AWARD

GOOD PRACTICE OF THE YEAR 2020

RGI is a unique collaboration of NGOs and TSOs from across Europe engaging in an 'energy transition ecosystem-of-actors'. We promote fair, transparent, sustainable grid development to enable the growth of renewables to achieve full decarbonisation in line with the Paris Agreement.

For more information, visit our website: **www.renewables-grid.eu**

Imprint

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Foreword

Kadri Simson

EU Commissioner for Energy

2020 has been a difficult year. We started this cycle with the bold, far-reaching objective of becoming the first climate-neutral continent by 2050, as outlined in the ambitious European Green Deal agenda published by the Commission in December. A clear plan with a view on how the clean energy transition, in all its different forms, could also serve as a growth strategy for the EU economy. Since then, however, the COVID pandemic has added a series of additional challenges unlike anything we have ever seen before. Our political focus has turned to working together to fight the virus and to address the issues of economic recovery in the wake of the pandemic – but to do it in a way, which embraces our climate goals and remains consistent with our long-term ambition. In short, we are driving for a sustainable, fair and inclusive recovery of our economies. I am more convinced than ever that the energy sector can make a significant contribution to this recovery. Indeed, we are now looking to raise our medium-term ambition by increasing our emissions reduction target for 2030. And the exchange of knowledge and best practice is vital for moving forward as efficiently as possible.

Achieving a greater reduction in greenhouse gas emissions while fostering growth will require significant investment in renewables and the electrification of various key sectors. Consequently, a significant increase in electricity demand is expected, and this will rely on modern, smart and robust energy infrastructure. Developing a well-interconnected, integrated, strong European grid is a key enabler of the Green Deal objectives, but it brings with it many challenges.

Whether onshore or offshore, collaborative decision-making on infrastructure planning and implementation is crucial to addressing these challenges. Already today, the Commission works closely with citizens and stakeholders so that initia-

tives concerning the development of trans-European energy infrastructure benefit from consideration, valuable input and expertise from all parts of the supply chain – from supplier to end user.

We carry out extensive consultations in the preparation of different initiatives relevant for building European energy infrastructure and reach out to as many actors as possible. The Trans-European Networks for Energy policy is built on the principle of cooperation between all. Regional cooperation is a cornerstone for the selection of key energy infrastructure projects in Europe, and the monitoring and implementation of projects is in line with the highest standards in technology, environmental protection and citizen engagement.

Initiatives like the "Good Practice of the Year" carried out by the Renewables Grid Initiative make this a reality on the ground. For the seventh year in a row, outstanding practices in grid development that consider environmental protection, citizens' engagement and technological innovation are changing grid development in Europe. By applying environmental diligence, discipline in listening to the wishes and concerns of local communities and using the latest technological innovations, we are ensuring that we have better projects. This is good for us all.

The growing number of good practices show that we are no longer talking about singular efforts, but about systemic changes whereby promoters in Europe work closely with administrations, civil societies and communities in shaping a grid to match our climate and energy ambitions.

I take the opportunity to congratulate this year's winners whose practices have now become a source of inspiration for all of us working on building an integrated, transparent, sustainable and inclusive European grid.

Introduction

AWARD GOOD PRACTICE OF THE YEAR

Renewables Grid Initiative

mazars

This year has challenged us in many new ways. Most of us were not prepared to cope easily with the impact that the pandemic has had and continues to have on our daily life. We need to find new solutions to problems that we could have never expected a couple of months ago. As difficult as these times are, they also provide fertile ground for innovative ideas. We are very proud to see how organisations who have submitted practices to this year's 'Good Practice of the Year' award have either braved these difficult circumstances and carried on with their important work towards an electricity system based on renewables, or have even adapted to the new challenges already and developed practices that help us make the best of tough circumstances.

We are very happy to share all of them with you in this brochure, and delighted to present the three winners of the 2020 competition. Voted on by our jury of experts, they are:

Communication & Engagement

EirGrid "Stakeholder consultation around the Celtic Interconnector"

The jury chose this winning practice because EirGrid continuously evaluates and improves their engagement practices. For the engagement around their Celtic Interconnector they started at a very early point in time and designed an extremely holistic engagement approach that includes a diverse set of high-quality measures. The approach is based on up-to-date research and techniques, includes a 3D visualisation tool and dedicated liaison officers and does not shy away from pre-emptively talking about difficult topics like EMF. Find out more on page 9.

Environmental Protection

"Mainstreaming soaring bird conservation in energy sectors in Jordan" by RSCN

The winner in this category was chosen because it is a hugely impactful project that is ground-breaking for the region, which is home to vitally important migratory bird corridors. It involves the protection of birds from both power lines and wind turbines and through cooperation with multiple private and public stakeholders, it has already led to the development and adoption of national bird protection plans. These provide a framework with regard to planning and mitigation measures for the wind industry and power lines located on migratory birds' flyways. Read more on page 19.

Technological Innovation & System Integration

"Holistic Approach for Evaluating Complex Smart Grid Systems" by the ERIGrid consortium

The jury picked the winner of this category because it addresses the great need for systematic testing of smart grid solutions. The work of the ERIGrid consortium allows for tangible and measurable results as new solutions are being put to the test in a number of different laboratories, already now involving 73 projects and 175 users. Given that smart grid solutions are one of the most important factors in the system transformation, we believe that we have found a very worthy winner. Find out more about the approach on page 27.

We would like to thank everyone who submitted the diverse and innovative practices that were part of the competition this year and extend a sincere congratulations to the winners. Our thanks also go to the international auditing and advisory company MAZARS for accompanying the evaluation process for the seventh year in a row and the European Commission's DG Energy for hosting the award ceremony at the virtual "Energy Infrastructure Forum 2020".

An Independent Jury of Experts

Gregg D. Ander

Managing Director of Gregg D. Ander, LLC & Senior Fellow at Navigant Consulting

In his positions, Gregg provides consultative services on a variety of power and energy sector issues. Previously, he was Vice President of Power Strategies at the Energy Foundation and had a 30-year career at Southern California Edison.

Michael Hogan

Senior Advisor at The Regulatory Assistance Project

Michael works on electricity decarbonisation policy, particularly matters related to market design. He previously led the power programme at the European Climate Foundation and has 35 years' experience in the electricity industry.

Humberto Delgado Rosa

Director for Natural Capital, DG Environment, European Commission

Previously, Humberto was Director for Mainstreaming Adaptation and Low Carbon Technology in DG Climate Action and served as Secretary of State for the Environment of the Portuguese Government from March 2005 to June 2011.

Susana Batel

Integrated Researcher, Centre for Social Research & Intervention (Cis) - University Institute of Lisbon (ISCTE)

Susana Batel is an Integrated Researcher at the Centre for Social Research and Intervention (Cis), University Institute of Lisbon (ISCTE), Portugal, working on the social studies of energy and the environment. Her research examines people's responses to and engagement with renewable energy generation and infrastructures.

Marie Donnelly

Former Director for 'New and Renewable Sources for Energy', DG Energy, European Commission

As a Director in DG Energy, Marie was responsible for the development of policies and actions on energy efficiency and renewable energy as well as the coordination of research activities in the field of energy.

Baard Eilertsen

Founder of energy utility advisory company Truebase

Baard is the former CEO & President of Wireless Maingate AB. He created the world's largest and most successful Smart Home solution 100Koll for E.ON. In 2015, Baard started his own advisory company, Truebase AB.

Carl Zichella

Former Director for Western Transmission for the Natural Resources Defense Council (NRDC)

Carl was the NRDC's lead western U.S. renewable energy transmission siting expert and serves on a nationwide team working on climate and clean energy issues. Carl also served as a director for the Center for Energy Efficiency and Renewable Technology (CEERT).

Catharina Sikow-Magny

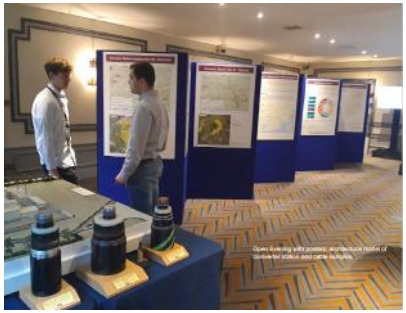
Director, Internal Energy Market, DG Energy, European Commission

Catharina joined the European Commission in 1997 and has previously been in charge of the international transport relations team and 'Internal market I: networks and regional initiatives'. She has also been responsible for the trans-European network policy, internalisation of external costs and strategic policy research.

Communication & Engagement

Stakeholder consultation around the Celtic Interconnector

by EirGrid



FIND OUT MORE

EirGrid is the transmission system operator in Ireland and one of the TSOs leading the project. Read more here

- Project website
- EirGrids Six-step approach

For the Celtic Interconnector project EirGrid applied their "Six-step approach to grid development" placing importance on stakeholder engagement, open and transparent communication, and acknowledging the social impact of project assessment and decision-making. This approach has enhanced the innovation and robustness of project development.

HIGHLIGHTS

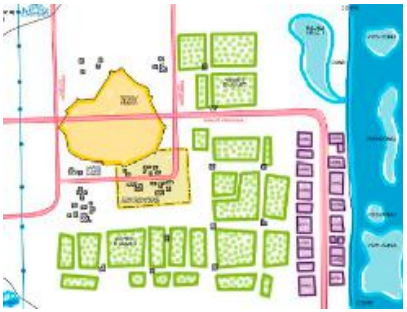
- Consulted communities and key stakeholders early in project development phase
- Encouraged ongoing community feedback by holding open evenings at several locations and at different times of day and introducing innovative communication methods.
- Ensured open communication of project updates for technical and non-technical audiences

About the Practice:

The Celtic Interconnector will connect Ireland's grid with continental Europe for the first time. It is the first large-scale multi-partner project to which EirGrid's 'Six-step approach' was broadly applied. In order to achieve objectives, EirGrid assigned a dedicated Community Liaison Officer as a point-of-contact; created accessible online resources; produced a consultation report after each 'step' of the approach and uses results to guide the project; and improved visual communication by utilising virtual 3D modelling. The outcome has been very valuable in the ongoing evaluation, adaptation and revision of the 'Six-step approach' which is applied across all projects.

The electricity world at school

by Terna S.p.A.



FIND OUT MORE

Terna is the Italian TSO. Read more here

Terna has developed a series of educational materials for schools with which pupils can learn about the how the electricity system works and the role of electricity transmission and TSOs. The aim is to increase awareness of the need for the electricity grid among youths and local communities.

HIGHLIGHTS

- Bespoke educational tools developed for three different age groups: primary, secondary and high school
- Presentation of information to teachers includes meetings with Terna staff and information materials

About the Practice:

In a bid to engage young people as active citizens in the energy system, Terna has begun to partner up with Italian schools. Under the programme, which kicks off with meetings between Terna employees and teachers, primary school children work with an explanatory comic strip, secondary school children play an educational video game, and high school level children use a role-playing game with the aim of localising new grid infrastructure. The test phase began in 2018 with 3 schools in Rome and – depending on feedback – Terna plans to expand nationally, beginning with areas where grid projects are planned.

Dialogue as the beating heart of the process – Project support groups

by Elia

FIND OUT MORE

Elia is the Belgian TSO. Read more here

- Boucle de Hainaut project
- Ventilus project

For two main grid projects in Flanders and Wallonia, two support groups were formed to discuss the interests and concerns of the project and jointly look for better solutions before project-start and throughout.

HIGHLIGHTS

- Two permanent support groups for civil society created and numerous meetings held
- Increased involvement of external stakeholders, including citizens & political actors
- Reduced opposition to grid projects, more knowledge and trust in the process

About the Practice:

Elia believes that early integration of all stakeholders enables a broader perspective and higher comprehensibility, thus helping to build public support for projects.

Given their political neutrality and knowledge of the sensitivities of their province, for the Ventilus (Flanders) and Boucle du Hainaut (Wallonia) projects, the respective province governors were placed at the head of support groups, which were made up of diverse groups, such as community groups, business unions, environmental organisations, agricultural and farming unions.

Before the launch of the planning procedure, meetings were held on the various grid-related topics, with exhaustive information prepared for each meeting. The groups remain active throughout the projects, with governors vocalising local concerns.

Energy transition: Decentral – connected – together

by Energieavantgarde Anhalt e.V.

FIND OUT MORE

Read more about the project here

Watch the explanatory video here

To shape the energy transition in Saxony-Anhalt and find future-proof solutions for the region, Energieavantgarde Anhalt (EA) brings together citizens with private and public actors to create a living lab environment, where diverse energy-related topics are handled.

HIGHLIGHTS

- Broadens public engagement by linking climate protection to regional value creation
- Involves a broad spectrum of actors in discussions on energy demand, decentralisation, energy markets, regulatory frameworks and more
- Envisages a regional energy system relying on 100% renewable energy in all sectors

About the Practice:

The EA is an alliance of citizens, municipal and federal government actors, companies and research institutions that work on a sustainable transformation of the Anhalt-Bitterfeld-Wittenberg region. In a living lab environment, the EA pursues six projects that encourage an exchange of ideas and innovations for the region's energy transition. These projects are: Time-precise recording and presentation of energy flows in the region, a start-up competition, a 'think factory', an energy forum, an art space and a 'salon' to discuss the project's activities. The EA is open to all actors, and public discourse is an important aspect of its success.

Digital results conference & dialogue process

by TenneT, DUH & MELUND

Due to COVID19-related restrictions, TSO, TenneT, Environmental Action Germany (DUH) and the Ministry for Energy Transition, Agriculture, Environment, Nature and Digitalisation in Schleswig Holstein (MELUND), adapted the results conference of the proposed West Coast Line (WCL) to become completely digital.

HIGHLIGHTS

- Developed a digital platform to inform the public and explain decisions and next steps for the proposed corridor
- Gave citizens a transparent forum to express questions, concerns, suggestions, and receive direct answers in a public plenary session
- 400 participants attended, indicating success of low-threshold, equal opportunity participation

About the Practice:

The WCL is a central energy transition infrastructure project and the northernmost German section connecting to Denmark, the Klixbüll-Endrup line, is a PCI project. Benefiting from close collaboration between TenneT, DUH and MELUND, the dialogue and public participation for the planning and implementation of the Klixbüll section (near Niebüll) was robust. When COVID19 brought physical restrictions two months before the project's results conference, steps were taken to ensure that it could go ahead digitally and that all target groups could join. Video publication for the corridor decision, a participation hotline, live stream and NGO-moderated presentation techniques were used. In the end, around double the number of participants attended, as is expected of in-person events.

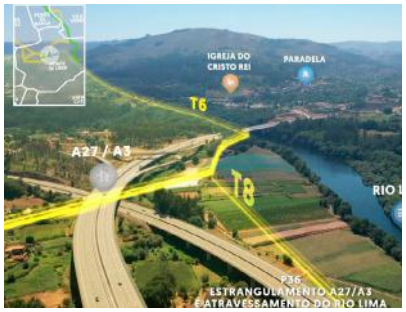
FIND OUT MORE

TenneT is the TSO responsible for several German states and the Netherlands. Read more here

- About DUH
- About MELUND
- Digital conference notes

Virtual public engagement: Project's first visit

by Redes Energéticas Nacionais (REN)



FIND OUT MORE

REN is the TSO responsible for the transport infrastructure of electricity and natural gas in Portugal. Read more here

To enable environmental impact assessments at a time where COVID-19 limitations inhibited in-person visits, Portuguese TSO, REN used drone footage and satellite imagery to illustrate the territory of new transmission lines and to draw special attention to environmental constraints..

HIGHLIGHTS

- Produced videos to illustrate territory of new transmission lines
- Reduced necessity for in-person field visits
- Increased local stakeholder participation and transparency regarding pathway choices

About the Practice:

The creation of videos depicting the routes of transmission lines in two areas in Portugal digitalised the environmental impact assessments during the COVID-19 pandemic and served a dual-purpose for REN's activities. Firstly, the videos allowed the Evaluation Committee to carry out their work without the need to visit the sites. Secondly, for communication purposes, videos could be sent to the interested stakeholders, used in clarification sessions with municipalities and shown in public consultations and licensing processes.

“EmPOWER Your Environment” grant programme

by PSE

FIND OUT MORE

PSE is the transmission system operator in Poland. Read more here

- Competition website

“EmPOWER Your Environment” is a comprehensive grant programme by Polish TSO PSE, which responds to aid applications submitted to the company by stakeholders impacted by grid development and allows PSE to enter into a social dialogue with communities.

HIGHLIGHTS

- Engages communities, co-creating and developing public space and social infrastructure
- 110,000 residents positively impacted by 85 projects in 76 communities across Poland
- Increases acceptance for transmission infrastructure through transparent dialogue with residents

About the Practice:

Plans to modernise existing grids and construct new power lines for large-scale projects often face public opposition, with lack of information a contributing factor. To address this, PSE decided to build awareness by enhancing public space through a community grant programme. Based on the principle of participatory budgeting, residents decide which social projects are to be funded. As a result, the national grant competition has unobstructed investment processes for grid projects and has helped improve PSE’s social dialogue.

Creating acceptance through transparency on community level

by Stadt Leingarten

LEINGARTEN AKTUELL

Infocenter Transnet BW

SuedLink: Info-Center in Leingarten eröffnet

FIND OUT MORE

Stadt Leingarten is a town with around 11,000 inhabitants in the region of Heilbronn-Franken, Baden-Württemberg. Read more here

- SuedLink

The city of Leingarten (Baden-Württemberg, Germany) undertook diverse engagement activities around the SuedLink HVDC connection (whose converter will be constructed in Leingarten), in order to support an early, transparent and neutral exchange of information between citizens and the project TSO.

HIGHLIGHTS

- 15 events and informative meetings for citizens, NGOs and local councils
- Support of local Infocenter (constructed by TSO, TransnetBW), and 850 people attended the opening event
- No known local opposition to practice, permission procedure of the converter executed without difficulties

About the Practice:

In order to build awareness in the local community and reduce opposition to the major grid developments for SuedLink taking place in Leingarten, the municipal council worked on several activities for public engagement – often in collaboration with project TSO, TransnetBW. 15 events have been organised until now, such as informative meetings on the converter, underground cables and renewable energies. Since 2019, the purpose-built ‘Infocenter’ serves as a base for this practice. Acceptance levels are considered to be good, with no protests or demonstrations, a state of affairs which enables TransnetBW to apply new technologies, such as the ‘E-Power-Pipe’, which in turn will take up less space.

Environmental Protection

Mainstreaming soaring bird conservation in the energy sector in Jordan

by Royal Society for the Conservation of Nature (RSCN)

Jordan's Royal Society for the Conservation of Nature (RSCN) established a national online database and implemented several other measures to monitor and mitigate migratory bird collisions and electrocution around energy infrastructure. This platform encourages wind energy project planning that supports ecological requirements and bird conservation.

HIGHLIGHTS

- Developed national safeguards for wind farms to protect 37 soaring bird species (of which 16 primary, highly-vulnerable species), which were adopted by the government
- Created online monitoring database with a mobile application for "on the spot" data collection
- Developing similar partnerships and protections for birds around powerlines in Jordan

About the Practice:

Jordan's energy strategy has prioritised solar and wind power. The new wind energy projects are located along the Great Rift Valley – one of the most important bird migratory flyways in the world, used by millions of birds, including threatened species. The process assessed priority bird species, developed the monitoring plan and adopted shutdown-on-demand protocols (116 shutdowns have been carried out to date). A national energy committee was also established, to ensure implementation of national guidelines throughout the wind industry. RSCN is developing a similar approach for powerlines and carried out a survey in 2019, with a first memorandum of understanding signed in 2020.

FIND OUT MORE

RSCN is an NGO devoted to the protection of Jordan's biodiversity and natural resources, and the Jordanian partner of BirdLife. Read more here

- Case study

Replacement of SF6 by alternatives in 420 kV gas insulated switchgear

by TransnetBW

German TSO TransnetBW initiated the first pilot projects worldwide with different manufacturers and research institutes, stimulating the development of 420 kV SF6-free gas-insulated switchgear (GIS), while at the same time allowing for safe grid operation.

HIGHLIGHTS

- First pilot projects worldwide on developing SF6-free GIS at the high voltage level of 420 kV
- Two different gas mixtures (GWP < 1) tested at two different locations
- The use of eco-friendly and climate neutral alternative gases reduces the amount of future grid operation's emissions and supports the achievement of EU climate targets

About the Practice:

SF6 (sulfur hexafluoride) is the most potent greenhouse gas (GWP 23500) with an extremely long estimated lifetime (3200 years). Through these pilot projects TransnetBW intends to gather own experience with the alternative gases, progressively replacing the SF6 in one GIS (Obermooweiler Substation) and significantly reducing its amount in the other one (Daxlanden Substation, 63 % less SF6). Within the scope of the projects, the company is also redefining the gas handling procedures ensuring a safe grid operation. To achieve these goals, TransnetBW works closely with the Swiss Federal Institute of Technology Zurich, HITACHI ABB Power Grids and SIEMENS Energy.

FIND OUT MORE

TransnetBW is the transmission system operator for Baden-Württemberg in south west Germany Read more here

- Obermooweiler
- Daxlanden

Protection of the marine environment thanks to the future offshore substations

by RTE

FIND OUT MORE

RTE is the French transmission system operator. Read more here

- Project summary (French)

French TSO, RTE is designing its future offshore substations to provide different services to the marine environment, such as ecological protection, monitoring of marine biodiversity or serving as test labs for testing innovative renewables prototypes.

HIGHLIGHTS

- Increases scientific knowledge of the marine environment in order to better understand and therefore better protect it
- Creates an interconnected environmental observation network on all French sea fronts
- Services provided by the substations can be customised for the needs of the individual region
- Ideas collected through an open innovation challenge with expert stakeholders as well as local business and universities

About the Practice:

The substations will provide numerous different services, including monitoring marine environment, measuring marine pollution, or testing solutions conducive to the re-conquest of marine biodiversity.

It will also facilitate rescue operations by providing emergency equipment such as aerial or submarine drones and test new marine solutions, such as non-polluting anti-fouling coatings and new corrosion-resistant materials. Most of the data collected will be openly accessible. The substations will be rolled out from 2026 to all offshore and coastal areas where future offshore wind farms are foreseen by the French multi annual energy plan, including in the North Sea, the Atlantic and the Mediterranean.

“Green construction roads” - Soil protection during construction

by Amprion

FIND OUT MORE

Amprion is a German TSO operating from Lower Saxony to the AlpsRead more here

- About the project

Amprion constructed 43km of underground cable for the German section of the first power bridge between Germany and Belgium: the ALEGrO project. To reduce the project’s invasiveness, Amprion created a comprehensive soil management plan and was the first to utilise the innovative “Green construction road” concept on a large scale project.

HIGHLIGHTS

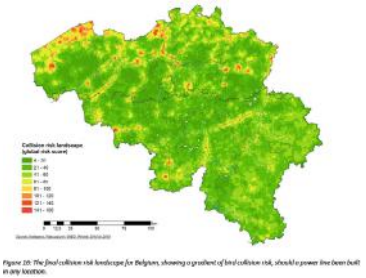
- Development of a soil management plan for 180,000m3 of soil, to prevent soil compaction, reduce interference and retain the soil functions, e.g. agricultural use
- Improved transparency with stakeholders, creating smoother permitting processes for future projects

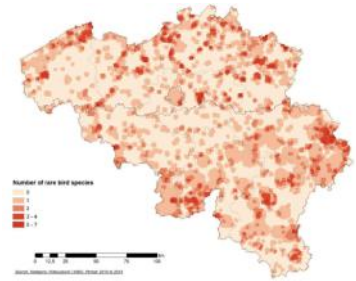
About the Practice:

In order to retain the soil functions, Amprion developed a soil management plan that determines the careful removal and replacement of soil layers in the correct order. For this purpose, Amprion consulted third-party soil experts during the planning and the construction phase. Furthermore, the concept of “Grüne Baustraße” (green construction road) was advanced: Unlike conventional excavating, that requires construction roads to be built on lower B-horizon soil, Amprion built their construction roads on the grassy top soil. This practice prevented soil compaction, reduced soil displacement by around 70,000 m3, and reduced the diesel fuel consumption during the construction work.

Reducing the risk of bird collisions with high-voltage power lines in Belgium

by Natuurpunt, Natagora & Elia





Combining the most recent knowledge on bird distribution, Belgian NGOs Natagora and Natuurpunt, together with national TSO, Elia, created a map to quantify the risk of bird collision with power lines for the whole of Belgium, enabling estimations of collision risk anywhere in the country.

HIGHLIGHTS

- Allows to prioritise which power lines should be equipped with mitigation measures e.g. diverters
- Enables bird collision risk to be considered during the planning of new power lines
- Collaboration between nature NGOs, TSO (Elia), thousands of citizen volunteers and expert ornithologists

About the Practice:

This mapping exercise is the first time that a global collision risk map is used at national scale and has become vital for planning and mitigation measures by Belgian TSO, Elia. Extensive research allowed them to identify collision-sensitive bird species; create species-specific sensitivity maps and risk maps; and to combine these in a 'risk scoring system'. A pilot case in Oudenaarde (East Flanders) showed that avian fatalities decreased from 70 to 2 in a short period. Furthermore, the map has benefits for Elia in terms of cost-effectiveness of mitigation action and a more reliable network thanks to lower outage risk through collision.

FIND OUT MORE

Natagora is a nature-NGO based in French and German-speaking Belgium. More

Natuurpunt is a nature-NGO based in Flanders. More

- 2020 Update of sensitivity mapping

Joint initiative for stone reef reconstruction in the German Baltic Sea

by 50Hertz & WWF Germany

50Hertz and WWF Germany are collaborating on the planning and implementation of stone reef reconstruction in the Baltic Sea. Including various stakeholders, 50Hertz and WWF Germany used the principle of participatory dialogue to integrate multiple perspectives and knowledge when creating conditions for pilot projects.

HIGHLIGHTS

- Compiled a comprehensive analysis and evaluation of historic stone fishery in the Baltic Sea
- Joint participatory roadmap accelerates the implementation of stone reef reconstruction

About the Practice:

50Hertz aims to minimise the social and ecological impact of new transmission lines. To offset the impact with “natural compensation”, 50Hertz is partnering up with WWF Germany to implement stone reef reconstruction in the Baltic Sea. Stone reefs benefit coastal protection and provide habitat to animal, fish and algae species. The collaboration combined internal and external expertise and viewpoints for a breadth of knowledge, for example from local NGOs, fishermen and authorities through workshops, a technical conference and iterative feedback on drafts of the case study.

FIND OUT MORE

50Hertz operates the electricity transmission grid in northern and eastern Germany. Read more here

- Case Study
- WWF Germany Case Study


Technological Innovation
& System Integration

Holistic Approach for Evaluating Complex Smart Grid Systems

by ERIGrid

ERIGrid is a pan-European Research Infrastructure which supports technology development and the rollout of smart grid solutions by employing a multi-domain approach, with corresponding tools for a systematic testing of smart grid systems.

HIGHLIGHTS

- Provides a single-entry point to a pan-European Research Infrastructure and on all aspects of smart grid testing
- System level support and education for researchers, including exchange of knowledge tools and techniques
- Rapid transfer of results into industrial-related standards for future smart grid development

About the Practice:

Starting from end of 2015 the ERIGrid project has been providing free laboratory access to engineers working in the domain of smart grids and distributed energy resources (DER). The laboratory access program supported 73 different user projects, with 175 users by offering travelling, accommodation, lab access to ERIGrid testing and simulation facilities, and access to concentrated know-how and best practices. With a methodology for multi-lab tests defined by ERIGrid's Holistic Test Description (HTD), the project ran various simulations and analyses related to smart grid optimisation.

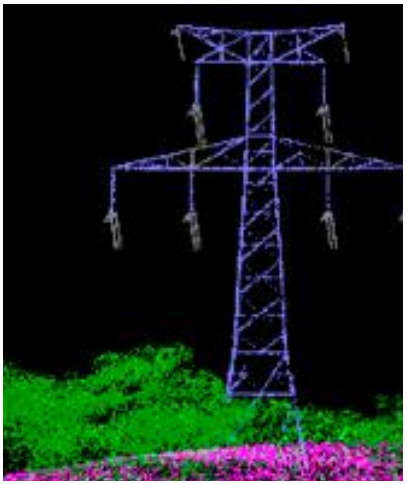
FIND OUT MORE

The ERIGrid consortium is comprised of 18 partners from 11 European countries. Read more here

- Project videos

SAGA

by Elewit, the technological platform of the Red Eléctrica Group



FIND OUT MORE

Elewit is the technological platform of the Red Eléctrica Group. Read more here

- SAGA presentation video

SAGA is an advanced information system for electricity grids, which optimises asset management strategies for TSOs and DSOs to extend asset lifespan through smarter, predictive and risk-based maintenance, reducing maintenance safety risks, impact of transmission assets on the surrounding environment and costs, increasing security of supply and creating synergies between workstreams.

HIGHLIGHTS

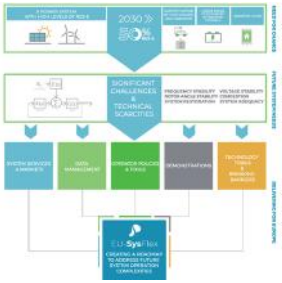
- Creates a holistic overview of all assets' conditions in a user-friendly interface (reduction of 10-30% of maintenance costs and 15-40% of person-hours)
- Prioritises and optimises asset maintenance planning through algorithms
- Integrates multiple business areas, e.g. vegetation management (streamlined felling & pruning planning, fire risk mitigation, consideration of protected zones & bird-crossing areas), outage plan, customised reports for decision-making processes

About the Practice:

In response to the myriad challenges presented by the energy transition and asset managers' reported difficulties, the three modules of SAGA work together to enable greater system asset management capabilities. MANINT: addresses assets' individual technical optimisation; VEGETA: manages data on vegetation species management; OPTIMIZA: uses data from other modules to simulate activity plans and prioritise maintenance and replacement activity. The result is a holistic "whole-grid" view, which allows for the optimisation of all maintenance and replacement activities.

EU-SysFlex

by EirGrid



FIND OUT MORE

EirGrid is the Transmission System Operator in Ireland and Coordinator of the EU-SysFlex project. Read more here

- Project website

EU-SysFlex is a project run by a consortium of 34 partners from 15 European countries with a view to creating a roadmap to address future system operation challenges associated with the integration of 50% renewables into Europe's electricity grid by 2030, in order to ensure stability, reliability and resilience, for example through flexibility, market and system services.

HIGHLIGHTS

- Thousands of simulations and analyses carried out to identify future system–wide scarcities associated with the EU renewable ambition.
- Eight demonstration projects and qualification trail process, demonstrating flexible technology capability across sectoral layers as well as cross-border data management and exchange.
- Creation of a flexibility roadmap and implementation guidelines for Europe.

About the Practice:

The consortium of TSOs, DSOs, aggregators, technology providers, academic and research institutes and consultancies, perform diverse tasks which seek to identify system-wide long-term needs, unlock technological flexible capability and enhance TSO/ DSO cooperation and European scale data interoperability and standardisation. The practice has both a top-down approach: analysing system needs to find solutions and provide recommendations and assistance; and a bottom-up approach: demonstrating technology capability of systems and developing future support tools.

e-Gridmap

by Elering

FIND OUT MORE

Elering is the transmission system operator in Estonia. Read more here

- Project website

Elering launched an innovative tool named e-Gridmap that immediately calculates the costs (CapEx and Return on Investment) of connecting a new renewable production facility to the Estonian transmission grid based on the project's location and capacity, thus simplifying investments in renewable energy.

HIGHLIGHTS

- One-click tool enables faster information flows, reducing location process from 3 months to a few seconds
- Enhanced ease of analysis and transparency of entire grid for insiders, citizens and investors

About the Practice:

e-Gridmap facilitates simplified planning for new green energy projects and equal market conditions for all competitors by providing extensive, transparent information about all components connecting to the grid and using in-house databases to calculate investment cost. By helping developers to find and compare the most cost-effective spot in the country, the map encourages green energy investments and thus the integration of more renewable energy into the energy system and fosters meeting EU Green Deal objectives. With local adjustments, the practice is easily transferable to other contexts.

CROSSBOW Horizon 2020 project

by ETRA I+D

FIND OUT MORE

The project is coordinated by ETRA I+D, a large business group dedicated to service of society in technological areas. Read more here

- Project website

CROSSBOW is multi-partner consortium aiming to enable higher penetration of RES in South Eastern Europe by improving cross-border management of renewable energies and storage units, fostering the shared use of resources and reducing network operational costs through tools and transnational business models.

HIGHLIGHTS

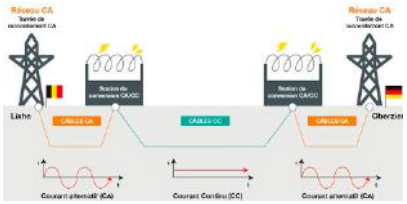
- Focus on flexibility and cooperation in market for generation, cross-border management of renewable energies, demand and storage, including interaction between TSOs and DSOs,
- Expects to create 600 new direct jobs and 70,000 indirect jobs after 5 years
- Communication technologies combine open, secure and flexible architecture with an easy-to-use interface

About the Practice:

The integration of new technologies and IT services for RES integration is important to ensure a high-quality, cross-border supply of electricity in South Eastern Europe. In order support cooperation and innovation across the region, while increasing RES and reducing emissions, the CROSSBOW project has deployed a set of 9 technological solutions to manage cross-border interconnection points with decreased operational costs. They address all aspects of the energy system, such as smart grids, regulatory frameworks, social and ethical context, emerging business models and energy storage.

New HVDC link optimised by the market to increase societal value

by Elia



Belgium's Elia and Germany's Amprion are constructing ALEGrO, the first 1GW High Voltage Direct Current (HVDC) interconnector to connect two countries within an Alternating Current (AC) grid, to allow a high integration of renewable energy, maximise market value, and improve security of supply in the two countries and across the Central West European region.

HIGHLIGHTS

- Optimisation of interconnector directly in market coupling algorithms, allowing market to determine optimal set points
- Created maximum welfare for entire Central Western Europe (CWE) region and beyond

About the Practice:

The ALEGrO interconnector will be in the centre of the meshed AC grid, requiring coordination between neighbouring system operators in order to avoid overloads. The utilisation takes these congestions into account and creates maximum welfare by steering the flows in the meshed network, thanks to the new 'Evolved Flow Based' method. It is an important development in enabling a higher degree of optimisation of the grid, and a stepping stone in the implementation of Elia's flex-in-market design for preparing the EU energy system for the challenges in 2030 and beyond.

FIND OUT MORE

Elia is the Belgian TSO. Read more here

- ALEGrO project
- Flex-in-market design