Country Update – India

Gasification of Biomass and Waste

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IEA Bioenergy : Task 33 meeting

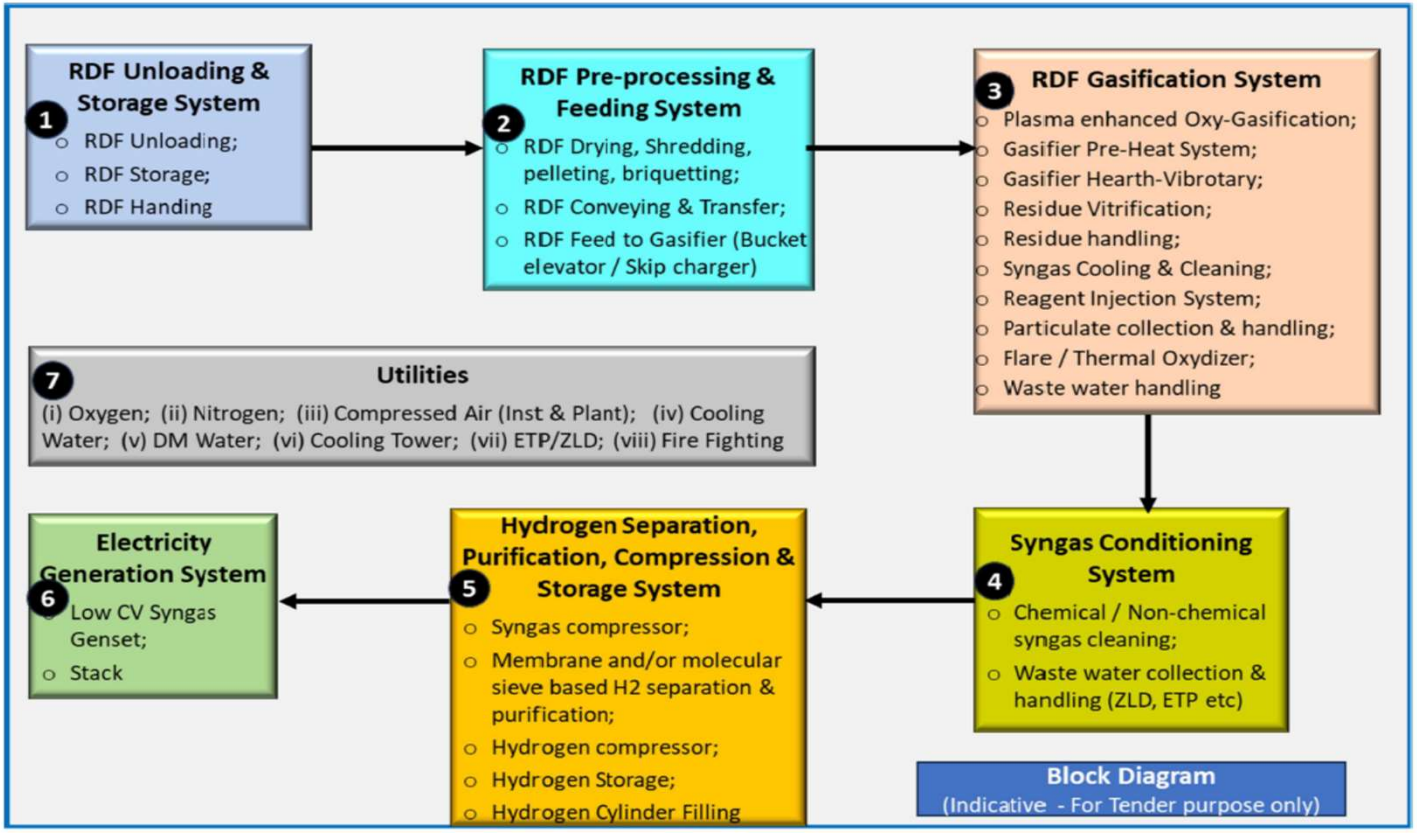
11.06.2024

Tender for Plasma Gasification based Green Hydrogen generation from MSW – RDF and Agri-waste

- NPTC Ltd. invited bids for Plasma Gasification based Green Hydrogen generation

- Input - 25 TPD MSW-RDF/Agri-Waste
- Output - 1 Ton per day Hydrogen generation
- Gasification technology - Plasma induced Radiant Energy based Gasification

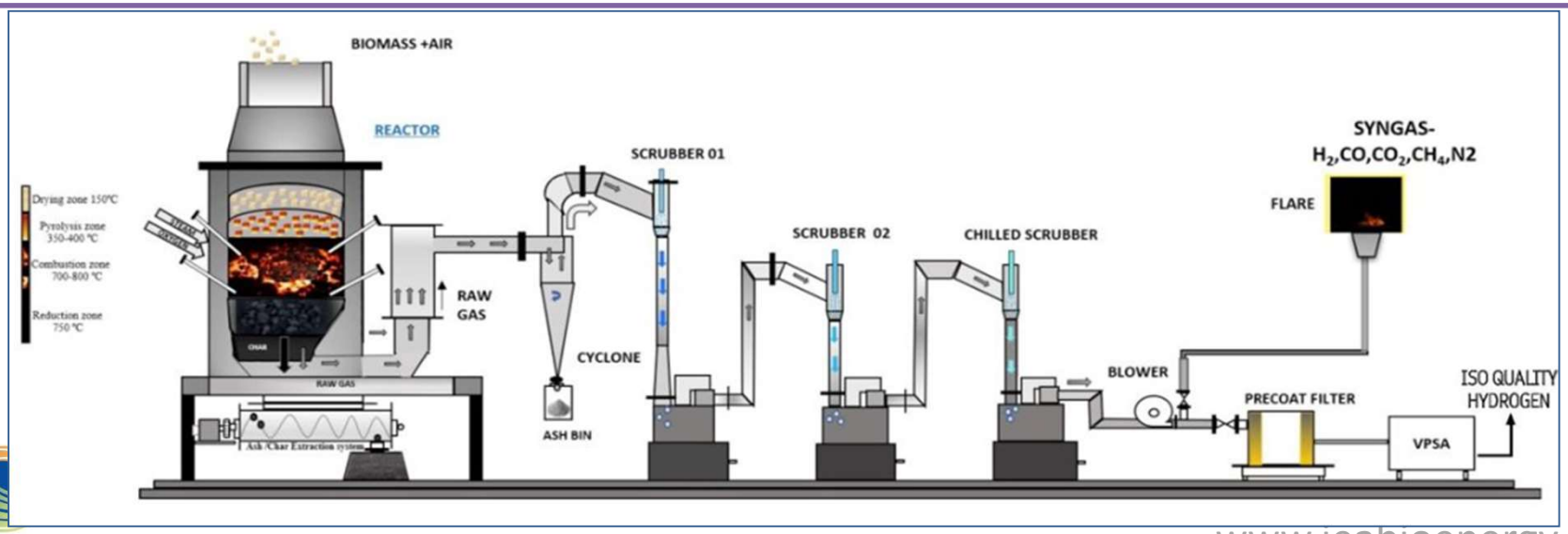
- Hydrogen separation technology - Membrane separation/VPSA/PSA or combination
- Hydrogen compression 200 bar & storage 2 tonnes
- Tender type – Domestic competitive bidding
- Last date for bid submission - 05.06.2024



Source : NTPC tender document

Update on biomass gasification based H_2 generation

- Indian Institute of Science and Indian Oil Corporation Ltd. jointly working on development and demonstration of biomass gasification based H_2 generation technology
  - ✓ PoC established
  - ✓ Demonstrated generation of PEM fuel cell grade hydrogen using woody biomass at 5 kg/hr scale
  - ✓ BDEP for 10 kg/hr hydrogen generation has been prepared
- Since the technology has already been demonstrated at 5 kg/hr scale, it is proposed to set up a large-scale hydrogen generation plant (~ 2 Tons per day) at one of IOCL's refineries
- Currently, work on agro-residue briquettes with varying ash content is in progress



CBG and Natural Gas Reforming based Hydrogen Refueling Station

- CBG reforming based hydrogen refueling station installed - All the equipment present in HRS like reformer, PSA, high pressure compressors, high pressure H_2 storage, dispenser etc. installed
- Reformer package successfully commissioned
- Stabilization & parameter optimization for PSA unit is under progress
- Entire hydrogen refueling station shall be commissioned shortly

CBG and Natural Gas Reforming based Hydrogen Refueling Station at IOCL R&D

Hydrogen fuel cell buses demonstration trials

- Assess the performance of fuel cell electric buses for public transit in Indian climatic conditions
- IndianOil has deployed 15 fuel cell buses for undertaking wide scale demonstration trials
- Currently, inhouse trials on 5 buses in Delhi is in progress (>25,000 kms covered)
- IOCL has recently partnered with Indian Army to undertake trials on a fuel cell bus
- Trials on 4 buses to commence shortly at Vadodara including Statue of Unity
- Trials planned with other stakeholders like Indian Navy, Air Force, Delhi Tourism

IndianOil showcased green hydrogen fuel cell bus, with the esteemed presence of Hon'ble Prime Minister Shri Narendra Modi during the India Energy Week 2024.

Indian Army and IOCL join forces for Hydrogen Fuel Cell Bus trials

IEA Bioenergy
Technology Collaboration Programme

Thank You

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