

AVIATION CO₂ REDUCTIONS



STOCKTAKING SEMINAR

TECHNOLOGY · OPERATIONS · SUSTAINABLE AVIATION FUELS



Sustainable Aviation Fuels (SAF)

Norimitsu Kaneko

Assistant Manager (Process Development)/IHI
Corporation



Development of Algae-Based Bio Fuel

Norimitsu Kaneko

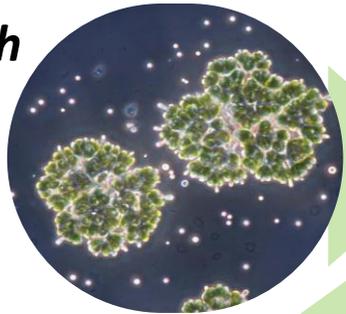
Assistant Manager (Process Development)/IHI Corporation

*This development includes the results of the “**Strategic Development of Next-generation Bioenergy Utilization Technology Project**” and “**Development of Production Technologies for Biojet Fuels Project**” commissioned by the **New Energy and Industrial Technology Development Organization (NEDO)**.

*NEDO: Governmental organization in Japan

Technology

*Hyper Growth
Botryococcus braunii
(HGBb)



- ✓ Breeding Fast growth strain
- ✓ Rich oil content: **Above 50%**-dry basis
- ✓ Large particle & Floating capability
- ✓ ASTM D7566 Annex7 Approved in 2020
- ✓ Participating in ICAO CAEP for SAF certification



- We obtained ASTM approval as D7566 Annex7 HC-HEFA
- Under coordination for determining process of LS_f** value

* This strain of *Botryococcus braunii* is owned by GGT Corporation founded by Taira Enomoto

**CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels



Scale up test ~Cultivation~

- We achieved HGBb stable cultivation in 1,500m² outside openpond in 2015



Kagoshima (JAPAN)



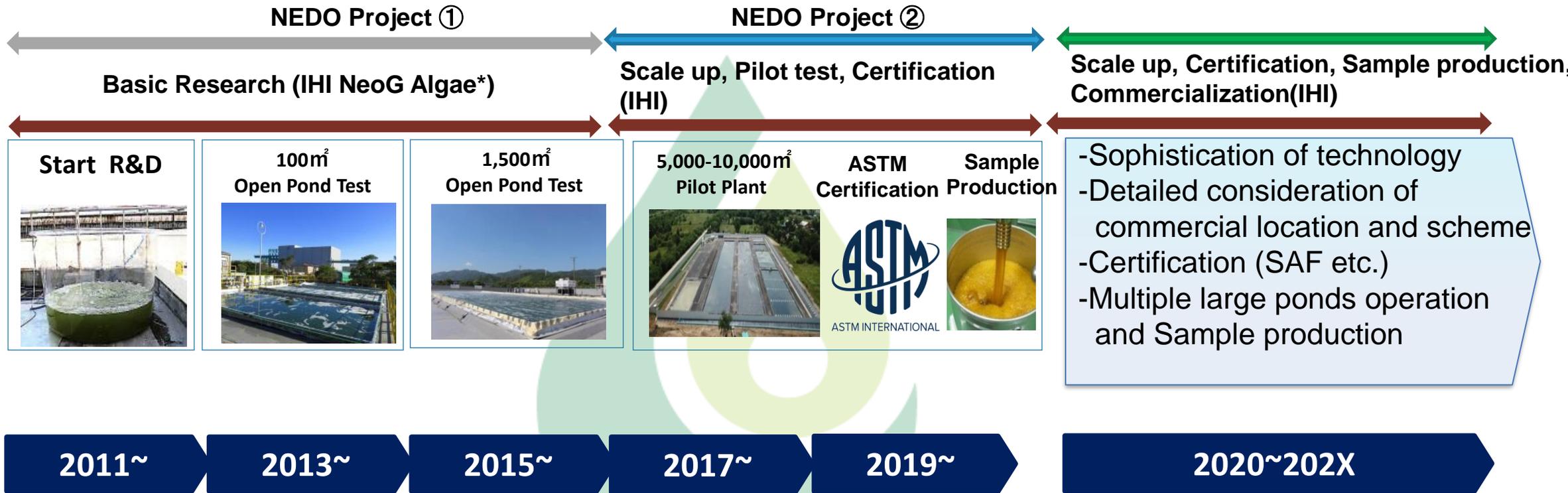
- Large scale cultivation tests are ongoing at Pilot in Thailand constructed in 2017.
- Total area of ponds is 15,000m².



Now on testing for large scale production in Thailand



Development - history and future-



IHI contributes to realize sustainable society through Algal bio-jet fuel technology

*IHI NeoG Algae (2011 ~ 2016)

Limited liability company established by IHI Corporation, GGT Corporation and Chitose Laboratory Corp.

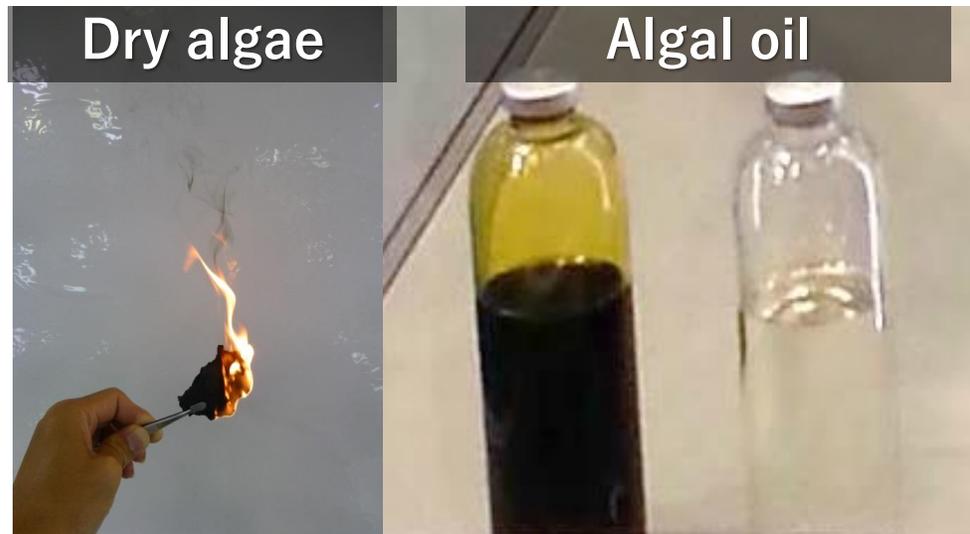
Sustainable aviation fuel produced from Microalgae (*Botryococcus Braunii*)

Aviation Fuels



Feedstock type	Conversion process
Micro Algal oil (Hydrocarbons, esters and fatty acids)	Hydro-processing (Annex7 HC-HEFA process)

Main characteristics: Rich oil content in algae and high affinity for established HEFA process



	CO₂ reductions per flight	Up to 50% (As L _{s_f} value)
	Level of finance required	TBD
	Timeframe	2027-2030
	Main challenges	Mass production (Multiple large ponds)

Thank You

