Box 4

IMPACT ON INFLATION OF THE MECHANISM TO CAP GAS PRICES ON THE IBERIAN MARKET
Matías Pacce and Isabel Sánchez

The sharp rise in natural gas prices on European markets has played a key role in the current inflationary episode, particularly because it has prompted an increase in electricity prices.[1] In this setting, Spain and Portugal have agreed with the European Commission to implement the so-called Iberian mechanism to temporarily cap the cost of the gas used in electricity generation and thus lower electricity bills. This box describes this mechanism and presents an estimate of its impact on future inflation developments in Spain.[2]

The main element of the mechanism is the capping of the cost of the gas used by fossil fuel-based power plants to generate electricity.[3] Specifically, the reference price is set at €40/MWh until December 2022, and will then be increased by €5/MWh each month in the following five months until it reaches €65/MWh in May 2023. In operational terms, the affected power plants will receive, for each MWh generated, a transfer for the difference between the price of natural gas on the Iberian Gas Market (MIBGAS) and the reference price.[4] Thus, the mechanism will generate costs equal to this unit amount multiplied by the electricity generated by the affected power plants (see Chart 1). These costs will have to be funded by consumers with contracts indexed to the wholesale price of electricity and by those with fixed-price contracts who have renewed them since end-April. However, since the price of electricity will be lower in Spain than in France, once the aforementioned mechanism becomes effective electricity sales to France will increase

sharply[5] and this additional income will also be used to fund the costs of the mechanism.

Based on these details, the measure's ultimate impact on inflation in Spain will depend on future developments in four key variables: gas prices, the total volume of electricity generation affected by the measure, the percentage of consumers that will bear the costs and the difference between Spanish and French wholesale market prices. Although the uncertainty surrounding future developments in these variables is very high, this box considers the following assumptions in order to construct a baseline scenario to estimate the potential impact of the mechanism on inflation. First, it is assumed that gas prices between June 2022 and May 2023 will follow the path of MIBGAS gas futures (see Chart 2). Second, it is assumed that, from June 2022 to May 2023, the electricity generated to meet Spanish mainland demand that is affected by the measure will equal that of the same month of the previous year.[6] A further assumption is that the additional electricity required for exports to France will be generated by power plants affected by the measure (see Chart 3). Third, it is assumed that 46% of Spanish mainland demand for electricity would fund the costs of the adjustment mechanism in the first month, a percentage that would increase by 4.9 pp each subsequent month in which the mechanism remains in force.[7] Fourth, it is assumed that the price difference between the Spanish and the French market throughout this period will be equal to the

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1 See M. Pacce, I. Sánchez and M. Suárez-Varela (2021), "Recent developments in Spanish retail electricity prices: the role played by the cost of CO2 emission allowances and higher gas prices", *Occasional Paper* No 2120, Banco de España.

2 Although this rule entered into force with the publication of Royal Decree-Law 10/2022 on 13 May (only available in Spanish), the mechanism will be effective from 14 June 2022 onwards – after receiving the European Commission's approval on 8 June – and will remain in place until 31 May 2023.

3 Combined cycle, cogeneration and coal-fired power plants. Only cogeneration power plants that do not fall under the specific remuneration framework are included. For more details, see Royal Decree-Law 10/2022 of 13 May 2022 (only available in Spanish).

4 The MIBGAS gas price refers to the "average weighted price of all natural gas trades in daily products with delivery on the following day at the virtual balancing point". Additionally, this difference is divided by 0.55 (i.e. the reference value to estimate the thermal efficiency of combined cycle power plants, meaning that 1.8 MWh of gas is needed to generate 1 MWh of electricity).
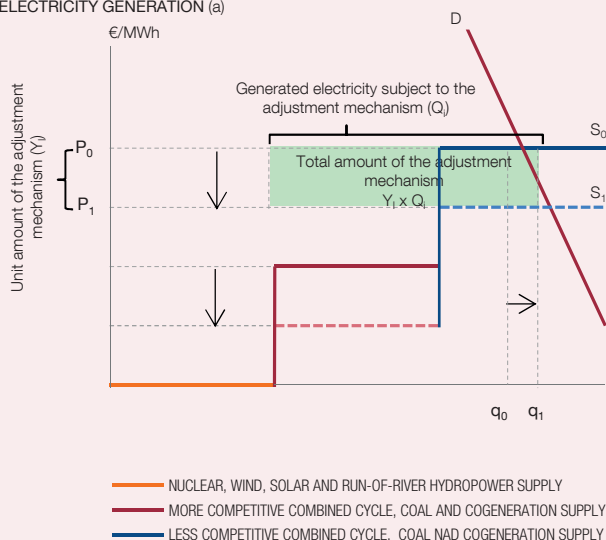
5 This exercise assumes an increase in exports to France of 1.2 TWh per month, which is the difference between the average monthly maximum export capacity to France (1.7 TWh) and average monthly exports (0.5 TWh) in 2021. In other words, since, once the measure comes into effect, the price will be lower in Spain, it is assumed that the maximum available capacity will be exported.

6 While it is possible that demand in mainland Spain will increase slightly compared with last year owing to the price drop induced by the measure, this effect is not considered in this exercise.

7 According to the National Commission on Markets and Competition (CNMC), at 31 October 2021 41% of electricity was sold at a variable price. Assuming a 4.9 pp monthly increase from April 2022 onwards would result in this proportion reaching 46% of the electricity sold in June 2022 (the 4.9 pp monthly increase stems from the assumption that approximately one-twelfth of fixed-price contracts are updated each month). See CNMC (2022), *Informe de supervisión de los mercados minoristas de gas y electricidad. Año 2020 y avance sobre la situación de crisis energética actual.*
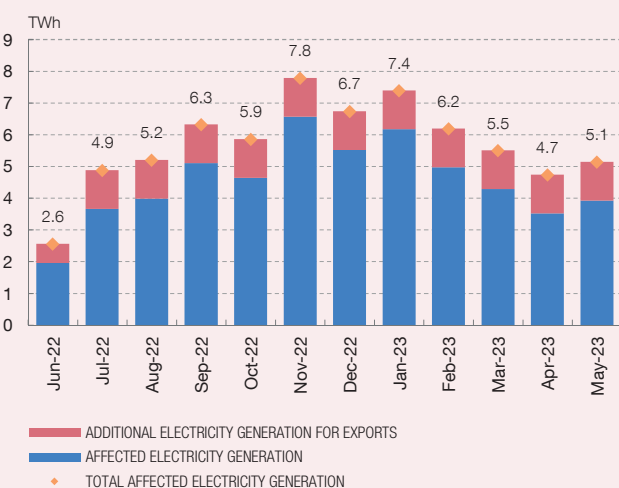
Chart 1
EXAMPLE OF THE REDUCTION IN THE SUPPLY PRICE AND THE ADJUSTMENT
MECHANISM'S TOTAL AMOUNT OWING TO THE PRICE CAP ON GAS FOR
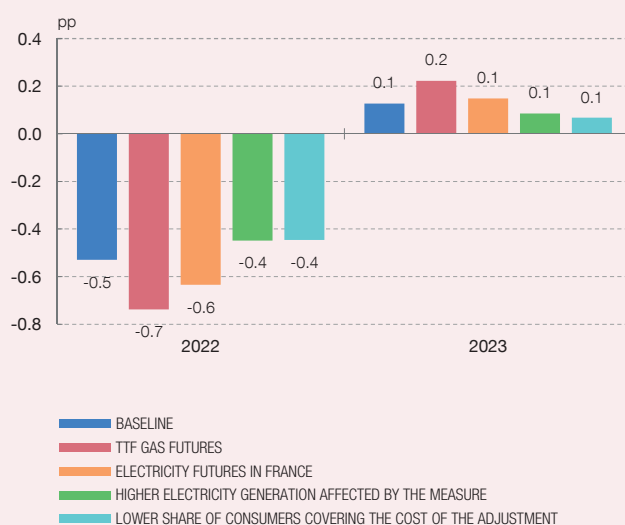ELECTRICITY GENERATION (a)

€/MWh

Generated electricity subject to the
adjustment mechanism (Q_i)

Total amount of the adjustment
mechanism
$Y_i \times Q_i$

— NUCLEAR, WIND, SOLAR AND RUN-OF-RIVER HYDROPOWER SUPPLY
— MORE COMPETITIVE COMBINED CYCLE, COAL AND COGENERATION SUPPLY
— LESS COMPETITIVE COMBINED CYCLE, COAL NAD COGENERATION SUPPLY

Chart 2
GAS FUTURES, REFERENCE PRICE OF GAS FOR THE ADJUSTMENT MECHANISM
AND ESTIMATED UNIT AMOUNT OF THE ADJUSTMENT MECHANISM

€/MWh

ADJUSTMENT UNIT AMOUNT   REFERENCE PRICE OF GAS
GAS FUTURES (MIBGAS)
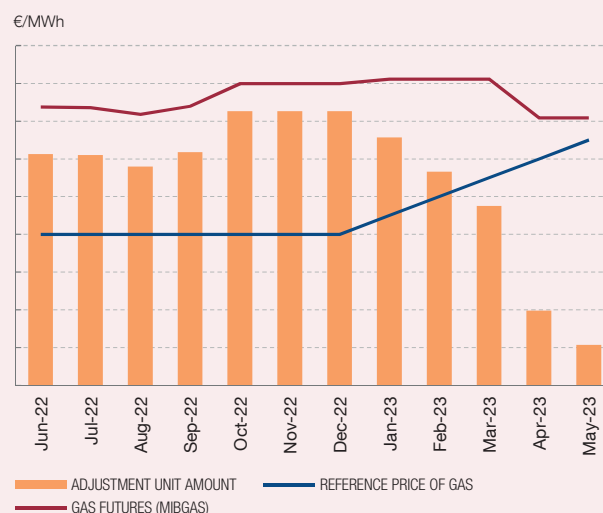
Chart 3
ELECTRICITY GENERATION ASSUMPTIONS FOR THE TECHNOLOGIES SUBJECT
TO THE ADJUSTMENT MECHANISM (b)

TWh

ADDITIONAL ELECTRICITY GENERATION FOR EXPORTS
AFFECTED ELECTRICITY GENERATION
♦ TOTAL AFFECTED ELECTRICITY GENERATION

Chart 4
ESTIMATED IMPACT OF THE GAS PRICE CAP ON HEADLINE INFLATION IN 2022
AND 2023 (c)

pp

BASELINE
TTF GAS FUTURES
ELECTRICITY FUTURES IN FRANCE
HIGHER ELECTRICITY GENERATION AFFECTED BY THE MEASURE
LOWER SHARE OF CONSUMERS COVERING THE COST OF THE ADJUSTMENT

SOURCES: OMIE, Red Eléctrica de España, MIBGAS and Banco de España.

a For the sake of simplicity, electricity supplied by storage hydropower facilities, whose supply price is similar to that of the less competitive combined cycle, coal and cogeneration plants, is excluded from the example.
b It assumed that the electricity generated in each month equals that generated in the same month of the previous year. Only half of the electricity generated in June is considered.
c The baseline scenario refers to the most likely scenario described in the main text. The scenario "TTF gas futures" considers the path of the Dutch TTF gas futures rather than the MIBGAS futures; the scenario "electricity futures in France" considers that the price difference between the Spanish and French markets is that between the expected price in Spain taking into account the adjustment mechanism and the price signalled by electricity futures in France, instead of the unit amount of the adjustment mechanism; the scenario "higher electricity generation affected by the measure" assumes 20% more electricity will be generated in combined cycle, cogeneration and coal power plants than in the baseline scenario; the scenario "lower share of consumers covering the cost of the adjustment" considers that in June the percentage of energy demand covering the cost of the adjustment is 35%, rather than the 46% assumed in the baseline scenario.

mechanism's unit amount, which would generate additional income of around €300 million from increased electricity exports to France through "congestion income",[8] which would be used to cover the cost of the mechanism.

Under these assumptions, the mechanism to cap the price of gas on the Iberian market would reduce wholesale electricity prices by around 30% on average over the next 11 and a half months. As a result, the regulated rate for small consumers would decrease by 17%,[9] after taking into account the additional charge to fund the total costs of the mechanism. This would result in the HICP electricity component declining by 13 pp on average in 2022. Thus, bearing in mind that electricity accounts for around 4% of the HICP basket, the mechanism would subtract approximately 0.5 pp from the average inflation rate for 2022 (see Chart 4). As regards the impact on inflation in 2023, although the retail consumer bill would be lower than in the absence of this mechanism, its effect on the average inflation rate for 2023 can be expected to be slightly positive (of around 0.1 pp). This is because the impact of the measure will wane over 2023 H1 (given the rising profile of the reference price of gas) and because in 2023 H2 electricity prices will be compared with lower price levels in the same period of 2022, thanks to the implemented measure.[10]

In any event, the great uncertainty as to future changes in the different variables incorporated into the baseline scenario makes it advisable to complement this point estimate with some sensitivity analyses. First, the possibility of gas prices rising higher is considered, based on Dutch TTF futures rather than on MIBGAS futures. Under this assumption, the impact of the mechanism on average inflation would be -0.7 pp in 2022 (see Chart 4). Second, a greater price differential between Spain and France is assumed, considering the price signalled by electricity futures in France. This assumption would entail congestion income of more than €2 billion, compared to the €300 million envisaged in the baseline scenario, which would therefore cover a higher percentage of the mechanism's total costs. This would reduce the burden on consumers' bills and the impact on average inflation in 2022 would stand at around -0.6 pp. Lastly, two additional sensitivity exercises are considered which would result in a weaker impact of the mechanism on the average inflation rate for 2022. First, it is envisaged that the generated electricity affected by the measure will be 20% higher than that assumed in the baseline scenario (for instance, due to lower renewable generation). In this case, the estimated impact would stand at around -0.4 pp in 2022. Second, the possibility that the percentage of Spanish mainland demand (i.e. the consumers) that would have to cover the costs of the mechanism from June onwards would be 35% (instead of the 46% considered in the baseline scenario) is taken into account. In this case, the impact of the mechanism on average inflation in 2022 would also be -0.4 pp.

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8 As indicated above, monthly exports of 1.7 TWh are assumed, which would mean that interconnections are operating at maximum capacity. This entails the payment of congestion income, which is calculated by multiplying the electricity exported (or imported) in each hour of system saturation by the price difference between the two markets. This income is split equally between the two countries. See CNMC Resolution of 6 May 2021 (only available in Spanish). Spain's congestion income has been estimated at €525 million over the next 11 and a half months. However, only additional congestion income should be taken into account, i.e. the congestion income amount for the same months of the previous year should be subtracted (some €250 million, which also include congestion income received by Spain owing to imports from France).

9 The impact has been estimated based on a standard bill with an annual consumption of 3.49 MWh and an authorised service capacity of 4.5 kW.

10 However, it should be mentioned that the impact of the measure in 2023 is shrouded in even greater uncertainty due to the Government's commitment, set out in Royal Decree-Law 10/2022 of 13 May 2022, to establish a new regulated rate starting in early 2023, which will have a direct impact on the HICP electricity component.