

Concept Paper

SAARC Webinar on “Hybrid Renewable Power Plants: Opportunities and Challenges”

BACKGROUND

A hybrid RE (renewable energy) power plant employs multiple RE technologies in same vicinity and is a solution to major grid integration challenges of RE resources i.e. intermittency and low capacity factor. Hybrid solar-wind power plant adds up the individual resource utilization factors resulting in overall plant factor reaching above 40% and makes it economically more feasible to lay power evacuation lines. Hybrid RE plants reduce land requirement, avoid land acquisition delays and reduce land costs. Additionally, lesser land requirement spares more land for competing uses, particularly by the highly critical farming sector. Nevertheless, there are several challenges linked to hybrid RE power plants. First is the rare possibility of having excellent resource potential of multiple RE resources at one place. Second is the added design complexity arising due to joint presence e.g. the shadows casted by wind turbines, would decrease the solar production. Lastly, being new in practice, essential grid integration aspects like power quality, accurate resource forecasting, optimal dispatch etc. concerns remain under explored.

Over the time, several SAARC Member States, particularly Pakistan and India have started getting the demand from RE plant owners to utilize the untapped potential of multiple RE resources within their plant area. India has already deployed a few pilot projects and has introduced a policy on wind-solar hybrid power plants in May, 2018. Pakistan is also processing such requests of wind plant owners from Jamshoro and Gharo areas, however, the aspects such as lack of facilitating policies and non-existent past practices are major challenges. Through the proposed webinar on the opportunities and challenges linked to Hybrid RE power plants, SEC wishes to enhance the capacity of relevant stakeholders of SAARC countries on this important concept.

INTRODUCTION

SEC, under its thematic area of “Program area on integrated assessments of Energy, Transport, and Environment (PETREN)”, proposes to conduct a webinar titled “**Hybrid Renewable Power Plants: Opportunities and Challenges**”. In the proposed webinar, potential resource persons having professional experience in the relevant field, belonging to the government, private and academia sectors will be invited from within and outside SAARC region to hold brief talks. These talks will cover the whole breadth of the topic ranging from the complex technical issues of operation and design to the smart strategies for the policy makers and regulators to harness the support from public-private domains for best promotion of the concept of hybrid RE power plants in SAARC region.

OBJECTIVES

Following are the objectives of this webinar:

- 1) To educate the energy sector professionals from SAARC region about the opportunities and challenges linked with hybrid RE power plants.
- 2) To provide an opportunity for the audience to get the answers to their most troubling questions, relating to the topic from the veteran field experts.
- 3) To link up the experts with the professionals of the SAARC region who are working on such hybrid RE concepts and who would get the significant advantage by developing strong networks with the distinguished experts of the field.

MAJOR ASPECTS /TOPICS TO BE COVERED DURING THE WEBINAR

Major aspects to be covered by the webinar will be as follows:

- 1) Economics of hybrid RE power plants
- 2) Operational and design challenges
- 3) Contemporary solutions for combined operation of multiple RE assets
- 4) System level benefits of solar-wind hybrid plants
- 5) Best regulatory, fiscal and policy tools for promotion of hybrid RE concept
- 6) Case studies

RELEVANCE, COHERENCE AND SUSTAINABILITY

The proposed webinar relates to SEC's efforts to train the SAARC energy professionals in integrated assessments of Energy technologies and is coherent to SEC's thematic program area on integrated assessments of Energy, Transport, and Environment (PETREN). In line with SEC's sustainability objectives, SEC expects to take first step in bringing a wave of system level thinking and deeper brainstorming by the regional stakeholders on this important concept of hybrid RE power plants.

VENUE

The activity will be conducted on the online webinar facility available at SAARC Energy Center office at Islamabad, Pakistan.