



Banc Ceannais na hÉireann  
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Box A:

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## Short-Run Outlook for the Irish economy in a Downside Scenario

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### Introduction

The unusual configuration of risks currently facing the Irish economy and the wider international environment means that the central forecast presented in this *Bulletin* is subject to a high degree of uncertainty. In the event that some of the key risks in the current environment were to materialise, more negative outcomes than that presented in the central forecast are possible. One such downside scenario is set out in this *Box*. Compared to the central forecast, the analysis outlines the implications for the economy over our forecast horizon in a scenario where a more prolonged Russia-Ukraine war leads to higher energy prices and tighter energy supply in Europe, heightened uncertainty and more stressed conditions in financial markets. It is important to note that this scenario represents just one potential alternative outcome for the economy relative to the central forecast and a range of other outcomes – more positive or more negative – are also possible.

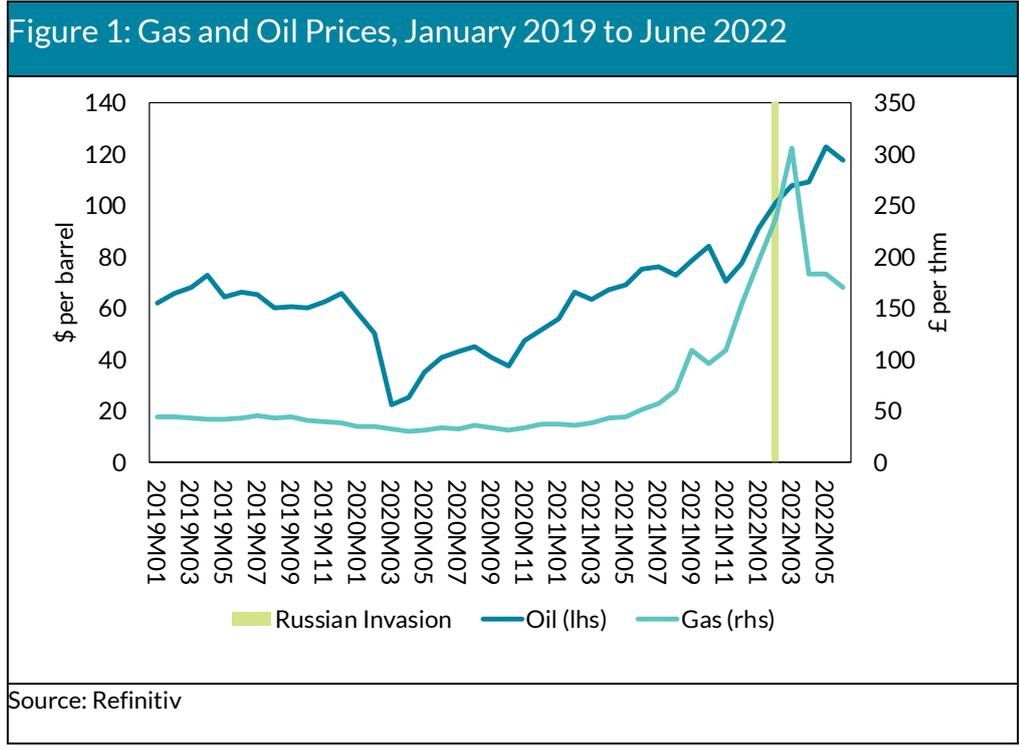
### Background: Energy Supply in EU and Ireland

One of the main economic effects of the war in Ukraine has been its impact on international energy markets, spillover effects to other non-energy commodities and the transmission of these major price shocks to the EU and Irish economies. Figure 1 shows trends in international gas and oil prices since before the start of the war in March. As shown in the chart, energy prices had been increasing in 2021 in advance of the Russian invasion, reflecting a post-pandemic increase in demand as well as rising geopolitical tensions in the second half of 2021. With the outbreak of war, energy prices increased further and have remained elevated and volatile. Comparing May 2022 prices to May 2019, gas and oil prices were 313 and 77 per cent higher. As outlined elsewhere in this *Bulletin*, other commodity prices

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– especially certain food products – have also increased reflecting spillovers from higher energy prices and reduced supply of these products from Russia and Ukraine due to war. Combined, these developments represent a large negative terms of trade shock for the Irish economy – the country’s import bill has risen reducing the purchasing power of domestic residents.



The largest primary sources for Ireland’s energy supply in 2020 were oil (45 per cent), gas (34 per cent) and renewables (13 per cent).<sup>2</sup> Ireland relies on imports for the majority of its energy supply with around three quarters of gas and 100 per cent of oil currently imported. Most of Ireland’s oil is imported from Norway, US and UK. Indigenous gas supply from Corrib has already peaked and is projected to decline throughout the 2020s. The remainder of Ireland’s gas is imported via an interconnector system with the UK, which itself imports almost half of its gas, via pipeline from European neighbours and as liquefied natural gas (LNG) from further afield. While Ireland’s direct reliance on imported energy from Russia is low – around 6 per cent of imported energy came from Russia in 2021 – since oil, gas and other commodities are traded globally, the Irish economy is exposed to adverse price and supply changes in the broader EU and international environment. Russia is the main supplier of crude oil, natural gas and solid fossil fuels (mostly coal) to the EU accounting for 29 per cent, 43 per cent and 53 per cent of the imports of these energy products respectively.<sup>3</sup> The

<sup>2</sup> See SEAI “[Energy in Ireland 2021](#).”

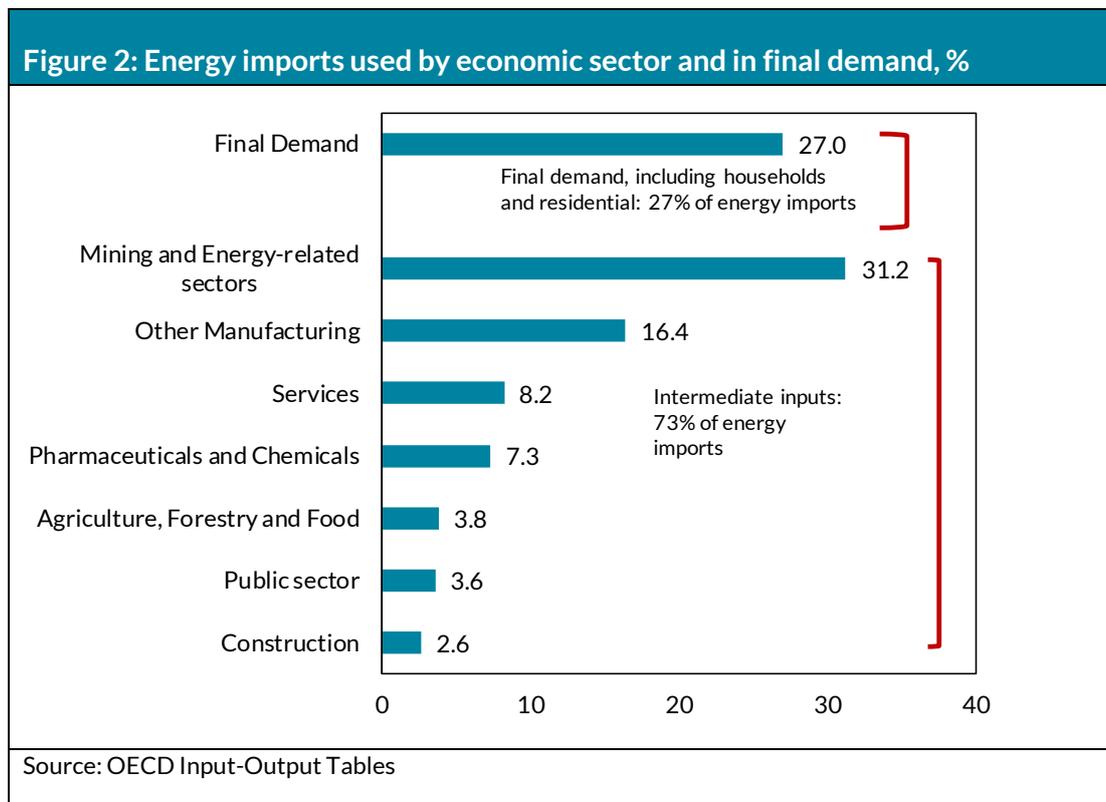
<sup>3</sup> See <https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2c.html>



ongoing war is leading to disruption to this supply and high energy prices in the EU which has increased the cost of imported energy in Ireland.

## Energy Use in Ireland

Using the Input-Output tables, it is possible to identify how energy imports are used at a detailed sectoral level in the Irish economy.<sup>4</sup> Overall, total energy imports account for around 2 per cent of economy-wide Gross Value Added (GVA) in Ireland. Of these imports, around 73 per cent are used as intermediate inputs, i.e. in the production of other goods and services with the remaining 27 per cent accounted for by final demand (all other goods). The importance of imported energy varies significantly by sector. Figure 2 shows the proportion of overall energy imports by each sector of the economy as well the share of energy imports in final demand. Mining and energy-related sectors such as coke and refined petroleum and electricity account for just under one-third of energy imports. The pharmaceuticals and chemicals sector (7 per cent) and the rest of the manufacturing sector (16 per cent) combined use just under one quarter of energy imports and this sector as a whole accounts for over one-third of overall economy-wide GVA. Final demand, which includes households and residential use, consumes about 27 per cent of overall energy imports.



<sup>4</sup> These data are available from OECD (2021), [OECD Inter-Country Input-Output Database](#).



Fossil fuels are the predominant energy source used in electricity generation in Ireland. In particular, 57 per cent of Ireland's electricity was generated from gas in 2020. With the majority of this imported, the electricity generation sector – and therefore the households and businesses that use electricity – are particularly exposed to price and supply conditions in the international gas market.

### Assumptions in the downside scenario

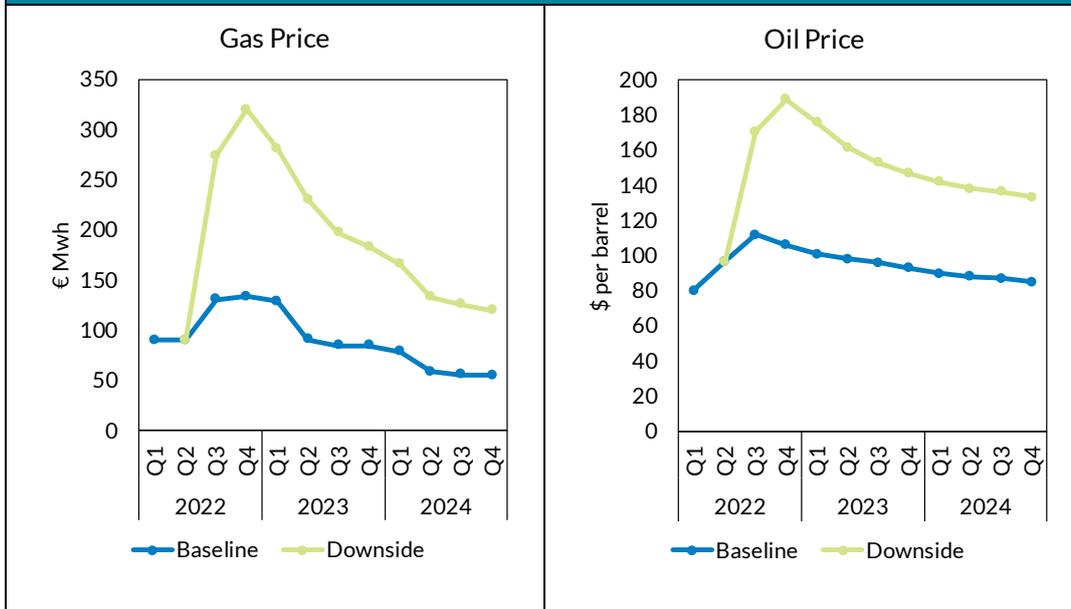
In the downside scenario, the Russia-Ukraine war is assumed to be much more protracted and intense, continuing deep into 2023. The key assumptions in the downside scenario are in line with those in ECB (2022) and envisage:<sup>5</sup>

1. **International trade** is assumed to be disrupted due to sanctions and to voluntary avoidance of trade with Russia along with intensified global value chain problems. The disruption reduces external demand of Irish exports.
2. For **commodities** significant disruptions in supplies of energy and foods from Russia and Ukraine are assumed. In particular, the scenario assumes full loss of Russian energy supply for one year from the third quarter of 2022 with limited immediate substitution into alternative sources. The solidarity principle is assumed to apply within Europe to reduce the magnitude of supply reductions in the countries most dependent on Russian gas imports. Regarding food commodities, the adverse scenario assumes a cut of about 30 per cent of Russian and Ukrainian exports of grain and maize. Rising energy costs and fertilizer prices are assumed to add further disruptions to the global food supply. The shock lasts through 2023 after which shortfalls are compensated by other supplies.
3. For **commodity prices**, prolonged geopolitical tensions, disruptions to supplies to Europe from Russia, competition from other regions for LNG and other gas and energy supplies are assumed to lead to increases in energy prices beyond those included in the baseline, as shown below (Figure 3). Compared to the path in the baseline forecast, oil prices are assumed to be 57 per cent higher in 2024. Gas prices are assumed to peak at 139 per cent higher than the baseline in Q4 2022 and to remain 93 per cent above the baseline in 2024.
4. The downside scenario features a rise in **uncertainty** and assumes more stressed conditions in **financial markets**. Heightened uncertainty is assumed to reduce consumption and investment while the more adverse financial market conditions are reflected in falls in equity prices.

<sup>5</sup> ECB (2022) [A downside scenario related to the economic impact of Russia's military aggression in Ukraine](#).



Figure 3: Gas and Oil Price Assumptions in the Baseline and Downside Scenario



Source: Refinitiv

To implement the downside scenario, given its complexity and the unusual nature of some of the elements it includes, a range of models and analytical techniques are used. The shocks to international trade (1), commodity prices (3) and uncertainty and financial markets (4) are estimated using the NiGEM global model with the results fed through the Bank's COSMO model to simulate the implications for the Irish economy.

Estimating the impact of a loss of Russian gas for the EU and Irish economies is a complex exercise and necessitates making a number of assumptions over which there is considerable uncertainty. A key assumption required in implementing the scenario is the reduction in overall imported energy as a result of a full loss of Russian gas supply to Europe. Estimating this effect is subject to uncertainty across a number of key dimensions:

- In the event of a complete ban on Russian energy imports, some reallocation of energy supply across the globe is likely to occur. The extent and pace at which this reallocation would occur is uncertain due to considerations such as infrastructure constraints and contractual obligations. Some degree of risk sharing would likely take place at EU level but the practical operation of this and what it would mean for each member state's energy imports is not clear.<sup>6</sup>

<sup>6</sup> The [2007 Lisbon Treaty](#) refers to solidarity in relation to matters of energy supply and energy policy in the EU. In May 2022, the EC published [REPowerEU](#). This plan aims to reduce the EU's dependence on fossil fuel imports from Russia through a number of actions including promoting energy efficiency and enhancing preparedness and diversifying energy supplies.



- As well as importing energy from other countries to compensate for the loss of Russian supply, some degree of substitution of imported energy with other factors of production is likely to occur. Estimated short-run (within one year) elasticities vary from 0.02 to 0.29 (see Labandeira et al., 2017). This analysis assumes a conservative estimate of 0.035 as a reference value but this may not accurately reflect true substitution probabilities in the current context.
- The impact of a loss of Russian energy supply on overall energy availability at country level would be influenced by other considerations such as individual countries' storage arrangements and bilateral agreements between certain countries. Ireland currently does not have any gas storage facilities. The UK – from where Ireland imports all its gas – has storage capacity and along with the replenishment of gas storage elsewhere in Europe, this could potentially mitigate some of the impact of a loss of Russian supply at least in the short run. The practical implementation of any necessary allocation of limited energy supply to different parts of the economy would also influence its ultimate impact on activity.

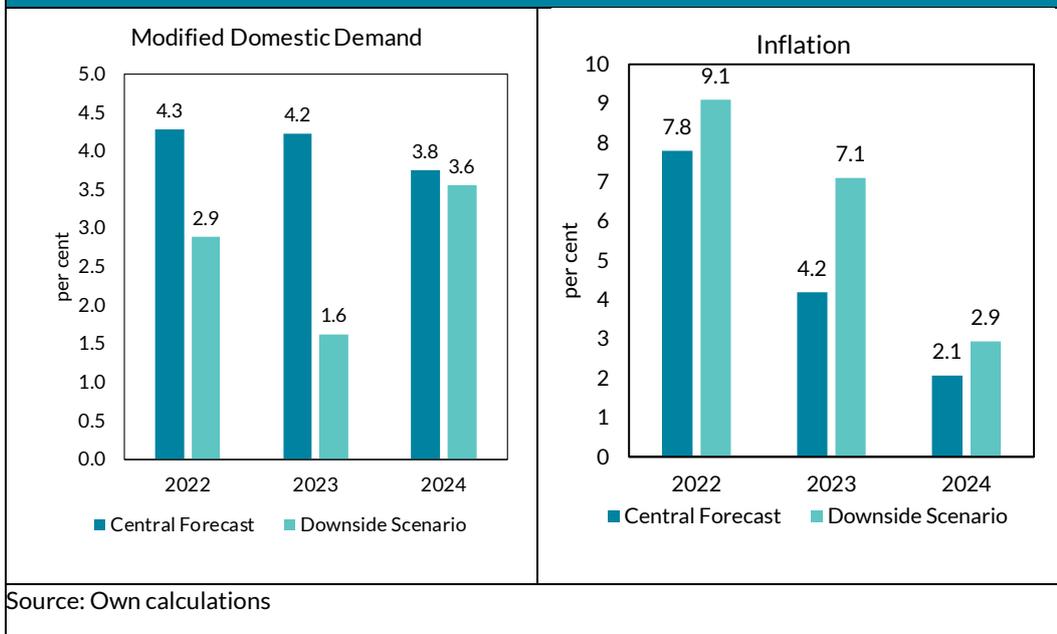
Given the uncertainties around these key elements at the current juncture, estimating the effect of a curtailment in energy supply on the Irish economy with precision is difficult. Using technical assumptions on the reduction in energy imports and the elasticity of substitution in line with the analysis in ECB (2022), we apply the framework in Bachmann et al. (2022) to estimate the impact on the economy in this scenario. We complement this by estimating the effect of a reduction in energy inputs in the COSMO model in order to provide a range of potential estimates. The effect on output through this channel is combined with the impact of the other shocks to energy prices, uncertainty and financial markets to derive the final estimates.

## Results

Figure 4 shows the projected path for HICP inflation and modified domestic demand (MDD) in the downside scenario compared to the central forecast. In terms of economic activity, the growth rate of MDD would be around 1.4 percentage points lower in 2022 and 2.5 percentage points lower in 2023. Weaker domestic consumption and investment as a result of higher inflation and elevated uncertainty, lower output due to reduced energy supply as well as slower international growth all give rise to more subdued economic activity in Ireland. Given the forecasts for MDD in the baseline, these reductions would still imply positive growth in MDD in the downside scenario but the pace of growth would be significantly weaker. In 2023, MDD growth is estimated at 1.6 per cent in the downside scenario, less than half the 4.2 per cent growth in the central forecast.



Figure 4: Growth and Inflation Projections in the Central Forecast and Downside Scenario



In terms of inflation, the large increases in commodity prices as well as the constrained supply conditions would result in significantly higher inflation over the forecast horizon. The peak effect would occur in 2023 when inflation would be almost 3 percentage points higher than in the central forecast. Weaker demand and higher unemployment would put downward pressure on inflation but prices would still remain above the central forecast by about one percentage point in 2024.

### Conclusion

The downside scenario in this Box outlines one potential path for the economy linked to a more protracted and intense Russia-Ukraine conflict. As noted, there is considerable uncertainty around elements of the scenario, in particular the size of the reductions in overall energy supply as a result of a loss of Russian exports and how curtailed energy supply would affect the economy. The response of energy prices in the downside scenario is also uncertain. The results shown in Figure 4 are sensitive to these assumptions and the impact on the Irish economy could be more severe if the effect of reduced energy supply is larger than assumed in this exercise or if energy prices increase beyond the assumptions used in this analysis.

Furthermore, the current central forecasts for the economy point to a reasonable pace of growth in the economy over the forecast horizon. If the outlook for the economy in the central forecast was to weaken over the coming months then, in an adverse scenario, additional negative shocks similar to



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those in the downside scenario could push the economy onto an even weaker growth path than envisaged in this analysis.

Lastly, the downside scenario assumes the same fiscal and monetary policy stance as in the baseline. If the downside scenario was to materialise, governments could respond with measures to offset the effect of higher inflation and central banks could also react. Such policy responses would affect the magnitude and persistence of the effects of the downside scenario compared to the results discussed here.