

# **Towards a Global Green Recovery – Supporting Green Technology Markets**

Atlantic Task Force recommendations to the Policy Planning Staff of the German Federal Foreign Office 26 August 2009

Final Report

Prepared by the Atlantic Initiative, Berlin

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# Table of Contents

Introduction	1
Executive Summary	3
Task Force Members	6
Recommendations	7
I. Generate new sources of revenues to fund green technologies	7
II. Intensify dialogue on existing national green policies	9
III. Spur new international co-operation on green technologies	11
Annex	19
1. Methodology	19
2. About the Atlantic Initiative	22

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# Disclaimer

The findings, opinions, interpretations and recommendations in this report are those of the Atlantic Task Force members and the authors, and should not be attributed to the Federal Foreign Office of Germany or other departments of the German government. Any errors are the sole responsibility of the authors.

## Introduction

Two major global challenges - the financial crisis and climate change - make it urgent to rally the world behind the idea of a "green new deal" or a "global green recovery." To this end, the German Federal Foreign Office commissioned the Stern/Edenhofer Report<sup>1</sup> to develop strategies to be presented at the G20-meeting in London in April 2009 on how this could be achieved. Based on the report's findings, G20 leaders in London agreed to:

- make the transition towards clean, innovative, resource efficient, low-carbon technologies and infrastructure;
- encourage the multilateral development banks to contribute fully to the achievement of this objective; and
- identify and work together on further measures to build sustainable economies.

As pointed out in the Stern/Edenhofer report, the financial crisis puts renewable energy projects and business at particular risk. The recession has caused a drop in energy and carbon prices that reduces the market competitiveness of clean technologies. In addition, the tightening credit markets mean that cleantech initiatives, which frequently face high capital costs and higher risk premiums, are struggling to find the necessary funding. The risk of stagnation is especially disruptive to the cleantech industry as it comes on the heels of a rapid growth period prior to the financial crisis. In Germany, the cleantech sector grew 27% between 2005 and 2007, employed almost 1.8 million people, and now accounts for more than 5% of industrial production.<sup>2</sup> From 2002 to 2007, global new investment in sustainable energy grew nearly 16-fold, from an annual US\$7.1 billion to US\$112.6 billion.<sup>3</sup> The financial crisis created a severe investment shock in the cleantech sector, with new-investment levels in the first quarter of 2009 just under half what they were one year earlier.<sup>4</sup>

This is absolutely the wrong time for a lull in cleantech investment. The International Energy Agency estimates that about 540 billion US dollars must be invested annually in renewable energy and energy efficiency if climate change is to be maintained at or below a 2°C increase in global average temperature.<sup>5</sup> A significant expansion in investment will be

<sup>3</sup> UNEP/NEF (United Nations Environment Programme and New Energy Finance) (2009). Global Trends in Sustainable Energy Investment 2009: Analysis of Trends and Issues in the Financing of Renewable Energy and Energy Efficiency. p. 21. http://www.unep.org/pdf/Global\_trends\_report\_2009.pdf

<sup>&</sup>lt;sup>1</sup> The report, entitled "Towards a Global Green Recovery. Recommendations for Immediate G20 Action", is available online at http://www-pik-potsdam.de/globalgreenrecovery

<sup>&</sup>lt;sup>2</sup> Stern/Edenhofer report, pp. 31-2.

<sup>&</sup>lt;sup>4</sup> UNEP/NEF (2009, pp. 14 and 16)

<sup>&</sup>lt;sup>5</sup> International Energy Agency (2008). World Energy Outlook 2008. http://www.worldenergyoutlook.org/

required to reach these levels, with about 80% of the investment needed in just three key sectors: electrical power, transportation and buildings.<sup>6</sup>

Several proven policies for expanding cleantech investment already exist, including feed-in tariffs, risk-mitigation policies, green-procurement policies, and government R&D spending, to name just a few. The key challenge for policy makers in trying to support the establishment of clean-technology markets is how to accelerate the implementation of these measures by obtaining the necessary funding and spending public monies wisely in a way that leverages the private sectors' capability to shoulder the bulk of the needed investment.

To help G20 nations overcome these challenges, the Federal Foreign Office asked *Atlantic Initiative* - a think tank on international politics and globalization based in Berlin and Washington, DC - to develop specific and actionable policy recommendations on how to provide effective international support to green technology markets and push the issue in the G20 framework. It was suggested that Germany, the UK and the US should be the main targets of these recommendations as they are well positioned to take a joint leadership role in setting the right incentives for a global green recovery and future growth path building on the idea of the *Transatlantic Climate Bridge* and taking into account London's role as the G20 host.

The *Atlantic Initiative* created an online-task force using Web 2.0, Wiki and video-conferencing technologies bringing together 26 American, British and German experts on climate change and green technology. Participants were carefully selected from business, finance, government, academia/think tanks and non-profit organizations ensuring an interdisciplinary approach. At the same time clear moderation of the process kept the discussion focused on specific questions developed at the outset of the process (see Annex A for a description of the methodology). All communication was conducted in a climate-friendly manner as the *Atlantic Initiative's* online think tank (www.atlantic-community.org) provided the Web 2.0 IT infrastructure that eliminated the need for travel and enabled the cost- and time-effective collection of ideas and expertise.

This Final Report of the Atlantic Task Force is <u>not</u> an academic research paper, but a structured collection of thoughts from practitioners and experts offering fresh ideas on how policy makers can set incentives and foster international cooperation to stimulate the growth of green technology markets. Given the limited time and budget this report's task cannot be to provide exhaustive analysis but to give recommendations to the German government showing what measures could be taken across the Atlantic and within the G 20 framework.

As a next step we recommend choosing three to five of the listed recommendations and to develop/solicit proposals how to implement them concretely within the next months.

https://solutions.mckinsey.com/climatedesk/cms/default/enus/contact\_us/fullreport.aspx

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<sup>&</sup>lt;sup>6</sup> McKinsey & Company (2009). Pathways to a Low-Carbon Economy: Version 2 of the Global Greenhouse Gas Abatement Cost Curve.

# **Executive Summary**

The Atlantic Task Force derived recommendations in three broad areas: I) generating new sources of revenues to fund green technologies; II) intensifying dialogue on existing national green policies; and III) spurring new international co-operation on green technologies.

The first set of recommendations focuses on the question of how to meet growing demand for public and private funding of green technologies. While it is easy to ask for more public spending, governments will face significant budget restrains in the next few years due to the financial crisis. In order to **generate new sources of revenues to fund green technologies**, the Atlantic Task Force recommends the following measures to Germany, the UK and the US:

- ➤ Order international public financial institutions to make the financing of renewable-energy projects a priority providing at least 20% of new loans for energy efficiency and renewable energies.
- ➤ Lift the percentage of auctioning revenues from emissions trading that must be reinvested in green projects inside and outside of the emissions-trading sectors to 50% by 2015 and 100% by 2020.
- ➤ Generate new funding by auctioning national emission allowances under the UNFCCC system or through taxes on air tickets or bunker fuels.
- > Start to develop a market for "green bonds" that allows cheap refinancing and gives tax incentives to consumers with the proceeds to be directly invested in renewable-energy projects.

The second set of recommendations focuses on the question of how Germany, the UK and the US and the other G20 countries can **intensify the dialogue on existing national green policies** to mutually learn from each other and share best practices. To this end, the Task Force recommends the following:

- Extend public procurement of clean technology. Leading by example, federal agencies should make their procurements as carbon neutral and encourage cities, municipalities and other public entities to buy a certain percentage of their energy needs from renewable sources to set an example. The initial focus should be on low-emissions transport (public transport, government vehicles, military equipment); green buildings; and IT.
- > The Transatlantic Economic Council should implement "Top Runner" approaches with cooperative identification of efficiency standards based on leading products and

technologies to continuously raise the performance bar and position firms in a strong position to capture global market share.

➤ Establish a best-practices roundtable on cleantech at the next G20 meeting focusing on a) feed-in tariffs as they have been proven to be an immensely successful tool for promoting investment in renewable electricity generation; and b) on lessons learned from the EU Emissions Trading Scheme as there is no need to repeat elsewhere the same initial mistakes made in the setup of the EU ETS.

The third set of recommendations focuses on **new international co-operation on green technologies to spur breakthroughs** in the areas of energy efficiency, electric mobility, plus-energy houses, solar power as well as CCS technologies. Here, the most important recommended measures include the following:

- Create an Web 2.0 Cleantech Investment Forum. Building on the idea of the Transatlantic Climate Bridge the Federal Foreign Office should fund a Web 2.0-based platform to help renewable energy companies and entrepreneurs finance their innovations and projects. The Forum would serve as a one-stop hub with an efficient search system connecting public money, private investors, and cleantech business/entrepreneurs at one's fingertips. Its three major elements should be a user-friendly central database of all public money available for renewable energy in G20 countries or at least in the US, UK, and Germany; an online matchmaking platform for private investors around the world; and a central hub for services regarding renewable energy.
- Analyzse in which areas a greater harmonization of green technology standards, codes and contractual principles makes sense, encourage the development of common patent standards and facilitate greater coordination in dealing with counterfeiting and piracy. A transatlantic or G20 workshop group should develop contractual principles for businesses engaging in green-technology licensing in developing countries. In addition, Eco-Patent Commons should be supported. Finally, bilateral code acceptance agreements should be given high priority as differences in building- and construction-code standards pose the biggest barriers of entry to technology-developing companies from any country seeking to transfer these technologies to the other markets.
- ➤ Establish a transatlantic panel to analyse current green-technology initiatives and their potential environmental, economic and social costs and benefits and assess how current programs could be improved within each country. The panel should also suggest how best practices can best be emulated in other countries' political realms.
- ➤ Bundle research and expertise from academia, engineering/business, finance and politics across the G20 to develop mechanisms, rules and norms that can help foster the creation of clean-technology markets. The focus should be on low-cost solar photovoltaic, energy storage, electric mobility and fuel cells.
- ➤ Define legitimate forms of public "green" aid through agreements that state support to specific green activities (in terms of subsidies, tax reductions or any other form) are non-

- discriminatory. State-aid practices, procurement policies and subsidies should be harmonized with a maximum of transparency.
- Work with the Carbon Disclosure Project to push the campaign for disclosure of carbon emissions within balance sheets in order to evaluate the "carbon footprint" of companies.
- > Set up public-private partnerships for large-scale G20 demonstration and flagship projects in electric mobility, energy storage, power generation, efficiency and CCS
- ➤ Open and sustain the markets for green technologies through better trade policy by discontinuing direct or hidden subsidies to climate-changing activities. The G20 should make green aid a priority issue at the WTO level.
- Expand and reform climate-related development assistance as part the UNFCCC process to align national development targets with global environmental objectives.
- ➤ Establish a permanent group of "Energy and Climate Sherpas" in the G20 process. The high-level staff of the Heads of State and Government and the ministers should meet regularly, in order to interlock efforts and align priorities on multiple levels.

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# Recommendations

This section contains all the recommendations of the Atlantic Task Force grouped into three action areas: I) generating new sources of revenues to fund green technologies; II) intensifying dialogue on existing national green policies; and III) spurring new international co-operation on green technologies. The intent throughout is to describe specific actions and targets, identifying appropriate institutional settings and participants wherever possible.

## I. Generate new sources of revenues to fund green technologies

Capital is the most important ingredient in most climate and energy investment projects. As many green technologies are not yet price competitive with fossil-fuel technologies, governments must continue to help finance R&D in cutting-edge clean technologies and create the framework conditions that enable renewable-energy companies to bring their products to the market. Germany has taken the international lead in building a strong cleantech industry with its feed-in-tariff (EEG), public loan programs (KFW and EIB) and green-technology measures within the recent stimulus packages. The US House of Representatives recently passed a bill allocating \$190 billion in new clean energy technologies and energy efficiency.<sup>7</sup>

While these efforts are impressive, all G20 countries must make sure that they will actually be able to fulfil their commitments to public investments in renewable energies as the financial crisis has severely tightened governments' room for maneuvering. It is foreseeable that cuts in government spending will be necessary and that the funding for green projects will face a growing competition from other policy fields, where an immediate governmental response appears to be more urgent and yields headlines (e.g. when job losses in old industries are at stake). Hence, a key first task of any government serious about generating investment in renewable energy must be to generate new sources of private and public revenues. Where possible, governments should try to generate incentives for additional private investment in clean-technology research and projects; when private markets fail, public spending must play a role. The key recommendations to generate new financial resources are:

1. Expand the share of green financing of public financial institutions. Public financial institutions, such as the European Investment Bank (EIB) or the World Bank, should make the financing of renewable energy projects a priority and provide at least 20% of new loans for energy efficiency and renewable energy. The KfW can serve as a role model in this regard as its annual disbursements for renewable energy, energy efficiency

7

<sup>&</sup>lt;sup>7</sup> The \$190 billion are divided into energy efficiency and renewable energy (\$90 billion in new investments by 2025), carbon capture and sequestration (\$60 billion), electric and other advanced technology vehicles (\$20 billion), and basic scientific research and development (\$20 billion). See: http://energycommerce.house.gov

and environmental protection investments rose from 16.6 billion EUR to 19.5 billion EUR from 2007 and 2008, constituting more that 20% of annual new loans in 2008.

At the same time international finance institutions should expand and scale-up their portfolio of risk mitigation instruments (regarding physical yields, currency and political risks) for private sector investments. A substantial project-initiation fund, backed by 50 million EUR should be created under the umbrella of interested public finance institutions to help massively raise the number of investment-ready projects.

- 2. Increase the percentage of auctioning revenues from emissions trading that must be spent on green tech projects. With the expected growth of emissions trading in the coming years the required percentage number of auctioning revenues from emission trading that must be reinvested in green projects inside and outside of the emission trading sectors should be increased to 50% by 2015 and 100% by 2020 in Germany, the UK and the US and a long-term stable revenue basis established. Binding national legislation should be put in place in all three countries before 2012.8
- 3. Establish new international sources of climate funding. A portion of national emission allowances (AAUs) should be auctioned under the UNFCCC system or taxes on air tickets or bunker fuels could be used to fund international initiatives. Starting with small amounts could establish the required systems and the viability of subsequent expansion could be explored. These systems should be established in a way that combines internationally binding financing obligations for countries while maintaining the final budgetary responsibility of countries and parliaments to ensure political viability.
- 4. Issue government-backed "green bonds" to make use of the public's appetite for socially responsible investments. Public finance institutions and governments should start to jointly develop a market for "green bonds". These bonds are issued by public finance institutions (such as KfW) and backed by governments to attract retail investors or pension funds at reduced interest rates. This could help to reduce financing costs for renewable energy projects as it could refinance itself on the international markets. A possible advertisement line could then be "Invest in triple AAA rated bonds, hedge against inflation and help financing our green future". Support of prominent policy makers in a campaign would be helpful. Additionally, governments could issue green convertible bonds with proceeds to be directly invested in renewable-energy projects. If the project's return exceeds a certain level, investors could exercise an option to convert their bonds

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50 billion Euros from 2020 on.

<sup>&</sup>lt;sup>8</sup> US revenues generated from such a system could ultimately range from \$50 billion to \$300 billion a year, according to the Congressional Budget Office and a cap and trade program proposed by President Obama, would generate a total of \$646 billion between 2012 and 2019. At this time, the US government would spend \$15 billion per year on energy, beginning in 2012, yet no funds have been arranged for "clean" energy technologies. In 2008, 400 million EUR of about 1 billion EUR in revenues from the sale of emissions rights through KfW at commercial exchanges were earmarked for national and international climate protection projects in Germany (40% of total auctioning revenues). The European Commission estimates EU-wide annual revenues from emission rights auctions from 30 to

into shares of the company to participate in further growth (while they can also stick with the coupon payment). A strong incentive for consumers to buy green bonds would be to make their yields/coupon payments tax-free.

## II. Intensify dialogue on existing national green policies

Individual countries have important lessons to share with other countries and could profit from other countries' experiences. Best practices should be copied while wrong paths do not need to be taken twice. At the centre of the discussion should be the following topics:

- 1. Extend public procurement of clean technology. Large-scale government purchases and deployments of green technologies will reduce the public sector's carbon footprint and spur private investment. One benchmark could be Germany, where green procurements could constitute up to 60 billion EUR annually (23% of total annual purchases by public and governmental agencies). The UK and the United States already have a number of programs in place, such as the Navy Green Procurement Program in the US, or The Mayor of London's Green Procurement Code, a free support service for London based organizations, funded with £3 million from the London Development Agency. Germany, the UK and the US could spearhead a transatlantic effort to push for greener government procurement programs. In particular, we recommend that the three countries:
  - Leading by example, German, UK and US federal agencies should make their procurements as carbon neutral as possible seeking to buy 30% of their energy needs from renewable energies from 2015 on already. They should then work with / encourage cities, municipalities and other public entities to buy at least 20 % of their energy needs from renewable sources from 2020 along the line with the EU 20/20/2020 goal. This could be done in the existing framework of the Transatlantic Economic Council (TEC), possibly through a working group with experts from respective governments' environmental and procurement agencies;
  - Focus initially on the procurement of three sectors: low-emissions transport (public transport, government vehicles, military equipment); green buildings; and IT systems (an often underestimated source of efficiency savings).
  - The TEC should explore the implementation of a "Top Runner" approach to procurement that defines procurement standards in a dynamic way (requiring that all procurement meets a minimum threshold percentage of the current best-in-class efficiency levels). A cooperative identification of efficiency standards based on leading products and technologies would continuously raise the performance bar and position firms in a strong position to capture global market share.

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<sup>&</sup>lt;sup>9</sup> See a recent paper by German Foreign Minister Steinmeier (SPD). A German version is available at: http://www.frankwaltersteinmeier.de/

- 2. Establish a best-practices roundtable on cleantech at the next G20 meeting. This could help the G20 countries comply with their commitment at the London G20 Summit to reach an agreement at the UN Climate Change Conference in Copenhagen in December and to build sustainable economies, as phrased in resolutions 22 and 23 of the summit. Many policy instruments have shown promise but the roundtable should start by addressing two key issues as a matter of priority:
  - Feed-in tariffs have been proven to be an immensely successful tool for promoting investment in renewable electricity generation. Feed-in tariffs have also been proven to be very successful in promoting best practice technologies, decentralization and efficiency optimization. Germany has been a world leader in this policy area and the UK will begin a feed-in tariff program in 2010. So far, 47 countries have adopted the German EEG feed-in tariff model. In the United States, feed-in tariffs have been implemented on a local level, introduced in several U.S. states, and stated discussions about a national feed-in tariff system. As a result of this proven success, the best-practices roundtable should ensure G20 leaders and climate experts are informed about the success of this policy instrument with an effort to help them apply feed-in tariffs where appropriate within their domestic policies (of course, taking into consideration that not all G20 countries are ready to implement a feed-in tariff system due to problems of finance and technology).
  - Important lessons have also been learned in the world's largest emissions trading market—the EU Emissions Trading Scheme (EU ETS). There is no need to repeat elsewhere the same initial mistakes made in the setup of the European trading scheme. Understanding each other's trading schemes is also a prerequisite for preparing to link them. The EU wants OECD-wide linking by 2015 and is facilitating dialogue on best practices in emissions trading through the International Carbon Action Partnership (ICAP), with the long-term goal of a global emissions trade through networked regional systems. On this basis the G20 should form a best-practices roundtable to convene a dialogue, research and dissemination on these issues, and identify where "added value" can be generated to complement, rather than compete with, the ICAP process.
- **3. Lead the way by cutting taxes on green products and send a strong message to G20 countries.** Once the public budget allows for such a measure, Germany, the UK and the US should offer more tax incentives for green services and products through accelerated depreciation or tax deductions using the German current write-off model. <sup>10</sup> Alternatively, R&D

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<sup>&</sup>lt;sup>10</sup> Since January 1, 2009 German small and medium enterprises, with a working capital not larger than 335,000 EUR, can claim special amortizations for the first year of procurement, OR distribute the write-offs over a period of five years. Companies utilizing diminishing scale can therefore effectively claim up to 45% for the first year.

allowances or tax credits should be granted.<sup>11</sup> Tax incentives would be especially effective for the following key industry sectors<sup>12</sup>:

- Personal and freight transport, responsible for about 25% of European CO<sup>2</sup> emissions and accounting for 71% of the oil consumed in the EU.
- Real estate and construction; Energy use in building accounts for 33% of man-made greenhouse gas emissions globally, according to the UN's Intergovernmental Panel on Climate Change (IPCC).
- Agrichemicals and water management, as Food production is an important source of greenhouse gas emissions and the global market for water, at about 310 billion EUR per year, is exceeded only by electricity and oil in size.
- Waste management, as the amount of waste produced in the EU represents two billion tons each year.

## III. Spur new international co-operation on green technologies

Based on the provisions of Article 27 of the G20 communiqué, the following steps should be taken to create a more effective framework for international clean-technology cooperation:

#### 1. Create a Web 2.0 Cleantech Investment Forum

Building on the idea of the Transatlantic Climate Bridge and working closely with the Ministry of Economics and Germany Trade and Invest, the Federal Foreign Office should fund a Web 2.0-based platform to help renewable energy companies and entrepreneurs finance their innovations and projects. The online *Forum* would serve as a one-stop hub with an efficient search system connecting public money, private investors, and cleantech business/entrepreneurs at one's fingertips. It should consist of three major elements:

A user-friendly <u>central database of all public funds</u> available for renewable energy in G20 countries or at least in the US, UK, and Germany: While numerous public programs exist around the world to support clean technology research and businesses it is difficult, particularly for small and medium size companies, to identify these programs and to enter the application process. They often hire expensive consultants and are diverted from their

<sup>&</sup>lt;sup>11</sup> In general, there are two major ways in which the national taxation system may influence innovation activities of companies: 1) clean technology R&D allowances, firms may fully claim current R&D expenses in the year of their expenditure; and 2) clean technology R&D tax credits, tax credits allow firms to deduct a certain percentage of their R&D expenses directly from their tax burden.

<sup>&</sup>lt;sup>12</sup> See: CMS Business Lawyers, "Cleantech - The Impact on Key Sectors in Europe", 16. June, 2009

core work, particularly if they are looking to expand operations overseas. For business and entrepreneurs a transatlantic/G20 version of the *US Database of State Incentives for Renewables & Efficiency (www.dsireusa.org)* would be highly beneficial, focusing on investment sources and incentives around the world. This would provide a one-stop clearinghouse that could reduce barriers related to the diversity of financial policies, while leaving program design and access at the national level.

- An <u>online matchmaking platform</u> for private investors (i.e. venture capital, private equity, sovereign wealth funds) from the US, the Gulf States, China and other cash-rich countries that look for new investment ideas, but unaware of the little known yet highly innovative small and medium size cleantech companies in Europe and particularly Germany. Numerous renewable energy investment fora and fairs exist around the world (see <a href="http://www.conferencealerts.com/renew.htm">http://www.conferencealerts.com/renew.htm</a> for an overview) and events like the German American Energy Conference or ACORE's Renewable Energy Finance Forum have been very successful. However, no portal exists yet that collects, structures, and bundles the information exchanged at these fairs, which often lack possibilities for sustainable networking. To this end, the Web 2.0 Cleantech Investment Forum should feature a <a href="best-of news/information">best-of news/information</a> on latest developments in renewable energy finance (in co-operation with Reuters, Bloomberg, or the Wall-Street-Journal, where such topics are already covered), a <a href="directory/registrar">directory/registrar</a> with profiles of firms and investors, and a <a href="discussion forum">discussion forum</a> giving users the opportunity to present a technology or an investment proposal, start a debate, and comment on other user's statements.
- A <u>central hub for services</u> regarding renewable energy, providing business consultants, bankers, lawyers, PR advisors, et al. with a space to present themselves and offer their services online, for example through "webinars" and online workshops.

Funding for the project could be made available through the European Recovery Program (ERP), providing, for example, the budget for the first three years. Also, the German Marshall Fund of the United States should be asked for financial support. At a later stage the forum could become self-sustainable through membership fees, charges for matchmaking services, and advertising revenue.

2. Harmonize green technology standards, codes and contractual principles. Supranational harmonization of standards is important in enabling the uptake of eco-innovation and clean technologies and facilitating their dissemination in global markets. In many cases, regulations and standards are more effective than direct government funding. The harmonization of standards serves to spread clean technology knowledge of the requirements for market acceptability and contain quite explicit technical information, reducing uncertainty for both producers and customers. They promote and enable the diffusion of clean technology. A 2008 EU Commission Communication<sup>13</sup> underlines that the

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<sup>&</sup>lt;sup>13</sup> Commission Communication, (11.3.2008 COM(2008) 133 final) "Towards an increased contribution from standardization to innovation in Europe"

EU expects the harmonization of standards to make an important contribution to 'sustainable industrial policy.'

- Develop a transatlantic framework of common patent standards. UK, US and German
  patent offices should take the lead, facilitating greater coordination in dealing with
  counterfeiting and piracy, extension of patent life and the elimination of the conflict
  between the U.S. first-to-invent system and the European first-to-file patent system.14
- Set up a working group within the Transatlantic Policy Network to make suggestions for a transatlantic agreement on common carbon-accounting standards and methodologies, data calculation and verifying tools and disclosure processes.
- Communicate to the US results of projects that DG Enterprise is funding under "Europe Innova" looking at how standards can positively influence innovation, including the DEPUIS project (Design of Environmentally Friendly Products Using Information Standards), which aims at improving the environmentally friendly design of new products and services through the innovative use of new information standards.
- Set up a transatlantic or G20 workshop group to develop an internationally approved and accepted set of core contractual principles for businesses engaging in greentechnology licensing in developing countries. Where not yet existing, effective contractual laws need to be developed and enforced.
- Support Eco-Patent Commons and bilateral code acceptance agreements. The Eco-Patent Commons (EPC) initiative, set up by the World Business Council for Sustainable Development (WBCSD) and backed by technology leaders such as Bosch, DuPont, Xerox and IBM, is already working on this issue, as is the European Patent Office (EPO) in cooperation with the United Nations Environment Program (UNEP) and the International Centre for Trade and Sustainable Development (ICTSD). The latter will present their results at the Copenhagen UN Climate Conference in December. The G20 should support and join these efforts. A possible agenda for discussion could include:
- Set up a commission of experts/engineers to find common standards for metering/measurement of services, interfaces and functionality, as well as the quality of supply. Long-lasting plug-and-play standards for new technologies should also be established.
- Develop an international legal framework for open cleantech, with a viral general Public License (GPL) and a commercial license, with royalties to be paid by those

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<sup>&</sup>lt;sup>14</sup> Compare: Transatlantic Policy Network (TPN), "Completing the Transatlantic Market", February 2007

who would like to develop the patented technologies further and own the new patents.

- Establish a procedure which safeguards that the results of research on cleantech which is funded by G20 governments would be automatically transferred to a public cleantech database, respecting the national interests of the funding state.
- Set up a technical expert group and secretariat for the platform for managing the cleantech GPL patent; similar to the multi-stakeholder ICANN-board (The Internet Corporation for Assigned Names and Numbers) that manages the global register of top-level internet domains.
- Support bilateral code acceptance agreements. Differences in building- and construction-code standards pose the biggest barriers of entry to technologydeveloping companies from any country to transfer these technologies to the other markets. Such bilateral code acceptance agreements would act as very significant investment- and technology-transfer facilitators.
- **3.** Create a best-practices expert panel on green technologies. An international panel of stakeholders and experts with strong representation of the UK, Germany and the US should define, and advise on, best practices in the three and other relevant countries. In its effort to define the elements of successful policy frameworks for encouraging green technology, the panel needs to take into account regional, geographic and socioeconomic differences among countries and sub-regions. The panel should consist of high-level representatives of the public, private and non-governmental sectors. Adequate financial and personnel resources for continued substantive work should be ensured from the very beginning. The panel should:
  - Analyze current green-technology initiatives and their potential environmental, economic and social costs and benefits:
  - Assess how current programs could be improved within each country;
  - Determine the barriers to the introduction of best practices in other countries;
  - Suggest how best practices can be best emulated in other countries' political realms;
     and
  - Develop an effective communications strategy to disseminate its key findings to policymakers, the press and the public.
- **4.** Improve the knowledge sharing ability of multi-industry multi-technology cleantech research centres. No centralization of research should be pursued but rather a bundling of expertise from leading universities and institutes in the G20 in order to enhance cooperation between regional research centres.

- Bundle expertise from academia, engineering/business, finance and politics across the G20 to develop mechanisms, rules and norms that can help foster the creation of clean-technology markets.
- Advise countries on public funding into breakthrough technologies. A portion of public funds should be dedicated to research into truly breakthrough green technologies that could revolutionize clean-energy generation or energy efficiency. Promising areas include low-cost solar photovoltaic, fuel cells, energy storage and electric mobility, to name a few.
- Analyze how public-sector grants are targeted at particular activities and assess the success of these efforts as a means to increase the efficiency and synergies among public investments.
- **5. Define legitimate forms of public "green" aid and reduce environmentally harmful subsidies**. Uniform definitions of what constitutes legitimate green objectives for state aid will help avoid judicial challenges across the Atlantic. At the same time, a system of subsidies harmful to climate objectives should be unwound in a cooperative manner. To ensure that public spending achieves climate goals without running afoul of state-aid rules and trading agreements, Germany, the US and the UK should take the initiative within the G20 to:
  - Analyze how WTO rules might hinder expansion of legitimate state aid for green activities
  - Sign bilateral agreements in which they accept state support to specific green activities (in terms of subsidies, tax reductions or any other form) as non-discriminatory practices for the merit of advancing a global common good;
  - Prioritize financial support to energy efficient housing construction sector and smalland medium-scale heating and combined heat-and-power generation systems.
     Technologies in these fields find different building codes to be an often high barrier of entry especially as these technologies are often developed by small and mid-market companies.
- 6. Work with the Carbon Disclosure Project (CDP)<sup>15</sup> to push the campaign for disclosure of carbon emissions within balance sheets. This mechanism would create a standardized reporting framework for firms to assess and evaluate their "carbon footprint" and disclose it in a comparable way. Those companies that already take the lead in being transparent in this regard would benefit from the increased rigor and transparency of their

15

<sup>&</sup>lt;sup>15</sup> The Carbon Disclosure Project (CDP) is an independent not-for-profit organization which holds the largest database of corporate climate change information in the world. For a list of disclosing companies, see: <a href="http://www.cdproject.net/">http://www.cdproject.net/</a>

carbon reporting. The task force should include the following institutions: The International Accounting Standards Board (IASB), German Accounting Standards Committee (DRSC) and Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) (Germany), The Securities and Exchange Commission (SEC) and Financial Accounting Standards Board (FASB) (US), The Financial Reporting Advisory Board (FRAB) and Accounting Standards Board (ASB) (UK); as well as rating agencies like S&P, Moody's and Fitch, the Big Four accounting firms (KPMG, PWC, Deloitte and Ernst & Young).

- **7. Enhance public-private cooperation in large-scale G20 demonstration and flagship projects.** Governments in the UK, Germany and the US can accelerate technological and industrial development through helping to fund large-scale demonstration projects not yet ripe for private-sector financing. An example project is the Australian Greenhouse Gas Storage Bill and The Global Carbon Capture and Storage Institute (Global CCS Institute) in Canberra. Key areas for action include:
  - Electric mobility this could be an area where rapid developments are warranted as a means of leap-frogging old technologies before conventional mobility infrastructure is replicated in the developing world. The effort -to cover issues such as voltage, batteries, and charging standards- should extend beyond the transatlantic partnership to include other major automobile-producing nations. The private sector could include automobile manufacturers, utilities and services companies such as Better Place, which aims to provide charging infrastructure and electrical mobility solutions. Specific cities in the US, UK and Germany, as well as other G20 nations could be announced as partner cities for the accelerated deployment of plug-in infrastructure as a means of establishing demand for plug-in technology.
  - Energy storage a transatlantic cooperation of leading scientific organizations should be set up, including UK's Faraday Partnership, MIT and Fraunhofer Gesellschaft, focusing on energy storage technology, and secure proper funding, in order to overcome the main obstacles to a breakthrough of a stable green energy supply, which are the costs, life cycles and weight of current batteries.
  - Power generation, efficiency and CCS G20 countries should collaborate to identify
    other large-scale demonstration projects in the areas of renewable, energy efficiency
    and carbon capture and storage. The Desertec initiative to provide European
    countries with solar power generated in the Saharan Desert shows the ambition and
    scope that is possible, as well as the complexity and difficult issues that need to be
    examined and resolved in such projects.
- **8.** Open and sustain the markets for green technologies through better trade policy. To facilitate the expansion of the cleanest technologies, trade barriers for proven clean technologies should be lifted, including discontinuing direct or hidden subsidies to manufacturers. Some protectionist trends relate to governments being averse to using funds to promote clean energy when a foreign company is one of the beneficiaries. Yet many global clean-energy companies reinvest locally, e.g. through jobs, and support improvements to the regional grid's capacity and stability.

- Organize conferences and workshops to educate G20 members about the success stories for international business development leading to the creation of domestic jobs.
- Conduct and share best practices on how to retain protections for intellectual property rights while disseminating new green technologies internationally.
- Unify behind a petition to reach a joint WTO exemption as a means to prepare such an agreement to make green aid a priority issue at the WTO level.
- **9. Expand and reform climate-related development assistance as part of the UNFCCC process** to align national development targets with global environmental objectives. Key measures include:
  - Ensure that new climate financing is a) not diverted from official development assistance aimed at poverty alleviation; b) effectively leveraging private investment rather than crowding it out; and c) used efficiently and effectively especially in those countries that can achieve greatest reductions at lowest costs.
  - Ensure speed and efficiency by making full use of existing multilateral, regional and bilateral developing agencies and banks in scaling up international efforts to mitigate greenhouse-gas emissions. Limit the creation of new institutions to those instances where existing ones are structurally or legally unable to deliver certain services.
  - Establish a registry under the umbrella of the UNFCCC to monitor financing flows and effects and to facilitate a match-making between approved funding needs and a range of funding proposals.
  - Develop environmental standards for all projects using public funds, including the activities of the export credit agencies.
- **10.** Establish a permanent group of "Energy and Climate Sherpas" in the G20 process. The high-level staff of the Heads of State and Government and the ministers should meet regularly, in order to interlock efforts and align priorities on multiple levels.
- **11. Support the "Open Source Technology Initiative".** The G20 should support an initiative by e5.<sup>16</sup> In a growing number of industrial sectors, innovative technology-development models challenge development models characterized by "traditional" R&D procedures, including "traditional" IPR protection. New forms of collaboration known as "Open Source", "crowdsourcing" and "distributed co-creation" enable companies to draw

<sup>&</sup>lt;sup>16</sup> See e5-European Business Council for Sustainable Energy, supported by the Center for International Environmental Law (CIEL), International Centre for Resource and Energy Efficiency (SAT-iCREE), and Newthinking Communications GmbH: <a href="http://www.e5.org/">http://www.e5.org/</a>

additional benefits from (elsewhere existing) specialization. As a prerequisite, they have to open up and distribute parts of their own product's R&D process to their network of suppliers, subcontractors and customers, while, in exchange, getting products and its documentation from others for free. Companies might offer complementary services to the co-created product or use an open-source product as the base for a product of their own. Open Source licensing reduces the transactions and licensing costs to almost zero. While enabling access, the licensing terms are viral, creating an innovation feedback loop and allowing parallel and follow-up innovations. Such an Open Source model could revolutionize the global green technology market and speed up development processes significantly.

- Call for papers: Collect ideas from cleantech companies, Open Source industry &
  Open Source community and legal experts. Lead questions for a call for papers
  should include: How would the database be used by the respective user groups, and
  what does this imply for its architecture? What is needed to include entrepreneurs,
  SMEs, industry and multinational companies? What could be a business model in
  order to attain independence from public funding in the medium term?
- Organize a G20 workshop on Open Source business development with leaders from IT corporations that have developed successful models in this field.
- Set up a database. Technical data and information must be processed, accessibility
  has to be provided for, and the database must be maintained, optimized and
  extended.

# Annex I: Methodology

## The "Global Green Recovery" Report

Prior to the London G20 meeting in April 2009, the Federal Foreign Office of Germany commissioned a report from the Potsdam Institute for Climate Impact Research (PIK) and the Grantham Research Institute on Climate Change and the Environment (GRI LSE) to give recommendations to the G20 on how a "Global Green Recovery" can be achieved. The report urges the G20 to take action in seven strategic areas:

- Short term. "The first phase includes three measures that would boost aggregate
  demand and employment in the short-term. Governments should focus on (1)
  improving energy efficiency, (2) upgrading the physical infrastructure of the
  economy to make it low-carbon, and (3) supporting clean technology markets."
- Medium term. "The second phase focuses more on the medium term and comprises
   (4) initiating flagship projects, (5) enhancing international research and development, and (6) incentivizing investment for low-carbon growth."
- Coordination. "Finally (7), coordinating G20 efforts supports the effectiveness of all the other measures" (Edendorfer and Stern, 2009, p. 6; headings/emphasis added).

G20 leaders agreed in London that they would "make the best possible use of investment funded by fiscal stimulus programs towards the goal of building a resilient, sustainable, and green recovery. [They] will make the transition towards clean, innovative, resource efficient, low carbon technologies and infrastructure . . . [and] encourage the MDBs to contribute fully to the achievement of this objective. [They] will identify and work together on further measures to build sustainable economies" (Article 27 of the London communiqué).

In order to implement the recommended measures, significant efforts are necessary on both the national and international levels. Next steps need to be discussed, priorities need to be set and stakeholders need to take action. To this end, the Policy Planning Staff of the German Federal Foreign Office asked the Atlantic Initiative to facilitate a virtually conducted Atlantic Task Force to discuss the following two sets of questions:

19

<sup>&</sup>lt;sup>17</sup> Ottmar Edendorfer and Lord Nicholas Stern: Towards a Global Green Recovery. Recommendations for Immediate G20 Action. Report prepared on behalf of the Federal Foreign Office of Germany, April 2009. Available at <a href="http://www.pik-potsdam.de/members/flachs/publikationen-2/edenhofer-stern-global-green-recovery-g20/at\_download/file">http://www.pik-potsdam.de/members/flachs/publikationen-2/edenhofer-stern-global-green-recovery-g20/at\_download/file</a>

- 1. **Implementation lessons (US, UK, Germany).** How can the PIK/LSE recommendations for market based incentives such as the feed-in tariff, renewable portfolio standards, production tax credits, guarantees, and loans be implemented in the US, UK and Germany? What are the main lessons that can be drawn from their experiences?
  - (1a) Creating private investment incentives. How can Germany, the UK and the US jointly create the right incentives for private business to invest in green technology? What role can be given to public-private investment partnerships in this area? How can best practices be applied to the process?
  - (1b) Overcoming barriers to public funding. What are the practical barriers for investors to get public money (i.e. loans or guarantees) in the US, UK and Germany, and how can they be overcome? Do we need a one-stop approach for green subsidies for example? Could such an approach work across the Atlantic?
  - (1c) **Exchanging views.** How can US, UK and German experiences provide a model for further G20 action in supporting clean technology markets? What can they learn from other countries' benchmarks and models? How can we facilitate this process at the next G20 Meeting in late 2009?
- 2. **Facilitating G20 action.** How can the PIK/LSE recommendations for coordinated G20 action be facilitated on the international level? What role can specific flagship projects play in strengthening this process while supporting clean technology markets?
  - (2a) **Enabling international financial institutions.** How can we enable international financial institutions to play a role in facilitating the procurement of clean technologies?
  - (2b) **International technology dissemination.** How can we make sure that the cleanest technology is disseminated internationally despite current protectionist trends?
  - (2c) Clean technology cooperation. How can we create a more effective framework for international clean technology cooperation, e.g. through specific flagship projects in energy efficiency, electric mobility, plus-energy-houses, solar power, feed-in tariffs and CCS technologies? How can we initiate an international process based on Art. 27 provisions outlined in the G20 communiqué?

Twenty-six Task Force members from Germany, the United Kingdom and the United States representing private, public and non-profit institutions contributed to the answering of the above questions through prepared expert statements, in-depth discussions and online work on draft versions of the text.

In a first step, the Task Force members were asked to provide written statements to the lead questions. Not all contributions addressed these questions precisely and many suggestions were made to expand the agenda, leading to a multiple restructuring of the process and resulting in three main sets of recommendations (I - III).

All statements were then discussed in a first videoconference held on June 25, 2009. Task Force members were asked to comment on the first draft report and experts in specific subfields of the issue area were contacted individually and asked to comment on particular facets of the recommendations.

Several rounds of internal conference calls and online reviews were held throughout July and August 2009, resulting in several drafts of this report written in close cooperation with Aaron Best, Senior Fellow, Ecologic Institute and Alexander Ochs, Director, Forum for Atlantic Climate and Energy Talks (FACET).

A second videoconference was held on August 12, 2009 and individual task force members were asked for additional input using a Wiki online collaboration tool. This input was consolidated for the final version of the report.

The entire process including all statements from Task Force members are available on the Wiki and WebEx videoconferencing and can be viewed with a user name and password.

We recommend publishing this Final Report and disseminate the recommendations via a press conference, the Website of the Federal Foreign Office and the Online Think Tank <a href="https://www.atlantic-community.org">www.atlantic-community.org</a>.

## Annex 2: About the Atlantic Initiative

The Atlantic Initiative was founded in 2004 in order to promote transatlantic cooperation and strengthen Germany's foreign policy culture. We believe that the challenges of the twenty-first century can only be overcome if Europe and North America work as closely together as possible and endeavor to contribute to the development of a transatlantic strategic community that encompasses all relevant social spheres: politics, business, academia, culture, and the media. To this end we seek to:

- Spread the message that today's transatlantic agenda is global: International challenges like terrorism, the energy crisis, and the rise of new powers in Asia demand a unified Western policy.
- Promote frank debates and collaboration between Europe and North America on issues of globalization and foreign policy.
- Cultivate and improve intellectual exchange across the Atlantic through increased networking opportunities between decision-makers, senior experts, as well as a new generation of students and future policy professionals.
- Promote and advance the future generation of decision-makers.
- Communicate foreign policy in such a way that everybody can understand them.
- Serve as a think tank consultancy to governments, non-profit organizations and NGOs on applying innovative research methods and state of the art communication technologies.

## Online Think Tank Atlantic-Community.org

<u>www.atlantic-community.org</u> was launched in April, 2007, as the first online platform for transatlantic debate on key issues of international politics and globalization. The Web 2.0 platforms aims to:

- Empower the younger generation by providing students and young professionals the chance to get published and debate with decision-makers on an equal footing. On atlantic-community.org good arguments rank above seniority or academic degrees.
- Strengthen the transatlantic community by involving all spheres of society (government, economy, media, culture, science) and all generations in the search for solutions to current global challenges.

- Improve communication across the Atlantic without the need for conferences and face-to-face meetings. We envisage atlantic-community.org as a permanent conference.
- Bring together the collective intelligence of our members in order to develop new ideas and concepts of how Europe and America can cooperate over foreign and security policy as well as globalization in the twenty-first century. Our approach is constructive, nonpartisan, and aims at problem solving.
- Outline these ideas and concepts for decision-makers in "Atlantic Memos." This gives our members real political influence, while decision-makers benefit from the next generation's fresh ideas.
- Create an interactive database along the lines of LinkedIn, Xing, and Facebook in which present and future players in transatlantic relations can register and network.

The website features a daily Top Press Commentary and a regular Best of Think Tanks section. More than 3000 members can publish their own articles on the website and thus share and discuss their ideas alongside senior policy makers. The best arguments from Open Think Tank debates are presented to decision-makers as executive summaries with policy recommendations. Members can find peers with the same areas of interest and can contact each other through the social networking features.

## **Newsletter**

We produce a monthly German and English language service called "Global Must Reads." This is a premium selection of studies and analyses from international sources (Think Tanks, magazines, and journals) which are concisely summarized for our readers. "Global Must Reads" is sent in PDF-format to more than 20.000 decision-makers in Amercian and European politics, economics, the media and academia.

#### **Events**

<u>Atlantic Happy Hour – Security Policy out of the Box</u> with NATO Secretary-General Jaap de Hoop Scheffer.

<u>Atlantic Lunch Club</u>: Politicians, business people, and academics brief the participants on developments in strategically important emerging regions like India, China, Russia and the Gulf. Subjects like energy security, climate change and terrorism are also discussed.

<u>The Future of the West</u>: The aim of this event, in cooperation with the Heinrich Böll Foundation, is to advance the transatlantic debate on the state, the economy and society.

#### **Team**

*Dr. Johannes Bohnen* studied international relations at Georgetown's School of Foreign Service and received his doctorate degree from Oxford University. Following positions with several think tanks, the German Bundestag and the German government, he was founder and managing director of Scholz & Friends Agenda, a public affairs agency in Berlin. Johannes is a partner at Bohnen Kallmorgen & Partner, a consultancy for policy analysis and strategic communications in Berlin.

Jan-Friedrich Kallmorgen is trained as an historian and holds a master's degree from Georgetown's School of Foreign Service. He has worked in journalism and as a business consultant in Washington, D.C., and was an investment manager with Goldman, Sachs & Co from 2000 to 2003. From 2004 to 2007 he served as head of the Transatlantic Program at the German Council on Foreign Relations (DGAP) and is now a partner at Bohnen Kallmorgen & Partner, a consultancy for policy analysis and strategic communications in Berlin.

Rüdiger Lentz is the president of Atlantic Initiative U.S. He studied international relations and history at the University of Hamburg and has been the Washington bureau chief and senior diplomatic correspondent for Deutsche Welle Radio and Television since January 1999. Prior to his assignment in Washington, he served as Deutsche Welle¹s Brussels Bureau Chief. Before joining Deutsche Welle, Rüdiger worked as a correspondent for the German news magazine Der Spiegel and as a TV commentator and reporter at ARD/WDR. He is a visiting lecturer at Harvard University, UCLA, and the Federal Armed Forces University and a regular guest on CNN and C-Span.

Joerg Wolf is project manager and editor-in-chief of atlantic-community.org. Jörg studied political science at the Free University of Berlin and worked as a research associate for the International Risk Policy project at the Free University's Center for Transatlantic Foreign and Security Policy. He has been a Fulbright Scholar at Johns Hopkins University in Baltimore and Washington D.C. and has worked for the Friedrich Ebert Foundation in Cairo and in Berlin.

*E. Ben Heine* is the head of outreach at atlantic-community.org. Ben graduated with a BA in international studies from the University of Chicago. He spent one year at the Kyoto Consortium for Japanese Studies and worked for the Stanford Center for Technology and Innovation. Currently he is pursuing an MA in Japan studies at Freie Universität Berlin.

Björn Sacknieß is external consultant for atlantic-community.org. Björn studied Political Science, Public Policy and Modern European History at the Christian-Albrechts-Universität at Kiel and the Universidad de Cantabria in Spain. After finishing his Master's degree, he volunteered in Ecuador at the newsdesk of Ecuavisa, the country's leading television network. Björn has previously worked at the German Council on Foreign Relations (DGAP).

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