SOCIAL SUSTAINABILITY BAROMETER FOR THE GERMAN ENERGIEWENDE: 2018 Edition

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Core statements and summary of the key findings

PREFACE

The fate of Germany's Energiewende currently hangs in the balance. On the one hand, the findings presented in this 2018 edition of the Social Sustainability Barometer show that more than 90 per cent of people living in Germany support the Energiewende as a collective undertaking. And the coal phaseout – now copper-fastened in the final report of the Commission on Growth, Structural Change and Employment – also enjoys the support of the vast majority. On the other hand, trouble is brewing. Public dissatisfaction with official energy policies is particularly evident in France, where citizens have donned yellow vests to protest against the fuel tax rise introduced by the government to finance more climate protection and renewable energies. This shows how good intentions can backfire when the price to pay is perceived as too high and the issue of social justice is neglected.

Germany's exit from coal will entail multi-billion euro transfer payments to spur structural transformation in the regions most affected by the phaseout. This is an attempt to strike a fair balance between climate protection and regional development. However, up to now German politicians have paid precious little attention to the fundamental question of how to implement the Energiewende in a socially just way. And it remains to be seen if transfer payments to the affected regions will be enough to achieve this aim. The beneficiaries of this approach may be clear. But who is going to bear the brunt in the longer term? And will this form of transformation be perceived as just? The jury is still out on these questions.

What we can infer from the second edition of the Social Sustainability Barometer for the German Energiewende is that most Germans are critical of the way in which the energy transition is currently being implemented, both in terms of the pace of change and the distribution of costs and burdens.

Things aren't very different in the transport sector, where far more efforts are required if Germany is to achieve its climate goals. The often heated debates on mobility demonstrate the degree to which Germans are stirred up by every new or even contemplated measure (since this is something that affects them in their daily lives). The Barometer also shows that while everybody would like to see more support for e-mobility, almost nobody is in favour of a ban on combustion engines.

The 2018 edition of the Barometer presents robust findings that can guide the future progress of the German Energiewende. The architects of the energy transition – first and foremost policymakers and industry representatives – would do well to take a closer look at the messages it conveys: People have a keen sense of what's required for a reliable, environmentally friendly, and socially just energy system and sustainable climate protection. Yet many associate the Energiewende with a lack of fairness and professionalism. And they are still ambivalent about the extent to which they themselves are willing or able to contribute to the success of this undertaking.

The IASS has been instrumental in creating the kind of broad knowledge base required for a sustainable energy transition. The findings of the Barometer show that the success of the Energiewende is by no means a foregone conclusion. Some people may lose heart in the face of growing scepticism, while others may urge a slower pace of transformation. dynamis, by contrast, aims to tap into the Barometer's findings to present people with options, particularly in the districts and regions where the energy transition and social cohesion can go hand in hand. We call on everybody, but above all on decision-makers in business and politics, to take the perceptions, opinions, and attitudes of the people affected by the German Energiewende more to heart.

We hope that this edition of the Barometer provides you with ample food for thought!

Prof. Dr Ortwin Renn

Dr René Mono

Dr Stephan Muschick

INTRODUCTION

The issue of public acceptance of the Energiewende is moving increasingly onto the political agenda. This is not only due to the ongoing "yellow vest" protests on Germany's doorstep in France, where thousands have taken to the streets to demonstrate against fuel taxes that they see as unfair. There is also a growing awareness that in Germany too, protests and public resistance could seriously jeopardise further progress with the Energiewende.

In the struggle to find the right solutions, the way in which social goals like justice, participation, and social responsibility are handled will be crucial to the success of the Energiewende. In this context, social sustainability is a guiding principle that is not merely about procuring acceptance, but also about planning and implementing the Energiewende as a collective undertaking in which all parts of society should feel equally included and have the opportunity to play an active role. This presupposes a distribution of the costs and benefits of the Energiewende that is perceived to be fair. The emphasis must be on meaningful participation in rather than resigned acceptance of transformation processes.

This brochure presents the main findings of the second edition of the Social Sustainability Barometer for the German Energiewende. They are based on two internet-based, population-representative household surveys (forsa.omninet household panel), which were conducted in the summer of 2017 and 2018 in cooperation with the RWI – Leibniz Institute for Economic Research.[2] Now in its second iteration, this brochure can for the first time track changes in attitudes to the Energiewende and its implementation since the publication of the first Barometer in 2017.

The annual Social Sustainability Barometer for the German Energiewende is an empirical database intended to monitor developments in the social dimensions of sustainability in selected key areas as accurately as possible.[1] How does the German population view the Energiewende and the current implementation process? What do they expect from a just Energiewende? To what extent do they feel affected by the Energiewende? And to what degree are they willing to participate in it?

The Barometer is a tool for describing the status quo and tracking positive and negative developments. The data it contains also highlights existing or emerging challenges and problems. The Barometer's findings point to areas where there is a need for political action and thus serve as an early-warning system to help policymakers set the right priorities.

The Social Sustainability Barometer combines quantitative and qualitative research methods. Parallel to the household surveys, data was also collected and assessed in the context of five structured group discussions (focus groups[3]) and three citizen dialogues.[4] The evaluation of the household survey data was based on statistical and explorative analyses.

The Barometer is produced by the Institute for Advanced Sustainability Studies (IASS) in the context of the dynamis partnership and in cooperation with the Kopernikus Project ENavi. dynamis, a self-proclaimed "think-do-rethink" tank, was founded in December 2016 by the innogy Foundation for Energy and Society, the 100 prozent erneuerbar Stiftung, and the IASS.

We would like to take this opportunity to thank the sponsors and supporters of the Social Sustainability Barometer, in particular the Federal Ministry of Education and Research (BMBF), the Kopernikus Project ENavi, and our two dynamis partners, the innogy Foundation for Energy and Society and the 100 prozent erneuerbar Stiftung. We are also grateful to our colleagues at the IASS and to other experts from the scientific community, politics, civil society and the private sector who have followed the development of the Barometer with great interest and provided valuable advice. Special thanks goes to the participants in the stakeholder dialogue in December 2018, where we were able to discuss the initial results of the 2018 Barometer and received helpful feedback for interpreting our findings.

The Social Sustainability Barometer for the German Energiewende provides the knowledge base necessary to steer the Energiewende in the right direction. It highlights where political attention is required and where perceived deficits need to be tackled politically. We hope that the findings presented here will encourage decision-makers to pay more attention to the social dimension of the energy transition, alongside technical and economic issues, and to be unstinting in their efforts to address the identified challenges.

Potsdam, 11 February 2019

Daniela Setton and Ortwin Renn

Information on data collection:

	2017	2018
Data collection period	15 June – 23 July	1 August – 11 September
Parent population	Private households in the Federal Republic of Germany; the respondents were the persons in those households who decide – either on their own or together with their partner – on financial matters.	
Survey sample size	7,843 households	6,594 households Sample increased by **307 households** (Special *Lusatia* sample)
Selection process	Multi-stage random selection in the context of the forsa.omninet panel	

For further information, see page 40.

OVERVIEW OF KEY FINDINGS

MONITORING VARIABLES: overall support for the Energiewende; assessment of the competence of the political parties and the Federal Government in this area; support for the goals of the Energiewende

1. Support for the Energiewende is still strong		As an objective, the Energiewende is endorsed and positively connoted by a broad majority of people across all societal groups. Politicians can continue to count on broad public support for a resolute implementation of the Energiewende.
2. Criticism of the implementation process has increased		The population's overall assessment of the Energiewende implementation process with regard to costs, political management, public involvement, and fairness is significantly more negative than in 2017.
3. Dissatisfaction with the Energiewende policies pursued by the Federal Government has risen		Across the political spectrum, more than half of the population is dissatisfied with the Energiewende policies currently being pursued. Most respondents are critical of what they see as inadequate climate protection and a social imbalance in the distributional effects of the Energiewende.
4. Confidence in the competence of most political parties has fallen – the Greens are the only exception		Overall public confidence in the ability of Germany's political leaders to manage the Energiewende effectively is low and has fallen since the first survey in 2017 – the coalition parties have fared particularly badly here. Bündnis 90/the Greens inspire by far the most confidence in this regard.
5. Sustained support for coal phaseout across Germany – but growing scepticism in mining regions		The coal phaseout is broadly acknowledged as a pillar of Germany's energy policy, even in the mining states particularly affected by the Energiewende. However, a critical attitude prevails in the mining region of Lusatia.

Legend:

Red: Very worrying development with an urgent need for action
Orange: Worrying development with a need for action
Yellow: Development needs to be monitored and kept in check
Light green: Positive development
Dark green: Very positive development

ATTITUDES AND PREFERENCES WITH REGARD TO CLIMATE PROTECTION: Approach to climate goals, carbon pricing, and an exit from the combustion engine

6. The majority supports Germany's climate goals, but also wants the needs of industry and affected regions to be taken into account.	The vast majority of Germans – including the people in lignite-mining states – supports the country's 2020 climate goals. Most people believe, however, that the affected regions and industries should be given more time to make the transition.
7. The majority is in favour of carbon pricing – but most people want to be compensated financially.	The majority feels that moderate increases in energy prices are justified to cover the costs of climate protection. However, the introduction of a carbon-pricing system must be accompanied by a convincing and transparent compensation mechanism if it is to be accepted by the broad majority.
8. Guarded support for e-mobility	The growth of e-mobility is supported by half of the population and thus trails behind other Energiewende goals in terms of the public support it enjoys. A clear majority is against phasing out the combustion engine by 2030.

EXPANSION OF SOLAR AND WIND ENERGY SYSTEMS: Impact and acceptance

9. Photovoltaic rooftop systems are the most popular renewable technology by a long shot.	PV rooftop systems enjoy by far the highest approval ratings and are also the most commonly found renewable technology in residential areas. People are more sceptical about the expansion of wind energy, and wind installations are less common in residential areas.
10. The number of wind turbines in a given area is a key factor for acceptance by local residents.	Even when wind turbines are located in the immediate vicinity of a residential area, most people do not feel adversely affected. However, acceptance levels drop significantly when the number of wind turbines located close to one's home noticeably increases.
11. A slim majority considers public participation more important than rapid wind expansion.	The population supports the expansion of onshore wind by a narrow margin. At the same time, almost half of the population believes that this expansion should not take place over the heads of local people, even if that means that the pace of expansion is slower.

CITIZEN INVOLVEMENT: Prosumers and digitalisation

12. Contributing to the Energiewende as a "prosumer": living arrangements are the deciding factor	Only a small share of the population has invested in their own wind energy and PV systems to date, and the people who have done so are generally homeowners. For most Germans in rented accommodation, this is not an option because, as tenants, they are not in a position to decide on such matters.
13. Flexible in terms of energy consumption, but little interest in flexible tariffs	Most respondents state that they are flexible in terms of when they use their washing machines and dishwashers in order to react to rises in the price of electricity. But the level of interest in flexible tariffs is low.

1 | SUPPORT FOR THE ENERGIEWENDE IS STILL STRONG

90%[5] **(+2)**[6] **of the population**[7] **supports the Energiewende**[8] across all income brackets[9], age groups, and educational backgrounds. The high level of support is also consistent in urban and rural areas. The Energiewende is endorsed by **94 %** of CDU/CSU, SPD, Linke, and Bündnis 90/the Greens supporters, **87%** of FDP supporters[10], and **62 %** (+2) of AfD supporters.

For 80% of the population, the Energiewende is a collective undertaking to which everybody should contribute. This represents a slight increase on last year's figure (+5). This view is shared by **76%** (+6) of low-income households.

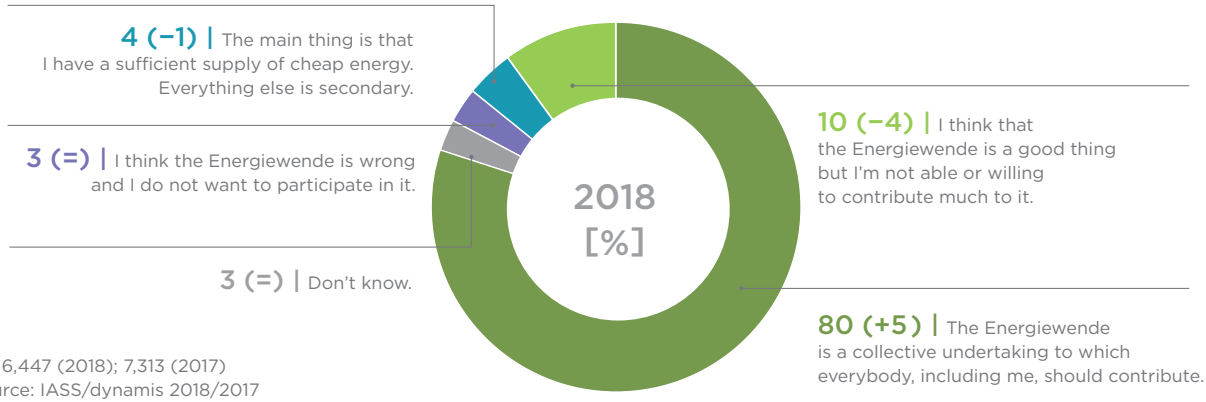
3% (no change) of the population believe that the Energiewende is wrong (Energiewende objectors). Almost one fifth of AfD supporters **(23 %**, +1) and **6%** of FDP supporters are against the Energiewende.

The population of the lignite-mining region of Lusatia (Brandenburg/Saxony) is overwhelmingly in favour (83%) of the Energiewende. This figure includes those people **(73%)** who view the Energiewende as a collective undertaking. The proportion of people who are against the Energiewende is higher in Lusatia **(9%)** than in Brandenburg **(3%)** and Saxony **(7%)** as a whole.

Germans are united in their support for the Energiewende. The project is firmly established as a societal goal with positive connotations for the majority of people, regardless of their social backgrounds and political affiliations. What's more, the number of people who see the Energiewende as a collective undertaking to which they themselves and everybody else can contribute is growing perceptibly. Even in the mining region of Lusatia, which is currently facing major structural challenges, a clear majority is in favour of the Energiewende. The AfD – and, to a lesser extent, the FDP – is the only party that can rally significant support from Energiewende objectors. However, most AfD supporters approve of the Energiewende. **All this means that politicians can continue to count on broad public support for a resolute implementation of the Energiewende.**

MORE PEOPLE SEE ENERGIEWENDE AS COLLECTIVE UNDERTAKING

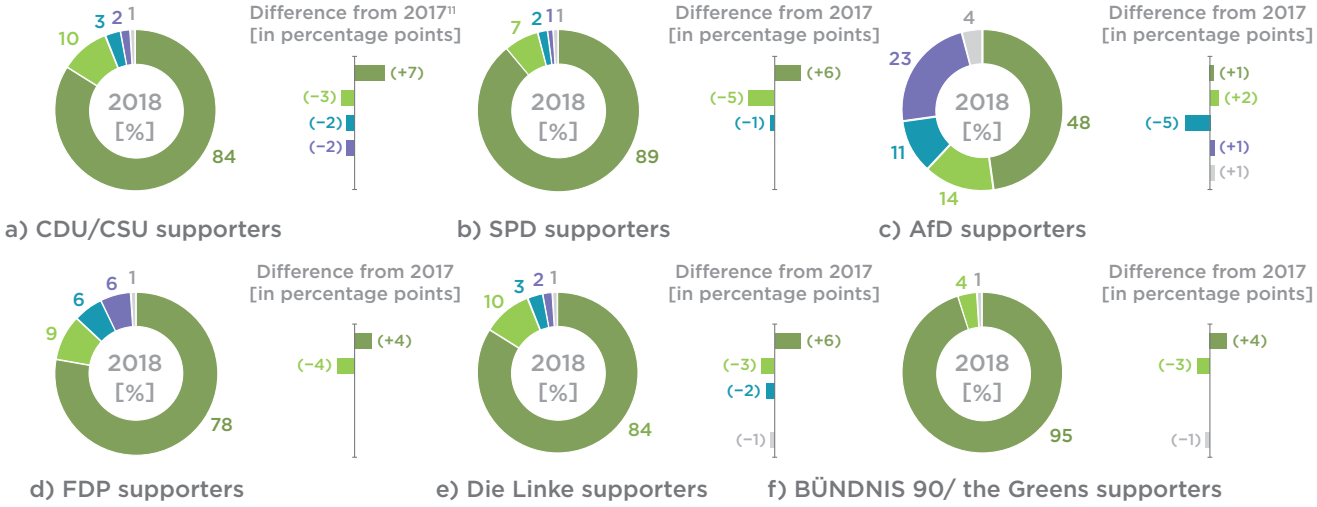
When you think about your personal contribution to the Energiewende, which of the following statements is most applicable to you?



n = 6,447 (2018); 7,313 (2017)
Source: IASS/dynamis 2018/2017
Values in brackets: Difference from 2017 [in percentage points]

A large majority across the political spectrum supports the Energiewende

Attitudes to personal contribution to Energiewende by political affiliation



a) n = 1,363 (2018); 1,413 (2017), b) n = 1,183 (2018); 1,218 (2017), c) n = 290 (2018); 197 (2017), d) n = 222 (2018); 211 (2017), e) n = 462 (2018); 413 (2017), f) n = 567 (2018); 457 (2017) | Source: IASS/dynamis 2018/2017

2 | CRITICISM OF IMPLEMENTATION PROCESS HAS INCREASED

47% of respondents have a negative overall view of the Energiewende implementation process, a marked increase on last year's figure (+14). Less than one third of the population **(31%**, –11) is satisfied with the way in which the Energiewende is being implemented.

There is a growing perception that the Energiewende is "expensive". This view is shared by three quarters of the population as a whole (75%, +9) and **88%** of AfD and FDP supporters (+4 and +13 respectively).

Respondents increasingly believe that the process of implementing the Energiewende is chaotic (60%, +9); this is true of the majority of CDU/CSU (**54%**, +5) and SPD (**58%**, +9) supporters.

More than half the population (51%, +4) feels that the Energiewende is unjust, with only one in five people (21%) convinced that it is fair. This sense of injustice is more prevalent among low-income households **(55%**, +7) than higher income groups. **58%** (+5) of East Germans see the Energiewende as unjust, compared to **49%** (+1) of West Germans.

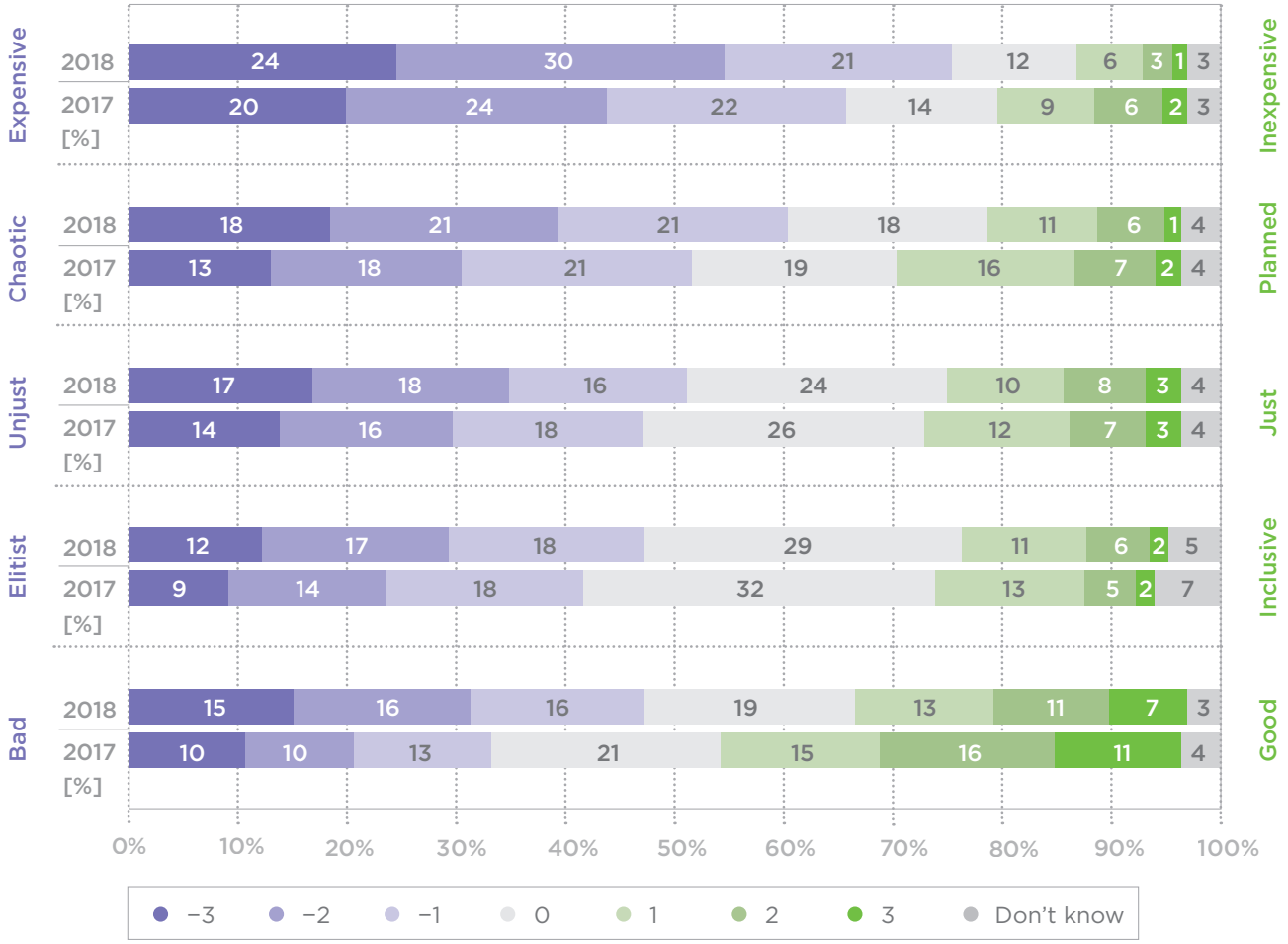
47% (+6) of respondents believe that the Energiewende is an elitist project, while only one in five **(19%**, –1) see it as people-oriented. This critical view prevails even among citizens who have already invested in their own wind energy or PV system (**46%**, +7); only **20%** (–3) of them associate the Energiewende with citizen participation.

While overall approval for the Energiewende remains very high, the population's assessment of the implementation process is far more negative than in 2017. Criticism of all aspects of the process relevant to social sustainability, including justice, citizen participation, costs and political management, has risen significantly. And for the first time, the overall assessment of the implementation process is predominantly negative. There has been a marked increase on the strongly negative end of the spectrum (minus three to minus two). If this perception persists or even gains ground, **it could become increasingly difficult to obtain the support necessary for concrete measures to advance and implement the Energiewende in Germany – despite high overall public support for the project.** This is likely to be the case if those measures entail more far-reaching redistributive effects.

MAJORITY BELIEVES ENERGIEWENDE IS EXPENSIVE AND CHAOTIC

Assessment of the Energiewende in Germany based on pairs of opposing characteristics*

Below is a list of different pairs of characteristics. In each case, please indicate the characteristics that immediately strike you as appropriate to describe Germany's Energiewende.



n = 7,410 (2017); n = 6,533; 6,534; 6,534; 6,535; 6,533 (2018) | Source: IASS/dynamis 2018/2017

*This list of pairs of opposites was compiled on the basis of the relative strength of the negative values (with the exception of the pair bad-good), and the order is thus different from that in the 2017 Barometer.

3 | GROWING DISSATISFACTION WITH THE GOVERNMENT'S ENERGIEWENDE POLICY

More than **half of the German population** (**61%**, **+12) is dissatisfied with the policies currently pursued by the Federal Government** with a view to implementing the Energiewende. This dissatisfaction is evenly spread across Eastern and Western Germany. It represents the majority view across the political spectrum, and is particularly prevalent among AfD supporters **(84%)**.

58% of respondents cite the **slow pace of implementation and the associated lack of progress with climate protection** as one of the main reasons for their dissatisfaction with the Federal Government. This criticism is stronger in Western Germany **(61%)** than in Eastern Germany **(48%)** and more common among high-income **(66%)** than low-income **(55%)** households.

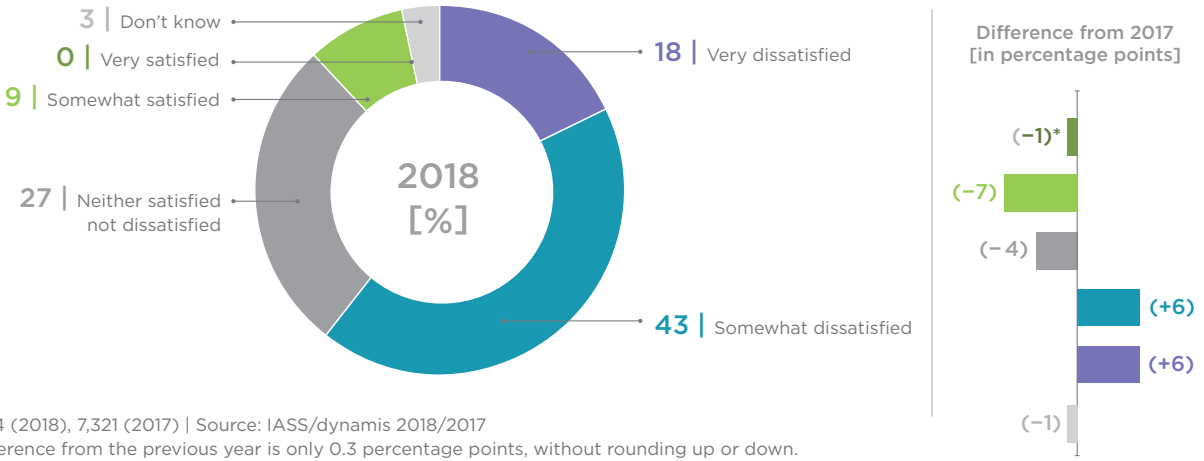
Just over half of the population **(52%)** believes that the issue of **social justice is not given due attention.** This criticism is raised more frequently by East Germans **(60%)** than West Germans **(50%)**, and is more prevalent among low-income **(60%)** than high-income households **(38%)**.

Cited by **41%** of respondents, the excessive costs of the Energiewende rank third in the criticisms levelled at the Federal Government. **In other words, for most respondents (59%), the issue of excessive costs is not one of the three main reasons for their dissatisfaction with the Federal Government.**[12]

Widespread criticism of the way in which the Energiewende is being implemented is accompanied by growing dissatisfaction with the government's energy transition policies, which extends even to the supporters of the governing parties. The reasons cited for this dissatisfaction are revealing: Most Germans are concerned that too little progress is being made in the area of climate protection and critical of a social imbalance in the distribution of the costs and benefits of the Energiewende. **While a large majority believes that the Energiewende is expensive, most respondents do not cite excessive costs as a major reason for their dissatisfaction. Climate protection and social justice seem to be more important to the population as a whole.** What is striking is the different weighting of these two preferences for climate protection and social justice by different population groups (East/West and income group). **Both issues are equally important for the further implementation of the Energiewende.**

GOVERNMENT'S EFFORTS TO IMPLEMENT ENERGIEWENDE FAIL TO CONVINCE MAJORITY

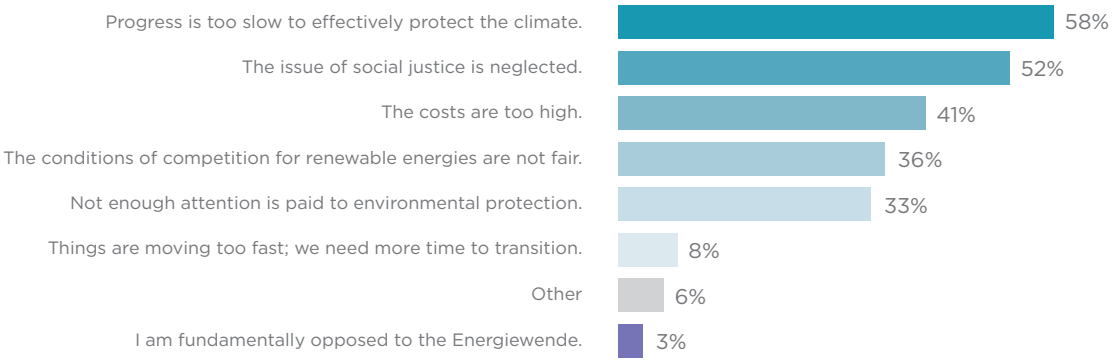
When you reflect on the way the Energiewende is being implemented, how satisfied are you with the policies of the Federal Government?



n = 6,464 (2018), 7,321 (2017) | Source: IASS/dynamis 2018/2017
*The difference from the previous year is only 0.3 percentage points, without rounding up or down.

NOT ENOUGH CLIMATE PROTECTION AND SOCIAL JUSTICE

A question for those who are dissatisfied or very dissatisfied with the policies of the Federal Government:
What aspects of the implementation process are you particularly dissatisfied with? (choose a maximum of three answers)



n = 3,932 | Source: IASS/dynamis 2018

4 | CONFIDENCE IN THE POLITICAL PARTIES HAS FALLEN – ONLY THE GREENS BUCK THE TREND

As in 2017, none of the political parties represented in the German Bundestag can convince a majority of the population that it is capable of implementing the Energiewende: **Almost one in three people (31%) has no faith in the ability of any political party to find effective solutions for the Energiewende.** This is an increase of eight percentage points on last year's figure. One fifth of the population (17%, −4) has no opinion on the matter.

Of those who believe that **no party has the best Energiewende concept,** 79% (−3) are dissatisfied with the Federal Government's Energiewende policies[13].

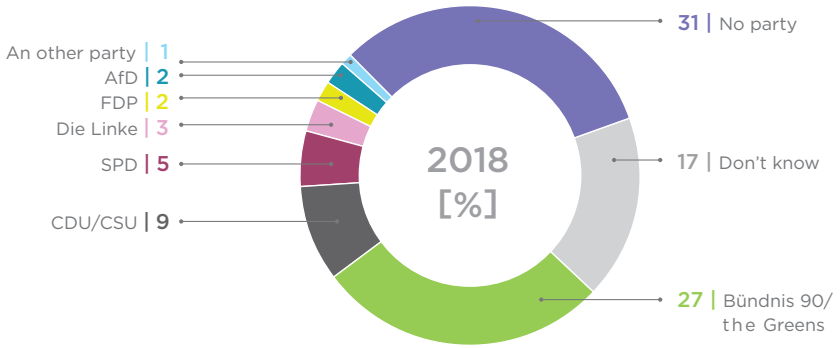
About a quarter (27%, +7) of respondents think that Bündnis 90/the Greens have the best Energiewende concept. All the other parties fare far worse, with some trailing well below 10%. The CDU/CSU in particular has seen a significant drop in its perceived competence (−6).

Once again, Bündnis 90/the Greens was the only party that was able to convince the majority of **its own supporters (78%, +4) – as well as a large share of the supporters of other parties – of its Energiewende competence.** All the other parties fail to inspire confidence in even half of the respondents. And the competence ascribed to both governing parties by their own supporters has also dropped, most dramatically in the case of the CDU/CSU (33%, −18).

The perceived erosion of the parties' competence shows that public confidence in the ability of Germany's political representatives to effectively guide the Energiewende is at a low ebb. This loss of faith is striking when compared to other policy areas. While Bündnis 90/the Greens inspire by far the most confidence when it comes to the Energiewende, the party still only manages to convince one in four people. The shift in attitudes from 2017 to 2018 no doubt reflects a general loss of public confidence in the political parties and a general dissatisfaction with the governing parties in particular. **The onus is now on the Federal Government and the opposition parties to come up with convincing and clearly distinguishable concepts for advancing the Energiewende and to rally support for those concepts in political debate.** All the parties need to acknowledge that the Energiewende is a wide-ranging sociopolitical challenge rather than a mere "management task".

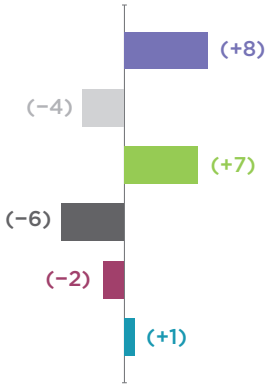
GREENS ENJOY HIGHEST COMPETENCE RATING

In your view, which party has the best ideas for implementing the Energiewende?

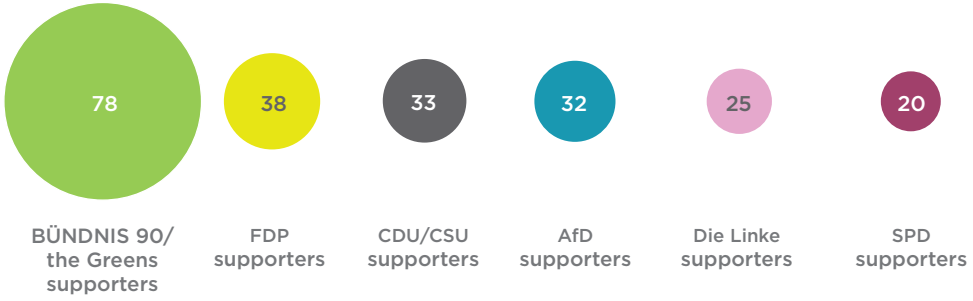


n = 6,461 (2018); 7,321 (2017)
Source: IASS/dynamis 2018/2017
The 3% of respondents who did not answer
this question are not represented in the graphic.

Difference from 2017
[in percentage points]

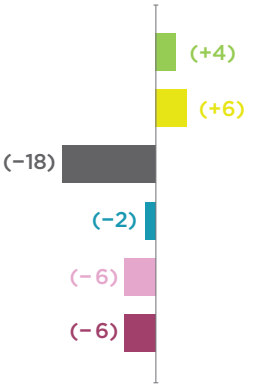


The share of the supporters of each party who think that their party has the best Energiewende concept



[%] n = 4,328 (2018); 4,307 (2017)
Source: IASS/dynamis 2018/2017

Difference from 2017
[in percentage points]



5 | NATIONWIDE MAJORITY FOR COAL EXIT – BUT GROWING SCEPTICISM IN MINING STATES

As in 2017, **public support for the planned exit from coal is high: almost two thirds of the population** (**64%, +1**) are in favour of the move. This is on a par with the level of support for the nuclear phasout (**64%**, –4). Support for the coal phaseout is lower in Germany's eastern states (including Berlin) (**51%** compared to **67%** in the West) and opposition to the planned exit is marginally higher (**18%** compared to **11%** in the West).

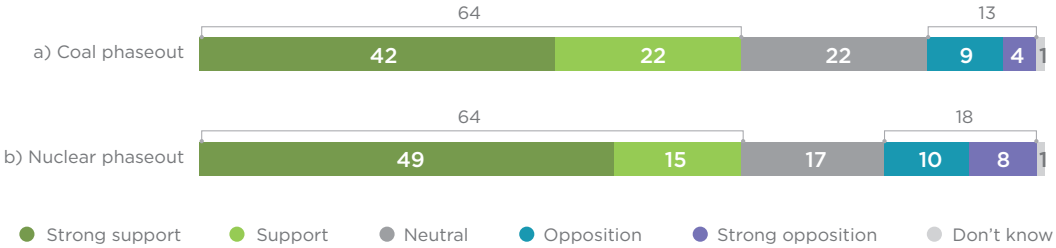
With the exception of AfD supporters (**31%, –11**), **a majority of the supporters of all the other parties is in favour of the coal phaseout.** Approval ratings are highest among the supporters of Bündnis 90/the Greens **(91%)** and the SPD (**72%**, –2), while **60%** (–1) of CDU/CSU supporters are in favour of the move.

As in 2017, a majority of respondents in all four of Germany's mining states[14] expressed support for the coal phaseout. Support is particularly high in the western state of North Rhine-Westphalia (**62%**, +2), and considerably lower in the three lignite-mining states in the East (ranging between **43%** and **46%**). At the same time, opposition to the coal phaseout has risen by two to nine percentage points in all four states.

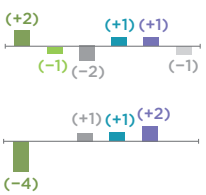
A relative majority of **43%** of the population of Germany's second-largest lignite-mining region in Lusatia[15] (South Brandenburg and North-East Saxony) is against the coal exit, with only one in four locals **(27%)** in favour of it.

Approval ratings for the coal exit continue to be high across Germany, even if the work of the Commission on Growth, Structural Change and Employment (the "Coal Commission" founded in 2018 by the Federal Government) has prompted heated debates on the precise form that exit should take. **Like the nuclear phaseout, the coal phaseout is now broadly acknowledged as a pillar of Germany's energy policy, and efforts to reach a political decision on this matter are supported by the majority of the population.** The situation is slightly more complicated in the regions and states affected by the phaseout: While the majority of people here are also in favour of the coal exit, opposition to the move has grown. **In Lusatia, Germany's second-largest lignite-mining region, a relative majority is against the coal phaseout. Thus in the affected regions, the level of scepticism towards the phaseout is far higher than the state and national average.**

SUSTAINED SUPPORT FOR PHASEOUT PLANS



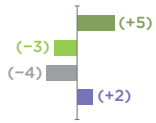
Difference from 2017 [in percentage points]



[%] n = 6,552 (2018); n = 7,459 (2017) | Source: IASS/dynamis 2018/2017

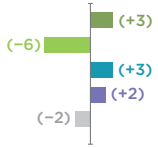
OPPOSITION TO COAL EXIT GROWING IN EASTERN LIGNITE STATES

a) Difference from 2017 [in percentage points]

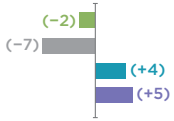


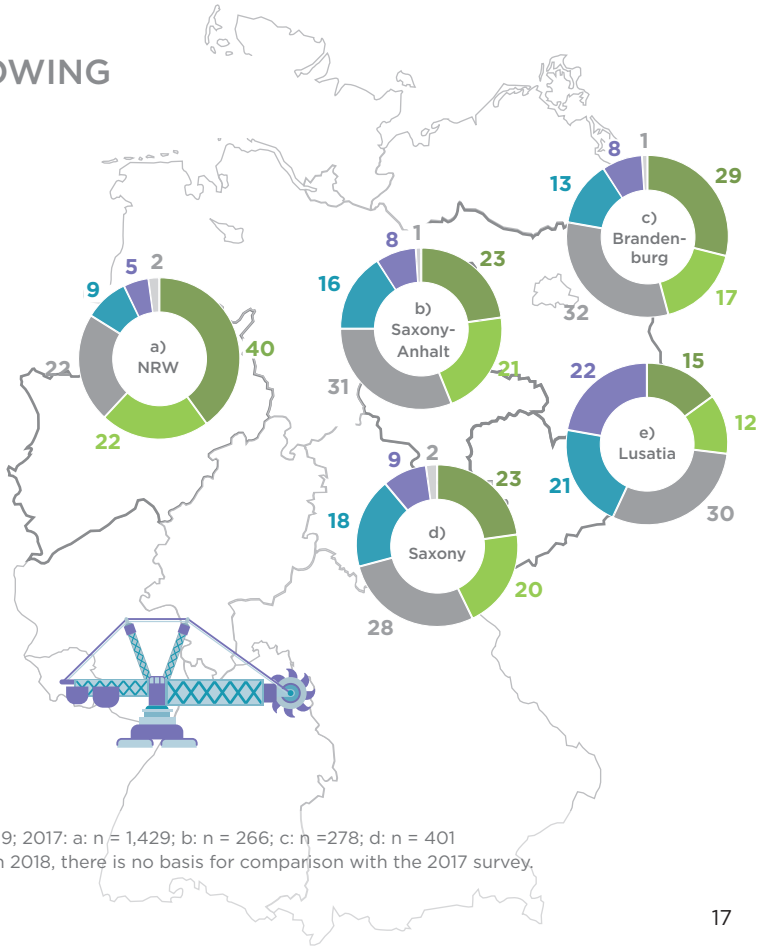
b) Difference from 2017 [in percentage points]

c) Difference from 2017 [in percentage points]



d) Difference from 2017 [in percentage points]





[%] 2018: a: n = 1,305; b: n = 209; c: n = 226; d: n = 356; e: n =419; 2017: a: n = 1,429; b: n = 266; c: n =278; d: n = 401
Since the data for Lusatia was collected for the first time in 2018, there is no basis for comparison with the 2017 survey.
Source: IASS/dynamis 2018/2017

6 | MAJORITY SUPPORTS CLIMATE PROTECTION GOALS – PROVIDED THE NEEDS OF INDUSTRY AND AFFECTED REGIONS ARE TAKEN INTO ACCOUNT

A large majority of the population (87%) supports Germany's 2020 climate goals and does not want them to be abandoned, even if they are unlikely to be achieved on time. This consensus cuts across age groups, income brackets, and political allegiances.

Half (51%) of respondents want the affected industries and regions to be given more time to adapt, and think that postponing the achievement of the climate goals is justified for that reason. Just over one third **(36%)** believes, however, that the government should prioritise swift climate protection measures and do everything in its power to ensure that the goals are achieved on time.[16]

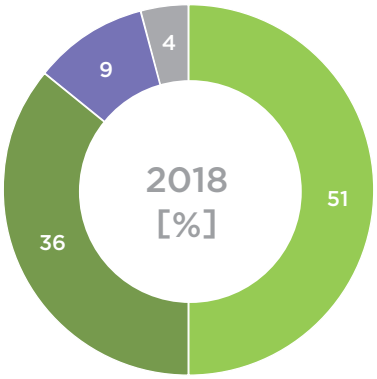
10% of the population thinks that safeguarding jobs is more important than the achievement of Germany's climate goals. This group is also more inclined to view the Energiewende as unjust (**61%** as opposed to the national average of **51%**).

In Germany's lignite-mining states too, a large majority believes that the climate goals are important in principle. However, in the lignite-mining states of Eastern Germany, the proportion of respondents who think that safeguarding jobs should be prioritised over climate protection **(18%)** is higher than the national average **(10%)**. Over two thirds of the population of Lusatia **(76%)** supports Germany's climate goals, but **58%** is in favour of extending the period over which they are achieved.

The vast majority of Germans – including the people in lignite-mining states – supports the country's 2020 climate protection goals. But opinions are divided on the question of the importance of climate protection in relation to other sociopolitical objectives (like, for example, safeguarding jobs). Just over one third of the population believes that rapid climate protection should be prioritised over other issues. At the same time, most Germans feel that it makes sense to slow down the pace of climate protection in order to accommodate the social needs of the regions. In a nutshell: The majority of Germans wants climate protection and social justice in equal measure. **It follows that in the implementation of climate protection measures, the disadvantages for specific population groups and regions should be kept to a minimum and offset wherever possible.**

YES TO CLIMATE PROTECTION – BUT NOT AT ALL COSTS

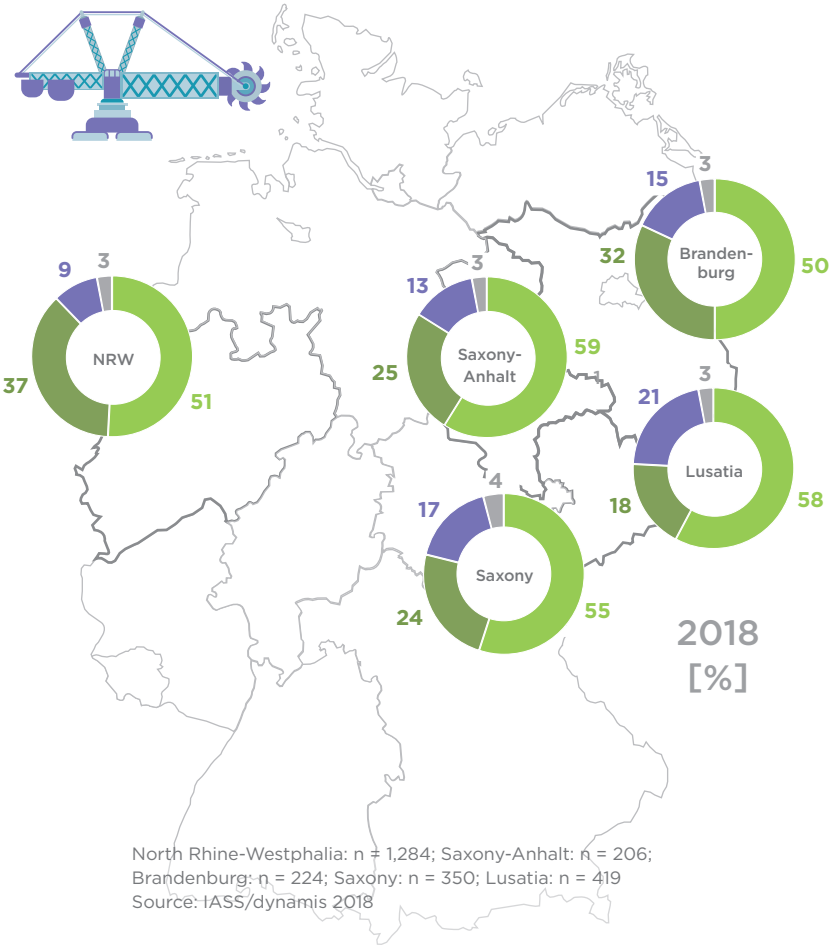
It now seems that Germany will not achieve its 2020 climate protection target, because it is unlikely that it can reduce its harmful emissions sufficiently by that deadline. Which of the following statements do you agree with most?



n = 6,455
Source: IASS/dynamis 2018

- The Federal Government should redouble its efforts to ensure that Germany's climate goals are achieved as soon as possible, even if that has negative repercussions for certain industries (lignite mining, car manufacturing, etc.) and regions (e.g. job losses).
- The Federal Government should not abandon the climate goals but postpone their achievement in order to give affected industries and regions more time to adjust.
- The Federal Government should not adhere rigidly to the climate goals. Safeguarding jobs should be prioritised over climate protection.
- Don't know

A majority supports Germany's climate goals, even in lignite-mining states



North Rhine-Westphalia: n = 1,284; Saxony-Anhalt: n = 206; Brandenburg: n = 224; Saxony: n = 350; Lusatia: n = 419
Source: IASS/dynamis 2018

7 | MAJORITY IN FAVOUR OF CARBON PRICING – BUT MOST SEEK COMPENSATION FOR EXTRA COSTS

The **majority of the population (54%) is prepared to accept moderate increases in energy prices for the sake of more climate protection.** This attitude is more prevalent among high-income households **(68%)** than low-income households **(47%)**. However, one in five people **(22%)** does not believe that moderate energy price increases are justified for the sake of climate protection.

28% of respondents are willing to pay more for driving or flying for climate protection reasons. This willingness is almost twice as common among high-income households **(45%)** than low-income households **(23%)**.

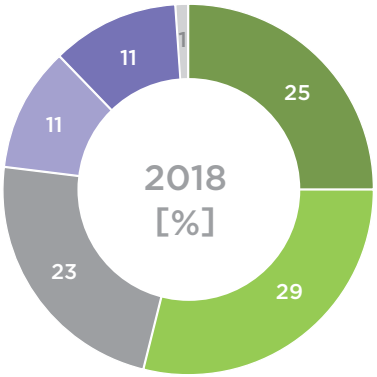
Almost half of respondents (46%) are only prepared to accept higher heating and transport costs for the sake of climate protection if the extra costs are offset in another area.[17] For **13%** of the population, additional climate-related costs are not acceptable because they cannot afford to pay more. **12%** of respondents are fundamentally opposed to the imposition of such costs.

The **demand for compensation for rising costs associated with climate protection** is far more prevalent among **car owners (48%)** than among people who don't own a car **(31%)**. Half of the people in middle-income households **(50%)** are seeking such compensation, compared to **41%** of low-income households and **39%** of high-income households.

Nowadays, many people in associations, organisations, science and politics are calling for the introduction of carbon pricing as a central instrument for achieving Germany's climate goals. But for all their good intentions, most people are not prepared to pay more for climate protection in their everyday activities. This attitude is not limited to low-income households, and is particularly common among the middle classes. **Under these circumstances, it seems likely that the introduction of a carbon-pricing system will only be accepted by the broad majority if it is accompanied by a convincing and transparent compensation mechanism.** It is, however, just as important to provide people with practicable, affordable and accessible alternatives to using fossil fuels in their daily lives.

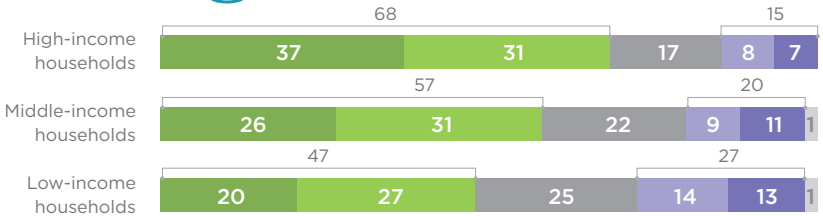
MAJORITY THINKS THAT MODERATE ENERGY PRICE INCREASES ARE JUSTIFIED FOR CLIMATE REASONS

To what extent do you think moderate energy price increases are justified if they contribute to more climate protection?



n = 6,485
Source: IASS/dynamis 2018

according to income:

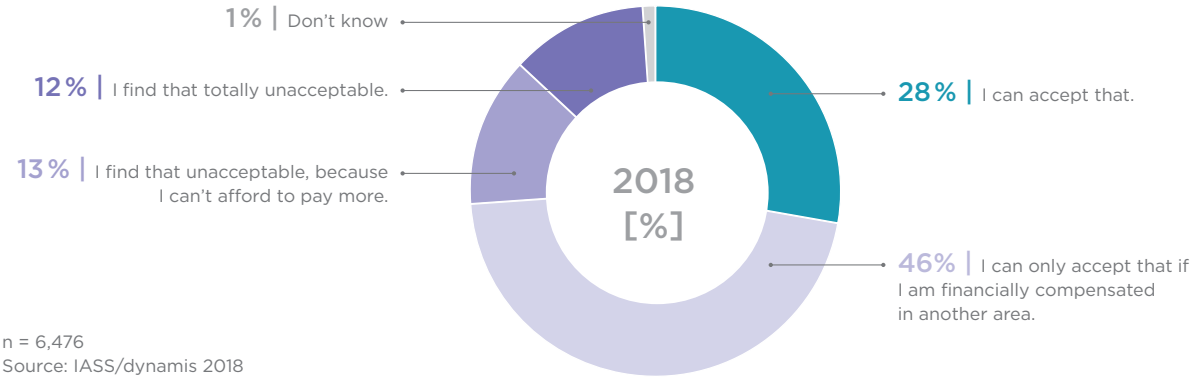


[%] n = 5,378

Completely justified | Justified | Undecided | Not Justified | Completely unjustified. | Don't know

MAJORITY SEEKS COMPENSATION FOR CLIMATE-RELATED PRICE INCREASES

What would you think if, for climate protection reasons, you had to pay more for driving a car with a combustion engine, flying, or heating with oil or gas.



n = 6,476
Source: IASS/dynamis 2018

8 | GUARDED SUPPORT FOR E-MOBILITY

More than half of the population across all income groups (55%) is in favour of the growth of e-mobility in Germany; 15% is against it. E-mobility is thus the energy transition goal with the lowest approval rating.

Car owners are more sceptical about e-mobility than people who don't have a car: 64% of people without a car support the growth of this sector, compared to only **53%** of car owners. Young adults (18- to 29-year-olds) have a far more positive attitude to the growth of e-mobility **(67%)** than all other age groups **(53 – 55%)**. Support for this growth is lower in sparsely populated areas **(50%)** than in densely populated areas **(58%)**[18].

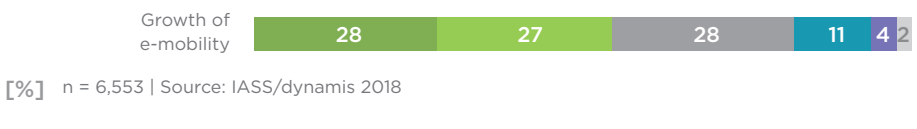
Over **half of the population (54%) is against the proposal to phase out combustion engines by 2030. Almost one in four people (23%) is in favour of it.** Opposition to the ban is strongest among people in rural areas (**60%**, compared to **47%** in densely populated areas). While young adults (18- to 29-year-olds) are on the whole less inclined to oppose such a ban, a considerable number of them do **(44%)**.

Among **people of nearly all political persuasions, a majority is sceptical about the proposal to phase out combustion engines** by 2030. Even among the supporters of Bündnis 90/the Greens, only **48%** is in favour of a ban.

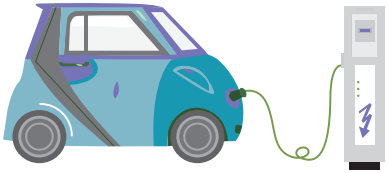
E-mobility is often seen as the key to achieving a climate-friendly mobility transition. But the population has not yet embraced it wholeheartedly. While most people, including car owners, are generally in favour of e-mobility, its approval rating is lower than that of other energy transition goals. People without their own car are more open to e-mobility. A clear majority is against an exit from the combustion engine by 2030. Even the supporters of Bündnis 90/the Greens are sceptical about this. The younger generation's reluctance to abandon the combustion engine is also astonishing. **These results show that far more needs to be done to make e-mobility a more attractive mobility option for people in their everyday lives.**

MAJORITY OF GERMANS IN FAVOUR OF E-MOBILITY EXPANSION

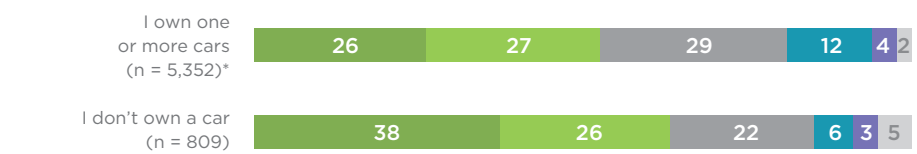
The Energiewende encompasses various energy policy goals. What is your personal opinion on the growth of e-mobility?



[%] n = 6,553 | Source: IASS/dynamis 2018



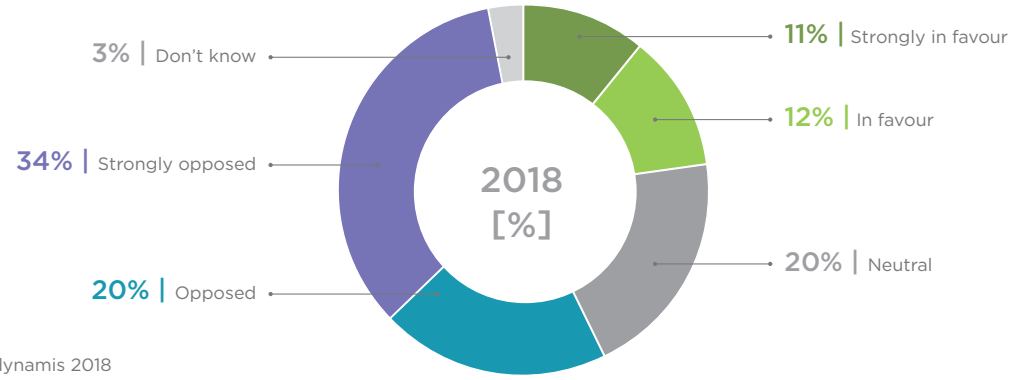
Car owners: more than half are in favour of e-mobility



[%] *Including company cars for private use. | Source: IASS/dynamis 2018

PROPOSED COMBUSTION ENGINE BAN MEETS WITH DISAPPROVAL

In order to advance the Energiewende in the transport sector, a proposal has been made to forbid new registrations of diesel and petrol cars from 2030 on. What do you think of this idea?



n = 6,475
Source: IASS/dynamis 2018

9 | SOLAR ROOF PANELS ARE BY FAR THE MOST POPULAR RENEWABLE TECHNOLOGY

81% of the population thinks that solar roof panels are a good idea; only **5%** is against them. Thus **rooftop PV systems enjoy the highest approval rating of any of the renewable technologies.** Considerably less people support the installation of ground-mounted PV systems **(59%)**.

84% of respondents indicated that there are solar panels on the roofs of houses in their neighbourhoods. Even in densely populated areas, such rooftop systems are endorsed by **80% of respondents and strongly endorsed by 54%.**

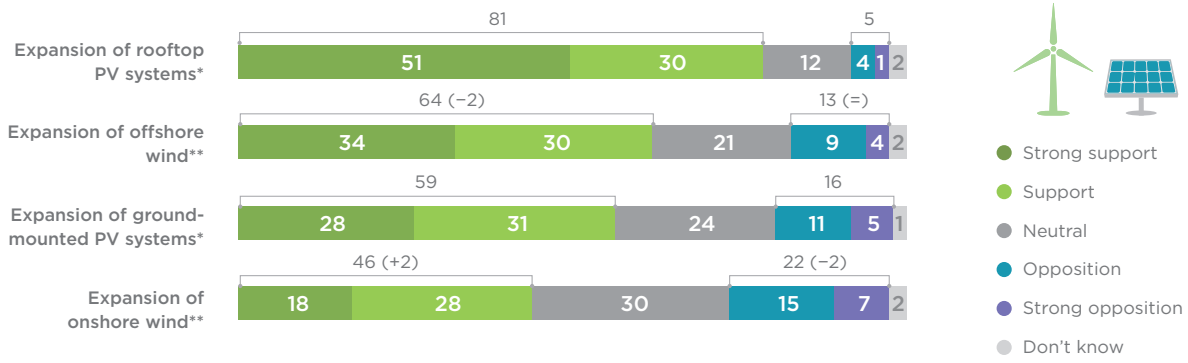
22% (−2) of the population is opposed to the expansion of onshore wind energy, and **7%** is strongly opposed to it. This makes onshore wind energy the least favoured of all the renewable technologies. Moreover, **16%** (−3) of the people who support the expansion of renewable energy in principle are against the growth of onshore wind.

Almost half of the population **(48%)** lives in a city or municipality where wind turbines have been erected. **A quarter (24%) of respondents can see wind turbines from their homes.** So although less people are exposed to wind turbines in the vicinity of their homes than to solar roof panels, public acceptance of the former is still lower.

The Federal Government's efforts to expand renewable energies in Germany are focussed on wind and solar energy. However, public acceptance levels for the different wind and solar technologies vary considerably. Solar energy, and solar roof panels in particular, continue to enjoy the highest approval rating among Germans, even in densely populated areas. Support is also strong for ground-mounted PV systems, but still significantly lower than that for rooftop solar systems. People are far more sceptical about the expansion of onshore wind energy. **So from the point of view of acceptance, it would make sense to concentrate on expanding rooftop solar systems, which are unlikely to provoke public protests.**

EXPANSION OF ONSHORE WIND IS STILL CONTROVERSIAL

The expansion of renewable energies is an integral part of the Energiewende. What is your personal stance on the different renewable technologies?



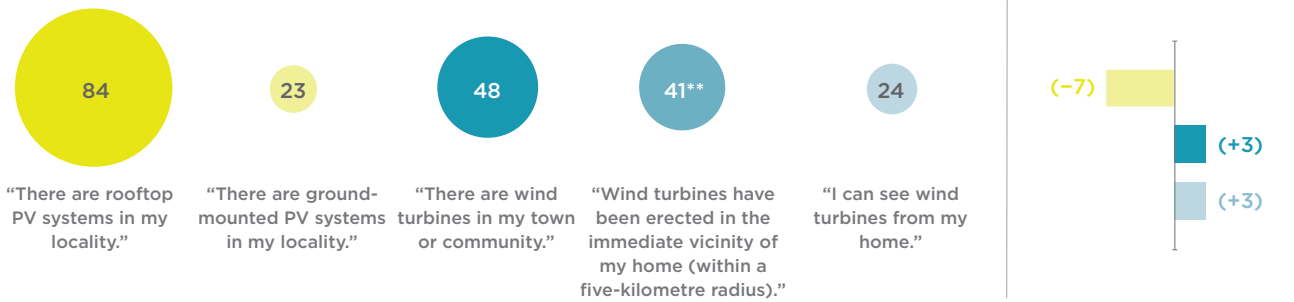
[%] n = 6,512 (2018), 7,386 (2017) | Source: IASS/dynamis 2018

* In the 2017 survey, respondents were only asked for their opinion on the expansion of solar energy systems, without distinguishing between rooftop and ground-mounted PV systems. A comparison of the data collected in 2017 and 2018 shows that the high approval for the expansion of solar energy in 2017 pertains mainly to rooftop PV systems, while people are considerably more sceptical about ground-mounted systems.

** Values in brackets: Differences from 2017 in percentage points

PREFERENCE FOR ROOFTOP SOLAR SYSTEMS DESPITE PROLIFERATION IN RESIDENTIAL AREAS

Please indicate whether or nor the following statements apply to you.*



[%] n = 6,443 (2018), 7,282 (2017) | Source: IASS/dynamis 2018 | Differences from 2017 in percentage points

*This data reflects the perceptions of the respondents. No fact-checking was undertaken, since it was not deemed necessary for the purposes of this study.

** Only 2018

10 | NUMBER OF WIND TURBINES IN A GIVEN LOCALITY CRUCIAL TO ACCEPTANCE

The vast majority of people **(84%)** who live in a community where wind turbines have been erected or who can see wind turbines from their homes[19] are not (particularly) bothered by them, while **14%** are. **7% of the entire German population are bothered by wind turbines in their locality; 2%** object strongly to them and **5%** object somewhat to them[20].

The likelihood that people will be bothered by wind turbines increases with the degree of their exposure to them.[21] For example, only **10%** of people with six to twenty wind turbines located approximately one to two kilometres from their homes are bothered by them, compared to **25%** of people whose homes overlook wind turbines.

69% of people who are bothered by wind turbines in the vicinity of their homes are against further expansion of onshore wind energy (compared to the national average of **22%**). And a higher proportion of those who are bothered view the Energiewende as unjust **(80%)** and elitist **(69%)** than those who are not bothered (**51%** unjust, **47%** elitist).

83% of those who are bothered by wind turbines could see themselves joining protests against plans to erect turbines in their locality[22]**.** The same is true of only **43%** of those who aren't bothered.

The majority of people who live in an area with wind turbines are not (particularly) bothered by them, even when they are erected close to their homes. However, a large accumulation of wind turbines on one's doorstep lowers acceptance levels significantly, since the more people adversely affected by the expansion of wind energy, the higher the proportion of the local population that feels inconvenienced. This goes hand in hand with an increasingly negative attitude towards the expansion of onshore wind energy, a growing perception that the Energiewende is injust, and, not surprisingly, a greater willingness to join protests against the erection of new wind turbines. **So the number of wind turbines in one's locality seems to be more decisive for acceptance levels than the distance of the turbines from one's house.**[23] This should be taken more into account in the political debate on the acceptance of wind energy. **It would make sense to examine whether the number of wind turbines erected in the immediate vicinity of a residential area (within a two-kilometre radius) could be restricted at the planning stage, given the fact that many people find it hard to accept a large number of turbines close to their homes.**

THE GREATER THEIR EXPOSURE TO WIND TURBINES, THE MORE PEOPLE ARE BOTHERED BY THEM

The proportion of respondents who are bothered by wind turbines in their neighbourhood relative to the degree to which they are exposed to them.[24]

Increase in exposure →

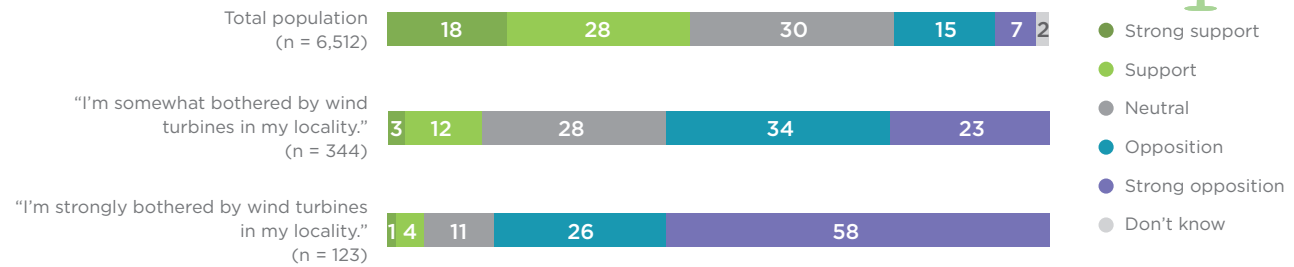
Distance from home ↓	Number of wind turbines in one's neighbourhood (with turbines visible from house)		
	1–5	6–20	>20
between 3 and 5 km	7 % (4 % somewhat, 3 % strongly)	17 % (13 % somewhat, 4 % strongly)	35 % (30 % somewhat, 5 % strongly)
between 2 and 3 km	4 % (4 % somewhat, 0 % strongly)	18 % (13 % somewhat, 5 % strongly)	43 % (32 % somewhat, 11 % strongly)
between 1 and 2 km	22 % (19 % somewhat, 3 % strongly)	25 % (16 % somewhat, 9 % strongly)	47 % (26 % somewhat, 21 % strongly)
under 1 km	26 % (22 % somewhat, 4 % strongly)	38 % (28 % somewhat, 10 % strongly)	53 % (33 % somewhat, 20 % strongly)

Increase in exposure ↓

Source: IASS/dynamis 2018

Opposition to onshore wind expansion grows with the degree of exposure to turbines

Attitudes to expansion of onshore wind energy



[%] Source: IASS/dynamis 2018

11 | SLIM MAJORITY FEELS PUBLIC PARTICIPATION IS MORE IMPORTANT THAN RAPID WIND EXPANSION

A large majority (**86%**, +1) thinks that it's important to involve citizens at an early stage in the planning process for wind turbines in their locality. This view prevails across the political spectrum and largely irrespective of the degree to which people are already affected by onshore wind expansion.

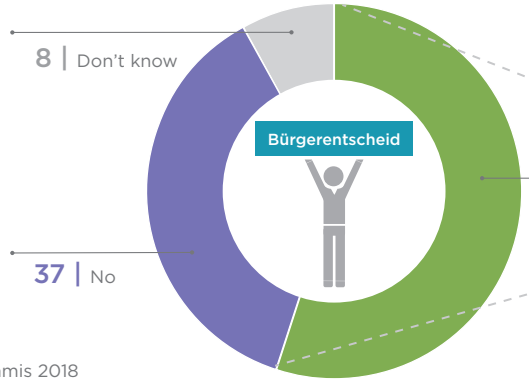
55% of the population (no change) believe that **the people who are going to be affected by wind turbines should have the final say in the decision on whether to erect them,** e.g. by way of a referendum. This conviction is particularly strong among those who are bothered by wind energy expansion **(87%)**. The AfD is the party with the largest proportion of supporters in favour of the referendum option **(81%)**, while most of the Greens supporters **(52%)** are against it.

85% of the respondents who want affected citizens to have the final say on wind expansion think that **citizen participation in the decision-making process is more important than a rapid expansion of wind energy.** This represents almost half of the entire German population **(47%)**.

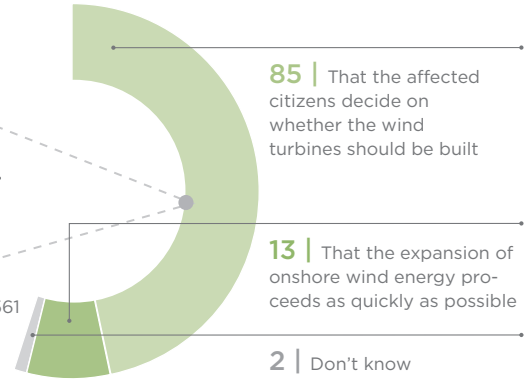
A slim majority of the German population supports the expansion of onshore wind energy, but an equally slim majority believes that this expansion should not take place over the heads of the local people who are going to be affected, even if that delays the expansion process. Thus the "wind issue" is at heart a question of democracy; it's about who has a say in the political process. Wind energy imposed from above is likely to meet with growing disapproval. Attempts to increase the financial participation of local communities and citizens in wind energy projects are a step in the right direction. **However, for greater acceptance, there is no way around broad, timely, and well-structured citizen participation, where people have opportunities to influence what happens in their locality.** At present, such opportunities are few and far between. The strong focus on cost efficiency in the tendering rules under the Renewable Energy Sources Act should also be critically appraised in this context.

CITIZENS SHOULD HAVE FINAL SAY

Do you believe that the people who are going to be affected by wind turbines should have the final say in the decision on whether to erect them, e.g. by way of a referendum?



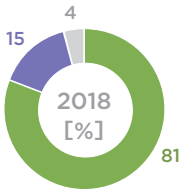
If you were making that decision, what would be more important for you?



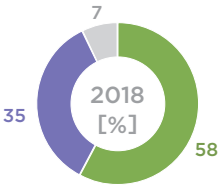
Source: IASS/dynamis 2018

Desire for political participation is dependent on party allegiance

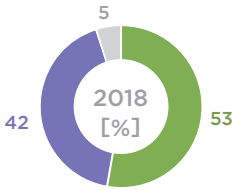
Do you believe that the people who are going to be affected by wind turbines should have the final say in the decision on whether to erect them, e.g. by way of a referendum? (by party allegiance)



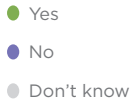
a) AfD supporters

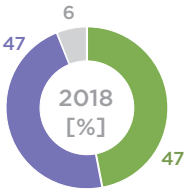


b) Die Linke supporters

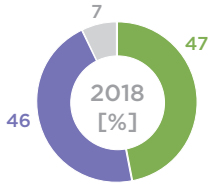


c) CDU/CSU supporters

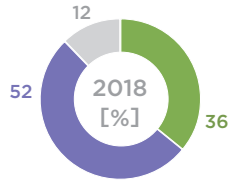




d) FDP supporters



e) SPD supporters



f) Bündnis 90/the Greens supporters

a) n = 290; b) n = 462; c) n = 1,363; d) n = 222; e) n = 1,183; f) n = 567 | Source: IASS/dynamis 2018

12 | PARTICIPATION AS A "PROSUMER" – LIVING ARRANGEMENTS ARE A DECIDING FACTOR

To date, **9%** **(–1)[25] of respondents have invested individually or collectively in their own solar or wind energy systems[26]**. Of those who have invested, **93%** own their own homes and only **4%** are tenants[27].

One in five respondents (21%, +1) is willing in principle to invest in their own solar or wind energy system over the next two years; **2%** (no change) have firm plans to do so. **19%** (+1) could see themselves doing so, with no significant difference between lower- and higher-income households (**17%** and **23%** respectively).

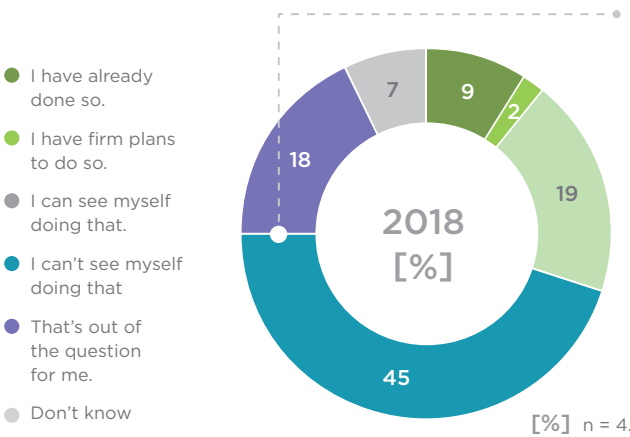
However, more than half of all Germans (**62%**, +2) **are not contemplating investing in their own solar or wind energy system in the near future**. This includes **58%** (+5) of homeowners.

41% state that **they are unwilling to invest because as tenants, they have no possibility to do so.** Indeed, **86%** of all tenants cannot imagine themselves investing in their own energy systems. And **28%** of respondents feel that it isn't worth it for them or too expensive.[28]

Only a small share of the population has invested in its own wind energy and PV systems to date; for most people, this is simply not an option. Very few people are fundamentally averse to such investments, and most explain that their unwillingness stems from their status as tenants. In the case of homeowners, the main reason given for not investing is doubts in the benefits of such projects (too expensive, not worth it). Homeowners account for the majority of people who have invested in their own energy systems to date. So one's living arrangements are a major factor for participation in the Energiewende as a prosumer. That said, a large number of people, including tenants and lower-income households, are willing in principle to participate in the Energiewende by investing in their own energy systems. What's lacking are the conditions to facilitate that. Current legislation does not go far enough in this respect. **In order to tap into the existing potential, opportunities should be created for tenants to invest in their own renewable energy systems.** This would have the added effect of making the Energiewende more tangible in urban areas. Homeowners also need more encouragement to get involved in the form of targeted incentives and viable business models.

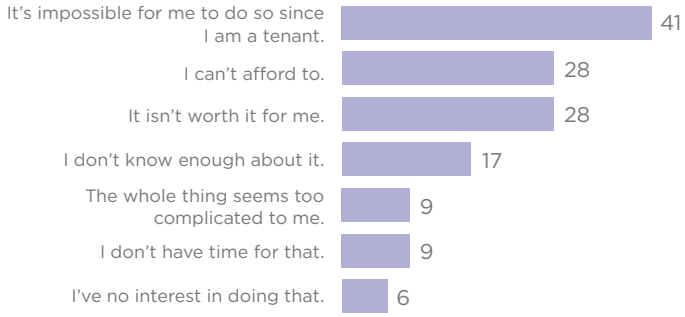
TENANCY: A KEY FACTOR IN UNWILLINGNESS TO INVEST

Do you intend to invest (either independently or jointly with neighbours, friends, a cooperative, or an investment fund) in your own solar or wind energy system in the next two years?



n = 6,432 | Source: IASS/dynamis 2018

Reasons given for not investing*:



[%] n = 4.004, without the category Other
*This question was addressed to those for whom such an investment was either out of the question or unlikely: *Why do you not intend to invest in your own solar or wind energy system? Please select a maximum of three answers.*
Source: IASS/dynamis 2018

Living arrangements are an important factor for participation

6% of Germans have already invested independently or jointly in their own PV systems.

That includes:

Homeowners:	**4%** of all homeowners	**3%** of all residents of apartment blocks**	**8%** of all residents of terraced/semi-detached houses	**14%** of all residents of detached houses
Tenants:	**0%** of all tenants	**0%** of all tenants in apartment blocks**	**1%** of all tenants in terraced/semi-detached houses	**2%** of all tenants in detached houses

Source: IASS/dynamis 2018 | *8 floors or more | **up to 7 floors

13 | FLEXIBLE ENERGY CONSUMPTION BUT LITTLE INTEREST IN FLEXIBLE TARIFFS

60% of Germans are open in principle to alternative electricity pricing models. At the same time, **the current model with a fixed price per kilowatt hour is the most popular (31%)**. The second-most popular model **(21%)** is a free basic supply with a charge for electricity used in excess of that limit. Only **8%** **of respondents want flexible tariffs** with fluctuating electricity prices.

If flexible tariffs were to be introduced, **then most respondents (42%) would be in favour of a digital monitor ("traffic-light model") that would allow them to decide** whether or not to adjust their consumption based on the current electricity price.

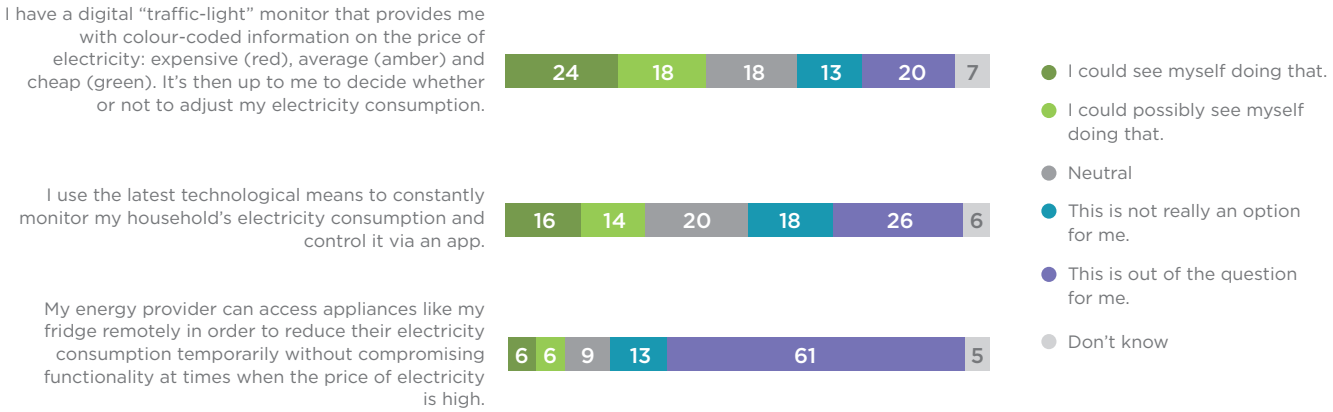
Almost one third **(30%)** find the option of managing their own **electricity consumption digitally in the case of flexible electricity tariffs appealing.** A higher proportion of 18- to 29-year-olds is open to this solution **(46%)** than other age groups. **44%** of respondents cannot contemplate this at all. About three quarters **(74%)** of respondents are against energy providers **controlling the electricity consumed by their household appliances based on price development**.

A clear majority of people said that they could be flexible in their use of **washing machines (69%) and dishwashers (62%) in order to avoid times when the price of electricity is high.** This includes households with one or more children under 14 years of age.

Germans admit to being very flexible when it comes to using their household appliances, in particular washing machines and dishwashers. However, large sections of the population do not feel the need to adjust their energy consumption depending on electricity prices or tariff models, or to control it or have it controlled from outside with the help of digital applications. The majority prefers the reliability of fixed tariffs. At the same time, the "traffic-light model", where consumers would be given information on electricity consumption and electricity prices and left to decide whether or not they should adjust their usage, enjoys high approval rates. **The low level of interest in flexible tariffs shows that the much-vaunted advantages of a new digital energy world in the home (cost savings, etc.) have only been seized to small degree by private customers.** It can therefore be safely assumed that people will not switch to flexible tariffs of their own accord. The diffusion of such tariffs will probably take longer than many scenarios envisage.

PREFERENCE FOR "TRAFFIC-LIGHT" MODEL

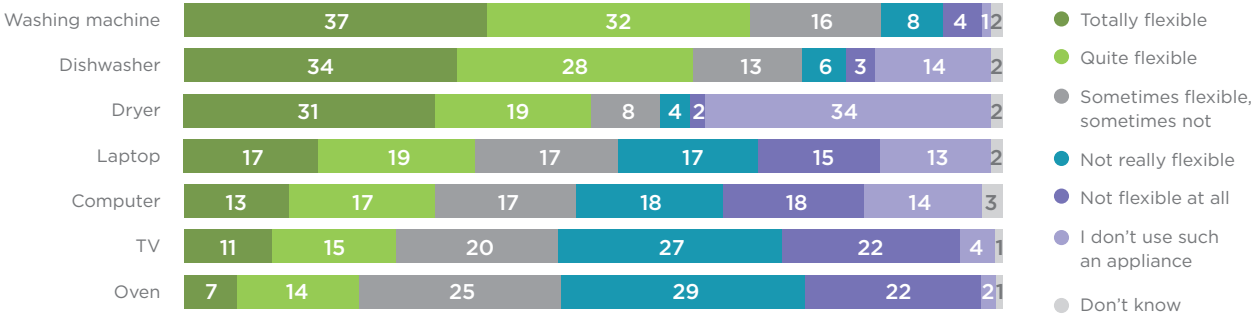
Imagine that the price of electricity for your household varied depending on supply and demand. And you as a private consumer could save money by adjusting your consumption to these price fluctuations. What is your opinion on the following options for doing so in your home?



[%] n = 6,394 | Source: IASS/dynamis 2018

FLEXIBILITY AT HOME, ESPECIALLY IN THE CASE OF WASHING MACHINES AND DISHWASHERS

To what extent would it be possible for you in your everyday life to be flexible in your use of the following appliances, e.g. by postponing use to a later time or the following day when the price of electricity is high?



[%] n = 6,378 | Source: IASS/dynamis 2018

CONCLUSION

1. In the eyes of the vast majority of Germans, the Energiewende is the right way forward to a future energy supply. Even more people than in last year's survey see it as a collective undertaking to which they themselves want to contribute. So politicians can continue to count on broad and unwavering public support for a resolute implementation of the Energiewende.

2. However, the implementation process has come in for a lot of criticism. This edition of the Barometer shows a significant rise in public dissatisfaction with regard to costs, political management, burden-sharing, citizen participation, and the overall implementation process since the first survey in 2017. If these criticisms are not addressed as a matter of urgency, public acceptance of the Energiewende could be endangered. It's not the ends that are being questioned, but the means to those ends.

3. While there is a strong desire for fast and effective climate protection among Germans, the majority is not in favour of climate protection at all costs. Most people believe that economic and regional disparities need to be addressed alongside climate protection.

4. The results of the Barometer show that in dealing with Energiewende trade-offs, politicians need to find solutions that uphold the high level of ambition for climate protection, while also paying sufficient attention to the social dimension. This is where the implementation of the Energiewende has failed to date. The political parties now need to come up with convincing ideas for addressing the main trade-offs of the Energiewende and bring them into the political arena. The parties' perceived lack of competence in this regard and growing public dissatisfaction with the policies of the Federal Government show that many people no longer consider their political representatives capable of pursuing the kind of effective and balanced policies that are required.

5. Climate protection and the Energiewende enjoy the support of a broad majority. However, when people feel or anticipate adverse effects in their daily lives, a majority is more reserved in its support for or even opposed to the energy transition. Higher energy prices for more climate protection are seen as justified. But most people are only willing to accept higher costs in exchange for some form of financial relief in another area. While e-mobility is endorsed by half of the respondents, a majority is against a proposal to phase out combustion engines by 2030. Many respondents are flexible in terms of their electricity consumption at home, but most people are unwilling to experiment with more flexible electricity tariffs.

6. That does not mean that people are not willing to make their contribution. But acceptance levels are likely to drop when climate protection measures impinge on people's everyday lives and fuel uncertainty.

The degree to which people are adversely affected by such measures is a key factor in negative views of the implementation of both the Energiewende as a whole and specific targets. Energiewende goals like the expansion of wind energy or the coal phaseout enjoy high approval ratings across Germany. But the people who are bothered by these processes in their locality are more critical.

7. The Barometer suggests that practicable, affordable and accessible alternatives to using fossil fuels would meet with the approval of most Germans. As yet, e-mobility is not seen as an attractive mobility option, but this does not mean that people are against it per se. People are seeking compensation for the introduction of carbon pricing, for example in the form of targeted financial support for climate-friendly choices in their everyday lives.

8. Tenants want opportunities to invest in energy-saving measures and their own renewable energy systems. An appropriate regulatory framework and targeted incentives are required for that purpose. But homeowners also need to be encouraged to invest in climate-friendly energy systems.

9. To foster acceptance of the expansion of onshore wind energy there is no way around early, broad, and well-structured citizen participation with more opportunities to influence what happens in one's locality. Wind energy imposed from above is likely to meet with growing disapproval. The Barometer also shows that acceptance levels fall when the number of wind turbines erected in the immediate vicinity of a residential area is perceived to be too high. So the possibility of limiting the number of wind turbines built close to a residential area (within a two-kilometre radius) at the planning stage should be examined. Given its strong focus on cost efficiency, the tendering system set out in the Renewable Energy Sources Act should also be critically appraised in this context. From the perspective of public acceptance, it also makes sense to give more priority to the expansion of rooftop PV systems, since they are accepted by almost everybody.

A WORD ON OUR METHODOLOGY

Both online surveys of German households were carried out using the **forsa.omninet household panel**, which allows **population-representative surveys** to be conducted via the Internet. The respondents were those members of the households who make decisions – either on their own or together with their partner – on financial matters. Non-Internet users also participated in the survey (via their TV). By including this section of the population, we ensured that the survey remained representative of the parent population.

Based on the ADM telephone master sample, the **panellists were recruited in a multi-stage random sampling process**. Thanks to this random sampling, the findings of the sample can be generalised to the entire population. After all, the main point of a representative sample is to ensure that every element in the parent population has an equal opportunity to be included in the sample.

The participation of low-income households in household surveys is normally low, but since the views of these households are particularly relevant for the Barometer, **the lower income group was disproportionally represented in the sample (stratified sampling)**. This was, however, taken into account in the evaluation of the data.

A redressment, i.e. subsequent adjusting of the distribution of the net sample to match the distribution of the parent population (in terms of gender, educational background, etc.), was not carried out.

The **income categorisation** used here is based on the income stratification developed by the German Economic Institute (IW). Based on the needs-weighted monthly net income (equivalised income) defined in the OECD equivalence scale, the five income categories identified by the IW were condensed into three for this study. Low-income households: up to 80 % of the median equivalised household income (<€1,550); middle-income households: 81 to 150 % of the median equivalised household income (€1,550 – €2,902); high-income households: upwards of 15 % of the median equivalised household income (>€2,902).

A panel structure ideally leads to the same households participating in the survey every year. Of the 6,594 households in the net sample for 2018, 5,298 had already participated in the 2017 survey and 1,296 were new to the Barometer.

The standardised questionnaire on which the survey was based can be downloaded at **www.iass-potsdam.de**

The distribution of relevant characteristics in the sample/parent population:

Variable	Characteristic values	Sample		Parent population*
		2017 [%]	2018 [%]	[%]
Gender[29]	Male	56.85	56.95	49.35
	Female	43.15	43.05	50.65
Age[30]	18–29	9.95	7.34	14.03
	30–44	20.3	18.96	18.41
	45–59	30.66	30.16	23.33
	60+	39.09	43.54	27.88
Living arrangements[31]	Tenancy	44.44	42.28	56
	Homeownership	53.78	55.72	44
East/West[32]	East	24.6	23.08	19.55
	West	75.4	76.92	80.45
Income[33]	Low-income households	29.6	36.98	31.7
	Middle-income households	51.74	48.75	48.2
	High-income households	18.66	14.26	20.2
Education[34]	No school-leaving qualification	0.23	0.21	4
	School-leaving qualification after 7 years maximum	0.06	0.1	
	Basic school-leaving certificate	19.45	21.07	30.4
	Intermediate school-leaving certificate (GCSE equivalent)	36.63	37.2	23.1
	Advanced technical college certificate	10.87	10.5	31.9
	General or subject-specific school-leaving certificate	31.37	30.15	0.1
	Not specified	1.4	0.77	

FOOTNOTES

(1) Setton, Daniela; Matuschke, Ira; Renn, Ortwin (2017): Social Sustainability Barometer for the German Energiewende 2017: Core Statements and Summary of the Key Findings, Potsdam: Institute for Advanced Sustainability Studies. Online: (IASS). http://publications.iass-potsdam.de/pubman/item/escidoc:3077889:6/component/escidoc:3077890/3077889.pdf, last accessed on: 11.02.2019

(2) Further information on the data collection process can be found on page 36.

(3) The focus groups convened in the summer of 2017 in homogenous groups of eight to ten individuals: i) low-income households, ii) high-income households, iii) energy consultants, iv) people employed in the renewable energy sector, and v) people employed in the conventional energy sector. The participants were selected with the assistance of a market and social research institute.

(4) From 29 September to 13 October 2018, the IASS conducted three one-day citizen dialogues in urban and rural parts of Germany (Wuppertal, North Rhine-Westphalia, Potsdam, Brandenburg, and Riedlingen, Baden-Württemberg) in cooperation with the Institute for Democracy and Participation Research (IDPF) at the University of Wuppertal.

(5) The figures presented in this publication have been rounded up or down to whole percentages.

(6) In what follows, the values in brackets represent the difference in percentage points from the findings of the 2017 edition of the Barometer (Setton et al. 2017). Given that the figures in this publication are rounded up or down, in some cases very small differences, e.g. of 0.3 percentage points, may be represented as entire percentage points. We indicate when this is the case.

(7) Since the survey was representative of the entire population, the terms “population” and “respondents” are used synonymously in this publication.

(8) Here, supporters of the Energiewende are defined as those respondents who indicated that they view the Energiewende as a collective undertaking to which they themselves wish to contribute (80 %) or that they think the Energiewende is a good thing but are unwilling or unable to contribute to it.

(9) For more information on the income categories used here, see page 34.

(10) Those respondents who indicated a preference for a political party [n = 4,139 (2018); 3,987 (2017)] are described as party supporters.

(11) In the illustrations used in this publication, no deliberate attempt has been made to indicate where the Barometer’s findings do not differ from the 2017 survey.

(12) 47 % of the respondents who believe that the Energiewende is too expensive indicated that excessive costs were one of the main reasons for their dissatisfaction with the Federal Government.

(13) The largest share of respondents with a clear political affiliation who believe that no party has the best concept are CDU/CSU supporters (34 %, +6), followed by SPD supporters (27 %, −3) and Die Linke and AfD supporters (11 % each) (n = 1,149).

(14) Brandenburg, North Rhine-Westphalia (NRW), Saxony and Saxony-Anhalt.

(15) An extra representative sample was added for Lusatia (n = 426).

(16) 49 % of SPD supporters think that it's important that potentially adverse effects for regions and industries are minimised in the short term, while almost the same number (46 %) believe that rapid climate protection must take precedence. Among CDU/CSU supporters, 24 % think that climate protection should be prioritised in the short term, while 64 % are in favour of postponing it.

(17) 58 % of them criticise the Federal Government for implementing the Energiewende too slowly to effectively protect the climate.

(18) Bündnis 90/the Greens have the largest share of supporters (68 %) in favour of the expansion of e-mobility, followed by the SPD (60 %), the FDP (55 %), and the CDU/CSU (53 %).

(19) n = 3,401

(20) The term "adversely affected by the expansion of onshore wind" is used here in reference to people who are either somewhat or strongly bothered by wind turbines in their locality.

(21) The degree to which people are affected depends on the number of wind turbines in their locality (within a five-kilometre radius) and the proximity of the turbines to their house. When turbines are visible from one's home, this can heighten the degree to which one feels adversely affected. The term "adversely affected by the expansion of onshore wind" is used here in reference to people who are either somewhat or strongly bothered by wind turbines in their locality.

(22) 51 % of them most definitely, 32 % under certain circumstances, e.g. when they feel adversely affected by the noise.

(23) Whether a person feels adversely affected by onshore wind expansion does not, however, depend solely on the proximity of turbines to one's home, the number of turbines in the vicinity of one's home, or the visibility of the turbines from one's house. Because even though all of those factors can contribute to a sense of being adversely affected by the expansion of wind energy, a large majority of respondents does not feel (particularly) bothered by wind turbines. Thus more research is needed to explain additional factors that determine whether or not people are bothered by wind turbines.

(24) The answers reflect the subjective estimates of the respondents. We can assume that many of the details they provide on the distance of the wind turbines from their homes are estimates, particularly when the turbines are located two to three kilometres from their house. The data in this table is based on the following questions: a) Are you yourself or others in your household bothered by wind turbines in your locality, e.g. due to adverse effects in your daily life? b) At what distance from your house (in metres) is/are the wind turbine(s) located? Please make a guess if you don't know. c) Approximately how many wind turbines are located in the immediate vicinity of your home, i.e. within a five-kilometre radius of your house? Please make a guess if you don't know.

(25) Since figures are rounded up or down in the Barometer to the nearest whole percentages, the difference between 2017 and 2018 appears to be one percentage point, where it is, in fact, much smaller, i.e. just 0.3 %.

(26) 67 % of them have already invested in their own PV system, 39 % in a solar heating system, 13 % in a heat pump (only heat pumps that were installed together with a solar heating or PV system were taken into account here), 12 % are members of an energy cooperative or citizen-led energy initiative, and 9% have invested in wind and solar energy systems via an investment fund (n = 605).

(27) When interpreting the data, it should be borne in mind that we have fewer tenants and more homeowners in the sample compared with the distribution in the population as a whole (see page 36). The remaining 3 % indicated that they do not pay rent or chose the option "don't know".

(28) This is especially relevant in the case of homeowners. 43 % of homeowners who are unwilling to invest feel that it isn't worth it for them and 37 % believe that they can't afford it.

(29) Statistisches Bundesamt (2018): Bevölkerung auf Grundlage des Zensus 2011. Available at: https://www.destatis.de/DE/ Zahlen Fakten/GesellschaftStaat/Bevoelkerung/Bevoelkerungsstand/Tabellen/Zensus_Geschlecht_Staatsangehoerigkeit.html, last accessed on: 11.02.2019

(30) Statistisches Bundesamt (2017): Bevölkerung: Deutschland, Stichtag, Altersjahre. Available at: https://www-genesis.destatis.de/genesis/downloads/00/12411-0005_00.csv, last accessed on: 11.02.2019

(31) Statistisches Bundesamt (2014): Haushalte im selbst genutzten Eigentum und Mietwohnungen nach Haushaltstyp in Deutschland 2014. Available at: https://www.destatis.de/DE/ZahlenFakten/GesellschaftStaat/EinkommenKonsumLebensbedingungen/Wohnen/Tabellen/TabellenHaushaltsstruktur.html, last accessed on: 11.02.2019.

(32) Statistisches Bundesamt (2017): Bevölkerung: Bundesländer, Stichtag. Available at: https://www-genesis.destatis.de/genesis/downloads/00/12411-0010_00.csv

(33) Niehues, Judith (2017): Die Mittelschicht in Deutschland. Vielschichtig und stabil. Institut der deutschen Wirtschaft Köln: IW-Trends 1.2017, 3 – 20. Data available at: http://dl.iwkoeln.de/index.php/s/B7Iwy4AXYM0LLGn, last accessed on: 11.02.2019

(34) Statistisches Bundesamt (2018): Bildungsstand. Bevölkerung nach Bildungsabschluss in Deutschland. Available at: https://www.destatis.de/DE/ZahlenFakten/GesellschaftStaat/BildungForschungKultur/Bildungsstand/Tabellen/Bildungsabschluss. html, last accessed on: 11.02.2019

Information on data collection:

	2017	2018
Data collection period	**15 June – 23 July**	**1 August – 11 September**
Parent population	Private households in the Federal Republic of Germany; the respondents were the persons in those households who decide – either on their own or together with their partner – on financial matters.	
Survey sample size	**7,843 households**	**6,594 households** Sample increased by **307 households** (Special sample *Lusatia*)
Sampling error	**+/–1.11 percentage points at 50/50** (n = 7,843) (with a probability of 95 per cent)	**+/– 1.21 percentage points at 50/50** (n = 6.594) (with a probability of 95 per cent)
Selection process	Multi-tiered random sampling in the context of the forsa.omninet panel	
Exhaustion	**50.3 per cent** (aborted interviews: 1,332; gross sample: 12,941)	**71.1 per cent** (aborted interviews: 426; gross sample: 9,134)

Notes

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