GDP terms quadrupled, then decreased in relative terms from the implementation of the 12th Plan (2011-2015) onward. According to research published in 2012 by the economists Andy Rothman and Ji Zhu, "It is important to understand that China is a continental economy driven by domestic investment and consumption, one in which exports only play a supporting role."

Quantitative analysis of Chinese output shows that net exports (Trade Balance plus Services Balance) formed only 4 percent of GDP in 2010. We certainly do not mean that exports have played a minor role in Chinese growth. If exports were to fall, there would clearly be negative consequences for the economy. However, 4 percent of GDP in 2010 is still lower than the 6.3 percent recorded for the same year by Germany, which has the largest economy in the Eurozone.

As proof of Rothman and Zhu's thesis, it is interesting to note that in 2007-2008-2009, when the increase in exports collapsed, with a resultant return to pre-crisis levels (2007: 26 percent; 2008: 17 percent; 2009: -16 percent), there was a slight, but certainly lesser, slowdown in the vigorous growth of fixed investments (2007: 35 percent; 2008: 31 percent;

2009: 27 percent). These figures demonstrate that Chinese manufacturing was mainly directed at domestic demand, and that the vast majority of goods produced in China remain in China.

Conversely, qualitative analysis of exports shows that a significant portion of the goods apparently made in China only consisted of the assembly of their components: 55 percent of total exports in 2001, 44 percent in 2011 (with a similar value in 2014). In fact, processed exports have tended to contribute less to the growth of Chinese GDP when compared to other domestically-produced exports.

From 2012 to date, investment as part of GDP has declined significantly as the massive economic growth rates have slowed down, while the contribution of the services sector to the increase in GDP has exceeded that of industry. Nevertheless, savings rates remain relatively high.

In 2013, the economist Stephen S. Roach suggested that the China's slowdown was welcome, as it reflected a transition from growth driven by investments and exports to an economic structure more focused on domestic private consumption, based on adjustments in wages (moderate recent inflation following deflation, triggered by a process of expansion in demand, in turn stimulated by real wage growth). Considering that the services sector requires approximately 35 percent more jobs per GDP point compared to manufacturing, China could grow at an annual rate of 7 to 8 percent and still reach its objectives in terms of employment and poverty reduction.

In that regard, since 1981, China has extricated 728 million people from poverty. In rural areas, the number of people living in poverty fell from 98,990,000 in 2012 to 43,350,000 in 2016, while the Gini index – used to measure income inequality – fell from the end of 2009 onwards, as did the ratio between disposable income in cities and the countryside.

In all likelihood, the most interesting data suggesting a dynamic reading of the "China & Energy" trend come from manufacturing. In fact, according to the United Nations, Chinese manufacturing as part of global production increased to 5 percent in 1995, 8 percent in 2000, 12 percent in 2005, 19 percent in 2010, 22 percent in 2012, and, as per the Confindustria Rapporto Scenari Industriali (Industrial Scenarios Report by Confindustria) of November 8, 2017, 29.5 percent this year. In the meantime, the U.S. share has fallen to 19 percent, with Germany at 5.9 percent.

If the Middle Kingdom wishes to maintain this performance for years to come, a performance manifested objectively in the still-dominant role of the public sector over the private, it must urgently address the issue of financial risk, due to the high debt levels of some corporations. China must also optimize the use of its resources to construct a modern welfare state, especially in terms of healthcare.

Energy consumption and mix

In 2016, global primary energy consumption totaled 13,276.3 Mtoe (million tons of oil equivalent), an increase of 1 percent on 2015, compared to an average annual increase of 1.8 percent from 2005-15.

China was number 1 in terms of primary energy consumption with 3,053 Mtoe, 23 percent of world consumption, 1.3 percent higher than in 2015.

In second place, the United States of America with 2,272.7 Mtoe, 17.1 percent of total consumption, 0.4 percent lower year-on-year. However, given that China has 22 percent of the global population and the U.S. 5 percent, every Chinese person consumes an average of just over 2.2 tons of oil equivalent (toe) per capita a year. An American consumes around 7 toe.

The world's energy mix in 2016 is considered below, followed by an analysis of fossil fuels.

1 | Oil – 33.27 percent (4,418.2 Mtoe);

Where's the coal?

China's major coal reserves are located in four of its regions. China is one of the largest coal producers in the world.

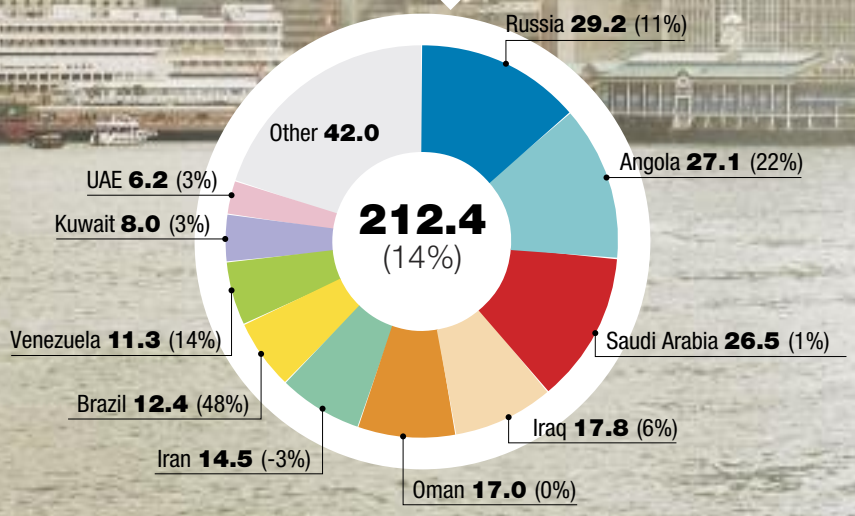
Source: data processed by the author

ChinEnergy

Crude oil imports, 2017

(in Millions of tons)

January-June 2017; Year-on-year percent variation in brackets



The leading oil supplier of China is Russia. In the first six months of 2017, Beijing imported 29.2 million barrels of crude oil from Russia. China's other main oil suppliers include Angola and Saudi Arabia.

Source: Wood Mackenzie

2 | Coal – 28.11% (3,732 Mtoe);
3 | Natural gas – 24.13% (3,204.1 Mtoe);
4 | Hydro – 6.85% (910.3 Mtoe);
5 | Nuclear – 4.45% (592.1 Mtoe);
6 | Renewables – 3.16% (419.6 Mtoe).

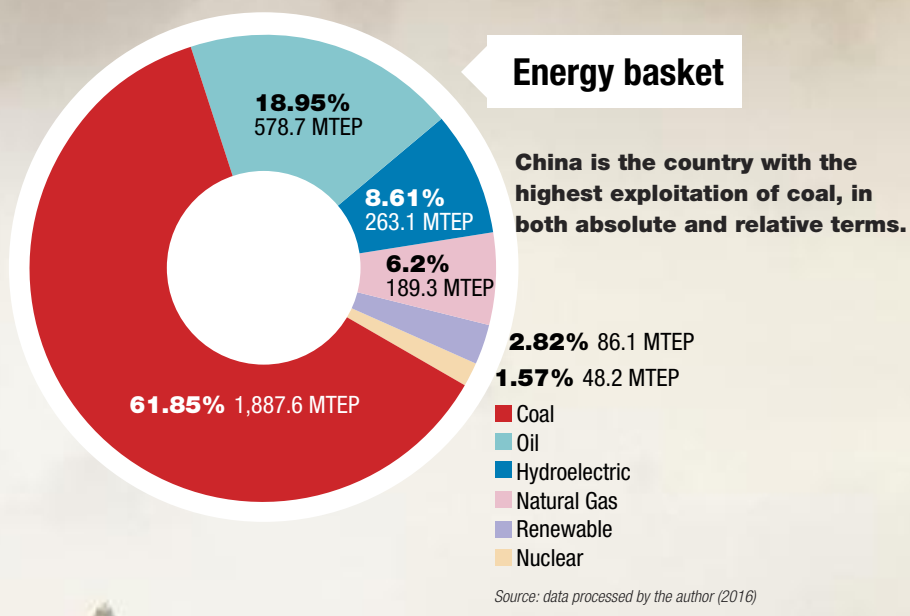
According to the BP Statistical Review of 2017, oil remains the most widely used source of energy. In relative terms, the share of oil in the global energy mix has increased for the second year running after the steady decline from 1999 to 2014. In absolute terms, the increase was 1,600,000 barrels per day (b/d) (+1.6 percent), well above the average over the last 10 years (+1.2 percent). This is primarily due to trends in Chinese and Indian consumption (+400,000 b/d and +330,000 b/d respectively). In contrast, 2016 oil production only increased by 400,000 b/d, the slowest since 2013.

In 2016, overall coal consumption decreased by 53 Mtoe (-1.7 percent). The main decreases were in the U.S., -33 Mtoe (-8.8 percent) and in China, -26 Mtoe (-1.6 percent). As a result, coal's share in the global energy mix fell to 28.1 percent, the lowest since 2004. In fact, from 2005-14, consumption of the most polluting fossil fuel grew by an average of 1.9 percent, but total use has started to decline since 2015.

Overall 2016 coal output fell by 231 Mtoe (-6.2 percent), due to lower supply from China and the United States, which reduced by 140 Mtoe (-7.9 percent) and 85 Mtoe (-19 percent) respectively.

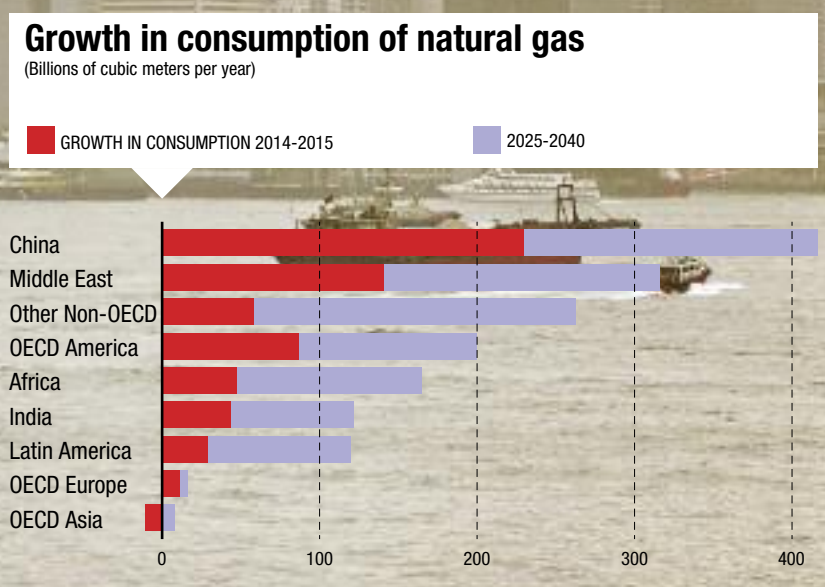
While the end of coal usage is undoubtedly still far away, it seems that the decline has begun. The trend in advanced capitalist countries should therefore be a slow but steady withdrawal from using the fossil fuel of the Industrial Revolution in the West. For "developing" economies, it is highly likely that the expansion of coal consumption will be slower than in the past, due to both lower growth rates in their economies, and the serious, undeniable issues of pollution. In that regard, it is important to note that since 2014, global CO2 emissions have stabilized substantially (+0.1 percent in 2016).

In 2016, consumption of natural gas, the cleanest of the fossil fuels, increased by 1.5 percent or 63 billion cubic meters of natural gas (bcm), compared to average 10-year growth of 2.3 percent. The world's leading exporter of natural gas, the Russian Federation, is also the country with the highest percentage of gas in its own energy mix (52.20 percent), and it has also contributed more than any oth-



China is the country with the highest exploitation of coal, in both absolute and relative terms.

Source: data processed by the author (2016)



The demand of China for natural gas is growing steadily. It is clear that by 2040 China's growth in demand will be higher than that of any other country, exceeding 400 billion cubic meters of gas per year.

Source: Sanford C. Bernstein & co.

er country to the slowdown in global consumption with a rate of -12 bcm. Consumption in the European Union is above average, at +7.1 percent or +30 bcm, the greatest increase since 2010, at the same time that E.U. output has been in steady decline for years. According to forecasts of the International Energy Agency, global demand for natural gas will grow by an annual average of 1.6 percent through 2022. China will be responsible for 40 percent of this increase, equivalent to 134 bcm, an annual average of +8.7 percent.

China's 2016 energy mix is set out below.

1 | Coal – 61.82% (1,887.6 Mtoe);
2 | Oil – 18.95% (578.7 Mtoe);
3 | Hydro – 8.61% (263.1 Mtoe);
4 | Natural gas – 6.2% (189.3 Mtoe);
5 | Renewables – 2.82% (86.1 Mtoe);
6 | Nuclear – 1.57% (48.2 Mtoe);

China has seen its own energy dependence— i.e., the share of imported energy raw materials as part of total primary energy consumption— increase by 21.14 percent (6 percent in 2011 to 16 percent in 2014). In 2003-2016, China's consumption rose by 368 percent, increasing its share of the global total from 12.5 percent to 23 percent.

China is the heaviest user of the fossil fuel coal, in both absolute and relative terms. The main deposits are located in northern China, in the provinces of Shaanxi, Shanxi, Hebei, Xinjiang, Henan, Shandong, Anhui and Inner Mongolia, and in the Northeast, with significant deposits in Heilongjiang, Jilin and Liaoning provinces.

China is followed by India, with 411.9 Mtoe or 56.9 percent of its energy mix, overtaking the U.S. (358.4 Mtoe, 15.76 percent). Analysis of the development in the energy mix of the two Asian giants shows that the importance of coal in Chinese primary consumption is decreasing (66 percent in 2014), while in India it remains constant (57 percent in 2014).

The necessary move towards gas

These data highlight the urgent need, especially in China and India, to change their energy mix, moving from the massive use of coal towards the "cleaner" and cheaper—even compared to oil—option of natural gas, which makes up only 6.2 percent of Beijing's and New Delhi's energy mix. Since May 2014 the People's Republic of China and the Russian Federation have signed two major natural gas contracts, gas to be transported through the Altai (Western Route) and Power of Siberia (Eastern Route) pipelines. A number of other new agreements have also been made to strengthen the strategic Russia-China alliance. According to Tsvetana Paraskova, during the next 20 to 30 years China will be the main driver of demand for natural gas, as has been the case for oil in the last 20 years, until it exceeds U.S. demand between the late 2040s and early 2050s. The same trend is also confirmed by Wood Mackenzie, whose report indicates the tripling of current demand for as by 2035. For Neil Beveridge at Sanford C. Bernstein & Co., China's gas market has entered a new "golden age," thanks to governmental stimulus policies, the effects of which can already be clearly seen. In late August 2017 demand had already exceeded that of the entire previous year by 18 percent. Estimates for 2020 suggest that consumption will reach 300 bcm from 206 bcm in 2016, and then increase to 600 bcm in 2040.

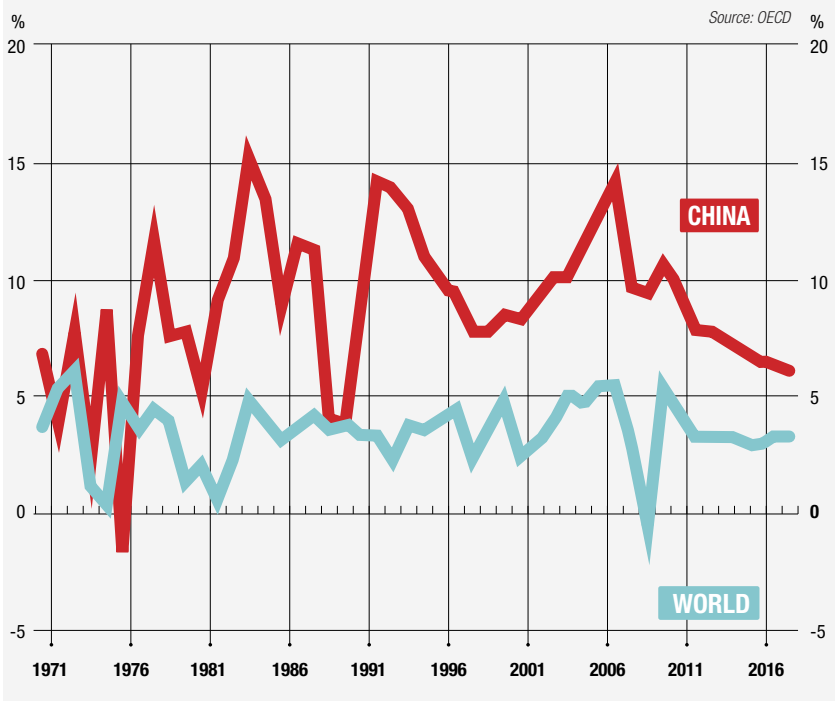
Despite an annual average increase in production of 6.6 percent or 65 bcm, taking total Chinese output from the current 140 bcm to approximately 200 bcm, the IEA forecasts increased consumption from the current 205 bcm to 340 bcm in 2022, 140 bcm of which will be imported. In 2016, only 70 bcm were imported.

If these forecasts are correct, the natural gas share of China's energy mix will increase from 5.9 percent in 2015 to 10 percent in 2020. The only scenario where growth in demand for natural gas could be weaker is if renewables grow much faster than expected, thus shortening the period of natural gas acting as a bridge fuel between fossil fuels and renewables.

Oil: data on strategic reserves and exports

In terms of Chinese oil production, the main domestic sources of supply lie in deposits in Northwestern and Northeastern China. The Daqing oilfield is particularly important. It is the fourth largest in the world with 5.7 billion tons of crude oil and 1 trillion m3 of natural gas, although its output →

GDP COMPARISON



As shown in the graph, the growth rate of China's real GDP has been much higher in recent years than the global GDP growth rate, confirming China as the main driver of global GDP.

is falling by approximately 7 percent per year, and more than two-thirds of its reserves have already been extracted. The oil major CNPC (Chinese National Petroleum Corporation) has recently discovered a new oil deposit in the Junggar Basin, in the Xinjiang region, with current resources estimated at 1.24 billion tons of crude oil and proven reserves of 520 million tons.

It is very complicated, however, to be certain about China's Strategic Reserves. In April 2017 the government officially stated a figure of 33,250,000 tons, equivalent to 243,000,000 barrels, an increase on the 31,970,000 tons in early 2016. According to the OECD model, China's aim is reserves equal to 90 days of net imports. The objective is therefore to accumulate 550,000,000 barrels by 2020.

In terms of demand for oil, the state-owned CNPC has calculated that a record of 11,880,000 b/d will be achieved in 2017, an increase of 3.4 percent year-on-year. Moreover, imports will grow by 5.3 percent, to a total of 7,950,000 b/d.

Data from the General Administration of Customs have the Russian Federation as the main supplier of crude oil to the People's Republic of China in the first half of 2017.

In July of 2017, China bought 1,170,000 b/d from Russia, compared with a monthly average for 2017 of 1,180,000 b/d (+16 percent year-on-year). In September 2017 imports reached a record of 1,545,000 b/d. Over the last six years, Russian crude oil exports to China have more than doubled, exceeding those of Saudi Arabia, following the 25-year contract worth USD 270 billion for 360,300,000 tons of crude oil, an agreement signed in 2014 between Rosneft and the CNPC. A recent agreement was also made by Rosneft and CNFC Energy, for a total of 60,800,000 tons per year until 2023. In 2017, Chinese imports from Angola also surpassed those from Saudi Arabia.

It is worth noting that in 2016, China not only became the main importer of crude oil in the world, overtaking the U.S., but is increasingly emerging as the main buyer of U.S. crude oil, having surpassed Canada. Unsurprisingly, notes the China expert Alessandra Colarizi, only Sinopec could reduce Washington's trade deficit with Beijing ($347 billion in 2016) by $10 billion per year.

According to the statistics in the BP Energy Outlook 2017, in the 2035 energy mix of the People's Republic of China, the importance of coal will reduce drastically, from the 64 percent of 2015 to 42 percent, while the share of natural gas will increase to 11 percent, roughly doubling. Oil will rise slightly from 18 to 20 percent. In 2016, the use of renewable sources increased by 12 percent, although they are only a bit more than 3 percent of the global energy mix.

The Institute for Energy Economics and Financial Analysis states that China has become the unrivaled leader in renewables, overtaking the U.S. following the investment of Eur 32 billion in renewables technology (a +60 percent increase in expenditure year-on-year). In addition, by 2021, it is estimated that China will have installed almost one-third of global capacity in wind, hydroelectric and solar power. Impact on employment is also worth a mention. According to the International Energy Agency's World Energy Outlook 2017, of 8,100,000 workers employed in the renewables sector, 3,500,000 are with Chinese companies while only 770,000 are at U.S. ones.

Analysis of oil futures priced in yuan and convertible into gold

In September 2017, the Chinese government announced its intention to issue oil futures both denominated in yuan and convertible into gold at the Shanghai International Energy Exchange (INE).

If this actually happens in the coming months, as Shanghai INE assessments in December 2017 seem to indicate, what would be the economic and geopolitical significance of this financial transaction, given that it would be implemented by the State, which recently became the main importer of oil in the world?

To attempt to contribute to a discussion whose purpose is not to sound the umpteenth death knell for the greenback nor to overlook any future global implications, the following clarifications must be made.

1 | According to some analysts, issuing these securities forms part of China's broader plan to replace the dollar, with other analysts suggest they enhance the role of the yuan as an international reserve currency;

2 | Oil futures are only one of the many securities released into the market to create an alternative or parallel cash option to the dollar, thus increasing China's strategic influence;

INVESTORS WANTED BY XI JINPING

After the Trump–Xi meeting of 8 November 2017, China took off majority restrictions of financial companies, of venture capital and insurance. A choice that, listening to the words of President Xi Jinping during the XIX Congress of the Chinese Communist Party, volute because the greater opening of the market to foreign investors would have been accompanied by a stronger presence of unions and above all the CCP. In the photo, a moment of the phases of the XIX Congress of the Party Chinese Communist.

3 | It is certainly true that the security in question is a way for China to buy oil (although a distinction must be made between physical barrels and futures), but it could also be used by crude oil producing countries to make purchases and investments in China.

The following prerequisites are necessary for the People's Republic of China's plan to take shape:

1 | Oil futures must always indicate the benchmark oil quality;

2 | The major oil producers will have to accept payments in yuan and/or physical gold, in turn to be invested in the Shanghai Stock Exchange;

3 | Physical gold will act as collateral, as an exchange guarantee.

Regarding the first point, after failed attempts by Tokyo and Singapore to establish an "Asian derivative crude contract," for now the only liquid crude futures in the region are ones for Oman crude dealt on the Dubai Mercantile Exchange. The data referred to above suggest that the crude oil quality benchmark of the gold-backed oil yuan futures could well be from the Russian Urals, although Saudi light crude or Iranian oil cannot be excluded.

On the second point, Iran has begun to accept the yuan as payment for its barrels, following the sanctions imposed on Tehran by the U.S. In 2017, Venezuela started to do the same, while in 2015, the Russian Federation negotiated some oil contracts in RMB.

As for gold, according to data published by the World Gold Council on November 2, 2017, China ranks 5th after the United States of America, Germany, Italy and France, with official People's Bank of China reserves of 1,842.6 tons. Because the quantity of gold has significantly increased over the last few years, some analysts suggest that this figure may be considerably underestimated.

Xi's new policy and the power of the RMB

Following Trump and Xi's meeting on 8 November 2017, the Chinese Ministry of Commerce announced that China would remove the restrictions on majority holdings in financial, venture capital and insurance companies. From now on, foreign companies will be able to hold up to 51 percent. How should this policy decision be interpreted?One possible answer is inspired by the words of Chinese President Xi Jinping at the 19th Congress of the Communist Party of China. Xi stated that opening the market more widely to overseas investors would be accompanied by the stronger presence of trade unions, and especially the CPC, in Chinese facilities producing materials and more. Therefore, as noted by the economist Pasquale Cicalese, it is an exchange. On one hand, the U.S. economy will be granted access to the massive savings of China, albeit under the control and direction of the Party. On the other hand,, the yuan will be internationalized, and the gold-backed oil yuan will be launched.

To date, having overtaken the Swiss franc, the RMB is the fifth most widely used currency in the world and is about to overtake the yen and the pound sterling. De-dollarization is undoubtedly still a long way off, although it seems that the real losers will be the option of war, and the euro.

Investments/The overseas destinations of Chinese capital

The Dragon Shops

Chinese investment worldwide has gone from USD 55.9 billion in 2008 to USD 196.15 billion in 2016. This increase is due to one main objective: acquiring know-how. The yuan now favors Singapore, Hong Kong and Africa over the United States

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The Chinese authorities' restrictions on capital outflow have made themselves felt, with Chinese overseas direct investment (ODI) falling by 40 percent year-on-year in the first ten months of 2017. This was noted in the recent report by the Economist Intelligence Unit (EIU, the think tank of the prestigious British magazine *The Economist*), ranking the 60 largest economies in the world in terms of attractiveness for Chinese enterprises. According to the EIU analysts, these are temporary measures, however. Chinese ODI flow remains consistent. Greater expansion of Chinese acquisitions around the world will continue in the coming months and years. Why is this?

Towards modern, advanced industry

The answer lies in Beijing's plans, which aim to transform the Chinese economy into a modern, advanced industry. "China is doing best in manufacturing. Focusing on an archaic sector has required its modernization," said Michele Geraci, Assistant Professor of Finance at the Nottingham University Business School China and Director of the Global Policy Institute. "That's how China came up with Made in China 2025, the plan to create an advanced manufacturing sector and focus on the environment and innovation. No more T-shirts. Artificial intelligence, robots and electric cars instead." Chinese investments are guided by a strict logic: acquiring the skills to assert leadership in the technology of the future. There are two types of skills: "On one hand, domestic capacity. On the other, acquiring know-how from foreign industries," Geraci explained. "Where that doesn't happen, China will need to go into M&A (Mergers and Acquisitions)." Beijing intends to direct investment along two main lines. Infrastructure, i.e., ports and railways. Put simply, the Silk Road, the Belt and Road Initiative (BRI or OBOR, One Belt One Road), USD 900 billion of infrastructure links by land and sea between Asia, Africa and Europe, as announced by Xi Jinping in 2013. This is the new "Chinese globalization" project, involving 60 countries (mostly developing countries). China is entering a "new era" of socialism with Chinese characteristics, with an ultimate aim of becoming a fully-developed economy by 2049, 100 years after the creation of the People's Republic of China (PRC). The Congress of the CCP in October added Xi Jinping's thought to the statutes, and reconfirmed him as General Secretary. Opposing Xi means opposing the Party. The statutes now also include an indication of the Chinese President's two main political strategies: the Belt and Road Initiative and supply-side structural reform. The latter is the key element of the "New Normal" strategy, aimed at improving productivity and the Chinese industrial fabric, with the objectives of cutting overcapacity and Made in China 2025 at its core.

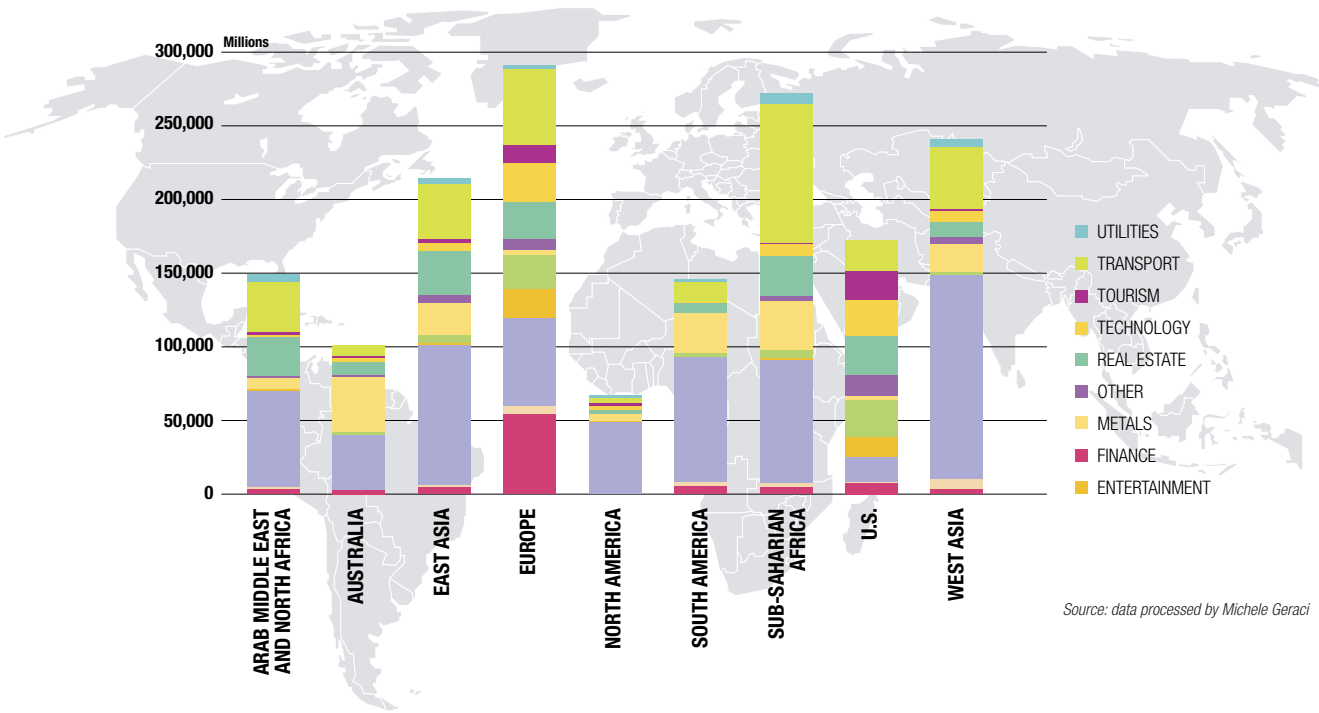
Beijing's restrictions

Chinese investment worldwide has seen an incredible increase, from USD 55.9 billion in 2008 to USD 196.15 billion in 2016. But concerns over the financial system led the Chinese authorities to impose restrictions. "Non-financial outbound Chinese investment at September 30, 2017 stood at USD 78.3 billion, down 41.86 percent on the first nine months of 2016," explained Alberto Rossi, an analyst at CeSIF – Centro Studi per l'Impresa, Fondazione Italia Cina (business think tank, Italy-China Foundation). In November 2016, the Chinese government imposed restrictions on overseas acquisitions, fearing an outflow of capital. The climate for Chinese investors has worsened. The policies controlling "unreasonable" investments have been strengthened, in what the head of the Chinese State Administration of Foreign Exchange (SAFE) Pan Gongsheng called "roses with thorns" (after the record USD 183 billion and USD 225 billion in acquisitions in 2016). In recent years, foreign exchange reserves have been drained, weakening the yuan. The latest restriction, ordered by the State Council on August 18, aims to place stricter limits on acquisitions in sport, hotels and entertainment. These fields give rise to speculation and are often used to hide capital outflow overseas. The Chinese authorities have classified investments into three categories: "prohibited," "restricted" and "supported." Concerns over the financial system, especially in terms of capital outflow overseas, have led the Chinese authorities to curb investment. This affects mainly private business conglomerates, also known as "white rhinos" and "financial crocodiles," which are hampered by restrictions on loans for overseas acquisitions," said Alberto Rossi. "As well as fears of capital outflow, there are now concerns over falling foreign exchange reserves. In January, for the first time since February 2011, the reserves fell below the psychological threshold of USD 3 trillion (compared to USD 4 trillion in June 2014)," Rossi noted. Two factors are pushing the Chinese giants to go shopping overseas: the prospect of increasing revenue by entering new markets and acquiring new technologies. Investments falling under OBOR are a third factor.

Bye-bye United States, hello to the new favorites, Singapore and Hong Kong

The EIU report shows that Singapore has overtaken the United States as the most important destination for Chinese investment. Then come Hong Kong, Malaysia and Australia. "Malaysia and Singapore are establishing themselves as attractive destinations for projects related to OBOR, based on an investment environment characterized by opportunity and low risk," the report said. Six industries were considered: auto, consumer goods, energy, financial services, telecommunications and healthcare. The Made in China 2025 plan identifies ten strategic sectors for investment to transform China into an industrial superpower (IT, robotics, aerospace, shipbuilding, electric cars, energy, agriculture, new materials, biopharmaceuticals), each requiring the massive investment typical of high-tech industries. The development of artificial intelligence also plays a major role. The Chinese internet giants, such as Tencent and Alibaba, are the main investors in e-commerce startups in Asia. (Tencent, the first Chinese high-tech →

CHINESE INVESTMENTS WORLDWIDE. The map shows total Chinese investments (debt and equity) from 2005 to date, dividing them by geographical region. Each column is divided by industry.



Source: data processed by Michele Geraci

company to break through the ceiling of USD 500 billion dollars in stock market value, together with Baidu and Alibaba makes up the BAT triumvirate of Chinese high-tech, an open challenge to Silicon Valley.) From the previous report published in 2015, while developed countries are the main destinations for Chinese investors, developing countries have recorded the greatest flows.

Why is this? Two factors make them attractive. On one hand, incentives for investment in OBOR-related infrastructure, on the other, the stabilization of raw material prices. The ranking rewards countries such as Malaysia (up from 20th to 4th), Kazakhstan (from 51st to 12th), Thailand (from 38th to 18th), and Iran (from 52nd to 19th), while it penalizes others, including the U.S. (down from 1st to 2nd) and India (from 28th to 36th), both of which are suffering from diplomatic tensions and trade frictions with Beijing. According to the Chinese Ministry of Commerce, non-financial direct investment in countries involved in OBOR projects grew by 18.2 percent to USD 14.8 billion in 2015, falling 2 percent to USD 14.5 billion in 2016, then dramatically dropped 13.7 percent in the first nine months of 2017. Of course, not all projects falling under OBOR have the same luck. An investigation conducted by the Financial Times and the Center for Strategic and International Studies (CSIS) revealed some of the issues faced by Chinese projects overseas. Failed railway projects in the U.S., Venezuela, Mexico, Myanmar and Libya were worth USD 47.5 billion according to *Financial Times* estimates, while ongoing ones in Laos, Saudi Arabia, Turkey and Iran come to USD 24.9 billion according to CSIS estimates. In total, the value of the eighteen high-speed projects, including those under construction, those that have been announced and one already completed, the Ankara-Istanbul line, is now more than the value of the Marshall Plan, now worth around USD 130 billion (USD 13 billion at the time).

But there are doubts over their financial viability. For example, Chinese standards don't seem to be welcomed everywhere. One of the most controversial projects is the railway line from Belgrade to Budapest, stopped first by the European Union in February to investigate alleged breaches of E.U. rules. According to the EIU report, Italy, in 35th place in 2015, has now fallen to 50th. Even so, the worst performer is the United Kingdom. Following the decision to leave the European Union, Britain has dropped from 28th to 40th place. The countries keeping high positions in all six sectors are the United States, Japan, India, and Iran. Although the United States and Japan remain attractive destinations offering opportunity to investors to acquire technology and brands through M&A operations, India and Iran are markets with high growth rates where Chinese companies can compete. For example, two giants are already in India: Huawei, the leading telecommunications company, and Xiaomi, the fifth largest smartphone manufacturer in the world. Among the BRICS countries (the emerging economies of Brazil, Russia, India, China and South Africa), Russia has moved from 24th to 10th place, based on commodity price increases, while South Africa has risen six places to 44th. Just like India drop in ranking mentioned above, Brazil fell 19 places to 53rd. In the automotive sector, Japan is 1st (of the E.U. countries, Germany comes in 9th). In consumer goods, the United States leads (in the E.U., Romania is 10th).

In the energy sector, India is the country that attracts the most Chinese capital. Things are changing in the oil and gas sector, with a greater flow of Chinese ODI in countries with large mineral deposits. The three largest Chinese oil companies – China National Petroleum Corporation (CNPC), Sinopec and China National Offshore Oil Corporation (CNOOC) – have invested mainly in North America (the biggest deal was the acquisition of 33 percent of Devon Energy in 2012), Central Asia (especially in Kazakhstan), Latin America (mainly in Brazil and Venezuela, where China invested $1.5 billion in PDVSA in 2016). However, there seems to be reluctance on the part of Chinese companies to invest in Latin American businesses, known for their high risk of default. In the Middle East, the two largest oil producers, Saudi Arabia and Iran, have attracted little attention from Chinese investors. Analysts note that the increase in sanctions should nevertheless increase investment in Iran. In the financial services sector, the United States takes first place, followed by Hong Kong, Singapore, Sweden, and several European countries: Switzerland, Slovakia, Poland, Norway, plus the UK and Canada. In the healthcare sector, the US and Japan lead, with the bottom five places taken by European countries: Germany, Sweden, Norway, Denmark and France. Telecommunications is dominated by Japan, the U.S. and India.

The importance of a precise definition of "investment"

For Michele Geraci, in the world map of Chinese investments the top spot is taken by Africa, followed by Europe and the United States. "Making a list of Chinese investments around the world is extremely complex," noted Geraci. Why is this? The definition of "investment" varies from organization to organization. The Organization for Economic Co-operation and Development (OECD), the Ministry of Commerce, People's Republic of China (MOFCOM) and the European Union all have different criteria. "Investments can be in shares, corporate debt, or government-issued bonds," the analyst noted. "China has invested USD 3 billion in the foreign exchange reserves of other countries—in Europe, Japan and the U.S.—where Beijing has bought a billion government bonds. Foreign exchange reserves are almost never taken into account." There are also green field investments, where a factory is opened with no investment in an M&A operation. For example, "The OECD also considers the 'retained earnings' of a company purchased many years earlier as an investment," Geraci went on. What does that mean? "Say a Chinese investor purchased a company last year or 20 years ago. In the current year, to which the hypothetical relationship applies, the company records profits of $1 billion and pays dividends of $300 million. The difference between profits and dividends ends up in 'retained earnings,' regarded as direct investments," Geraci explained. "This money should have gone back to the parent company, but remains within the organization. In other words, it is considered a non-return flow." Then there's a convention that applies to M&A operations. "It's only an investment if the proportion of share capital is more than 10 percent," the analyst continued. For example, the People's Bank of China (PBoC) holds almost 2 percent of the shares in Generali, Telecom Italia, Eni, Enel, Fiat and Prysmian. However, these holdings are not considered direct investments. "The paradox is that – say – if the Chinese central bank increased its holding by 1 percent per year, the day it reached 10 percent, it would suddenly be recorded as ODI," Geraci suggested. Michele Geraci has analyzed total Chinese investments (debt and equity) from 2005 to date, dividing them by geographical region: Middle East and North Africa (around USD 150 billion); Australia (around USD 100 billion); East Asia (around USD 210 billion); Europe (around USD 290 billion); North America (around USD 60 billion); South America (almost USD 150 billion); Sub-Saharan Africa (around USD 270 billion); United States (around USD 170 billion); West Asia (around USD 240 billion). Each column is divided by industry: utilities; transport; tourism; technology; real estate; other; metals; finance; entertainment.

"The region with the most Chinese investment since 2005 is Africa, with around $330 billion: $280 billion in Sub-Saharan Africa and $50 billion in North Africa," the analyst explained. "Investment is concentrated in Ethiopia, Algeria, and Nigeria. There is a high concentration in infrastructure: transport and energy. The numbers speak for themselves. In Africa, poverty started to reduce when China began to invest. By chance or cause and effect?" Geraci noted. Europe comes next, with USD 280 billion. The old continent "is interesting for Chinese investors especially for its know-how and manufacturing, driven by the need to acquire new technologies in line with the objects of the Made in China 2025 Plan."

The drive to acquire know-how is also behind the approximate USD 170 billion invested in the United States. China is essentially interested in two

THE EXPANSION OF TOURISM
The Chinese invest in Europe especially to acquire technological know-how they can transder to China. Tourism is also a large-scale sector. In the picture, Chinese tourists at the 34th Harbin International Ice and Snow Festival, in China.

things when investing in Africa: energy and transport (with companies taking orders for infrastructure developments). When investing in Europe, there is no need for new infrastructure, so the Chinese buy know-how. This is demonstrated in recent acquisitions from Germany's Kuka (USD 4.5 billion) to Switzerland's Syngenta (USD 43 billion), and the recent purchase of Esaote, an Italian gem in the manufacture of medical devices, by a consortium of six Chinese partners.

To Europe in search of know-how

Chinese investment in Europe from 2010 through 2016 rose from USD 20 billion to USD 35 billion. In 2016, Italy was confirmed as the third European country destination for investment from Beijing, with USD 12.84 billion in stocks. As noted above, the Chinese invest in Europe mainly to acquire know-how and transfer technological expertise to China, where it is needed to complete the move towards quality manufacturing. Chinese purchases in high added value technology sectors are reflected in the growth in overseas investment in the manufacturing sector, rising from 13.7 percent in 2015 to 19.4 percent in 2016, according to data from CeSIF, the think tank at the Fondazione Italia Cina. Compared with China's 2016 USD 35 billion investment in Europe, the USD 8 billion of European investments pale in significance. This clear distinction has revived the issue of reciprocity. A crisis point occurred in 2016 during the aforementioned purchase of 35 percent of Kuka, a German robot manufacturer, by China's Midea. The purchase was taken badly by Angela Merkel, resulting in an anti-predatory protectionist measure to defend the strategic interests of Europe, as announced by the President of the European Commission Jean-Claude Juncker at the request of Germany, France and Italy. "The right way, although an imperfect one," commented Alberto Rossi. "Discussing this matter is essential, although I think it would be almost impossible to achieve full reciprocity with the Chinese. The wind changed in Europe, wanting to go for more controls, and in China, where a restriction was imposed on capital outflow, which will result in increased monitoring of investments. Despite the central role of the Belt and Road Initiative, which should be fully implemented with a view to investment in the next decade, this is not the right time for mutual investments, both from China to Europe and from Europe to China." China has invested around USD 22 billion in Italy (including USD 7 billion in Pirelli alone) from 2008 to date. "The vast majority of this is acquisitions, with very few greenfield investments," Geraci commented. What does this mean? "That the Chinese have not opened factories or research centers in Italy, other than in very rare cases. Instead, they have bought existing companies. This USD 22 billion has added no value to our economy. In fact, it's only an exchange between shareholders. The Chinese just want to acquire our know-how," the analyst explained.

The Silk Road: A platform for relations

According to MOFCOM data reported by CeSIF, 12.3 percent of non-financial Chinese investments come under the Belt and Road Initiative. In the first nine months of 2017, overseas Chinese investment amounted to USD 78.03 billion, while investment in the OBOR was USD 9.6 billion. "It's important to note that investment in the Belt and Road Initiative is still not high compared to total overseas Chinese investment," said Rossi. "This means that, even before a major investment plan, OBOR is now mainly the construction of a platform for relations. Its main objective is not so much the development of new logistics and infrastructure platforms – this can only be the first stage, but a genuine new Chinese globalization plan, focusing on defending and protecting Chinese interests overseas. In terms of Sino-European relations, it will also be important to see if it's possible to identify how to develop for mutual benefit and win-win cooperation. "There's no win-win with the Chinese," in the view of Alberto Forchielli, managing partner of the Mandarin Fund. "The Sinocentric nature of the Chinese model brings no benefits to other countries." He emphasized the risks: "Becoming an imperial power has costs as well as benefits. From Venezuela to Ecuador, from Africa to Southeast Asia, the Chinese have invested with no real return. Anyway, it is more reasoned investment than America's, with them fighting wars in Afghanistan and Iraq, ending up giving their adversaries an advantage." The American model, especially in the last 20-30 years, is "fundamentally military," Forchielli noted. "Instead, the Chinese model is economic and political, with less investment, less risk and higher returns," he went on. The U.S. drop bombs and make many enemies. The Chinese do not bomb, they buy and spend less. The USD 63 billion loaned to Venezuela is the same amount that America spends in one day of war. The new Silk Road is a "priority," Xi Jinping has said. The objective is to "further open China through links towards the east and west, by land and sea." "OBOR is an instrument of soft power," Michele Geraci said. "The aim is to export manufacturing overcapacity to overseas markets, especially in certain industries (such as steel), and is linked to the reform of state-owned companies. However, the impact of OBOR on the Eurasian economy could be huge. Building infrastructure in poor countries produces immediate results, because it's a start from scratch. It is therefore positive investment. For example, in Africa, China is building by exchanging resources, contributing to the stabilization of the region," Geraci said. What about the impact on the European economy? "It will be interlocutory, after the protectionist measures announced by Juncker. And Italy? "At most, we can aim at promoting the port of Trieste," Geraci admitted. Alberto Forchielli thinks European protectionism won't be easy to apply. "For Eastern European countries, Chinese investment is like manna from heaven. Beijing wants to conquer Eastern Europe to expand westward. The liberal Northern European countries are hostile to protectionism, and do not view these kind of maneuvers favorably."

portfolio

CHINA AT THE OLYMPICS

Edition				
1952	Helsinki	0	0	0
1984	Los Angeles	15	8	9
1988	Seoul	5	11	12
1992	Barcelona	16	22	16
1996	Atlanta	16	22	12
2000	Sidney	28	16	14
2004	Athens	32	17	14
2008	Beijing	51	21	28
2012	London	38	27	26
2016	Rio	26	18	26

1

Olympians of the Celestial E

The People's Republic of China first took part in the Olympics in 1952. On that occasion, China failed to win a single medal. Then, because of political status disputes, the PRC sat out the games for 32 years, finally returning to the Los Angeles games of 1984. Since then, the country's fortunes have improved dramatically, culminating in its great success at the Beijing Olympics in 2008. There, China was first in total medals won with 100 (51 gold, 21 silver and 28 bronze).

2

portfolio

mpire

3

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7

1 | Wu Minxia, diver. Between 2004 and 2016, he won 7 Olympic medals (5 gold, one silver and one bronze).
2 | Zou Key, gymnast. Between Beijing 2008 and London 2012, he won 6 Olympic medals (5 gold and 1 bronze).
3 | Zhong Man, fencer. He was the first Chinese athlete to win a gold in the saber (Beijing 2008).
4 | Wang Nan, table tennis. From 2000 to 2008 he won 4 gold and one silver.
5 | Liu Xiang, track and field. The reigning world champion, world record holder and gold medalist in the 110 meter hurdles at the 2004 olympics.
6 | Sun Yang, swimmer. The first Chinese male swimmer to win gold at the Olympics. In London 2012, he won gold medals in the men's 400 meter free style and the 1500 meter freestyle.
7 | Zou Shiming, boxer. He won the first Olympic gold in boxing in Beijing 2008.

ROBERTO
DI GIOVAN
PAOLO

A Janus-faced View on the Environment and Development

China seemed to have made its "Great Leap Forward" during the last days of the Obama presidency, when Xi Jinping appeared side by side with the U.S. President to announce that their two countries would formally ratify the Paris Agreement, better known as COP21. Until then, the deal had been struggling to get off the ground, and it had seemed that getting the adherence of the required number of countries representing 55 percent of total global greenhouse emissions would be a long and difficult process. After September 3, 2016—within less than a month and with all the members of the European Union plus a number of important BRICS countries (Brazil, Russia, India, China and South Africa) having decided to ratify the agreement—that target was reached, Obama won acclaim just as he was leaving the White House, and China earned global respect as a "non reluctant" superpower. But China is actually acquiring an even more significant role with Donald Trump, and not always for noble reasons. This is simply because the current U.S. President's "denial" theories (on climate change in this case) are giving a boost to Beijing's "official" policies. But these policies seem to be Janus-faced, with one attractive and innovative face and another that is more in line with Trump's "laissez faire capitalism" in many parts of the world where China is active with its capital and its new entrepreneurs.

The risks and opportunities of rapid development

The starting position certainly seemed to present an impossible challenge. In the last thirty years, China has endangered virtually all its water resources, and a quarter of its agricultural land is threatened by desertification. China's basins are increasingly at risk due to high levels of hazardous chemicals and salts, as are several large and glorious water courses like the Yellow River. And water is only one of the serious environmental challenges facing the country. We also need to consider the energy issue (China accounts for 20 percent of global energy demand) in a country that is short in oil but rich in coal, which, according to the experts, China burns in greater quantities than the United States, Japan and the European Union. In addition, there is the problem of environmental pollution caused by China's rapid industrialization, as well as by specific highly polluting production processes such as steel manufacturing.

Efforts to protect the environment

With the passing of time and its growing economic links, China has opened itself up to new ideas, and one of the documents addressing the topic of "the environment and sustainable development," presented at the recent 19th Congress of the Chinese Communist Party, listed the changes that have been made on this front in recent years. These include six environmental protection laws, ten laws on natural resources, over thirty environmental protection decrees, ninety government regulations on environmental protection, 430 national regulations, and over a thousand local laws and decrees. Then there is the news that over 84,000 heavily polluting small businesses were shut down, and that over 90 percent of existing factories are complying with environmental regulations. All this represents a real leap into modernity, a leap that also received recognition by external experts from NGOs at the Bonn COP23 conference held in November 2017. Yet the picture is not entirely rosy. William Laurance, an Australian scholar who has published several articles on the subject, and one in particular titled "The Dark Legacy of China's Drive for Global Resources" featured in "Yale Environment 360," takes the following view. While he doesn't deny China's green conversion and large-scale investments in wind and solar power, as well as its extensive tree planting efforts to address the problem of air pollution, Laurance also highlights how this domestic policy all too often acts as a filter to disguise China's different image around the world, especially with its investments in nations that, unlike China itself, are still "developing countries" and could be said to fall below the global poverty line, particularly in Latin America and Africa.

One policy at home and another policy abroad

Wherever China has brought its legal interests, sometimes on the fringes of legality, there is always a need to build transit routes. Here Chinese entrepreneurs, particularly in Africa but also in Latin America, don't focus too much on details such as securing sustainable local development or ensuring that infrastructure doesn't alter the bio-anthropological conditions of the areas in which they "buy their goods." We are talking about the 10 billion dollar railway projects in East Africa, the mines and deforestation in the Congo basin, the large-scale hydroelectric dams in Congo and Ethiopia, and the 5,000 kilometer railway line—in Latin America in this case—running across forests and savannas to transport soy, wood and other resources up to the Pacific coast from which they are shipped to China. We still don't know whether the laxness of the past will be replaced with the same environmental awareness that seems to have become the accepted rule at home. But if this is not the case, and if Trump's isolationism will enable freedom of action in other regions, especially in the Pacific area, we would face a great and dangerous paradox. We would have a superpower fighting to protect its environment at home, after years of unrestrained industrial and economic growth, and that same superpower growing outside its borders without environmental constraints, taking full advantage of an auspicious time with little inclination towards self-restraint. The rush to invest, occupy and take advantage of the current favorable media and diplomatic trends would position China at the "top of the class" in terms of achieving the goals of the Paris Agreement domestically, but at the same time it would undermine achievement of these same goals in areas of the world that are inhabited by 60 percent of the world's population and produce 30 percent of the global GDP. This would be a truly negative outcome for humanity. And the greatest paradox of all is that only the U.S. can restrain this drive.

Roberto Di Giovan Paolo, a journalist, has written for, among others, ANSA, *Avvenire* and *Famiglia Cristiana*. He was Secretary General of the Italian Association for the Council of European Municipalities and Regions, and he is a lecturer at the University of International Studies of Rome.

GEMINELLO ALVI

Xi Jinping's high-risk Ambitions for China

Borders of China have remained unchanged at least since the time of the Roman Empire. The Romans may be long gone, but imperial China lives on, governed by a despotic communist party that has nevertheless managed to engineer a boom. And herein lies its geopolitical uniqueness. China's determined defense of its borders has sparked wars with most of its neighbors since 1949, and yet this undemocratic nation is a powerhouse of the global economy. These two factors have prevailed for thousands of years, and are crucial to any understanding of China's future and the strategies of President Xi Jinping.
October's nineteenth Communist Party Congress made much of the fact that China looks set to exceed its ambitious 6.5 percent GDP growth target in 2017. But China watcher Loren Brandt, professor of international trade and economics at the University of Toronto, says this figure is less impressive than it looks. Manufacturing growth averaged 2.6 percent a year from 1998 to 2007, but has since slowed almost to zero. The gap between rising output and waning productivity is the result of massive state subsidies that have disproportionately benefited state-owned businesses since 2008.
This is another thorny problem, and another reflection of China's long authoritarian tradition. Consumer spending has risen by only 2.5 percent of GDP since 2010, which is not much considering that urban disposable incomes have increased by 7.3 percent.
President Xi has obviously decided that any consumer-focused strategy will be hard to achieve, and is focusing on flexing China's muscles internationally while maintaining domestic stability.

In the recent 19th National Congress of the PPC, as expected, Xi Jinping was confirmed in his role of secretary of party and president of the country.

State aid set to continue

The ruling party still describes itself as communist, and still draws up five-year plans, so state investment is likely to remain a constant. This includes the huge New Silk Road project in cooperation with other Eurasian countries, as well as plans to support the aerospace, robotics and electric vehicle sectors with subsidies, easy credit and low taxes.
In this scenario, Donald Trump's claims of a falling bilateral trade deficit are the least of China's problems. It can deal with this, and is unlikely to experience a lower total deficit than the United States unless interest and domestic savings rates rise significantly.
The more serious complications for the U.S. and China are geopolitical. China needs to expand its influence in southeast Asia, the Pacific and Siberia as part of its strategy of central planning, and to manage the geopolitical tensions born of globalization.

The transition to a global nexus of power

As China becomes even more global and invests in the domestic and international economies, it is also expanding its interests abroad. This has been a factor in territorial disputes in the South China Sea, the North Korea crisis, and tensions with Japan and India, none of which will be easy to resolve.
Trump's America First policy and China's attempts to fill the resulting power vacuum are only a part of this problem. Rising tensions over North Korea have damaged China's alliance with the U.S., its relationship with India remains unresolved, and expansionism is an unwieldy process. The country will have difficulty obtaining the resources it needs unless it can increase productivity. Overdependence on state subsidies has thwarted more than one attempt at global hegemony in the past, as witness the collapse of the Soviet Union. China's future will also be complicated by its focus on consumer spending, and it must settle its long-standing neighbor disputes if it is to become a nexus of global power.

Geminello Alvi has worked at the Bank for International Settlements in Basel, he has collaborated with Espresso Group and with *Corriere della Sera*. He has also been Councilor of the Ministry of the Economy.

MARKET DEVELOPMENTS

Prepared by Anna Capalbo, Simona Serafini,
and Francesca Vendrame - Eni

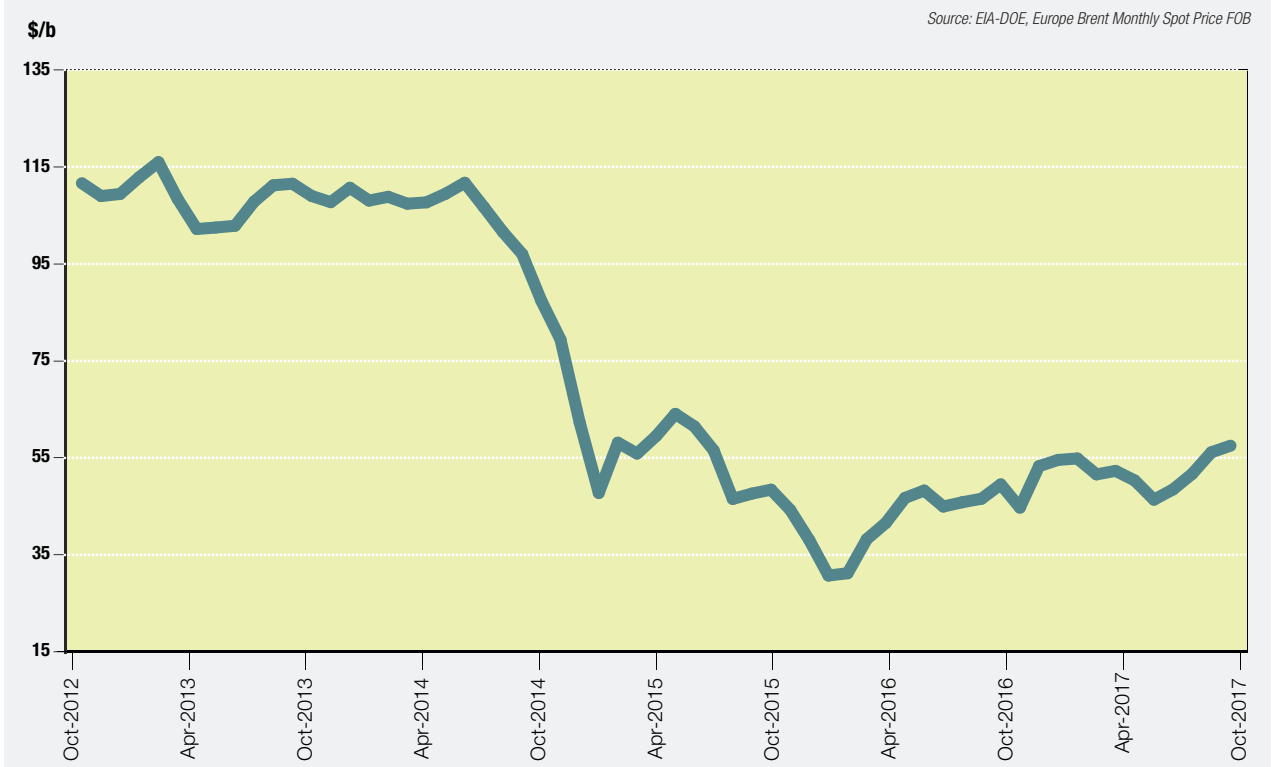
Welcome Back to the Sixties

OIL PRICES

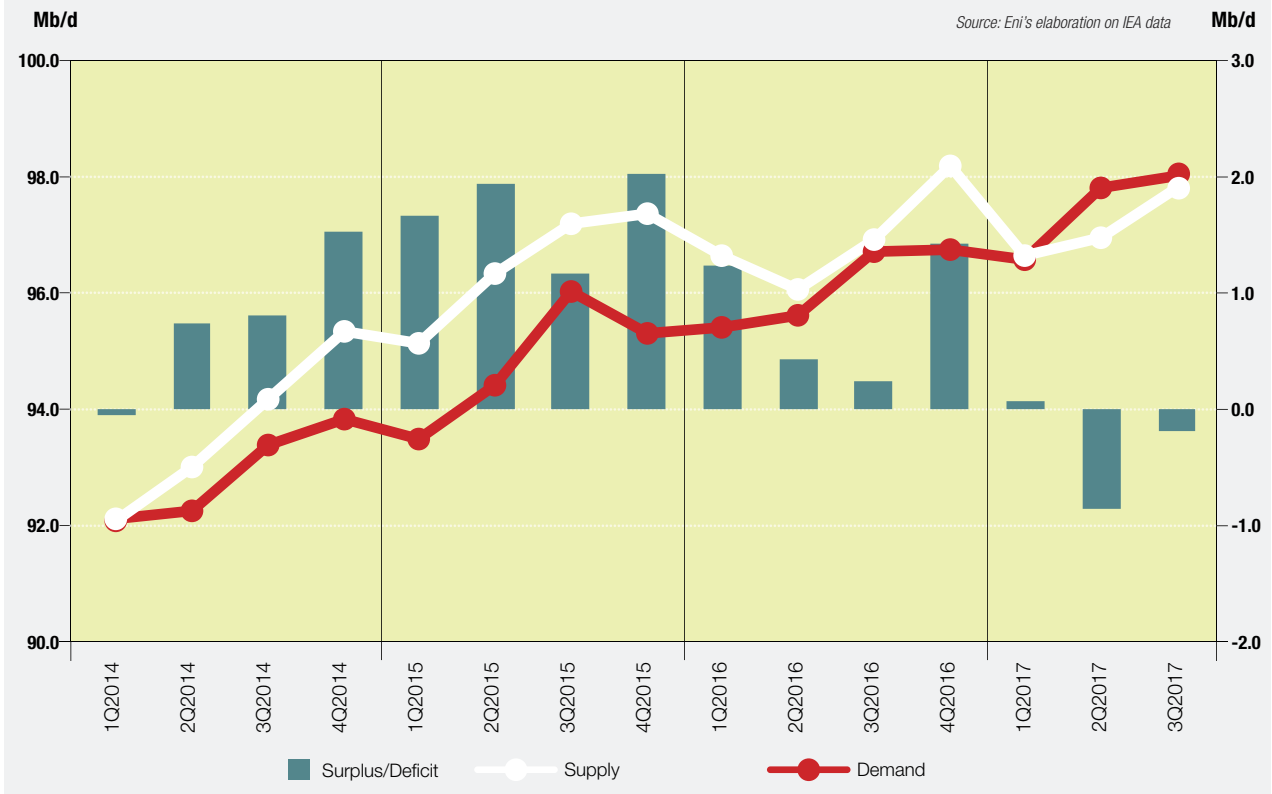
Crude price rises above USD 60/b, good for OPEC, perhaps too good for the U.S.?

Brent crude continues its rise after breaking through the USD 55/b mark in October and rising above USD 60/b in November, the highest value since May 2015. In parallel, the backwardation price structure (lower futures prices) is strengthening, confirming the current bullish trend. Crude prices are sustained by the output cuts of large producers who since the beginning of the year have shown high levels of compliance (around 90 percent for OPEC countries and over 80 percent for non OPEC countries) and by the decision to extend the agreement until the end of 2018. In order to maintain a balanced market, at the OPEC meeting of November 30, in addition to confirming the output cuts agreed to at the end of 2016, Libya and Nigeria were also asked to cap their production and not to exceed 2017 levels. Market confidence is also boosted by shrinking stockpiles. At the end of September, total OECD stocks dropped below the threshold value of 3 billion barrels, turning the 40 mb surplus at the beginning of the year into a deficit of around 100 mb. Specifically, U.S. crude stocks dropped (from the 30 mb surplus to the current 36 mb deficit) and, from July, European stocks returned within the range for the last 5 years. The world oil report for the 3rd quarter closed once again with a deficit (-0.2 mb/d), albeit smaller than that for the 2nd quarter (-0.9 mb/d), due to increased supply, particularly from the U.S. and Canada. There are renewed geopolitical tensions, with widespread supply disruptions, which resulted in a reduction of around 0.4 mb/d in October compared to last year. Interruptions in northern Iraq, Venezuela's sharp decline and challenges in Nigeria are only partially offset by recovery in Libya's production. Since mid-October there has also been optimism among financial operators with expectations of price increases and total net long positions (Brent and WTI) at an all-time high (over 1 million contracts). Markets are continuing to focus on growth figures for U.S. output, the most significant bearish factor, as shown by the wide discount between WTI and Brent, which in recent months has been around USD 6/b.

BRENT PRICE



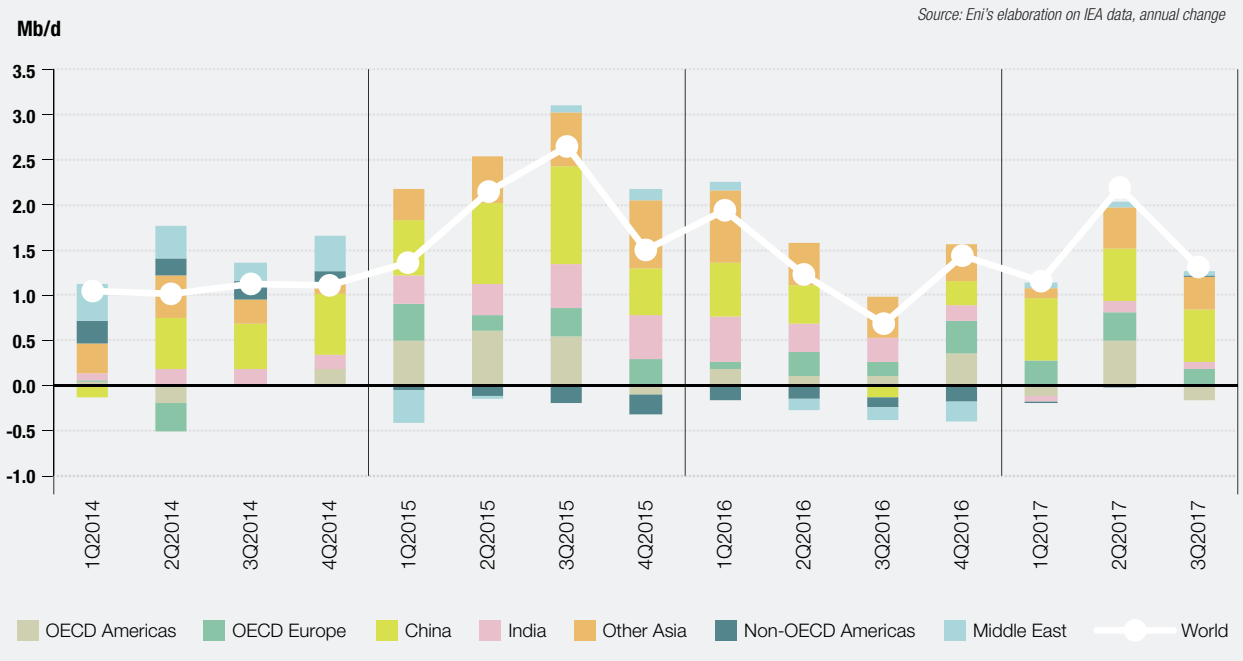
SUPPLY/DEMAND BALANCE



OIL DEMAND

In the 3rd quarter of 2017 growth in demand fell compared to the previous quarter (up 1.3 mb/d during 3Q17 from 2.2 mb/d in 2Q17). Most of the slowdown was due to decreases in U.S. consumption primarily linked to hurricanes Harvey and Irma. In the U.S., demand for gasoline and jet-kerosene slowed growth, while demand for LPG fell. Demand for gasoil bucked the trend, due to the positive effect of post-hurricane reconstruction activities and growth in industrial production (up 1.2% in August YOY; up 1.6% in September YOY). Europe continues to contribute positively to growth in global demand even though there has been a slowdown compared with the first half of the year due to the negative impact of higher final prices. In the 3rd quarter, growth in global demand was again concentrated almost exclusively in the non OECD area (up 1.2 mb/d). Preliminary data for China show significant growth (up 0.6 mb/d 3Q17 YOY), in line with the overall growth forecast for the year. In September (YOY) demand rose by almost 1 mb/d, driven by high refinery runs due to start up of new capacity, with part of the output ending in product storage. According to some sources, there has also been increased stockpiling of gasoil – non automotive – in China to take advantage of expected price rises due to the introduction of tighter specification between November 2017 and January 2018 (reducing the amount of sulfur content from 50 ppm to 10 ppm). Gasoil, used in the construction, mining, fishing and agriculture sectors, accounts for 30 percent of China's total gasoil consumption. India's economy appears to be performing well and the preliminary data for September show a marked improvement compared to August. India's demand experienced the highest growth since August 2016, with diesel bouncing back after dropping in August due to the large-scale floods that struck the country during the previous months, drastically reducing commercial activity.

ANNUAL DEMAND CHANGE BY SELECTED AREAS



OIL SUPPLY

Global oil supply rose to 97.8 mb/d (up 0.9 mb/d from 3Q16) in the 3rd quarter. Compared to a year ago only non-OPEC countries increased, while OPEC was slightly down.
U.S. crude (up 0.6 mb/d) is driving the non-OPEC increase for the second consecutive quarter, with tight oil close to 5 mb/d. Canada's strong performance continues (up 0.2 mb/d), having grown steadily for over a year. After recovering the volumes lost as a result of the 2016 wildfires, output from oil sands has grown by over 100 kb/d in September. Output is rising in Kazakhstan (up 0.3 mb/d from 3Q16) due to positive results from Tengiz. Russia remains stable, at just under 11 mb/d in line with OPEC-non OPEC agreements, while its compliance during the 3rd quarter remained steady at over 100 percent. Mexico's output suffered a sharp decline (down 0.3 mb/d from 3Q16) hitting a 30-year low (1.9 mb/d), mainly due to the effects of the August and September hurricanes. OPEC crude supply was sharply down again (down 0.2 mb/ from 3Q16), in compliance with agreed output cuts since the beginning of the year. Saudi Arabia, one of the most disciplined countries alongside Qatar and Kuwait, kept production below 10 mb/d (down 0.6 mb/d from 3Q16), with compliance averaging 120 percent. During 3Q17, combined output from Libya and Nigeria, both exempted from supply cuts, recovered over 0.9 mb/d from last year's lowest levels. In October, Libya reached the 1 mb/d target again. For 2018 total combined output by Libya and Nigeria must not exceed 2.8 mb/d. After growing for several months, Iraq's output declined due to interruptions in the Kirkuk oilfields in the wake of Iraqi forces regaining control. Strained relations with the Kurdish government continue to hamper the resumption of exports from northern Iraq. The worsening economic and political situation in Venezuela, exacerbated by recent U.S. sanctions, has brought crude output to below 2mb/d for the first time in the last thirty years.

ANNUAL CRUDE SUPPLY CHANGE