

Briefing · February 2023

How climate action can address the cost of living crisis

Key points:

- The world is facing an energy crisis of “unprecedented depth and complexity”. The dramatic rise in fossil fuel prices has fuelled inflation across the world
- The resulting cost of living crisis has left many households struggling or unable to access adequate energy to heat or light their homes
- Leading institutions such as the International Energy Agency recognise that the crisis is caused by gas prices in particular, not renewables
- Energy efficiency measures, such as insulation and smart meters, are a relatively quick and low cost way to reduce energy demand
- Renewables are considerably cheaper than fossil fuels, so expanding renewable capacity can cut the cost of electricity, as well as reducing energy market volatility, enhancing energy security and helping achieve climate goals
- Heat pumps offer a cheaper, cleaner alternative to gas heating, so can reduce energy bills significantly
- Policy measures to reduce car use can help address cost of living issues as well as reducing emissions.

Energy and the cost of living crisis

The cost of energy began to soar across the world in 2021. This was caused by a rise in global energy demand as economies recovered from the Covid pandemic and a lack of investment in supply to match it. The Russian invasion of Ukraine also [reduced supply](#) significantly, causing prices to shoot up. Price rises in gas have been particularly extreme in Europe and reached an [all time high in August 2022](#). The IEA [estimates](#) this was the main factor behind the dramatic increase in wholesale electricity prices in the EU. Along with [nuclear outages](#) in the European summer, these price hikes have all contributed to a rise in the cost of living for consumers, creating an energy crisis of “[unprecedented depth and complexity](#),” according to the International Energy Agency (IEA). Increasing energy prices also contribute to wider inflation as the costs of producing goods and services also increase. Indeed rises in energy prices caused [half of annual Consumer Price Index inflation](#) in Europe in May 2022.

The rise in fossil fuel prices has been reflected in consumer energy bills across Europe. As a result, the International Monetary Fund (IMF) estimates that households in the EU will face, [on average, a 7% rise in their cost of living](#) in 2022. Clearly within this average, some households and countries will be impacted more than others, depending on how much of the increase energy companies pass on to customers and what protections governments offer their citizens.

Consumers are being hit in other ways too. Rising oil prices have pushed petrol and diesel prices up significantly – in the UK, for example, [prices are up over 40%](#) since May 2020, while diesel prices in Germany [have risen over 70%](#) in the same period.

Rising fossil fuel prices are also feeding through to higher food prices, as increased energy, transport and fertiliser (the bulk of which is made using natural gas) costs drain household budgets even further. Increases in food prices are being exacerbated by the war in Ukraine, as Russia and Ukraine account for around [30% of global wheat exports](#) as well as being [major exporters of fertiliser](#) globally.

Some [commentators have blamed](#) the cost of living crisis on the costs of implementing policies and measures designed to make our energy systems net zero by 2050. This briefing explains why renewables and energy efficiency are in fact an essential part of the solution to the cost of living crisis.

Who is being hit hardest?

[Poorer households are impacted disproportionately](#), given that energy bills take a [greater share](#) of their income compared to wealthier households.

Rising energy prices have led to many households falling into energy poverty, where they experience a combination of low income, high energy costs and inadequate energy efficiency measures, to the point where [they cannot afford](#) to warm their homes adequately. In 2021, before the worst of the energy crisis, [nearly 7% of EU citizens](#) could not afford to keep their homes adequately warm. The European Commission [recognises](#) that rising energy prices since 2021 are likely to have exacerbated this situation.

Many factors influence household energy costs, such as the price of gas for heating and the level of energy efficiency in the home – both the building itself and the appliances within it. Lower income households are [less able to respond to price rises](#) by investing in measures to improve the efficiency of the building, installing renewable technologies such as solar panels or heat pumps, or buying new appliances to replace less efficient ones.

In addition, a high proportion of lower income households [rent their homes](#) rather than owning them. As well as being unable to afford to pay for measures to reduce their bills themselves, they may also find that their [landlords are unwilling to invest in energy saving](#) options, such as insulation.

What is being done?

Many governments have introduced subsidies, tax cuts or price controls to protect consumers from the full extent of energy price rises. The cost to European governments of these measures since the summer of 2021 is estimated to exceed 3.5% of GDP, or [EUR 705 billion](#), by the end of 2022.

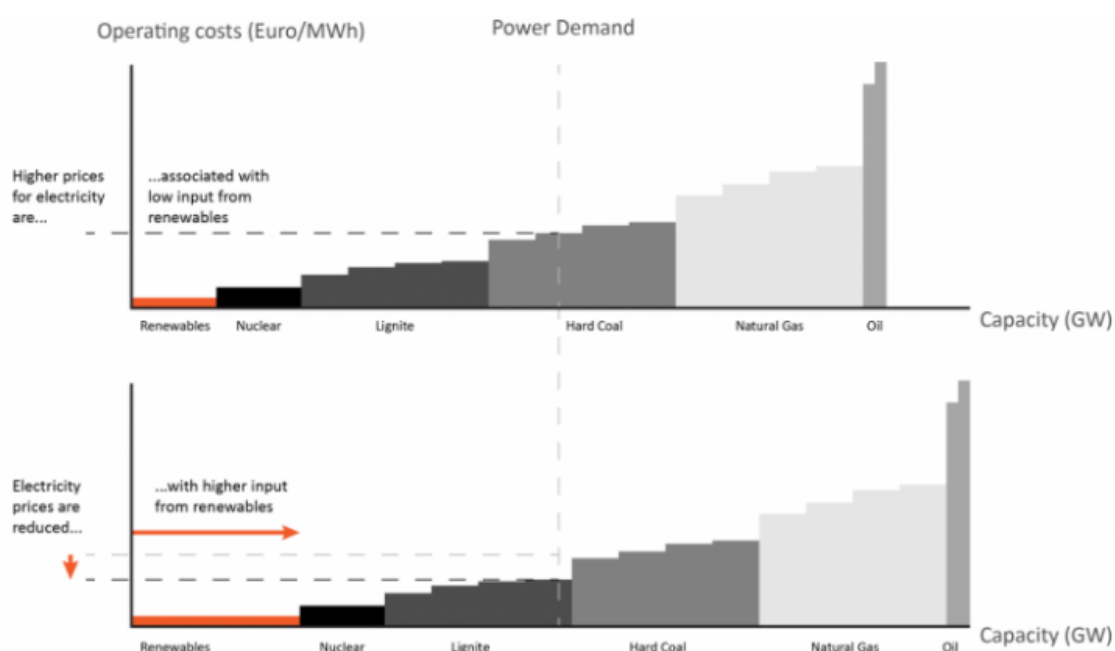
However, these are only short term responses. In many cases they are also badly designed and targeted equally to all consumers, rather than providing more support to vulnerable consumers that need it most. In the longer term, a different approach will be required, not only because these short term measures do not address the underlying problem, but because limiting the impact of energy price rises actually [reduces incentives to use less energy](#), improve efficiency and install renewable technologies, thereby maintaining demand for energy and ultimately keeping prices higher than they would otherwise be.

What could be done to reduce energy prices?

The IEA, [World Economic Forum](#) and [World Bank](#) among many others all agree that a well managed energy transition, away from fossil fuels to renewables, could help reduce the volatility of energy markets. As the [head of the IEA has said](#): "This is not a renewables or a clean energy crisis; this is a natural gas market crisis."

A [recent study](#) by the IMF found that renewables generation reduced the wholesale price of electricity in Europe - for every 1% increase in renewables, there was a reduction of 0.6% in wholesale prices.¹ The higher the level of renewable generation, the greater the reduction in the price of electricity. This is known as the [Merit Order Effect](#), where renewables such as wind and solar, which have no fuel costs and low operating costs, displace generation such as natural gas, which has high fuel costs.

Electricity price fluctuations due to the Merit Order Effect



Source: [Clean Energy Wire](#)

In other words, investing in renewables, energy efficiency and other low carbon options is key to reducing volatility and high prices in energy markets. This in turn will help address the impacts of energy price rises on the food system. Governments must, therefore, now shift their focus away from 'sticking plaster' responses such as price caps to energy price rises and instead invest in these longer term solutions to the underlying problems.

Improving energy efficiency

Reducing demand for energy is the most effective long term solution to ameliorate poor households' exposure to volatile energy markets, while also reducing carbon emissions. As the saying goes, 'the cheapest energy is the energy you don't use'. [Measures range](#) from relatively simple interventions such as installing or improving loft insulation and draft

¹ The study looked at the period 2014-21, before the worst of the energy crisis. It might well be that the dampening effect on prices is more pronounced now given the rises in gas prices.

proofing, to more complex steps such as solid wall insulation. Even a simple switch to using more efficient thermostats could collectively save EU citizens [up to EUR 12 billion](#) in energy bills.

Europe has some of the oldest and [least efficient](#) buildings in the world and they are responsible for [one third](#) of Europe's CO2 emissions. Addressing this problem is a relatively low cost and quick way to reduce energy demand – The European Consumer Organisation (BEUC) estimates that ambitious housing retrofit policies could pay for themselves in [less than two years](#).

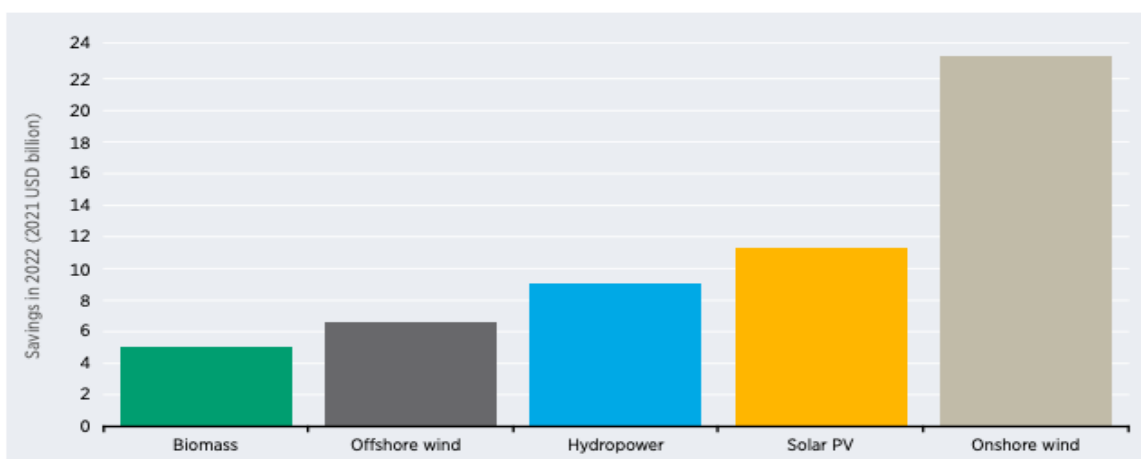
Improving energy efficiency can also have [health benefits](#), including improved air quality, reduced respiratory and heart illnesses, improvements in mental health and fewer winter deaths.

Increasing renewable capacity

Zero carbon electricity from renewables can provide us with sustainable power, heat and mobility. Increasing the level of renewably-generated electricity is the key to unlocking decarbonisation across the energy system.

Renewable technologies such as solar and wind are now [cheaper to build and operate](#) than conventional fossil fuel plants following a dramatic decline in costs over the last decade. Indeed new onshore wind and solar projects are 40% cheaper than new coal and gas-fired power plants, [BloombergNEF](#) calculates, while savings from renewable capacity added in 2021 alone will save [at least USD 55bn in electricity generation costs](#) globally in 2022, according to IRENA (see chart below). One of the main reasons is that most renewables have no fuel costs, unlike fossil fuel plants.

Estimated savings in 2022 from renewables added in 2021 displacing fossil fuel generation



Source: IRENA

[Rystad Energy](#) estimates that current high gas prices mean it would, in fact, be 10 times cheaper to build new solar pv capacity in Europe than to operate gas fired power stations in the longer term. The savings are so big, that a rapid green energy transition is [likely to result in trillions of dollars of savings](#) compared to investing in fossil fuels.

Building and operating renewable energy plants also avoids having to import fossil fuels from outside Europe, so improving the security of energy supply. IRENA [estimates](#) that the use of solar pv and wind power avoided around USD 50 billion worth of fossil fuel imports between January and May 2022 alone.

The way power markets operate in Europe is also a factor in high prices. The wholesale price that generators are paid for electricity is set by the highest cost generator – gas fired plants. This is known as [marginal, or pay-as-clear](#), pricing. The European Commission has put forward [proposals](#) on how this might be reformed so that the lower costs of renewables are better reflected in consumer bills. These include increasing the levels of electricity storage and demand-side measures to enhance the system's flexibility and encourage the development of smart grids, all of which can help reduce reliance on fossil fuels and lower prices.

Installing heat pumps

Investments in household energy efficiency also pave the way for low-carbon heating technologies. Using electricity to provide heat can save money, particularly when using heat pumps, which are more efficient than both gas boilers and traditional electric heaters. When powered by renewable energy, they also avoid burning fossil fuels. A study has shown that the use of heat pumps in the UK could [save households up to 27%](#) on their heating bills compared to a gas boiler, while the IEA found that, in the context of current high gas prices, [US households could save USD 300 a year and those in Europe USD 900](#) if they installed heat pumps. Using heat pumps at off-peak times could allow people to [reduce their heating costs by up to 31%](#) compared with conventional fuels.

If heat pump installation is paired with renovating buildings to make them more energy efficient, the average European [bill for heating could be halved](#) by 2050, according to one study. Moreover, those installations would allow Europe to cut its annual spending on gas imports by [EUR 15 billion](#) by 2030.

Electrifying transport

Transport accounts for around [a quarter of carbon emissions](#) in the EU and, unlike other sectors, emissions from transport are rising. Addressing the climate impact of the transport sector is, therefore, vital if the EU is to achieve its net-zero targets. As about 60% of transport emissions come from driving cars, changing personal transport is key.

While electric vehicles (EVs) still cost more to buy than conventional vehicles, the cost of batteries for EVs has [tumbled over the last decade](#) – a battery pack cost USD 684/kWh in 2013 but had fallen to USD 151/kWh in 2021. The rate of this decline has slowed in recent years, partly as a result of lithium supply chain issues, but some car manufacturers such as [Renault](#) and [Ford](#) have announced battery pack targets of USD 80/kWh by 2030, substantially reducing the future cost of EVs.

Despite the rise in electricity prices, a [recent study](#) in the EU found that, when using private home chargers, EVs are still cheaper to run than combustion-engine vehicles. As discussed above, increased levels of renewables in our electricity systems will help bring prices down further in future.

In addition to the climate impacts of internal combustion engines, they are also responsible for causing premature deaths and illness. The [European Environment Agency reports](#) that there were more than 300,000 premature deaths in 2020 caused by exposure to particulates, nitrogen dioxide and ozone, the first two of which are emitted directly by cars.

[Some countries](#) have taken short-term measures to encourage people to use public transport as a way of addressing cost of living pressures. For example, a €9 monthly ticket introduced for regional transport in Germany during 2022 led to reduced car use as well as a 1.8Mt reduction in CO2 emissions and a 7% reduction in local air pollution. Well thought out policy measures can contribute to increasing the use of public transport, addressing the cost of living crisis and reducing emissions and other environmental damage.

However, a sustainable reduction of cars per capita requires better infrastructure such as more EV charging points or more cycle lanes to make lower carbon alternatives more viable. According to The European Cycling Federation, EU citizens could [save up to EUR 2.8 billion](#) each year on fuel bills if 30% of journeys were cycled instead of driven. Policies need to be put in place to promote walking, cycling and greater use of public transport.