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## Inflation Takes Centre Stage



**Infrastructure As An Asset Class**



**LNG**



**Toll Roads**

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# Editorial Welcome

Karl Nietvelt, Head of Global Infrastructure & Utilities Research

“Affordability concerns for end consumers stemming from high inflation will heighten political and regulatory risks.”

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Core infrastructure assets and utilities are typically considered defensive investments, protecting against rising inflation thanks to their ability to pass through costs. The sector’s resilience was confirmed last year with only three defaults (excluding Russian entities) out of a total of more than 1,100 infrastructure ratings.

Notwithstanding our expectation of overall resilience to inflation and the weak macro-economic outlook for 2023, infrastructure and utility assets face three challenges. First, affordability concerns for end consumers stemming from high inflation will heighten political and regulatory risks. Second, global LNG prices are likely to remain high and volatile until 2026, with subsequent impacts on power prices and utility bills, notably in Europe. Last, we see challenges for developers and utilities looking to realize their energy transition objectives due to supply bottlenecks and cost inflation, even if investments are attractive in the context of higher power prices.

**Will high inflation lead to more regulatory pressure or political intervention risk?** Cost pass-through provisions, whether contractual or regulated, are a key financial strength for core infrastructure and utility businesses. That said, one should not ignore the secondary impacts inflation pass-through has on customers’ disposable income. The social pressure may lead to regulatory or political intervention to the detriment of earnings capacity – not least given history has shown that sitting governments under pressure from public opinion are seldomly re-elected after a high inflationary period.

Some sectors or regions are more exposed. For instance, toll roads are more sensitive to social protests than airports, as seen in the past in Latin America and France. Mass transport services are equally sensitive to price hikes but as they operate in the public sphere, they may also benefit from government ownership or support.

As for regulated utilities, most European regulatory regimes have an automatic adjustment mechanism in place for rapidly rising inflation. This contrasts with the US, where rate cases could become less credit supportive should inflation persist longer. Almost all US regulatory jurisdictions allow for the pass through of commodity prices, which have

been 50%-400% higher than the pre-inflation period. As these directly raise the customer bill, it creates additional pressure to effectively manage regulatory risk.

**Tight global LNG prices in the next two years point to continued high volatility and risk of price spikes.** The value of global LNG imports doubled in just one year, rising to US\$450 billion in 2022, with Europe’s LNG import bill more than tripling. The market balance will likely remain tight through 2026, by which time major US LNG supplies will have come online. That said, European countries have not yet snapped up a significant share of US LNG exports as Asian buyers are offering longer-term contracts given they are less concerned about the long-term prospects of gas in their energy mix. This will also mean that Europe’s gas imports will remain more exposed than any other region to highly volatile spot prices.

**Even if security of supply is the priority, the energy transition is accelerating.** The Inflation Reduction Act (IRA), REPowerEU and China’s 2030 national renewables objectives all provide firm momentum for the energy transition. Europe’s energy crisis has further underscored that accelerating growth in renewables is the best remedy to reduce reliance on (Russian) fossil fuels, even if the short- to medium-term solution is stepping up LNG imports. According to S&P Global Commodity Insights, global solar installations soared to 200GW per annum last year (double the 2019 level) and should continue trending up in coming years. Wind installation growth has been more moderate, complicated by permitting in many countries, with 2022 additions slightly up at over 80GW.

The challenge for the renewables industry is one of supply bottlenecks and cost inflation. Compared to pre-pandemic, wind turbine costs are up by 10-20%, while installed solar panel costs are up more than 20%.

Finally, the energy transition is also accelerating into a mobility transition. Alongside the global rise in electric vehicles, Europe is leading the push to alternative modes of transport, with some countries banning very short-haul domestic flights and promoting the use of more environmentally friendly railways.

Moreover, the EU’s Emissions Trading System proposes phasing out free allowances for airlines, starting with a 25% reduction in 2024, increasing to 50% in 2025 and 100% in 2026. Environmental taxes on intra-European flights could significantly raise costs for airlines and potentially further increase already elevated ticket fares. Outside Europe, it will remain to be seen how airlines’ decarbonization efforts will affect air traffic in the longer term, even if the recovery continues unabated in 2023.



# North American Transport Infrastructure's Strength Lies In Its Essentiality And Cost Pass Through Ability

Analysts: Dhaval R Shah, Trevor D'Olier-Lees, Kurt Forsgren

Toll road revenue will likely rise in line with inflation, absent a severe or prolonged economic recession. Given public-private-partnership (P3) concession agreements typically allow inflation-linked tariff increases, we expect most rated volume-exposed P3 road projects to see material top-line growth. We also anticipate a largely inelastic reaction – even in a moderately weaker travel environment.

While many public sector road and bridge operators have implemented tariff increases, those with CPI-linked toll setting policies may not increase to maximum rates because of affordability issues.

Furthermore, most transportation infrastructure assets enjoy high operating margins (averaging about 75% for P3 toll roads), which, along with the ability to defer non-essential expenditure and a debt-servicing cushion, provide leeway to absorb both a rise in costs and a modest decline in demand.

## Inflation prompts a shift in the market

Supply chain and labour disruptions could cause delays for construction projects, affecting their credit quality. However, the prospect of a weakening economy could cool construction cost inflation, with US GDP growth forecast at -0.1% for 2023 and Canada's growth forecast at 0%. That said, the US has considerable infrastructure spending planned – with well over US\$1.5 trillion targeted for roads, bridges, airports, transit systems, water and wastewater utilities, power grids, and broadband networks.

Persistent, high inflation is contributing to a shift in risk sharing. Indeed, we have observed that many major contractors in North America have moved away from fixed-price contracts following several large cost overruns. Mega projects are now being procured under various new approaches, such as progressive design builds, predevelopment agreements, and alliance contracts. While these can lower risks for contractors, they can also increase credit risk for projects.

We have also seen shifts in risk transfer between the public and private sector, with the former retaining greater risk – particularly during the construction period. The recent extreme spikes in inflation will accelerate this change, especially if higher inflation persists.

## Operators should be shielded from high interest rates in the short term

The transportation sector's typically fixed interest rates and long-dated debt mean the impact of rising rates won't be felt immediately. Many private and public-sector infrastructure entities took advantage of lower interest rates and extended their maturities, lowered debt-servicing costs, or, in some cases, deleveraged. Only about 6% of transportation infrastructure projects' bullet debt maturities are coming due over the next two years.

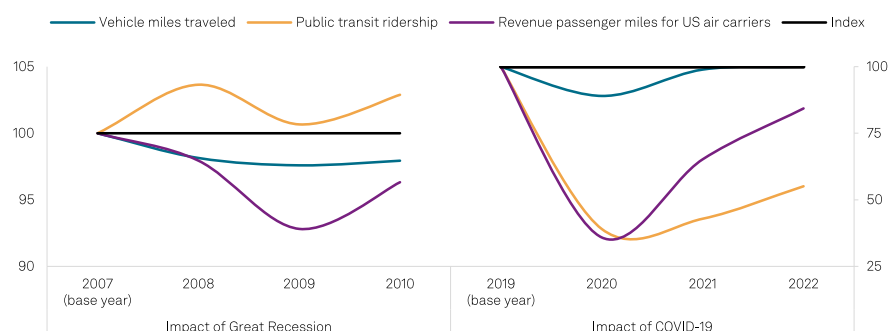
However, rising interest rates could prompt public authorities to defer planned maintenance. Indeed, although governments typically see infrastructure investments as a means of spurring economic growth – especially in times of recession – high interest rates and elevated capital costs may limit public infrastructure spending. And, while state and local fiscal conditions are relatively strong for the time being, prospects for a recession and the rapid acceleration of construction costs and interest rates could be a disincentive for state and local governments to invest in capital projects. As a result, we expect unfunded infrastructure, estimated at US\$2.6 trillion by the American Society of Civil Engineers (ASCE), to increase.

Furthermore, as inflation and rising interest rates increase project costs and debt, we may see some postponement of availability-based P3s, bearing in mind that the debt is recognized on the balance sheet by public entities. Conversely, it may also lead to more volume-exposed projects, since these are not accounted for on the balance sheet. Georgia's SR400 project, for example, is now being procured as a volume/revenue risk P3 after availability-based P3 bids were much higher than anticipated.

"The transportation sector's typically fixed interest rates and long-dated debt mean the impact of rising rates won't be felt immediately."

Further information is available on the Capital IQ portal in the research piece: "N.A. Transport Infra | Essentiality Outweighs Affordability As Counterparty Risks Loom"

Annual Change in U.S. Passenger Transport (Index)



Source: S&P Global Ratings  
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# Inflation Creates Pressure For North American Utilities

Analysts: Gabe Grosberg, Aneesh Prabhu

Regulated utilities are experiencing higher fuel, labour and raw materials costs due to the current inflationary environment, but should be able to fully recover these by passing them on to final customers. However, regulatory lag – the difference in time between costs being incurred and recovered – will likely result in a modest weakening of financial performance. The regulated utility industry operates with a slim financial cushion, reflecting the industry’s robust capital spending and large negative discretionary cash flow, which is mostly funded with debt. As such, rising interest rates and a prolonged period of higher costs, coupled with regulatory lag, increase the likelihood of credit quality deteriorating. We therefore continue to see a negative outlook for US regulated utilities.

For unregulated power producers, high commodity prices are dampening inflation's overall impact on capital spending. While power

prices are now in backwardation – meaning futures prices are below the related spot prices – so far, they have remained relatively high. Europe's energy deficit will keep natural gas prices elevated relative to the US\$3 per thousand cubic feet average that prevailed in the power industry for much of the previous decade. And despite higher rig activity and associated gas production, we expect gas prices to remain higher than in the past.

Naturally, inflation for new construction will drive up capital spending as inflation on renewables project spending reaches 20%-30%. Capital spending for solar and wind projects will be elevated by a broader increase in commodities such as nickel, aluminium, palladium, and steel, as well as higher labour and shipping costs.

Further information is available on the Capital IQ portal in the research piece: "North American Power & Utilities | Inflation Could Create Some Pressure For Utilities"

"Large national groups focused on public transportation services such as Deutsche Bahn, SNCF, or FSI may see an increased reliance on public funding."

# EMEA Infrastructure Well Positioned To Pass On Higher Costs Through Tariffs

Analyst: Gonzalo Cantabrana Fernandez

Generally, infrastructure assets – including airports, railways, toll roads, ports and car parks – perform well as inflation rises as they can pass through the increase in operating costs via tariffs under their contractual or regulatory frameworks. However, for those assets providing a public service, the affordability of tariffs goes beyond purely contractual and regulatory considerations.

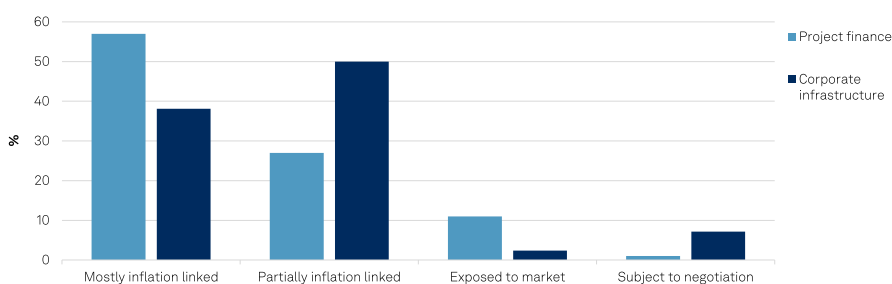
In 2022, European airports benefitted from a solid recovery despite the surge in air fares triggered by the increase in operating costs for airlines. The reduction in the affordability of air travel will tone down airports' passenger prospects for 2023. Inflation is also squeezing

the margins of railway companies, raising already high fixed costs, particularly for personnel and electricity. However, given the social role of public transportation, higher tariffs to mitigate the increase in operating costs are unlikely. As a result, large national groups focused on public transportation services such as Deutsche Bahn, SNCF, or FSI may see an increased reliance on public funding.

Meanwhile, toll road operators are benefitting from the recovery of road traffic to pre-pandemic levels. Typically, concession agreements allow operators to update tariffs every year based on inflation – supporting operators’ ability to navigate the inflationary environment.

Infrastructure companies in Europe are predominantly financed through long-term fixed or hedged debt, however they will be gradually exposed to rising interest rates as they tap the markets to meet refinancing needs in the future. That said, the credit metrics of companies exposed to inflation linked-debt will be negatively impacted if inflation is not passed through to their tariffs.

**Capacity To Pass-Through Inflation Into Revenue**



Source: S&P Global Ratings. Copyright © 2022 by Standard & Poor's Financial Services LLC. All rights reserved.

Further information is available on the Capital IQ portal in the research piece: "EMEA Infrastructure | Well Positioned To Pass On Higher Costs Through Tariffs"

# Chinese Toll Roads: Tariff Increases Far From Keeping Pace with Costs

Analysts: Laura Li and Christopher Yip

Investment returns on Chinese toll roads will provide limited protection against inflation. Mounting costs for land acquisition and construction in populous regions are squeezing earnings, with average construction costs now around four times higher than those of two decades ago. However, toll rate increases have not kept pace.

Meanwhile, debt burdens continue to pile up as policy driven toll road construction in China remains largely debt funded. Total deficit between toll revenues and expenditures expanded to Chinese renminbi (RMB) 628 billion in 2021, and debt provided around 70% of aggregate investments by the end of the same year. Despite this, tariff hikes are unlikely in the next few years. Given COVID-triggered mobility restrictions and soft economic growth, regulators have few incentives to raise highway tariffs significantly in the foreseeable future.

China's inflation rate will remain subdued over the next few years, with the average consumer price index (CPI) likely to remain below 2.5% over 2022-2023. What's more, China's loan prime rate (LPR) has been decreasing over the past couple of years as regulators continue to push down funding costs to encourage toll road investment.

Looking ahead, elevated toll road investment will continue, with both the central and local government reliant on spending to spur economic development. The next phase of investment will largely hinge on an ongoing revision of China's toll road regulations, and regulators may extend concession periods if projects do not meet their expected returns – or if they don't cover operators' investment and operating costs over the period.

Further information is available on the Capital IQ portal in the research piece: "Chinese Toll Roads: Tariff Increases Far from Keeping Pace with Costs"

"Mounting costs for land acquisition and construction in populous regions are squeezing earnings, with average construction costs now around four times higher than those of two decades ago."

# Supportive Regulation And High Power Prices Offset Affordability Risks For EMEA Utilities

Analysts: Emmanuel Dubois-Pelerin, Massimo Schiavo

Most regulated utilities in Europe have their revenue protected by supportive regulatory frameworks, especially in cases where regulated asset bases (RAB) are indexed to inflation with little or no time lag. That said, cost inflation may strain operating margins – particularly for utilities unable to pass through operating costs under less supportive regulation. An inflation-led rise in customers' bills could also prompt regulatory pressure owing to affordability concerns.

What's more, large amounts of inflation-linked debt will also depress credit metrics – at least until RAB increases with inflation. This is still a key issue for UK water utilities, and since mid-September has contributed to two downgrades (Northumbrian Water and Thames Water), and six negative outlook revisions.

Inflation is also reducing ratings headroom for unregulated utilities in Europe, at least in the short term. According to S&P Global Commodity Insights, the cost of solar activities will likely rise by about 4% in 2023 after an 8% increase in 2022. In an environment of rising costs, an increase in capital expenditure may stretch utilities' already-tight free cash flow – especially those particularly exposed to renewables.

Meanwhile, unregulated power generators are benefiting from high commodity prices. We

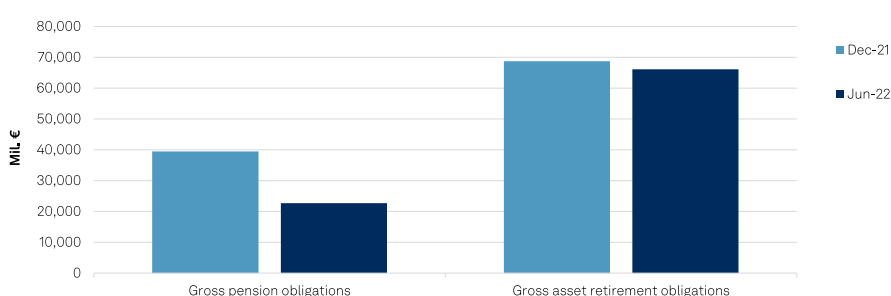
expect power prices to stay high until at least 2024, apart from where EU governments cap unit prices for power generation.

Moreover, due to rising yields through 2024, discount rates are increasing more than inflation, lightening companies' pension and asset-retirement obligations. Indeed, European net pension obligations reduced by over one third in the first half of 2022 as discount rates increased by about 200 basis points across the yield curve. Among the most visible beneficiaries are EDF and E.ON, and, to a lesser extent, Engie and EnBW.

Further information is available on the Capital IQ portal in the research piece: "EMEA Utilities | Regulation And High Prices Offset Affordability And Dividend Risks"

## Inflation Is Reducing Pension And Asset Retirement Obligations

Top 8 EMEA Utilities



Source: S&P Global Ratings.  
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# Australian Toll Roads Well Placed To Manage Inflation With Expected Ability To Pass Through

Analysts: Richard Timbs and Ambrose Beaney

Due to their contractual linkage to inflation, we expect Australian toll prices to increase at an unprecedented rate over the next two years, which will support operators' profitability.

We forecast Australia's annualized consumer price index (CPI) to reach 6.6% for 2022, 5.9% for 2023, and 3.9% for 2024. Certainly, between the second half of 2022 and the first half of 2024, we expect to see numerous quarters where inflation surpasses 1% (minimum increase in toll prices per quarter, unless inflation is higher).

To support profitability, toll road operators are expected to continue to raise tolls in line with concession agreement terms. The combination

of higher toll prices and expected low traffic elasticity should thus see EBITDA (at margins of about 75% for operating roads) increase by mid-to-high single-figure percentages.

Increasing tolls by more than 1% per quarter is untested on the Australian market. However, we do not believe toll road operators will be expected to moderate toll increases at levels below those permitted under contracts. Political intervention is not a key credit concern given the strong concession agreements and perceived low country risk that have underpinned toll road investment in Australia for over thirty years.

Further information is available on the Capital IQ portal in the research pieces: "Australian Toll Roads: Well Placed to Manage High Inflation"

"We expect Australian toll prices to increase at an unprecedented rate over the next two years, which will support operators' profitability."

# Inflation Places Affordability At The Top Of The Agenda For Latin American Infrastructure, With Less Impact On Utilities

Analyst: Julyana Yokota

In most cases, Latin American regulatory frameworks are favourable towards utilities. The Chilean regulatory framework is the strongest in the region, owing to its historical stability. However, it only allows power generators to pass along some fuel costs to consumers, and we forecast a decline of up to 30% in EBITDA among some Chilean operators as a result. Rate-setting mechanisms in Brazil and Colombia should allow electric utilities to pass through all inflation-related costs. Meanwhile, Mexico's Comisión Federal de Electricidad (CFE) will take the same approach for its commercial and industrial clients, but is likely to implement a lower rate adjustment for residential clients. In Argentina, tariff adjustments continue to be at the government's discretion; while inflation reached 70% in 2022, tariffs only increased by 40%.

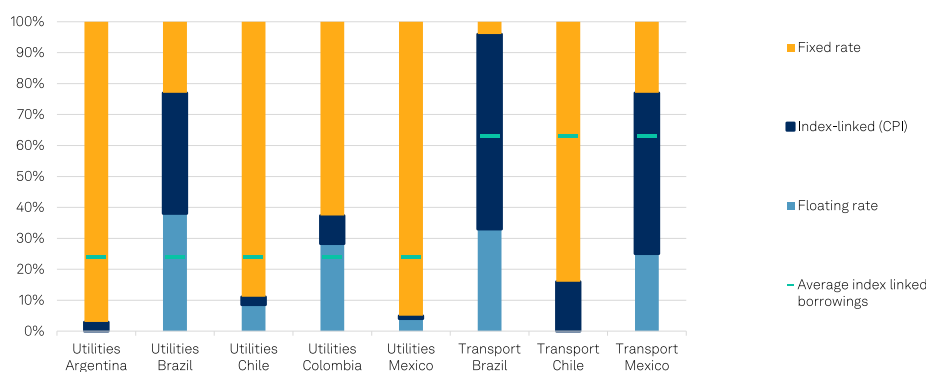
Affordability concerns weigh on some toll road operators, even if protests have so far

remained limited. In the past, such protests have prompted governments in Brazil and Chile to freeze toll road rate hikes – and concessions received either financial or economic compensation.

On the positive side, heavy vehicle traffic has been somewhat immune to inflationary-fueled toll rate adjustments in 2022, and volumes increased 3x-5x higher than GDP growth thanks to a rebound in domestic demand post-pandemic.

In 2022, traffic across the region's airports surpassed 80% of 2019 levels, boosted by domestic and short-haul routes, but traffic remains vulnerable to lower economic activity and consumers' discretionary spending. Airport tariffs represent a small share of airline ticket prices, but the steep rise in jet fuel prices will have a greater impact and likely sap demand for air travel.

Debt Composition For Latin America Infrastructure



In response to the increase in interest rates and financing costs, companies aim to strengthen free cash flows and preserve higher cash positions by pausing capital expenditure. The likely absence of major refinancing in 2023 further mitigates the risks for most rated entities. At the same time, borrowing costs are unlikely to come down soon. As the region's central banks approach the end of the interest-rate hike cycle, they are likely to adopt a cautious monetary approach that takes into consideration persistent high inflation.

Further information is available on the Capital IQ portal in the research pieces: "Latin America: Inflation And Rising Yields Impact On Global Infrastructure And Utilities"

# US LNG To Account For Nearly 60% Of Global Supply Growth Over Next Five Years

From economic volatility to ongoing geopolitical tensions, the past three years have been a rollercoaster for the global LNG market. Aneesh Prabhu, Senior Director and Sector Lead for North American Infrastructure, examines the factors behind the US' increasingly pivotal role in LNG supply dynamics.

The Russia-Ukraine conflict sent European gas markets into turmoil, as 80% of Russian gas supplies – accounting for over a third of European demand – were interrupted. Consequently, the share of LNG imports jumped to 44% of European gas demand last December, up from less than 25% a year earlier. It also triggered unprecedented spikes in TTF prices, averaging \$70/mmBtu in August 2022. Prices have since come down to \$20-25/mmBtu, owing to a 15-20% contraction in gas demand in part due to mild weather.

In a stark display of the market's current volatility, the value of global LNG imports doubled in just one year, rising to \$450 billion in 2022 from about \$220 billion in 2021. However, the LNG import bill of key Asian markets only rose moderately, increasing just over 50% because of the higher share of oil-indexed, long-term contracts. This alleviated some market volatility and reduced the effects of record-high spot prices on import costs. In contrast, Europe's LNG import bill more than tripled, with LNG inflow rising 60% and import prices more than doubling.

## The US occupies a leading role

As the market moves sharply into deficit through to 2026, North America is becoming a leader in LNG supply. We expect supply growth to be concentrated in a relatively small number of markets, namely the US and Qatar. S&P Commodity Insights expects global LNG supply to grow only around 8.5 million tons per annum (mtpa) from 2022-2024, before adding another 20 mtpa in 2025. Consequently, it expects supply growth to average 35 mtpa annually in 2026 and 2027 when global LNG supplies may approach 500 mtpa.

North American LNG is expected to dominate medium-term supply growth and will likely account for nearly 60% of global supply growth over the next five years. By then, US LNG exports will have tripled to 118 mtpa, from 35 mtpa in 2019, as ever-increasing domestic gas

production and higher prices in Europe and Asia have encouraged liquefaction facilities to sell gas overseas. The other key producer, Qatar, aims to boost LNG export capacity to about 125 mtpa by 2027, up from 77 mtpa currently.

## Contracting patterns evolve as supply and demand shift

North American LNG is lifted increasingly free-on-board (FOB, whereby offtakers are responsible for shipping costs) with no destination restrictions – making it attractive to portfolio players, aggregators, and utilities.

2022 was a particularly busy year for LNG contracting, seeing transactions of 80 mtpa – surpassing the 60-63 mtpa signed in 2021. Of that total, about 72% involved exporters from the US, with the rest originating primarily in Qatar and Mexico. In 2023, we expect contracting activity to slow down.

Sale and purchase agreement (SPA) tenors are increasingly getting longer, with over 80% in 2022 signed for 16-20 years. While China has been leading demand growth, aggregators, portfolio players, and traders have also purchased significant long-term volumes. Meanwhile, European buyers have been conspicuously absent, as they remain concerned about demand longevity and greenhouse gas (GHG) reduction.

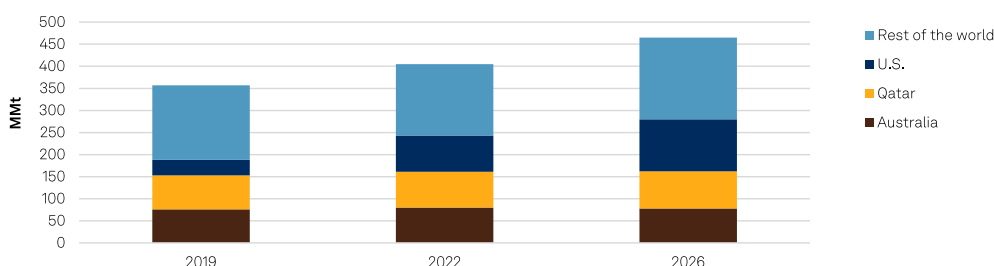
Volumes purchased by aggregators and traders have increased to over 20 mtpa in 2022, from about 8 mtpa in 2021. These volumes have yet to be redirected; we expect Europe to eventually pick up a substantial portion of them given its desire for shorter 5- to 10-year contracts, although this will cost more than conventional contracts because of their shorter term. While the flexibility of spot LNG has been instrumental to offset Russia's gas supply cuts, it comes at a significant premium compared to long-term contract LNG supply, putting further pressure on European import bills – and on European economies.

Further information is available on the Capital IQ portal in the research piece: "From Lots To Lack: Liquefied Natural Gas' Wild Ride"

"As the market moves sharply into deficit through to 2026, North America is becoming a leader in LNG supply."

## Liquefied Natural Gas Exports By Country

Three countries export the bulk of liquid natural gas, but the U.S. is catching up fast



# LNG Could Signal Pain Or Gain For Europe's Utilities

Emmanuel Dubois-Pelerin, Senior Director and Sector Lead for EMEA Utilities, looks at how a pivot to LNG could present opportunities for European utilities – but also brings high risks.

"European utilities typically have a weak position in global LNG markets, and they will be competing with established Asian buyers that can agree supply contracts of up to 25 years."

In a bid to replace lost Russian gas supplies, Europe has turned to liquefied natural gas (LNG). Yet to fill the gap even partially, we estimate that Europe will require around 150 billion cubic meters (bcm) of LNG annually through 2025 – an increase of nearly 65% from the 90 bcm purchased in 2021. This additional supply will replace less than half of missing Russian volumes, with demand destruction and shifts in power generation needed to compensate for the remainder.

This will likely mean tight LNG balances over at least 2023-2024, as we are unlikely to witness any considerable increase in capacity before 2025. From this point, we expect to see over 130 bcm of new LNG supply commissioned, broadly split between the US in 2025 – making it the global leader within seven years of starting exports – and Qatar in 2026-2027. The security of Europe's gas supply will hinge on the region's ability and willingness to contract sufficient additional liquefaction capacities in both countries.

### Accessing new LNG volumes is challenging as Asia Pacific will continue to dominate LNG imports

That said, the EU's ability to source these levels of LNG – and the price at which it is able to do so – will depend heavily on global supply and demand dynamics. Certainly, European utilities typically have a weak position in global LNG markets, and they will be competing with established Asian buyers that can agree supply contracts of up to 25 years.

While Europe's LNG imports increased by about 65% in 2022, they are still less than half of Asia's, which account for about two-thirds of the global total. Indeed, the top importers are all located in northeast Asia – including China, Japan, South Korea and Taiwan – and each imports at least 50% more than any European country.

In 2022, tepid GDP growth in Asia saw gas demand flatten, freeing up about 20 bcm of LNG, to Europe's advantage. However, in the coming years, Asia's gas demand is set to rebound and, with the exception of Southeast Asia, will be able to withstand relatively high prices. As demand rises, the region would absorb the 20 bcm freed up in 2022 – as well as the limited amount of global liquefaction capacity additions in 2023. As such, LNG supply will be at its tightest in 2023-2024.

### Europe's pivot to LNG a key driver of high prices

Until now, Europe's forced-march purchasing has been a key driver of rising prices. Since Q2 2022,

Europe has bought cargoes at virtually any price – diverting spot, and even long-term, cargoes from Asia Pacific (implicitly paying the supplier's breakup fee) and doubling its share of the US' rising LNG exports. To achieve this, Europe outpriced South Asia and benefited from weaker-than-expected demand from northeast Asia.

In the longer term, LNG landed in continental Europe will price high, likely at a continuing premium to Asia Pacific, keeping gas and power prices in Europe elevated. Crucially, gas prices have come down from the unprecedented spikes of last summer, supported by milder-than-usual weather. However, we assume continued high TTF gas prices of US\$30/mmBtu in 2023 and US\$25/mmBtu in 2024 – considerably higher than the typical historic price range of US\$5-US\$10/mmBtu. Prolonged elevated gas prices carry considerable risks for inflation, affordability, state budgets, power markets, and utilities' liquidity, and present earnings downside risks for those that are unable to pass on gas price costs or are short on power generation.

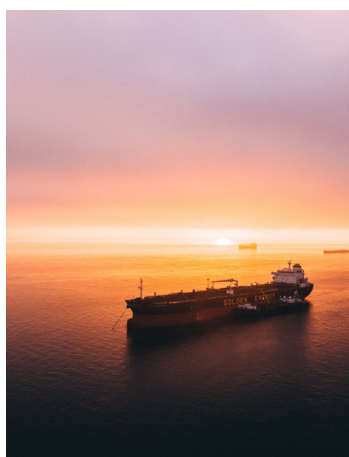
### LNG could transform utilities' businesses – but carries risks

Given its significance in the energy mix, LNG has the potential to reshape certain utilities' business models. Expanding or building LNG infrastructure may strengthen a company's long-term credit quality, especially since some countries have designated LNG infrastructure as critical to energy security. However, the risks could outweigh the rewards. Demand for hydrocarbons is set to decline from the early 2030s in Europe, and utilities with LNG as a core business face a drop in earnings, as well as fixed costs for stranded assets.

Indeed, as Europe fulfils its decarbonization ambitions, natural gas demand should reduce significantly, while renewables capacity is forecast to triple by the end of the decade. Notably, gas-to-power – which accounts for about 30% of demand – should gradually decrease as heat pump installations accelerate and renewable sources replace gas-to-power, net of coal and nuclear retirements.

In the near term, however, Europe's gas balance will be very tight. We see 2023-2024 as a crucial period for Europe, and European utilities' ability to contract LNG under term contracts will be key to reducing its exposure to extremely volatile spot prices while enabling the continent to stabilize its gas and power landscape.

Further information is available on the Capital IQ portal in the research piece: "Europe's LNG Focus Can Bring Pain As Well As Gain For Utilities" and "S&P Global Ratings Lowers 2023 European Gas Price Assumptions On Steady Demand Reduction"





# Cheaper Pipeline Gas And Diversified Long-Term Sourcing Reduces China's Exposure To Volatile LNG Spot Prices

Congyun Zhou, Associate Director, looks at how China's gas sector is expected to fare amidst fluctuating demand.

Energy security remains a lingering issue for China, as the world's largest natural gas importer braces for extended turbulence in the liquefied natural gas (LNG) market. However, we believe the country should be able to reduce reliance on expensive spot purchases through its efforts to secure long-term LNG supplies and more than double its pipeline imports – including a five-fold increase in Russian gas by 2030.

With natural gas key to the country's decarbonization commitments, demand will rise by a total of 175-180 billion cubic meters (bcm) by 2030 – up from about 300 bcm in 2021 – and is expected to peak around 2040, according to oil major China National Petroleum Corp. (CNPC).

The pace of growth, however, is slowing, with an expected increase of 65% by 2030 from 2020 levels, compared with a rise of about 212% between 2010 and 2020. The slowdown reflects decelerating consumption growth in the industrial sector – which accounts for 40% of end demand for gas – amid waning economic growth. Meanwhile, the power sector, which currently accounts for 24% of gas demand, could soon take over as the primary growth driver as it looks to support increasing peak-shaving needs to complement China's shift to renewables.

## Pipeline gas imports to reduce exposure to volatile, expensive spot LNG prices

In 2023, China's exposure to expensive spot LNG prices should remain limited to 5%-10% of its needs, as domestic gas production and pipeline gas delivery will cover up to 75% of the country's requirements. Meanwhile, long-term LNG will account for another 15%-20%, assuming 85% contract fulfilment.

In our estimation, imported gas should continue to meet 45%-50% of demand through 2030, with an increasing contribution from pipeline imports and long-term liquefied natural gas (LNG) contracts. Indeed, pipeline gas will account for 40%-45% of total imports by 2030, compared with just 35% in 2021, backed by increased deliveries from Russia and Turkmenistan on new and existing pipelines.

Turkmenistan could see its gas exports to China double to 65 bcm by 2030, while Russian pipeline volumes may jump to 48 bcm (considerably higher than the 10 bcm delivered in 2021). Indeed, cooperation on energy between China and Russia is deepening as Moscow seeks to divert gas away from Europe. Still, Russia's projected increased pipeline gas deliveries to China by 2030 will cover less than half of the

drop in Russian gas exports to Europe, according to the International Energy Agency (IEA). China's LNG sources are also diversifying away from its largest supplier, Australia. Indeed, new contracts signed in 2021 and 2022 instead focused on the US, Qatar, and Russia.

## Lower fuel costs and better margins ahead for gas distributors

An anticipated decline in gas costs from 2023 will follow the same trajectory as crude oil prices, as supply-demand balance in the oil market improves. We expect local governments to adjust for a smaller decline in retail prices, since costs were not passed on sufficiently in the 2021/2022 winter. This would support the operating viability of gas distributors and prevent disruption to services. Therefore, retail prices in 2023 should remain considerably higher than pre-2022.

Gas distributors' dollar margin expansion in 2023 will also be supported by a likely higher portion of consumption from commercial and industrial users. Indeed, while pandemic-related lockdowns resulted in an increase in residential use as people stayed home, gas consumption in the commercial and industrial space was hit. The trend should reverse in 2023, barring any major lockdowns.

## Regulatory framework reform to create better operating environment

China's overarching goal for gas reform is full market liberalization of upstream and downstream pricing (excluding residential users), while keeping midstream transmission and distribution under tight regulatory control.

The reform may gradually reduce inefficiency in the current pricing framework, whereby upstream gas prices – which are largely dictated by the big three national oil companies – are more reflective of market supply-demand balance.

A liberalized market can allow for upstream and end users to adjust their gas supply and usage more quickly and efficiently. The pace of reform will likely be disrupted by the current high gas cost environment, as full passthrough would mean higher volatility and a surge in end user costs. Maintaining energy security remains a considerable challenge for China, but efforts to diversify on the supply side should cushion the landing as demand growth falls.

Further information is available on the Capital IQ portal in the research piece: "China Gas Sector Easing Into Lower Demand"

"Russia's projected increased pipeline gas deliveries to China by 2030 will cover less than half of the drop in Russian gas exports to Europe."



# Japan's LNG Supply Remains a Key Energy Resource

Hiroki Shibata, Senior Director and Analytical Manager, examines LNG's importance in Japan's energy mix and the outlook for the sector in light of increasing pressure on the industry.

With the global liquified natural gas (LNG) market currently in a state of confusion, Japan is scrambling to shore up supply. And as it works to replace expiring contracts and mitigate volatile spot LNG procurements, it is pursuing more long-term LNG supply contracts than before. Competition for the fuel has, however, heated up and China has overtaken Japan as the world's largest importer of LNG. (see chart)

Since the 2011 Fukushima disaster, which sharply reduced Japan's supply of nuclear – its largest non-fossil fuel source at the time – LNG has been a key resource for the country. Indeed, natural gas accounts for over a fifth of primary energy consumption in Japan, and over 95% of it will continue to be imported as LNG.

The government of Japan's sixth Strategic Energy Plan, announced in October 2021, envisages the country halving LNG use between 2019 and 2030. This could reduce consumption by up to 40 billion cubic meters (BCM) of LNG per annum. Over the same timeframe, the aim would be to double the use of renewables and a major nuclear restart – both of which we view as out of reach. As such, S&P Global Ratings expects that LNG demand will decrease by about 2% annually until 2030.

Indeed, only 10 of the dozens of nuclear reactors in Japan have resumed activity since the disaster, and while the Japanese government's stance may help to expedite the resumption of additional plants, in areas where local communities haven't given consent, restarting operations in the next year or two is unlikely.

As for renewables, the technology needed for a renewables surge is not currently available, and decarbonization is still a way off.

## Gas procurement a key concern

More than 95% of Japan's gas procurement comes from overseas in the form of LNG, and around 10% of Japan's LNG imports come from Russia. Given Japan has no effective

replacement for this portion of its imports, there is growing uncertainty about the future.

If the LNG spigots are turned off by Russia, Japan would need to turn to the spot market, where prices tend to be higher and much more volatile. In such a case, utilities would likely end up shouldering large financial burdens, and current pricing systems in Japan do not allow regulated electric utilities to fully pass on increased costs to end customers. As such, several regulated power utility companies have filed for approval or announced plans to revise the current system for customers with such limits.

Activity in Australia could hold the key to Japan guaranteeing a longer-term stable supply of LNG. Australia is Japan's largest supplier of LNG – accounting for 36% – with a four-decade relationship. Inpex Corp., Japan's largest upstream oil and gas company, has operated its flagship Ichthys LNG project in Australia since 2019. If Inpex expands production at the Ichthys project in future as planned, we believe Japan's LNG security can be guaranteed and geopolitical risk kept at bay.

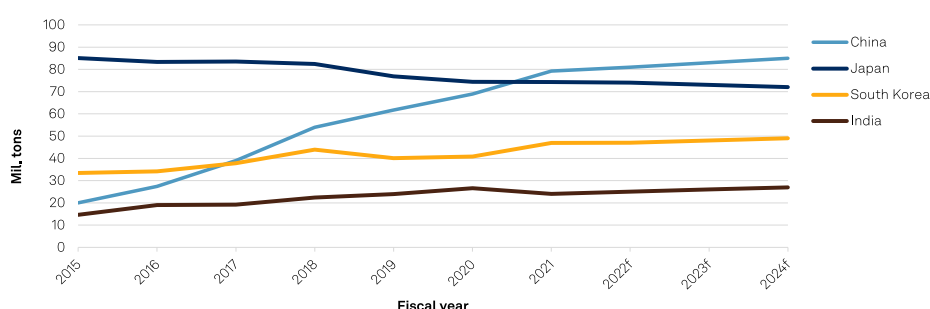
Looking ahead, we think Japan – an island nation with few natural resources – can weather global gas turmoil thanks to its long-term agreements for LNG, as well as the geographic diversity of upstream projects and pricing formulas that keep market volatility at bay for now. What's more, 80% of Japan's LNG purchase is based on long-term pricing formulas, helping stabilize prices and minimizing the impact of volatile spot-pricing mechanisms.

That said, soaring energy prices and a weak yen are a double whammy for Japan's electric utilities, which are unable to fully pass on full cost increases on a timely basis. This means a steep downturn in key financial ratios is inevitable for many utilities in fiscal 2022. As such, while a stable supply of LNG can help, there are tough times ahead for Japan's power providers.

Further information is available on the Capital IQ portal in the research piece: "Japan's LNG Supply: On Solid Ground?"

**Resource-Hungry China Overtakes Japan**

LNG import volumes



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“Japan – an island nation with few natural resources – can weather global gas turmoil thanks to its long-term agreements for LNG, as well as the geographic diversity of upstream projects and pricing formulas.”

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