

# Industry Leaders and Energy Suppliers: adjusting to and combating climate change

## EDF's R&D in preparation for the COP 21

In December 2015, Paris will host the 21<sup>st</sup> Conference of the Parties which should lead to the adoption of an ambitious and legally binding global climate agreement, in order to achieve the target fixed by the international community to limit global warming to +2°C.

In this context, the EDF Lab at Chatou organised an entire day devoted to "Research and Innovation for Climate and Environment" on July 6<sup>th</sup>, labelled as a side-event of the international conference "Our Common Future Under Climate Change" at UNESCO on July 7<sup>th</sup>-10<sup>th</sup>. The event has also received the Cop21 label.

Around one hundred industry leaders (Dassault, ABB, Danone, Air Liquide, IFP, etc.), SMEs and start-ups, representatives from national organisations and Ministries (CEA, SFEN, ONERA, DGEC, MDDE, France Brevets, etc.) as well as from the Paris-Saclay cluster, took part in a round-table discussion and visited an exhibition on our activities, on display inside the University Group campus.

The round-table brought together captains of industry, as well as a competitive cluster, to discuss the theme "Industry Leaders and Energy Suppliers: adjusting to and combating climate change, a major challenge". Jean-Luc Beylat (Systematic), Jean-Marc Jancovici (The Shift Project), Bernard Salha (EDF), Ronan Stéphan (Alstom) and Joseph Attias (Vinci Construction) shared their views and replied to many questions from guests present in the Chatou auditorium.

## **What challenges do sustainable development and the fight against climate change pose for your company? Could you share an example?**

For VINCI, climate change concerns really became manifest as of 2012. Now, every Vinci site is a "green site". A review is conducted each year, which has resulted in a 30 % improvement in the carbon balance. Among the concrete initiatives launched by the Group, collaborations with academia should first be mentioned. For example, VINCI finances the Chair of Eco-design for the built environment, infrastructure and biodiversity, together with the Ecole des Ponts and the Ecole des Mines. The latter provides PhD programs for the development of concrete models to analyse the life-cycle of buildings and neighbourhoods, taking into account issues of mobility and biodiversity. VINCI has also developed relationships with competitive clusters. For example, a demonstrator is currently under construction in the district of Plaine Commune. Moreover, the Blue Fabrique brand collects and circulates information to clients regarding all the initiatives underway in the area of eco-design. Joseph ATTIAS, Director of Engineering for VINCI Construction, expressed his belief that nowadays nobody is willing to do business without taking into account the impact it will have on the planet.

Ronan STEPHAN, Innovations Director at **Alstom**, recalled that a specialised renewable energy division was created in 2010. The Group realised that **encouraging its different divisions to work together on solutions which impact every area resulted in optimised energy production**. One working group, for example, brings together everyone involved in eco-design R&D. Its mission is to assess solutions based on their carbon footprint. Nevertheless, whilst renewable energy developments have their virtues, they also cause **lateral effects**, notably the destabilisation of grids; Alstom must therefore integrate the issues of energy production and storage into its solutions. Alstom has equally launched **initiatives with several institutional partners**; for example, the construction of a micro-grid with a high degree of autonomy, in partnership with the Ecole des Ponts,

**The Systematics competitive cluster**, which counts 800 members and brings together 600 innovative SMEs working on software development, quickly became interested in the issue of smart energy management and has begun an important process of reflection on the theme of climate change. As of today, the cluster has placed its label on more than € 2.5 billion of R&D. **Smart energy use is an inspirational subject for young people entering the workforce**. Jean-Luc BEYLAT, President of the cluster, stressed that the fixed limits are those of innovation. Around ten start-ups will soon be travelling **to China** where they will very likely be selling their solutions. The country intends to massively invest in solutions which make sense for the planet.

Climate change is also a major issue for **EDF**. The Director of R&D, Bernard SALHA, noted that EDF's carbon balance is particularly good. 95 % of electricity produced in France does not in fact contribute to CO<sub>2</sub> emissions. With regards to R&D, EDF is active in all areas. The Company is very interested in **batteries and charging modes** for transport. It is also paying close attention to **developments in the digital domain**. Lastly, it will launch **an institute dedicated to photovoltaics** in partnership with Air Liquide, Total and the Ecole Polytechnique. EDF is convinced that it is not a case of finding one unique solution, but rather many complementary solutions. The main challenge facing the Company consists in integrating more modest initiatives developed by start-ups and SMEs, not always accustomed to the culture and methods of large groups.

### **Are these initiatives moving things in the right direction? Are they sufficient?**

Jean-Marc JANCOVICI, President of **The Shift Project's** Executive Board, noted that in order to achieve the two degree target, authorised emission levels for the future correspond to half of all previous emissions between 1870 and 2015. This means that global emissions will have to be reduced to one third by 2050 and disappear altogether by 2080. It is clear that neither public contributions nor declarations of intent from large companies will allow for this objective to be met. Jean-Marc JANCOVICI calculated that there are therefore 35 years left in which to shut down all coal-fired power stations, corresponding to 2000 gigawatts. Yet technology itself does not suffice to reach objectives. As such, the rate of CO<sub>2</sub> released per unit of energy, a crucial indicator for climate change, has made no progress whatsoever since the start of this millennium. According to Jean-Marc JANCOVICI, **to solve the problem of CO<sub>2</sub> emissions, it is necessary to apply transversal rules**: quantifying the problem and setting long-term objectives; rationing; regulating or prohibiting. The rules must be identifiable and clear. For example, it may be a matter of regulating the energy performance of new vehicles more severely through a system of ownership taxation.

### What reasons are there to remain hopeful, in your opinion?

For Bernard SALHA, the main reason to remain hopeful resides in the fact that **even countries which are having to make the greatest efforts are improving and showing their desire to take climate change issues into consideration**. As a result, it is necessary to come up with simple rules, and to create a global dynamic in which everyone will be able to participate.

According to Jean-Luc BEYLAT, **emerging countries present a major challenge**. The world has never experienced changes as important as those of recent years. All economies are evolving and climate change is becoming a priority. The growth potential focused on this objective is huge.

In Joseph ATTIAS' opinion, **the real reason for hope stems from individuals**. Across the world, the perceptions and behaviours of individuals are evolving. People are coming up with new ways of working, consuming and producing. Today's younger generations want to live a better life.

Ronan STEPHAN shared these views: quite a few experiments are surfacing nowadays, especially in emerging countries. He is equally convinced that **innovation will be built from low-tech bricks linked to computer science technology**.

To conclude, in response to the question of whether the situation today should make us optimistic or pessimistic, Jean-Marc JANCOVICI replied by paraphrasing the CEO of Michelin who claimed that every day he has five reasons to feel exhilarated and five reasons to despair. **The time has come to make some choices**.