

# Paris Session 2022



## SC C3 - Preferential Subject 2

Biodiversity and the supply of electricity, renewables-based or not: risks, challenges, solutions and opportunities

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## PS2-General

- The United Nations **SDGs** include biodiversity-related goals,
  - **Goal 14** "Conserve and sustainably use the oceans, seas and marine resources for sustainable development."
  - **Goal 15** "Protect, restore, and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss."

and there is growing interest globally in the impact of the electric power sector on biodiversity.

- A wide range of operations in the electric power sector around the world, including power generation, transmission, and distribution, are being addressed with respect to the conservation of biodiversity.
- This is no exception in the use of renewable energy, which is also important in building sustainable society for Net Zero Emissions (NZE).
- Biodiversity conservation is a global issue, but the response is very local.
- **The PS2 will cover a variety of case studies** from a wide range of regions related to biodiversity and the supply of electricity, and will discuss the concerns, problems, solutions, and potential new opportunities for biodiversity conservation in each region.

Group Discussion Meeting

## PS2-Presentation of papers

- We have accepted 7 abstracts and received 5 full papers to PS2. Two papers were cancelled.
- These 5 papers submitted from highly diversity of the regions on the planet, such as Europe, Africa, South America and, Southeast and Far East Asia.
- The infrastructures include submarine cables, overhead power lines, thermal power plants, solar power plants, hydroelectric power plants, and their ecosystems range from freshwater, marine or terrestrial.
- Different regions have different issues about biodiversity in each infrastructure that need to be retained, and different ways of dealing with them.
- By sharing their respective cases, we can discuss effective and efficient biodiversity conservation methodologies, regulations, and communication.

## PS2-Paper-10164, Peixe Vivo Program: Long-Term Actions for Fish Conservation in Dammed Brazilian Rivers.

Raquel Coelho LOURES FONTES, Miriam Aparecida de CASTRO, Rafael Augusto FIORINE (Cemig Geração e Transmissão SA)

- This paper described the **Peixe Vivo Program** for **fish conservation in lakes and rivers dammed by hydroelectric plants in Brazil**. The program describes activities undertaken to mitigate dam impacts on fish mortality and the setting up of an environmental research and monitoring program between academia and industry (plus local committees). 15 years of this project, which has led to increased collaboration with academia, has revealed that turbine shutdown during dewatering is the most significant contributor to fish mortality. The project has significantly reduced mortality, which has also led to a significant reduction in penalties. The company's image has also improved and the trust of environmental groups has increased. The project has increased confidence in the company by providing guidelines for fish monitoring, training personnel, and taking action based on scientific findings. Although the problems related to fish impacts have not been fully resolved, the investment in such a long-term program has proven to bring more benefits than financial losses.

Group Discussion Meeting

## PS2-Paper-10390, Biodiversity Accommodation in the Burullus Power Plant Project Selection and Preservation of a Potential Protected Offset Area.

Marwa Mansour Hussein (Egyptian Electricity Holding Company)

- This paper described the selection and preservation of potential protected offset area for the Burullus Thermal Power Plant project in Egypt. Since Burullus Power Plant will be located within an environmental reserve, six areas were selected and evaluated as offset areas. This paper also described the process and reasons for the selection of El-Showeila as the final offset area. In the first evaluation, the two offset areas near Bullurus received very high scores, especially in terms of important species and biodiversity preservation. The final offset area, El-Showeila, was ranked fourth in terms of points received, but these received high points for preservation. In particular, El-Showeila is extremely large, 80 times larger than the offsetting area of Bullurus, and its preservation is expected to provide higher habitat value than Bullurus. It is also believed that there will be a net increase in biodiversity in Egypt as a whole. An extremely interesting procedure was used to determine the offset area, which may have resulted in the selection of a higher-value offset area.

# Paper-10530, The Characteristics of Mitigation Measures in Japan for the Impact of the Power Transmission Line on the Biodiversity.

Soh KOBAYASHI, Masaki SHIRAI (CRIEPI)

- This paper described **environmental management and mitigation measures for transmission lines based on a questionnaire to 11 TSOs in Japan**. The paper shows that Japanese regulations on the Environmental Impact Assessment (EIA) and the Strategic Environmental Assessment (SEA) differ significantly from European regulations. Although the legal backgrounds of Japan and Europe are very different, and the methods of conducting EIA and mitigation measures are different, the paper suggests that partial adoption of efficient European mitigation measures, such as the accumulation and use of wildlife distribution data, will enable more efficient development and maintenance of transmission facilities while maintaining the positive aspects of the Japanese mitigation measures. Furthermore, in Europe, TSOs' environmental mitigation measures are becoming more socially acceptable through appropriate partnerships and strategic information disclosure. This paper proposed that Japanese TSOs can also increase social acceptance and promote more efficient EIAs through partnerships and external recognition.

Group Discussion Meeting

## PS2-Paper-10924, Exploring environmental impacts of submarine power cables from offshore wind farms.

L. GARNIER, D. SAFFROY, B. TAORMINA, A. CARLIER, N. QUILLIEN (RTE, IFREMER, DYNECO-LEBCO, FranceEnergies Marines)

- This paper describes the [SPECIES project on the environmental impacts of submarine power cables from offshore wind farms in France](#). The project addresses the direct (e.g., changes in electromagnetic fields and temperature) and indirect (e.g., activity restrictions around the cables) impacts of submarine power cables on coastal marine ecosystems, especially benthic organisms. In particular, the paper focuses on methodologies and tools for in situ studies developed during the three-year SPECIES project (2017-2020), which provide a very important benchmark for assessing these impacts in the future. While there is currently no evidence of significant adverse effects of increased temperatures in the ocean or low-level electromagnetic leakage from single cables, the report notes that the effects on organisms that have settled on cables and the effects of high cable density in areas such as substations are issues for further study. On the other hand, the paper indicates that cable stabilizing structures such as concrete mats provide a suitable habitat for fish and benthic animals. This paper is expected to provide valuable insights for all TSOs which are responsible for accounting for the ecological impacts of submarine cables.

## PS2-Paper-10988, A study of Hydro-floating Solar Hybrid Project impact on aquatic biodiversity: Case study for the Thailand's largest Hydro-floating Solar Hybrid Project at Sirindhorn Dam, Ubon Ratchathani Province.

Kamol Karn KIJAWATWORAWET

Electricity Generating Authority of Thailand (EGAT)

- This paper reports the results of an analysis of the biodiversity impacts of a 122 ha [hydro-floating solar hybrid project in Thailand](#), including water quality monitoring, phytoplankton, zooplankton, benthic animals, aquatic plants, fish, and bottom sediment analysis. This environmental monitoring is in response to the concerns of local residents (fishermen), specifically, measures to reduce and prevent environmental impacts on aquatic biodiversity, and an environmental impact monitoring plan, using methods specified in the Code of Practice Report (CoP) and the Environmental and Safety Assessment Report (ESA). This monitoring plan was implemented in two phases: the pre-construction phase and the construction phase. No differences in surface water and bottom sediment properties were observed in either phase, and no clear impacts of construction on biodiversity related to water resources were identified. On the other hand, as pointed out by the author, the timing (season) of measurement for each item is different, so data that can fully evaluate the impact of construction have not been obtained. The author plans to conduct continuous measurement once a year at the same time of year in the future, and additional reports and information sharing of communication with local residents are desired in the future.

Group Discussion Meeting



## PS2- Group 1: EIA and biodiversity conservation

- Question 2.1: Different regions have different laws or regulations regarding EIA and biodiversity conservation (Papers C3-10390, C3-10530, C3-10988). What are the laws or regulations regarding biodiversity in your region? How are they addressed? To what extent must specific issues regarding biodiversity be included in the EIA? In your region, is there any reference or requirement related to “no net biodiversity loss” criteria?
  - Five Contributions from So Kobayashi (Japan), Tomomichi Omote (Japan), Kamolkarn KIJAWATWORAWET (Thailand), Marwa Mansour (Egypt), Daniella Soares (Brazil), (Japan)
- Question 2.2: Biodiversity conservation in different infrastructures has been reported (Papers C3-10164, C3-10390, C3-10530, C3-10924, C3-10988). What other infrastructures are covered? Do similar infrastructures have similar responses? What differences exist in the responses in different regions?
  - Two Contributions from So Kobayashi (Japan) and Raquel Coelho Loures Fontes (Brazil)

## PS2- Group 2: Biodiversity conservation and social acceptance

- Question 2.3: Public disclosure of biodiversity conservation activities has been shown to improve the social acceptance of businesses and companies (Paper C3-10164). What methods do you use to communicate with the public and regulatory authorities to improve social acceptance?
  - One Contribution from Raquel Coelho Loures Fontes (Brazil)
- Question 2.4: There is reported a case where local residents and environmental groups trust the company's response to biodiversity conservation, even when the company is in the process of resolving them (Paper C3-10164). Are there other such cases?
  - One Contribution from Raquel Coelho Loures Fontes (Brazil)

## PS2- Group 3: Responses to renewable energy and emerging risks

- Question 2.5: It is hoped that the spread of renewable energy will lead to the realization of sustainable society for NZE. What are some of the new environmental and biodiversity risks that will arise in the power sector as a result of the mass introduction of renewable energy?
  - One Contribution from Tor Laneryd (Sweden)
- Question 2.6: New impacts that are not yet scientifically known are being addressed (Paper C3-10924). What other new impacts are being addressed that are not yet scientifically known? What assessment methods and studies are being used and explained to stakeholders?
  - One Contribution from Lisa Garnier (France)