

Possible design elements of consumer support schemes
by
**Therese Hindman Persson, PhD, Chief Economist, The Swedish Energy Markets
Inspectorate**

The very high prices that have been observed in electricity markets since September 2021 and exacerbated by the Russian invasion of Ukraine have sparked the adoption of different types of support schemes across Europe. This brief fact sheet describes possible design elements to consider for support schemes aimed at final electricity customers. The fact sheet is purely descriptive and not prescriptive.

State of play

In 2021 and 2022 extraordinarily high prices have been observed in electricity markets across Europe. The main reason behind the high electricity prices is the high price of natural gas, which is used to generate electricity. Natural gas-fired power plants are often needed to satisfy the demand for electricity when the demand is at its highest or when the volumes of electricity generated from other technologies such as nuclear, hydro, or variable renewable energy sources do not suffice to cover demand. Hence, natural gas is often said to be the price-setting technology in the European electricity system. Demand for natural gas and electricity increased as economies opened up after the pandemic lockdowns but also due to the 2022 high summer temperatures and the resulting increased cooling demand in parts of Europe. At the same time electricity generation from certain technologies, e.g., nuclear, has been below historical levels due to technical and weather-dependent circumstances. The Russian invasion of Ukraine added a supply shock that further exacerbated the constraints and pushed prices up.

Of course, the high electricity prices are a direct response to market conditions and are as expected, i.e., in well functioning markets prices are expected to increase due to supply constraints and demand hikes to signal scarcity. However, the extremely high prices do have several effects that can be perceived difficult from a societal and political economy point of view. Hence, several measures have been deemed required to mitigate the effect of the high electricity prices in Europe and a Council Regulation on an emergency intervention to address high energy prices was adopted in October 2022.

Price signals in a well-functioning market

A price signal is information conveyed to consumers and producers via the price charged for a product or service. The price provides a signal to increase or decrease quantity supplied or quantity demanded. If a price is efficient, it should achieve two outcomes:

1. To allow a business to recover at least the costs of providing a good or service, thus facilitating long term service provision, and
2. To provide a signal to consumers for efficient consumption.

When prices accurately reflect the costs of provision, they provide incentives for consumers to make efficient decisions about when, and how much, of a product or service to consume. A rational consumer would be expected to only purchase a product or service when he or she believes the value of consumption is greater than the price

charged. In turn, if prices reflect the efficient costs of provision, then this outcome would also be efficient from a societal perspective.

If the electricity price accurately reflects the efficient cost of supply, and consumers are aware of the price and able to respond to it, any consumption that occurs can be said to be efficient. Hence, key factors include knowing the price and being able and willing to respond.

What do the high electricity prices indicate?

Recently the high prices observed in the electricity market have, by some, been attributed to a market model failure or price formation failure. Some blame is put directly on marginal cost pricing as if it was a prescriptive principle applied rather than an outcome of price formation in an efficient market for a homogenous good. Sometimes the argument that the electricity market design **did** serve us well but **now** it is not working is put forward and many different suggestions for changes are being presented across Europe. Rather, the root causes of the current energy crisis include a too large European dependence on Russian natural gas and a too slow transition to fossil free energy sources. This situation has then been exacerbated by factors such as unusually high temperatures during 2022 and relatively low availability of nuclear, wind and hydro power.

Therefore, the high electricity prices signal scarcity in the market, i.e. a lack of production resources in relation to demand. If electricity prices had not reacted to the gas supply shock, then something would have been wrong. However, it is in fact a good sign that the prices we observe send this signal of scarcity even if such high prices lead to other challenges in the various member states.

In the medium to long term several measures would benefit the transition out of the crisis. For example:

1. A quicker transition towards fossil free electricity production. How can this be done in order to avoid a too costly transition for consumers? How can the needed measures be implemented across Europe to avoid negative competitive biases?
2. Smarter and faster electricity grid developments. It is imperative that grid developments do not become a barrier to more fossil free production capacity. Is there a need for tougher regulation?
3. More flexible demand and supply are important for an efficient and sustainable electricity market.

Regardless of what factors have caused the crisis the effects of the crisis have hit European electricity consumers and businesses hard and there is a perceived need for support measures in the short term. Hence, in the short term, the perceived challenges include:

1. Addressing the short term excess earnings:
 - a. Unusually high earnings among electricity producers
 - b. Unusually high costs among final electricity customers (e.g. industry)
2. Short term affordability problems (consumers) – the focus of this fact sheet

A Council Regulation on an emergency intervention to address high energy prices was adopted in September 2022 and it opens for several measures to support final electricity customers (i.e., both households and businesses that buy electricity for own use). However, the exact design of such short term measures are for each member state to formulate and decide upon. Hence, the present fact sheet briefly presents some design elements that are important to consider going forward. However, the fact sheet is purely descriptive and not prescriptive.

Design elements to consider

For any support scheme several different design elements should be considered. Such elements include, but are not limited to, the following:

1. Objective of the support scheme
2. Duration of the scheme
3. Coverage – who is eligible to receive support?
4. Concrete design parameters, e.g. link to price, consumption or lumpsum. Based on historical or current numbers?
5. Sufficiency (meeting the objective, amount and source of funds)

Objective

As mentioned, high electricity prices constitute a signal of scarcity. It is an important signal that the system is under stress and a signal to final electricity customer to reduce their electricity consumption, to electricity producers to increase production and to potential new actors (producers, flexibility service providers, aggregators) to enter the market.

With the above in mind, what problem is the support scheme intended to solve? To reduce the effects of high electricity prices on consumers and businesses? To target vulnerable consumers? To redistribute wealth? To reduce electricity consumption?

If the scheme is intended to reduce the effects of high prices, then the coverage of the design will be impacted. Both businesses and households are affected by high electricity prices and this is also true for both affluent and poor households. However, they are affected in different ways and to different extents. For example, businesses can pass increased costs on to customers and affluent households may be better able to cope with higher electricity prices. However, how well a business or a household cope with increased costs is likely to change over time in ways that cannot be predicted and hence for a short term measure it will be difficult to properly take such factors into account. In any case, the support scheme should be clear about whether it also has a redistributive element included or if it supports all final electricity customers in the same way.

In general terms, any scheme that provides monetary support to consumers and businesses increases disposable income. Hence, any such measure work in the direction of increasing inflation and increasing electricity consumption. In a tight economic situation i.e. in or near an economic downturn such effects are negative. To minimise such negative effects, it is important to think carefully about the design.

Duration

Ideally any support scheme used to tackle a short-term problem should be of a temporary nature and therefore be limited in time. Consumers should not expect the support scheme to be recurrent. The reason behind this is to minimise the risk of recipients getting used to support and hence avoid undertaking other measures. The longer a support scheme is in place the more recipients adjust to such circumstances and the more (politically) difficult it is to change or cancel the support scheme. In addition, since a support scheme dampens the actual cost of using electricity it affects electricity demand in a non-desirable way and this effect worsens if the scheme is in place longer than necessary.

Coverage

Who should receive the support? The short answer, it depends on the objective. However, even if the objective is to reduce the effects of high electricity prices there are several choices to be made. Consumers or final electricity customers? Is it a support that targets those affected by the high prices or is it a support that targets the most vulnerable households? Several considerations need to be made. If businesses are included in the target group, state aid rules generally apply.

As a rule, a support scheme should be closely related to the problem that needs to be addressed. Hence, it is advisable to avoid using a support scheme aimed at temporarily easing the effects of high electricity prices to also handle problems that ideally should be handled by for example a social security system.

Concrete design parameters

Should the support scheme be linked to electricity price (if so, how?), to electricity consumption (past or present), a lumpsum payment or a combination of some of these possibilities? In addition, a compromise between accuracy and administrative costs will have to be made.

A support scheme linked to the electricity price has several advantages not the least by linking the support directly to the perceived problem. Such a design could use a threshold price below which no support is paid out and have a burden sharing set-up for electricity prices above the threshold up to a maximum consumption level per month or year (kWh). Of course, there are other possible designs as well but preserving at least part of the price signal and hence the incentive to reduce overall electricity consumption and employing a burden-sharing set-up would likely reduce the negative impacts on the market of the support itself. However, a scheme linked to the price alters the relative price of electricity which is a negative feature.

If a support scheme is linked to current electricity consumption, there is an incentive for consumers not to reduce electricity consumption which contradicts an important objective when supply is scarce. Linking a scheme to historic consumption avoids that problem but introduces other challenges. For example, how to handle newly built houses without a historic consumption.

A lumpsum scheme implies a one-off payment, equal amount, to for example all eligible final electricity customers. Also, in this case there are positives and negatives. For

example, a lumpsum scheme does not alter the relative price of electricity which is positive. The recipient is free to use the support as s/he sees fit which is good from an efficiency point of view but could result in electricity bills still not being paid.

Sufficiency

The support scheme should, ideally, meet the stated objective. If for example, the objective is to target vulnerable consumers, then the group of vulnerable consumers need to be identified and only those in this group should receive support. However, households could move in and out of vulnerability, so the time period is critical for the definition. If on the other hand the objective is to reduce the effects of high electricity prices in general, then the coverage will be different, but the rest of the design could be the same.

The amount that can be received in support needs to be determined. A lumpsum per eligible final electricity customer is easy to calculate but is a one-off payment. As such the amount will be important for the scheme to meet the stated objective.

Looking forward

It is worth repeating that the high electricity prices are caused by high post-lockdown natural gas demand and a negative supply shock caused largely by the war in Ukraine. These supply disturbances are not short term. It will take some time before Europe has replaced the production capacity shortfall. Hence the high prices are important market signals of scarcity and stress in the system directed towards all actors. Independent of these facts, the high electricity prices can have adverse effects for households, businesses, and overall growth. It takes time to adjust. Hence, short term support schemes are considered throughout Europe and in designing them this brief fact sheet has laid out important elements to consider to make them as useful as possible.