ACEF 2023
Firm & Stable power from H2
Manila, June 16, 2023
GREEN HYDROGEN APPLICATION AND CHALLENGES

- **Renewable Electricity**
  - Grid
  - Electrolyzer
  - Electricity

- **By Product**
- **Biomass based hydrogen**
- **Imported hydrogen**

- **Re-electrification (power-to-power)**
  - Power
  - Buildings

- **Storage (Salt caverns, storage tanks)**
- **Co2 (CC)**

- **Methanation | Blending**
  - Gas Grid

- **INDUSRY**
  - High Grade Heat
  - Industry Feedstock

- **AVIATION**
- **HEAVY DUTY**
- **FUEL CELL ELECTRIC VEHICLE**
- **FUEL CELL TRAIN**
- **SHIPPING**

**ACEF 2023**
WHAT IS THE GLOBAL DYNAMIC? And specificity for ASIA?

$320 B
Investments required to develop projects announced through 2030

+35% Investment growth in 8 months
65% of investments focus on supply

FOCUS ON POWER APPLICATION

MULTIPLE POSTIONING ON THE USE OF HYDROGEN

DRIVING THE POTENTIAL OF HYDROGEN

Renewable energy

Green hydrogen

Recoverable waste

Power-to-Power
Renewstable® power plants

Gas-to-Power
Hypower® power plants

Hydrogen mobility

Industrial feedstock

Clean cooking gas

CORE BUSINESS: POWER-TO-POWER AND GAS-TO-POWER STATIONARY APPLICATIONS

RENEWSTABLE

POWER TO POWER

HYPOWERS

GAS TO POWER

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RENEWSTABLE POWER PLANTS

Point of differentiation

- Power production at MW scale
- Increase Part of Renewable energy in location where grid is not able to manage

Grid constraint to manage high variability
Grid asset based on peak power production
RENASTABLE POWER PLANTS

Smart combination of

1. Renewable energies power plant
2. Long term hydrogen storage
3. Highly responsive li-ion battery

POWER PLANT BENEFITS

Deliver a **stable, firm, dispatchable** power to grid

Could provide **grid services**: frequency regulation and voltage support, island mode, blackstart mode, easily interconnected with dispatch center (depending on negotiations with offtaker/s)

**Capacity factor > 80%**

Serve as **base load power**

**GHG emission free** during operation

**Competitive against diesel** power plant
Project definition:

World first MW-Scale power plant delivering 24/7 carbon-free and non-intermittent electricity in Western French Guiana. 10MW daytime. 3MW nighttime.

**KEY FIGURES**

- **Storage Capacity**: 128 MWh
- **Hydrogen Production**: 600 Tons H₂/year
- **Generation**: 50 GWh/year
- **PPA**: 25 years
- **Investment**: 150 M€

**CEOG Plant**

**CEO G PROJECT**

(FRENCH GUIANA)
INDONESIA

20 projects
1.5 b$ investment

- Supports **grid stability** in the island setting
- **Reduce dependency to fossil fuel** (dedieselisation)
- Strong potential for **replicability**

- First project and Pipeline development supported by **Renewstable Sumba Commercial project**

**DFC**
U.S. International Development Finance Corporation
HDF Energy signed a Memorandum of Cooperation (MoC) with the following stakeholders from Mindanao on March 17, 2022 for its proposed Renewstable® plant in Olutanga Island, Zamboanga Sibugay:

- Mindanao Development Authority (MinDA)
- Provincial Government of Zamboanga Sibugay (PLGU Zamboanga Sibugay)
- Zamboanga del Sur II Electric Cooperative, Inc. (ZAMSURECO II)
- Municipalities
Eskom awarded HDF with 1782 hectares of land in Mpumalanga to develop several green baseload power plants:

- 1500 MW PV
- 3500 MWh H2

Mpumalanga being the heart of the JETP in SA, it is key to ensure the security of communities and workers that have depended on the continued existence of coal, and HDF has a bankable solution that can make a substantial and meaningful contribution to that process.

New capacities should be fast-to-deploy:

- HDF's Renewstable® architecture will provide stable and dispatchable power
- A Renewstable® power plant uses local sources of clean energy to enhance domestic production of electricity, reducing exposure to imported fuels, associated price volatility and supply risks
Contact list

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