

- “Costs. Well on the industry, to be tremendous effect. Our exports, our manufacturing, everything, it is terrible.” (3.2b Industry)
- “It could be if people have to lose their jobs that are currently working at power stations, people that are in the mines that are digging the coal. If that can be transformed for them to get jobs in this new whole idea of greening, that will be of good benefit to everybody in this country.” (3.2b Public administration)
- “If they come in and take more of our natural resources and our land – our arable land. Start taking more of what we have got – our water. And then we land up with nothing.” (3.2b NGOs)

## 4.3 TRANSFERABILITY OF GERMANY’S ENERGIEWENDE

### Transfer rather than copy

- In all three countries, the experts surveyed tended to regard **simple wholesale copying** of the German model for switching to renewables or the accelerated adoption of it, as **not very realistic**. They explained this on the grounds that the future direction of national energy policy must take account of local social and political conditions, the particular country’s state of economic and technological development, and of course the existing energy situation, for example the main fuels currently in use. In all three countries, they therefore regarded the **chances of adoption of the Energiewende succeeding** as depending on both the **extent** of the changes and the **speed** at which they are made.
- Nevertheless, the **fundamental attitude to the transferability** of Germany’s Energiewende was mainly **positive** in all three countries. The fundamental options for adopting the model were most often perceived in **China**, while more cautious opinions were heard in the other two countries. The reservations expressed in **Brazil** related mainly to the major role that renewable energies have traditionally played in the national energy mix. Experts in **South Africa** not only mentioned the collision with economic goals but also emphasised the country’s status as a developing country with limited resources (money, expertise, skilled workers) as an obstacle.
- However, the vast majority of the experts surveyed emphasised that **elements of Germany’s Energiewende are in principle transferable**: in all three countries, the experts saw some aspects of it – such as investment in renewables, improved energy efficiency, and transparency and public participation – as steps that could be incorporated into their own energy policy or that should be compulsorily adopted.

*“There are certainly elements, that can be transferred. I don’t think everything can.”*

*Science representative,  
South Africa*



Brazil

- "I don't know if it is fully transferred, perhaps just some concepts because the Brazilian energy matrix is very different from the German one, our energy matrix is 80% renewable." (3.2c Industry)
- "I think so, with this non-radicalism restriction, you can discuss the idea." (3.2c Parliament)
- "Look, then, Brazil is ahead of Germany, on the issue of renewable sources. So Brazil categorically do not need to invest so many millions or increase the energy bill to encourage renewable sources, that Germany encouraged renewable sources." (3.2c Science)
- "Our main source of electricity is hydropower, so our model is different from theirs, but we could make use of the good ideas which they have there and apply them in Brazil, of course." (3.2c Science)



China

- "Things should be dealt with in the light of specific conditions. No policy from a country is completely applicable for another one. We should select the projects suitable for China. The volume of wind and water is different between our two countries, so we should take Germany's practice as reference instead of transferring it without changes." (3.2c Industry)
- "I think the German energy transition could be transferred to China, but it should be taken gradually. We cannot merely copy the Germany model, but seek for the best pattern suitable to China's actual conditions and take actions step by step." (3.2c Industry)
- "Mentioned before, China should trace the Energy transition in Germany. However, taking account of the economic foundation and necessary technologies, it is not suitable for China to implement Energy transition policy now." (3.2c Public administration)
- "With the educational level of Chinese people is not at the same level as that of Germans, China cannot copy these measures completely." (3.3 Public administration)
- "There are differences between developed and developing countries. The implementation of policy should be based on the national conditions and development direction." (3.3 Public administration)

- "I think the good part from that transition could be adopted by South Africa. But whether they will be adopted in whole or whether they will be modified. I've got no idea." (3.2c Industry)
- "I don't think you will be able to do it totally as they have done it in Germany, because we have got a lot of coal resources and we have got cheap electricity at this stage. So I don't think in a sense you can totally just take that model and institute it in South Africa." (3.2c Public administration)
- "There are certainly elements, that can be transferred. I don't think everything can." (3.2c Science)
- "In order to do this kind of leap between conventional ways of energies to other forms of renewable energy (Inaudible) you would need to spend an enormous amount on research and development and you would have to have a certain pool of people with knowledge and South Africa does not have this at the moment, it's not a first world country so in the best case they will copy what's happening elsewhere." (3.2c Science)



South Africa

## Adopting the expansion of renewables, improved energy efficiency, and assuring transparency and public participation

- "I'd say all, I can not concentrate on one, because they all have a positive impact and they all impact on each other." (3.3 Industry)
- "I think, in fact, the three are complementary. I think the country he wins the three points you highlighted. There is no gain, a breakthrough isolated." (3.3 Parliament)
- "All three are essential. The issue of energy efficiency is very important, you lose a lot of energy today, this is a real problem. The very distance between where energy is generated and the consumer centers is another factor, besides the participation of society." (3.3 Public administration)
- "The three subjects are definitely very relevant. At this point the strategic question is the question on energetic efficiency, but the other questions are very important too." (3.3 Science)
- "Look, I think all of them." (3.3 NGOs)



Brazil



China

- "All these three measures can be transferred to China." (3.3 Industry)
- "These measures should all be transferred to China." (3.3 Public administration)
- "I think these measures can all be transferred to China. China does not do well enough in utilization of renewable energy sources, in improving energy efficiency, and especially in increasing transparency." (3.3 Science)
- "All these measures can be learnt from." (3.3 NGOs)



South Africa

- "I think all of them can be transferred in fact we already have the new South Africa." (3.3 Industry)
- "All of them because those are important strategic interventions that are needed to establish the industry." (3.3 Public administration)
- "I think all of them. I think you cannot leave out any of those." (3.3 Science)
- "Well I would think that they could all be developed and I think they are being developed in South Africa." (3.3 NGOs)

- In line with existing preferences for future national energy policy, the **expansion of renewables** was regarded in China and South Africa as a policy that should be pursued. The same applied to Brazil, since the country is trying to diversify its energy mix with more solar, wind and biomass. On the other hand, a matrix change such as Germany's **complete withdrawal from nuclear power use** was regarded as **non-transferable** for the foreseeable future, especially in China and South Africa.
  
- In all three countries, measures to **improve energy efficiency** attracted at least as much interest as the expansion of renewable energies. Particularly in Brazil, where the energy mix is traditionally a clean one, many people expressed greater interest in German energy-efficiency measures than in the expansion of renewables. Some of the Chinese experts also rated efficiency targets higher than the expansion of renewables, explaining this by referring to the investment in wind and solar energy that is already under way in China, but also on grounds of cost.
  
- In both areas – developing sources of renewable energy and improving efficiency – it was noticeable that expectations are high in both technological and political/administrative respects. All three countries very much hoped that they would be able to adapt mature technical systems and implementation solutions from Germany.
  
- The majority of the respondents also supported **transparency and public participation** in the form of open communication on energy policy between policy-makers, the private sector and the general public. NGO experts and representatives of the scientific community would often like to see greater openness and more **direct public influence “from the bottom up”** in political and business decisions; they frequently report significant shortcomings in this area in their particular countries. In the eyes of experts with a background in business, parliament or local government, on the other hand, the desire for greater transparency is typically technocratic and primarily envisages **awareness raising and transfer of knowledge “from the top down”**. These experts hope that making “the person in the street” aware of energy-related considerations will reduce possible obstacles and mitigate conflict.

## Expansion of renewables particularly highlighted



Brazil

- "I think the question of the use of renewable energy, I think Brazil is an example, the use of solar energy is emerging here." (3.3 Industry)
- "I think the first is the increased production of renewable energy, but with distributed generation. You have to decentralize generation and allow all households manage their energy from the most abundant source we have in Brazil, the sun." (3.3 Industry)
- "I think that all three points are crucial, but I think first of all, we have to use renewable sources of energy..." (3.3 Science)
- "I think the one that is more likely to grow in Brazil is the first option (increasing energy production from renewable energy sources), where you have clean alternative sources..." (3.3 NGOs)



China

- "The German energy transition attaches essential importance to the use of renewable energy resources, which are inexhaustible." (3.3 Industry)
- "About the measure of increasing energy production from renewable energy sources, I think it can be adopted selectively. Because the energy now can not fully satisfy the needs of corporations, so we can choose some places as the pilot units, and popularize it after increasing the efficiency gradually." (3.3 Industry)
- "As is planned in China, the proportion of renewable energy resources should increase by the year of 2015 to 2020. Thus the first measure (increasing energy production from renewable energy sources) can be applied here." (3.3 NGOs)



South Africa

- "We have huge resources in wind, we are a sunny country and I don't think anyone has touched anything in terms of energy out of the sea. And we have a very long coast line. We have all the natural resources to be able to harness energy." (3.3 Industry)
- "Well I think all forms of renewable energy are suitable for South Africa and it is universal systems that we can all implement." (3.3 Public administration)
- "...it's suitable, because we have the weather conditions, especially for solar obviously and the opportunity is there because we currently have very little energy generation from renewables." (3.3 NGOs)
- "They all are pretty important. But I think the renewable energy drive that's happening at the moment with wind power and solar power will probably be the biggest influence." (3.3 NGOs)

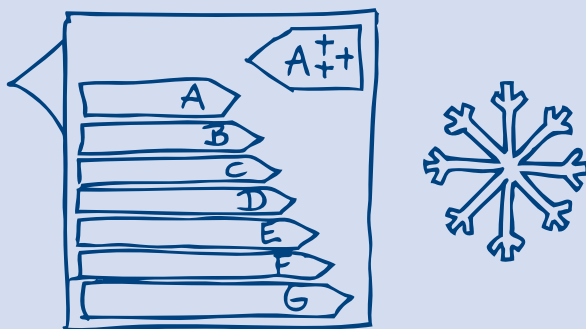
## Energy efficiency particularly highlighted

- "Look, I don't think it's a matter of cleaner sources in Brazil, because here we have a clean matrix, a hydroelectric plant. I think energy efficiency, it's a very important vector and it's getting harder to exploit water resources in Brazil." (3.3 Industry)
- "It is all related to energy efficiency, which is something Brazil needs to improve on..." (3.3 Parliament)
- "Look, I think it would be efficient, right. Because referring to renewable energy, Brazil already produces quality." (3.3 Public administration)
- "I think maybe more of that Brazil needs to be inspired by the model of Germany is to increase the efficiency of processes, covering losses in industries, increase efficiency in energy use." (3.3 NGOs)



Brazil

- "The biggest issue with this (use of renewable energy), is how to improve the use efficiency." (3.3 Industry)



- "From my point of view, improving energy efficiency can be adopted by China. However, things should be dealt with in the light of specific conditions. As state-owned enterprises, we can not make decision. We have to wait for government to make policies. It might be difficult for government to work out policies with reference of German experience, considering the complicated interest relationship between enterprises in different regions." (3.3 Industry)
- "But in my opinion, improving energy efficiency is the most urgent problem and is of greater importance than the other two. Technologies of clean energy sources are not very mature and require high costs, which is unaffordable for China. But as for improving energy efficiency, the industrial energy consumption in China is very high, and thus reduction of it is more important than adoption of green energy. Germany is much better developed than China in this field, and thus can be learnt from." (3.3 Science)
- "Improving efficiency is quite positive." (3.3 NGOs)



China



South Africa

- "Improving energy efficiency, that is the big one for us. That is the simple one. In other words make do with the little that you have but let your outcome and your output be more. So that would be energy efficiency and currently in this country we have underpriced electricity and as a consequence we have got a huge abuse of energy. So first price it correctly and then number 2 then achieve the efficiency." (3.3 Industry)
- "I think our country has a lot of wastage in terms of our energy." (3.3 Public administration)
- "I think energy efficiency. There has been quite a bit of focus on it in South Africa, but there is obviously more that we can do." (3.3 NGOs)
- "We need more efficient coal fired power stations." (3.3 NGOs)



## Transparency and public participation particularly highlighted

- "I think especially popular involvement. That generates a collective agenda with regard to responsibility." (3.3 Public administration)
- "There is a lot of misinformation on the part of the population with respect to the effects and impacts of wind power, so that involvement of the population, mainly dealing with the fundamental expansion is crucial to reduce conflicts related to power generation." (3.3 Public administration)
- "I think, without a doubt, participation, transparency and participation of society and even in decisions throughout the transition process. Here it absolutely does not. And what would happen, here's a simulacrum of it, which is such a thing as a public hearing, but is very precarious, very little participation, very little. I think it needed to be much more advanced so we go acquiring maturity." (3.3 NGOs)



Brazil

- "As regards to increasing transparency, I think it is necessary in China. During the process of increasing transparency, there will be lots of resistances. I don't think there will be breakthrough within a short-term period. But due to the development of internet, information can not be kept secret from the public. So to make information public by the government actively is not totally impossible, but only will need some time after all conditions are ready." (3.3 Industry)
- "First, acceptance of energy transition from the general public is very important. China, with such a large population, this issue would be a big challenge. If we can get the majority understand and participate in new energy reform, then the transition would be at ease." (3.3 Public administration)
- "Regarding the transparency and civic participation, it helps the public know the information about energy transition and encourage people to support and cooperate." (3.3 Public administration)
- "... , we should popularize the knowledge of new energy, including renewable energy and nuclear energy, let the public decide which kind of energy they prefer, and encourage the development of new energy in the meanwhile." (3.3 NGOs)



China

- "I think the last (increasing transparency and civic participation) one you mentioned is the one thing, if it were done, would have the greatest beneficial effect. Because we come from a background of having abundant and cheap energy and we still have a mindset that that hasn't changed all that much. And we are therefore very wasteful of it." (3.3 Industry)



South Africa

- “We all know that that transparency, creating awareness, getting buy in, saving the planet, all those things are important and it needs to be communicated. We can see why some things are not accepted very well in South Africa.” (3.3 Public administration)
- “Governance, I think, is a big challenge and I think we definitely need more transparency and we need excellent communication.” (3.3 Science)
- “I think the civic involvement level of transparency, it would be really important, because we have a monopoly energy system at the moment and unfortunately that isn’t always in the best interest of all South Africans. There is preferential rates given to the really big industrial users, and the pricing then ends up being a lot more expensive for your individual users.” (3.3 NGOs)

- In many cases, the **time factor** played an important role in respondents’ assessment of the transferability of Germany’s Energiewende. Most of those surveyed regarded the direct introduction of a similarly constituted Energiewende as unrealistic. The reasons given for this belief included the timetable of the Energiewende that is currently under way in Germany, the present energy-policy conditions in the country concerned, and Germany’s lead in technological matters. The same arguments were used to justify longer transition times for possible implementation of an Energiewende based on the German model in the surveyed countries, especially if Germany’s complete Energiewende and its phase-out of nuclear power are taken into account. However, in some cases the experts’ responses also reflected a strategically motivated caution prompted by a desire to await both the **outcome of the Energiewende in Germany** and **technological breakthroughs**.