



BANK ĊENTRALI TA' MALTA  
EUROSISTEMA  
CENTRAL BANK OF MALTA

# REVIEWING THE ENERGY BLOCK WITHIN THE NARROW INFLATION PROJECTION EXERCISE

## BOX 1: REVIEWING THE ENERGY BLOCK WITHIN THE NARROW INFLATION PROJECTION EXERCISE (NIPE)<sup>1</sup>

The Bank's inflation forecasting has been developed also to provide input to the Eurosystem's Narrow Inflation Projection Exercise (NIPE). The exercise is based on a highly disaggregated framework of the subcomponents of the Harmonised Index of Consumer Prices (HICP), which are projected on a monthly frequency. Given the short-term nature of the exercise, most components are projected using an auto-regressive integrated framework (ARIMA). Other components are projected using pricing rules.

In this framework, energy prices in Malta are modelled using pricing rules, which attempt to reflect the typical transmission of wholesale prices to consumer prices. Projections for wholesale prices are conditioned by forecasts for international energy prices and exchange rates, which are transmitted by the European Central Bank (ECB) to all euro area national central banks during a projection round.

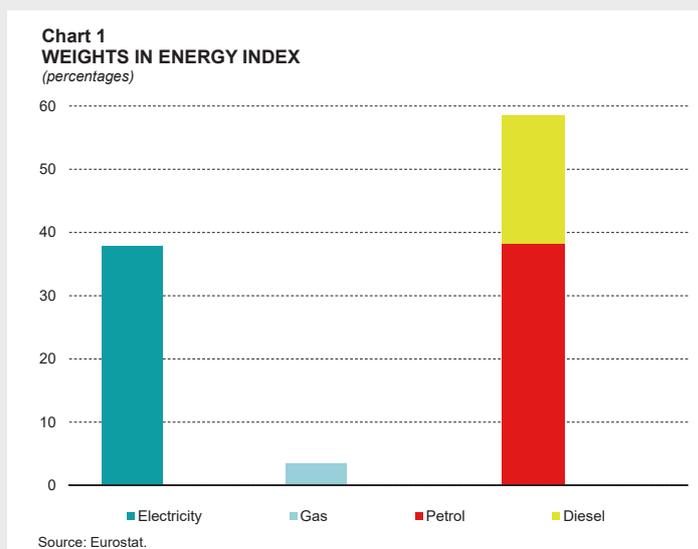
The transmission mechanism of wholesale prices to consumer prices in Malta has changed considerably over the past few years. This reflects substantial changes to the energy mix, the overhaul in parts of the energy infrastructure, as well as more direct changes in the authorities' pricing behaviour.

Within this context, the Bank has recently reviewed the energy block within the NIPE framework. This box outlines in more detail the process for projecting energy prices.

### Subcomponents of energy index

Within HICP, energy prices can be further subdivided into three main subcomponents: electricity (CP0451), gas (CP0452), and fuels and lubricants for personal transport equipment (CP0722). In Malta, gas is only utilized for limited purposes and is distributed to households in LPG gas cylinders. With regards to fuels and lubricants, this is further subdivided into diesel and petrol.

According to the 2022 weights within the HICP index, energy prices in Malta have a weight of around 6.7% in total prices. Chart 1 shows that 37.9% of the energy



<sup>1</sup> Prepared by Ian Borg, Manager within the Economic Projections and Conjunctural Analysis Office.

subcomponent within HICP is due to electricity, while 58.6% is due to fuel. In turn, petrol prices contribute to 38.3% of total energy prices, while the diesel weight stands at 20.3%. Gas is the smallest component, with a weight of 3.5%.

All energy prices in Malta are fully administered, according to Eurostat's definition.<sup>2</sup>

### Electricity prices

Malta's electricity supply depends on four main sources: local generation (typically fuelled by gas oil and are utilized for emergency use), renewable sources (mainly solar energy), power plants operated by significant Independent Power Producers (IPPs), and an interconnector with Sicily. Power plants operated by IPPs are fuelled by natural gas and are covered by long-term bilateral agreements.

The electricity pricing model follows two steps. As a first step, wholesale prices for Malta's sole electricity distributor are projected. For the purpose of the projection exercise, we model and project wholesale prices related to the interconnector and IPPs power plants, which together account for around 93% of electricity supply in Malta. Total wholesale prices are thus equal to a weighted average of these two sources.

The long-term bilateral agreement to supply natural gas that fuel IPPs power plants is essentially linked to developments in Brent crude oil prices and the euro-dollar exchange rate. Projections are hence conditioned on the ECB's transmission of projections for these two components. In cases where reliable information about hedging agreements is available, the pricing rule above is replaced by the hedged price for the hedging period.

With regards to the interconnector, Malta typically pays the hourly spot price charged on the grid. Interconnector prices are projected using an error-correction mechanism (ECM), in which prices are a function of Dutch TTF gas prices, Brent crude oil prices, and EU-ETS carbon prices. Projections for the latter are conditioned by the ECB's technical assumptions.

Since consumer electricity prices have been fixed since 2014, currently there is no transmission of changes in international energy prices or exchange rates to consumer electricity prices. In case such transmission starts to operate, the Bank assumes that a constant mark-up over the wholesale price will be charged, enough for Malta's electricity distributor to generate an adequate operational profit. At the current juncture, it is very challenging to establish this mark-up with reasonable precision due to ongoing Government's price-mitigation measures that are targeted at keeping electricity prices fixed.

### Fuel prices

With regards to fuel prices, both petrol and diesel follow a similar methodology. As a first step, refining margins take into account Brent crude oil prices. A pricing rule is then estimated using pre-tax diesel/petrol prices as a function of Brent crude oil prices and refining margins. The estimated elasticity is below one, which implies a partial pass-through of wholesale prices to consumer prices.

<sup>2</sup> See <https://ec.europa.eu/eurostat/documents/3859598/9479325/KS-GQ-17-015-EN-N.pdf/d5e63427-c588-479f-9b19-f4b4d698f2a2>

In addition, there is substantial lagging behaviour in the pass-through of wholesale prices to fuel prices in Malta. Typically, authorities set the price for a period of 6-12 months. Projections for consumer prices are hence set equal to the forecasted 12-month average consumer price index predicted by the above pricing rule. This introduces a stepped behaviour in the projected fuel index, which is typical of fuel price changes in Malta in recent years. Prior information about the period in which fuel prices are expected to remain fixed is also considered. Taxes are then added to the forecasted pre-tax price to arrive at the final consumer price.

### **Gas prices**

Gas prices in Malta consist of Liquefied Petroleum Gas (LPG) only. These are modelled similarly to fuel prices, except that in this case, the wholesale price is linked only to Brent crude oil prices. Hence, a pricing rule is estimated whereby gas prices are projected as a function of a 12-month moving average of oil prices. Similar to fuel prices, the elasticity is lower than 1, and hence there is a partial pass-through. Moreover, lagging behaviour is also introduced by setting retail gas prices equal to the 12-month forecasted average of the above pricing rule. Prior information about the period in which gas prices are expected to remain fixed is also considered.

### **Projections and revisions to the Bank's August projections**

In the Bank's previous projection round, electricity prices were expected to remain fixed until the end of 2024. However, gas and fuel prices were projected to rise from 2023 onwards. In light of recent Government announcements, as well as the extension of fiscal support in the Budget 2023, all energy prices are now set to remain fixed until the end of the projection horizon. This implies some downward revisions in fuel and gas prices for the period 2023 and 2024.

The model above can be utilized to estimate, conditional on a set of technical assumptions regarding international energy prices and exchange rates, the extent of fiscal support needed to maintain such policy. Fiscal support is expected to peak next year and gradually decline in 2024 and 2025 as the international prices of oil and gas are forecast to ease. Nevertheless, our estimates suggest that some fiscal support would have to remain in place during 2025, as wholesale prices will remain above their pre-war levels in the medium to long-term.