

# POLICY BRIEF

## A temporary gas savings subsidy as an emergency tool to reduce gas consumption and emissions

A key problem for European policy makers today is how to reduce Europe's dependency on gas imports from Russia. This problem has a seasonal component. During the summer months Europe could get by without Russian gas, but then it would not be possible to fill the available storage for the coming heating season. All EU governments are of course desperately trying to find additional sources, mostly in the form of LNG. But this takes time because most LNG is committed under long-term contracts. Some reduction in gas use in Europe during the next winter is thus unavoidable.

How could this be achieved while avoiding rationing?

The high market prices for gas over the last few months are now feeding through to higher prices for consumers.<sup>1</sup> This alone should have a significant impact on demand. The short-run demand elasticity is low (estimates converge around -0.2 to -0.3), but even with such a low elasticity one would expect a strong impact on demand from the very high increases in prices observed these days.<sup>2</sup>

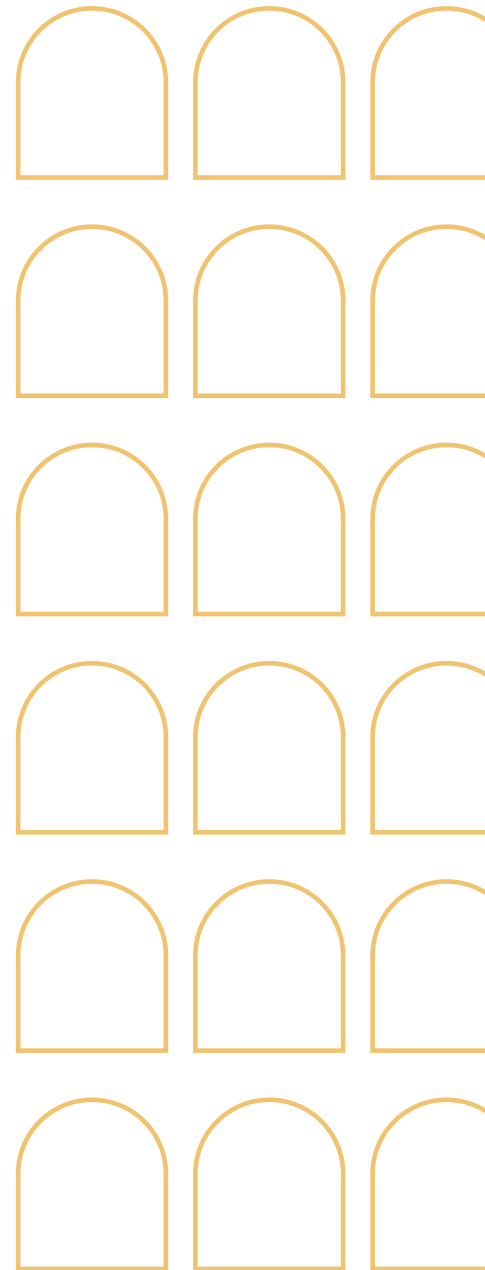
The very high price increases create a political problem: both consumers and industry clamour for compensation for the losses of disposable income and profit they are experiencing. 'Price mitigation' as proposed by the Commission are not the appropriate answer since this would dull the incentive to save on energy.

1 The Rotterdam TTF spot price is now above 100 euros per megawatt hour, but the average price paid by German imports is still below 60 euros.

2 See Zsuzsanna Csereklyei, 2020 "Price and income elasticities of residential and industrial electricity demand in the European Union", Energy Policy, Volume 137, February 2020. A doubling of the price should lead to a reduction in demand of between 20 to 30 % if one uses this range for the demand elasticity. See also [https://www.ceps.eu/wp-content/uploads/2022/03/CEPS-PI2022-07\\_How-to-get-Europe-through-the-next-winter-without-Russian-gas.pdf](https://www.ceps.eu/wp-content/uploads/2022/03/CEPS-PI2022-07_How-to-get-Europe-through-the-next-winter-without-Russian-gas.pdf)

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‘Price mitigation’ is anyway counterproductive since any reduction in gas use in Europe has a high shadow price associated with it. If the price mechanism is suppressed rationing will become inevitable. Instead of price mitigation governments should reinforce incentives by linking their support schemes to gas savings. This note shows how this could be done for both households and industry.

## A gas savings subsidy for households

To mitigate the impact of high gas prices on disposable income, many governments are using lump sum payments to households, which have the advantage that they preserve the incentive to economize on gas. However, these lump sum subsidies have two practical problems. First, they are difficult to target to those who really need them, i.e. mainly the households who use gas for heating.<sup>3</sup> Second, experience has shown that the compensation payment tends to be forgotten when the higher gas bills arrive.

Another approach could be used to avoid these problems. The government should offer consumers temporarily a subsidy for any reduction in their use of gas (instead of subsidizing gas consumption). The aim would be to increase even further the marginal benefit households (or firms) obtain from gas savings during the crucial coming heating season.

In concrete terms, the government could offer households the following scheme: Households pay the market price for the gas they consume. But the government provides them with a payment equal to x euro per cubic meter (or kwh) of gas that is consumed less during the winter of 2022/3 than during the previous heating period (e.g. October to March 2021/2).<sup>4</sup>

This would mean that for households the marginal gain from reducing gas consumption below the benchmark of last year would be even

higher than the price they pay. The benefit of each cubic meter saved would equal to the sum of the price and the subsidy.

Practical issues: benchmark and size of subsidy.

## Benchmark

Instead of using the last heating season (2021/2), one could also use an average over a number of past heating seasons as the baseline for consumption. However, one would then have to adjust also for the differences in the number of heating degree days (or average temperature). The 2021/2 season was particularly warm and represents a challenging baseline which seems appropriate since the aim is to reduce consumption below that level.

The temporary energy savings subsidy proposed here is very different from the numerous existing schemes which subsidises investment in energy savings measures, such as insulation or heat pumps whose aim is to have a long-term impact. These schemes remain useful, but cannot have the immediate impact on demand that is needed if Europe wants to be able to become independent of Russian gas now.

Communication would be very important for the success of this idea since for many households the energy bill is just a fixed cost. It might thus be best to make participation in the scheme voluntary. All households (with a gas heating) should receive an invitation to participate in a ‘gas saving challenge’, outlining how much they could gain by reducing their gas consumption. If the information is sent out early one could even make participation subject to the visit of a local expert on energy savings.

<sup>3</sup> Those who still use oil for heating also face higher prices, but cannot claim that these prices are a result of government action to restrict imports.

<sup>4</sup> This would thus remain an exceptional measure, limited for the 2022/3 heating season, because of the exceptional circumstances created by the war in Ukraine. However, the subsidy scheme proposed here should have also some beneficial longer term effects even if offered only during one heating season because it induces consumers to find ways to use less gas, which they might not have considered beforehand. Habit formation can have a longer lasting impact on demand.

## Level of subsidy and link to carbon pricing

The gas savings subsidy would be equivalent to a subsidy to reduce CO<sub>2</sub> emissions since each amount of gas not burnt reduces emissions by about 0.2 kg CO<sub>2</sub>/kWh<sup>5</sup>. At the current ETS carbon price of roughly 80 euro/tonne of CO<sub>2</sub>, this would translate into a subsidy rate of 1.6 euro cents per kWh. In the estimate of the fiscal cost below we use a subsidy rate of 2 euro cents per kWh to have round numbers. The key point is that if the subsidy were to be linked to the carbon price it could be seen not only as helping Europe become more quickly independent of Russian gas, but also as a way to reduce emissions.

## Cost for public finances

The cost for public finances would depend of course on the take-up of the scheme. Here we provide a simple simulation for Germany assuming a full take-up.

The starting point is that German households consume a bit less than 300 billion kWhs in gas per calendar year (most of which over the winter season).<sup>6</sup> If household reduce their gas consumption by 20 % (relative to 2021/22) the cost to the government would be 60 billion kWhs times the subsidy. At a subsidy rate of 2 cents per kWh this would amount at most to 1.2 billion euro if all customers subscribe to the scheme. This is an upper limit since not all household might sign up to the scheme and the last heating season was rather mild. The cost of subsidizing a reduction in gas consumption would amount only to a fraction of the overall cost to German public finances of the [existing package of compensating consumers and firms for high energy prices, which has been estimated at 14-16 billion euro](#).

The table below shows an illustrative calculation for two cases, a two-person household consuming 8 000 kWh gas and a four person one consuming 15 000 kWhs. It is assumed here that the 'pre-war' price was about 6 cents per kWh and that it would increase to 10 cents per kWh. A subsidy of 2 cents (always per kWh) would roughly half the cost increase for the customers assuming a reduction in demand of 20 % from the combined effect of higher prices and the subsidy. For the average consumer the cost increase would in this constellation be roughly cut by one half (without subsidy the increase in cost would be over 70 %, with the subsidy the cost increase would be only 33 %). These numbers refer of course to average values. Some households might be able to reduce their consumption by more, thus earning a higher subsidy.

5 The exact number varies slightly from source to source, but most numbers are slightly below 0.2. For Germany see <https://www.bundestag.de/resource/blob/406432/70f77c4c170d9048d88dccc3071b7721c/wd-8-056-07-pdf-data.pdf>, for Belgium <https://www.energuide.be/en/questions-answers/how-much-co2-does-my-home-emit/68/#:~:text=natural%20gas%3A%200.198%20kg%20of,composition%20of%20the%20production%20portfolio>) Households cannot just substitute fuels. Lower gas consumption thus translates into lower emissions. This might not be the case for industry or power generation.

6 A recent publication by Agora Energiewende provides some basic data and calculations of the potential savings up to 2024. Energie-sicherheit und Klimaschutz vereinen – Maßnahmen für den Weg aus der fossilen Energiekrise [https://static.agora-energiewende.de/fileadmin/Projekte/2022/2022\\_03\\_DE\\_Immediate\\_Action\\_Programme/A-EW\\_252\\_DE\\_Immediate\\_Programme\\_WEB.pdf](https://static.agora-energiewende.de/fileadmin/Projekte/2022/2022_03_DE_Immediate_Action_Programme/A-EW_252_DE_Immediate_Programme_WEB.pdf)

**Table 1: Impact of Subsidy on Average Household Budgets**

Annual household consumption of gas	Annual cost at old price (€ 0.06 / kWh)	Annual cost at new price (€ 0.12 / kWh)	Annual cost at new price with 20% reduction in consumption and subsidy of € 0.02 / kWh	Cost of subsidy
8000 kWh	€ 480	€ 816	€ 640	€ 128
12000 kWh	€ 720	€ 1224	€ 960	€ 192

Source: own calculations.

## Industry

An analogous calculation for industry would yield somewhat smaller number for the German case since industry accounts for only about 200 billion kWhs of consumption annually.

SME, especially the smaller ones, could be offered the same deal as households although for them it is more difficult to establish the benchmark.

Unfortunately the bulk of gas consumption in industry is likely to come from a small number of very large users of gas, which have often long-term contracts with fixed prices. They face thus little incentive to reduce gas consumption now.

But even for these large users the marginal cost of gas would increase if they were offered a subsidy for any reduction in gas use (instead of rationing). Here one could use past ratios of gas used/production as the baseline. This applies in particular to the large installations covered by the European Emissions Trading System for which there exists already a monitoring mechanism which would allow one to control whether reduced gas use leads to lower emissions.

Moreover, industry receives its emissions allowances for free. The marginal benefit of reducing emissions is thus zero for most industrial sector. A savings subsidy would change this at least partially and could serve as a bridge until later

this decade when free allocations are supposed to be phased out. A temporary savings scheme today could also be used as an argument to advance the timing of the phasing out of free allocation.

## Conclusion

The gas savings subsidy scheme proposed here will not be sufficient to solve on its own the problem of how to eliminate Europe's dependency on Russian gas, but it could make a substantial contribution to lowering household gas demand during the next heating season, thus advancing the date at which Europe could live without Russian gas. If extended to large users, it could also change the marginal cost of using gas for industry, without eating in their profits.

The underlying idea is simple: many governments are providing support to households and industry to mitigate the impact of higher energy prices, subsidizing implicitly the use of gas. The opposite approach is needed: scarce public resources should be used to reinforce the incentive to save on gas.

If a gas savings subsidy could be applied across the EU, it could also lead to lower gas prices, thus lessening the terms of trade loss the current high prices impose on Europe.

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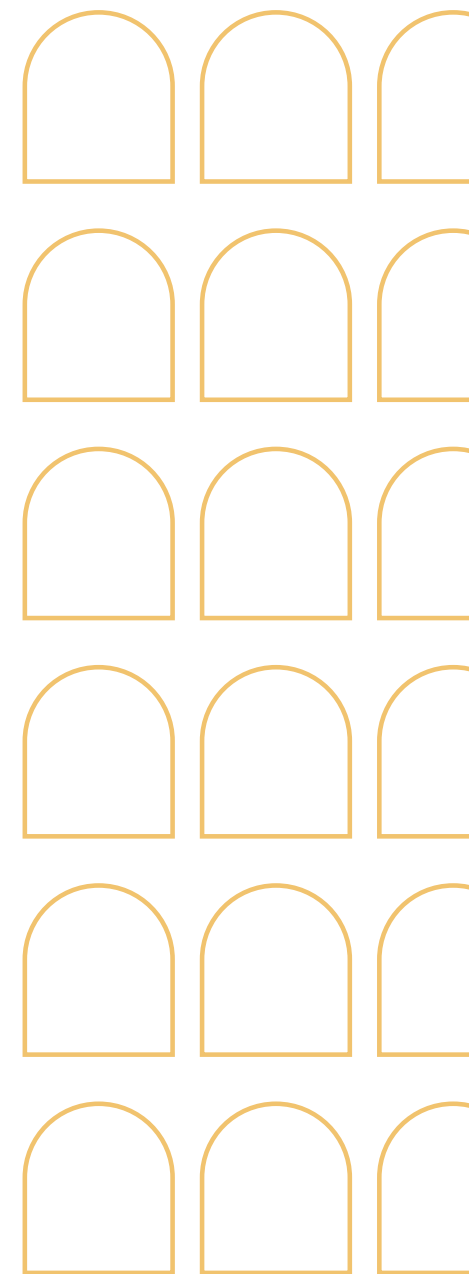
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