



**Distributed Ammonia and Low Carbon
Fertilizer production utilizing Green Hydrogen**

**ADB Green Bag Seminar
March 1st, 2024
Tsubame BHB Co., Ltd.**

Climate Tech born from Tokyo institute of Technology



Professor Emeritus
Hideo HOSONO
Tokyo Institute of Technology

3 Key words to describe Tsubame BHB

- ❑ Climate Tech born from Tokyo Institute of Technology
- ❑ Innovative Ammonia Synthesis Catalyst “Electride Catalyst”
- ❑ Small Scale Distributed Ammonia production system

Major Stockholders

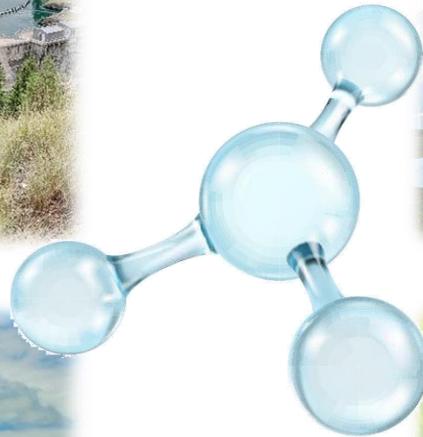


Series C2 Feb. 2024

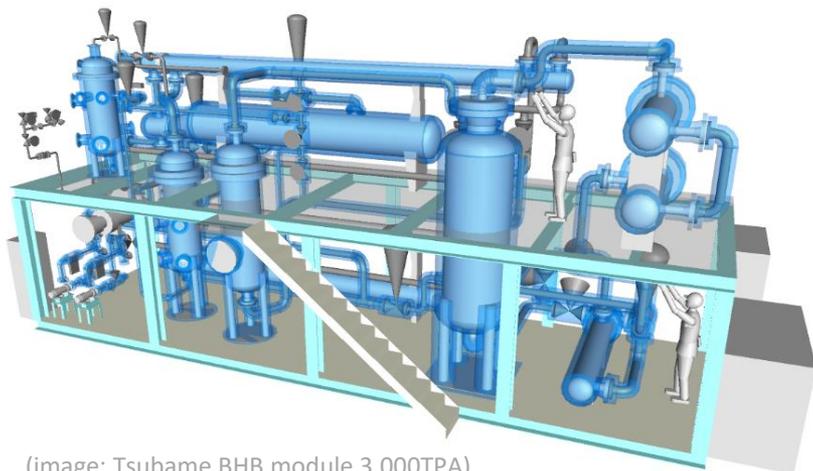


Vision: The world we aspire to

We strive for World Decarbonization and Food Security with our unique technology in order to pass the sustainable planet to the next generation.



Our Product and Service



(image: Tsubame BHB module 3,000TPA)

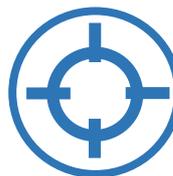
Product and service:

- Electrified Catalyst
- Ammonia Synthesis Module Other main equipment
- Operation training

Capacity:

- 500 tons per year
- 3,000 tons per year
- 5,000 tons per year

Benefits we offer



On-Site and On-demand production.



Transportation and storage cost reduction.



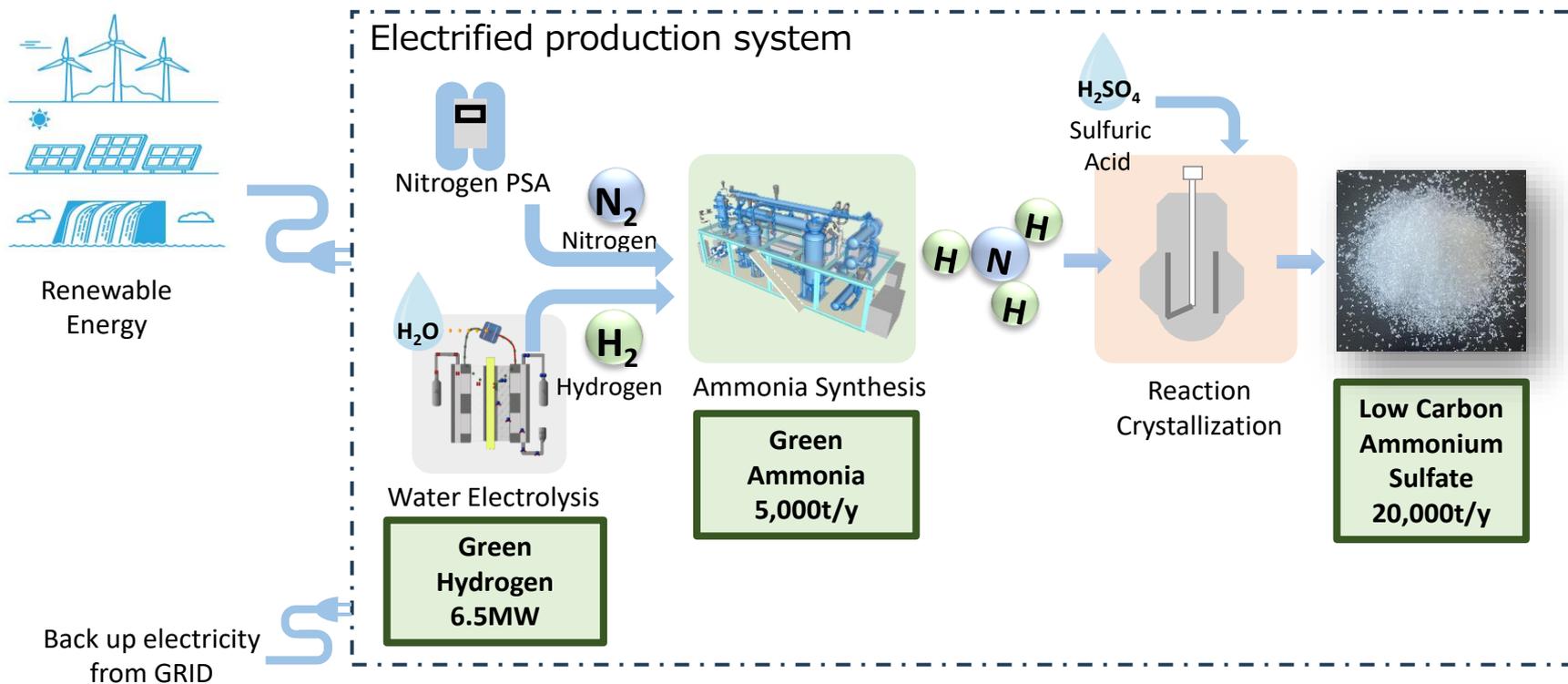
Easy installation.



Effective utilization of distributed/ surplus energy.

Low Carbon Fertilizer Production Model

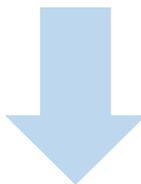
Green Ammonia and Ammonium Sulfate production with the electrified system, powered by renewable energy.



Our Impact



85%



CO2 emission reduction compared with Imported Urea.

	(CO2/t-AS)				
	Ammonia Production	Fertilizer Production	Transportation	Application	Total
Tsubame BHB Low Carbon Ammonium Sulfate	12.6kg ^{*1}	55.6kg ^{*3}	N/A	N/A	68kg
Urea	918kg – 741kg (consumed) = 177kg/t-Urea		109kg ^{*4}	741kg/t-Urea	918kg/t-Urea ^{*5} 459kg/t-AS

Resource: Tsubame BHB calculation

*1 90% from Renewable energy, 10% from GRID.

*2 CO2-emission in Ammonia production 1.6t-CO2/t-NH3.

*3 Including emission from sulfuric acid production 53.7kg-CO2/t-AS (71.8t-CO2/t-H2SO4(98w%)).

*4 Import transportation from Tier1 supplier only (Laem Chabang port in Thailand to Vientiane). Note: Excluding emission in ocean transportation.

*5 Sulfuric acid equivalent

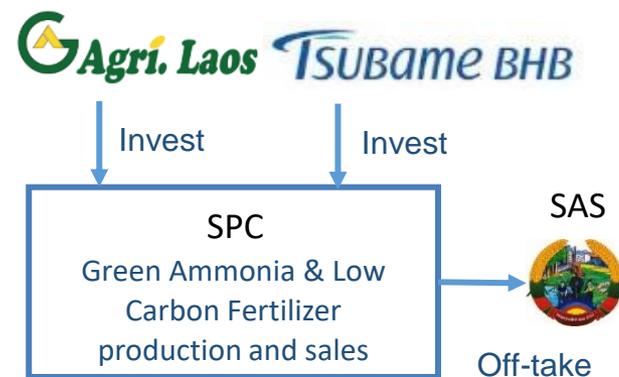
LOI Signing Low Carbon Fertilizer Off-take Agreement

Agri Laos Co., Ltd and Tsubame BHB Co., Ltd jointly develop Low Carbon Fertilizer Project in Laos.

State Enterprise for Agriculture Service (SAS) intends to take the Product from the Project. Three parties agree to sign Letter of Intent on Low Carbon Fertilizer Off-take Agreement.



Project Scheme

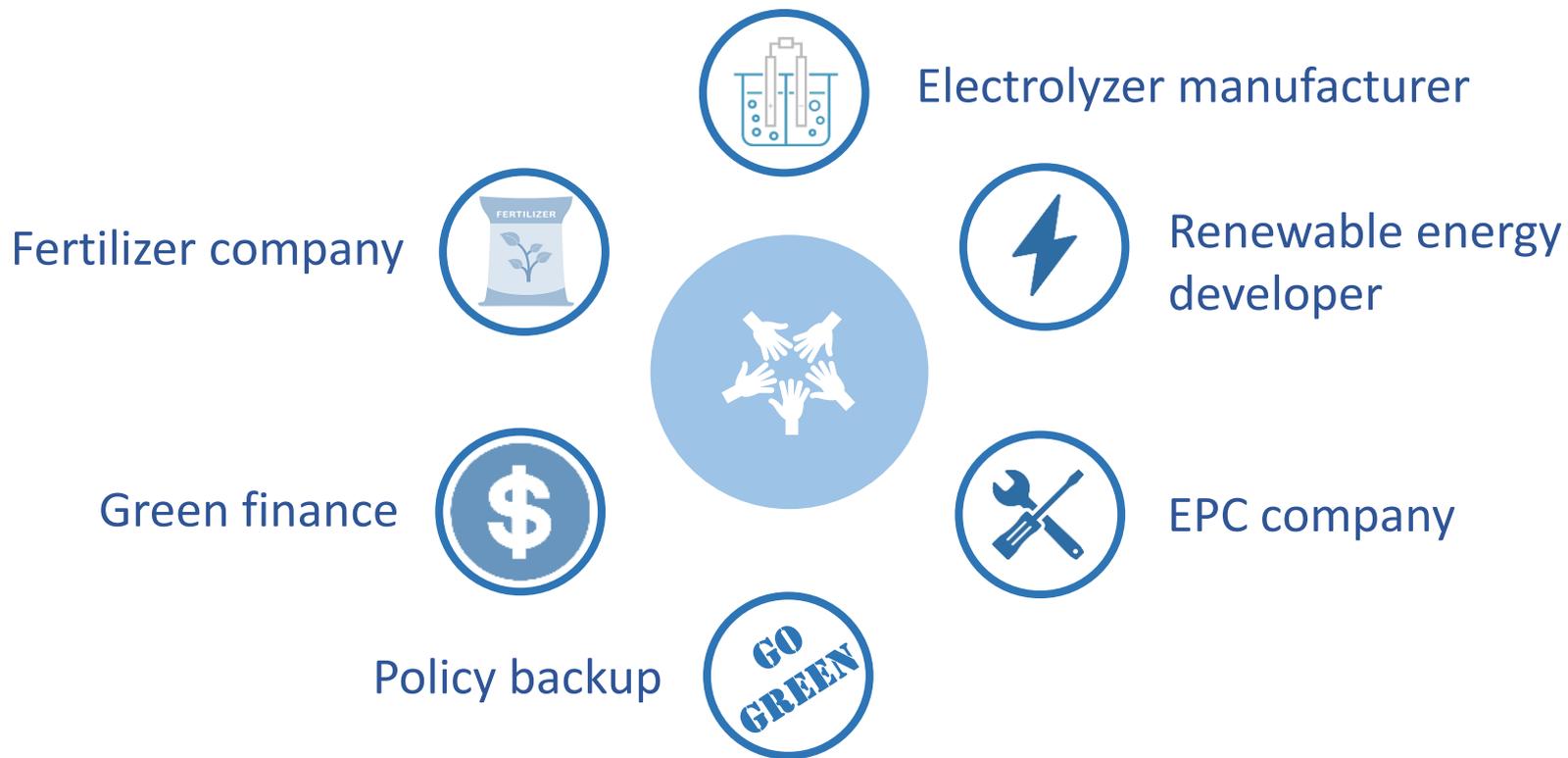


Business Development in Japan and Overseas

- Discussions on project development are ongoing with the potential partners both private and public in various countries.



We are looking for Partners



Feed the world, Fuel the world



Ref. Quick look at Tsubame BHB Technology

[Welcome to our Pilot Plant Video Tour.](#)



[Let's check up our 3D module model.](#)

