



Fortum Block Pavagada Solar Park, Karnataka, India

21st SunMeet / Study Tour to state of Karnataka & state of Kerala in India

The monthly SunMeet event of the ISA is a platform facilitated by the ISA Secretariat to deepen engagement with Member countries and partner organizations. It as an important part of outreach activities that ISA organizes on regular basis, to accelerate the pace of investments in solar energy space in ISA Member countries. The ISA secretariat from time to time puts in efforts to bring more and more value to this important meeting by inviting stakeholders & by conducting discussions around the topics of importance to take their guidance in strategizing further course of action. Taking this effort forward, it was envisaged after consultation with the representatives of the ISA Member countries that the 21st SunMeet of ISA will be organized in the form of a study tour to Karnataka & Kerala for experiential learning.

Participants:

Representatives of 36 ISA Member countries.

ISA Officials.

Officials of Karnataka and Kerala State Nodal Agencies along with CIAL and officials of Navalt.

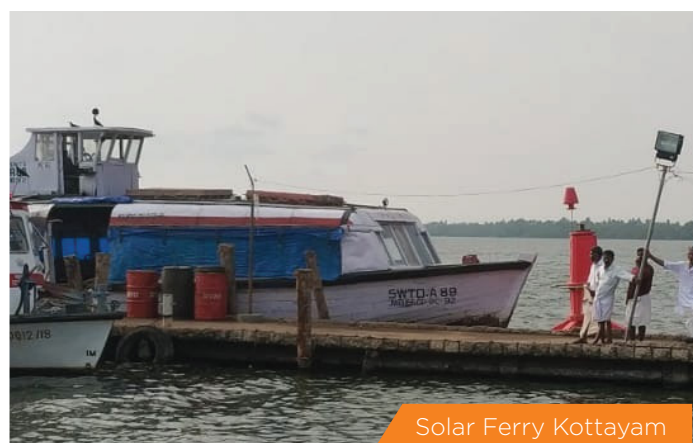


Hon'ble Chief Minister of Karnataka
H.E. Mr. H D Kumaraswami

Introduction of the facilities

The first day of the visit (21/05) was dedicated to visiting solar facilities in Karnataka, which is a pioneer in harnessing RE since decades. The state of Karnataka has established the world's largest 2000 MW Solar Power Plant at a single location in Pavagada taluk, Tumakuru district. To harness the potential of Solar resources in the state of Karnataka and in light of the changes unfolding in the sector and considering the fact that cost of solar power generation has started competing with retail tariffs, the Government of Karnataka in 2017 announced Solar policy for the period 2014-2021. It is envisaged to add minimum of 6000MW of generation by solar during the policy period.

The second day of the SunMeet (22/05) was dedicated to visit to Cochin International Airport in the state of Kerala along with other facilities like visit to solar ferry. Cochin International Airport is developed by CIAL. CIAL achieved power neutral status in August 2015 and won "Champions of the Earth award" in 2018; the highest environmental honour instituted by the United Nations. At present CIAL's total installed capacity is 40 MWp producing 1.63 lakhs unit of power a day whereas the requirement stands at 1.53 lakhs units.



Day 1 - 21/05 (1100 hrs to 18 hrs)

Visit to 2000 MW Pavagada Solar Park, Karnataka, India.



ISA delegation at Fortum Block in Pavagada Solar Park

Jawaharlal Nehru National Solar Mission (JNNSM) launched by the Ministry of New and Renewable Energy, Govt has target of 20,000 MW by the year 2022 which has been revised up to 100 GW by the Government of India. Karnataka is one of the states in India which is implementing multi MW capacity projects in the state under the state policy of solar power generation.

In the state of Karnataka, the nodal agency **Karnataka Renewable Energy Development Limited(KREDL)** is taking care of its Solar Power Policy and initiative towards developing Solar Parks in the state. Karnataka Solar Power Development Corporation Limited(KSPDCL) was formed as a Joint venture between SECI & KREDL in March-2015 and it has taken the initiative in Tumakuru district to develop the first Solar Park of the State with a total capacity of 2000 MW. For this, KSPDCL has selected the land in Nagalamadike Hobli, Pavagada Taluk, Tumakuru Dist, Karnataka State to establish 2000 MW Solar Park. The selected project location is in 'Hot and Dry' climate zone of the country and hence experiences high solar irradiance (high DNI as well) and high ambient temperature. The expenditure towards implementation of the Solar Park will be met partly from grants from MNRE and partly from upfront charges collected from Solar Power Developers.



Aerial View of Pavagada Solar Park



Pavagada Solar Park

BENEFITS RESULTING FROM THE INITIATIVE

- Unique option of leasing of land for a period of 28 years was opted in Pavagada Solar Park which is first of its kind in World with ownership of land vesting with land owners, as acquiring of land is a major hurdle in implementation of any project.
- Bridging the gap between demand & supply, whereby ESCOMs are getting 90% of the power generated i.e 1800MW Pavagada Solar Park. The tariff for 1800MW has been discovered through competitive bidding process and the weighted average tariff is Rs. 3.0/unit. State transmission losses are reduced to some extent as the generation is within the State and near to load centre.
- Solar generation is a Green project and reduces the pollution due to Carbon emission generated from the Thermal/Nuclear projects. Solar generation will reduce pollution and transportation of fuel from long distances for generation from other sources of power.
- Land owners are getting land lease charges of Rs. 21,000/acre/annum with 5% escalation once in every 2 years on the base rate for a period of 28 years.
- In dry areas due to lack of water for irrigation the farmers are suffering due to lack of source of employment. Project will also create local employment to the public in a large extent as the generation quantum is huge.
- Pavagada is one of the most backward Taluks in the state of Karnataka, establishment of Solar park in this area will improve the revenue to the Govt and enables Pavagada to be one of the pioneers in Solar park in the entire Country. About 13000 acres of land in five Villages viz., Tirumani, Rayacherlu, Kyathaganacherlu, Balasamudra and Valluru of NagalamadikeHobli of Pavagada Taluk is taken on lease which is the uniqueness of the project. As on date about 12885 acres of land has been taken on lease.



Model Room, Pavagada

During the visit ISA delegation traveled to World's largest 2000 MW Pavagada solar park, which was 260 KM from Bangaluru airport. The high level delegation received excellent hospitality from the state. During the visit, the delegates were shown the Model Room where a model of Pavagada solar park is kept for the benefit of the visitors.

The entire Pavagada Solar Park has been divided into 40 blocks each of 50MW. The delegates were shown Fortum & Renew Block while passing the ring road to Pavagada. The delegates were also shown the PGCIL station. The 400/220KV Pavagada SS was commissioned in 2017 for evacuation of 2000 MW of solar power generated by the park. Pavagada SS is equipped with 5 Nos 500 MVA, 400/220kv transformers, 2 nos 125MVar, 400 kv Bus reactors.



Pavagada Solar Park

12 Nos 400 kv transmission line and 8 Nos 220kv transmission lines. Generated power is received by Pavagada SS through 8 nos 220kv line and are evacuated through 12 Nos 400 kv lines, connecting to Karnataka and other states. PGCIL has in total constructed 239 Substations, 151507 CKT.KM Transmission Lines, has presence in more than 20 countries and owns a transformation capacity of 355029 MVA

The delegation also planted saplings at substation No 4 in Pavagada solar park to mark this occasion



Hon'ble Chief Minister of Karnataka, H.E. Mr. H D Kumaraswami hosted a dinner meeting later in the evening for the high level delegation at Taj Westend Hotel in Bengaluru. Chief Secretary, Government of Karnataka, Secretary, commerce and Industries Karnataka, Secretary Tourism, KREDL officials, Officials from Fortum, KRESMA graced the occasion and presented the glorious work done by the state by their respective departments.



On this occasion, Hon'ble CM announced INR100 million to be contributed towards ISA as a corpus to institute Visvesvaraya Award, named after India's highest honour recipient- scholar, statesman and eminent engineer, M Visvesvaraya who belonged to Karnataka.



Dinner hosted by Hon'ble CM of Karnataka for ISA delegation at Taj westend, Bengaluru

Day 2 22/05

Cochin International Airport, Kerala, India

As part of International Solar Alliance (ISA)'s initiative to find out suitable models to be incorporated to achieve its ambitions plan of massive deployment of solar energy, the delegation was taken on a visit to Cochin International Airport on 22nd May 2019.



DG ISA Addressing session at CIAL, Cochin on the second day of the visit.

CIAL achieved power neutral status in August 2015 and won “ Champions of the Earth award” in 2018; the highest environmental honour instituted by the United Nations.

During the deliberations, CIAL expressed its readiness to provide consultancy service to airports of the Member countries. Meanwhile, ISA Director General HE Mr. Upendra Tripathy revealed to the press that it would convene an international summit for the Managing Directors of the Airports in the Members countries to decipher possibilities of repeating the CIAL model at global level. Cochin International Airport, the worlds’ first airport fully operated on solar energy has been identified by ISA as one of the models and this visit gave a fillip to CIAL’s effort in taking its project to Member countries.



Solar Plant at fully solarized Cochin International Airport

The high profile delegation reached CIAL at 10 AM on Wednesday and held a discussion, with CIAL authorities. After the discussion the envoys were guided to field visits at CIAL's main solar plant. They were also brought to CIAL golf club for being appraised about the floating solar plants set up in two lakes of the golf course. Here CIAL is experimenting with panels laid over high density poly ethylene material using the Hydrelio® solution which can float over water, this project is developed by the French company, Ciel & Terre.

A total installed capacity of 450 KWp is envisaged through these plants. At present CIAL's total installed capacity is 40 MWp producing 1.63 lakhs unit of power a day whereas the requirement stands at 1.53 lakhs units.



Floating Solar plant by CIAL

The study tour ended with the visit to the Solar Ferry Aditya developed by the French company Navalt and operated by Kerala State Water Transport Department at Vaikom, Kottayam.

It was suggested that ISA and CIAL can jointly sponsor the August SUNMEET Special at Cochin on 17th of August to which 50 MDs Of Airports from among the Member countries could be requested to attend and take the initiative of solarisation of airports in their countries forward. CIAL agreed to sign MOUs to extend soft skills based on such MOUs, ISA Secretariate will take the matter forward.

The details of the departments and companies involved in the floating solar and solar ferry project will also be circulated to CPs and NFPs and ISA can attempt to aggregate demand for both from among the Member countries.



Delegates taking ride in Solar Ferry



The International Solar Alliance delegates received excellent hospitality by the state of Karnataka and state of Kerala, India and the effort was appreciated by the high level delegation comprising of the representative of Member countries with a request to arrange more such visits in coming times.

The ISA delegation on study tour at Karnataka and Kerala, India

