Jürgen Trittin

Energy transition pays off

Energy transition as a way of ensuring security, independence and investment

Ladies and gentlemen!

Thank you very much for the invitation and for giving me the opportunity to speak here. Many thanks to you, Mr. Ebinger, for your introductory words.

1 Energy transition: a success story

You invited me to speak on the topic of energy transition. I'm not quite so thankful for that, as it means I have to begin by heartily praising my

own party, the GREENS. My grandmother always said it's not the done thing to blow your own trumpet, but in this case there's no way around it.

The German energy transition is a success story.

When, as Minister of Environment, I launched the German Renewable Energy Act in 2000, the target we were aiming for was **20% renewable electricity by 2020**. I was scorned and laughed at for suggesting such a thing: the renewable share could never rise above 8% for technical reasons, they said.

Today we produce almost one third of our electricity from renewable sources. It just goes to show how wrong you can be.

- **An annual sum of over €20 billion has** been invested in new power plants in Germany in recent years. That is more than in any other European country.

- These plants generate annual **revenues** of over **€15 billion**, benefitting farmers, cooperatives and funds.

- This has given rise to a **strong export industry** that currently employs **370,000 people**. The total in Europe stands at 600,000.

The energy transition is about battling to prevent catastrophic changes to the climate. But **is it also about investment, innovation and, just as importantly, it is about foreign policy and security policy.**

2 Reducing dependence to increase sovereignty

The energy transition has another benefit.

It increases Europe's political sovereignty.

In the Ukraine conflict we are seeing multiple manifestations of fossil fuel dependencies and their influence on a country's foreign policy.

- A *gas war* between Ukraine and Russia has turned into a manifest war over

spheres of influence and energy resources.

- The EU – and Germany in particular – is hanging on Russia's gas drip, which runs through Ukraine: **86% of Germany's gas needs are** covered by **imports**, with **40%** coming from **Russia** alone.

- Russia relies on Europe's money and to an even greater extent on petrodollars. Russia's budget for 2015 is based on an oil price of $105 (Brent). Currently that is pretty shaky ground – oil prices are dropping.

- One of Putin's favorite projects, the South Stream natural gas pipeline, designed with the intention of bypassing the

Ukraine, was abandoned last week – a resounding defeat for Putin in political and financial terms.

However, unlike Russia with its non-diversified economy, Germany has the option of reducing its dependence.

It makes sense in economic terms too. We had the renowned Fraunhofer Institute do the math. It concluded that we can **entirely replace** the **400 terawatt-hours** that we currently import from Russia **by 2030**, primarily by increasing our heat energy efficiency.

That means building green buildings and modernizing older ones, and using renewable energies to generate heat.

Not only would it increase our independence in foreign policy terms; **it would also be a huge investment programmer!**

Increasing the rate of refurbishment by just two percent a year would create around **30,000 jobs**.

By 2050 we would have **invested €14 billion** and saved **€32 billion in energy costs**.

***"It's the economy, stupid!"* (Bill Clinton[1])**

3 Climate change is a real threat – two degree target is essential

Here in Washington, especially, we have to talk about climate change.

- Climate change is a **real threat**. The **reasons** for it are well-known: greenhouse gases, destruction of vegetation, disrupting the planet's ecological balance.
- The **polluters** are known too: coal power stations, energy-intensive industries such as steel and aluminum manufacturing,

[1] The original quote is actually from James Carville, who ran the Clinton campaign.

transport based on combustion engines, emitters of methane – including meat producers, but principally the coal and oil industries[2].

- **The two degree target must be reached** – otherwise humankind will not get the consequences of global warming under control. We are facing incalculable ecological **and** economic consequences. What I mean to say is, you had better hurry up if you want another vacation in Miami… because by the end of this century not only Ocean Drive could be

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2 In the "Four Corners" border area between the states of Arizona, New Mexico, Colorado and Utah, 600,000 tonnes of methane are emitted each year – more than in the whole of the UK. http://www.spiegel.de/wissenschaft/weltall/satellitendaten-zeigen-methan-ausstoss-der-usa-a-996542.html

under water, but the whole of Miami Beach.[3]

This is why the battle against climate change is the starting point and the foundation for Germany's cross-party consensus on the energy transition.

This cross-party consensus, however, does not extend into every detail. You will see, that there are relevant differences in the way German parties approach the energy transition.

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[3] Effects on the US are very broadly described in the "3rd National Climate Assessment" presented by President Barack Obama in July 2014 (http://nca2014.globalchange.gov/)

4 Finite resources – the problem won't solve itself

But before I come to that let me talk about mistakes, our own mistakes. We Greens and ecologists were wrong. **On the subject of climate change, grim reality has overtaken us.**

Since *Dennis Meadows* and the *Club of Rome* our arguments were based on the fact that resources are finite: oil is becoming scarce, oil is getting more expensive – get out of fossil fuels before the resources dry up!

That argument is settled now.

There's a simple reason: although the reserves of most raw materials are **finite, they are actually very large**. In some cases we don't

really know just how big they are. On top of this comes the progress made in extraction methods – that won't require explaining to anyone here.

The situation of energy raw materials is as follows:

- The static lifetime of global **coal** reserves is estimated at between **112** and **136 years**.
- Conventionally extracted **natural gas** will currently last for another **59 years**. Fracking will extend this lifetime considerably.
- The static lifetime of **oil** currently stands at **42 years**, rising to **55 years** if we take

unconventional extraction methods such as oil sands into account.

In other words: the mere fact that oil and gas reserves are finite will not bring about an energy transition or a change in climate policy.

The crucial point is another one altogether.

We may be able to continue burning fossil fuels **– but we can't afford to do so**!

The real limit in the use of resources lies not in their limited availability. It lies in the fact that their extraction, use and burning cause **catastrophic ecological damage** worldwide.

If we calculate, on the basis of the two degree target, the total amount of CO2 that we can still

emit worldwide, we arrive at a "budget" of **around 800 gigatonnes**.

That means we cannot afford to burn even half the currently extractable reserves of oil, gas and coal.

Our answer to the Tea Party's battle cry "*Drill, baby, drill!"* must be: "*Chill, baby, chill!"*

Scarcity and price will not automatically bring about an end to the fossil fuel economy. To achieve this we need **to change the political framework conditions**.

4.1 Carbon bubble

This will also serve to avoid bad investment on a massive scale.

Currently a great many investors are pumping funds into fossil fuels. **$7 trillion** is the value of fossil energy resources on the books of publicly listed companies worldwide. More than twice this amount must be added on for privately owned companies. This represents a total volume of over **25% of global GDP**.

Expressed in terms of CO2, that's
3,000 gigatonnes of greenhouse gases.

Yet we can only afford another 800 gigatonnes. That means we won't be able to burn those fossil resources if we want to meet the two degree target.

The flip-side of the equation is that the capital invested in these resources is **dead capital**.

A huge bubble is growing – a *carbon bubble* – that is in danger of bursting: risks for banks that run into billions – invested in the destruction of the climate.

I am quite certain that this is a doomed investment strategy. *Al Gore* is not the only one who sees it this way. The analysis of *Bank of England Governor Mark Carney* arrives at the same conclusion.

HBSC estimates that it would lose up to 60% of its corporate value if the carbon bubble bursts.

Only one course of action can help us here. Both economically and in the interests of climate protection – we have to get out of fossil fuels!

In Europe former energy giants have already seen the light.

Vattenfall and *E.on* are desperately trying to shift their fossil power plants into *bad banks*. E.on explicitly justifies this on the basis of global energy market developments.

5 Investment and jobs

Which brings me to another crucial point. The IMF, World Bank and 19 of the G20 countries never tire of demanding **greater investment** from Germany.

I endorse this demand one hundred percent.

However:

We have to invest in the right way.

5.1 Low carbon leakage

Everyone is talking about the danger of *carbon leakage*. The truth is that Europe is struggling to keep abreast of the global leaders in key technologies.

The issue is *low carbon leakage*.

Low carbon industries are a key sector of the global economy. The photovoltaics, wind, biofuels, innovative vehicle drive systems, smart grids and storage technology industries are **each** estimated to have **growth potential of €100 billion by 2020.**

In 2013 $**194 billion** were invested in **solar and wind energy** worldwide!

In 2013 **China invested more** in renewable energies than **all European countries** combined.

This is what E.on was talking about. But to bring about this kind of investment we need the right political framework. We need investment security.

We can establish this investment security if we agree on **binding CO2 reduction targets** in Paris in 2015. These need to be calculated on an annual basis and **laid down in a binding form**.

To this end, we GREENS have proposed a Climate Protection Act for Germany. It specifies these targets and the relevant instruments for all

sectors of society: industry, transport, heating and households.

This is how the energy transition can work. It's a method that enables us to kill several birds with one stone:

- **Investment** in the billions
- **Sovereignty** in foreign policy and less dependence on imports from Russia, Qatar and the US
- **Jobs** in future technologies
- **Effective climate protection** – that also pays off.

This is what Germany's energy transition stands for.

Thank you for listening.