

# Future is for LNG as derivatives trading takes off



Bloomberg/Singapore

With natural gas demand growing faster than for any other fossil fuel, LNG futures may be finally taking off.

Derivatives represented about 2% of global LNG production at the beginning of 2017 as an array of contracts around the world struggled to gain traction. But by the end of last year, volumes had grown to almost 23%, led by a burgeoning Intercontinental Exchange Inc contract based on S&P Global Platts' Japan-Korea Marker spot price assessments.

While volumes are a long way off established global energy benchmarks such as Brent crude – where trade dwarfs worldwide oil production many times over – the accelerating growth in LNG derivatives illustrates how the market is maturing. An explosion in supply, from the US to Australia, is bringing more market participants and a shift away from traditional pricing.

“There’s more short-term physical trading indexed to JKM and new counterparties active in the market,” said Tobias Davis,

head of LNG–Asia at brokerage Tullett Prebon. “This creates more liquidity and in turn, builds more confidence in trading the swap and using it as a viable hedging tool.”

There are now at least six derivative contracts for LNG, ranging from US Gulf Coast futures on ICE to Kuwait-India on Singapore Exchange Ltd. The most established by far is ICE’s Japan-Korea Marker, launched in 2012. More than 17,000 contracts traded in December, a 10-fold increase from January 2017. The next most active is CME Group Inc’s futures contract, also based on S&P Global Platts’ JKM assessment. Its monthly volume peaked in November last year at 3,335 contracts.

The need for a liquid LNG benchmark has been the subject of much debate. Traditionally, when oil was used more commonly in power generation and production, it was almost exclusively valued relative to crude oil and brought and sold under long-term contracts. One advantage of that system is that oil has a liquid and established futures market that gives market participants visibility and the confidence to hedge.

But oil and gas don’t move in lockstep and buyers have become increasingly reluctant to be tied to crude markets. The expansion in global supply, most notably with the development of shale reserves that transformed the US into a major natural gas exporter, has opened up other options and stimulated a shift to more spot trading.

About 27% of LNG was sold under spot-or short-term deals in 2017, up from 12% in 2003, according to the International Group of LNG Importers.

That just increased the need for a reliable price benchmark and liquid futures market for hedging. Regional gas benchmarks such as Louisiana’s Henry Hub, the UK’s National Balancing Point or Dutch Title Transfer Facility reflect local fundamentals and therefore may not be ideal proxies for the global LNG trade, where the vast majority of sales are in Asia. So that’s where LNG futures come in.

JKM “is much more trusted, much more accurate, and the paper market is helping make it be more responsive to price

movements,” Gordon D Waters, the global head of LNG at ENGIE, said by phone on Friday. JKM contracts could reach the level of NBP or TTF “most likely within the next 5 years.” NBP and TTF volumes both averaged about 37,000 contracts a day in 2018.

There’s still a long way to go. ICE JKM is still much smaller than other global oil and gas benchmarks. Exchange open interest, or the amount of outstanding bets at the end of every day, accounted for about \$2bn at the end of 2018, compared with \$36bn for US natural gas and more than \$100bn for Brent oil, according to Bloomberg estimates.

For a futures market to be considered truly liquid, volumes should be about 10 times the size of the actual physical trade, according to Total SA, one of the world’s biggest producers and a major participant in the JKM market. With volumes multiplying by about three times a year, JKM should reach that level in about five years, Philip Olivier, Total’s general manager of global LNG, said in October.

Brent and US gas traders also have much more flexibility, as they’re able to buy and sell futures by the second, with prices updating to reflect the fast-moving market. Most JKM LNG trades are still brokered offline and then cleared by exchanges. Contract values are based on a monthly average of Platts assessments, so the price updates once a day when the new assessment is added.

Still, LNG has already surpassed one energy derivative. ICE’s JKM contract now has more value in open interest than the exchange’s Newcastle coal contract. The two fuels, of course, also vie in the real world for space in power plants in some regions.

“If you have a look at how the coal market developed in the mid-2000s, it took over a decade to transition to a liquid exchange order book,” said Gordon Bennett, managing director for utility markets at ICE. “It definitely feels like JKM is evolving quicker.”

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# Athens Energy Forum 2019: January 28-29, 2019



## MONDAY, JANUARY 28 | DAY 1

11.30

REGISTRATION

12.00

WELCOME REMARKS

**Achilles Tsaltas**, Vice President, International Conferences,  
The New York Times

12.05

OPENING ADDRESS

**George Stathakis**, Minister of Energy and Environment, Greece

12.30

IN CONVERSATION

**Geoffrey Pyatt**, U.S. Ambassador in Greece

with **Tom Ellis**, Editor in Chief, Kathimerini English Edition

12.45

PANEL DISCUSSION 1 | THE REGIONAL GEOPOLITICAL PERSPECTIVES

- Increasing the substance of trilateral cooperation

- between Cyprus, Israel and Egypt
- Greece as an East Med Security player
- The Greek-FYROM and Serbia-Kosovo Disputes

Chair: **Dr. Aristotle Tziampiris**, Professor of International Relations, University of Piraeus

**George Katrougkalos**, Alternate Foreign Minister for European Affairs, Greece

**Konstantinos Skrekas**, MP, Head of Energy and Environment Sector, Former Minister of Development and Competitiveness, New Democracy Party

**Victor Grigorescu**, Former Minister of Energy, Romania

Q & A

13.30

UPDATE ON THE PRIVATIZATION AGENDA

In conversation

**Aris Xenofos**, Chairman of the BoD, Hellenic Republic Asset Development Fund

with **Achilles Topas**, Journalist, SKAI TV

13.45

LIGHT LUNCH

14.45

PANEL DISCUSSION 2 | CYPRUS ENERGY OUTLOOK

Chair: **Theodore Tsakiris**, Assistant Professor, Geopolitics & Hydrocarbons, University of Nicosia, Program Adviser AEF 2019

**Dr. Andreas Poullikkas**, Chairman, Cyprus Energy Regulatory Authority

**Dr. Symeon Kassianides**, Chairman, Natural Gas Public Company

**Roudi Baroudi**, CEO, Energy & Environment Holding

Q & A

15.30

PANEL DISCUSSION 3 | UPDATE ON UPSTREAM DEVELOPMENTS

- Greek offshore exploration
- Developments in Israel and Egypt
- Developments in the Black Sea and the Adriatic

Chair: **Alexandra Sdoukou**, Energy Advisor

**Yannis Bassias**, President, Hellenic Hydrocarbons Resources Management S.A.

**Yannis Grigoriou**, CEO, Hellenic Petroleum Upstream S.A.

**Orit Ganor**, Director of Natural Gas International Trade, Ministry of Energy, Israel

Q & A

16.15

PANEL DISCUSSION 4 | UPDATE ON REGIONAL MIDSTREAM DEVELOPMENTS

- The IGB pipeline project
- The Alexandroupolis FSRU project and planned regional LNG terminals
- The feasibility of the East Med Gas Pipeline
- The TAP and Turkish Stream projects and associated vertical corridors
- Latest developments in the National Natural Gas System
- Existing and future gas storage available in the region

Chair: **Prof. Nikolaos Farantouris**, Chair, Legal Affairs, EUROGAS, Brussels

**Konstantinos Karayannakos**, Executive Officer, ICGB

**Katerina Papalexandri**, Country Manager Greece, TAP

**Theodore Tsakiris**, Assistant Professor, Geopolitics & Hydrocarbons, University of Nicosia, Program Adviser AEF 2019

**Panayotis Kanellopoulos**, Managing Director, M&M Gas S.A.

**Nikos Katsis**, NNGS Operation Division Director, Hellenic Gas Transmission System Operator (DESFA)

**Ioannis Arapoglou**, Vice Chairman, Gastrade

**Alex Lagakos**, Founding Chairman, Greek Energy Forum

Q & A

17.30

END OF THE 1ST DAY OF THE FORUM

## **TUESDAY, JANUARY 29 | DAY 2**

09.00

ARRIVAL OF DELEGATES

09.30

WELCOME REMARKS

**Symeon Tsomokos**, Chairman, SGT SA

09.35

PANEL DISCUSSION 5 | THE DOMESTIC AND REGIONAL POWER & ELECTRICITY MARKET DYNAMICS

- Back-to-the-future: Lignite Power Generation in Greece
- Progress report on Island interconnectivity
- New network developments
- The evolution of wholesale and retail markets

Chair: **Harris Floudopoulos**, Journalist, Capital.gr

- **The evolution of the power generation market and the rise of the domestic competition in electricity**

**Andrea Testi**, Chairman, Elpedison

**Dimitri Tzanninis**, Deputy CEO & Member of the BoD, Public Power Corporation, Greece

**Dinos Benroubi**, General Manager Electric Power Business Unit, Protergia/MYTILINEOS

▪ **The target model and the new challenges**

**Manousos Manousakis**, Chairman & CEO, Independent Power Transmission Operator

**Nektaria Karakatsani**, Member of the Board, Regulatory Authority for Energy

**Constantine Couclelis**, Chairman, Hellenic Union of Industrial Consumers of Energy

Intervention: **Michael Philippou**, CEO, Hellenic Energy Exchange

Q & A

11.00

KEYNOTE ADDRESS

**Megan Richards**, Director, Energy Policy, DG Energy, European Commission

11.15

NETWORKING BREAK

11.45

PANEL DISCUSSION 6 | DIGITAL TRANSFORMATION OF ENERGY. SEIZING THE POTENTIAL OF BIG DATA

Chair: **George Passalis**, Managing Director, Accenture Applied Intelligence

**Professor Miltiades E. Anagnostou**, School of Electrical & Computer Engineer, NTUA

**Yannis Vougiouklakis**, Member, National Committee for Energy and Climate Plan

**Tim Fairchild**, Practice Director, Global Energy Practice, SAS

Q & A

12.30

PANEL DISCUSSION 7 | RENEWABLE ENERGY SOURCES & ENERGY EFFICIENCY



- The importance of RES in the Greek 2030 energy mix
- Is the market-test process working?
- Finance: Moving beyond the FIT-Premium

Chair: **Dr. Ioannis Tsipouridis**, Renewables Consultant Engineer, Editor of e-mc2.gr

**Maria Spyraiki**, Member of the European Parliament

**Professor Yannis Maniatis**, MP, Democratic Coalition, f. Minister of Environment, Energy & Climate Change

**Dr. Arthouros Zervos**, Chair, REN21

**Harry Boyd-Carpenter**, Director, Head of Power and Energy Utilities, EBRD

**Marios Zangas**, Head, Greece & Cyprus, Vestas Hellas

Q & A

13.30

NETWORKING BREAK

14.00

PANEL DISCUSSION 8 | ENERGY FINANCE

Chair: **Achilles Topas**, Journalist, SKAI TV

**Athanassios Savvakis**, President, Federation of Industries of Northern Greece & Hellenic Energy Exchange

**Vassilis Karamouzis**, Assist. General Manager, Corporate & Investment Banking, National Bank of Greece

Q&A

14.25

PANEL DISCUSSION 9 | CLIMATE CHANGE AND SUSTAINABLE GOALS

- Will the Paris Climate Change agreement goals be met
- What is the role of the EU
- What challenges for Greece

Chair: **Zoi Vrontisi**, Chairwoman, National Center for the Environment & Sustainable Development

Keynote Address: **Socrates Fanellos**, Alternate Minister, Ministry of Environment & Energy

**Prof. Christos Zerefos**, Head, Research Center for Atmospheric Physics & Climatology, Academy of Athens

**Sabina Dziurman**, Director Greece & Cyprus, EBRD

**Demetres Karavellas**, CEO, WWF Greece

**Xavier L. Rousseau**, Head of Corporate Strategy, Snam

Q & A

15.15

END OF ATHENS ENERGY FORUM 2019

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**Palmet Enerji beats SOCAR bid to acquire EWE's Turkey assets**



Bloomberg Istanbul Turkish gas distributor Palmet Enerji AS agreed to buy all of EWE AG's assets in the country for between €130mn (\$148mn) and €150mn. Palmet beat its only competitor, State Oil Company of Azerbaijan Republic (SOCAR), to secure the assets of EWE Holding Turkey AS, Palmet chairman Doganay Samuray said in a phone interview yesterday. "We will have a stronger position in Turkey's retail gas distribution market with this acquisition," Samuray said. Palmet already operates gas grids in the Erzurum province in eastern Turkey, and Gebze, an industrial town to the east of Istanbul. "We held talks, and in the end decided not to buy EWE assets" in Turkey, Ibrahim Ahmadov, a spokesman for Socar in Baku, Azerbaijan, told Bloomberg. He didn't elaborate. Palmet is in discussions with banks to finance the acquisition, which is subject to approval by Turkish energy and antitrust regulators, Samuray said. It may take "two or three months" to complete those talks. The borrowing for the acquisition will be in Turkish lira, which is the currency of EWE's gas grid revenues in Turkey, Palmet chief financial officer Bora Kirac said. "We are in talks with five or six local banks but we will probably borrow from two or three of them." EWE Turkey doesn't have any outstanding debt, he said. Germany's EWE hired Barclays Plc to manage the sale process, people with knowledge of the matter said in March. The agreed price is less than half the amount people familiar with the process had estimated the assets were worth in October. EWE's Turkey unit owns 80% stakes in two gas grids in the provinces of Bursa and

Kayseri, as well as a phone company, Millenicom. Its other assets include electricity trader EWE Enerji and Enervis, a technology service provider for the energy industry

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## **OPEC+ Plans Review in Baku in March, Ministers' Meeting in April**



OPEC and its allies plan to hold a meeting in March to assess their oil-production accord in Azerbaijan, and then ministers will gather to set policy in April, according to the organization's top official.

The body that reviews the implementation of OPEC's supply cuts, the Joint Ministerial Monitoring Committee, will convene

in the Azeri capital of Baku on March 17 to 18, Secretary-General Mohammad Barkindo said in a statement. Ministers will then meet in Vienna on April 17 to 18 to decide whether the cutbacks should be extended beyond their scheduled expiry in the summer.

Barkindo recently met with Venezuelan Oil Minister Manuel Quevedo, who this year holds OPEC's rotating presidency, and arranged the dates in consultation with him and the ministers of Saudi Arabia and Russia, who co-chair the JMMC.

The 24-nation coalition of oil producers known as OPEC+, which includes OPEC nations as well as non-members, is cutting output to stabilize global markets. They have agreed to collectively reduce supplies by 1.2 million barrels a day for the first half of this year.

By restraining supply in 2017 and early last year, the alliance engineered a recovery in prices that ended the oil industry's worst slump in a generation, but the market has started to weaken again. At about \$60 a barrel in London, prices remain about 30 percent down from a four-year high reached in October.

It took more than a month for the Organization of Petroleum Exporting Countries to settle on the dates, an unusually long time for the group, which typically concludes each conference with a prompt resolution on when to meet again.

The delay may reflect the more complicated logistics that come with expanding into a broader coalition with more countries. Whereas in the past decisions were confined to the dozen-or-so members of OPEC, these days its consultations can involve all 24 nations in the broader network, with Russia having particular influence.

Pronounced volatility in oil prices in the month since OPEC+ announced its supply curbs suggests market participants have been looking for additional clarity on the organization's plans.

Besides the two meetings for ministers, delegates will also convene in coming weeks to work on a framework that will cement co-operation between OPEC and non-OPEC over the long-term.

OPEC officials will meet to discuss the framework on Feb. 7 to 8, and representatives from their non-OPEC partners will follow-up the consultations on Feb. 18 to 19. The charter will be finalized in order to be considered by ministers at their meeting in April, Barkindo said.

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## **China said to eye near four-fold LNG import capacity jump by 2035**



Bloomberg/Hong Kong/Singapore

China may boost its liquefied natural gas import capacity by

nearly four-fold within two decades as it pushes toward using more of the fuel.

The Ministry of Transport has proposed the nation operate 34 coastal terminals with total annual import capacity of 247mn tonnes by 2035, according to people with knowledge of the draft plan. That compares with the nation's total nameplate capacity of 67.5mn tonnes at the end of last year, according to BloombergNEF. The plan is preliminary and could change, said the people, who asked not to be identified as the information isn't public.

The transport ministry didn't respond to a faxed request for comment. The Shanghai Petroleum & Gas Exchange posted information about the plan on its website on Monday, citing a report by Southern Energy Observer.

President Xi Jinping's government has prioritised using more natural gas in place of coal for residential and industrial use, sparking a race to increase supply and expand infrastructure such as pipelines, storage tanks and import terminals. Total gas imports surged 32% last year as the nation overtook Japan to become the world's biggest buyer, both by seaborne LNG and pipeline. The boom was so big that China accounted for 65% of global LNG demand growth last year, according to Sanford C Bernstein & Co.

The draft plan consists of two types of terminals, said the people. The first is 13 facilities referred to as "key" or "important," and will have a combined capacity of 165mn tonnes in 2035. A second category, known as "general" or "ordinary," will total 82mn tonnes over 21 terminals. Additionally, there are six terminals planned inland along the Yangtze River that aren't accounted for in the total capacity figure, they said.

– With assistance from Dan Murtaugh.

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# US pressures Germany over Russian gas pipeline



[FRANKFURT AM MAIN] A transatlantic tiff over Europe's natural gas supply came to the boil Sunday, as Donald Trump's ambassador to Germany threatened firms involved in a pipeline from Russia with sanctions.

At stake is a mixture of economic and security interests for Moscow, Washington, Berlin and Paris – with equally direct consequences for Ukraine and other eastern European nations.

A letter envoy Richard Grenell sent to several businesses "reminds that any company operating in the Russian energy export pipeline sector is in danger... of US sanctions," an embassy spokesman told AFP.

The letter by Grenell, a close ally of President Donald Trump, "is not meant to be a threat, but a clear message of US policy," the spokesman said.

Pressure has been mounting on Berlin for months to turn away from the under-construction pipeline, which is set to double



the capacity of an existing connection beneath the Baltic Sea.

Trump accused Germany last year of being “totally dependent” on and a “captive” of Moscow because of the natural gas supply.

But the louder the volume of complaints from Washington, the more Berlin has dug in its heels.

Chancellor Angela Merkel, backed by France and Austria, has in the past insisted the pipeline is a “purely economic project” that will ensure cheaper, more reliable gas supplies.

German Foreign Minister Heiko Maas also weighed in on the transatlantic row last week, saying “European energy policy should be decided in Europe, not in the United States.”

The confrontation echoes European leaders’ sticking to a 2015 deal with Iran to limit that country’s nuclear programme.

Trump has renounced the pact and threatened sanctions against EU firms doing business with Tehran.

– ‘Blackmail’ –

In an angry reaction from Russia Sunday, senator Alexei Pushkov tweeted that Trump was using “direct threats” to sell “more expensive American gas to Europe.”

The US embassy spokesman said that “the only thing that could be considered blackmail in this situation would be the Kremlin having leverage over future gas supplies.”

American officials argue that routing more gas through the Baltic and the planned TurkStream pipeline under the Black Sea will deprive Ukraine of vital transit income and isolate it from its allies.

That could be bad news for Kiev, which saw the Crimean peninsula annexed by Russia in 2014 and is battling Moscow-

backed separatists in a conflict that has so far claimed over 10,000 lives.

“Firms supporting the construction of the two pipelines are actively undermining the security of Ukraine and Europe,” ambassador Grenell wrote.

US objections are shared by “nearly 20 European countries” such as vital EU member Poland, as well as the European Parliament and the US House of Representatives, the embassy spokesman said.

Merkel – a key player in Moscow-Kiev peace talks – says Ukrainian interests will be protected as some Russian gas will still be transported via the country once Nord Stream 2 is online.

– Gas ahoy –

But Germany has also appeared to make concessions to Trump by looking into construction of liquid natural gas (LNG) terminals on its north coast to accept sea shipments from the US.

Berlin was “studying options” to help fund gas facilities, Merkel spokesman Steffen Seibert said in October – although he denied the government was caving to US pressure.

Beyond Ukraine, Trump has explicitly linked his complaints over Russian gas to his push to get European members of the NATO alliance to spend more on defence.

“Germany just started paying Russia, the country they want protection from, Billions of Dollars for their Energy needs coming out of a new pipeline,” he tweeted in July. “Not acceptable!”

Merkel has long since committed to reach the NATO defence spending target of 2.0 per cent of GDP – albeit by 2024.

Last year, just 1.24 per cent of Germany's output went on its military, compared with 3.5 per cent for the US.

AFP

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## **Bears get out of the way as crude's rebound takes hold**



Crude oil's rally is starting to sweep away the pessimists. After starting 2019 on a cautious tone, hedge funds last week slashed bets on falling Brent crude prices to the lowest level since mid-November, as they looked to get out the way of a recovery that pushed oil back into a bull market. Wagers on increasing prices climbed the most in a month, reversing course from last week. The global benchmark surged last week, as the US and China made progress in trade talks and Opec

members reaffirmed its commitment to head off a supply glut. Money managers have turned alternately bullish and bearish on the rally in recent weeks, but the evidence for a sustained move higher is getting- ting harder to ignore, said Mark Waggoner, president of Oregon brokerage Excel Futures Inc. "Just having another positive week is going to be huge for a lot of people's psyches, after we got so beat up last year," Waggoner said by telephone. "I think you're going to see more of them coming on board this week." Brent has gained more than 20% since hitting an 18-month low in late December. Nonetheless, it's still down by almost a third since October and faces continuing pressure from the boom in US shale drilling and an uncertain economy. Prices fell for the first time in two weeks on Friday, retreating 2% to \$60.48 a barrel. US crude prices finished the week up 7.6%, their best showing in six months. Data on hedge fund wagers for West Texas Intermediate crude weren't available due to the US government shutdown. Brent net-long positions – the difference between bullish and bearish wagers – climbed 3.8% to 158,146 options and futures contracts in the week ending January 8, the ICE Futures Europe exchange said on Friday. Most of the shift came from a 3.6% decline on contracts predicting a Brent drop. Bets on rising prices edged up 0.8%. They've traded gains and losses for the past six weeks. Late December's more bearish stance "was more about hedge funds squaring their books after they'd had a very bad year," said Frances Hudson, a global thematic strategist at Aberdeen Standard Investments in Edinburgh. Sentiment has improved markedly, she said in a telephone interview. "Things seemed to have settled down a little bit in terms of production," Hudson said.

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# Opec withdrawal fits Qatar's LNG strategy, says US finance attache



Qatar's recent decision to withdraw its membership from the Organisation of the Petroleum Exporting Countries (Opec) is a business decision that supports the country's development strategy for its liquefied natural gas (LNG) sector, industry experts agreed during the Euromoney Conference held in Doha on Sunday.

Qatar is Opec's 11th-biggest oil producer. Lesley Chavkin, the US Department of the Treasury financial attaché to Qatar and Kuwait, pointed out that Qatar's total output accounts for "only 2%."

"Qatar is not a behemoth in Opec, and I think it (withdrawal from Opec) fits with the strategy to focus the resources on LNG. That seems to be the future of Qatar's energy industry," Chavkin said during the panel discussion titled 'Qatar's Economy – New Directions, New Opportunities'.

On the global market, Chavkin also said that Qatar is expanding its reach, veering towards the Asia Pacific region.

She noted that Qatar may have to look into short-term contracts with its Asian buyers.

“Obviously, it’s no surprise that the demand is coming from the Asia Pacific region. We have China aggressively moving from coal to gas...moving forward, it’s going to be Asian-focused.

“What I think is a kind of interesting space to watch is LNG contracts. So, Asian buyers tend to prefer buying LNG on spot or short-term basis. LNG contracts here tend to be longer term, and Qatar has flexibility in adjusting some of its longer term contracts to maintain market share but that’s something interesting that we would be watching, going forward,” Chavkin explained.

Mohamed Barakat, the managing director of US-Qatar Business Council, said he agrees with Qatar’s decision to withdraw its membership from Opec, “because this is a business-focused decision.”

“Qatar is in the gas business and its oil production doesn’t affect the market that much as countries like Saudi Arabia,” Barakat said.

He added: “Qatar’s decision to increase its gas production will definitely increase the support and supplies that Qatar can provide globally, knowing that from a US perspective, Qatar has provided a lot of LNG to US allies, supporting them, and helping them to be more independent with a reliable partner in Qatar – that would help advance more the business interests globally in Qatar, as well.”

Alexis Antoniades, the director of International Economics at Georgetown University – Qatar, emphasised that the decision to withdraw Qatar’s Opec membership is a business decision and was not politically motivated.

“I don’t see any political decision behind it... this is a business decision. We have no role in Opec... we are in the LNG industry and not the oil sector. It makes sense for us to withdraw there, and it makes sense for us to figure out what is it that we are going to do well, and focus our time and resources on that,” Antoniades said.

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# How Inequality Undermines Economic Performance



France's Yellow Vest protests are rooted in frustration with the government's indifference to the plight of struggling households outside France's urban centers. With job and income polarization having increased across all developed economies in recent decades, developments in France should serve as a wake-up call to others.

MILAN – About a decade ago, the Commission on Growth and Development (which I chaired) published a report that attempted to distill 20 years of research and experience in a wide range of countries into lessons for developing economies. Perhaps the most important lesson was that growth patterns that lack inclusiveness and fuel inequality generally fail.

The reason for this failure is not strictly economic. Those who are adversely affected by the means of development, together with those who lack sufficient opportunities to reap its benefits, become increasingly frustrated. This fuels social polarization, which can lead to political instability, gridlock, or short-sighted decision-making, with serious long-term consequences for economic performance.

There is no reason to believe that inclusiveness affects the sustainability of growth patterns only in developing countries, though the specific dynamics depend on a number of factors. For example, rising inequality is less likely to be politically and socially disruptive in a high-growth environment (think a 5-7% annual rate) than in a low- or no-growth environment, where the incomes and opportunities of a subset of the population are either stagnant or declining.

The latter dynamic is now playing out in France, with the "Yellow Vest" protests of the last month. The immediate cause of the protests was a new fuel tax. The added cost was not all that large (about \$0.30 per gallon), but fuel prices in France were already among the highest in Europe (roughly \$7 per gallon, including existing taxes).

Although such a tax might advance environmental objectives by bringing about a reduction in emissions, it raises international competitiveness issues. Moreover, as proposed, the tax (which has now been rescinded) was neither revenue-neutral nor intended to fund expenditures aimed at helping France's struggling households, especially in rural areas and smaller cities.

In reality, the eruption of the Yellow Vest protests was less about the fuel tax than what its introduction represented: the government's indifference to the plight of the middle class outside France's largest urban centers. With job and income polarization having increased across all developed economies in recent decades, the unrest in France should serve as a wake-up call to others.

By most accounts, the adverse distributional features of growth patterns in developed economies began about 40 years ago, when labor's share of national income began to decline. Later, developed economies' labor-intensive manufacturing sectors began to face increased pressure from an increasingly competitive China and, more recently, automation.



For a time, growth and employment held up, obscuring the underlying job and income polarization. But when the 2008 global financial crisis erupted, growth collapsed, unemployment spiked, and banks that had been allowed to become too large to fail had to be bailed out to prevent a broader economic meltdown. This exposed far-reaching economic insecurity, while undermining trust and confidence in establishment leaders and institutions.

To be sure, France, like a number of other European countries, has its share of impediments to growth and employment, such as those rooted in the structure and regulation of labor markets. But any effort to address these issues must be coupled with measures that mitigate and eventually reverse the job and income polarization that has been fueling popular discontent and political instability.

So far, however, Europe has failed abysmally on this front – and paid a high price. In many countries, nationalist and anti-establishment political forces have gained ground. In the United Kingdom, widespread frustration with the *status quo* fueled the vote in 2016 to leave the EU, and similar sentiment is now undermining the French and German governments. In Italy, it contributed to the victory of a populist coalition government. At this point, it is difficult to discern viable solutions for deepening European integration, let alone the political leadership needed to implement them.

The situation is not much better in the United States. As in Europe, the gap between those in the middle and at the top of the income and wealth distribution – and between those in major cities and the rest – is growing rapidly. This contributed to voters' rejection of establishment politicians, enabling the victory in 2016 of US President Donald Trump, who has since placed voter frustration in the service of enacting policies that may only exacerbate inequality.

In the longer term, persistent non-inclusive growth patterns can produce policy paralysis or swings from one relatively extreme policy agenda to another. Latin America, for example, has considerable experience with populist governments that pursue fiscally unsustainable agendas that favor distributional components over growth-enhancing investments. It also has considerable experience with subsequent abrupt shifts to extreme market-driven models that ignore the complementary roles that government and the private sector must play to sustain strong growth.

Greater political polarization has also resulted in an increasingly confrontational approach in international relations. This will hurt global growth by undermining the world's ability to modify the rules governing trade, investment, and the movement of people and information. It will also hamper the world's ability to address longer-term challenges like climate change and labor-market reform.

But to go back to the beginning, the main lessons from experience in developing and now developed economies are that sustainability in the broad sense and inclusiveness are inextricably linked. Moreover, large-scale failures of inclusion derail reforms and investments that sustain longer-term growth. And economic and social progress should be pursued effectively – not with a simple list of policies and reforms, but with a strategy and an agenda that involves careful sequencing and pacing of reforms and devotes more than passing attention to the distributional consequences.

The hard part of constructing inclusive growth strategies is not knowing where you want to end up so much as figuring out how to get there. And it is hard, which is why leadership and policymaking skill play a crucial role.

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# The answer to plastic pollution



With China refusing foreign waste under its new policy, countries are forced to handle their own plastic pollution. As holiday shopping ramps up, so do the dizzying varieties of plastic packaging tossed in recycling bins. And while we wish a miracle would transform this old garbage into something new, the reality is the waste left over from the holiday shopping frenzy is more likely than ever to end up in a landfill or incinerator. Until January of this year, the United States and other Western countries were foisting their low-value plastic waste on to China, with little concern for the environmental degradation this caused. To protect its citizens from the burden of foreign pollution, in the beginning of this year, China refused to be the world's dumping ground and effectively closed its doors to plastic waste imports. China's new National Sword policy of refusing foreign waste has brought a

long-overdue moment of reckoning for the recycling industry, and by proxy, for manufacturers. Its clear recycling alone cannot come close to addressing the ballooning amounts of plastic waste piling up all over the country. Even before China's waste ban took effect, only 9% of plastic in the US was actually recycled. No matter how diligently Americans sort their plastic waste, there is just too much of it for the US, or any other country, to handle. On the bright side, the ban sparked a much-needed conversation about improving domestic recycling infrastructure and recycling markets and has forced both companies and the public to re-evaluate the products and packaging that were previously assumed to be recyclable. But the ban has also been used as a wrongful justification for burning trash in incinerators. Waste incinerators became popular in the US in the late 80s, until harmful emissions of mercury and dioxins, toxic ash, technical failures, and prohibitive costs soured the public on the industry. However, there are still more than 70 relics left over from that failed experiment which continue to pollute surrounding communities and drain city coffers. One of the most notorious cases is in Detroit. The city's incinerator, perversely named Detroit Renewable Power, exceeded emissions limits more than 750 times over the last five years, contributing to one of the highest rates of asthma in the country. Not only is the incinerator criminally polluting, it cost the city nearly \$1.2bn in debt. According to US Energy Information Administration data, incinerators are the most expensive way to produce energy – costing twice that of nuclear and solar and three times the cost of wind. In some cases, recent incineration schemes are even disguised as recycling programs. For example, the city of Boise, Idaho, which was rocked by China's waste ban, is directing residents to “recycle” their plastic by putting it in a special orange bag called the Hefty Energy Bag. The plastic is then melted to make fossil fuels to burn. This method, called pyrolysis, or “plastic-to-fuel”, is being pushed by the American Chemistry Council, Dow Chemical, Unilever, and others who are invested in continuing the status

quo of churning out massive amounts of single-use plastic. Not only is this form of incineration the opposite of recycling, it gives people a false sense of security that single-use plastic is acceptable to continue making and using. Instead of coming up with increasingly complicated and expensive ways to deal with plastic waste, why not focus on preventing it from being made in such large quantities in the first place? We simply need less plastic in the world. Notably, many North American cities are cracking down on nonsense single-use plastic and resisting short-sighted, false solutions like plastic-to-fuel. Plastic bag bans or fees are underway in cities such as Seattle, Boston, San Francisco (leading to a statewide ban), and Washington, DC. Some cities are going even further: Vancouver is introducing a city-wide ban on single-use straws, foam cups, and containers starting June 2019. In addition to bans and fees on problematic products and packaging, several cities are also pursuing legislation that would force companies to pay for managing the waste created by their products instead of foisting disposal costs onto the consumer, thereby motivating them to change their manufacturing and delivery systems to eliminate or drastically minimize waste. This holiday season, the greatest gift manufacturers can give consumers is the option to buy their products without ending up with a recycling bin full of single-use plastic packaging destined for the burner or the dump. As the saying goes, "necessity is the mother of invention". China's National Sword policy gives us the opportunity to kick our society's plastic habit once and for all and to put pressure on those most responsible for it: not consumers, not cities, but producers. – Guardian News & Media