

SOLAR PUMPED STORAGE SCHEME

**-A CONCEPT OF GRID
STABILISATION**

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- ❑ **National Solar Mission aims at 100,000MW Solar Power by the year 2022.**






❑ It is true there are many advantages of Solar Power but there are many challenges like,

- Availability of more Solar intensity in certain pockets resulting concentration of Solar Power Plant in certain specific areas.

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- ❑ **Out of 5000 MW Solar power installations more than 80% are concentrated in Western and Northern region of India . Intermittent Solar Power is likely to destabilize the regional grid and national grid to a large extent . It's future impact will be unmanageable.**

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- ❑ **Solar Power and Wind Power cannot be treated as real capacity addition since CUF of such Power Plants are low and so far no large storage system has been developed.(Battery , super capacitors are low scale storing devices).**
 - ❑ **For grid management large storage system for intermittent nature of power is very important.**

- ❑ Storing of Solar Energy or Wind Energy in water through pumping during availability time and using the same energy simultaneously or during peak demand could be good idea and solve intermittence problem.




- ❑ India has a number of pumped storage schemes where solar integration may be possible. However, detailed study is necessary.

India

- Bhira, Maharashtra, 150 MW
- Kadamparai, Coimbatore, Tamil Nadu, 400 MW (4 x 100 MW)
- Nagarjuna Sagar PH, Andhra Pradesh, 810 MW (1 x 110 MW + 7 x 100 MW)
- Purulia Pumped Storage Project, Ayodhya Hills, Purulia, West Bengal, 900 MW
- Srisaigram Left Bank PH, Andhra Pradesh, 900 MW (6 x 150 MW)
- Tehri Dam, Uttarakhand (under construction), 1000 MW

- ❑ A preliminary proposal has been formulated in this context to integrate large scale Solar Power with Purulia pumped storage scheme of 900 MW capacity. This will be first of its kind in the country.



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- ❑ **Side by side pumping of tailrace water to the forebay of conventional hydro project through solar power may improve the PLF of Hydro project to a great extent in the summer time.(six months).Combined solar and hydro power plant PLF may go high significantly in summer.**

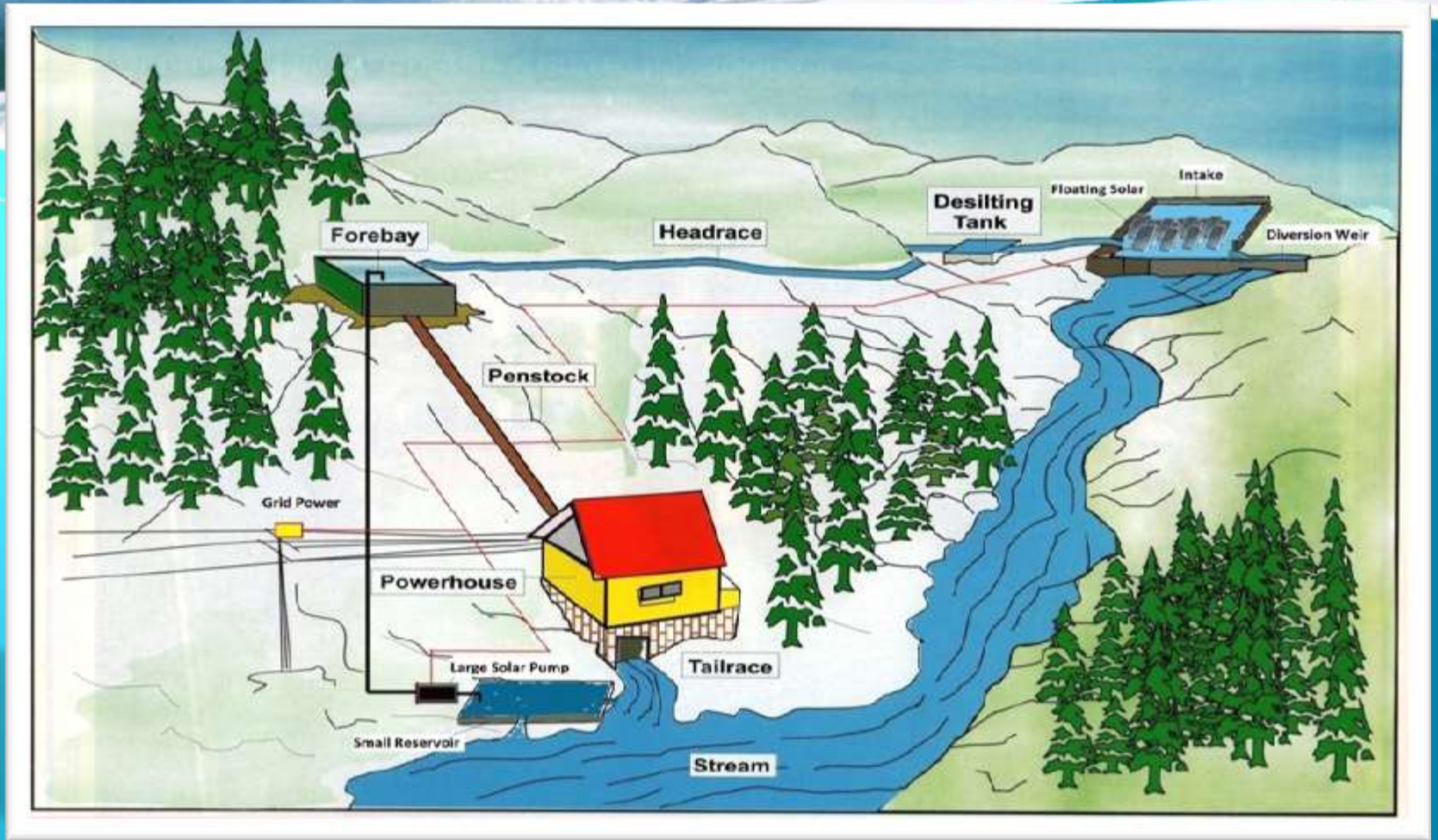


Fig-A Concept of Combined Small Hydro and a 10 MW Floating Solar in Tripura



A detailed study is needed on both the concept to address grid stabilisation issue due to high penetration level of solar power into the National grid.



Thank
you!