



Position of the German Council for Sustainable Development on Current Climate Policy Issues

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1 Preamble

Politicians have long underrated the importance of energy as an issue. Energy forms the very foundation of our economic stability, labor market and prosperity. At the same time, evident changes in the global climate compel us to take action. Goal-related conflicts need to be identified and require an enhanced sense of political responsibility as we tackle the challenge of balancing our climate and economic initiatives with the social impact of changing energy policies. All around the world, there are great expectations that Germany will play a leading role in addressing the issues of climate and energy. However, given the enormity of these challenges, the response from Germany's politicians to these urgent problems has been less than satisfactory.

Time is running out. When it comes to climate policy issues, we have to rethink our view of the dimension of "time". Our responses will have an enormous impact on our concepts of cost-effectiveness along with national and global justice. The cost-effectiveness of our climate and energy policies must be long-lasting and take into account the needs of future generations.

This paper takes a position on key aspects of Germany's energy policy; it does not constitute an energy program. We leave open the question of whether the climate objectives that have been defined to date constitute an adequate response. For the time being, we are more interested in the question of whether or not, and how, the established targets can be achieved. In the past, ambitious goals have been set without energetically pursuing the question of whether the approved measures actually lead to the established objectives. Sustainability requires commitment. The situation is serious and we cannot allow ourselves to be deluded. As a result, new approaches for monitoring the attainment of climate objectives need to be sought and implemented. These new approaches must also include a dialogue with the public over whether we are taking the right steps in the future.

Over the past few years, the German Council for Sustainable Development has issued statements on a number of occasions concerning various aspects of energy and climate policy. Our work is based on tapping into the wealth of expertise that exists outside the Council, and we continue to adhere to this principle.

The members of the Council agree that the issues of climate protection and energy policy are important for Germany and for Germany's global responsibilities. In the discussions within a heterogeneous body such as the Council, which rightly reflects the wide spectrum of public opinion in society, we endeavor to find common ground for overall positions. However, we do have varying opinions on individual issues.

2 Priorities

Are we consuming too much energy?

Yes.

Does climate and energy policy sufficiently address the demand side of the issue of efficient energy use?

No. For decades, the demand side of the energy issue has been sorely neglected. Time and again, sweeping declarations are made, but there has been very little follow-through. It is time for the demand side to be finally placed at the top of the agenda.

The demand for energy is linked to our buildings and the way we heat them. It is linked to our overall mobility and how we transport goods. An important factor for the demand side is the efficient organization of industrial processes and the manufacture of products. This also concerns electrical appliances that we use every day. There is a large potential here for reducing energy consumption.

Over the medium and long term there are additional aspects where priorities have not been properly set. In connection with the follow-up negotiations to the Kyoto Protocol, there are important decisions that have to be made for Germany, the European Union and the world as a whole. In Germany, this includes the necessary investments for new power plants that will produce electricity over the next 40 years. In the EU, it entails resolutions that pave the way for the next trading period for emissions certificates and the EU climate and energy package. At issue are investments worth billions.

Are we making the most of opportunities to reduce CO₂ at no additional cost and earn money by lowering CO₂ emissions?

No. Today, we use 40% of our energy consumption to heat our buildings. We would be far better off applying simple, tried and tested methods and technologies to reduce energy use in buildings – creating jobs in the process – than focusing solely on the search for the best high-tech systems to solve all our energy problems.

Climate protection presents an opportunity. In the construction and supply industries the building volume for sustainable projects in Germany will rise to between €150 billion and €340 billion by the year 2030, provided that a large number of hurdles can be cleared. This shows that the opportunities are considerably greater than what is generally perceived. There is a particularly large potential for savings in the area of buildings, in

particular with regard to property belonging to the German federal government and public institutions. Above all, the area of heating has been neglected. The German government has launched a number of initiatives, including the Renewable Energies Heating Law and a more stringent version of the Energy Conservation Regulation.

However, we still need approaches that will mobilize market forces and make a significant increase in efficiency an integral part of all investment cycles in the private economy. Such initiatives translate efficiency advantages into profits. In addition, energy providers – instead of just selling energy – should become energy service providers, allowing them to earn money on saving energy. The same principle applies to carmakers. Instead of just manufacturing automobiles, they should provide comprehensive mobility services and earn money with more efficient mobility concepts.

In Switzerland, local learning networks on energy efficiency have been introduced. By now there are 30 networks with companies that meet roughly one-third of Switzerland's industrial energy requirements. We can learn from each other. The learning focuses on conserving energy and becoming more efficient. This approach needs to be further pursued. People's willingness to learn should be enhanced with strategic initiatives, targeted programs and strong leadership. Instead of being treated as final consumers who are in no position to make knowledgeable decisions, citizens should receive better energy information and product labeling. Intelligent, decentralized power measuring methods give people greater freedom of choice and options for private energy savings. By contrast, subsidies of individual consumer products take us in the wrong direction. They create counterproductive learning effects because they suggest to people that the state is ultimately responsible for ensuring energy conservation, and consumers need only wait until all products, one after the other, receive climate-friendly subsidies.

Cost-effective opportunities for reducing CO₂ are also made possible by the Clean Development Mechanism (CDM), which allows for a worldwide cost optimization of measures. Projects to enhance energy efficiency are a prime example of a CDM, especially when they take into account a wide range of ecological criteria. The CDM rule needs to be energetically pursued to halt the continued destruction of forests – and the resulting increase in greenhouse gas emissions – and to find the right methods of land utilization.

Do we have the right infrastructure?

No. Our energy infrastructure is oriented according ageing concepts and spatial relations. It focuses primarily on locations where the largest industrial and urban energy consumers can be found. Approaches to providing energy that increasingly focus on renewable sources of energy tend to require decentralized infrastructures. Solar, wind and biomass energy, along with new geothermal sources of energy, require new concepts for our power infrastructure, particularly if they are to be decentrally fed into the grids. The current state of decentralized power supplies will be greatly expanded in the future when new solutions for the integration of renewable energy are applied to building services

technology and outlets to supply power for electric cars are made available in newly designed urban grids.

However, generating power from wind on the coasts also makes it necessary to modify the networks for transporting energy. This will require large investments to expand the power grids. They should employ more efficient power transmission technologies such as direct current, which offers an extremely low rate of power loss.

The electricity infrastructure is a key foundation for Germany as an industrial location. The more intelligently it is expanded, for example, using computer controlled instrumentation and control for the supply, demand and storage function of the network, the greater will be the gains in efficiency and innovation, which in turn will benefit individual consumers.

The combined generation of electricity and heat, which is rightly seen as a major source of efficiency and energy savings, requires an extensive expansion of district heating networks. The expansion of cogeneration in power plants can only succeed if the demand for heat from these facilities is significantly increased. There exists a potential for this in the cities. This must also be tapped through suitable planning and legal steps.

The upcoming decisions on the networks of the future will thus have far-reaching consequences. They must adhere to the political and economic principle that infrastructure and networks constitute an important component of public services. It is also the responsibility of the public sector to ensure that there is a network architecture that can meet the challenges of the future and guarantee that new market participants have access to these networks. In addition, the government should involve everyone concerned in planning processes that are more transparent and make use of all available opportunities to streamline these processes.

Is reducing gross power consumption a reasonable objective?

Yes and no. It is true that we generally use too much energy and that reducing our consumption would lead to a reduction in CO₂ emissions. We at least see merit to the idea of assessing whether strict upper limits for power consumption should be established.

The German government has targeted a 10-percent reduction in gross power consumption by the year 2020 (compared to 2007 levels). We question whether this is a useful objective. When it comes to electricity, the goal must be to increase productivity and not regulate the absolute amount of power used. Placing a cap on the consumption of electricity could actually impede the development of renewable energies. It may very well be that in the future an increasing number of devices and a larger proportion of energy end use will depend on electricity. This is a sensible approach for reducing CO₂ emissions and should not be thwarted by regulations calling for a reduction in the use of electric power.

The German government is calling for an annual 2.5% increase in power efficiency. This is higher than over the past few years. In principle, this objective can be achieved, but not with the political initiatives that have been launched to date. Up until now, measures to enhance power efficiency have only been partially effective or have had a delayed effect. The issue needs to be given top priority to attain a sustainable energy efficiency strategy. This is required in order to create the “business sector for sustainability and efficiency” and to minimize the danger and the extent of a power gap (see the remarks on this issue below) over the coming decades.

3 Commitment: putting your money where your mouth is

Will current legislation on combined heat and power (CHP) achieve the objective of making 25% of Germany's electricity production CHP by the year 2020?

No. Politicians and companies have for decades been making the wrong political decisions and have decided against expanding combined heat and power. They have not perceived this as a challenge that needs to be met by public services and infrastructural planning. Today, this is painfully evident. It is extremely doubtful whether the incentive measures provided for under Germany's CHP law, which goes into effect in 2009, will succeed in fulfilling the climate objectives.

In many cities, buildings are not yet equipped for district heating and there is sluggish progress on creating the appropriate networks. This is an area that requires a large amount of infrastructural investments. In addition, it is necessary to provide the general public with better information about this key technology.

Is auctioning emissions allowances a useful approach?

Yes. Transforming the market into a climate protection tool is an excellent concept. Since the trading of certificates is a free-enterprise concept, it requires conditions that are as close as possible to those found on the actual market in order to work efficiently. Over the long term, emissions trading can only deliver its full impact if it is applied internationally and to the appropriate industries. Such an approach is still lacking today.

We also realize, however, that full-scale trading of emissions could also have undesirable consequences for Germany as a location for industrial production. This could have an impact on Germany's economic structure because certain industries may not be able to remain in the country. As a result, it is essential that the international trading of emissions should be established as quickly as possible. This cannot be accomplished all at once. Thus, during a transitional period, globally active companies will need to be exempted from auctioning.

Markets, including emissions markets, operate on the basis of trust and transparency. Such a degree of transparency must be established by the state. This holds true for calculating the cap (the upper limit of total emissions) and monitoring systems. It also holds true for additional necessary measure to prevent unjustified speculation in emissions certificates. The effectiveness of emissions trading would be enhanced if the profits from this business were invested in climate-related initiatives.

4 Renewable energy: our success story

Can we realistically increase the proportion of renewable energy to 30% by 2020?

Yes. Germany can achieve this goal if additional capacities for generating renewable energy can be put into operation as planned and sustainability conflicts can be resolved. The long-term success of renewable sources of energy will only be secured if they contribute to an optimally cost-effective and economical reduction in CO₂ emissions. This also includes expanding the storage function of the power grids.

Without a doubt, the decentralized character of renewable sources of energy, as mentioned above, and the innovative potential of this sector offer additional opportunities to raise the proportion of renewable energy beyond the target levels. The key to achieving this objective is to implement the targeted efficiency and savings measures and fully tap into the innovative potential of this technology to make renewable sources of energy a success.

German companies are international pioneers in renewable energy, and particularly in wind technology. A large proportion of their production is destined for export. Global demand is high. Wind energy is a provider market. Such markets are always at risk. In order to remain a leader on a dynamic market, you cannot rest on your laurels.

The installation of offshore wind power units is a critical aspect of Germany's climate policy. The project is lagging behind the original schedule. Manufacturers of these units often have too few incentives to speed up investments in this technically demanding and risky future market. In addition, the German locations in the North Sea are in water that is up to 40 meters deep, which entails considerable technical and financial risks. The order books are filled thanks to buyers from around the world. This makes it more profitable to sell tried and tested technology than to invest in new technologies.

The required infrastructure to transmit the North Sea power to land still needs to be built. It is a crying shame that highly advanced technology for high-voltage transmission lines developed by German companies has been sold to China, but still has not been used in our own country.

This makes it all the more important to build on the enormous potential of repowering wind generators that were installed on land years ago. Repowering involves replacing

older generators with more efficient new models. This is the right technological approach. It is also supported by the state's planning and licensing law. However, repowering has not been practiced nearly enough because, with today's Renewable Energies Law, wind generator operators see no economic benefits in making new investments. This makes it necessary to develop a mechanism that prescribes repowering during the lifetime of onshore wind generators and provides incentives for such a program.

When it comes to the production of biomass and the goal-related conflicts that this entails, the German Council for Sustainable Development sees a clear order of priorities: full plates, an intact environment, and energy utilization (a full tank). Within this hierarchy, biomass can make a valuable contribution to securing energy supplies.

An extremely important project for utilizing solar energy in the future is the plan to establish a Solar Mediterranean Union that would tap into the vast solar energy resources of the Sahara and the Arabian Peninsula. The technological requirements, including laying the necessary power lines and new grids, are already available today and make sense, as long as there is a surplus of generated energy that is not used on location.

5 The coal issue: overcoming uncertainties

Is a moratorium on fossil fuel power plants the right way to go?

No, because it would send the wrong signals. It would tell people that we have time to sit back and reflect on our situation. But there is no time to lose. It would also show that Germany's sustainability strategy takes a hypocritical approach toward the rest of the world: We want no coal-fired power plants at home, knowing all too well that many countries around the globe have no alternative to burning coal.

Proposals to replace the proportion of coal in Germany's energy supply with natural gas overlook the fact that gas reserves are more limited than coal and such a strategy in Germany would trigger price and market mechanisms that would of necessity drive other countries towards inefficient and unclean technologies.

It is true, however, that the construction of new coal and gas-fired power plants in Germany should not be allowed to cause German (and European) climate policy to lose all credibility due to high emissions. Larger emissions from new fossil fuel-fired plants are thus only compatible with the climate objectives for 2020 and 2050 if carbon capture and storage is technically, economically and environmentally feasible.

This path is by no means certain. There is a very real possibility that the necessary technologies will not be available at all, or that the required reliability will not be achieved on time. But this is no reason to remain idle. Quite the contrary, our global

responsibility as a country with a proud tradition in energy technology obliges us to lead the way to a future world with less CO₂ thanks to new technologies. According to most assessments, the proportion of coal in the global energy mix will not fall under 30% by the middle of this century. This presents an enormous opportunity for German industry.

Germany's energy policy now needs to make clear that after 2015 no coal power plant without carbon capture and storage (CCS) will be certifiable for operation, and that when it comes time to agree on a successor to the Kyoto Protocol, in other words, after 2010, every new fossil fuel-burning plant must be upgradeable. This also entails that the government creates a legal framework for storing CO₂. Already today, all power plants currently in operation that release more CO₂ than the average hard coal or lignite power plant should undergo improvements. This requires an amendment to the German Federal Emissions Control Act. The basis for this would be the recognition that the "waste product" CO₂ must no longer be released into the atmosphere in an uncontrolled manner.

Is an energy gap looming on the horizon in Germany?

This question does not do justice to the complexity of the problem. We can expect no energy gap over the short term or the medium term until the year 2020. However, things look different for the period after 2020. Politicians and investors very urgently need to take action to address the uncertainties surrounding the short and medium-term energy supply. Today, it is primarily smaller urban power plants that have come under pressure as they face difficult investment decisions.

There will be no physical energy gap because our energy supply is organized on the European domestic market. Similar situations in the past have shown that energy gaps abroad lead to a shift toward increased energy production in Germany, causing our carbon dioxide emissions to rise.

A lack of energy in Germany and rising electricity prices will lead to imports of power and possibly renewed debate on extending the operating periods for nuclear power plants.

What will happen if it is impossible to remove the carbon dioxide during the coal combustion process?

It is of vital interest for us to answer this question as soon as possible.

In Germany, if attempts to separate the CO₂ during combustion should fail, the economic instruments of emissions trading will have an even more pronounced effect and make it more expensive to supply energy. The coal-induced demand for emissions certificates will then rise drastically and market forces will determine prices.

One of the lessons to be learned from the financial crisis is that we need mechanisms to prevent speculation with emissions allowances.

If the CCS option fails, the impact for the global climate will be incalculable.

Balancing the global carbon budget: What can we do to achieve this?

Today, the global carbon budget is totally out of balance. We currently release 100% of the CO₂ that we produce into the environment. This is reminiscent of the waste disposal practices of the 1960s. That was when the recycling economy was created.

The current enormous challenge with respect to sustainable development is to find ways to channel the CO₂ into a cycle. In other words, we should be separating the CO₂ during the burning process, storing it for the time being under controlled conditions – knowing very well that, over the long term, storage cannot represent a viable solution – and using it as quickly as possible in new processes.

This vision is similar to the notion in the 1970s that waste should be recycled. It is a key component of a new Apollo program for energy research that needs to be significantly expanded and has to encompass all issues and technologies for CO₂-free energy generation and the storage function of power grids.

6 Nuclear energy: options?

Postponing the phase-out?

A political decision has been made to phase out Germany's nuclear power plants. It is to be expected that a different situation with regard to the global rise in CO₂ emissions and the world's energy markets will lead to renewed debate about whether it is prudent to limit the operating life of these facilities. In line with our democratic traditions, this debate will take place in an open and transparent manner.

We, the members of the Council, have varying opinions about the usefulness and necessity of delaying the phase-out of these nuclear power plants. However, we do agree on one demand: regardless of the public consensus that is reached on this issue, under no circumstances should this be allowed to block or restrict the path toward supplying the country with renewable energy.

Germany's plans to phase out nuclear power cannot amount to a phase-out of research into the safety of nuclear facilities and final depositories or other forms of disposing of nuclear waste. Quite the contrary, research capacities need to be maintained. Energy research must also include advancing nuclear technology as long as it cannot be ruled out that this makes a practical contribution to safe and climate-friendly power generation.

Does climate protection require nuclear energy?

No. Emissions are increasing so rapidly all around the world that there is simply not enough time for political countermeasures that are based on building new nuclear power plants to ease the burden on the climate. Currently, there are 439 nuclear power plants integrated into the global power grid, many of them ageing facilities, with a total share in the world's energy supply of just 16%. If the nuclear power option were relied upon to resolve the climate issue, not only would existing units require modernization, but an additional 1,000 to 2,000 new facilities would also have to be built. This is impossible for a number of reasons.

The main arguments against nuclear power remain as valid as ever: the growing threat of proliferation and terrorist attacks, the susceptibility to failure of all technical facilities, and the problems posed by the storage of nuclear waste.

7 Is our mobility policy making the right contribution?

No. The efforts made to date are inadequate; they even fall short of the economically feasible and concrete opportunities that are already available today. On the nation's highways, railways, and in shipping and aviation, up to 40 million tons of CO₂ emissions could be eliminated by the year 2020. What's more, 40% of these possible measures would, according to today's standards, even generate profits. Nevertheless, insufficient attention is given to them. On the other hand, 25% of the measures that are possible today would be extremely cost-intensive.

From a sustainability perspective, there should be a tax on CO₂ emissions and air pollution. The Council believes that energy users in the area of transport should pay higher taxes because this is justified by the economic costs of accidents, land use and environmental protection. In the area of passenger transport, the long-term most effective tool for reducing emissions would be to expand the public mobility infrastructure and to invest in new concepts for a needs-oriented expansion of public mass transport.

8 Sustainability of public services

How should power grids be organized in the future?

There are a wide range of technologies being developed today that would allow us to organize our electrical grids far more intelligently, thereby significantly increasing their efficiency. For instance, it is possible to use the grid to store energy, or to introduce an

intelligent power load management system that would allow for new measuring and monitoring processes that focus on the demand side and make it easier to control the demand for energy.

Transferring direct current offers new opportunities for energy efficiency. In addition to the power grid, energy-related networks will include systems for supplying natural gas and pipelines for transporting carbon dioxide. Access to these networks and their use needs to be transparent and regulated to meet the needs of the public.

Should social hardships be softened?

Yes. However, this is a job for social policy and not energy policy. Aid needs to be gauged according to the available household income and not to the price of electricity.

In order use energy responsibly and soften social hardships, we suggest altering the electricity prices to reflect a differentiated demand structure. The right policy here is to attach a realistic price tag to energy, a price that corresponds to its economic importance and impact on the environment. After a long period marked by an energy-is-cheap-and-thus-worthless mentality, we need to introduce a new approach that takes into account the life cycle costs for each investment, and not just the purchase price.

The Stern Review underscores the inter-generational justice of political measures that tackle climate change. Stern calculated that the future costs that would accrue if governments sit back and wait and do nothing would be significantly higher than the current costs of properly addressing the issue of climate protection.

Are we meeting our global responsibilities?

No. Although the climate-related resolutions taken by the European Union and the G-8 in Heiligendamm, Germany point the way to the future and show that ambitious international coalitions to protect the climate can be forged – this is not enough.

“Carbon justice” is the key concept for a worldwide policy that fairly shares the burden of reducing emissions: the vision of a per capita allowable amount of greenhouse gas that is the same around the globe. This is a notion that could fundamentally change global climate policies and the equilibrium between countries. German Chancellor Angela Merkel has endorsed the concept of carbon justice on a number of occasions, not least of which at the 2007 Annual Conference of the German Council for Sustainability. The Council supports the long-term vision of equal per capita CO₂ emissions. In order to take into account all the emissions in the world, this vision should be complemented with regulations that boost the short-term use of technologies that reduce CO₂ emissions.

In view of the damage that has already been caused by global climate change, it is imperative today that we reflect on adaptation measures to help those who are most affected. Germany has an international responsibility to live up to here.

Around the world, there are justifiably high expectations that Germany will launch strong initiatives to develop new technologies for efficient use of energy and climate-friendly energy production. Germany's research and innovation needs to focus more effectively than in the past on the needs and developments in Brazil, Russia, China, India and South Africa, as well as a number of other countries in transition. We favor open-minded cooperation and welcome the agreements that have already been made with a number of countries. Our technological capabilities will only remain cutting-edge as long as we remain tuned to precisely these future markets and take an ambitious approach to energy and climate issues.

9 Will we take the next important step?

The next step should be taken soon. A number of key decisions still have to be made this year. On 11 December, the European Council will debate on the EU Energy and Climate Package. It contains key upcoming steps for emissions trading and promoting new technologies. At the same time, the ministers of the contracting states will meet to discuss the United Nations Framework Convention on Climate Change as a follow-up to the Kyoto Agreement. Shortly before that, the EU-China summit will take place, an event which is expected to advance the issue of climate protection.

Europe needs to speak with one voice and create opportunities for the future with a robust EU energy and climate package. Europe also has to show that it is an honest partner with regard to developing adaptation measures for those countries which are most affected by the effects of climate change, yet also have the fewest opportunities to reduce their emissions. Adapting to climate change will become considerably more important than is generally believed today.

In order to make advancements in global climate protection, Europe needs to be a reliable partner that makes progress on this issue. This lays the foundation for climate cooperation with countries in transition. Germany's contribution here is of key importance: (a) as a partner in creating economic conditions that allow for growth in countries in transition and promote climate protection; (b) as a partner in working toward a CO₂ recycling economy and as an initiator of an international ambitious research program to achieve this; (c) and as a source of ideas and a cooperation partner to generate innovative concepts for supplying energy and protecting the climate.

In addition to totally new concepts for commercial-scale solutions such as solar energy, geothermal power and other renewable sources of energy, not to mention energy transfer, urban energy systems in buildings, infrastructure and services play a major role because the vast majority of the world's population now lives in cities. The Shanghai World Expo in 2010 offers an ideal opportunity to comprehensively draw attention to this issue and

introduce Germany's sustainability policies. The German pavilion should thus be designed to be carbon neutral and the technology on display should help China's coal-fired power plants to reduce their CO₂ emissions.