Renewables Grid Initiative

Summary Report

In order for Europe to meet its targets for reducing greenhouse gas emissions and successfully make the transition to a low carbon economy, large quantities of variable renewable energy sources will need to be integrated into the European electricity transmission network and transported across Europe to areas of demand. This will require both, grid modernisation and expansion. Our challenge is to understand how this can be achieved while minimising the negative impacts on our natural environment, and where possible, delivering environmental improvements.

Under the guidance of RGI, a coalition of Europe's 29 largest environmental NGOs and grid operators pledged to work in partnership to ensure that the goals of grid modernisation and environmental protection can be achieved side by side. The European Grid Declaration on Electricity Network Development and Nature Conservation in Europe (EGD) was publicly signed at the European Parliament in Brussels and handed over to EU Energy Commissioner Oettinger on 10 November 2011.

The workshop on "How can Grids protect and enhance the Environment" looked at the challenge at hand from several perspectives. It showed that important measures are being taken in some areas to implement the EGD while in other areas, the quest for feasible measures to adopt is currently ongoing.

In particular, the strategic planning of the future European grid remains an area for further adjustment of procedures and application of new approaches. On the one hand, there is a clear recognition that application of Strategic Environmental Assessments at the very early planning stage is a decisive tool to become aware of and appropriately deal with potential environmental impacts. On the other hand, the high level of planning, as is being done via the ENTSO-E TYNDP procedure, is considered by many to make it extremely difficult to apply significant environmental assessment methodologies. Further dialogue is clearly needed to figure out how SEAs can be applied in a practically feasible way at a stage that is early enough to still allow for thorough consideration of alternative planning.

A further challenge of planning procedures on a European scale lies in finding means of getting the interest and involving a balanced set of stakeholders at an early stage. This is essential to ensure that planning scenarios to move towards a new electricity grid that supports the transition to renewable energies are considered robust and suitable by a broad community. Experiences are currently being gathered on how to best coordinate such participative and consultative procedures.

Experiences are much more advanced and concrete when it comes to measures to enhance environmental benefits on a local level in direct relation to a specific grid line. Different approaches to corridor management that are being tested and researched show that the areas underneath grid lines can very well be of high ecological value.

For TSOs, the decision on a comprehensive rollout of such solutions however depends on cost considerations. It will be essential that extra costs incurred are recognised by regulators. For this, it will be important to look at costs from a comprehensive perspective, taking into consideration potential cost-savings that result from easier and faster implementation when environmental impacts are reduced, due to fewer regulatory barriers and increased public acceptability. Ideally, any positive and/or negative external costs relating to changes to the environment (and provision of ecosystem services) should also be considered and reported in economic evaluations.

Grid expansion in marine environments and nature protection in such settings is becoming an increasingly important topic. Topics such as effective cross-border marine spatial planning considering protected sites,

consultation with the multitude of different ocean users and stakeholders and how to enhance learning on the implementation of low impact infrastructure will play an important role in the future.

RGI will follow up on each of those topics and promote joint development of new solutions, cooperative learning and sharing of best practice.

In addition, the Smart Energy for Europe Platform (SEFEP), long-since one of the strongest supporters of RGI, is about to establish a comprehensive monitoring system that will allow to systematically keep track of the progress made on the implementation of the European Grid Declaration.

Summary of presentations

Welcome address – Jean Verseille, RTE

In his introductory note, Jean Verseille described some of the challenges RTE is and will be facing with respect to necessary grid expansion and a French energy transition. RTE operates 100 000km of lines ranging from 63 to 400kV. In 2011 there has been a total of €1.3bn in investments,which is more than twice as much as in 2005. RTE is presently applying permitting process to around 150 projects, which makes RTE the first user of permitting processes in France.

The new French government has launched a new national energy debate in September following the June presidential election. This debate will include energy efficiency, the energy mix for 2025 and scenarios for renewables targets in 2050. One of the key decisions that already have been taken at this stage, is that the new government intends to reduce the share of nuclear in total electricity production from 75% to 50% by 2025, implying the closure of around 20 units between 2017 and 2025. The phasing out of nuclear plants will be compensated by the development of large offshore wind generation capacity. This new energy mix will only be possible with a new transmission grid, a situation very similar to that of our European partners. However, this will require significant investments and a timely development of the grid.

At the same time, the assessment of the projects identifed in the ENTSO-E TYNDP in 2010 show that one third of these projects are experiencing delays. The main challenge will be to bridge the gap between the large and increasing timeframe for building new lines (up to 10 years) and the rapid evolution of energy systems to sustain the energy transition and integrate renewables.

Jean Verseille stated that in this setting the Renewables-Grid-Initiative has proven that it is possible to productively work together and that there is no contradiction between environmental legislation and grid development – that grids can actually enhance environmental benefits. Successful cooperation on these matters will be highly important for a timely grid development.

Welcome address – Antonella Battaglini, RGI

In her introductory note, Antonella Battaglini shared some memories of a UCTE conference in Brussels in 2009. On that occasion, it was the first time that TSOs explained that new grids were needed to allow an enhanced use of renewables, while NGOs were urging for a target of 100% renewables in Europe.

This was a historical opportunity for these two sides that had previously kept a wide distance to start engaging in a strategic dialogue. RGI was founded to provide a platform for this dialogue. It initially brought together four major partners, two TSOs and two NGOs, in July 2009. RTE joined shortly afterwards, followed by many others from across Europe since.

Within the RGI platform, the signature of the European Grid Declaration showed that it was possible to build trust and build grids with respect for nature as part of efforts to combat climate change. A door to a constructive dialogue and a common vision has been opened and others can now walk through it.

Antonella Battaglini explained that the need for grids is directly connected to the future we want as a society. Everything can change when we join our voices to call for change, as the French government's new direction illustrates.

European policy should stimulate and ensure rapid grid expansion in line with nature protection legislation – Reinhold Buttgereit, EPIA

The question of how many grids we need will be the object of important debates today and in the future, according to Reinhold Buttgereit from EPIA. It is therefore crucial that the renewables industry actively takes part in addressing the challenges connected to a renewables generation, in particular grids and storage. EPIA is the global association for photovoltaic industries but must work with other renewables actors to develop common strategies, as divisions can only benefit the interests of the fossil fuel industry.

The targets for this generation are now clear and point to only one direction: a rapid increase in renewables within Europe's energy mix. When it comes to implementation and the issue of costs and subsidies, we must be clear that fossil fuels have benefited from decades of hidden subsidies in the form of public investments and tax revenues. This must be taken into account for a fair discussion on the costs of renewables.

Mr Buttgereit also stressed the importance of treating the various renewable energy sources individually in terms of the challenges and complementarity they offer. This will allow for the development of a comprehensive and integrated renewables strategy. At the same time, we should not ignore concerns over the potentially negative impact of renewables on the environment. Wind parks and other renewables sources are not always attractive and necessarily good for landscapes and the environment – this must be acknowledged and integrated into the case for renewables.

What is at stake is a long-term change and transition to new energy systems (including markets, public infrastructures and individual households) that will only be achieved if all actors work together. While research in storage technologies is crucial in the long-term, technology cannot compensate the current need for grid expansion. Mr Buttgereit therefore encourages all actors to develop a clear vision of the steps required between today and tomorrow, in particular the need for a new market design.

How to increasingly include European climate and energy targets in the TYNDP? – Sébastien Lépy, ENTSO-E

Sébastien Lépy started his presentation by stressing the importance of the word "increase", which indicates that while renewables already exist, the potential for further growth is important. Grids will play a key role in fulfilling this potential and must address the considerable challenge of bridging the long distances between areas of renewables generation and those of consumption.

It is therefore important to build robust scenarios that are shared and endorsed by all members in order to be fully implemented. Grid planning is a long-term and non-reversible exercise: plans cannot easily be changed or scratched once they are in place. This is why "no-regret" solutions should be identified according to Mr Lépy, especially for power lines that have a 50-60 year life expectancy.

Mr Lépy acknowledged that social acceptance for grid expansion is one of the key issues today, with an average building period of around 10 years for new 400kv lines. ENTSO-E is developing a new vision of a pan-European

grid based on discussions with key grid actors in Europe. The TYNDP is a brand new exercise based on a looping, evolving and inclusive process of consultation. The 2-year process started in June 2010 with the aim of involving a wide range of stakeholders. It has however proven a challenge to get input from relevant stakeholders at the right point in time as some stakeholders only provided "complaints" one year after the plan had been consulted upon.

ENTSO-E is now about to set up a stakeholders' group of 15 active members from key stakeholder groups to build common positions and feed into the TYNDP process. The group should offer access and fair representation to all relevant actors including representatives of civil society. Mr Lépy recognised that ENTSO-E will have to address the asymmetry of resources and consider financial support for civil society members to increase the group's legitimacy.

On the issue of strategic environmental assessment, Mr Lépy explained that a detailed assessment is very difficult at TNYDP level for logistical reasons. Extensive environmental information on various scenarios in a 800-page report would not necessarily be helpful at such a broad scale – environmental recommendations in Mr Lépy's perception are more valuable at regional level to inform project planning.

Why the European Grid Declaration emphasises environmental assessments and Natura 2000 – Ivan Scrase, RSPB

Ivan Scrase drew participants' attention to that fact that climate change is a major threat to biodiversity, for example it may cause major shifts and losses in the breeding ranges of many bird species. Projections based on current emissions show that large parts of Europe could become inhospitable because of rising temperatures. This has important implications according to Mr Scrase, as birds offer a very good indication of the evolution of living conditions for all species including human beings.

RSPB and Birdlife Europe strongly support the development of renewables to combat climate change. For the necessary grid expansion, the European Grid Declaration outlines how this can be achieved with respect to nature conservation principles. The key instruments to ensure sustainable grid expansion are strategic planning, environmental assessments and respecting nature legislation, in particular laws to protect the Natura 2000 network of Europe's most important sites for wildlife.

The central idea behind RGI and the participation of nature conservation partners is not to prevent infrastructure development but to make development more sustainable by supporting efforts to improve plans and projects.

For environmental assessments to fulfil their role, Mr Scrase underlined some of the relevant commitments in the EGD. He called for more good practice examples, particularly in 'strategic' environmental assessment of national or regional grid plans, a stronger emphasis on alternatives and increased qualifications and training for the professionals involved. Furthermore, governments must support TSOs and environmental agencies in the implementation of sustainable principles, as better and faster grids cannot be delivered without the support of public authorities.

How can grid expansion protect and enhance the Natura 2000 network? – András Demeter, DG ENV

András Demeter emphasised that in parallel to its renewables targets, the EU has recently adopted a new biodiversity strategy. Enhanced implementation of nature legislation is one of the six main targets of this strategy to halt the loss of biodiversity and ecosystem services in the EU by 2020. The Natura 2000 network is a key environmental policy instrument that now comprises over 26.000 sites and covers 17.5% of the EU's territory. By preserving areas of natural value, it creates the conditions for current and future generations to benefit from rich environments and essential eco-system services.

Regarding infrastructure projects, Mr Demeter stressed that a sustainable approach must balance the different interests and costs with respect to short-term needs and long-term impacts. He outlined key principles to improve infrastructure projects with respect to nature conservation as: early and inclusive strategic thinking, the use of all opportunities and existing know-how, and building multi-stakeholder partnerships such as RGI. The European Commission fully supports initiatives that allow stakeholders from the industry and civil society to cooperate on improved practices. There are a number of successful examples of work by environmental partners on infrastructure projects, such as retrofitting for bird protection and sensitivity mapping which can be extremely useful for early strategic planning. Since legislation can be difficult and time-consuming, other solutions such as technical standards could also offer an alternative path to improve practice.

Can we streamline environmental assessments and use them more effectively at the same time? – Ric Eales, Collingwood Environmental Planning

Ric Eales explained that Environmental Impact Assessments (EIAs) and Strategic Environmental Assessments (SEAs) are decision support tools to integrate environmental considerations into decision-making in infrastructure projects. They should help identify potential obstacles early to avoid delays later in the consultation and permitting process and increase the transparency of decisions. While there is thousands of examples on SEA and EIA regarding biodiversity and climate change, recent research has shown that there are only very few examples of ideal implementation of those assessments.

According to Mr Eales, one of the key improvements would be to better integrate EIAs and SEAs into the planning process. It is important to define hierarchies among assessments and fully consider appropriate alternatives, thus fully seizing the opportunity to use SEAs as a tool for strategic thinking about the different options. This can be done by creating platforms for dialogue and early engagement of stakeholders with a focus on critical issues.

Mr Eales furthermore explained that to fully consider environmental impacts, not only should the impacts of a plan or programme on the environment be assessed but also vice versa, meaning it has to be considered how a changing environment will impact a plan or programme. If the impact of a plan or programme on the environment is a positive one and can be maintained as such to be resilient to a changing environment, a long-term virtuous cycle has been installed.

Regarding the streamlining of environmental assessments to speed up permitting procedures as proposed in the Regulation on guidelines for trans-European energy infrastructure (COM (2001)658), Mr Eales highlighted a number of risks that should not be overlooked: the potential drop in quality, the lack of resources and the need for effective cooperation between authorities and countries (in the case of Projects of Common Interest).

Principles and opportunities for ecological enhancement and increased habitat connectivity – Nick Droy, RSPB

Nick Droy strongly encouraged infrastructure project operators to engage with and involve stakeholders, partners and local people, based on the RSPB's experience in managing 140,000 hectares of protected land in the UK with the help of volunteers and its one million members. While such active engagement may seem more complex and costly, it actually makes projects more sustainable by strengthening public acceptance. RSPB has developed a new approach for sustainable infrastructure, which shifts the focus from mere mitigation to the active enhancement of natural habitats and the involvement of communities in delivering positive measures to create a sustainable legacy.

Via a strategic planning approach, measures to enhance habitats should identify and seize opportunities to connect ecosystems via infrastructure networks, to make habitats more resilient to climate change. On the ground delivery should lead to cost effective enhancements that both contractors and the community are

directly involved in implementation. Mr Droy explained that this direct involvement of NGOs and local community actors in the planning and implementation can substantially increase local ownership and acceptance of projects. Taking this approach is foreseen to lead to a positive legacy of the project, as it provides a "social licence to operate" and will assure that measures taken also provide direct benefits to local populations.

Mr Droy emphasised that the key to successful infrastructure projects is to combine benefits for businesses, communities and the environment. For NGOs, this means maintaining independence while considering engagement with private sector partners such as TSOs. However, structural engagement and partnerships require resources and funding. Investments of TSOs in environmental expertise from NGOs to achieve their sustainability objectives can therefore be mutually beneficial according to Mr Droy.

Plant diversity under grid lines - Clémence Salvaudon, National Botanical Conservatory of the Paris Basin

From 2009 to 2011, the National Botanical Conservatory of the Paris Basin worked with RTE and the Ile-de-France region on a biodiversity project to better understand and promote plant diversity under power lines in the greater Paris area. 330km of corridors were selected to perform an exhaustive plant inventory. Clémence Salvaudon explained that the goal was to help the region create ecological corridors and suggest vegetation management orientations for species conservation.

Sharing the key results from the study, Ms Salvaudon stated that a wide number of plant species were found under the selected power lines, representing half of the total flora in the region. 20 of those species were protected at regional or national scale, and four of them considered critically endangered. These inventory results confirmed the high value of natural habitats covered by the network and highlighted the risks in neglecting plant diversity.

The study led to a number of recommendations on improving ecological practices as part of corridor maintenance: comprehensive habitats mapping, the promotion of mowing over rotary cut, adapting maintenance periods to the biological cycle of endangered species, higher frequency and the removal of material resulting from corridor maintenance.

Another positive impact of the project according to Ms Salvaudon was to raise the awareness of RTE of the diversity of plant species under its network, which was communicated to its staff and the general public. She presented concrete measures that had already been implemented such as field markings of endangered species and vegetation management experiment via the LIFE+ project (see below).

Experience of LIFE+: restoring natural habitats in grid corridors – Elodie Jaussaud, RTE & Gaëlle Vervack, Elia

Elodie Jaussaud explained that biodiversity is at the heart of RTE's environmental policy. After successful work for bird protection, the company is now gaining a better understanding of the impacts of its activities on eco-systems including flora. For Elia, Gaëlle Vervack said that the objective is to build on successful individual projects to change the core business and culture of the company. She stressed that what benefits natural habitats also benefits TSOs, in particular when stable habitats sustained by local communities can be put in place.

The two TSOs have been collaborating on a LIFE+ project to develop power lines as active vectors in the development of biodiversity. The LIFE+ project was therefore developed with a wide range of partners including local public authorities, NGOs, local partners, owners and TSOs in two countries (France and Belgium).

The sustainable corridor management is based on local enhancement measures to develop and restore forest corridors. These measures include planting medium-height trees, creating orchards and flower meadows, creating ponds to manage water levels and work with local farmers to manage vegetation by mowing and grazing.

While this type of initiative clearly contributes to improving the external image of TSOs, both speakers emphasised that to be successful and sustainable they must also make sense internally from an economic perspective. This is the case with reduced maintenance costs from sustainable planning as, once fully established, the ecosystems developed in these corridors should not require substantial maintenance activities like tree cutting any more.

Elia and RTE believe the project has clearly produced mutual benefits for all partners involved particularly thanks to the credibility brought by European Commission support. The next steps will be to ensure its sustainability by working closer with local partners and to spread the good practices among others TSOs in Europe.

Reflections about grids and the marine environment – Magdalena A.K. Muir, Coastal and Marine Union

Magdalena Muir showed how the development of grids in marine and coastal environments offers a very different picture to that of terrestrial grids. North Sea countries are developing various planning models that consider fishing, hydrocarbons, shipping, and tourism uses along with grid development as well as offshore wind and ocean energy resources. Ms Muir stressed the importance of considering grids on or beneath sea beds in the light of those very dense existing uses and networks, which also include oil and gas extraction infrastructures that have substantially developed over the past decades.

At this stage in marine grid development, Ms Muir believes there is a need for consistent economic, environmental and social policies. This will be made easier by practical lessons drawn from new projects to improve regulation. In the North Sea, authorities and the industry have started developing consultation processes for nature conservation and public acceptance within and between countries.

According to Ms Muir, fishers, shippers, coastal communities and other marine users and stakeholders must be fully involved to express their views, and contribute to decision-making processes for grid expansion. This will require more research on the social, environmental and economic impact of marine grids, in addition to expanding the existing body of technical research. There is currently insufficient data and surveys on the possible effects of marine grids on biodiversity, communities, and other marine uses.

A key challenge for comprehensive consultation is the complex map of territorial waters and exclusive economic zones that create shared responsibilities for projects. This leads to political challenges in coordinating public responses and strategies for large-scale marine infrastructure investments. In terms of the sustainability of underwater infrastructures and their impact on ecosystems, Ms Muir suggested that grid operators should draw valuable lessons from the experience of oil and gas platforms.

Panel discussion: How can regulators stimulate the rapid development of a grid that is in line with environmental protection principles?

András Demeter, DG ENV; Cécile George, Energy Regulation Commission; Michel Badré, French Environmental Authority; Jean Verseille, RTE

Cécile George, national regulator: "Energy regulators are relatively new to the issue of sustainability and have not traditionally had an environmental mandate. Their core tasks are to set up tariffs, approve investment plans and foster market integration at the European level. All of these issues have a direct impact on environmental protection as part of grid expansion, both in terms of opportunities and constraints.

One constraint is the regulator's duty to protect consumer bills, with tariffs automatically reflecting additional infrastructure investments. At the same time, TSOs should have sufficient freedom to invest in the mid and long-term, in particular to address the current need for new and upgraded grids to integrate renewables. Furthermore, the promotion of market integration in Europe should open new opportunities for renewables as interconnectors facilitate and support renewables generation."

Jean Verseille, RTE: "From a TSO perspective, it is important to develop a regulatory framework that goes beyond pure economic incentives to support the energy transition. Cost/benefit analysis tends to focus on costs and delays with quantitative comparisons across projects and countries. This alone cannot promote environmental protection and enhancement."

Michel Badré, French Environmental Agency: "Regarding environmental assessments of infrastructure projects, the key is to create the conditions for "informed consent" by the public and local actors. Environmental strategies must also take into account the various and often competing interests at stake in each project (safety, evolution of population, trading opportunities between countries, etc.). A useful approach would be to use a global view on all infrastructures, in particular road and rail transport. Cost analysis and environmental assessments must also be performed in parallel and then compared before final decisions are made."

Jean Verseille, RTE: "The time horizon is key in the need definition and planning phases as large infrastructure commitments are non-reversible and have large impacts. Today we must look at economic and technical challenges up to 2020, while assessing social and environmental impacts up to 2030 and beyond. At the same time, the gap between levels of certainty for consumption and generation perspectives is growing, with the latter currently more difficult to predict. Yet while energy mix scenarios are being discussed, grid planners are under pressure to commit investments in designated corridors and build new grids in time for the deployment of new energy sources."

András Demeter, European Commission: "The current discussion offers a unique opportunity for the convergence of visions at European level between the European Commission and national regulators. Drafting infrastructure scenarios is extremely challenging but crucial to how Europeans will use their space at a time of social change. A piecemeal approach will not work, as a broad new vision must be supported by substantial investments. "

Joint conclusions: "A key factor for the success of sustainable planning will be the internalisation of externalities, which has been making slow progress so far. The difficulty is to integrate biodiversity and nature conservation into the cost/benefit analysis. Using carbon emissions as an indicator for biodiversity would not be sufficient. A possible solution for an open discussion on nature conservation and costs would be to involve consumer associations and NGOs in a dialogue on additional costs and tariffs, instead of leaving the decision to bureaucrats.

The more stakeholders are involved in the discussion, the greater the chance of finding intelligent solutions. The open consultations on TYNDPs represent a very positive innovation to improve scenarios and better inform investment decisions. All actors are coming to realise that the time and energy dedicated to consultation is never wasted, especially when facing a societal challenge as broad as the energy transition."

Monitoring the implementation of the European Grid Declaration – Kristina Steenbock, SEFEP

As a key partner and supporter of RGI, SEFEP has set up a number of initiatives to support and promote the work of RGI, including the Grid Master Class. The next step is to set up a monitoring tool for the implementation of the European Grid Declaration.

The monitoring tool will provide a comprehensive, external analysis of the implementation of principles of good practice as contained in the European Grid Declaration. It will contain elements of self-assessment and cross-assessment, looking into the activities of TSOs, NGOs and public authorities under the given societal context. This will allow stakeholders to systematically identify the potential for improvement in building sustainable grids and strengthen the visibility and credibility of their activities. RGI partners will be consulted to help develop effective indicators and monitoring mechanisms.