RUSSIA-UKRAINE CONFLICT:
IMPACT ON ENERGY/ MATERIAL PRICES AND SCENARIOS FOR TENDER PRICING

14th March 2022

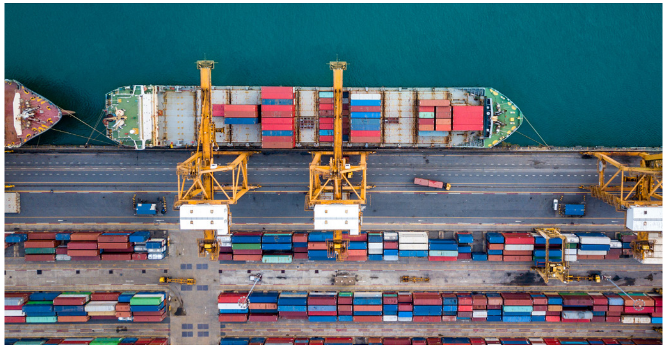
EXECUTIVE SUMMARY

After some encouraging signs that pandemic-related supply issues were beginning to ease and construction material price inflation subside towards the end of 2021, global markets have been hit by another major supply shock.

Russia's invasion of Ukraine has replaced Covid-19 as the top risk to global supply, with the crisis prompting a spike in energy costs and a consequent resumption of an inflationary trend. Rising energy prices will invariably impact the manufacturing costs for many construction products and materials. Indeed, the CLC has confirmed that manufacturers have increased prices by between 5-10% so far this year, with the cost of the most energy-intensive products rising by as much as 20%.

While the UK is not as reliant on Russian energy and commodities as mainland Europe, the shockwaves stemming from the crisis will be far-reaching. As a result of Russia's actions, supply chain disruption, shortages, and price hikes will affect materials and deliveries. The reallocation of certain types of materials will only intensify the situation.

This report explores to what extent the UK is exposed to the impacts of the crisis, and how it might impact construction costs. An assessment of the potential implications for certain key trade packages is included, as well as a table outlining three potential scenarios and how each might impact demand, supply, and macroeconomic factors. The potential effect on tender price inflation has also been provided for each scenario.



KEY POINTS FROM THIS REPORT INCLUDE:

- The greatest impact to UK construction from the conflict is expected to be spiking oil and gas prices
- This will have a knock-on effect for most construction materials, increasing input costs and tender prices, as well on shipping and logistics costs
- Although the UK does not rely heavily on Russian commodities, global inflationary pressures will impact UK inflation
- Sanctions imposed on Russia are likely to be long-term, creating further supply chain disruption and compounding any lingering pandemic-driven supply issues
- Materials with energy-intensive production processes (e.g., concrete/ cement, steel and aluminium) will experience the greatest inflationary pressures
- Higher prices will be passed on by contractors and their supply chain rather than absorbed. Recovery plans as well as scheme viability may be affected.
- Metal commodity price increases to be greater and more prolonged than previously expected but manufacturers work on forward energy contracts/ price hedging, therefore there is typically a lag between energy cost rises and impact on cost
- Risk that stagflation pressures choke off demand and construction output growth
- Use of fixed-price contracts could be problematic for some contractors and could result in financial stress and, in the most extreme, insolvencies
- Lump sum contracting procured through single action tendering may prove more difficult in the short-term
- Geopolitical tensions encouraging greater diversification of energy supply (e.g., nuclear)
- The level of tender price inflation will depend on how sustained disruption to global energy supplies is, the severity of sanctions/ restrictions imposed on Russian exports, and how quickly supply chains can adapt and diversify sources of supply. However, even in our 'limited disruption scenario', tender price inflation might increase to c.+3.5% to 4.5% in 2022
- In time, we expect any spike in inflation to level off as global supply chains adjust to new norms

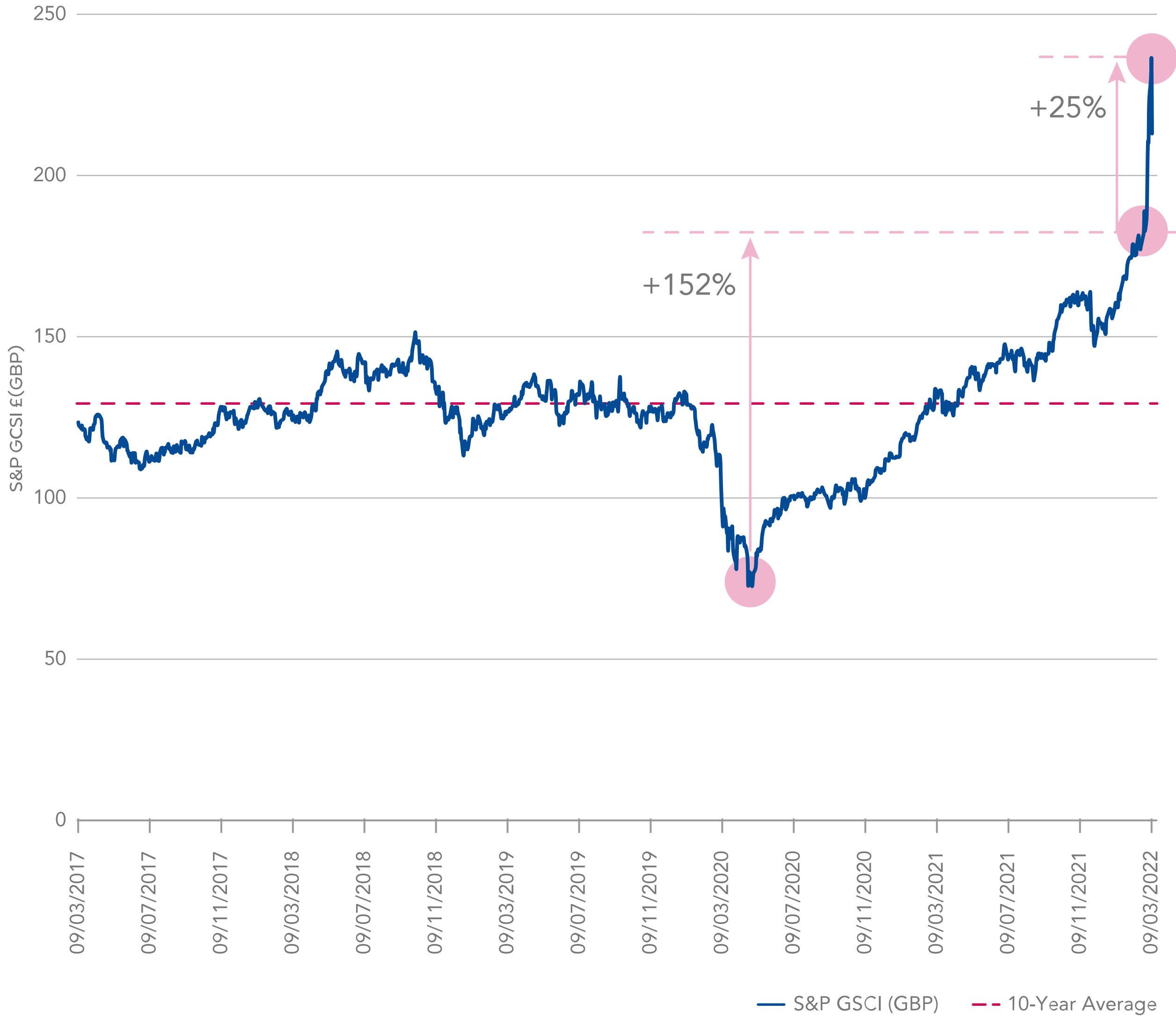
COMMODITY PRICE MOVEMENTS

The recent conflict between Russia and Ukraine is having a knock-on economic impact across the world, putting upward pressure on energy and commodity prices.

As a leading commodities exporter, Russia is one of the world's largest suppliers of metals. These metals are used in everything from aluminium cans to copper wires. Its metals are even used in car components. For example, nickel, which is used in lithium-ion batteries, and palladium, which is used in catalytic converters. Ukraine is also a major exporter of iron, iron ore, steel, and aluminium oxides, as well as electrical machinery and components across Europe.

The conflict has caused some exceptional commodity price moves which could have structural implications on long-term supply. The S&P GSCI Commodity Price Index – a widely recognised, composite index of 24 globally traded major commodities – jumped nearly 25% between 24th Feb (the day on which Russia began a full-scale invasion of Ukraine) and the 8th of March. This recent spike follows a 152% increase in the GCSI since its recent low in April 2020.

S&P GSCI COMMODITY PRICE INDEX



Source: **S&P Dow Jones Indices**

European natural gas prices have risen to a record high which is feeding into inflation for many raw materials, particularly metals such as aluminium (where power constitutes nearly 25% of the cost of making it) and steel (up to 20% of the cost). Russia is a leading global supplier of oil, gas, metals, and grains but recent western sanctions and boycotts of their natural resources (to reduce legal and reputational risk) has seen traders rush to find other sources of supply in markets that are already constrained due to post-pandemic demand. This is disrupting long-established trade flows and further fuelling inflationary pressures.

RUSSIA: WHAT DOES IT EXPORT AND WHERE?

In 2021 Russia's top export destinations in terms of trade value were [1]:

CHINA *(13.6%)*

NETHERLANDS *(8.63%)*

GERMANY *(6.02%)*

TURKEY *(5.43%)*

UNITED KINGDOM *(4.51%)*

Belarus (4.48%), Italy (3.91%), Kazakhstan (3.73%) and the US (3.59%) were also significant foreign trade partners for Russia in 2021.

In 2021, export sales from Russia grew by 45.7% to $493.3 billion, boosted by sales of energy (+59.3%), chemicals (+34.8%), food products and raw materials (+21.4%), machinery and equipment (+29.9%) and timber pulp (+37.4%)[2].

RUSSIA'S MAIN PRODUCT EXPORTS IN 2021 WERE:[3]

Crude Petroleum (22.1%)
Refined Petroleum (14.2%)
Commodities not elsewhere specified (13.8%)
Coal Briquettes (3.56%)
Gold (3.52%)

In 2019, petroleum gas exports from Russia totalled $26.3bn, representing 6.46% of its total exports that year. However, in 2021 this figure dropped to $8.81bn, or 1.79% of Russia's export value. Despite the fall, gas remains one of Russia's top exports.

Russia: Products Exports (2021) (Total $493bn)
[Click here to view]

Source: [1] https://oec.world/en/profile/country/rus/?subnationalTimeSelector=timeYear
[2] https://tradingeconomics.com/russia/exports#:~:text=Russia's%20main%20exports%20are%3A%20fuels,agricultural%20products%20(5%20percent)
[3] https://oec.world/en/profile/country/rus/?subnationalTimeSelector=timeYear

Russia exports a number of key commodities used in the construction sector. Metals such as aluminium, iron (semi-finished and hot rolled) and refined copper accounted for more than 6.2% of Russia's exports in 2021. Steel-related exports (flat rolled, steel bars, ingots and wire) only represented 0.4% ($1.95bn) of Russia's total exports in 2021, but it is still the world's fifth largest steel-producing country, producing 76Mt of crude steel in 2021 (or 3.9% of total global steel production last year).[4] Furthermore, Russia exports a large amount of the steelmaking ingredient iron ore ($3.8bn worth or 0.77% of its total exports in 2021), while Ukraine exports nearly double the amount of iron ore as Russia does.[5]

Russia also exports various types of wood, particularly 'sawn wood' which in 2021 accounted for nearly 1.3% of Russia's exports. However, according to Forest Research, the UK does not import large volumes of wood types from Russia. Both sawn softwood and hardwood from Russia accounted for 5% and 1% respectively of the UK's total imports for each category. The UK is slightly more reliant on Russia for wooden pellets and plywood though, with 12% and 8% of the UK's total imports for each category.[6] However, globally, Russia is a significant producer and exporter of various wood types [7] which could push global prices higher as countries look for alternative sources of supply.

While the conflict will impact global supply and pricing on a number of key commodities, most of the upward price pressure will be felt from higher energy prices.

Source: [4] https://worldsteel.org/media-centre/press-releases/2022/december-2021-crude-steel-production-and-2021-global-totals/
[5] https://oec.world/en/profile/country/rus/?subnationalTimeSelector=timeYear
[6] https://www.forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/forestry-statistics-2018/trade/origin-of-wood-imports/
[7] https://www.forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/forestry-statistics-2018/trade/origin-of-wood-imports/

HOW EXPOSED IS THE UK TO OIL AND GAS PRICE HIKES?

Gas and oil prices on the international markets have increased sharply following Russia's invasion of Ukraine. The Government has said that for the UK, the most likely economic impact, at least initially, will come through higher global energy prices. However, there is a great deal of uncertainty as to how sustained these, and any further, price increases may be.[8]

4.1. Oil

The UK is less reliant on Russian oil than the EU. Around 30% of the EU's oil imports come from Russia while the UK imports around 8%, instead relying on Norway and the US for the vast majority of its imported crude oil.

Brent crude oil prices peaked above $130 a barrel on 7th March – the highest level for almost 14 years – before paring gains to around $108 a barrel on 14th March following reports that OPEC+ is considering ramping up production to ease turmoil in the energy markets. However, the US has imposed an immediate ban on Russian oil whilst the UK plans to phase out oil imports through the end of 2022. Furthermore, BP and Shell are also stepping back further from doing business with Russia, which will stoke inflationary pressure.

Meanwhile, UK natural gas prices (for next day delivery) hit a new record high of more than £6 per therm on 7th March 2022 – 10-15 times higher than normal. However, UK gas prices subsequently fell to just under £3 a therm as concerns over a ban on Russian supplies faded after the UK and European governments restricted the embargo to just Russian oil purchases.

4.2. Gas

The UK only gets around 3% of its natural gas from Russia so is unlikely to face a physical shortage of supplies, but Europe is far more reliant, with 40% of its natural gas coming from Russia. However, European and UK gas prices move in tandem.

Although Russian gas supply is currently unaffected, disruption of Russian gas exports European countries would also push up prices in other markets the UK uses, such as Norway and Qatar, as demand for alternative gas sources would rise across Europe.

While European buyers with long-term contracts with Gazprom are still drawing maximum gas from Russia under those agreements, companies with more flexible shorter-term contracts have started to look for alternative sources of supply, resulting in additional demand for alternative gas sources.

4.3. Sanctions

Adding to global inflationary pressures, the US announced a ban on all Russian energy imports. The UK, which imports relatively low volumes of Russian oil and gas, has taken the approach to phase out imports of Russian oil and oil products and is "considering" banning Russian natural gas.

Due to its heavy reliance on oil and gas, the EU can ill-afford to cut off the continent's energy lifeline by imposing energy sanctions. Plans to switch to alternative suppliers and reduce dependence on Russian supplies will take several years, leaving the energy market dynamics largely unchanged in the short-term.

High energy prices are also being supported by increased risk that Russia could turn off gas supplies to Europe and other parts of the world. Indeed, in response to Western sanctions, Russia plans to ban exports of certain commodities and raw materials, with details to be confirmed by the Russian cabinet during the week commencing 14th March 2022.

Source: [8] https://blog.bizvibe.com/blog/largest-wood-producing-countries#:~:text=China%20has%20grown%20rapidly%20over,wood%2Dbased%20panels%20and%20paper

HOW WILL INCREASING FUEL COSTS IMPACT UK CONSTRUCTION PROJECTS?

While construction is a less energy-intensive sector, it does procure products and materials from very energy-intensive sectors which will invariably pass on the effects of higher energy prices in the form of price hikes (I.e., 'second-round effects'). The production of concrete, cement and bricks will be affected by higher energy prices, but the basic metals industry is even more exposed to rising electricity and gas prices.

The material, manufacture location, shipping route, local transport, currency exchange, as well as wider supply and demand factors all have a significant impact on construction costs. Therefore, finding a direct correlation between energy and construction price is difficult and the more relevant focus is on the compounded impact of inflation on the overall construction price.

Nevertheless, the cost of energy used to produce construction materials (as well as for direct use in transport and on construction sites) is set to remain high and generate a new inflationary trend for UK construction in 2022 and potentially beyond. These renewed inflationary pressures are likely to result in:

- Increased attractiveness of off-site construction (with fewer vehicle journeys to and from site)
- Increase and acceleration of renewable and alternative energy construction projects (e.g., advanced and small modular nuclear reactors) to wean UK off fossil fuels
- Some projects becoming unviable as costs rise and finances becomes less certain/ unprofitable
- Shelving of some projects and a slowdown in new work as clients assess the economic impact of the conflict
- Contractors placing greater preference on the use of fluctuation clauses in contracts to allow for price rises in an inflationary environment (i.e. risk management)

Main Contractors are reporting the following issues for each trade in light of the Russia-Ukraine conflict:

Trade	Impact of Russia-Ukraine Conflict
Groundworks and Frame	• Concrete/ cement: natural gas fuels cement kilns as part of the production process • Concrete/ cement: the energy-intensive production process means prices for finished materials will edge higher as rising natural gas prices make their way through to market pricing • Concrete/ cement: price increase of 19% applied in January 2022 and increases of between £13-16/ tonne of cement are rumoured from April • Cement replacement GGBS (a by-product of iron manufacturing, with Ukraine being the 5th largest iron manufacturer and Russia the 9th largest) is now at price parity with cement and is set to rise further due to worldwide shortages and the vast amount of energy required to produce it • Concrete alternatives are available but at a premium of c.30-40/ m3 • Concrete pricing can be fixed for up to 2 years, but the market is applying large premiums to provide this fixed price option • Rebar: No issue with supply but multiple price increases have been seen between 24 Feb – 10 Mar 2022. Morrisroe are forecasting that average rebar material prices will increase from £820/t in Q1 to £1,150/t in Q2 2022 • Price offers from rebar suppliers are open for acceptance for a matter of hours, with fixity of only a few months at best • Steel: British Steel price increase announcement on 10th March 2022 that prices for UK structural steel sections for all new orders were to increase by £250/t with immediate effect • Steel increase blamed on extraordinary volatility in commodity and energy prices causing significant hikes to key inputs in the steel manufacturing process, as well as significant disruption to international trade flows • Potential delays with UK not accepting Russian Cargo Ships at ports
Façade	• Higher steel and aluminium prices are having a knock-on effect on prices • Suppliers are reporting 30% rises in aluminium products due to high energy and Billet prices increasing production costs as well as fears of supply disruption • Russia accounts for 6% of global aluminium production but many buyers have voluntarily stopped buying the material • Price rises have been applied by leading curtain wall fabricators. However, applied curtain wall system price increases do not fully cover the raw material/ energy price rises • Lead times are extending due to aluminium systems houses reaching capacity with unitised systems working on a 60 week plus lead time • Suppliers are being advised to place cladding orders as soon as possible to avoid potential durational impacts • Some European Façade contractors are experiencing difficulties with deliveries to site. Some of their delivery drivers are Ukrainian and are staying in Ukraine to fight • Oil supply from Russia to have an effect on bitumen-based roof products

Brick and Blockwork	• Availability not impacted but further price increases are expected due to rising energy costs (natural gas fuels brick kilns) • Increasing gas prices are forcing brick manufacturers to renege on pricing agreements and implement new pricing structures
Drylining and Plastering	• British Gypsum metal is sourced from China whilst board is manufactured in the UK, therefore supply should be unaffected • Main cause for concern is rising energy costs putting pressure on manufacturers and logistics • BG price increases of 8-10% expected in May 2022. Some contractors are "front loading" programmes to avoid price rises which could increase lead times beyond c.4 weeks
Joinery and Carpentry	• Russia is the largest softwood exporter globally (exporting US$5.8bn[9] worth in 2021) so if sanctions placed on Russia extend to timber, there will likely be European-wide shortages • Although Russia and Ukraine are only responsible for a relatively small amount of UK wood product imports used in construction, the loss of global raw material supplies will have a knock-on effect on prices in all markets
Tiling and Stone	• Majority of stone comes from Western Europe so no immediate concerns over availability
MEP	• Suppliers indicate that there is no direct impact to supply currently but expect some price impact in the coming months • Cost and availability issues developing in the production/ supply of PE and PP plastics due to gas, oil, and petrol-chemical price increases. This will impact all phases of a project • Areas of concern: steel-related products (e.g., M&E containment, pipework, conveyance products and fabricated products), copper-related products (e.g., pipework, conveyance products, cabling and general system components), all aluminium products (e.g., heat exchangers, lifts, and fans) • Potential supply and pricing issue of refrigerant gas • High aluminium prices to affect lifts
Landscaping	• Concern over availability and cost of bituminous materials used for road construction, roofing, waterproofing etc

Source: [9]The global export value of all forest and wood products in 2021 was US$12 billion.

SCENARIO PLANNING FOR THE RUSSIA-UKRAINE CONFLICT

Although the UK has few direct economic links to Russia and trade between the two is small relative to the size of either economy, Russia's invasion of Ukraine and the sanctions imposed on it in response could have a significant impact on the UK economy.

In this volatile and fast-moving situation, we've outlined three potential scenarios and how each might impact demand, supply, and macroeconomic factors. In advance of our next TPI research publication due for publication in April 2022, we also give guidance on how possible scenarios might affect construction tender price inflation in 2022.

	Limited Disruption Scenario	Intermediate Scenario	Substantial Disruption Scenario
Demand	• Firms and consumers behaving with increased caution as confidence falls	• Firms and consumers adopt a 'wait and see' approach, cutting back and delaying investment/ consumption plans	• Loss of confidence among markets and consumers
Supply	• Oil and gas supplies continue to flow. Uncertainty is short-term and prices stabilise at elevated levels • Short-term commodity price volatility as the supply chain reacts to sourcing/supply issues • Short-term disruption of energy supply to Europe will push wholesale energy prices higher globally • Traders reluctant to deal with Russian suppliers • Higher energy prices cause a spike in CPI inflation	• Energy supply from Russia is reduced but not eliminated • Strengthening of sanctions/ restrictions placed on trade between Russia and Europe • Difficulties in paying Russian firms for oil and gas, resulting in a reduction of supply • Supply chain disruption/ delays due to suspensions of production on a variety of goods/raw materials • Some localised damage to physical infrastructure (eg, pipelines that cross Ukraine to bring Russian gas to Europe • Disruption to keep energy prices elevated, exacerbating already high inflation	• Russia turns off supply of natural gas and crude oil to Europe • Large-scale disruption to Russian energy supplies would force the EU to increase imports from elsewhere, pushing market prices higher • Global commodity prices surge due to reduction in supply • Non-critical industries could be forced to shut down or mandate a reduction in oil/gas usage (commercially and in homes) until alternative energy sources are secured
Macro	• Muted impact on UK GDP but could become starker in 2023 as households exposed to higher energy prices rein in spending • Rising interest rates to deal with temporary price shock • Investors to move their money out of emerging economies and towards advanced economies as they look for safer, less volatile assets	• Prolonged and heightened geopolitical uncertainty holding back economic growth with further inflation ('stagflation') • Post-pandemic recovery delayed but not completely derailed • Prolonged high energy costs have negative spill overs, prompting a mild economic downturn	• Persistent falls in in industrial production, employment and international trade • Energy rationing would impact GDP growth, pushing the UK and Europe into a prolonged and unavoidable recession • Governments/central banks to provide extraordinary fiscal support to offset higher energy prices
	Potential Impact on UK Construction		
	• Initial spike on input costs as resources are squeezed	• European imports become scarce as energy effects industrial shut down	• Demand collapses on war footing. Lack of work potentially reduces pricing

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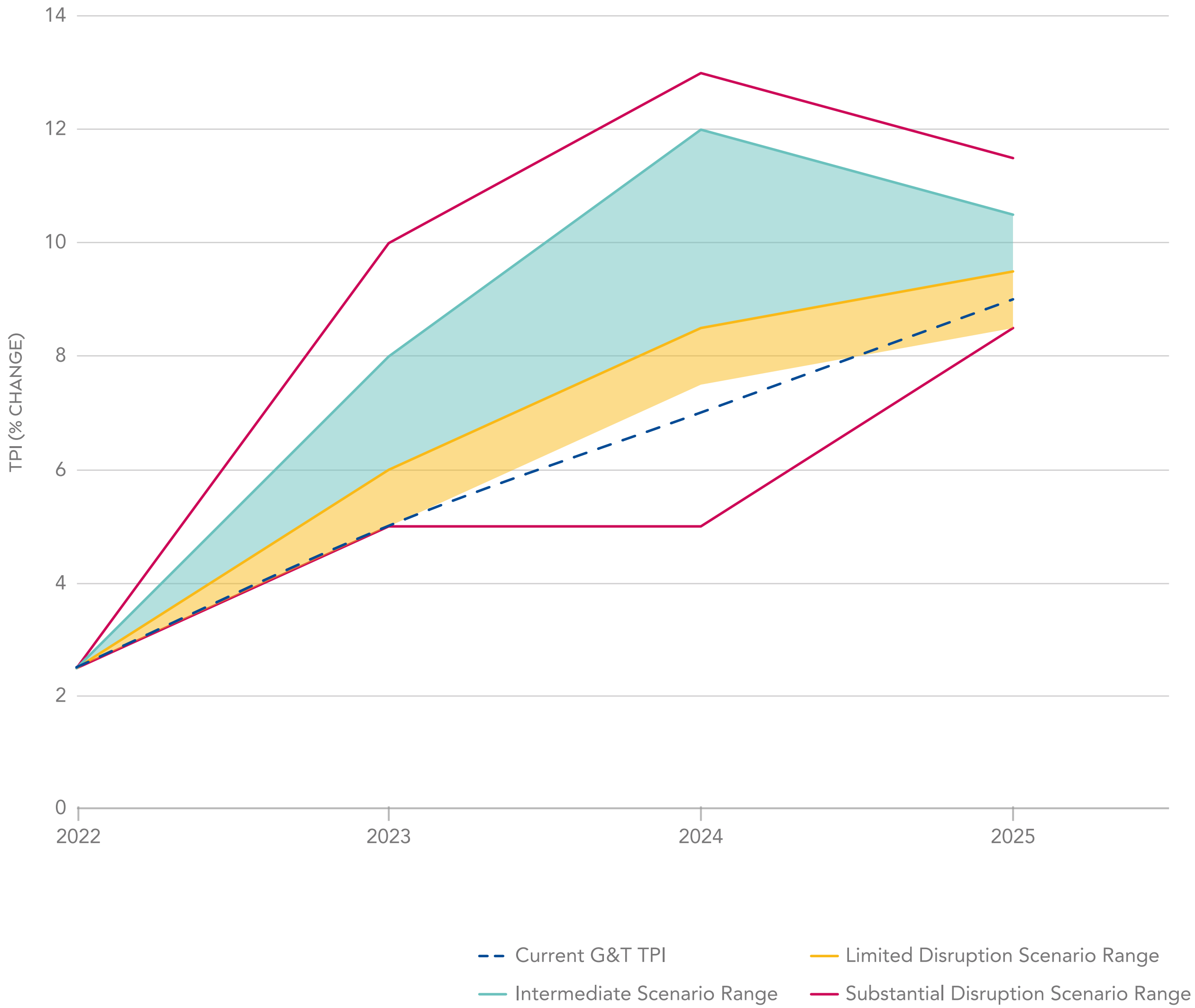
The fan chart above shows the potential shape of tender price inflation under each of the three scenarios above:

- Limited disruption scenario: spike in tender pricing in 2022 driven by higher energy and commodity pricing. Increased oil and gas prices to affect key material production and transportation costs. Resultant tender price inflation might increase to c.+3.5% to 4.5% in 2022. Once supply chains adapt and diversify sources of supply, the spike in pricing is likely to start to level off from 2023 onwards, returning towards G&T's previous long-term average TPI forecast of 2% in 2024-25.

- Intermediate scenario: If the severity/ scope of sanctions significantly increases or Russian energy and commodity supply is squeezed, the price shock will be more severe and tender price inflation potentially more extreme. However, inflation would likely follow a similar pattern to the limited disruption scenario, with the rate of inflation subsiding from 2023 as commodities from Russia and Ukraine are sourced elsewhere and alternative global supply is ramped up.

- Substantial disruption scenario: If Russia were to cut off energy supply, this would have significant knock-on effects for European economic output and inflation. Under this scenario, there would likely be a prolonged period of stagflation, where demand for construction projects could drop significantly due to uncertainty or concerns over the viability of schemes. With reduced new orders and output growth, tendering could arguably be more competitive as contractors absorb inflated material and transport costs to secure work. Even in this extreme scenario, inflation would eventually fall back as global supply chains adjust to new norms.

DISRUPTION SCENARIO RANGES COMPARED TO G&T TPI (CUMULATIVE INFLATION) FORECAST



CONCLUSION

Rising fuel prices have been one of the key issues to emerge from the Russia-Ukraine conflict to date, with the conflict producing an almost instantaneous global supply shock. The medium to long-term nature of the conflict (and related sanctions) means fossil fuel supply and its vulnerability will be an issue for the construction industry for some time.

Prior to the conflict, there were early signs of construction material price inflation easing, but with spiking energy costs, construction materials and products will resume the major inflationary trend. As a result of Russia's actions, supply chain disruption, shortages, and price hikes will affect materials and deliveries. The reallocation of certain types of materials will only intensify the situation.

Whether the impact to economic norms is a direct result of the destabilising effect of the conflict or an "opportunity" for suppliers to legitimise price rises, that may have been due to underlying energy price rises, is impossible to say.

The conflict will have a profound disruptive effect on supply chains that were already stressed following the global pandemic. It remains to be seen how the additional risks will impact construction activity in the coming months, but projects may be disrupted if suppliers are unable to provide or afford certain products. Regardless of how the conflict unwinds, further inflation in the UK construction sector seems inevitable.

If you have any questions regarding any of the information above, please contact your usual contact at Gardiner & Theobald.

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