

# Renewable Energy and the G20 Agenda: propositions towards a global energy governance

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## 1. Introduction

Since the last decade of the XX<sup>th</sup> century an energy transition scenario has been gradually being designed around the world. However, the main factor that pushes the world to that transition scenario is exogenous to the economic system<sup>1</sup>: the climate change. Since it is a global problem, the solution must be established by a set of global policy makers, able to define joint actions.

The problem however, is not as simple as it seems to be at a first sight. The current scenario of energy generation/consumption reveals an important paradox. On one hand there is the mass consumption of polluting energy resources in most of the countries worldwide. On the other, there is about 1.3 billion people without access to electricity throughout the world (G20 Australia, 2014a).

This feature, in which the damaging abundance in some regions coexist with the energy scarcity that affects millions of people, must guide the discussions about the conduction of the global energy transition. The greatest challenge that must be seriously considered by the global leaders is to make an inclusive (allowing the universal access to electricity) and, simultaneously, clean (i.e. minimizing the environmental impacts) transition process, as the dominant technologies are gradually substituted by the green ones.

## 2. Renewable Investment Outlook and Trends

The increasing installed capacity of renewable energy power generation has been representing important advances in the transition scenario towards a cleaner energy matrix worldwide. According to IRENA (IRENA 2014), the total installed capacity of renewable power reached 1,700 GW in 2013, which represents 30% of the total global power capacity. Besides, in the same year, renewable sources reached 22% of total power generation, from which 16.4% of hydro, 2.9% wind, 1.8% bio-power and 1.1% solar PV, concentrated solar power, geothermal and ocean (REN21, 2014). Also in 2013, 58% of the added energy power capacity was renewable (IRENA, 2014).

According to the Global Trends in Renewable Energy Investments 2015, the investments in renewable power and fuels (not including hydropower projects greater than 50MW)

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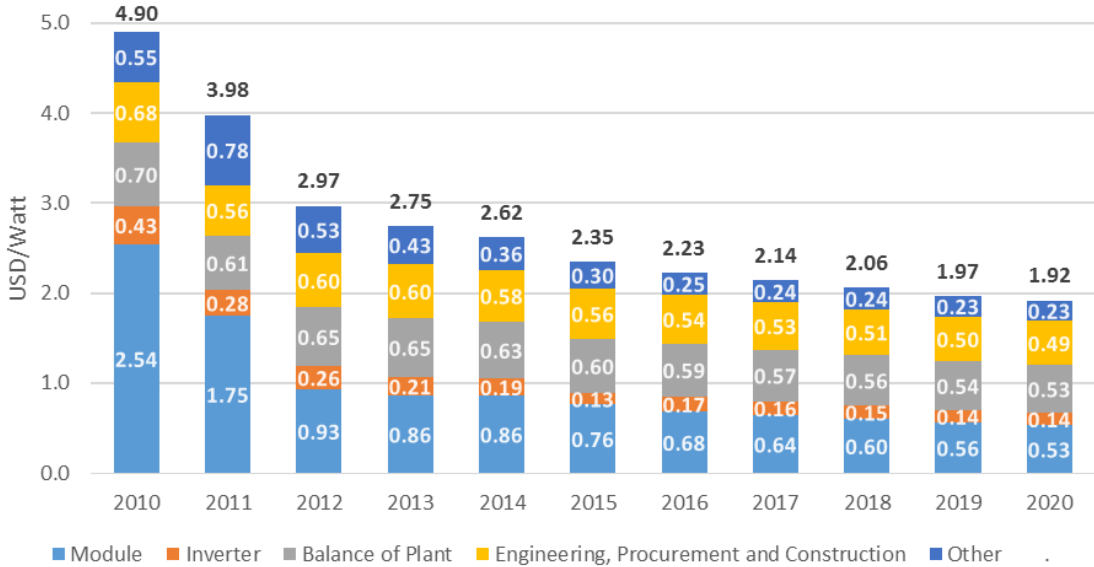
<sup>1</sup> Unlike the energy transitions observed in the previous centuries, whose main drivers were the technology development, diffusion and cost reduction in the production system.

reached US\$214.4 billion in 2013 (a level 14% lower than that observed in 2012 and 23% lower than 2011 levels). This slowdown is partly a consequence of uncertainties over incentive policies in Europe and US (due to the slow pace of economic recovery, mainly in Europe) and partly due to technology cost reductions.

Solar PV modules prices, for instance, declined by 65%-70% between 2009 and 2013 (IRENA 2014). Such cost reduction allowed grid parity for commercial solar power in Germany, Spain and Italy. The levelised cost of onshore wind electricity has dropped as well (18% from 2009 levels) (IRENA 2014). Therefore, the cost reduction allowed an increasing competitiveness of renewable power plants.

So, in monetary terms, the investments has fallen in 2012 and in 2013. However, this effect is a consequence of lower costs, since the number of solar panels and wind power installations has grown considerably in the same period. According to IRENA, the rapid deployment of renewable energy facilities allows economies of scale and learning. Hence, the falling costs is a trend in the medium- and long-term. Consequently, there is a perspective of raising investments in renewables. For example, offshore grid capacity is projected to grow to 40GW by 2020 in Europe.

Chart 1 – Projected Solar PV System Deployment Cost (2010-2020)



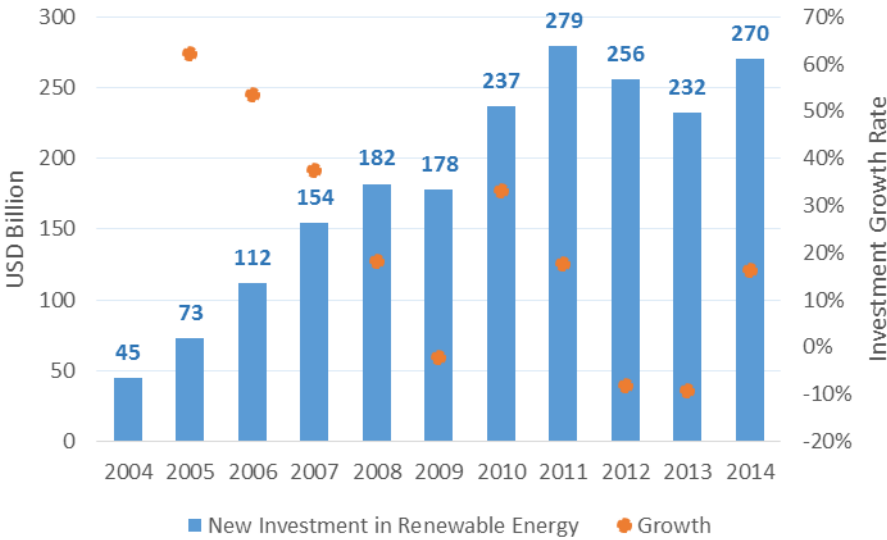
Source: IRENA 2014

As can be noticed in the following chart, global investments in renewable energy in 2014 was greater than those observed in 2012 and 2013. In spite of not reaching the investment levels observed in 2011, the investments in renewable energies rebounded 17% against the year before (FS-UNEP 2015). However, since the capital costs in wind and solar PV has been falling sharply since 2011, the added energy capacity in the power systems worldwide in

the last year was considerably higher than in 2011. Some 103 GW of renewable power capacity excluding large hydro is estimated to have been built in 2014, compared to 86 GW in 2013 and 80.5 GW in 2011 (FS-UNEP).

The investments were led by China (\$83.3 billion, a number 39% higher than in 2013), US (\$38.3 billion, up 7% on the year), Japan (\$35.7 billion, 10% higher than in 2013), India (\$7.4 billion, 14% higher than in 2013) and Brazil (\$7.6 billion, up 93% on the year). Europe was responsible for \$57.7 billion in investments (1% higher than in the previous year), mainly in offshore wind projects (FS-UNEP).

Chart 2 – Global New Investment in Renewable Energy (USD billion)



Source: Adapted from FS-UNEP

Besides, it is important to notice that although the investments in fossil fuel based capacity has been higher than in renewable capacity, most of these fossil fuel investments went to replacing existing coal-, oil-, and gas-fired power stations (REN21 Steering Committee, 2014). Still, the investments in renewable power adds to overall generating capacity (i.e. it is net). In other words, renewable energy has been reaching higher shares in energy generation globally.

In spite of the good perspective, the renewable sources are threaten by the recent decline in oil prices. This factor reduces the relative competitiveness of renewable energy generation plants (mainly those fueled by biomass), since it stimulates the introduction of fossil fuel thermal power stations. However, in most of the regions around the world, the fossil fuel power plants do not compete with renewable energy. Only in oil exporting countries such competition may threat investments in renewable power projects and investments in biofuels. Besides, if the decreasing costs of renewable power projects are confirmed as a trend in medium- and long-term, it can handle the falling oil prices.

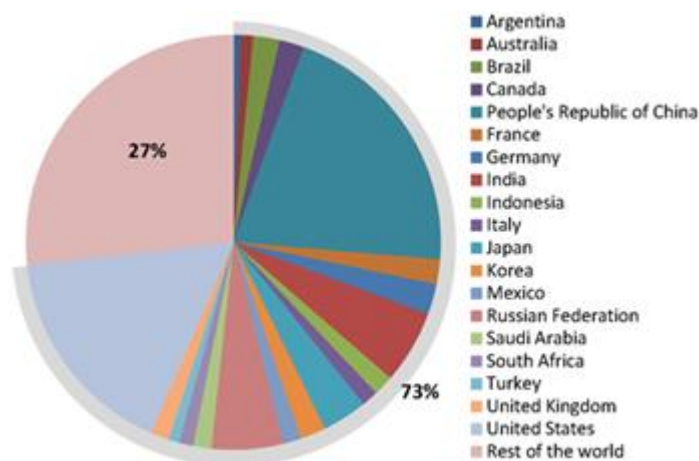
Nonetheless, the recent achievements are not enough to halt the climate challenge and the environmental problems humankind have been facing. Fossil fuels sources are still responsible for the lion share of electricity generation (about 80%) (REN21 Steering Committee, 2014). Besides, fossil fuels-fired generation are increasing in emerging countries such as China<sup>2</sup> and in Brazil (where most of the electricity generation, traditionally, relies on renewable sources).

Therefore, the international community has to keep its efforts on the promotion of renewable sources of energy. However, considering that the falling costs are the main drivers of the increasing participation of renewable power generation systems, how the G20 countries may contribute to this process? What has been the steps taken towards this goals? Which measures should be taken in order to set an efficient global energy governance?

### 3. The G20 Energy Sustainability Working Group (ESWG)

The G20 member countries present the greatest share of energy demand in the world. Since the dominant energy paradigm is considerably polluter, these countries are responsible for the largest share of GHG emissions (almost 80% of CO<sub>2</sub> emissions). According to the IEA, altogether they have accounted for 73% of the energy demand worldwide in 2011.

Chart 3 – Global Energy Demand 2011



Source: IEA

<sup>2</sup> In spite of its efforts and political engagement towards the increase in renewable sources of energy, IEA estimates that generation from coal in China will keep growing so that in 2035 its coal-fired generation will exceed the present generation from all sources in USA and Japan combined (New Policies Scenario, WEO 2013). On the other hand, according to the IEA, China is expected to account for 40%, or 310 GW, of the growth in global renewable power capacity over 2012-2018 (Renewable Energy Medium-term Market Report).

The IEA estimates that the global energy demand is going to raise over one third by 2035. Such scenario introduces environmental and energy security challenges. The increasing energy demand requires considerable investments not only to substitute or restore old energy plants (in order to supply the existing demands), but also to implement new projects. Therefore, the introduction of the G20 Energy Sustainability Working Group represents an important step towards the development of a global governance architecture aiming the promotion of renewable sources of energy.

The importance of this initiative is sustained by the idea that, considering its economic and political role, the group can use its power to set the international agenda, agree on global norms, steer existing multilateral institutions and create new ones (Graaf et al. 2011). As defined by Schneckener (2009) the G20 is able to perform the “pioneering” and “path-finder” functions. Through this role, indirectly, the group may give more visibility and direction to the global energy governance efforts.

One of the advantages of the G20 is that it is composed by the richest economies in the world, which are able to mobilize resources in order to coordinate their national policies as well as to implement policies that promote investments in sustainable energy technologies and sources. In addition, summit processes (such as the G20 or the G8) are more flexible than formal organizations since there is no permanent secretariat or legal basis, consequently, the G20 is able to engage in vertical and horizontal coordination efforts more efficiently (Graaf et al. 2011). Therefore, the G20 is a unique platform not only to set deals related to renewable energy adoption but also to act as a frontrunner towards the goal of realizing a universal climate agreement.

In spite of previous initiatives to discuss energy issues - such as the ‘fossil fuels subsidies’ working group and the ‘clean energy and energy efficiency’ working group - the G20 Renewable Energy Working Group is the one which has been taking the first steps towards the development of a global agreement on energy issues like energy efficiency, renewable energy and energy access. For instance, the Working group has released the G20 Energy Efficiency Action Plan. This report is a practical plan to strengthen voluntary energy efficiency collaboration in a flexible way (allowing countries to share knowledge, experiences and resources). It identifies six areas where global action will benefit all people: heavy vehicles, appliances linked to networks, buildings, industrial processes and more efficient electricity generation, and access to finance.

Besides, the working group has set the principles on which the leaders of the member countries are going to work together in the years to come. These principles are described as follows: (i) ensure access to affordable and reliable energy for all; (ii) make international energy institutions more representative and inclusive of emerging and developing economies; (iii) encourage and facilitate well-functioning, open, competitive, efficient, stable and transparent energy markets that promote energy trade and investment; (iv) encourage and facilitate the collection and dissemination of high quality energy data and analysis; (v) enhance

energy security through dialogue and cooperation on issues such as emergency response measures; (vi) rationalize and phase out inefficient fossil fuel subsidies that encourage wasteful consumption, over the medium term, while being conscious of the necessity to provide targeted support for the poor; (vii) support sustainable growth and development, consistent with our climate activities and commitments, including by promoting cost-effective energy efficiency, renewables and clean energy; (viii) encourage and facilitate the design, development, demonstration and widespread deployment of innovative energy technologies, including clean energy technologies; and, (ix) enhance coordination between international energy institutions and minimize duplication when appropriate.

Other initiatives, like the G20 Energy Ministers Meeting, represent the commitment of G20 to mobilize the international community, as it has never done before, once it gathers the leaders directly responsible for each country national energy policies.

#### 4. Propositions to the G20 ESWG

Such measures surely are very important to promote a negotiation environment for the parts involved in a future deal. It is obviously crucial to establish an agenda and to define a set of goals to be achieved in the medium and long-term. However, the discussion must be expanded, covering the issues and details that has been ignored such as: (i) the targets of renewable energy generation capacity in each country; (ii) how the global financial institutions (such as the World Bank) may contribute to finance projects in countries suffering from capital shortage<sup>3</sup> (something that can be discussed regardless of an international agreement); (iii) how regional alliances (Mercosul, EU, Nafta) may create commercial conditions that favors imports of cheaper facilities installed in renewable power plants; (iv) how to combine the emerging investments in renewable power to a more convenient regulatory framework in several countries worldwide, etc.

Among the mentioned topics of discussion, there are basically two crucial and realistic ones that should be discussed and agreed by G20 countries. The first is to turn their existing green stimulus investments into long-term commitments as well as to make the necessary regulatory adaptations to create an institutional framework suitable for the investments in renewable energy<sup>4</sup>. Such topic is mainly related to domestic issues of each country. However, it would be a step forward to present and discuss such definitions at international level, since each country experience may contribute to give a different perspective and solution to a given common problem.

The second is to arrange an international financing framework in order to support not only the investments in developing countries, but also to assist developing economies in

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<sup>3</sup> Which is an important issue due to the recent capital outflow from emerging economies.

<sup>4</sup> China and the US, for instance, have recently announced targets to cut greenhouse gas emissions. The US intends to cut its net GHG emissions 26-28% below the 2005 levels by 2025. China announced targets to peak CO<sub>2</sub> emissions around 2030 and to increase non-fossil fuel share of all energy to around 20% by 2030 (The White House).

science, technology and innovation. In the last months, the emerging markets are suffering from a massive capital outflow. Even the largest emerging economies (Brazil, Russia, India and China) have been dealing with this issue as well as with a slowdown in GDP growth. Hence, such financial supports would be crucial to sustain the investments in renewable resources even during turbulent times.

## 5. Conclusions

It is clear that the international community has been presenting a stronger position about climate change issues as well as to the diffusion and development of renewable energy. Particularly, the G20 has been engaging in an active role towards the promotion of a global energy governance. However, it is time to take firm steps towards the establishment of a clear agenda.

This paper shows that such agenda must be built on two basic discussions: (i) the establishment of targets for renewable energy generation capacity; and (ii) the arrangement of a financial framework to allow the necessary infrastructure investments in developing countries. An agreement defining realistic and challenging goals for the deployment of renewable energy power plants, is crucial to make national governments key drivers of the energy transition process. In such context, these governments may play an active role by both accelerating the development of new technologies and increasing the scale of the supply industry.

The arrangement about the required financial framework, complements the active role of national governments. As the investments in renewable energy power plants (in large scale) are significant, the financial support is crucial to allow the planned increases of the renewable power generation systems (mainly in emerging countries).

Obviously, these topics are not self-sufficient for the creation of a powerful global energy governance. However, they are realistic steps towards efficient global governance on renewable energy issues.

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