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**WORKING PAPER**

# THIRD CONFERENCE ON AVIATION AND ALTERNATIVE FUELS (CAAF/3)

**Dubai, United Arab Emirates, 20 to 24 November 2023**

**Agenda Item 4: Financing Cleaner Energy**

## FUTURE OF CONVERTING WASTE TO SUSTAINABLE AVIATION FUEL IN SULTANATE OF OMAN

(Presented by Oman)

**SUMMARY**

The transformation of waste into sustainable aviation fuel is a pioneering solution addressing dual challenges in the aviation industry: environmental conservation and energy sustainability. By harnessing waste as a resource and employing advanced conversion methods, we are introduced to an aviation fuel that not only mirrors the efficiency of its conventional counterparts but significantly reduces the carbon footprint. The financing and strategic market positioning of this initiative are pivotal in its successful implementation.

Action by the Conference is in paragraph 8.

## 1. INTRODUCTION

1.1 Converting waste into sustainable aviation fuel (SAF) is an innovative and crucial solution that holds great promise for addressing the environmental challenges posed by the aviation industry. With the transportation sector's growing contribution to greenhouse gas emissions, there is a pressing need to find cleaner, more sustainable alternatives to traditional jet fuels. This transformational approach not only mitigates the environmental impact of aviation but also repurposes waste materials that would otherwise contribute to landfill and pollution. In this context, the process of converting waste to sustainable aviation fuel is a significant step toward achieving a more sustainable and environmentally responsible aviation industry.

## 2. FINANCING – PRE-DEVELOPMENT CAPITAL AND ITS IMPORTANCE TO QUALIFY THE PROJECT

2.1 Pre-development capital is the initial funding utilized to conduct feasibility studies, obtain necessary permits, and finalize project designs. This initial capital is crucial because it ensures that the project is not only viable but also sustainable in the long run. Furthermore, securing pre-development capital often signifies to potential investors and stakeholders that a project is well-conceived and holds promise. Without this foundational funding, essential early-stage activities may stall, delaying or even derailing the transition to sustainable aviation fuels.

## 3. EARLY IDENTIFICATION OF OFF-TAKERS AND QUALIFICATION OF THE TECHNOLOGIES TO GUARANTEE THE QUALITY OF THE OUTPUT

3.1 Identifying off-takers early on is pivotal for two reasons. First, it establishes a guaranteed market, ensuring there's demand once the production starts. This can significantly de-risk the project for potential investors. Second, by understanding the needs and standards of these off-takers, producers can tailor their processes to ensure optimal product quality. Qualifying the technologies used in the conversion process is equally critical. This ensures that the sustainable aviation fuel produced adheres to the highest standards, assuring off-takers of its reliability and performance.

## 4. FORWARD SELLING OF THE BY-PRODUCTS – BANKABLE FORWARD-SOLD PRODUCTS

4.1 The conversion process of waste to aviation fuel will inevitably produce by-products. Forward selling these by-products can serve as a strategic financial move. By securing buyers in advance, producers can generate immediate revenue, enhancing project liquidity. Furthermore, having bankable forward-sold products can make the project more appealing to lenders and investors, as it presents a clearer picture of the projected revenue streams, thus reducing financial risk.

## 5. CARBON CREDIT CREATION AND SELLING WITH THE USE OF LIVE DATA POINTS AND DIGITAL TWINS

5.1 The environmental benefit of converting waste into sustainable aviation fuel goes beyond reducing greenhouse gas emissions. It creates an avenue for carbon credit generation. With live data points and digital twins – virtual replicas of the conversion systems – real-time monitoring of emission reductions becomes possible. This live data can be utilized to verify the amount of carbon dioxide being offset, thus creating a transparent and accountable system for carbon credit generation. Selling these carbon credits can provide an additional revenue stream, further enhancing the project's profitability.

## 6. UPSELLING OF ADDITIONAL PRODUCT LINES WITHIN THE CO-PRODUCT TO BY-PRODUCT STRATEGY

6.1 Diversifying the output of the conversion process can lead to more than just sustainable aviation fuel and its direct by-products. Through careful R&D, other co-products could be identified and upsold, potentially serving various industries. This strategy not only maximizes the resource utilization of

the waste feedstock but also broadens the revenue channels. Such a diversified product line-up reinforces the project's resilience against market fluctuations, ensuring long-term sustainability.

## 7. CASE STUDY -WAKUD 2.0

7.1 As part of our holistic sustainability strategy, Wakud 2.0 project encompasses the strategic utilization of waste, focusing on the conversion of syngas into Sustainable Aviation Fuel (SAF). These pioneering initiatives underscore our unwavering dedication to enhancing our involvement in the renewable energy sector, with a specific focus on promoting environmentally responsible aviation practices.

## 8. ACTION BY THE CONFERENCE

8.1 The Conference is invited to note that the Coalition for Accelerated Adoption of Sustainable Fuels (CAAF/3) has an essential role in guiding, supporting, and scaling up these initiatives. Actions they might undertake include:

- Awareness & Advocacy: Championing the importance and benefits of converting waste into sustainable aviation fuel to both industry stakeholders and the general public;
- Research & Development Support: Providing grants or funding to facilitate technological advancements, improving efficiency and output quality;
- Stakeholder Engagement: Creating platforms for collaboration between producers, off-takers, and investors, ensuring streamlined communication and cooperation;
- Regulatory Guidance: Assisting in navigating regulatory frameworks, ensuring that projects remain compliant while advocating for favourable policy adjustments; and
- Market Development: Helping establish a robust market for sustainable aviation fuel and its by-products, ensuring demand keeps pace with supply.

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