



Give us energy policy, not politics in energy

By Philippe Joubert
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Our modern society could not exist without a reliable and affordable supply of electricity. It has taken over two hundred years to develop electricity supply infrastructure into its modern form. This development has brought about an unprecedented surge in the historical evolution of mankind. Electricity has become one of the most essential components of our basic human needs.

Demand for electricity continues to rise around the world, and it is expected to continue growing for decades to come. Even in many mature economies where every citizen has access to electricity, demand growth outpaces the growth in GDP, as the majority of new technologies and modern devices coming to market need electricity.

At the same time, approximately 1.2 billion people in the world, or roughly a sixth of the total population, do not have access to electricity. The majority of these people live in rural areas of developing countries, far from transmission networks. In addition, another billion people living in the poor suburbs of large cities in developing countries do not have any or reliable electricity supplies. These figures, plus the future growth in demand coming from the increase in the world population, will present significant challenge for the producers of electricity.

Moreover, the complexity of the situation is aggravated further by the increasing number of new regulations, requirements and constraints which are being introduced around the world, mostly in the environmental field or in the acceptance of new technology.

The pressure on the utilities to supply electricity at

the lowest cost possible is also growing, as electricity prices play a fundamental role in the competitiveness of national economies.

Increasing emissions and climate change

Today human influence on earth's rising temperature is no longer a subject for debate, as the world is already witnessing consequences of temperature rises due to the exponential increase of CO₂ concentration in the atmosphere. If nothing different is done, emissions will go on rising; even the recent economic crisis, followed by a sluggish economic growth in many countries, has only marginally decreased the overall emission levels.

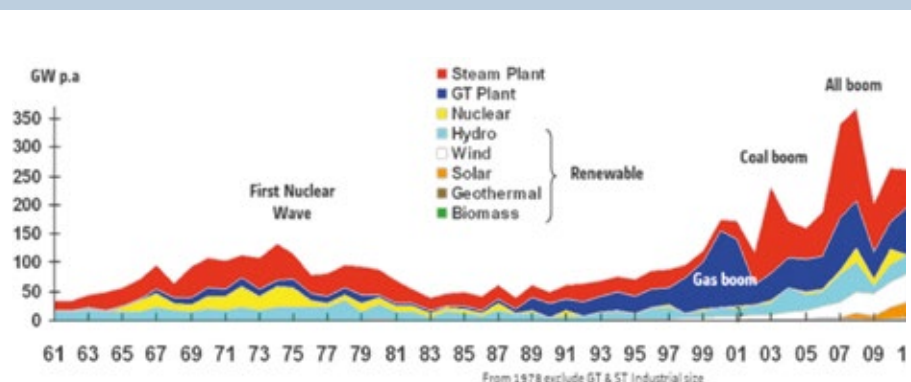
Electricity production and heat generation together account for roughly 40 per cent of global CO₂ emissions, according to the International Energy Agency. In 2011, global energy-related CO₂ emissions increased by 3.2 per cent, which is a higher rate than the average annual increase of 2.5 per cent recorded over the last ten years. In the same year, also total global emissions reached a record high of 31.2Gt CO₂.

A significant share of the growth in emissions over the last two decades can be attributed to the expanding use of coal mainly in China and India, but not only there. Other countries, for example Germany, Eastern European and East Asian economies, are also heavily relying on cheap coal. In 2012, coal accounted for the bulk (71 per cent) of additional global CO₂ emissions followed by oil (17 per cent) and natural gas (12 per cent).

Even more worrying is the prospect of new capacity additions in the next few years. More than 1.4 million MW of coal-fired capacity based on 1,200 new coal-fired power plants in 59 countries could potentially be built. China and India could build more than 500,000 MW each. These are impressive numbers, and even if only a part of these projects is completed, this would represent a massive increase in emissions.

Because of the important role the energy systems and electricity sector are playing, both for the economic and social development and for the environment, electricity utilities are

Power plants in GW p.a. and by fuel in the last 50 years



Source: Alstom

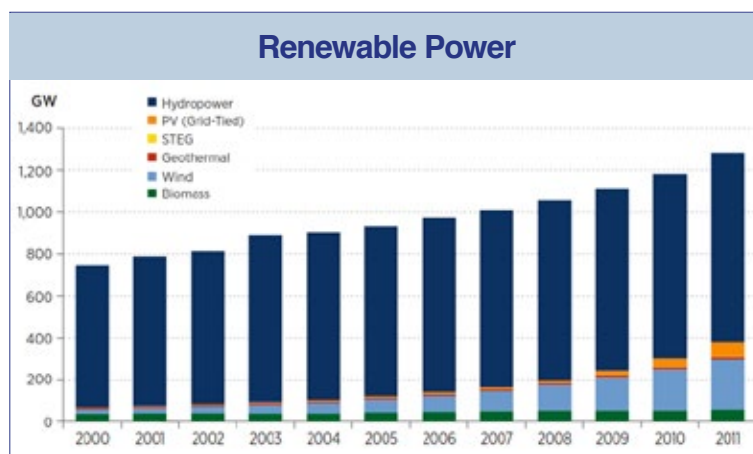
faced with an increasing number of challenges, often with conflicting priorities. The industry landscape is also showing increasing uncertainties. Competition, technological advancement, stakeholder expectations, financing and investment decisions in evolving regulatory contexts are just a few of the issues that are being dealt with, apart from climate change. Utility CEOs often receive conflicting messages from regulators and from customers. Moreover signals from the financial markets do not leave much space for making true long-term, strategic business decisions.

The “raison d’être” of the electricity sector is to supply sustainable, affordable and safe electricity, with the lowest impact on the environment. The deployment of alternative, lower-carbon and carbon-free, climate-resilient technologies and more efficient processes in the use of electricity are already happening across the globe. Despite increasing uncertainties and the risk of stranded assets, significant investments have been made, and continue to be made, to reduce the climate impacts of the sector. But more can be done, above all faster and on a larger scale.

The Global Electricity Initiative

This is where the Global Electricity Initiative (GEI) comes in. Three of the largest industry-based sustainability networks in the world: the World Energy Council (WEC), the World Business Council for Sustainable Development (WBCSD) and the Global Sustainable Electricity Partnership (GSEP) have joined forces to facilitate and accelerate the transition to environmentally acceptable, economically affordable and universally available electricity. For the first time, leaders from the global electricity sector will share a worldwide forum and discuss their experiences, views and visions. The roots of WEC, which hosts the Secretary of GEI, can be traced back to 1923 when the leaders of the electricity industry held a conference in London to discuss and plan how to rebuild the European electricity supply infrastructure destroyed during the First World War. This was the beginning of the World Power Conference which over the years became the World Energy Council and the World Energy Congress.

The objective of the GEI is to identify and highlight a significant contribution that progressive electricity utilities are making to ensure a sustainable future with access to electricity for all people. GEI will



Source: U.S. Department of Energy 2011 Renewable Energy Data Book

showcase the early voluntary action taken at the operational level and record the progress made.

The GEI will use the collective expertise and experience of the participating utilities to magnify and expand worldwide the effort that is being made to achieve economically efficient and environmentally effective solutions to climate change and other sustainability goals, while responding to the increasing demand for electricity.

It is important to note that on the operational level progress is being made, regardless of the slowness of international negotiations and constantly changing operational framework conditions. The GEI will present its first key findings at the 22nd World Energy Congress in Daegu in October 2013.

Lower-carbon and carbon-free technologies

The path to clean power will have to go first through the currently available low-carbon technologies, including nuclear. Today, renewable energy is largely a domestic source of energy, although some proportion of biofuels and other bioenergy is traded internationally. When bioenergy displaces imported fuels, it contributes to greater national energy security and directly reduces import bills and thus improves the balance of payments. Energy often accounts for a significant percentage of GDP in many importing countries, and therefore minimising energy bills can produce sizeable benefits to the national economy.

In terms of technologies, as the graph below shows, hydro is still the largest provider of renewables, despite steady growth of wind.

A General Electric employee assembles a component for a gas turbine at the company's factory in Belfort, France



After using all the potential non CO₂ technologies, then the systems will have to capitalise on all possible efficiency gains.

These gains, plus the use of renewable energy, will still not be sufficient to ensure an adequate response to the demand generated by economic and social development needs.

Conventional power plants will still be required, and they will be carrying the brunt of the load for decades. State-of-the art technologies such as combined-cycle gas turbines and efficient coal plants are expected to continue coming online in large numbers. This is why Carbon Capture Storage/Carbon Capture Use and Storage technologies are now recognised as one of the solutions by most observers, as they allow fossil-fired plants to provide baseload electricity with practically no emissions.

As in the past, all the technologies will be used in the future to generate power. In this area there is no “silver bullet” solution.

The choice of the best solution is neither obvious, nor easy. In many countries, governments have not yet laid down legal conditions and regulations that would allow businesses to make the sound and sustainable long-term decisions needed to develop and scale-up possible solutions. The real cost of electricity generation and distribution is still often hidden behind subsidies, unrealistic carbon prices and schemes distorting market pricing.

In the last ten years, utilities around the world both in developed and developing countries have developed innovative solutions. More cost-effective lower-carbon and carbon-free technologies are now available and they allow utilities secure supply whilst addressing carbon emissions. The industry could achieve much more if there were stable regulatory conditions and realistic and transparent pricing system.

Similar to the first Power Conference in 1923, which united the industry to deal efficiently and timely with the post-war crisis in the electricity sector, GEI aims to bring together today's Global Industry Leaders and help communicate a sense of urgency and the need for action now to face the Trilemma issues. This means providing reliable electricity safely and at an affordable cost while respecting environmental constraints.

It is time to bring in realistic energy policies and remove politics from energy. Join us in building the first global electricity industry leaders' community! 