

**Climate policy in the  
Netherlands: Independent  
advisory body and  
international dimension**

Recommendations 7, Climate Crisis  
Policy Team (KBT)

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## Summary

The world faces a climate crisis. Extreme weather events, already predicted at the start of the century (IPCC, 2014), are occurring sooner than anticipated and **threatening** the living conditions of both humankind and the natural world. The severe drought in Australia, the annually recurring record-breaking droughts, heat waves and rainfall in Europe and the unprecedented heat on the North American western seaboard are illustrative of the **urgent** need for far-reaching climate policy. The catastrophic floods in Germany, Belgium and the Netherlands in July this year have also brought home the significant financial and immaterial costs of climate change<sup>1</sup>. According to the latest IPCC report (IPCC, 2021) the very **survival** of humanity is at stake. There remains **little time** to turn the tide, moreover. All of this underscores the absolute necessity of vigorous and effective global climate policy.

In this light, a number of Dutch scientists and experts from various disciplines (economics, engineering, environment, behavioural science) have temporarily joined up to create an independent Climate Crisis Policy Team (KBT). In a series of [six advisory documents](#) we have laid out our vision of effective, fast-track climate policy to achieve European targets, with the focus on mitigation rather than adaptation. Following our first, general recommendations, published in March 2021, the spotlight was turned on five specific sectors: the built environment, transport and mobility, industry, agriculture and the energy supply.

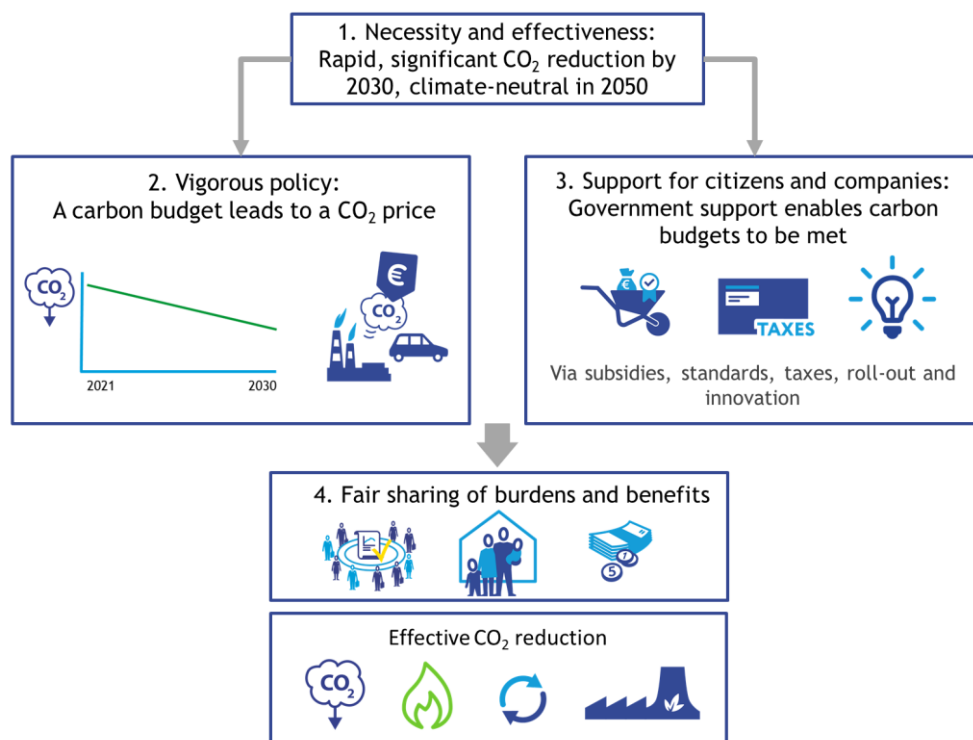
The KBT strategy, summarised in Figure 1, is built around four pillars:

1. **Necessity and effectiveness:** A clear and consistent message on the urgent need for a coherent crisis policy on climate change inspiring society-wide engagement in what will be far-reaching changes. As we've seen with the Covid-19 crisis, measures are often critically received by citizens, businesses and the media. Some doubt the effectiveness of personal action, perhaps feeling the neighbours or some other sector should really be acting first. Others find it hard to translate good intentions into concrete action, possibly wary of being 'first movers'. For the required climate action to indeed be taken it's essential that full use is made of social and psychological insights from the behavioural sciences.
2. Vigorous policy built around **robust, annual declining carbon budgets** setting a limit on permitted emissions of CO<sub>2</sub> and other greenhouse gases and putting a price on them. The European Commission recently proposed establishing a separate Emissions Trading Scheme for the built environment and transport (EC, 2021a).
3. **Flanking government policy** to ensure securement of the prescribed annual emissions cuts, by providing support to private citizens and businesses. It's vital that a concrete and feasible perspective for action is provided, with due attention to communication and participation.
4. **Fair sharing of burdens and benefits** across large, small and medium-sized businesses and high- and low-income groups is essential if the climate transition is to succeed, as well as key for creating support and engagement across society.

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<sup>1</sup> While no single event is irrefutable proof of climate change, the events themselves are entirely consistent with the increase in extreme weather projected by climate models.

Figure 1 - Main elements of KBT recommendations



In this final advisory document the KBT also recommends the following:

- establishing a permanent independent advisory body on climate policy;
- active support for EU climate policy and efforts towards international policy coordination on carbon pricing.

### Independent climate crisis advisory body

The Netherlands has ambitious climate targets and now faces the challenge of formulating efficacious and cost-effective policy to secure them in a short time. To facilitate this, the KBT advises the Dutch government to set up a permanent, independent, broad-based scientific advisory body specifically for climate crisis policy. This body can provide rapid advice, on request or otherwise, on the kind of climate policy the country should ideally pursue.

The added value of such a body is its independent and multidisciplinary nature, characterised by collaboration and shared learning in the realms of economics, environment, engineering and behaviour, and geared to an integrated strategy that does not privilege particular technologies and is unfettered by interests in specific solutions or sectors. In other countries (UK, Denmark, Finland) similar bodies have already been set up to develop vigorous policies that can indeed achieve stated political ambitions.

In the Netherlands this kind of advisory body has been recommended by the Council of State, the Council for the Environment and Infrastructure and the Scientific Council for Government Policy (EZK, 2021).

## Active support for EU climate policy and international policy coordination

The Netherlands has signed up to the EU target of 55% carbon emissions reduction by 2030 relative to 1990. It is a positive development that the Dutch government, in its Letter to Parliament dated 17 September, 2021, supports the European Commission's proposals on **EU climate policy**, given the proven effectiveness of much policy to date (CO<sub>2</sub> emission standards for cars and the EU ETS, for example). Active support is certainly justified, because the Commission's proposals ensure a level playing field for companies across Europe, minimising impacts on competitiveness. Further international policy coordination is required, though, to achieve sufficiently stringent and consistent policy around the world, for which the EU ETS provides a good starting point. The Netherlands also has an interest in a carbon-based border charge to protect climate policy within the EU, as recently proposed by the Commission for certain classes of imported goods (EC, 2021c). The Netherlands should also play an active part in efforts to extend the EU ETS to major international players like China and the US.

Because time is of the essence, though, national policies should already be introduced, such as a carbon budget for ESR sectors<sup>2</sup>, a CO<sub>2</sub> emissions standard per unit energy (kWh) or fuel volume (m<sup>3</sup>) delivered and tightening of the biofuel blending quotas for motor fuels (as outlined in the KBT recommendations on Transport & Mobility). In parallel, existing energy and fuel charges can be partly converted to CO<sub>2</sub> charges to create the right incentives for emissions reduction. As international systems are put in place, these national policies can be dovetailed in.

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<sup>2</sup> Built environment, mobility, agriculture and non-ETS industries, which are subject to binding annual greenhouse gas reductions under the EU Effort Sharing Regulation (ESR).

# 1 Why a Climate Crisis Policy Team?

Climate change has put the world in crisis: fundamental interests are threatened, there is little time to act and solutions involve a multitude of challenges. As befits a crisis, we must make use of all the know-how and expertise at our disposal. What we urgently need is independent, multidisciplinary advice on rapid and effective means of halting the climate crisis.

## Fundamental interests are at stake

According to the IPCC, rising global temperatures are cause for concern for five main reasons:

1. Threats to unique ecosystems.
2. Increasing risk of extreme weather events.
3. Uneven geographical distribution of impacts.
4. Increasing damage on a global scale.
5. Increasing risk of triggering large-scale, irreversible processes.

Although a 2°C temperature increase is often taken as an upper limit for acceptable climate change, the IPCC warns that even a temperature rise beyond 1.5°C already brings with it substantial risks of extreme heat, drought, flooding and poverty (IPCC, 2018). The historical drought in Australia, the meteorological records being broken year on year across Europe (drought, heat, rain) and the unprecedented heat dome over the west coast of the US and Canada are in line with IPCC projections, but are occurring sooner than predicted. The recent floods in Germany, Belgium and the Netherlands are seen by some scientists as further indication of rapid climate change (NRC, 2021). Extreme weather is leading to loss of life and grave economic and ecological damage. Climate change is thus already having a significant and direct impact on people's everyday lives.

## Urgent action is required

Under the 2015 Paris Climate Agreement 195 countries committed themselves to a 55% reduction in carbon emissions by 2030 to limit global average temperature rise to at most 1.5-2°C. Since then the average global temperature has already risen by 1.2 degree, though, and according to the latest science we may well be headed for 1.5°C by 2040 (IPCC, 2021). The Dutch meteorological agency KNMI even sees us perhaps reaching that worrying milestone in nine years' time (KNMI, 2021). A response time of one decade is extremely short, given the far-reaching changes to society needed to limit temperature rise to 1.5°C. There are those that argue that it may in fact already be too late to achieve the changes required to avoid catastrophic climate change within the time available (Lenton & Rockström, 2020). What is required, after all, is a complete phase-out of fossil fuels by 2050, even though virtually the entire global economy currently depends on them. On top of that, Dutch climate policy as it stands today is far from enough to secure the climate targets pledged. The projected emissions reduction by 2030 relative to 1990 is only 34% (PBL, KEV 2020), while the EU Green Deal requires us to have achieved 55% reduction by 2030 and climate neutrality by 2050.

## Solutions are complex

Solving the climate crisis is far from straightforward, nor is there a single route to success. Opinions are divided on the strategy to be adopted: go or no-go to nuclear power, go or no-go to on-shore wind, economic incentivisation or a government that prescribes or even rolls out technologies. How to factor in international competitiveness, impacts on consumers (particularly those with minimum incomes) and all the other environmental objectives (the

nitrogen dossier, among others)? What is technically feasible, what is economically prudent and how do we make it an issue for which everyone feels responsible, creating some kind of collective movement? As the Covid-19 pandemic shows, once a situation is seen as a crisis, unorthodox measures become feasible. The difference is that the virus was suddenly upon us, calling for immediate, ad hoc policies. With the climate, we can still go for a combination of short- and long-term policies. There's still time to address the problem through financial incentives. Transformative change can be achieved in 10 to 15 years, so it should still be feasible to implement such a system to slash greenhouse gas emissions rather than imposing illiberal, top-down measures.

## **Independent, multidisciplinary advice**

As with the the Covid-19 pandemic, the climate crisis we're facing demands a crisis strategy rooted in a long-term vision. And as with the Covid crisis, we will need to use all the knowledge at our disposal, particularly in the domains of environment, economics and policy, technology and human behaviour. While we have a wealth of knowledge, we are not omniscient. Through collaboration and mutual learning, though, we'll manage to develop an increasingly effective strategy in an open-ended process.

In all of this, the government's role will have to go beyond mere policy roll-out. It will also have to explain in clear language the pressing need for vigorous climate policy and the positive impacts accruing over time. This will help build up the necessary support among citizens and businesses, oiling the machinery of behavioural change as effective policies are steadily implemented. While most people are well aware of the climate issue, their willingness and track record on taking action are still modest, with little true behavioural change as yet visible (Renes, 2021).

The KBT therefore recommends that the Dutch government set up an independent climate crisis advisory body similar to those already installed in countries like Denmark, Finland and the UK. It is essential that this advisory body:

- focuses specifically on mitigation policy (geared to emissions reduction) to reverse climate change;
- can provide rapid advice (on request or otherwise) on generic policy as well on specific issues;
- focuses not on technical measures but on policy, this being the main missing link between the current situation and future targets;
- does not allow itself to be swayed by stakeholders with interests in specific technical solutions.

The body should ideally comprise a team of scientists and experts that advises on how the government's (Paris) targets can be rapidly secured via new policy. The added value of this advisory body specifically on climate over existing bodies like the Council for the Environment and Infrastructure, the Environmental Assessment Agency (PBL), the Council of State and the implementing body of the National Climate Agreement is, briefly stated, that it:

- is geared explicitly to climate mitigation (emissions reduction, not adaptation);
- covers all relevant disciplines (behaviour, technology, economy, environment);
- is independent of particular interests and sectors;
- can respond rapidly to new challenges and developments;
- Is up-to-speed on the extensive scientific literature on climate policy.

Because a decision on establishing such a body cannot be taken until a new government has been sworn in, CE Delft has teamed up with a group of experts and scientists – the Climate Crisis Policy Team, KBT – to take the initiative of drawing up a series of recommendations. Represented in the KBT's ranks are numerous fields of expertise (including economics, engineering, environment and behavioural science), since climate policy demands an integrated vision. In a series of [six advisory documents](#) the KBT has endeavoured to indicate what is required to bring the Netherlands' climate policy in line with national and international climate targets. The KBT does not argue for more radical targets, but for policy that will achieve the targets already set, as well as for international harmonisation of climate policy to enable vigorous global policy and minimise leakage effects – which would reduce the effectiveness of national emissions reduction.

## 2 What needs to happen immediately?

The KBT strategy elaborated in the six advisory documents published can be summarised under four headings:

1. **Necessity and effectiveness:** A clear message on the urgent need for a crisis policy to minimise the risk of climate change having extremely far-reaching consequences. This requires emission reductions in every sector in every country. Insights from the behavioural sciences are important, too, to ensure policy is in line with people's perceptions, expectations and emotions.
2. Vigorous policy built around **robust, annual declining carbon budgets** setting a limit on permitted emissions of CO<sub>2</sub> and other greenhouse gases. These will lead to a carbon price across all sectors, creating a direct incentive for decarbonisation. An absolute cap guarantees achievement of the set emissions reduction at least cost, moreover.
3. **Flanking government policy** to ensure securement of the prescribed annual emissions cuts, by providing support to private citizens and businesses and achieving additional government policy objectives. The flanking policy comprises CO<sub>2</sub> abatement measures differing per sector, such as extending zero-emission zones and creating new energy infrastructure. Additional government objectives and support to citizens and businesses will include policy addressing energy poverty, for example.
4. The climate transition will only succeed if it is an inclusive transition with **equitable sharing of costs and benefits** across large, small and medium-sized businesses and high- and low-income groups. The energy transition needs to be feasible and affordable for all<sup>3</sup>. Concrete government policy is required in the various sectors to maintain employment and that all citizens have access to sufficient energy and mobility.

These points are for the built environment, mobility, agriculture, industry and the energy supply and are elaborated in the KBT's sector-specific [recommendations](#).

For this strategy to work, several initiatives need to be taken 'immediately':

- start work on setting up a carbon budget system;
- formulate flanking policy, with due attention to equity, communication and participation;
- invest in energy infrastructure and technical training, to guarantee a broad scale of abatement measures can indeed be practically implemented;
- index existing charges (energy tax, fuel duty) to CO<sub>2</sub> emissions.

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<sup>3</sup> A survey of 10,000 people in the Netherlands shows that it's important for acceptance of ambitious climate policy that low-income groups are protected and the gap between rich and poor does not grow (TU Delft, 2021).



## Carbon budget for guaranteed emissions reduction

The core element of the KBT strategy is introduction of a carbon budget for all sectors of society complementing the current European Emissions Trading Scheme (EU ETS). Putting a cap on permitted emissions of greenhouse gases (expressed as CO<sub>2</sub>-equivalents) and reducing this caps annually is the only guaranteed way to secure climate targets. It establishes an unambiguous, long-term government policy.

The energy supply system and a major swathe of industry are already subject to this kind of budget via the EU ETS. The KBT has several concrete proposals for improving and tightening the ETS at the European level:

- A more stringent emissions cap, in line with the target laid down in the EU Green Deal. Introduction of a ‘border correction’ at the outer European borders to maintain competitiveness. This could take the form of a Carbon Border Adjustment Mechanism (CBAM), i.e. a carbon charge on certain imports, as recently proposed by the European Commission (EC, 2021c), or an External Cost Charge (ECC).
- Abolition of freely issued emission allowances. All allowances should be auctioned, with a sizeable share of the revenue earmarked to compensate low-income groups (via income tax, for example) or for innovation subsidies.
- Introduction of a minimum carbon price to improve the scheme’s predictability and effectiveness.
- Inclusion of waste incinerators in the EU ETS.

The Netherlands needs to establish a carbon budget for other, non-ETS sectors, viz. the built environment, transport/mobility, non-ETS industries and agriculture (‘ESR sectors’). The European Commission recently proposed including transport and the built environment in a separate emissions trading scheme (EC, 2021a). To make haste, this could first be rolled out at the national level, for later integration with emissions caps in neighbouring countries or the entire EU, in line with the Commission’s proposal. How such a budget would work is explained in Box 1. The KBT favours a single budget for the ESR sectors as a whole, since amalgamating it with the EU ETS budget – *not* currently recommended by the KBT – would mean the bulk of measures being adopted in current ETS sectors, given their lower (marginal) cost there. Only with a far higher carbon price would the other sectors start to take action. For society-wide emissions reduction to kick in apace requires a separate and effective system for the ESR sectors<sup>4</sup>.

### Box 1: How does an ESR carbon budget scheme work?

A carbon budget scheme is a ‘cap and trade’-system in which the Dutch government or the EU set a cap on the total amount of greenhouse gases that may be emitted annually. Parties subject to the system must have enough emission allowances to cover their emissions, with an allowance giving the holder the right to emit 1 metric ton of CO<sub>2</sub>-eq. Initially, these allowances will either be auctioned by the government, issued free of charge or sold for a fixed price<sup>5</sup>. Subsequently, parties will be able to trade (buy or sell) them in a carbon market, creating a going price.

To guarantee sufficient emissions reduction over time, the emissions cap is reduced year on year, making emission allowances scarcer and therefore dearer. By 2050 the cap will need to have been reduced to zero tonnes CO<sub>2</sub>-eq.

<sup>4</sup> A national system also ensures that the Netherlands secures the (tighter) ESR targets within its own borders, rather than emission cuts all first being secured abroad.

<sup>5</sup> In Germany emission allowances will be sold until 2026 at a statutorily determined price to allow participants to get used to the system. Later, the allowances will be auctioned.

In principle, every end-user should be able to participate individually in the system (downstream approach). These parties then have a continual choice between spending their money on emission allowances or on taking steps to cut emissions – in the transport sector, for example: investing in more efficient vehicles, using more sustainable fuels and switching to other transport modes. Because of the large number of end-users (including around 7.9 mln. households and 1.5 mln. small and medium-sized businesses), however, this would lead to extremely convoluted monitoring and reporting procedures and exorbitant administrative costs. The KBT therefore recommends adopting an upstream approach, allocating the carbon budget to energy and fuel suppliers, who would then be obliged to keep annual accounts of their energy deliveries, handing in the requisite number of emission allowances at year's end.<sup>6</sup> Suppliers will ultimately pass on the (substantial) carbon costs to their customers via higher prices, transferring the burden of the carbon price to end-users and thus giving them a financial incentive to reduce their emissions. Innovation can be encouraged by means of subsidies and R&D programmes. Diffusion of innovations benefits from carbon pricing, thus creating market interests, also for innovations occurring without the aid of subsidies.

The carbon budget for the ESR sectors would include the CO<sub>2</sub>-eq. emissions occurring during use of the various energy carriers, such as transport fuels (petrol, diesel, LPG, hydrogen) and energy for space heating in homes and other buildings (natural gas, propane, domestic heating oil).<sup>7</sup> To avoid year's end 'bonanza' energy or fuel sales, carry-over of allowances from year to year would be allowed up to a certain maximum.

A multi-year trajectory could be laid down from current emissions to 55% reduction in 2030 and zero emissions in 2040 or 2050. Any emissions overshoot in one year would have to be additionally reduced in subsequent years.

## Clear communication, fairness and public engagement

An important element of the proposed climate policy is the increased price of carbon-intensive energy (a major cause of CO<sub>2</sub> emissions). It needs to be stressed that a carbon budget system with its associated carbon price is intended as a regulatory charge, i.e. a charge designed to achieve behavioural change. It is emphatically *not* a financial instrument to generate government revenue. It is only logical, then, that the revenue from carbon emission allowances is channeled back to society. This will also improve public support for the strategy and thus its political viability<sup>8</sup>. There are numerous ways to recycle revenues, including a lowering of income tax, a uniform per capita refund, additional support for households facing (energy) poverty, funding reduced public transport fares for low-income groups, lower prices for fruit and vegetables, insulation 'vouchers' for all households and subsidies or loans for green investments by businesses and consumers. Another option is to lower the energy charge and fuel duty on petrol and diesel, which are not currently carbon-indexed<sup>9</sup>. This would help improve acceptance of the carbon price emerging from the carbon budget.

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<sup>6</sup> In this design, the party with the key role in taking abatement measures (the end-user) is therefore not the one obliged to pay for emission allowances (and thus having to choose between paying for emissions or reducing them). The price incentive would be provided by energy bills.

<sup>7</sup> The emissions occurring during production of the energy carriers themselves are covered by the present EU ETS. This holds for power generation, large-scale hydrogen and certain heat sources.

<sup>8</sup> Two of the main reasons for resistance to carbon pricing are ignorance about how it works and a lack of trust in government. It is often more popular to earmark the revenue from carbon emission allowances for environmental or climate investments, in the mistaken belief that the aim of carbon pricing is to generate funds to these ends (Kallbekken & Aasen, 2010). Diligent government explanation is therefore essential.

<sup>9</sup> Under EU legislation it is not possible to abolish these altogether or index them entirely to carbon emissions, as there is an energy-related minimum in force.

Besides cost compensation for private citizens, a clearly worded narrative on the urgent need for far-reaching climate policy is also vital, as are communication and creation of concrete perspectives for action. With the Covid crisis we've seen how measures are often critically received by citizens, businesses and media. Some people aren't convinced of the need to change their behaviour, often thinking their neighbours or some other sector should be making the first move – and this holds for the climate crisis, too. Others find it hard to translate good intentions into concrete action, possibly unsure about being a 'first mover'. Use of behavioural scientists' know-how on social and psychological dynamics is indispensable for ensuring that proper action is indeed taken (see Box 2).

**Box 2: Essential prerequisites for behavioural action**

For behaviour to occur, three conditions need to be satisfied (Michie, 2018):

1. *Capacity*. Mental and physical factors at the personal level: does the person have the required knowledge, skills and mental faculties to implement the behaviour?
2. *Motivation*. Conscious and subconscious drives: to what extent is the person motivated and have the intrinsic triggers to implement the behaviour?
3. *Opportunity*. Social and physical factors at the environmental level: to what extent does the social and physical environment encourage or hamper implementation of the behaviour?

Besides communication (in easily understood language), it is essential that society is duly engaged with the climate policy. The importance of efforts to promote citizen participation and ensure climate policy is supported by at least a broad swathe of society was cited in the recent recommendations of the Brenninkmeijer Commission (2021).

### **Index existing charges to carbon emissions**

Existing energy and fuel charges need to be carbon-indexed to create the right incentives for emissions reduction. This can be achieved easily and rapidly, as it involves no new charge schemes, merely modification of existing ones. The charge revenues do not need to change much either, an important element in political support.

### **Investment in energy infrastructure and technical workforce**

Electricity infrastructure has an absolutely crucial part to play in the energy transition. Without timely roll-out of that infrastructure, the transition will be hampered and climate targets jeopardised. In some parts of the Netherlands, insufficient capacity means that even today no new wind or solar farms, charge points or rooftop solar panels can be connected to the grid. It is therefore vital that the government makes every effort to achieve timely roll-out of the required electricity infrastructure. Because of the long lead times of such projects, it is essential that work in this area starts as soon as possible. This also holds for the training of technicians and other skilled workers. Given the 3- to 4-year training courses involved, an immediate start needs to be made on creating and incentivising training and retraining programmes to expand the capacity of the installation and insulation branch.

## **3 International context**

The KBT's recommendations focus primarily on the Dutch situation and national policies for achieving rapid carbon emissions reduction. It goes without saying, though, that the international – and particularly European – context is highly relevant because of the interplay between Dutch and EU policy, including European constraints on Dutch efforts, as well as the risks of supply-chain, free-rider and leakage effects.

## EU Green Deal and ‘Fit for 55’

On 14 July this year the European Commission presented a series of policy proposals to implement the EU’s Green Deal, comprising a tightening of existing directives and roll-out of new policies to secure the European target of 55% CO<sub>2</sub> emissions reduction by 2030. These ‘Fit for 55’ proposals include a separate ETS for transport and the built environment, directives for reducing the footprint of aviation and shipping fuels, and a carbon border charge on certain imports to prevent carbon leakage (EC, 2021b). The KBT advocates actively supporting the Commission’s aims and efforts. Much European policy, including CO<sub>2</sub> standards for cars and the EU ETS, has proved effective and ensures a level playing field for all European companies. The ETS can be tightened up, though (see p. 5/6), while national policy is needed in sectors where there are as yet no European systems in place, such as a new carbon budget for all ESR sectors, standards for CO<sub>2</sub> emissions per kWh electricity and m<sup>3</sup> fuel, increase of the biofuel blending quotas for motor fuels, to cite a few examples. The positive stance adopted by the cabinet in its Letter to Parliament of 17 September, 2021 is a promising first step.

## International harmonisation

If the climate crisis is to be effectively tackled, a broader policy perspective needs to be adopted, with far more emphasis on international cooperation and policy coordination, conspicuous in its absence in the Paris Agreement. This non-binding framework of national targets (laid down in ‘Nationally Determined Contributions’, NDCs) will inevitably result in non-compliance and free-rider conduct by many countries, since they stand to gain from other nations’ emissions cuts without having to balance them with similar cuts of their own. It is very unlikely that all countries will unilaterally implement robust and mutually consistent measures, as domestic climate benefits are generally deemed modest and not seen as justifying the cost of reduced competitiveness in certain sectors. This free-rider problem makes it hard for countries to commit themselves to policies consistent with stated climate targets. Many nations do not even have a particularly ambitious NDC, moreover (Van den Bergh & King, 2019)<sup>10</sup>. Better policy coordination, within the EU as well as with key players around the world (in the first place, the US and China) can, as time progresses, help resolve these two shortcomings of the Paris Agreement and thus lead to significantly more robust global emissions reduction.

In the long term, the target-based strategy agreed to in Paris can only be effective if policies are coordinated globally, particularly in the form of carbon budgets and pricing. The EU ETS provides the best point of departure here, because it already harmonises the policies of 31 countries. Such a carbon trading scheme should be extended to all the major global emitters. The Netherlands should actively promote a border charge on carbon (as advocated recently by the European Commission). This will not only protect climate policy within the EU, but also encourage extension of the EU ETS to key international players like China and the US. Many other countries will then want to sign up too, given the threats to their export position from border charges imposed by key trading partners. It is only under such conditions that sufficiently robust climate policy can be rolled out globally, because this is the only way to take away the understandable fear of excessively severe impacts on competitiveness (Van den Bergh, 2018).

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<sup>10</sup> This is illustrated by normalising NDCs to a common metric to compare them (Van den Bergh & King, 2019).

There are four types of NDC, expressing plans and targets in different ways. Most high-growth medium- and low-income countries present their NDC as an emissions reduction, while they in fact embody a rising trend in national emissions in the distant future.

Global harmonisation of regulatory policy will also minimise emissions leakage to countries with weaker policies, improving overall policy effectiveness. It is also important to realise that a uniform international carbon price – consistent with the carbon budget system the KBT is proposing for the Netherlands – has the best chance of international support of any regulatory policy. This is because all the other policy options (a plethora of individual standards for countless sectors and technologies, for example) are far more complex and less transparent, making them less effective as a key to policy harmonisation and minimisation of free-rider conduct in international negotiations (Weitzman, 2014; 2017).

## 4 Possible topics for subsequent recommendations

In its recommendations on the built environment, transport/mobility, industry, agriculture and the energy supply the KBT has addressed a broad range of issues and sketched a perspective for a carbon emissions cap that is steadily reduced in the years ahead. There remain a series of other topics meriting the attention of a climate crisis advisory body, however. These include:

- *Adjusting the carbon budget*: a carbon budget is the perfect instrument for updating reduction targets in light of new developments in climate change, climate science and climate negotiations, EU targets and policies, and the social and economic context. If properly implemented, the carbon budget with its flanking policy make the 55% reduction target a realistic proposition. Targets can be tightened or brought forward in time, moreover, and all these issues need to be further explored.
- *Essential preconditions for emissions cuts*: work needs to start immediately on developing future-proof energy infrastructure and the workforce required for implementing the energy transition. There needs to be a major boost of technical know-how and capacity, with the government taken action to avoid a serious shortage of technically schooled workers for rapid roll-out of renewable energy systems, home insulation and suchlike.
- *Social commitment and support*: how can society be prepared for the major challenges that lie ahead and will require across-the-board support? The role of innovation and entrepreneurship will also need to be addressed.
- *Consumption policy geared to reduced demand and improved efficiency*: the current KBT recommendations focus mainly on greening the Netherlands' energy systems, with no explicit focus on consumption as such – though patterns will shift as higher cost-prices knock on in consumer prices. For years now, NGOs have been advocating reduced consumption and thought should be given to its potential role in climate crisis policy.
- *Interactions between national, European and international targets and policies*: setting targets at disparate policy levels, as at present, is not necessarily the most effective route to a climate-neutral world. The policies of municipalities, provinces, nation states and the EU are by no means always aligned. The KBT can provide concrete advice on improved design of these policy objectives to achieve the most effective overall result. Due attention should then also be given to positive and negative synergy between instruments at various scale levels. It is particularly important that these are not at odds with one another or even combine to be counterproductive (negative synergy).
- *International coordination*: alignment and harmonisation of actions and policy with like-minded and neighbouring countries and key trading partners, to maintain competitiveness and allow more vigorous climate policy to be formulated. In particular,

this can lead to common border charges and extension of the EU ETS to include other major emitters.

- *Policies on raw materials and the circular economy:* energy use in the various sectors is not the only factor driving carbon emissions; raw materials throughput also causes local as well as global emissions during both the extraction and use phase. In tomorrow's economy, materials consumption will need to be as 'circular' as possible, with any new materials produced in a climate-neutral manner. The question is: does this require additional policy? Should the circular economy and decarbonisation roadmaps run parallel?
- *The role of biomass:* in the economy of the future, biomass will be used mainly as a raw material for products unamenable to materials recycling. It may also have a role to play in energy production. The question is what role biomass can sustainably fulfil once its role in carbon drawdown and food production and as a source of raw materials is duly factored in?

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