*International Civil Aviation Organization*

Eighth Meeting of the Aerodromes Operations and Planning Sub-Group (AOP/SG/8)

*Bangkok, Thailand, 15 to 19 July 2024*

**Agenda Item 6: Airport Environmental Initiatives**

# GREEN INITIATIVES AT COCHIN INTERNATIONAL AIRPORT

(Presented by India)

**SUMMARY**

This paper presents Cochin International Airport's journey to become the world's first fully solar-powered airport and pioneering sustainable aviation. Starting with a 12 MWp solar power plant in 2015, the capacity has expanded to over 50 MWp. The project includes ground-mounted, rooftop and floating solar panels significantly reducing airport's carbon footprint by offsetting around 75,000 metric tons of CO2 annually. Beyond solar power, CIAL has initiated additional green energy projects, including the Arippara Hydroelectric Project and the construction of a green hydrogen plant. The airport also implements comprehensive energy and water conservation plans such as upgrading to LED lighting, utilizing rainwater harvesting systems and encouraging the use of electric vehicles. These initiatives ensure energy independence and cost savings while setting a global example of environmental stewardship and sustainable development in the aviation industry.

## 1. INTRODUCTION

1.1 Cochin International Airport (CIAL) has emerged as a global leader in sustainable aviation through its pioneering green energy initiatives. By becoming the world's first fully solar-powered airport, CIAL has set a remarkable precedent for environmental stewardship, economic efficiency and sustainable development. This paper dwells into CIAL's green energy vision, its economic impact, and the environmental benefits it fosters.

## 2. DISCUSSION

Green Energy Vision

2.1 CIAL's green energy journey began with a vision to achieve energy self-sufficiency through renewable sources. In 2015, this vision materialized with the commissioning of a 12 MWp solar power plant. This ambitious project aimed to harness the abundant solar energy in Kerala, a state blessed with high solar insolation. The airport's management recognized the dual benefits of reducing carbon emissions and achieving substantial energy savings. This foresight was instrumental in positioning CIAL as a trailblazer in the aviation industry's shift towards renewable energy.

2.2 The airport's solar plant initially featured ground-mounted solar panels spanning 45 acres near the cargo complex. CIAL has also established a run-of-the-river Small Hydel Project at Arippara. Hydroelectric plant stands as a testament to CIAL's dedication to renewable energy. Over the years, the installed capacity has expanded to over 50 MWp, with the integration of rooftop, terrestrial, floating solar panels. This diverse array of installations not only maximizes energy production but also optimizes land use, showcasing innovative solutions for space constraints. The diversity of the

installations effectively made CIAL the test bed for the complete set of solar products. CIAL's vision extends beyond energy generation; it embodies a holistic approach to sustainability that integrates energy efficiency, waste management, and water conservation.

Economic Impact

2.3 The economic impact of CIAL's green energy initiatives is profound. By transitioning to solar power, the airport has achieved significant cost savings on its energy bills. The initial investment of around $10 million for the solar plant could be effectively recouped within six years, thus demonstrating the financial viability of renewable energy projects. The airport's energy independence shields it from the volatility of conventional energy prices, ensuring long-term economic stability.

2.4 CIAL's solar power plant generates surplus electricity, which is fed into the State power grid. This not only contributes to the local energy supply but also generates revenue for the airport through power purchase agreements. The financial benefits extend to the broader economy as well. CIAL's success has inspired other airports and industries in India to explore renewable energy solutions, fostering a market for solar technology and creating jobs in the renewable energy sector.

Environmental Benefits

2.5 CIAL's commitment to green energy has yielded substantial environmental benefits. The solar power plant offsets approximately 75,000 metric tons of CO2 annually, significantly reducing the airport's carbon footprint. This is equivalent to planting around 3 million trees each year, highlighting the project's positive impact on air quality and climate change mitigation.

2.6 The innovative use of floating solar panels on water bodies within the airport premises addresses multiple environmental challenges. These panels reduce water evaporation, conserving precious freshwater resources and control a large growth, maintaining the ecological balance of the water bodies. Furthermore, the reduced reliance on fossil fuels decreases air pollution and minimizes the airport's contribution to global warming.

2.7 CIAL's green energy initiatives extend beyond solar power. The airport has implemented energy-efficient lighting systems, rainwater harvesting, and sustainable waste management practices. These measures further enhance its sustainability profile and demonstrate a comprehensive approach to environmental conservation.

Other Green Initiatives

2.8 CIAL actively encourages the use of electric vehicles (EVs) within the airport premises. By providing charging infrastructure and promoting EV adoption, airport aims to reduce carbon emissions from transportation. CIAL has entered into strategic agreement with a petrochemical major for establishing a Green hydrogen plant.

## 3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matters as appropriate.

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