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**WORKSHOP GERMANY-BRAZIL: COMPARING
THE BRAZILIAN AND GERMAN PUBLIC POLICIES
EXPERIENCES ON RENEWABLE ENERGY
SOURCES AND ENERGY EFFICIENCY**

Dr. Gilberto de M. Jannuzzi¹

gilberto@iei-la.org

Dr. Johann-Christian Pielow²

christian.pielow@rub.de

Dr. Conrado A. Melo³

conrado@fem.unicamp.br

Isabelle Heitmann²

Isabelle.Heitmann@ruhr-uni-bochum.de

¹ International Energy Initiative – América Latina

² Institute for Mining & Energy Law Ruhr University of Bochum

³ Faculty of mechanical Engineering - University of Campinas

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Foreword

The **Energy Discussion Paper** series is intended to disseminate pre-prints and research reports organized or authored by members of the **International Energy Initiative** (Latin American Office) and its associates with the purpose to stimulate the debate on current energy topics and sustainable development.

Any comments or suggestions are welcome and should be addressed to the authors for consideration.

Gilberto M. Jannuzzi
Diretor (Latin America)
International Energy Initiative

Apresentação

A série **Energy Discussion Paper** tem o objetivo de disseminar os artigos e relatórios preparados pelos membros ou associados do escritório regional da **International Energy Initiative**. A intenção é estimular o debate sobre temas correntes na área de energia e desenvolvimento sustentável.

Comentários e sugestões são bem-vindos e devem ser encaminhados diretamente aos autores, para consideração e eventuais revisões.

Gilberto M. Jannuzzi
Diretor (América Latina)
International Energy Initiative

Jannuzzi, Gilberto de Martino

Workshop Germany-Brazil: comparing the Brazilian and German public policies experiences on renewable energy sources and energy efficiency/ Gilberto de Martino Jannuzzi, . - Campinas, SP: Energy Discussion Paper nº 2014/01

1. Workshop Germany-Brazil 2. Public Policies 3. Renewable Energy Sources 4. Energy Efficiency

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WORKSHOP GERMANY-BRAZIL: COMPARING THE BRAZILIAN AND GERMAN PUBLIC POLICIES EXPERIENCES ON RENEWABLE ENERGY SOURCES AND ENERGY EFFICIENCY

1. Introduction

The Workshop Germany-Brazil: "Comparing the Brazilian and German Public Policies Experiences on Renewable Energy Sources and Energy Efficiency" is part of the project entitled " Political and legal framework conditions for increasing the contribution of renewable energies and of energy efficiency " supported by German Academic Exchange Service (DAAD) and Brazilian Coordination for the Improvement of Higher Education (CAPES). The project is a cooperation between the University of Campinas – UNICAMP, where is managed by Prof. Gilberto de Martino Jannuzzi, and the Institute for Mining & Energy Law Ruhr University of Bochum where the coordinator is the Prof. Dr. Johann-Christian Pielow.

The objective of this project is gather the experiences of Brazil and Germany concerning public policies, energy law and regulation on energy efficiency and renewable energy sources seeking to identify possible working fields, new partnerships and possibilities of collaboration between both countries. The target audience are academics, researchers and graduate students, as well as relevant energy officials from Brazil and Germany which work on public policies regarding renewable energy and energy efficiency.

The event that taken place March 19th/20th at the University of Campinas (UNICAMP) and aimed to intensify the dialogue among high ranking energy scientists as well as energy practitioners from Brazil and Germany – in order to scrutinize the political, legal and economic background for the support of renewable energies and energy efficiency in both countries (as well as within the higher-ranking law of the European Union and, if existing, of the MERCOSUR/L.

In this report we summarize the presentations performed in the workshop describing the key issues pointed out by the speakers. The report is divided according to the following topics.

- Historical Overview of the Energy Efficiency and Renewable Energy Programs in Brazil and Latin America as well as in Germany and Europe
- Integration and Regulation of Renewable Energies
- Smart grids, smart cities and local area planning
- Investors Perspectives

2. Historical Overview of the Energy Efficiency and Renewable Energy Programs in Brazil and Latin America as well as in Germany and Europe

2.1. Dr. Johann-Christian Pielow: Germany and Europe

The main (political) targets according to the “Energy concept 2050 for an Environmentally Sound, Reliable and Affordable Energy Supply” are the phasing-out of nuclear power by 2020 at the latest, increasing the amount of renewable energies; share of renewable energies in power generation up to 80% in 2050 at the latest. The greenhouse gas emissions shall be reduced of 55 % by 2030, 70 % by 2040 and 80-95 % by 2050 and the primary energy consumption shall decrease by 20% in 2020 and by 50% in 2050 (compared with 2008). The German “Energiewende” means a lot of actual challenges and an intense modification of the current energy supply. The central energy supply with large scaled power generating installations will transform into a decentralized supply system. The integration of more volatile renewable energies (wind, solar) and, at the same time, lack of electricity storage facilities requires expansion and modification of the (electric) energy grids.

The main target is to disconnect the promotion of RES and increasing consumer prices because of “fixed” feed-in tariffs – let the market decide on the use of RES and to reduce the privileges for energy intensive industries set by the German Renewable Energies Act. Replace the EEG by other methods of RES promotion, which shall be defined by the new federal government in 2014.

2.2. DR. Sergio Waldir Bajay: Medium and long-term energy planning in Brazil: How the implementation of energy efficiency and renewable energy programs are being carried out

Dr. Bajay is professor at Department of Energy of Faculty of Mechanical Engineering (FEM) State University of Campinas (Unicamp).

The Dr. Bajay started his presentation given a general overview about the Brazilian electricity market regarding institutional aspects and planning features. He described its main characteristics, such as, free consumers and captive consumers, the auctions system, and the role of some institutions (Electric Power Trading Chamber - CCEE, Energy Research Company - EPE, Brazilian Ministry of Mines and Energy - MME) in the Brazilian electricity market. He noted the important role of Eletrobras, a Brazilian-government-owned holding company, which is accountable for implementing and managing strategic and social programs, and managing some power sector funds (the Fuel Consumption Account – CCC, the Energy Development Account – CDE and the Global Reversion Reserve – RGR). Moreover, Eletrobras runs the National Electricity Conservation Program – Procel, the Alternative Electricity Sources Program – Proinfa and the “Light for All” Program.

In the second part Dr. Bajay presented some characteristics of Brazilian energy matrix, that is highly hidro-based, and described the main developments of Proinfa, an incentive program instituted in 2002 to contract a total 3,300 MW of new capacity, split evenly between bioelectricity, small hydro, and wind sources. The Proinfa followed a “traditional” subsidy model, establishing a fixed feed-in tariff (different for each technology) for the electricity produced over the first 20 years of operation. Moreover, he noted the importance of reserved auctions for wind power, which resulted in a significant development of wind power in Brazil.

He follows describing some characteristics of the main energy efficiency programs in Brazil: the National Electricity Conservation Program (Procel); the National Program for the Rational Use of Oil Products and Natural Gas (Conpet); the Energy Efficiency Programs (PEE) supervised by the National Agency of Electric Energy (ANEEL) in which the electricity distribution utilities should apply, every year, 0.5% of their net operating revenue on PEE; and the Brazilian Energy Efficiency Law (10295/2001) which delegates to the federal government the prerogative to establish maximum levels of specific energy consumption, or minimum efficiencies of equipment manufactured or sold in Brazil.

The Dr. Bajay concluded his presentation mentioning the future challenges for Brazil where he pointed out that:

- Brazil has a energy efficiency plan that was not implemented yet;
- Energy efficiency has not been a priority in the federal government political agenda;
- The current institutional arrangement to manage energy efficiency government programs in Brazil is outdated and inefficient;
- The current crisis of the fuel ethanol industry in Brazil jeopardizes future large additions of sugarcane-bagasse-fuelled cogeneration plants selling substantial amount of surplus power for the public grid;
- Despite the undeniable success achieved in terms of prices and competitiveness of wind power in the last few energy auctions, because this development happened so quickly, in practice wind technology remains largely untested in Brazil. Projects sold in the auctions have offered very high capacity factors and whether the plants will perform adequately remains to be seen
- The Brazilian environmental legislation requires a complex three-phase system for the granting of environmental permits. Although the first phase is completed before the energy auction, the following phases often take more than expected due to incomplete environmental studies and a lack of personnel from the environmental agencies (linked to federal government and state governments). Measures have been taken to simplify and better streamline this process, although gains so far have been small.

- An appropriate combination of government incentives for solar homes, net metering and smart grids, together with the installation of local production chains for PV panels can make a break-through and boost this promising market. Self-sufficient in electricity soccer stadiums and airports, using PV panels, can provide excellent demonstration effects; some of them have been built elsewhere and, right now, some projects are under way in Brazil too;
- Small hydro power plants became less competitive in the last years because of regulatory flaws both at ANEEL and at some state environmental licencing bodies and, also, because some competitor renewable electricity sources are granted tax incentives.

2.3. Iñigo del Guayo Castiella: Comparison of Ibero-American RE Legal Frameworks

Dr. Castiella is Professor in Administrative Law at University of Almería.

Dr. Castiella started his presentation providing an overview about the energy matrix and the current development of renewable energy sources for Latin America countries (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Perú, Paraguay, Uruguay and Venezuela). He noted that electricity production in Latin America is basically based in fossil fuels and, excepting for hydroelectricity, the use of the rest of renewable energies is marginal. Furthermore, he mentioned that 70 million persons do not have access to electricity and a significant number of countries have electricity generation costs compatible with the cost of renewable energies.

Dr. Castiella follows explaining the role of renewable energies as a key instrument of policies aimed to fight climate change and energy poverty (they do not emit greenhouse effect gases and are decentralized). However, he mentioned that there are barriers to promote renewable energy, such as: investment and maintenance costs, construction complexities, and low investment returns. He mentioned some examples of promotion programs to use renewable energies for the production of electricity, for instance, the cases of Argentina, Brazil and Peru that guarantee the purchase of electricity generated out of renewable.

Dr. Castiella continued his presentation given a overview about the role of oil and gas industry in Latin America. He mentioned that hydrocarbon sector is yet to develop at its full potential in due the fact of some countries (Venezuela, Brazil, México, Bolivia, Peru, Colombia and Argentina) still having huge reserves of oil and gas. He pointed out that for most South American countries attracting foreign investment to fund the expansion of hydrocarbon reserves and related infrastructure, particularly in countries that may be at risk of becoming net importers or whose income is directly tied to hydrocarbon exports, is first in the agenda.

Dr. Castiela concluded his presentation mentioning that, besides the high interest in the development of oil industry, other factors, such as, the lack of transparent and reliable regulatory frameworks and institutional reinforcement, weak accountability mechanisms, lack of integration of electricity systems, lack of distribution and transport networks, slow down the development of renewable energies in Latin America.

3. Integration and Regulation of Renewable Energies

3.1. Dr. Tobias Greb: German Act on promotion of renewable energies

Dr. Tobias Greb is a lawyer at SammlerUsinger, Berlin, and held a lecture on the German act on renewable energies. He put the RE-act in retrospective and discussed current challenges.

Greb started with a presentation of the development of the RE-Act since its introduction in the year 1991. The “prototype” called Act on the sale of electricity to the grid consisted of only 5 paragraphs merely dealing with take-off and payment obligations. During the years severe alterations were made. In the year 2000 the Renewable Energy act got into action, containing a take-off and payment obligation, fixed feed-in tariffs, and a grid expansion obligation for grid operators. The RE Act was altered again in the years 2004, 2009 and 2012. It got more and more complex and ended up by 66 paragraphs. During the years a direct selling mechanism was implemented and the feed-in-tariffs decreased. Greb explained the current discussion about a electricity tariff break in order to cut down the feed in tariffs because of their unstopped increase during the years 2010 and 2011 (by 50%) and exploding costs (total costs for RE in 2013: 20 billion €) while the stock price was decreasing. These unexpected discussions about the tariff break have, so Greb, a negative influence on the power generators because it means danger to investment security. It creates a lot of uncertainty in the market and many investment projects are on hold until the reform is over.

All in all industry has to face a fundamental reform which might lead to a change in the existing system. A period of such uncertainty is poison for a working market and if Germany wants companies to still invest it has to solve this uncertainty soon.

3.2. Dr. Wolfram Cremer: Fixed price model and quota systems: survey and evaluating comparison

Prof. Dr. Wolfram Cremer, Ruhr-University Bochum, presented and compared fixed price models and quota systems. The German federal government has set specific medium and long-term objectives for the development of renewable energies in the electricity sector: The share of renewable energies shall increase up to at least 35% of the (gross) electricity consumption by 2020, and at least 80% by 2050. Similar

objectives can be identified on the European level: The European Parliament and the European Council have adopted a directive on renewable energies . It lays down that the EU will reach a 20% share of energy from renewable sources by 2020 and a 10% share of renewable energy specifically in the transport sector.

Most renewable technologies still have higher full costs compared to conventional power generation technologies. Thus, financial support is essential to meet the expansion targets.

Different support schemes - relying in different ways and to a different extent on market mechanisms - can be implemented:

On the one hand legally binding feed-in tariffs and premiums (offered for a unit of electricity from renewable energies on top of the spot market electricity price) are price-based models, whereas on the other hand, quotas with tradable green certificates and invitations to tender are quantity-based systems.

A typical quota-system consists of a quota obligation binding the electricity supplier to provide electricity from renewable energy sources and tradable green certificates. The stipulated quota can and should – for ecological reasons - be increased over time. The plant operator markets the electricity and the certificates individually and receives an electricity price and a certificate price. If there is a uniform quota, all renewable energy sources have a uniform certificate price. Additional costs will be passed on to the electricity consumers. To ensure the implementation of the quotas, operators that fail to fulfill the quota will be sanctioned.

A lot of economists and some business associations consider the quota model being the preferable option. It is cost-effective, technology neutral and quota systems are designed to guarantee the exact fulfillment of a precise quantitative target.

But in fact, due to insufficient penalties, the producers regularly fail to fulfill the quota, as it is the case in Great Britain.

In the actual debate critics focus on three aspects of the existing German Renewable Energy Sources Act (EEG). Firstly it is criticized, that the EEG does not regulate the period of time for the expansion of renewable energies. Secondly, criticism aims the absence of quantitative ceilings in the EEG (except for photovoltaic). Furthermore, it is noted that the strong development of technologies having relatively high remuneration rates (namely pv systems) has increased costs significantly during the last years. Finally, it is said that the EEG doesn't provide sufficient incentives for a market and system integration of renewable energy generation technologies.

A quantity control could be introduced indirectly into the German (EEG) by constantly adapting the tariff-rates. Hence, since November 2012 the rates for solar power plants in Germany are adapted automatically every three months. This mechanism makes them decrease rapidly in times of sharp capacity increase and thereby limits the expansion.

A significant advantage of the feed-in tariffs as established by the German EEG over quota models relates to reducing investment risks. Whereas feed-in-tariffs enable the plant operators to plan future revenues reliably, the quota model puts the investor in jeopardy concerning the electricity price as well as the certificates price. From an investor's perspective the quota system with tradable certificates provides minimum planning security.

There are serious doubts if a market for green certificates can provide the necessary incentives for long-term investments. Furthermore, the implementation of a quota model would carry the risk of failing long term objectives for the use of renewable energies.

3.3. Dra. Annegret Groebel: Role and structure of the German Regulatory Authorities and the role of BNetzA in implementing the "Energiewende"

Dra. Annegret Groebel is head of Department International Relations at Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway (BNetzA)

Dra. Groebel started presenting the BNetzA (Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway) that is the higher independent federal authority in Germany (regulatory agency) which the main goals are to promote the effective competition in the regulated areas, ensures non-discriminatory access to networks and protects important consumer rights. Dra. Groebel explained specific details about BNetzA internal governance and pointed out the advantages of being a multi-sector agency, for instance, the regulator can take its decisions based on a wider perspective, broad expertise strengthens the regulator's role as professional policy adviser, multi-sector competences strengthen the regulator's independence, different levels of regulatory powers are levelled up to the strictest one, advantages both in terms of professional decision-making as well as in organizational terms and realizing synergies and saving administrative costs.

Dra. Groebel follows her presentation explaining the Legal basis of energy regulation in Germany including the Energy industry Act 2005 (Energy Industry Act 2005 (Energiewirtschaftsgesetz – EnWG - which aims at a secure, low-priced, consumer-friendly, efficient, and environmentally compatible supply of electricity and gas); the national legislation directly linked to the European targets and provisions (e.g. 2009 Renewables Energy Directive: 20/20/20 targets); and the Energiewende which consists of 8 legislative measures, that includes the Atomic Energy Act – phase-out of German NPPs; the Act to Accelerate the Expansion of the Grid – including acceleration of spatial planning (NABEG) – to speed up grid expansion; the Renewable Energy Sources Act (EEG) – cost-efficient expansion of renewables and; the Energy and Climate Fund Act – from 2013 all revenues from auctioning emission allowances will be a contribution to this fund.

Dra. Groebel concluded her presentation mentioning the role of BNetzA in the implementation of the current legislation and its activities related to network modeling and planning in Germany, and also pointed out that: 1) the Energiewende will work only if the grid expansion is speeded up by shorter planning; 2) the Energiewende requires in the short term more redispatching measures to stabilize the grid; 3) Shortening of planning and permitting procedures requires also a greater coordination both within Germany between the Federal and the State level as well as on the European level.

3.4. Dra. Ana Lucia Dolabella: The experience of designing a climate change program

Dra. Ana Lucia Dolabella is Manager at Secretariat of Climate Change and Environmental Quality Climate Change Department Ministry of Environment.

Dra. Dolabella started her presentation mentioning the main guideline of the National Climate Change Policy in Brazil ("Stimulate institutional articulations with federal, state and local governments, private sector, academy and civil society for the implementation of the Policy") and the institutional instruments available to promote it policy: the Interministerial Climate Change Committee, the Interministerial Global Climate Change Commission, Brazilian Climate Change Forum and the Brazilian Global Climate Change Research Net – "Rede Clima". The Dra also pointed out the role of private sector in the Brazilian's commitments to reduce GHG emissions, for instance, stimulating the efficiency in the process of production and stimulating the use of renewable energy in sectors intensive in carbon

Dra. Dolabella follows explaining the governmental institutional infrastructure (ministries and staff House of Presidency) involved with climate change policy activities and the main MMA (Ministry of Environment) programs/projects (Project Market Transformation for EE in Buildings; Wind Letter; Solar thermal; and programs related to Bioenergy). The Dra. mentioned about the National Climate Change Plan, the sectorial plans (Energy, Industry, Agriculture, etc..) and the Brazilian voluntary commitment that is achieving between 36.1% to 38.9% of reduction of national emissions projected to 2020 (what means 3,236 MtCO_{2e}). Dra. Dolabella noted that the main focus of mitigation is the land use which should be accountable for 20.7% of GHG reductions in the year 2020.

Dra. Dolabella conclude her presentation commenting that the Brazilian energy matrix is one of the most clean in the World, but energy sector tends to increase its relative participation in the Brazilian emissions and the importance of energy efficiency and renewable energy to reduce Brazilian GHG emissions remains strong.

3.5. Dr. Hermann-Josef Wagner: Wind energy systems: present status and eco balances

Prof. Dr. Hermann-Josef Wagner, Ruhr-University Bochum, hold a lecture on the eco balances of wind energy. He presented the present status of wind energy used for electricity generation and explained how wind mills technically work. Afterwards he presented the results of the ecobalance study of his chair in engineering on the offshore wind park alpha ventus. At the beginning of 2013, worldwide more than 220000 windmills of about 280 GW installed power generation capacity are in operation, Germany has got a share of 12 % of it installed.

The study on the eco-balances of wind parks includes all environmental influences that come from the wind park during the time of production of the material, installation, life duration and put this into relation to its payback time. The results show that in the case of the offshore wind park alpha ventus its amortization time is only by about 8-9 months, which is a very desirable time. If you compare it to Photovoltaics, they need about 2 to 2 and a half years until they pay off. Wagner points out that by his means a sustainability check has to be part of every energy system planning.

4. Smart grids, smart cities and local area planning

4.1. Eduardo Ramires: Legal questions concerning smart grids

Mr. Ramires is lawyer at Manesco Advogados law firm.

Mr. Ramires started presenting the general concept of smart grids, the objectives and advantages related to the application of these kind of technology in the electric grids. He noted that: "With the real-time measurement and two-way communication, combined with tariff schemes with multiple stations, consumers can be rewarded for their efforts to save energy".

In the second part of the presentation he shows the recent developments in regulations towards the creation of conditions for developing smart grids and distributed generation in the Brazilian market. He described two regulamentations:

- Resolução normativa n.º 482/2012 – Establishes the conditions for access to distribution systems by distributed microgeneration and minigeneration and the compensation rules.
- Resolução normativa n.º 502/2012) – Regulates electronic meters systems for consumer units of Group B.

In the final part of his presentation he discussed and pointed out some Legal/Fiscal concerns about the development of smart grids in Brazil:

- How to design the role for distributed generators in the energy market? Have Sellers to ensure load and assume risks? have buyers to contract all the energy for its market in advance?
- How to deal with costs and risks of grid management during the “implantation period” of the new grid, when instabilities and difficulties can be foreseen?
- The distribution concessionaires business model will have to change?
- What kind of new services will be allowed to the electricity concessionaires (if any)?
- What kind of new player will be allowed to take part of the new grid features (as a business)?

Which kind of investments in the new features of the smart grids ANEEL are going (or not going) to allow distributors to transfer to tariffs?

- How ICMS (value added) taxation will impact distributed generation?
- Will the electricity “compensated” by micro/minigenerators be ignored by ICMS taxation?

4.2. Paulo Roberto de Souza Pimentel: AES Smart City Strategy

Paulo Roberto de Souza Pimentel is Project Manager of AES Eletropaulo.

Mr Pimentel started his presentation given a overview about the characteristics of smart city, which uses information combined with technology to improve quality of life, reduce environmental impact, and decrease energy demand; and smart grid, which the applications in the domain of transmission and distribution have a wide range of functionalities. For instance, the smart meter and grid applications allows real-time reporting of usage and power failures; remote disconnect; integration of reserve generators, energy storage and solar and wind generation. He also pointed out the overall system benefits of smart grids, such as, improved reliability; reduced need for additional generation and reserve; reduced need for additional transmission.

Mr Pimentel follows presenting the key motivations for AES Eletropaulo to invest in smart grids, for example, the opportunities related to the creation of a new service with a strong reduction of commercial losses and the increase in the quality of service provided to clients. He also mentioned the specific characteristics of São Paulo electricity market (extremely dense, critical loads and high demand for power quality) and that is required projects with systemic vision once that the current investments in isolated technology have resulted in local effects with ineffective results.

In the last part of Mr Pimentel presentation he discussed the AES Eletropaulo strategies and actions plans regarding smart grids pointing out that is required influence changes in the regulations to enable and protect utilities investments. he also summarized three

projects performed by AES Eletropaulo: Project 1 - Smart Grid Structuring Pr; Project 2 - Distribution Generation; and Project 3 - Electric Vehicle Project.

4.3. Prof. Dr. Klaus-Joachim Grigoleit: Local area planning as an instrument to foster the use of RES

Prof. Dr. Klaus-Joachim Grigoleit, Chair of regional planning and environmental law, presented the German system for regional planning and its impact on the promotion of renewable energies. Regional planning law is an important instrument to integrate renewable energies sustainably. A hard challenge for the grid expansion is the public acceptance of these large scale installations. Another challenge is to balance environment protection and grid installations which always go along with intrusions to flora and fauna.

For the integration of renewable energies a grid-expansion of about 8.300 km is needed, the problem is th lack of acceptance by the affected public (in contrast to the general consent to the energy targets). This is especially needed to connect the offshore windparks in the north of Germany to the industry which is situated further in the south.

5. Investors Perspectives

5.1. Holger Gassner: Investors Perspective of the upcoming challenges for the integration of RE into the grid

Holger Gassner is the Head of Markets and Political Affairs of RWE Innogy GmbH. The RWE Innogy GmbH relates to the company RWE AG and deals with renewable energies, especially wind (on- and offshore), hydropower and biomass. In the case of Europe Hydro power, On- and offshore wind energy and biomass are the most competitive technologies, economically seen. For him the different renewable energy technologies have to be employed according to their respective strengths and weaknesses as well as in a cost-effective manner. Back-up power plants with a total capacity of approx. 270 GW are required to bridge periods of calm air, etc. This is approx. 65% of the coal- and gas-fired power plants installed in Europe today, these short operating times lead to high costs and therefore suitable economic incentives are necessary.

For successful integration of renewable energy sources the remaining energy mix, the development of infrastructure and public acceptance are as important as growth of renewables itself. Large markets, grid extension, flexible generation technologies, storage and demand side management together with smart grids will shape the solutions. Running an energy system with a high share of fluctuating generation sources is quite a challenge but manageable if timing and legal framework is set wisely.

5.2. Lennart Fagerberg: Foreign investors perspectives in Brazil

Lennart Fagerberg, CEO of E.ON Brazil, gave a foreign investors' perspective on energy markets in Europe and Brazil. He pointed out that markets in European countries get more fragmented and complicated because of high regulations and unclear political agenda. International, trans-european countries are more investor-friendly. Especially Brazil, India and Turkey are of much interest to foreign investors. Especially in Brazil is a high growth in power demand and the legal framework for energy can be regarded as stable and predictable because of long term planning from the regulator. The regime of energy auctions is transparent and gives a long term and predictable framework. In addition to this Brazil is a country with plentiful natural resources, whether wind, gas, oil, sun or biomass.

Despite the fact that in long term 75% of E.ON will stay in Europe, Brazil is a much more investor-friendly country with the main advantage of i