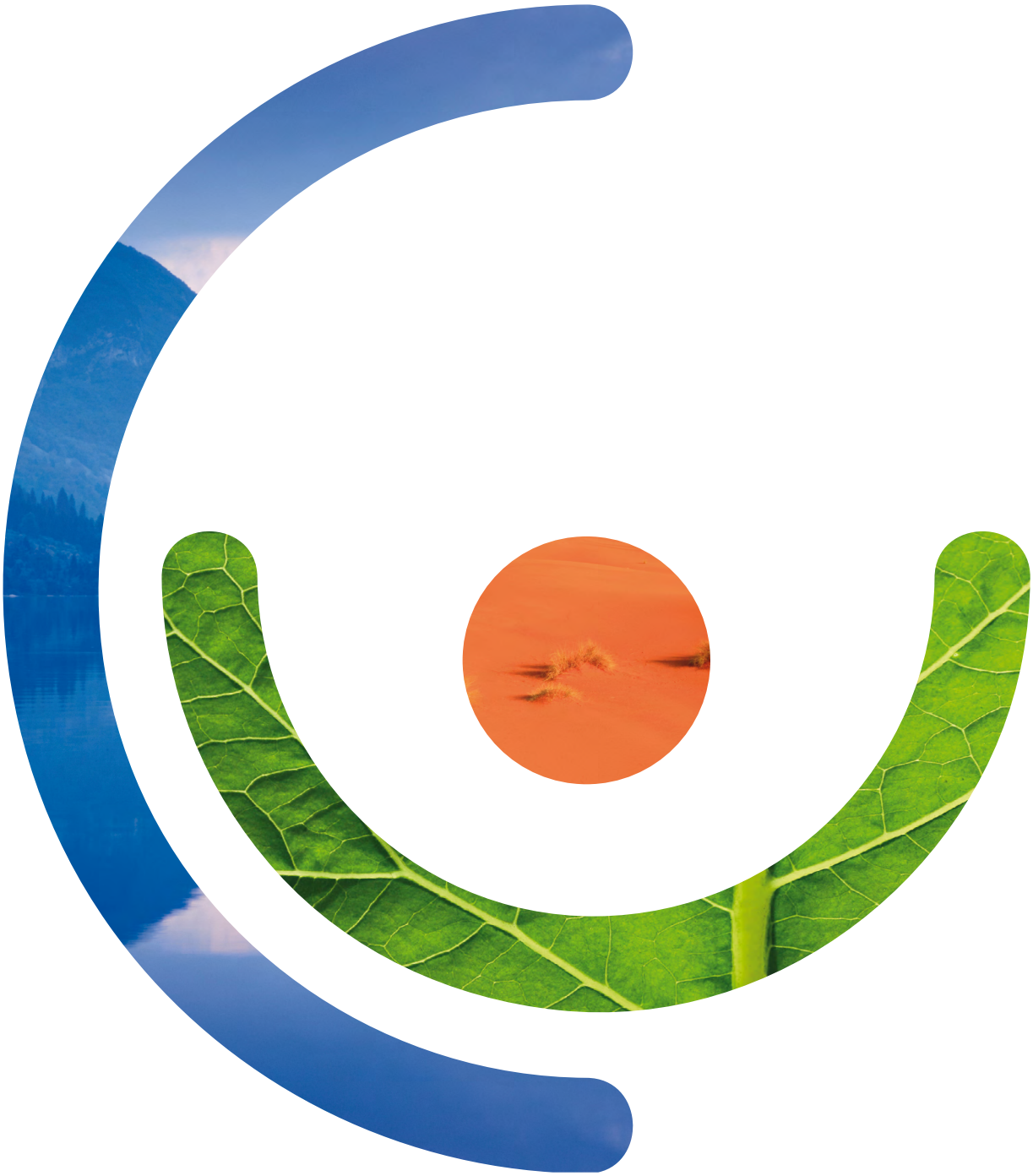
International Center for Climate Governance

n.43
November
2016

International ClimatePolicy

ICCG Bi-monthly Magazine



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International Climate Policy is a bi-monthly magazine aimed at providing a clear analysis of the worldwide evolution of both international and domestic climate and energy policies, as well as the carbon market.

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The magazine is organized into four sections focused on i) international negotiations and national policies, ii) European and international energy policy, iii) flexible mechanisms and developing countries, and iv) evaluation of the carbon price in the European and global markets. The information and data presented in each section are not only an update of recent events, but also an extrapolation of the quantitative implications of these events, based on a detailed analysis of academic papers and published reports. Every two months the most important proposed or applied policies and actions are briefly introduced and analyzed. Each article includes boxes, figures, and graphs in order to provide in-depth examination and data exemplifications. All papers and reports used in the analyses are cited at the end of the relevant article.

International Climate Policy

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ISSN 2279-7270

International Center for Climate Governance

A joint initiative of

Fondazione Eni Enrico Mattei

fondazione Giorgio Cini onlus

In collaboration with

cmcc Centro Euro-Mediterraneo sui Cambiamenti Climatici

FEATURING

COUNTRIES IN MARRAKECH COMMIT TO PUT PARIS DEAL INTO ACTION BY 2018

Aurora D'Aprile, Marinella Davide

The annual UNFCCC Conference of the Parties (COP22), this year organized in Marrakech, Morocco, closed early on Saturday November 19th, after two weeks of subtle diplomacy and technical discussions.

Soon after its start, what was meant to be the "COP of action" was overshadowed by the results of the US presidential election and the related uncertainties over the potential U-turn the world's second largest emitter might take under the new administration led by Donald Trump [2].

After the adoption of the Paris Agreement in 2015, and its extraordinary quick entry into force, the focus was now more on launching implementation actions. COP22 was therefore the first important moment to start defining mechanisms and rules to achieve Paris' objectives.

The first symbolic outcome of COP22 is the "Marrakech Action Proclamation". Two days before the negotiations closed, government delegates wanted to give a signal of unity and determination in remaining committed to the path set at COP21 in Paris last year. The Proclamation calls for "the highest political commitment to combat climate change, as a matter of urgent priority". It basically retraces the commitments taken under the Paris Agreement, pushes for raising ambition to achieve its long-term goals and ratifying the Doha Amendment by those countries who have not done it yet [3].

Moving toward more substantive issues, the major result of COP22 is that countries agreed to complete the so-called "rulebook" and the procedures needed to implement all elements of the Paris Agreement by 2018 at COP24 to be held in Poland.

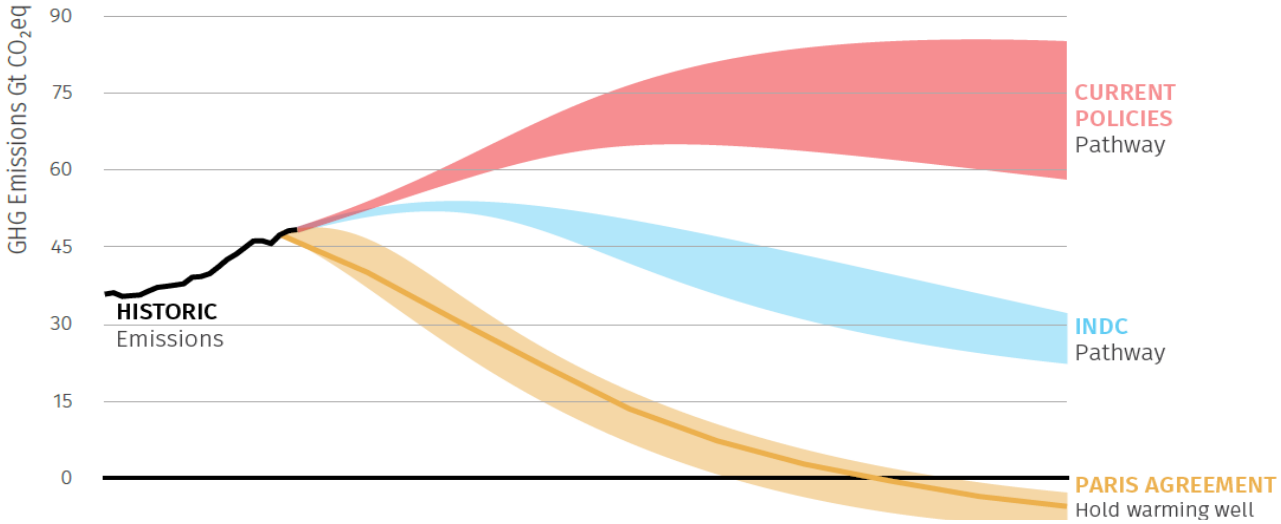
In the next two years, the new-born governing body of the Paris Agreement (the CMA, including all countries who have ratified the deal) along with the Ad Hoc Working Group on the Paris Agreement (codename: APA) and the two UNFCCC Subsidiary Bodies (SBI and SBSTA) will continue their preparatory work to define the rules and framework to make the Paris Agreement fully operational.

Next year, at COP23, the CMA will reconvene to review and assess the progress made.

Beyond technicalities, the COP22 in Morocco saw some old and new topics emerging from the agenda as the most controversial.

Predictably, one of the most discussed subjects continued to be the financial support to developing countries. In Marrakech wealthier countries reaffirmed the climate finance goal of mobilizing USD100 billion per year by 2020. Before the start of the Conference, a roadmap was released to describe how developed countries plan to deliver on the promised target [5]. However, further work is needed to define common rules and standards to track climate finance disbursed and received, and to clarify what kind of financing tools should be counted. Strictly

Global emissions pathways to 2100 [4]



connected to this is adaptation finance. Although during the COP the Green Climate Fund (GCF) announced the approval of the first two proposals for the formulation of the National Adaptation Plans of Liberia and Nepal, some delegates denounced little progress on the effort to increase funding to help developing and vulnerable countries. Also the Adaptation Fund and its role under the Paris Agreement was the subject of tense discussions within several sessions at COP22. Parties finally agreed to add it to their workload although the Adaptation Fund was originally established under the Kyoto Protocol.

Parties are invited to submit their views on the governance and institutional arrangements, safeguards and operating modalities for the Adaptation Fund to work under the Paris Agreement by 31 March 2017.

On this regard, developed country Parties have been urged to step up efforts aimed at achieving a greater balance between finance for mitigation and for adaptation. This latter point, however, pertains to a broader discussion on the mitigation-adaptation unbalance that the Paris agreement is trying to fix.

In order to track actions and progress by all countries involved, the Paris agreement will need a robust transparency and accountability system covering NDCs, finance and technical transfers. At COP22 delegates mostly discussed the degree of flexibility for requirements developing and poorer countries should comply with, reflecting "their different capabilities and national circumstances".

The capacity-building issue also received attention during the Marrakech talks. A new coalition – the NDC Partnership – was launched to support developing countries in achieving their domestic climate actions and accessing technical and financial support. Negotiators agreed on the functioning structure of the Paris Committee on Capacity Building (PCCB), which will meet for the first time in May 2017 to discuss the NDCs implementation.

Marrakech also saw new discussion to emerge on the so-called "orphan issues," namely issues that are in the Paris outcome but lack a place in the traditional divisions of competencies within the UNFCCC. Among these are some important pieces of the Paris Agreement, such as common timeframes for NDCs, adjustment of existing NDCs, the response measures forum, recognizing developing countries' adaptation efforts, guidance related to finance, setting a new collective goal on finance, developed countries' biennial finance communications, and education, training and awareness.

Finally, as in the past few years, many non-Party stakeholders took the COP as an opportunity to push bottom-up initiatives forward. As reported by the UNFCCC's final release, "Multi-billion and multi-million dollar packages of support" to clean technologies, capacity building, and water and food security in developing countries were announced. In particular, Climate Champions L.Tubiana and H. El Haité launched the Marrakech Partnership for Global Climate Action with the aim to facilitate and catalyze the pace of climate action by Parties and non-Party stakeholders in the period 2017 to 2020.

At the end of two intense weeks, countries overall expressed satisfaction with the final outcome of the COP22. However, developing country groups, like the G77 + China, Nicaragua, Bolivia and South Africa remarked the need to step up efforts toward the balance between adaptation and mitigation, on clarity related to long-term financial support to developing countries, as well as on pre-2020 action - three topics that will ensure a lively discussion.

References

[1] Photo: COP closing day plenary (2016) UNclimatechange
[2] Climate Policy Observer (2016) SPECIAL COP22 – First reactions to Trump election victory
[3] UNFCCC (2016) Marrakech Action Proclamation for our Climate and Sustainable Development
[4] Low Carbon Monitor (2016) Pursuing the1.5°C limit benefits & opportunities
[5] Australian Government (2016) Roadmap to US$100 Billion

IS US CLIMATE POLICY HISTORY REPEATING ITSELF?

Aurora D'Aprile

Since Donald Trump won the US presidential election on November 8, conjectures and questions are growing on how US climate policy might change after the new administration takes office in January 2017.

During his campaign, President-elect Trump has repeatedly promised to dismantle most of the climate legislation and initiatives put forth by the Obama administration, such as the Clean Power Plan (currently frozen by the US Supreme Court until legal challenges to the regulation are completed). He also said he would "cancel" the Paris Agreement, according to which the United States should reduce its emissions 26 percent to 28 percent by 2025. An unnamed source on Trump's transition team told Reuters that Trump is already considering options to quickly exit the accord [2].

There are three possible scenarios of how the US, after having become a global climate champion during the Obama presidency, can pull back. The first is to withdraw from the Paris Agreement, but it would take four years to complete the process, the full period of the Trump administration. The second is to withdraw from the UNFCCC: a very radical decision that would make US free from any climate obligation in just one year. Third, the new US president may simply ignore the commitments taken under the Paris agreement, undermining the global momentum that is essential to transform the Paris deal into actions.

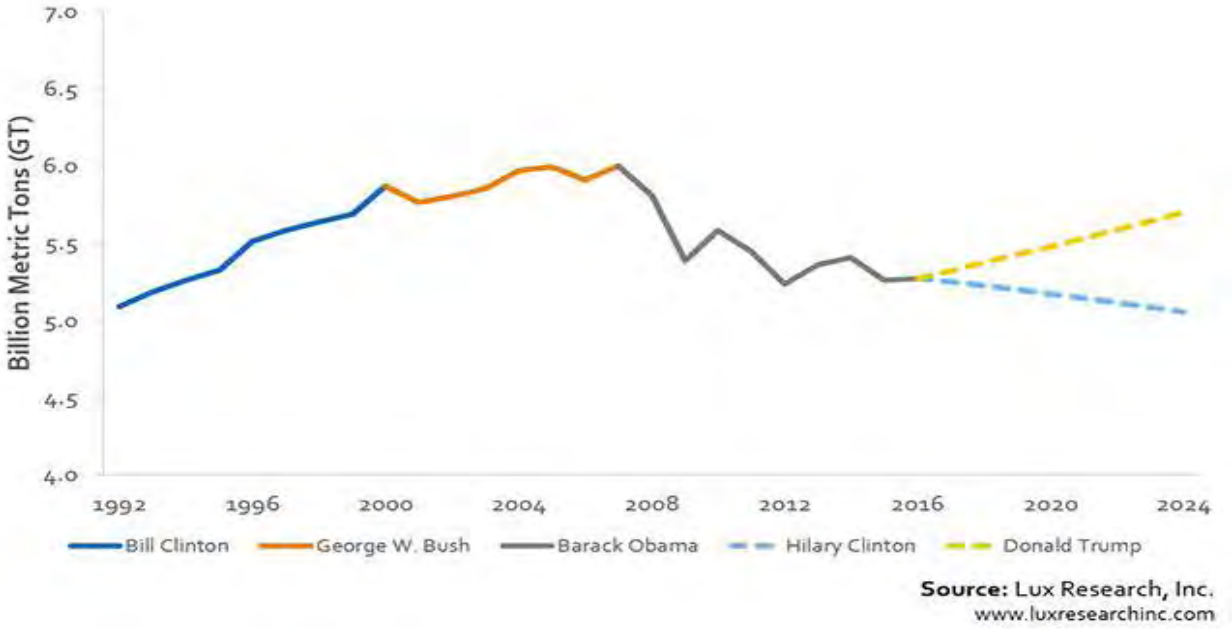
According to Lux Research, Clinton's plans would have kept the US emissions on their current downward trajectory, while Trump's would send them rising again. Lux Research analysts estimated US emissions would be 16% higher after two terms of Trump's policies than they would be after two terms of Clinton's, amounting to 3.4 billion more tons of emissions over the next eight years [3].

During the climate talks in Marrakech, both the US State Department's special envoy for climate change Jonathan Pershing and US Secretary of State John Kerry declined to speculate on what Trump might do about the Paris Agreement. Kerry said that the current administration intends to "do everything possible" before Trump takes office [4]. On November 16, the White House announced its 2050 climate strategy, included in the commitments among countries to set long-term emissions goals under the Paris Agreement. The plan outlines several actions to reduce emissions by at least 80 percent below 2005 levels by 2050 [5]. However, the feasibility of the plan is highly uncertain considering the stance of the upcoming president.

Whichever way US might take to downscale its climate commitments, the future will resemble the past, but with a stronger nuance.

In 1997 the Kyoto Protocol was adopted in Japan, also with the

US CO2 Emissions Historical and Projections [3]



support of US President Bill Clinton. In 1998 the United States signed the pact but never ratified it, due to the opposition of the Senate. The following president George W. Bush dismissed any interest in participating to the global climate efforts, basically avoiding any US commitment for two presidential mandates (from 2001 until 2009). The Kyoto Protocol entered into force eight years from the adoption, after Russia's ratification in 2004 allowed crossing the double threshold. Under the Kyoto Protocol, only developed countries bound to the deal have obligations to reduce their emissions.

The Paris agreement was ratified by Obama through presidential executive power, bypassing the Congress vote. After its adoption at COP21 in Paris in December 2015, it entered into force in less than one year thanks to a somehow unexpected ratification race, mostly triggered by the US and China's joint initiative in September. Under the Paris deal, efforts from all countries are under the same framework, composed of "nationally determined contributions" (NDCs) and designed to set progressive ambitions over time, although granting more flexibility to developing country Parties.

The potential US U-turn may leave the role of global climate leader to a European Union weakened by internal divisions, or to China, whose climate policy both domestically and at the global level has grown strongly in the past few years. According to the recently released Global Carbon Budget report, global GHG emissions stayed flat for the third year in a row in 2016, mainly thanks to falls in China [6]. "Proactively taking action against climate change will improve China's international image and allow it to occupy the moral high ground," Zou Ji, deputy director of the National Centre for Climate Change Strategy and a senior Chinese climate talks negotiator, told Reuters [7].

For the moment, climate diplomats and officers have chosen the soft stance towards the new president. According to Reuters, UN Secretary-General Ban Ki-moon said action on climate change has become "unstoppable" and Trump, as a "very successful business person", would understand that market forces were already driving the world economy towards cleaner energies [8].

In the final days of COP22, government representatives and climate delegates issued a joint statement, the Marrakech Action Proclamation, calling for "the highest political commitment to combat climate change, as a matter of urgent priority" [9]. The statement was interpreted as a signal of unity and determination in sticking to the path set at COP21 in Paris last year, with or without the new US presidency.

References

[1] Photo: Giuseppe Milo (2015) The bean - Chicago, United States
[2] Reuters (2016) Trump looking at fast ways to quit global climate deal
[3] Lux Research, Inc. (2016) A Trump Presidency Could Mean 3.4 Billion Tons More U.S. Carbon Emissions than a Clinton One
[4] Reuters (2016) U.S. to push ahead on climate pact before Trump takes over - Kerry
[5] White House (2016) United States Mid-Century Strategy for Deep Decarbonization
[6] Global Carbon Project (2016) Carbon budget and trends 2016
[7] Reuters (2016) Trump win opens way for China to take climate leadership role
[8] Reuters (2016) France, UN tell Trump action on climate change unstoppable
[9] UNFCCC (2016) Marrakech Action Proclamation for our climate and sustainable development

FOSSIL INDUSTRY PLANS NEW INVESTMENTS IN CCS AND LOW-CARBON TECHNOLOGIES

Aurora D'Aprile

On the day the Paris Agreement came into force (Nov. 4) and right before the starting of the COP22 climate talks in Marrakech, some of the world's largest international oil and gas producers announced they will do more to deploy low-carbon technologies and reduce GHG emissions. The OGCI (Oil and Gas Climate Initiative) promised to invest USD1 billion over the next ten years under the new OGCI Climate Investments, a partnership aimed to "fund new ventures and projects that have the potential to significantly reduce emissions" [2]. It will initially focus on deploying carbon capture, use and storage on a wide scale and reducing methane emissions in the production chain. Other objectives include improving energy efficiency in transport and industry [3].

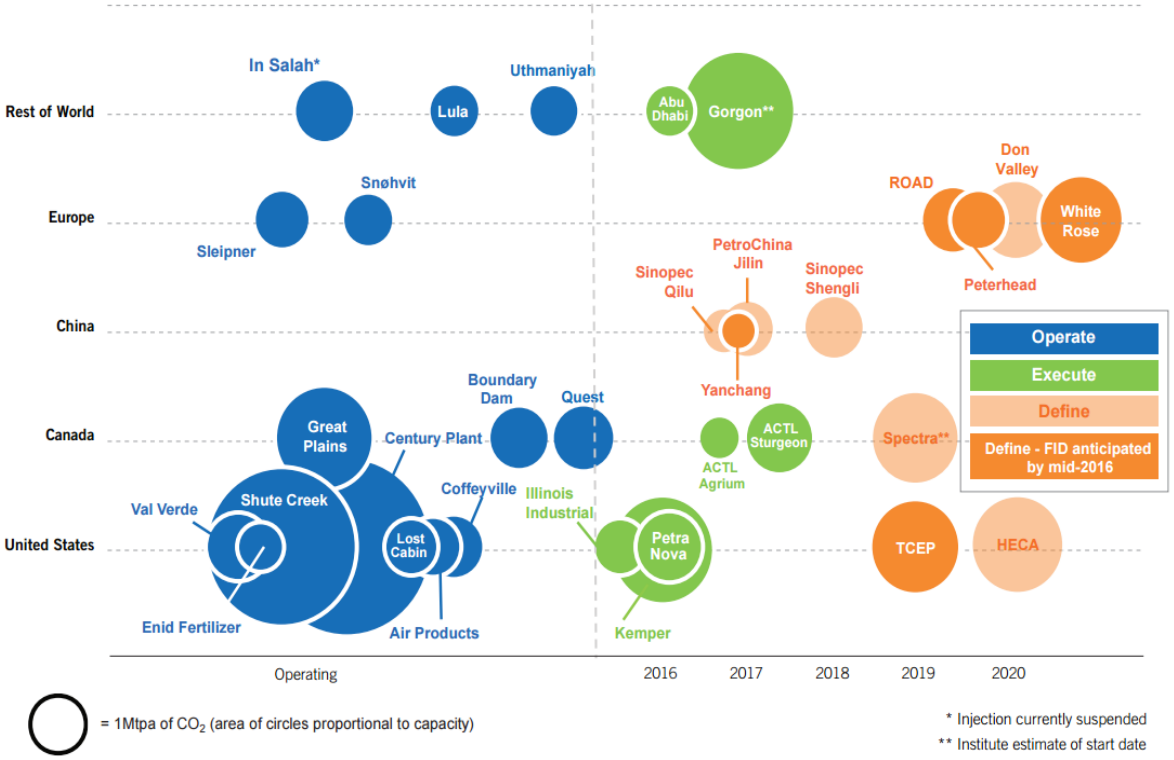
Formed in 2014, the OGCI is led by the CEOs of ten oil and gas companies (BP, CNPC, Eni, Pemex, Reliance Industries, Repsol, Royal Dutch Shell, Saudi Aramco, Statoil and Total) that together account for one fifth of the world's production [4].

The announcement received a lukewarm response from clean-tech and sustainable investments advocacy groups, for the relatively small size of the promised fund and the fact renewable energy were excluded from the plan [5]. OGCI representatives explained the USD1 billion investment is just the beginning and focuses on the companies' core businesses [6]. The initiative represents a "new, additional investment" complementing "the companies' existing low emissions technology programs and will draw on the collective expertise and resources of the member companies" [2].

Carbon capture and storage (CCS) is widely recognized as a key technology to reduce emissions from fossil energy production. According to the IEA's recently issued World Energy Outlook 2016, even considering the climate pledges submitted by countries under the Paris Agreement, the global energy demand will continue to grow in the next decades [7]. However, the decarbonization pathway towards a cleaner and climate-compatible energy production poses challenges to the fossil-fuel industry that "cannot afford to ignore the risks that might arise from a sharper transition". In this perspective, CCS is considered an asset protection strategy, especially for coal industry whose "long-term future ... is increasingly tied to the commercial availability of carbon capture and storage".

The economic case is the Achilles' heel of CCS. Without predictable government support, emission limits or a strong carbon price, private investors and utilities are reluctant to build new CCS-equipped plants or retrofit the existing ones. At the same time, governments cannot entirely finance projects whose financial viability, especially in the power sector (where the majority of GHGs are produced), is unclear. But without new investment, deployment and testing, it is unlikely to achieve the progress needed to reduce costs and increase efficiency.

Actual and expected operation dates for large-scale CCS projects in the Operate, Execute and Define stages by region and project lifecycle stage [11]



According to the IEA, bringing CCS in line with a 2°C scenario would require a total undiscounted investment of USD 3.6 trillion until 2050 [8]. As of 2015, cumulative investment in large-scale CCS has amounted to USD 12 billion, reaching almost USD 20 billion if public spending in R&D is included [9].

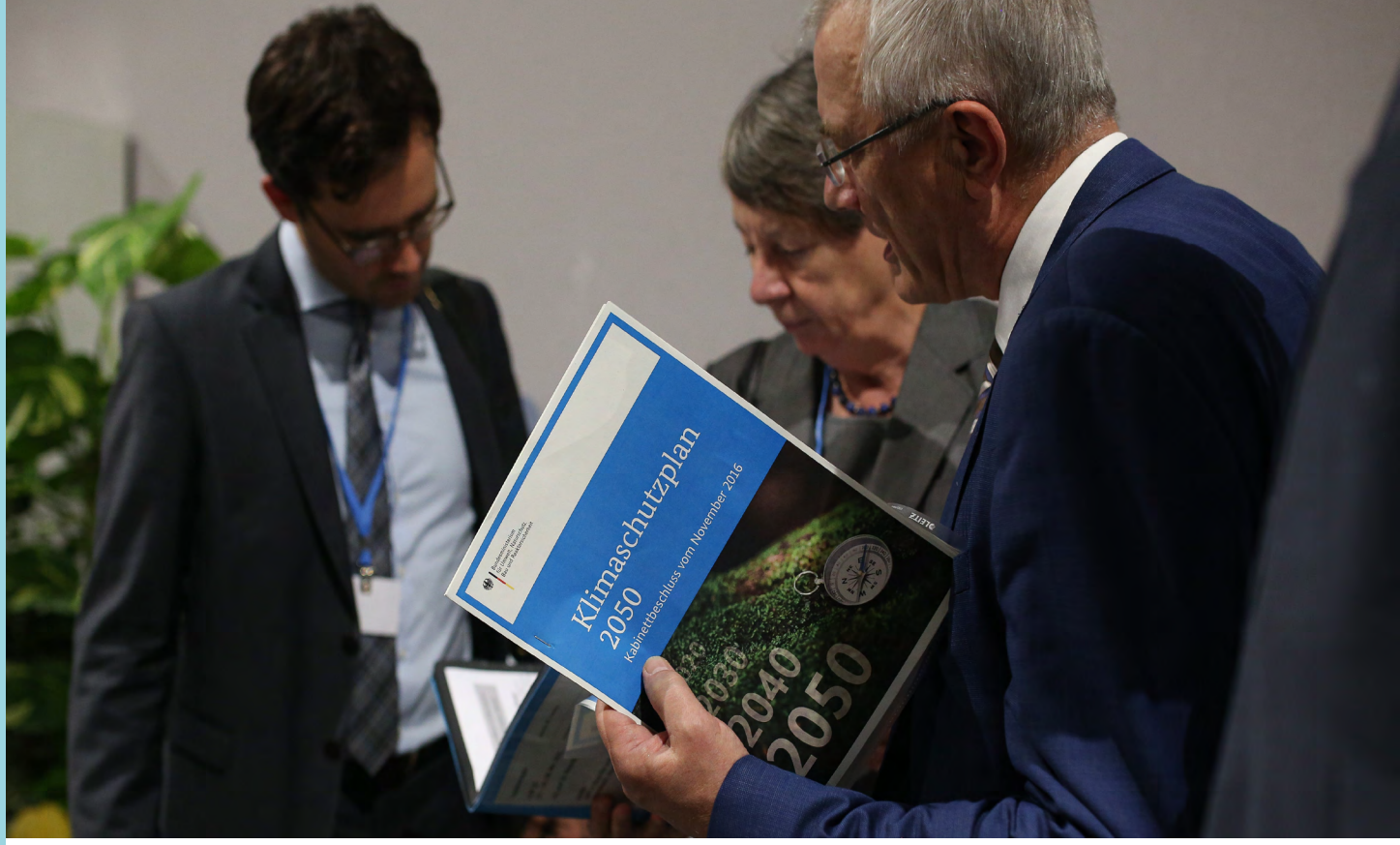
The cost of producing electricity with CCS has been estimated at 60–100 USD/ton CO2, of which 70–80% is made up by the CO2 capture phase burdened by high energy penalties. In an efficient CCS-equipped power facility the energy used for CO2 capture should be 2-3% of the output of the power plant, but in the real world this figure is 5 to 10 times higher, and additional energy is required to compress the CO2 in order to transport and store it [10].

Waiting for R&D and demonstration projects to reduce cost and increase efficiency, enhanced oil recovery (EOR, the injection of CO2 into depleting oil fields to increase the pressure and drive the oil towards the production wells) remains the main commercial rationale for deploying CCS. In fact, more than half of the CCS power plants currently under construction and planning are EOR-oriented (see graph).

But CO2-EOR projects are not generally required to undertake monitoring, measurement and verification that injected CO2 is permanently stored. In the long term it would be essential to strengthen the economic case for CCS and make CO2-EOR plants comply with the same performance standards as those applied to projects storing CO2 purely to prevent release into the atmosphere.

References

[1] Andrew Hart (2008) Our Modern Dilemma/Flickr
[2] BP (2016) OGCI announces $1 billion investment to accelerate development and deployment of innovative low emissions technologies
[3] OGCI Climate investments webpage (Accessed: Nov. 23, 2016)
[4] OGCI, Overview of the OGCI webpage (Accessed: Nov. 23, 2016)
[5] Damian Carrington (2016) Oil firms announce $1bn climate fund to clean up gas. The Guardian
[6] Jessica Shankleman and Rakteem Katakey (2016) Big Oil to Invest $1 Billion in Carbon-Capture Technology. Bloomberg
[7] International Energy Agency (2016) World Energy Outlook 2016 - Executive summary
[8] International Energy Agency (2013) Technology Roadmap - Carbon Capture and Storage
[9] International Energy Agency (2015) Tracking Clean Energy Progress 2015
[10] Aurora D'Aprile (2016) Advances and slowdowns in Carbon Capture and Storage technology development, ICCG Reflection No. 48/May 2016
[11] Global CCS Institute (2015) The global status of CCS 2015: summary report



CLEAN ENERGY FUNDAMENTAL IN CLIMATE LONG-TERM STRATEGIES

Michael Schneider

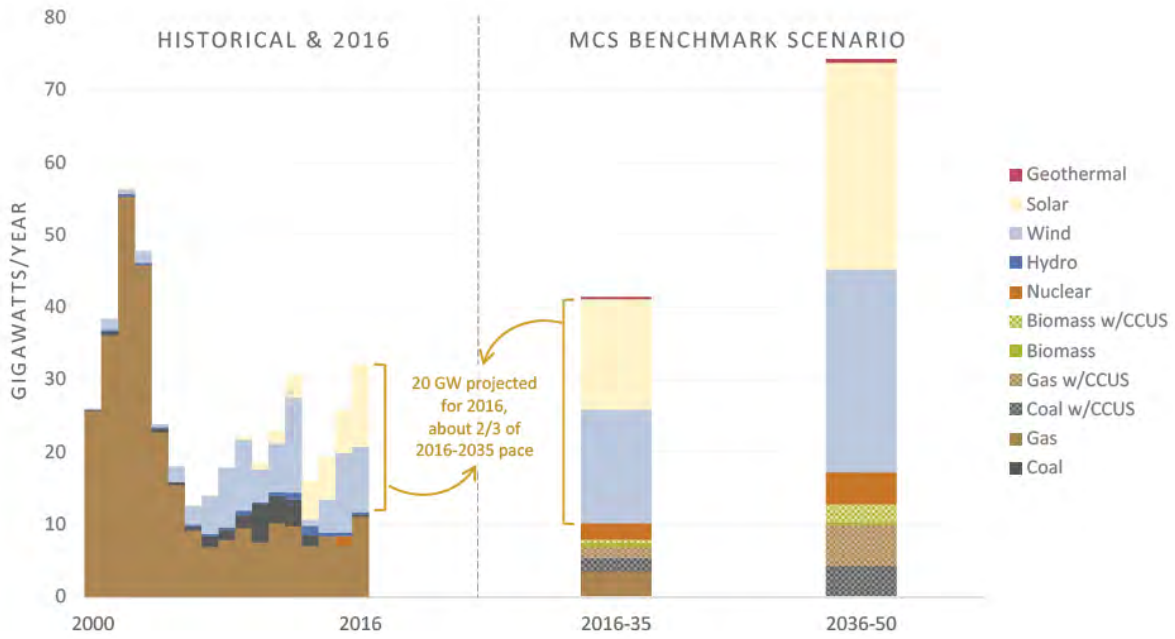
According to article 4, paragraph 19, of the Paris Agreement, Parties are invited to voluntarily communicate long-term low greenhouse gas emission development strategies. At COP22 in Marrakesh in November 2016, Canada, Germany, Mexico and the United States of America have presented their respective plans. Moreover, a new initiative on 2050 pathways was launched in Marrakesh and many countries have pledged to submit their plans soon. The four strategies submitted have a strong emphasis on energy policy and represent a major element in order to achieve the decarbonization of the domestic economies.

According to Canada's Mid-Century Long-Term Low-Greenhouse Gas Development Strategy [2], the country "examines" an emission pathway consistent with emissions reductions of 80% by 2050, based on 2005 levels. It is emphasised that the strategy is not a blueprint and thus not policy-prescriptive. The plan highlights the economic opportunities and co-benefits arising from clean growth. To achieve the target set, a carbon pricing framework will be required and was recently introduced [3]. The electricity generation shall become completely decarbonised. Currently, already 80% of Canada's electricity is generated by non-emitting sources and lately the country has decided to phase-out coal power plants until 2030 [4]. As the demand of electricity is expected to increase due to electrification policies, new low-carbon sources will be required. Moreover, electricity transmission within Canadian provinces as well as between Canada and the US shall be enhanced. Also energy efficiency improvements are considered to be crucial.

Meanwhile, Germany's Climate Action Plan [5] is supposed to augment the target of 80 to 95 percent lower GHG emissions by 2050 compared to 1990 which was agreed upon in 2010. The Plan is based on the guiding principle of extensive GHG neutrality in Germany by the middle of the century. As such, the plan includes a 2050 vision for each area of action as well as concrete targets and measures for the year 2030. The areas of action include energy, buildings, transport, trade and industry, agriculture, and land use and forestry. With regard to the energy sector, a commission for growth, structural change and regional development is set up. The commission shall deal with the future of coal power in the electricity mix and the impacts of affected mining regions for lignite. Moreover, the plan contains a road map towards an almost climate-neutral building stock, based on the further development of energy standards for new buildings and the existing stock. In addition, climate strategies for road and rail transport shall be compiled and alternative drive systems promoted. Germany also advocates strengthening the European Emission Trading Scheme.

Mexico's Climate Change Mid-Century Strategy [6] is mainly based on already existing laws

US Average Annual Capacity by Fuel, History and MCS Benchmark Scenario [7]



and strategies which define milestones for the next 10, 20 and 40 years in seven areas: society and population, ecosystems, energy, emissions, productive systems, private sector and mobility. Mexico as a developing country aims to reduce its GHG emissions by 50 percent by 2050 below emissions in 2000. For this purpose, action shall be encouraged especially in five important areas, including the clean energy transition, and energy efficiency and sustainable consumption. For example, deployment of clean technologies in the power sector shall rise to 25% in a 10-year frame and after 40 years, at least 50% of energy generation shall stem from clean sources. Besides, the need for carbon-pricing is highlighted as well as increased innovation.

In common with Canada, the US aims to reduce its GHG emissions by 80% until 2050 below 2005 levels according to the United States Mid-Century Strategy for Deep Decarbonization [7]. The strategy presents several scenarios to reach this target and does not constitute a pathway cast in stone. One of the three main areas of action is the transition to a low-carbon energy system. CO_2 emission reductions in the energy system are predicted to amount to 74 to 86%. Currently, the energy system is responsible for 80% of US GHG emissions. Therefore, cutting energy waste by energy efficiency improvements, decarbonising the electricity system and deploying clean electricity and low-carbon fuels in the transportation, buildings and industrial sectors are required. The figure showing Average Annual Capacity by Fuel, History and MCS Benchmark Scenario [7] indicates how the decarbonisation of the US electricity system might proceed. A key priority for future policy-makers is the transition to an efficient carbon pricing scheme, along with complementary policies.

Although the significance of the US strategy is hard to estimate after the election of Donald Trump as future president, all four plans set clear targets and visions in the direction to the decarbonisation of their respective economies. The plans mostly include mechanisms for learning and reviewing as well which might enable the further strengthening of their policies in the future.

References

[1] Photo: COP22-10 (2016) BMUB/Sascha Hilgers, flickr
[2] Government of Canada (2016) Canada's Mid-Century Long-Term Low-Greenhouse Gas Development Strategy. Environment and Climate Change Canada, Gatineau, Canada
[3] Justin Trudeau gives provinces until 2018 to adopt carbon price plan (2016) Kathleen Harris, CBC News, October 3rd 2016
[4] Canada's Catherine McKenna announces coal phase out for 2030 (2016) The Canadian Press and National Observer, November 21st 2016
[5] Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (2016) Climate Action Plan 2050 – Principles and goals of the German government's climate policy. Berlin, Germany
[6] SEMARNAT-INECC (2016) Mexico's Climate Change Mid-Century Strategy. Ministry of Environment and Natural Resources (SEMARNAT) and National Institute of Ecology and Climate Change (INECC), Mexico City, Mexico
[7] The White House (2016) United States Mid-Century Strategy for Deep Decarbonization. Washington, United States.

REVIEW OF THE L&D MECHANISM AGREED IN MARRAKECH

Elisa Calliari

As has become the tradition at climate talks, the issue of loss and damage (L&D) associated with climate change impacts gave negotiators a hard time in Marrakech. L&D can be broadly referred to as the negative impacts of climate change materializing in vulnerable developing countries after mitigation and adaptation efforts have been undertaken. COP 19 established the Warsaw International Mechanism (WIM) as a dedicated instrument for advancing knowledge gathering, coordination and support to address L&D stemming from extreme and slow onset events. The Marrakech Conference was importantly called to review the WIM, including its "structure, mandate and effectiveness" [2]. However, developed and developing countries' diverging views on how to interpret the mandate slowed down consultations for the whole first week, making it hard to believe that an agreement could be ultimately possible.

While the EU, Switzerland, Australia and New Zealand were pushing for the review to be completed in Marrakech, developing countries tried to hold the process back. Since the beginning of the first week, Costa Rica for the G77 underlined how the group would "not be able to complete the review in [the] session" and that their objective was to adopt a guiding document or Terms of Reference (TORs) to conduct the review during 2017 and finalize it at COP 23. They proposed a "backward and forward looking" process, (i) looking retrospectively at what has been done so far in the context of the two-year workplan and (ii) considering how the WIM could be moved forward to be in line with article 8 of the Paris Agreement.

Discussion on the substance of the review hardly emerged. In order to promote it, the Co-facilitators of L&D informal consultations – Beth Lavender (Canada) and Alf Wills (South Africa) - asked Parties to come up with possible "guiding questions for the review". While unable to spur debate, the questions interestingly signaled the actual points of contention. For instance, those by East Timor for the Least Developed Countries (LDCs) and Mali for the African Group pointed to the need of providing adequate financial support to implement the functions of the WIM. Saint Lucia asked if the housing of the WIM under the Cancun adaptation framework would be well situated in view of article 8, hinting to the possibility of moving L&D out from the adaptation pillar. However, the proposed questions did not receive any answer. In the G77's view, replying to them would have meant getting the review already started in Marrakech.

Indeed, for the first week of negotiations, the common position of G77 was to postpone discussions to 2017. There are two possible explanations for that. On the one side, this could have been linked to difficulties in finding common ground around the review within the same G77+ China members. In the G77 contact group on Thursday

Informal consultations on loss & damage at COP22 [6]

Nov. 10, Costa Rica said to be worried about the possibility to come on a common position and to feel "lost and damaged". On the other side, the delaying strategy could have aimed at raising the stick for the review and avoiding a rushed and less substantial one in Marrakech. Probably, the perspective of a US delegation with a Trump mandate in 2017 cast doubts on the opportunity of such a strategy.

Consensus on a draft decision was eventually found on November 15 and endorsed with no objections by the COP plenary at its closing session [3]. The feeling, however, is that of an agreement on procedures rather than on substance. The decision establishes a periodical review of the WIM, with the first one to be held in 2019 and the subsequent to take place no more than five years apart. Reviews should consider progress on the implementation of the ExCom's workplan but also adopt a long-term vision to reflect on how the WIM may be enhanced and strengthened. On the issue of finance for the implementation of L&D activities, a point often raised by the Least Developed Countries (LDCs) and the African Group during the week, the answer was procedural again. As an input to the 2019 review, the decision calls for a "technical paper (to) be prepared by the secretariat elaborating the sources of financial support". Tuvalu's Prime Minister Enele Sopoaga, speaking to the Climate Policy Observer [4], declared not to be happy about the decision and that there was the need "to clarify clear pathways and indicators especially on the issue of finance".

In a separate (and less contested) decision [5], COP 22 also approved the framework for the WIM's five-year rolling workplan. The latter is meant to build on the results of the currently on-going ExCom two-year workplan and to continue guiding the implementation of the functions of the mechanism in the years to come.

Elisa Calliari took part at COP 22 as an Observer, closely following the loss & damage negotiations.

References

[1] Photo: Fields of maize which became permanenetly flooded due to Climate Change, Zambia. Cif Action.Flickr
[2] UNFCCC (2013) Decision 2/CP.19 Warsaw international mechanism for loss and damage associated with climate change impacts
[3] UNFCCC (2016) Review of the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts. Draft conclusion proposed by the Chairs
[4] Climate Policy Observer (2016) Review of the Loss & Damage mechanism agreed in Marrakech
[5] UNFCCC (2016) Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts. Draft conclusions proposed by the Chairs
[6] Informal consultations on loss and damage at COP22 November 10th (2016) Elisa Calliari

MOROCCO TRANSITIONS FROM NET IMPORTER TO GREEN ENERGY LEADER

Jacopo Bencini

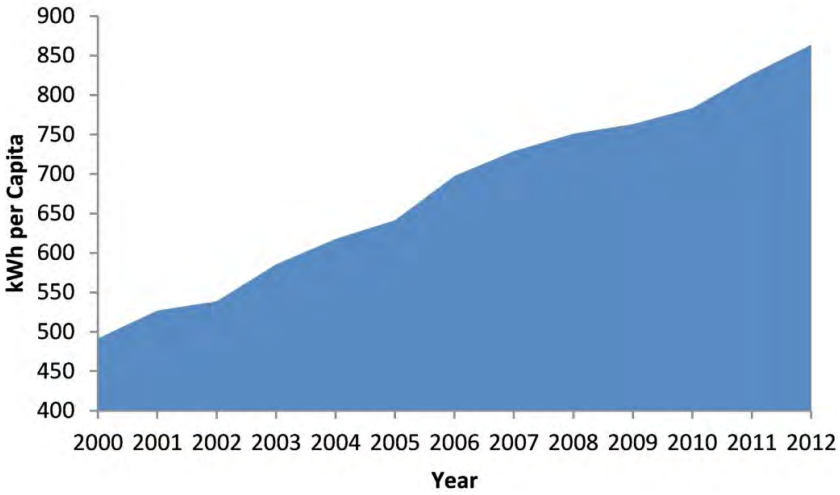
For the second time, Morocco has hosted a session of UNFCCC climate talks. With the Paris agreement already having entered into force before the Marrakech conference began, the Moroccan government had the opportunity to lead a COP focused on means and strategies to actually implement the agreement, rather than on the ratification process.

Morocco is a strategic actor in the MENA and South-Mediterranean region, despite its status as a lower middle-income economy with a per-capita GDP among the lowest in North Africa. While the country also has a high inequality rate (in GINI terms), energy availability is improving, as time series show a sharp increase in access to electricity, currently reaching nearly 100% of the population.

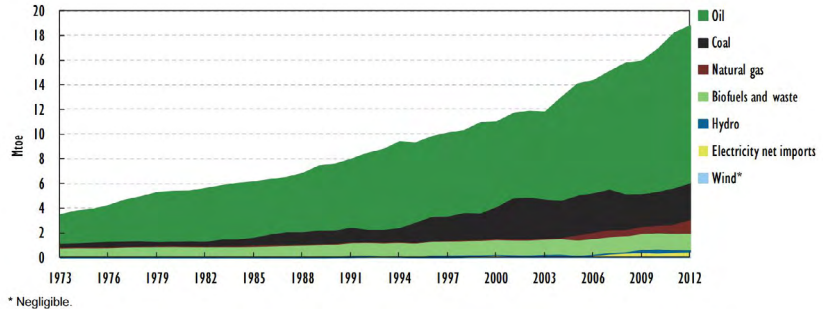
This fact is a result of the implementation of the national rural electrification program (PERG), started in 1996: in twenty years, according to the single state-owned electricity operator ONEE's (Office National de l'Electricité et de l'Eau Potable) official reports [3], nearly 40,000 villages have been connected to an energy grid reaching remarkable results in terms of rural electrification rate in 2014 (98%). More than 51,000 rural households were offered photovoltaic systems up to 2012. Linearly, such an increase in electricity access (where not provided by local initiatives or autonomous generators) stimulated an already growing energy demand, which had grown by an average of 6.7% per year between 2003 and 2013.

Satisfying a growing domestic energy demand in Morocco (see Per capita energy consumption in Morocco, 2000-2012 [3,4]) could be a real challenge without having its own natural resources. As the only Northern African country without oil resources (although recent drilling activity indicated that there are both onshore and offshore unexplored sedimentary basins suitable for oil reserves), Morocco is highly dependent on imported energy: nearly 91% of all supplied energy comes from abroad. As of 2014, the national energy mix was dominated by oil (61.9% of TPES), followed by coal (21.2%), biofuels and waste (7.2%), natural gas (5.3%), and a small share (less than 1%) of renewable energy [5]. The country also has large reserves of shale oil, but the costs of implementing the technologies to develop exploration and extraction pushed the government towards investing in the promotion of renewable energy, which is currently reshaping the country's energy identity, along with natural gas. The utilization of natural gas for power generation is a relatively new factor in Morocco, as imports started after the launch of the Maghreb-Europe gas pipeline in 1996. The infrastructure brings natural gas from Algeria through Morocco, then towards Spain and the European Union, making Morocco a strategic interconnection in the Mediterranean area. Given the precarious diplomatic relations between Morocco and its largest neighbor, partially caused by the dispute over the sovereignty of

Per capita energy consumption in Morocco, 2000-2012 [3,4]



Morocco's TPES, 1973-2012 [5]



Western Sahara which also led to the closing of national borders, the provision of Algerian natural gas is secured by the necessary transit to the European Union. Morocco launched a national development plan for liquid natural gas in 2014, aiming at a massive introduction of natural gas into its energy mix with the goal of reaching a 32% share by 2025. These actions are also implemented to secure the satisfaction of the internal demand, given that the contract with Algeria is going to expire in 2021 and it is not clear whether the terms will be reconfirmed.

Energy security, an affordable energy supply and environmental sustainability have been key concepts of the Moroccan energy policy in the past years. The 2009 National Energy Strategy outlined plans and solutions to reach those goals, furthermore investing in renewable energy generation as a tool to address energy supply uncertainty. The plan aims at a 42% share of renewable in the installed energy generation capacity by 2020, corresponding to 2GW of wind energy, 2GW of solar energy and 2GW of hydropower energy. The renewable energy goal is envisioned to curb power supply shortages and the increasing fossil-fuel imports, and to stimulate low-carbon development. As of 2014, the IEA considered the national strategy on target [5]. Moreover, in its INDC Morocco pledged to reduce its GHG emissions by 32% by 2030 (with an unconditional 13% target to be financed through domestic resources) [6]. The document indicates a clear strategy: to overtake 50% of electric production capacity from REs by 2025, to reduce the energy consumption by 15% by 2030 through energy efficiency improvements, to reduce substantially fossil fuels subsidies, and to increase the use of natural gas. Whether Morocco will be able to meet its Paris targets will depend on the availability of international financial and technological support. The country is however making huge progresses towards a gradual diversification of the energy mix through investments in solar plants, as the recently inaugurated Noor I in Ouarzazate. Adaptation policies enlisted in the INDC are also vital to Morocco in the near future and in energy terms, considering the importance of the hydropower sector.

According to the International Energy Agency, Morocco is well placed to become a regional leader in RE technology, given its geographical advantage [5]. The country is estimated to have a huge potential for the use of renewables, with ONEE already investing in and developing solar programs, and possessing a historical know-how in hydropower generation. However, according to some studies [4], ONEE could at the same time represent an obstacle in the development of a clean energy market, given its dominant market position. Despite changes in the energy sector's legal framework that are still indicated as necessary by some policy papers [4], the clean energy plans are considered to be on track.

Recent declarations from government officials state that the country is currently working at implementing renewable energy production that has, as of early 2016, reached a share of 35% in the country's energy mix [7], an astonishing result when compared to the negligible percentages of just few years ago (see Morocco's TPES, 1973-2012 [5]).

According to Ali Fassi Fihri, ONEE's General Manager, the 2009 goal of 42% share of renewable energy installed capacity by 2020 will surely be met. The figure even may be overtaken as new plants (now under construction) will be added to the grid.

References

[1] Photo: Rows of solar panels (2010) World Bank photo collection
[2] World Bank (2016) Access to electricity (% of population)
[3] ONEE
[4] Tayeb Amegroud (2015) Morocco's Power Sector Transition: Achievements and Potential. IAI Working Papers
[5] IEA (2014) Morocco 2014 - Energy Policies Beyond IEA Countries
[6] UNFCCC (2015) Morocco's INDC
[7] Mariyana Yaneva (2016) Renewables slice 35% of power generation mix in Morocco. SeeNews Renewables

CARBON MARKETS OCTOBER– NOVEMBER 2016

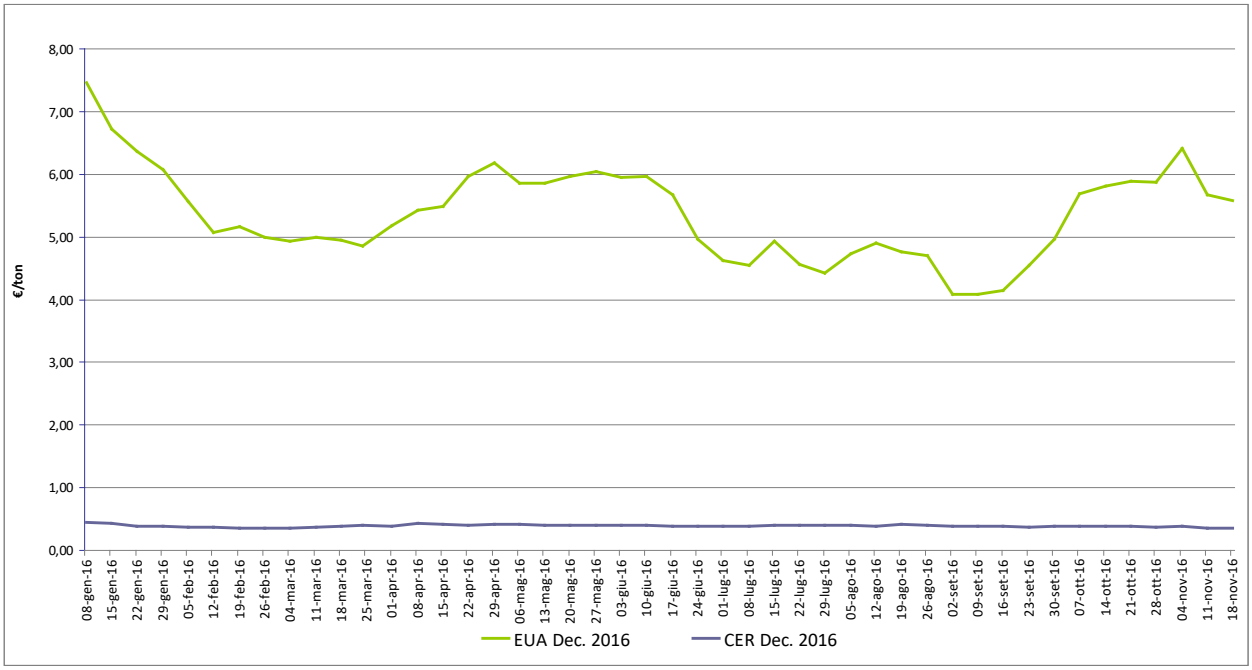
Marinella Davide

After an already strong September, a bullish trend characterized also October and the beginning of November. European carbon prices were highly volatile and mainly driven by power market developments. The 2016 EU benchmark contract started the period October – November at €4.96 and went up gradually until breaking the barrier of €6.00 in early November. EUA prices were supported mainly by power market developments focused in particular on the news about the drop of French nuclear power production by 5.5TWh year-on-year. Being replaced mainly by fossil-fueled generation, France's emissions are estimated to be higher in a range of 4m tonnes CO2 per month, according to ICIS Tschach Solutions' analysis [2]. Coupled with an already lower than usual renewable production, the power price hike caused by the France energy development, likely produced more power hedging across Western Europe, which resulted in additional EUA buying for future power generation.

On the policy side ITRE (the European Parliament's Committee on Industry, Research and Energy) expressed its vote on the Post-2020 report on October 13, and issued its official opinion with the report being adopted by a large majority. However, within the Environment Committee (ENVI) lawmakers are still working on compromise amendments and it seems they are aiming to one big compromise ahead of a crunch vote next month.

In addition, in October, the World Bank's annual report on the "State and Trends of Carbon Pricing 2016" affirmed that greater cooperation through carbon trading could reduce the cost of climate change mitigation by 32 percent by 2030 [3]. By the middle of the century, reduction of global mitigation costs could be even deeper, reaching more than 50 percent. Over 100 countries are open to use carbon pricing initiatives as part of their Nationally Determined Contributions (NDCs) submitted under the Paris Agreement. According to the report, the 2°C threshold will be difficult to achieve cost-efficiently without more carbon trading, and, in this perspective, Article 6 of the Agreement provides a basis for facilitating international recognition of cooperative carbon pricing approaches. At the moment, about 40 nations and over 20 cities, states, and regions have a carbon price in place, for a total coverage of about 13 percent of global GHG emissions, threefold more than the past decade. Only in 2015, governments raised revenues for about US$26 billion from carbon pricing measures: 60 percent more than 2 years earlier. Two new initiatives have been launched in 2015: British Columbia, which already has a carbon tax, put a price on emissions from liquefied natural gas (LNG) plants and Australia, which after repealing its Emission Trading Scheme in 2014, implemented a safeguard mechanism to the Emissions Reduction Fund, requiring large emitters to offset excess

Front-year EUA and CER prices, 2016 (weekly closure) [2]



emissions. But there are major expectations for next year, when the Chinese national Emissions Trading System (ETS) is expected to become operative. With the largest coverage in terms of carbon emissions, China's scheme would become the largest carbon pricing initiative in the world, surpassing the EU ETS. Preliminary estimates provided by The World Bank show that emissions covered by carbon pricing initiatives could increase from the current 13 percent to 20-25 percent of world's GHG emissions [4].

The second week of November, however, the EU contract started to lose ground under both weaker energy complex and poor EU auctions. As in other markets, a rapid shock followed the news that Donald Trump had won the US presidency. On Friday, 18, the Dec-16 contract almost had given back previous gains, closing the week below the €6.00 level.

References

[1] Photo: Rafael Matsunaga (2007) Sao Paulo Stock Exchange
[2] ICIS Tschach Solutions (2016), Monthly Market Briefings
[3] Own elaborations from ICIS Tschach Solutions data and analysis
[4] World Bank Group (2016) State and Trends of Carbon Pricing 2016

The International Center for Climate Governance (ICCG) was founded in 2009 as a joint initiative of the Fondazione Eni Enrico Mattei (FEEM) and the Fondazione Giorgio Cini. The ICCG is now an internationally renowned center whose activities focus on the design of climate policy and related governance issues.

The ICCG's mission is to disseminate scientifically-based, socio-economic research in the fields of climate change mitigation and adaptation to policymakers, business leaders, academics and the general public. It seeks to achieve this at the local, national and international levels through interdisciplinary activities as well as through the production of climate and energy policy analyses and definitions of optimal governance models for climate change management.

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