
WHO'S TO PAY?

SPLITTING THE BILL FOR
A JUST ENERGY TRANSITION

SUMMARY OF CURRENT CHARGES

	Amount Due
DELIVERY SERVICES	130.48
SUPPLY SERVICES	71.88
	\$ 212.36

AMOUNT DUE
\$ 212.36



Designing energy bills to deliver a just energy transition

The transition to an efficient energy system fully based on renewables is central to the European Green Deal commitment to achieving a decarbonised economy.

In the long run, an energy system that sustainably delivers energy savings and renewable energy will be the least-cost way to tackle climate change while supporting economic and social development. In the interim, it means transforming how energy is generated, supplied and consumed, which will require massive investments. For electricity alone, cumulative network investment costs to 2050 are estimated at €1.2 to €1.4 trillion.¹

At present, a portion of energy transition costs are passed on to users through energy bills. **Network fees, levies and taxes** are added alongside the cost of energy generation. In the past decade, the share of 'non-energy' fees on household bills has increased steadily, in some cases outstripping the costs of energy consumed. For electricity, this could be in part because renewable energy has lowered wholesale prices. Efforts to address energy poverty must take this into account.

To achieve a just energy transition, policy, regulatory and market frameworks should uphold the right of all EU citizens to access affordable, renewable energy. Recent experience shows that energy policy can play a key role in bolstering – or eroding – public support for the clean energy transition.

This briefing draws on research conducted by the Regulatory Assistance Project² that looked at how energy policy influences energy bills, and thus how costs of the energy transition are passed on to energy users.

 **The Right to Energy Coalition calls on decision-makers to ensure the European Green Deal reinforces both climate action and social justice, that it protects the right for all to access energy, and that costs of the clean energy transition are fairly distributed to protect those on the lowest incomes.**

Making sure no one is left behind

The European Green Deal commits to being 'just and inclusive.' Analysis of current policy, regulatory, and market practices related to energy transition costs confirms that this requires transforming mechanisms which place unfair financial burden on low-income households and those in energy poverty (**Box 1**).

Box 1 • Drivers of energy poverty in the EU.



Source: Eurostat, 2017 as reported in Right to Energy Coalition, 2019.³

At present, the way some costs are passed on leaves some groups of household users paying relatively more for energy. Such 'distributional effects' are linked to (among other things):

- How much energy a household uses.
- Which energy sources a household uses, especially for heating.
- How energy is delivered to the home, e.g. through large-scale networks, district heating systems or self- or community generation.
- How the full range of fees and costs are applied to household bills, affecting the final cost of energy.

Leaving 'no one behind' means more than eliminating unfair cost distribution in the clean energy transition; it also means ensuring low-income households and those in energy poverty receive a fair share of the benefits.

In relation to costs, this implies taking steps to support fair pricing. Greater transparency is needed about how much is charged, to whom and how.

1. European Parliament Directorate General for Internal Policies (2017). European Energy Industry Investments. Retrieved from URL www.eesc.europa.eu/sites/default/files/files/energy_investment.pdf

2. Unless otherwise referenced, all charts, data and analysis in this briefing are as cited in Sunderland, L. et al. (2020). *Equity in the energy transition: Who pays and who benefits?* Regulatory Assistance Project (RAP), Brussels, retrieved from: www.raponline.org/knowledge-center/equity-in-energy-transition-who-pays-who-benefits/ (RAP, 2020)

3. Right to Energy Coalition (R2E) (2018). *Power to the people: Upholding the right to clean, affordable energy for all in the EU*. Right to Energy Coalition, Brussels, retrieved from: <https://righttoenergy.files.wordpress.com/2019/02/ep-report-18.02.19.pdf>

On the benefits side, it is critical to capture the full value of renewable energy and energy savings programmes paid for through energy bills, and to consider how such benefits can be fairly distributed, including to eradicate inequalities experienced by low-income or energy-poor households.

Finally, information about costs and benefits needs to be communicated clearly and transparently to all parties, particularly users.

Policy choices will influence public acceptance

EU citizens are increasingly aware of how energy and environmental policies influence their energy bills and their lives. In advancing the renewable energy transition, it is critical to examine the interplay of energy policy, investments required and methods for allocating costs to users, recognising that any resulting increase in prices will ultimately place a much heavier cost



Credit: Nigel Dickinson.

burden on low-income households. As seen in France with the *gilets jaunes*, policies that result in unjust impacts on low-income households can lead to social unrest (**Box 2**).

Box 2 • Lessons from *les gilets jaunes* in France.

In October 2018, *les gilets jaunes* (the yellow vests) took to the streets in France protesting rising fuel costs as tax increases drove up prices for gasoline, diesel and home heating fuels in parallel with high global oil prices. By November, protestors were making international news and challenging the government over a range of social injustices.

Analyses found that energy policy in France which aimed at moving away from fossil fuels hit low-income, rural households – specifically those in the two lowest income deciles – particularly hard. A study of the causes and dynamics of the protests

found that the French population generally supports climate protection; in fact, the *gilets jaunes* supported massive investments in energy savings and quality public transport. Their protest was against several flaws in the design of the carbon tax regime (as well as broader governmental reforms) that hit them disproportionately.

The need to re-think energy billing practices

Energy bills in the EU are made up of the cost of energy consumed and various non-energy elements, which provide mechanisms to 'socialise' system and other costs across users.

The three main non-energy elements serve different purposes:

- **Network fees** cover the costs of transmission and distribution of energy, including infrastructure development, maintenance and operation.
- **Levies** recover the costs of policies, including programmes supporting the clean energy transition but also, in some cases, fossil fuel subsidies.
- **Various taxes** are also applied on energy bills, such as carbon taxes.

Over time, the costs of non-energy elements have risen – and, in some cases, overtaken energy costs on residential bills (Figure 1). On average across the EU, non-energy elements account for 63% of electricity bills, while kilowatt hours consumed are only 37%. On gas bills, non-energy elements make up 50% of the final cost.

Current trends in energy billing and their effects on low-income households

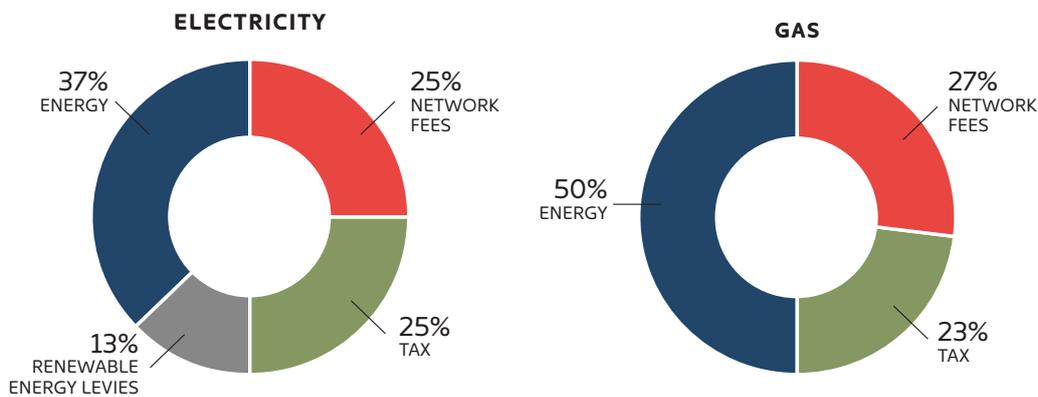
The make-up of energy bills varies across EU Member States, as does the cost of energy in relation to the household budget. On average for EU households in the lowest income decile, energy expenditure accounts for ~10% of total household expenditure, from a low of 3% (Sweden) to a high of 23% (Slovakia) (Figure 2).

In the near term, investments required to transition to an efficient, renewable energy system could result in increases in energy bills, for energy or non-energy elements. As low-income households already spend a significant proportion of their income on energy, this presents a serious risk of amplifying existing unfair distributional effects.

This briefing analyses current practices (both effective and ineffective) and offers a set of overarching principles and recommendations for policy-making.

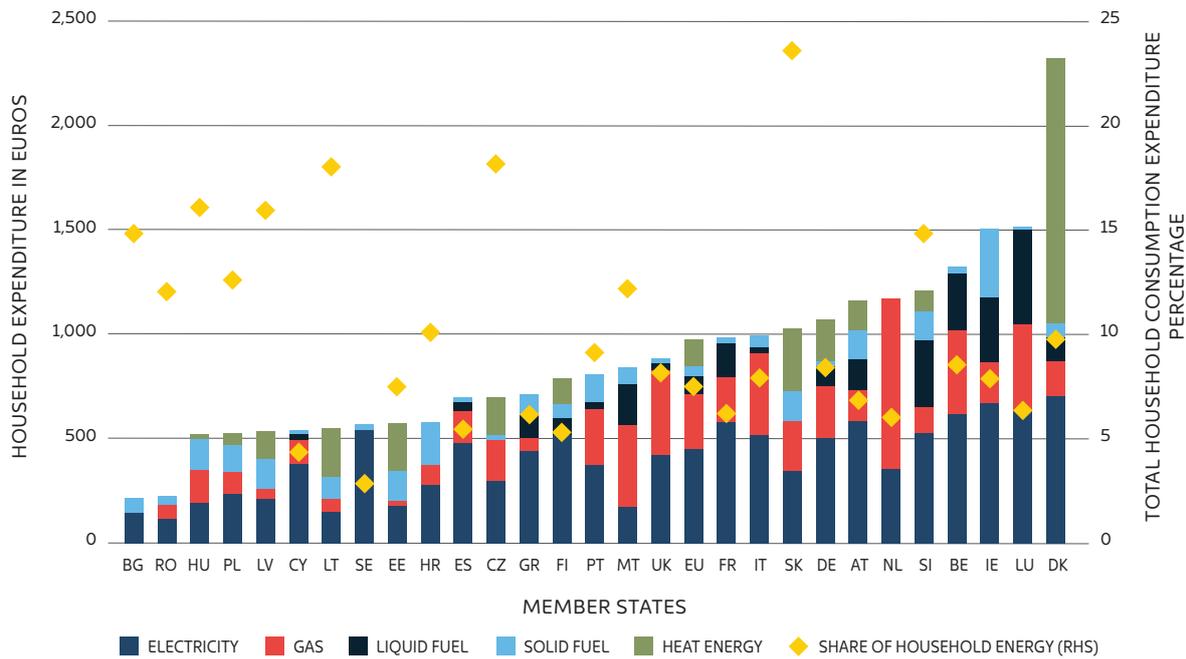
➔ At present, the ways in which non-energy elements are applied to energy bills place an unjust proportion of costs on low-income households. A just energy transition must eliminate such impacts.

Figure 1 • Breakdown of average EU household electricity and gas bills, 2018.



Source: RAP (2020) based on data from Agency for the Cooperation of Energy Regulators / Council of European Energy Regulators (2019). Annual report on the results of monitoring the internal electricity and natural gas markets in 2018: Electricity and gas retail markets volume.

Figure 2 • Expenditures on home energy for EU households in the lowest income decile.



Source: RAP (2020) based on data from European Commission (2019). Energy prices and costs in Europe.

➔ Delivering the benefits of renewable energy to all

Ultimately, the transition to renewable energy will benefit all, by tackling climate change and through other societal benefits. To ensure it also supports social justice, several principles should guide decision-making about how costs are passed on to users.

Overarching principles

- The European Green Deal must jointly advance climate action and social justice. To secure public support for the transition, energy policies must not leave the poorest an unfair share of the bill.
- The right to access energy must always be protected, notably by banning disconnections. Policy must establish consumer rights and enforce customer protections across all energy sources and supply mechanisms.
- The clean energy transition must follow 'Efficiency First' principles to prioritise reducing overall energy demand and promoting efficient use of energy.
- Impacts of policies that support the energy transition should be evaluated for fairness across all users. Evaluations must consider the full costs and benefits, to the system and to individuals, of energy policies and their interactions. Results must be communicated transparently and clearly to target audiences.
- Establish a democratic approach in decision-making, allowing for active participation of citizens to co-create policies.
- A portion of benefits of renewable energy and energy efficiency programmes should be ringfenced for low-income households. Recognising a possible time lag between costs imposed and the benefits of long-term energy savings, assistance schemes should be applied in the short to medium term. Dedicated schemes should ensure low-income households can participate in and benefit from the energy transition.
- All energy-related investments should be subjected to distributional tests to ensure costs are fairly recovered without impacting access to energy for all households. New climate investments are often subject to greater scrutiny than for other, legacy infrastructure: all investments should be held to the same high standards.
- Mechanisms must be established now to ensure the phase out of fossil gas; any increased costs of running gas networks must not unfairly burden low-income households.
- Fighting energy poverty and ensuring a just transition for workers go together. To avoid revenue losses that could increase energy poverty, policies must ensure that workers from sectors and regions most affected by the energy transition are given alternative job opportunities, adequate training and social protection.
- In a liberalised energy market, energy poverty can be exacerbated when lower income households lack time and resources to switch providers; such users must be fully empowered to engage in the market.

Network fees: Allocation of energy infrastructure costs

Ensuring energy networks can deliver enough energy to meet demand – and have sufficient flexibility to operate reliably while accommodating different sources of renewable energy supply – is central to the energy transition.

Network fees applied to energy bills are the mechanism by which system costs are passed on to users. At present, several factors distort who pays and how.

Most relevant is what proportion of the fee is 'fixed' – i.e. a set amount per customer or by capacity – or 'volumetric', in which case it is based on kilowatt hours consumed. The make-up of network tariffs in Member States varies dramatically (Figure 3). Some use only fixed fees (shown in blue) while others use only volumetric (red); in most cases, both fees are applied but in very different shares.

The proportional weight given to each component in the network tariff affects final costs for various users. A uniform fixed, per-customer fee tends to have an unfair effect in that it distributes infrastructure costs equally among all users,

regardless of their use of energy and the energy system. As low-income households tend to be low energy users, billing based on fixed fees can mean that – per kilowatt hour – they may pay up to 2.5 times more than high energy users for use of the grid.

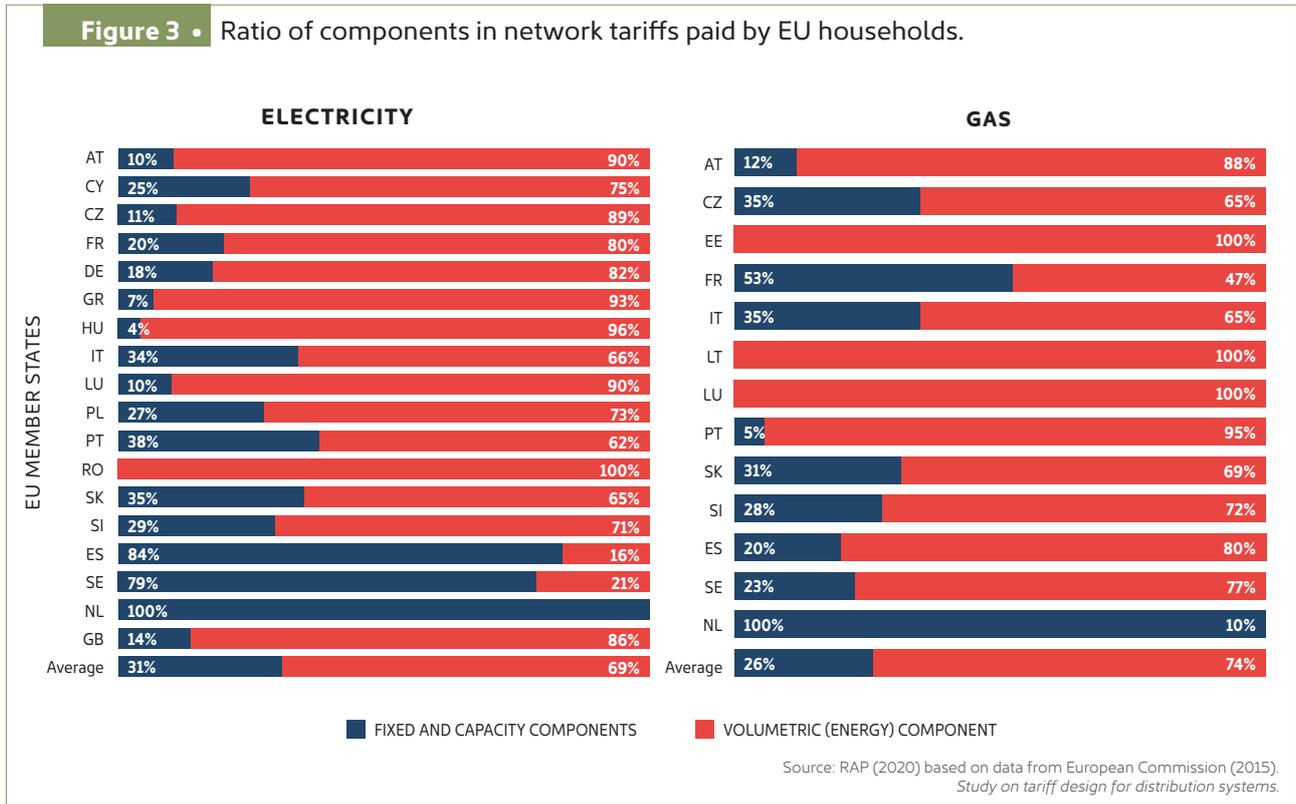
A worrying trend of rising fixed components in network tariffs is evident. In Germany, the fixed components in household network tariffs increased by 50% in just three years, from 2013 to 2016. Spain has a record of several fixed components that have not been audited or assessed in terms of fairness. For example, capacity payments have been challenged in court due to potentially problematic State aid.⁴

In the long run, fixed fees can drive up overall network costs, with implications for all users.

Because fixed fees do not go up or down in line with energy consumption, they represent a large proportion of the bill that

4. <https://odg.cat/es/publicacion/coste-real-energia/>

Figure 3 • Ratio of components in network tariffs paid by EU households.



households cannot influence by reducing use (e.g. through energy efficiency or demand response). By undermining the incentive for users to reduce consumption, fixed fees can result in higher demand – in turn pushing up the need to invest in additional capacity. In the end, the cost of excess capacity is passed on to users. This drives up infrastructure costs for all and undermines the overall efficiency of grid operations.

Heating accounts for the largest share of household energy costs and is often the expenditure that drives low-income households into energy poverty. Care should be taken to avoid distributional effects that may arise from the need to decarbonise heat within the clean energy transition (**Box 3**).

Box 3 • Decarbonising heat: Multiple challenges to consider.

Decarbonising the energy supply for heating requires an overhaul of both gas and electricity infrastructure.

Currently a low-cost heating fuel, gas is the preferred choice of many low-income households. Switching to electricity is core to the clean energy transition. However, several barriers constrain low-income households in this switch: high up-front costs, low access to financing, lack of space for heat pumps, lack of access to district heating and, for renters, the reality that landlords make fuel decisions.

As heating is increasingly shifted to electricity, gas demand and the number of users will drop in tandem, leaving a smaller pool across which to spread

network costs. Also, the period of time over which the costs of the gas infrastructure can be recouped will be shorter.

The bottom line is this: with gas network costs distributed across fewer consumers, low-income households that remain on gas are likely to have a much higher cost burden on bills. They may also need to be protected from higher costs of replacement fuels delivered through the gas grid.

RECOMMENDATIONS

Network fees should base share of costs on use

Recognising that heating represents the largest share of household energy expenditures, to support fair billing practices in the context of decarbonising heat, regulators and policy-makers should:

- Design network tariffs to reflect how much energy users actually use and at what time.
- Limit the use of fixed fees, as they unduly disadvantage low-income households while also disincentivising energy efficiency and demand response, ultimately impeding the energy transition.
- Develop a roadmap for decarbonisation of heat and apply 'Efficiency First' principles in advance of making new infrastructure investments to prioritise demand-side solutions. Gas network regulation must plan for projected reduction of system use, ensure costs are distributed fairly among users, and avoid cost shocks to low-income consumers.

Levies: Funding energy efficiency and renewables

A clean energy transition will be advanced through rapid action across two areas. Boosting energy efficiency can quickly reduce energy demand; in turn, lower demand will curb the renewable capacity needed. Together, efforts in both areas will reduce the scale of investment required.

Most Member States apply levies to energy bills to recover the costs of energy efficiency measures, expanding

renewables, and/or deploying combined heat and power. On average, levies account for 13% of EU household energy bills, but the figure ranges from as low as zero to as high as 20%.

Fourteen Member States use levies to fund energy efficiency obligations, as does the United Kingdom. In some countries, these programmes drive much of the energy efficiency activity in targeted sectors or markets (Box 4). A shortcoming

Box 4 • Measuring private and societal benefits of energy efficiency.

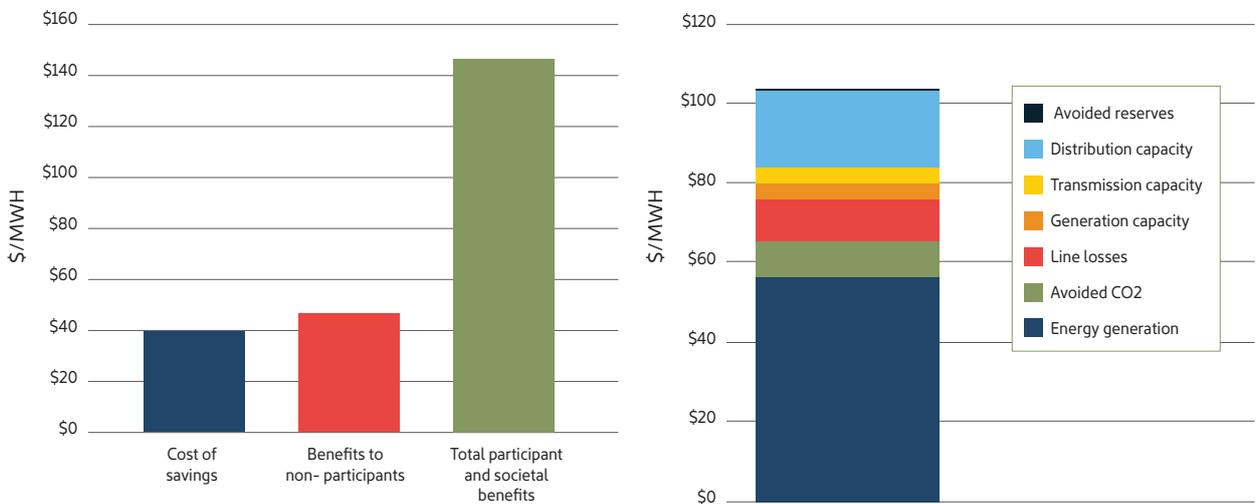
The state of Vermont (United States) uses a levy on electricity bills to fund the budget of Efficiency Vermont, an efficiency utility that helps energy users to reduce consumption. The Vermont Public Service Board determines the levy and budgets, then contracts Efficiency Vermont to carry out measures such as installing efficient technologies, appliances or lighting, supporting fuel substitution, and building retrofits.

In 2010, analysis showed the efficiency obligation having a cost of \$39/MWh of energy saved. In turn, the obligation reduced the cost associated with

generating and transporting electricity by \$47/MWh saved – a saving that was passed on to all customers. The benefit to customers who had opted to participate in the efficiency programme was much higher – ~\$147/MWh saved.

A key point about this impressive return: the study did not capture the significant value of social, economic, environmental and health (i.e. non-energy) benefits of efficiency investments.

Figure 4 • Illustrative source and allocation of benefits of a cost-effective energy efficiency obligation, Efficiency Vermont.



Source: RAP (2020) based on data from Regulatory Assistance Project (2016). Toolkit for energy efficiency obligations.

is that little information is available on how the costs are recouped.

Nineteen Member States and the United Kingdom used levies to finance renewable energy initiatives in 2016, ultimately passing on to users total costs of €57 billion.

Levies are most often applied to electricity bills and infrequently to gas bills. This practice disproportionately increases electricity costs while keeping the prices of fossil fuels – such as gas and heating oil – comparatively lower.

This disparity disincentivises users to implement efficiency measures, switch to renewable sources or adopt electricity-based technologies such as heat pumps.

More problematic is that levies are more commonly placed on the bills of households than of energy-intensive industries, which often receive exemptions. Distributing the bulk of the cost of levies among non-exempt users ultimately places a greater cost burden on all others and specifically disadvantages low-income households.

RECOMMENDATIONS

Fairly applied, levies deliver benefits to all

If levies remain a tool for financing the energy transition, they must be progressively and transparently applied to secure potential benefits while fully accounting for costs. To ensure levies support a just transition, policy-makers should:

- Ensure levies fund renewable and energy efficiency programmes, and do not lock-in new fossil fuel investments.
- Develop transparent methods to pass costs on to bills.
- Implement cost-recovery mechanisms that avoid negative impacts on low-income households. Any

exemptions must be fully justified and consider distributional effects; costs must be allocated based on energy use rather than on a fixed or per-customer basis.

- Ringfence a portion of the benefits of levy-funded energy efficiency and renewable energy programmes for low-income households.
- Include full system and societal benefits in cost-benefit and distributional effect analyses of levy-funded programmes, and fully communicate these benefits.

Carbon taxes and pricing: Using revenues to reduce emissions

Two price signal mechanisms are used by governments to stimulate a shift to clean energy sources: carbon taxes and 'cap-and-trade' emissions trading schemes. Both aim to make it more expensive to use high-emission fuels.

Fifteen European countries currently have carbon taxes in place and all EU Member States (plus Iceland, Liechtenstein and Norway) are included in the EU Emissions Trading System. To date, the EU ETS has failed to deliver meaningful CO₂ emissions reduction.⁵

On energy bills, a carbon tax may be part of the tax component or the carbon price linked to trading schemes may be added to the cost of units of energy. Both approaches raise the final cost of energy to users; again, the cost burden of this increase is felt more heavily by low-income users.

To offset the increased cost to households created by carbon pricing, governments most often return revenues acquired through schemes such as a lump-sum cashback payment or by reducing income, employment or capital taxes. In the short term, returning revenues to energy-poor households is an equitable means to offset the cost burden of the tax.

5. Vaïlles, C (2019), *2019 State of the EU ETS Report*, Institute for Climate Economics, Paris, retrieved from: www.ice.org/download/2019-state-of-the-eu-ets-report/

Returning the majority of revenues generated by carbon pricing to all users, however, is an ineffective strategy to meet overall carbon goals.

Carbon prices would have to be unrealistically high to drive significant carbon saving. In contrast, one UK study found that investing carbon revenues in efficiency programmes delivered

up to nine times more carbon saving than could have been achieved through price alone.

As carbon pricing is increasing in both cost and scope, revenues could rise substantially. Governments must consider how pricing policies will affect energy-poor consumers.

RECOMMENDATIONS

Carbon pricing mechanisms must be fair

Strategic investment of carbon revenues is central to their effectiveness and to public acceptance. Governments planning to implement or extend carbon pricing should:

- Assess distributional effects of carbon pricing mechanisms and the use of associated revenues to address inequities.
- Ensure exemptions and compensation do not privilege energy-intensive industries over households.
- Extend 'Efficiency First' principles to carbon pricing mechanisms to deliver carbon abatement at least cost. To achieve this, revenues should be reinvested into efficiency and carbon abatement programmes.
- Ringfence carbon revenues to offset impacts on low-income users, including through targeted social support, energy efficiency investments and lower-carbon options for home heating.
- Communicate to all users the distributional effects of carbon pricing policies and measures to offset any cost impacts.

User engagement in the energy market

Energy market liberalisation was launched, in part, on the premise of allowing users to engage, primarily by being able to 'shop and compare' among service providers and tariffs. The argument was that user engagement would increase competition and lead to lower bills.

Today's energy systems create more opportunity – and indeed greater need – for user engagement, not only through switching suppliers but through 'demand response'. User efforts to reduce and shift demand, coupled with fuel switching, can flatten peaks of demand, thereby reducing the need for new investment to expand systems. It should be recognised that participation is most meaningful when users and/or communities can own and control their own renewable energy resources.

However, the potential for user engagement depends on a household's situation. To date, engagement remains very low. In many markets, almost no users have switched suppliers; at

best, only 10% to 20% of users switch per year. This reflects a mix of loyalty, low trust and risk aversion, as well as the level of difficulty encountered in trying to switch. Low-income users and those in energy poverty are often least likely to switch.

In relation to demand response, low-income households face substantial barriers in implementing energy efficiency measures or shifting to renewables, due to limited capacity to invest or access financing. Many are renters, which gives rise to the problem of 'split incentives', where the landlord incurs the cost of renovations while the tenant receives the benefits.

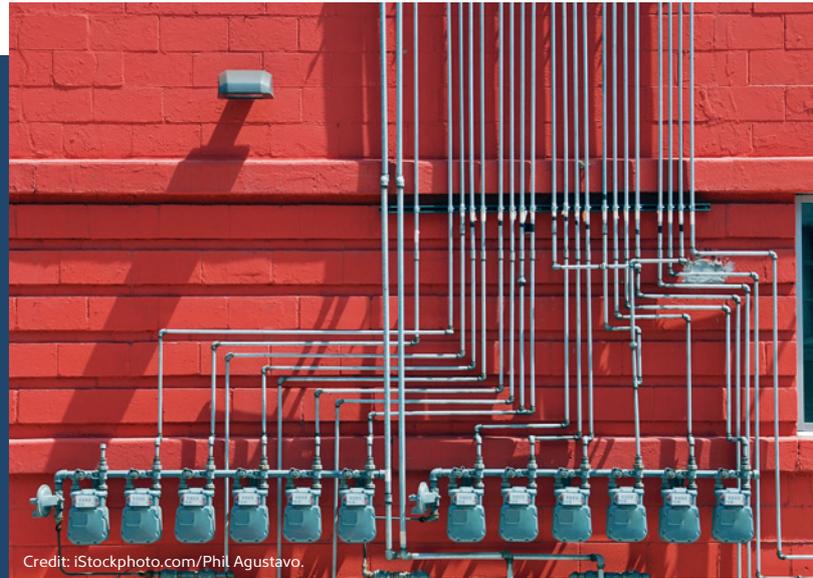
Any initiatives designed to encourage user engagement must not unfairly disadvantage low-income users. With district heating attracting attention as a mechanism to decarbonise heating, more effective policy and regulatory frameworks are needed (**Box 5**).

Box 5 • District heating offers opportunities, but particular challenges must be overcome.

While district heating is widespread in some parts of Europe, it is not currently regulated at EU level; as such, how system costs are passed on varies widely.

Expanding and modernising district systems – including to use renewables and waste heat – is a key route to decarbonising heat, but it must not unfairly disadvantage customers.

Where such systems exist, they often undermine engagement in that users have little to no control over the system efficiency or fuel used. In some systems, heat is not metered or controllable at the dwelling level, so households cannot manage energy to reduce costs. Finally, they cannot switch suppliers or compare prices, and are often unable or face high costs to disconnect.



Credit: iStockphoto.com/Phil Agustavo.

Regulation is needed to ensure basic consumer protections and energy service choices.

RECOMMENDATIONS

Enabling user engagement to capture and deliver benefits

To capture the potential benefits of greater user engagement while upholding the right to access energy, policy-makers and regulators should:

- Ban disconnections and take effective steps to prevent self-disconnection by users of prepayment meters.
- Simplify mechanisms by which users can engage in energy systems. When offering demand-response options, suppliers should fully communicate associated costs, risks and benefits.
- Ensure users can decide how they engage with new tools to manage energy consumption. They should be free to adopt tools such as prepayment meters or to choose other payment methods. Prepayment meter costs should be fair.
- Link short-term assistance and long-term solutions. While energy renovation is the most effective solution to improve efficiency of homes, its high up-front costs and long pay-back period are barriers to low-income households. Social tariffs can reduce the short-term cost burden.
- Ensure adequate consumer protections for households connected to district heating systems, including transparent pricing that facilitates comparison.
- Support low-income households in the switch away from gas and protect them from high costs of heating fuel.

The EU Green Deal must deliver climate, energy and social justice

As Europe faces the risk of a new recession and time is running out to stop irreversible climate change, the Right to Energy Coalition calls for strategic, coordinated action to build an energy system that works for people and the planet, upholding the right of EU citizens to access renewable, affordable energy and decent housing.

To bridge climate and social justice, the Right to Energy Coalition calls on policy-makers to ensure a fair distribution of costs and access to benefits for all in the transition to renewable energy.

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