

# Unlocking the Potential of Waste in Advanced Conversion Pathways

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# SPEAKERS



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# AGENDA

## Previous Webinar Topics

Introduction to HTW® Gasification Technology

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Breaking Feedstock Barriers

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## Today: Advanced Conversion Pathways

Feedstock & Product Flexibility with HTW® 01.

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HTW® Gasification Integration 02.

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Production of SAF, Methanol & RNG 03.

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Process Optimization For Maximum Impact 04.

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# Waste - An Abundant & Underutilized Resource

- ▶ Every year, the world generates over **2.1 billion tonnes** of waste and that number is rising fast

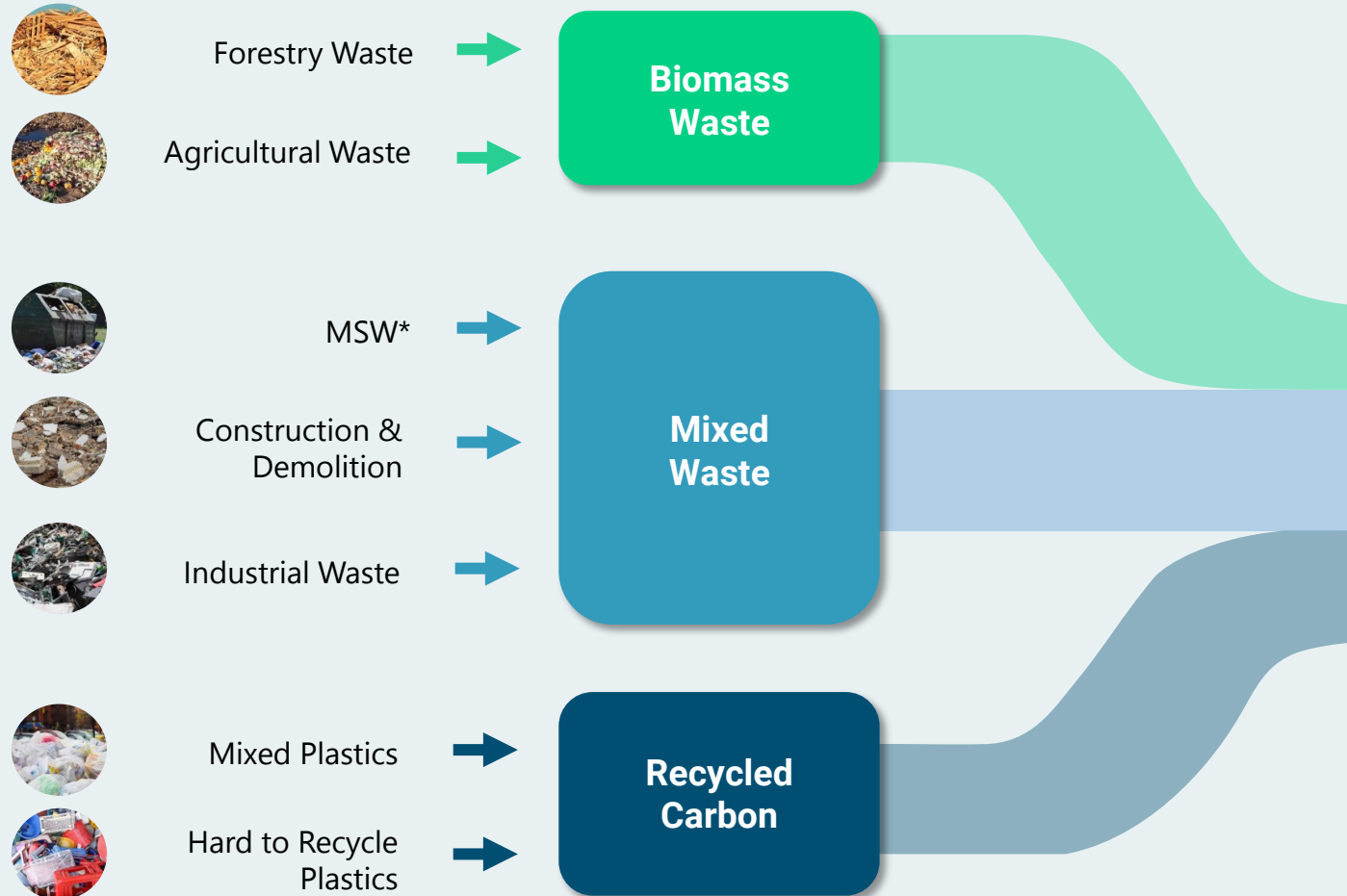
- ▶ By 2050, waste could reach **3.8 billion tonnes**





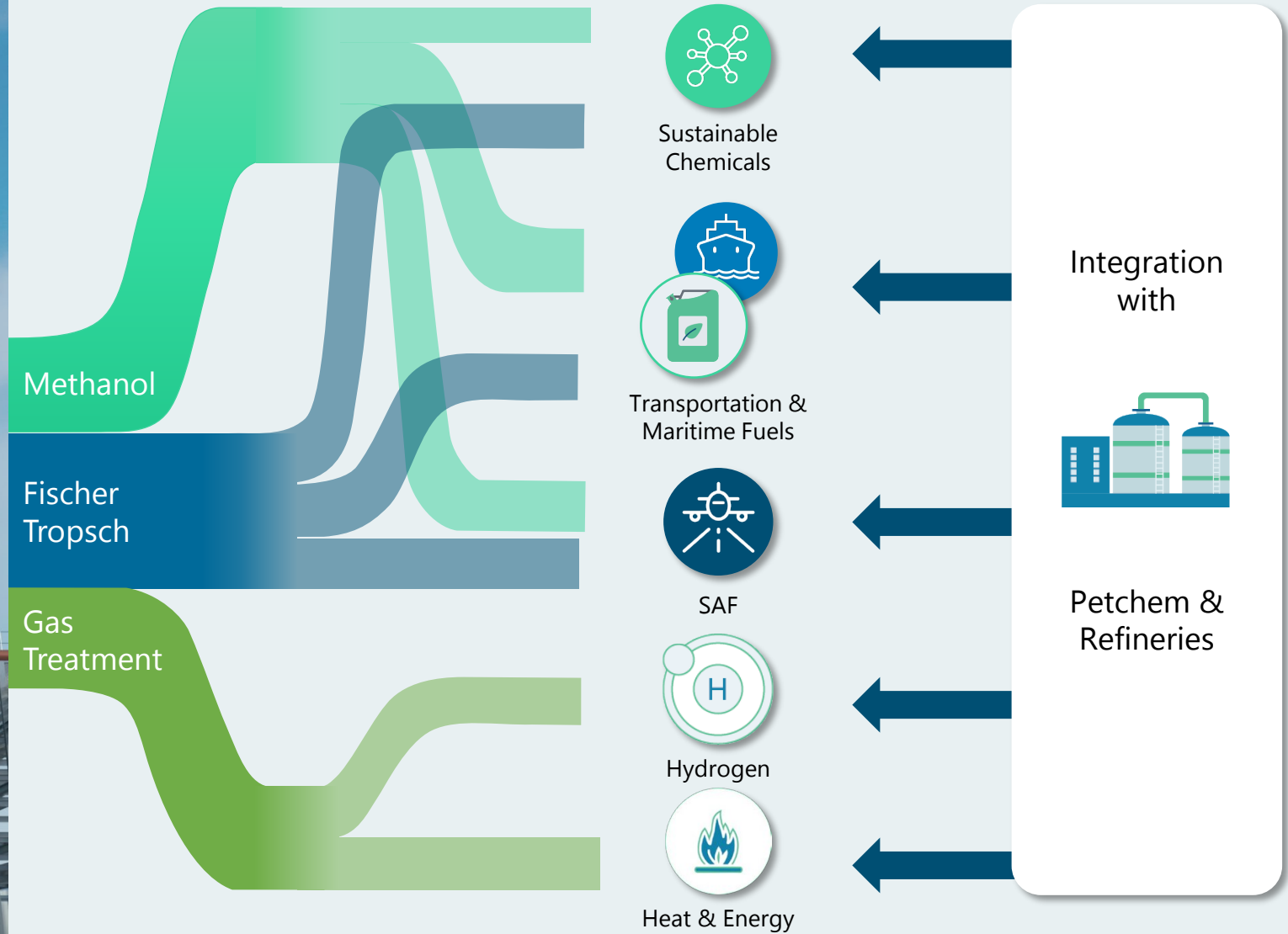
# Feedstocks & Product Flexibility

## Non-Recyclable Solid Waste





# Feedstocks & Product Flexibility



# Overall Block Flow Diagram



## Key Elements To Consider

01.

### Scalability

- ▶ Feedstock capacity should fit end-product capacity

02.

### Integration

- ▶ The blocks should not work as isolated Islands

03.

### Reliability

- ▶ Technologies consider each other's operational reliability & maintenance needs.

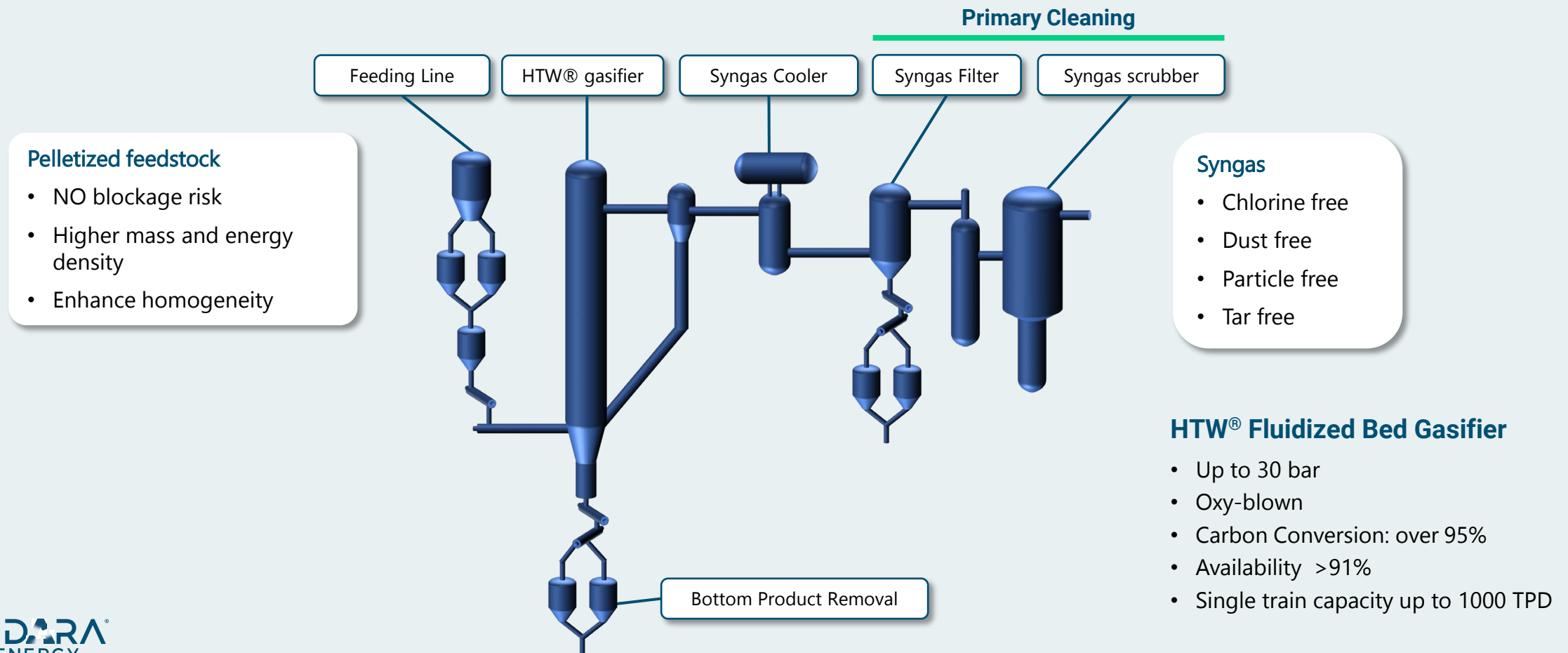
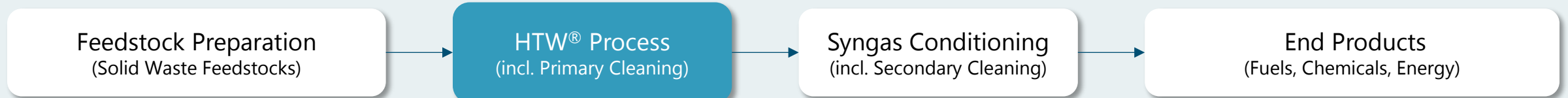


# Feedstock Preparation Process





# HTW<sup>®</sup> Gasification Process



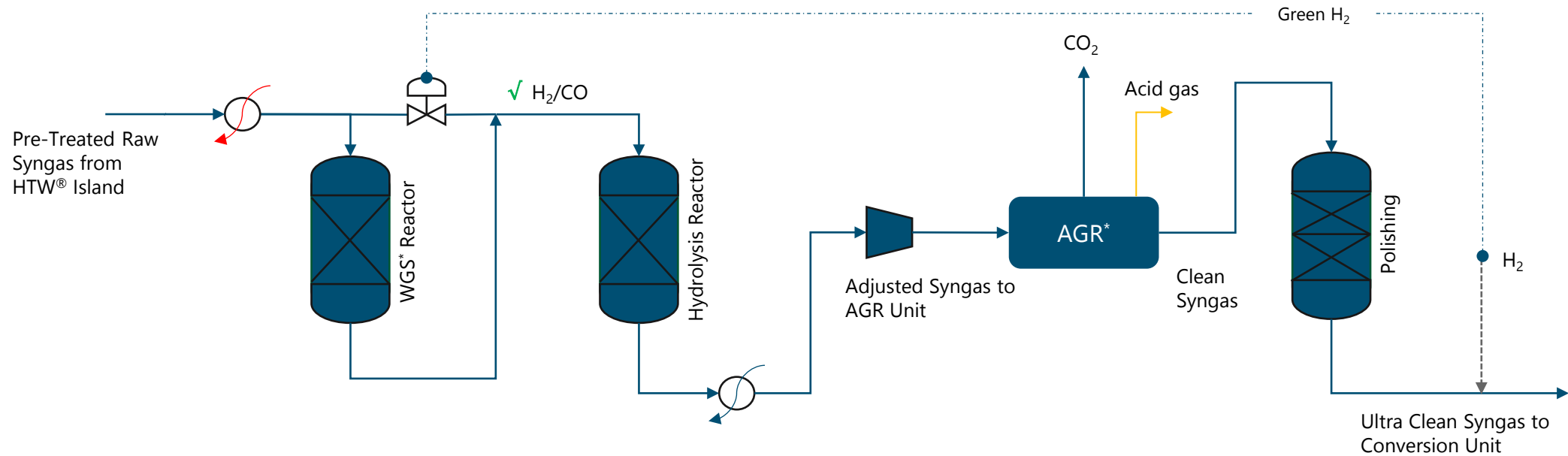
# Syngas Conditioning

Feedstock Preparation  
(Solid Waste Feedstocks)

HTW<sup>®</sup> Process  
(incl. Primary Cleaning)

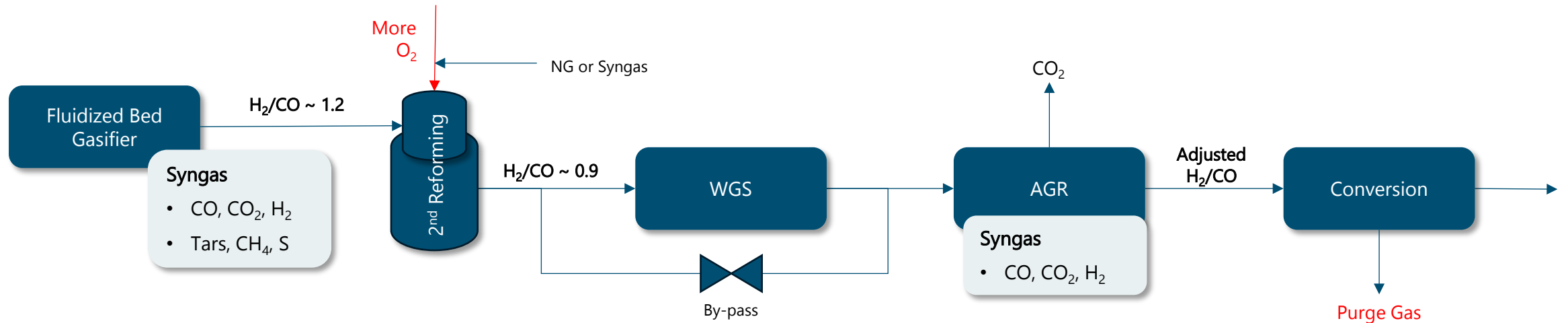
Syngas Conditioning  
(incl. Secondary Cleaning)

End Products  
(Fuels, Chemicals, Energy)



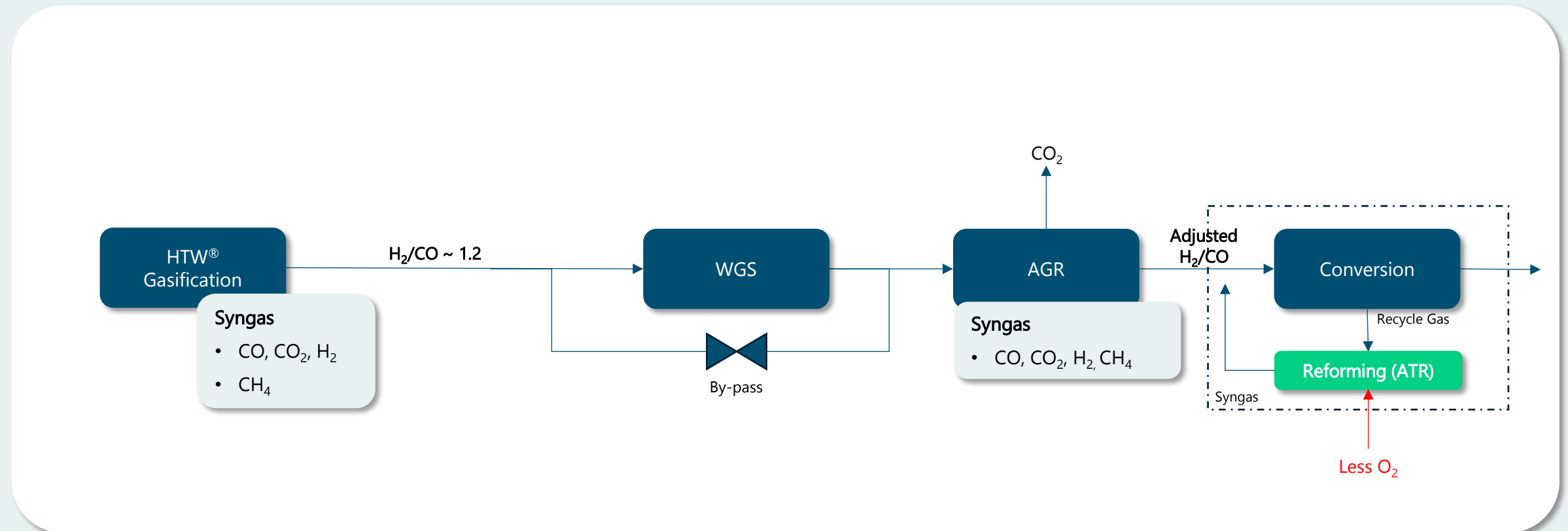


# Syngas Conditioning – Generic CFB Gasifier



NOTE: HTW® outlet contains no heavy tars so it does not need 2<sup>nd</sup> Reforming to crack down the heavy tars.

# Syngas Conditioning – HTW<sup>®</sup> Gasifier





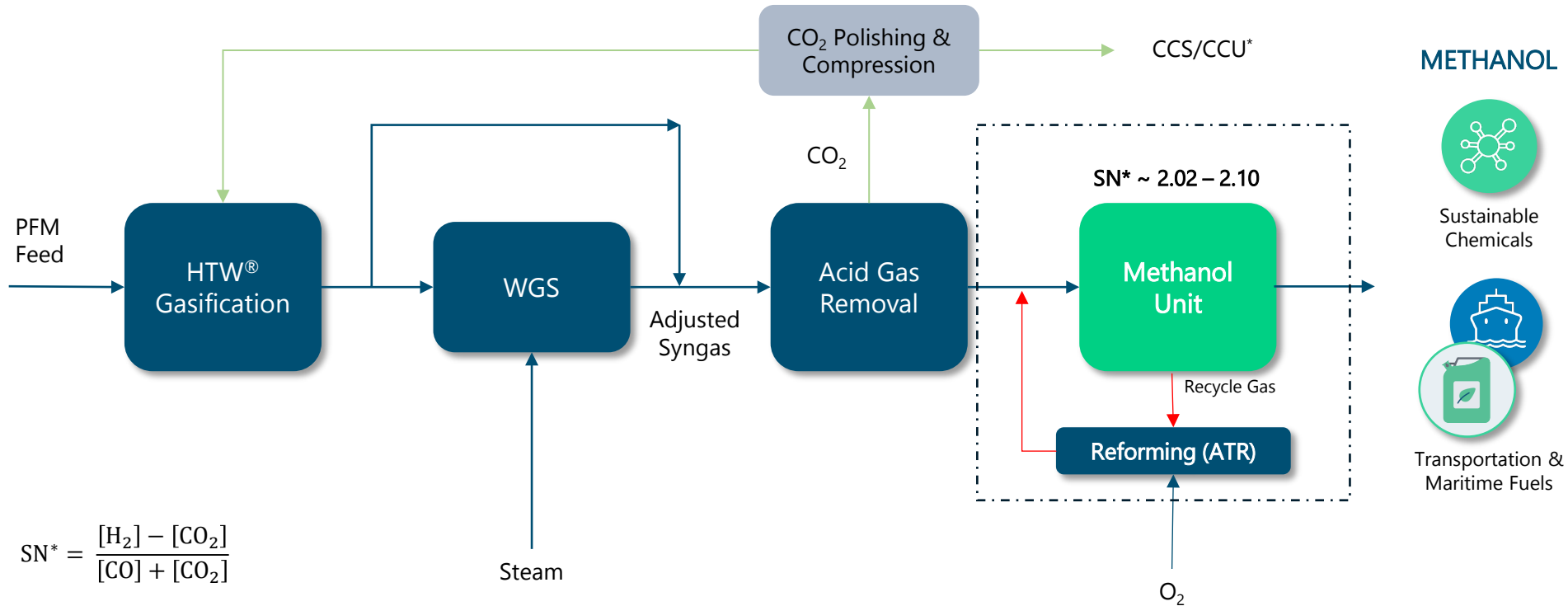
# Methanol Production

Feedstock Preparation  
(Solid Waste Feedstocks)

HTW® Process  
(incl. Primary Cleaning)

Syngas Conditioning  
(incl. Secondary Cleaning)

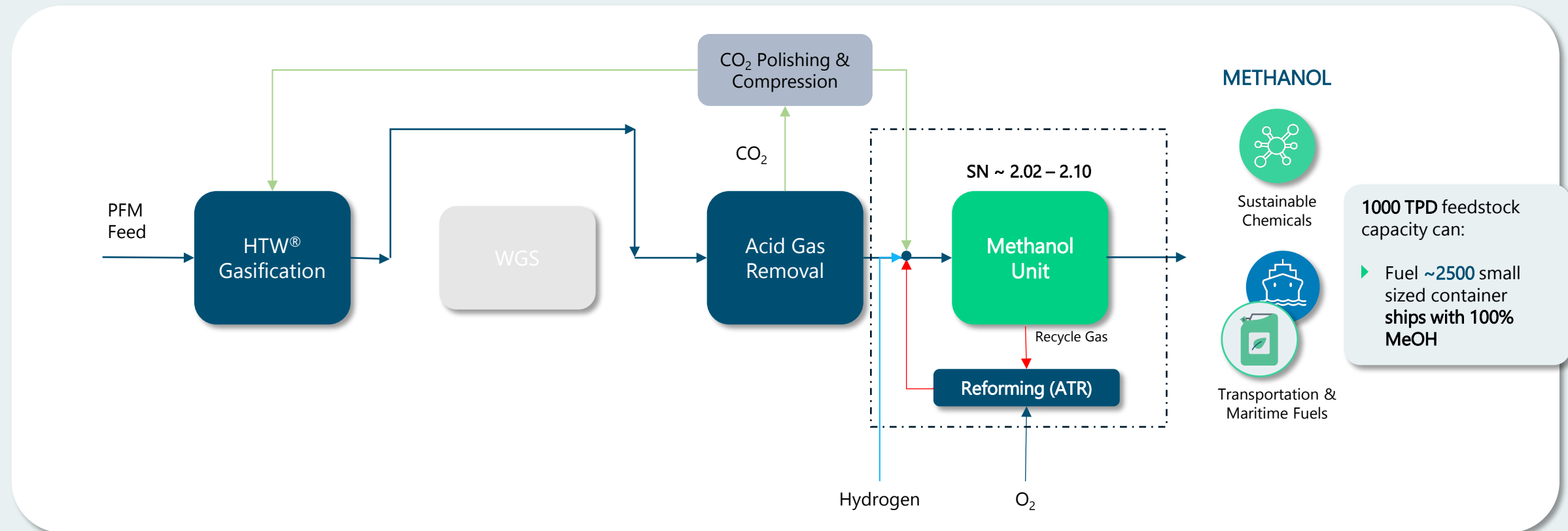
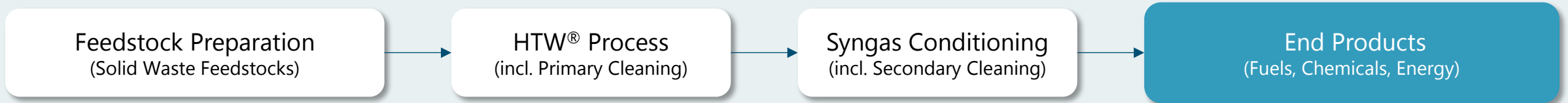
End Products  
(Fuels, Chemicals, Energy)



1000 TPD feedstock capacity can:

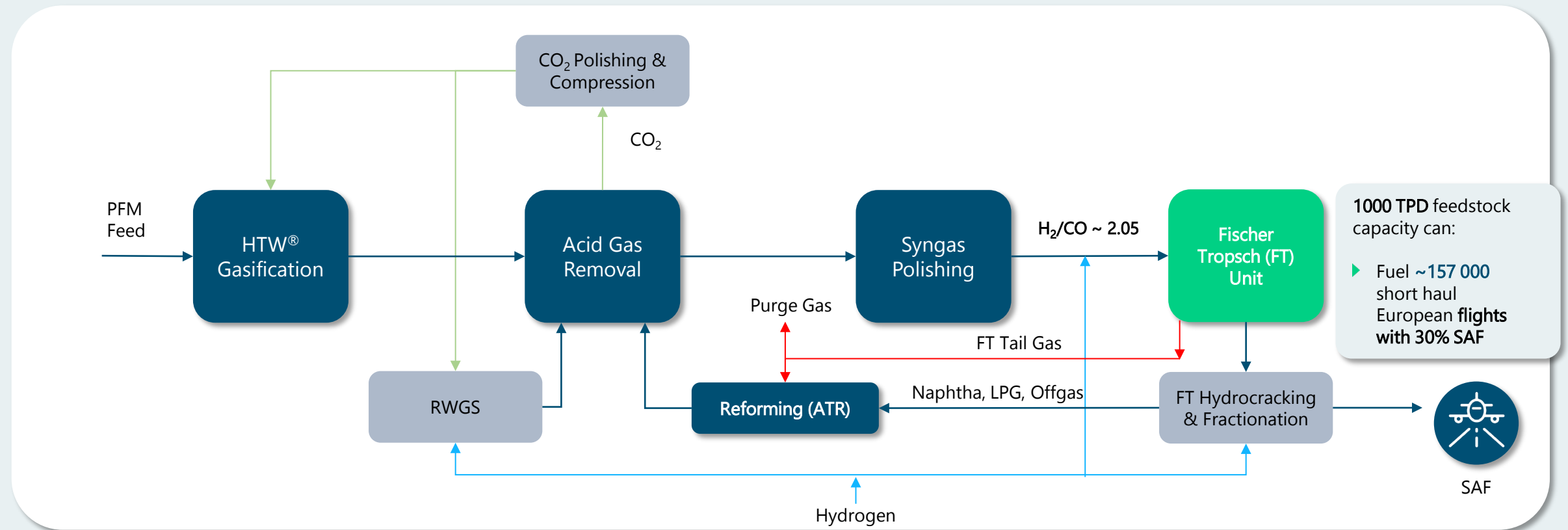
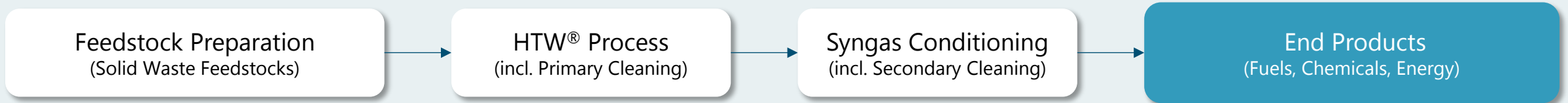
► Fuel ~1400 small sized container ships with 100% MeOH

# Methanol Production + H<sub>2</sub>

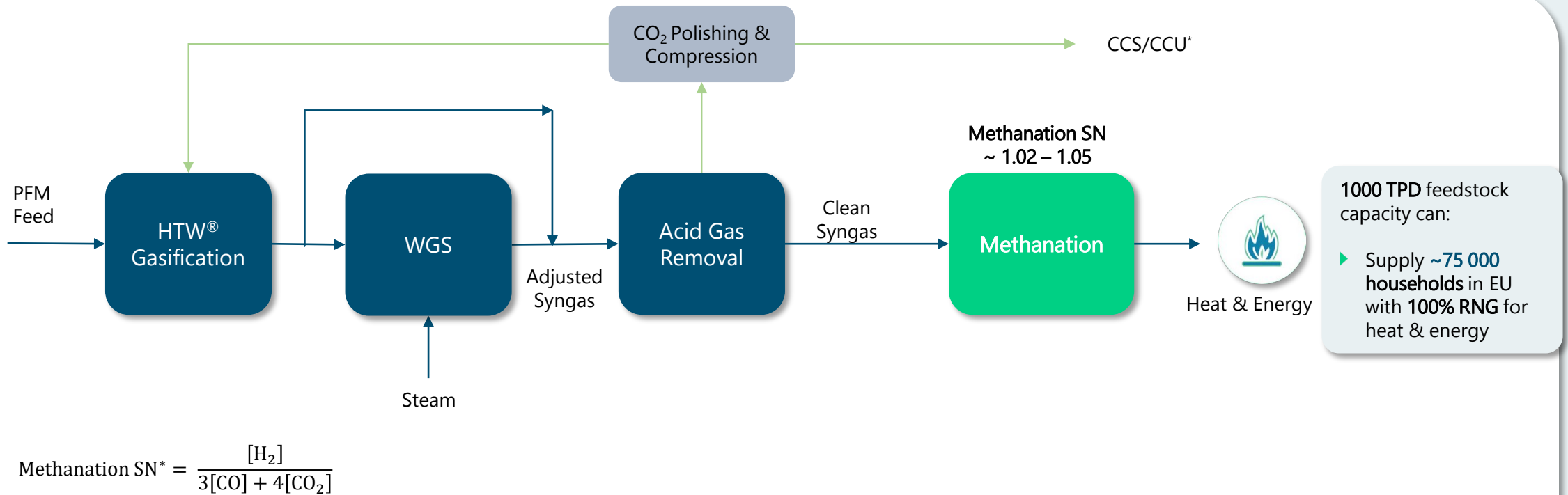
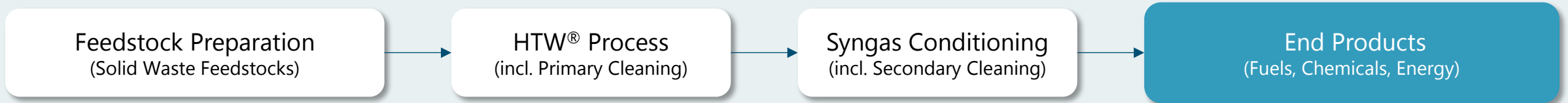




# Sustainable Aviation Fuel



# Renewable Natural Gas (RNG)



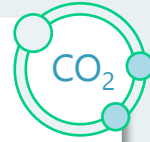
# Process Optimization

## Hydrogen & Oxygen Addition



- ▶ Boosts yields and process flexibility
- ▶ Enables cleaner, higher-value products
- ▶ Oxygen from electrolyzer can cut utilities costs

## CO<sub>2</sub> Recycling

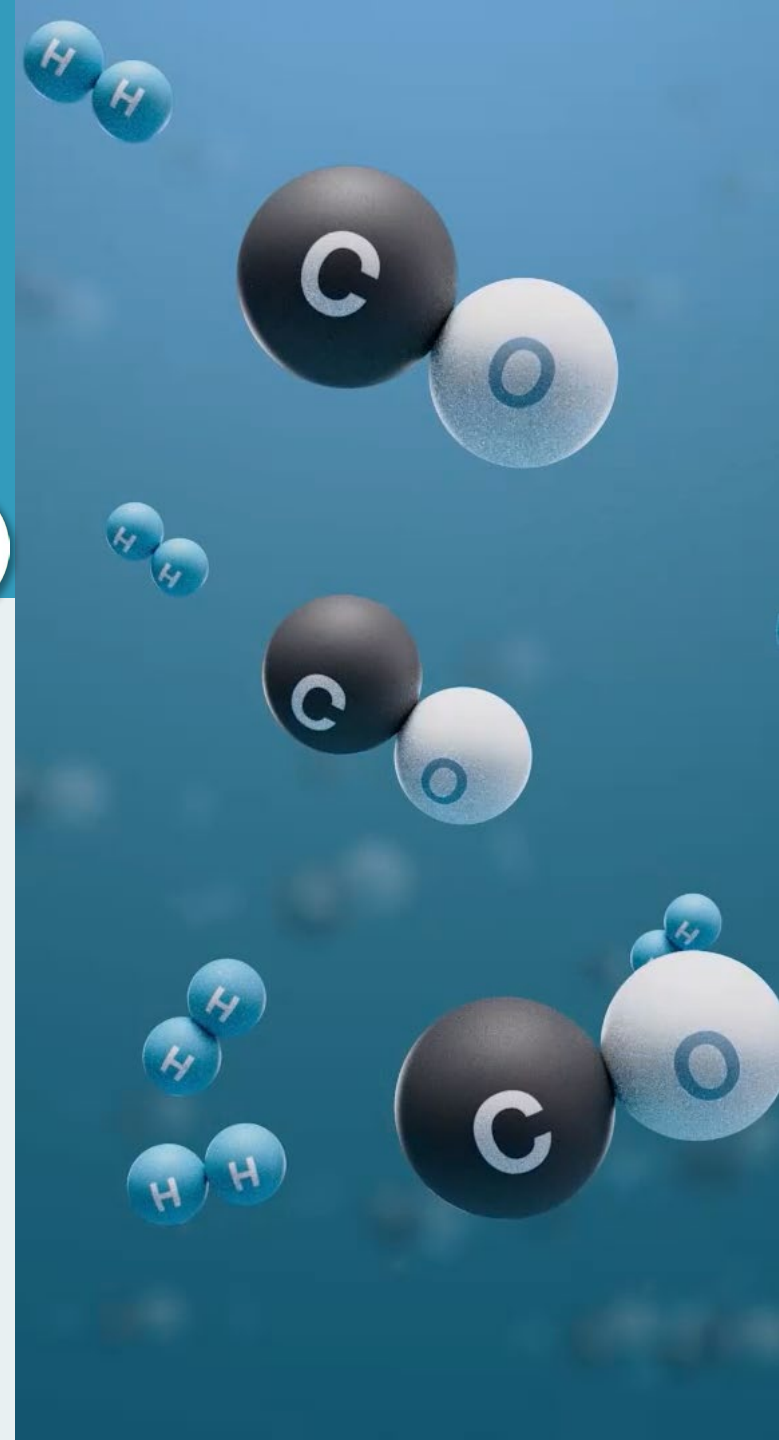


- ▶ Turns biogenic CO<sub>2</sub> into new revenue streams
- ▶ Cuts emissions and regulatory costs

## Heat & Energy Integration



- ▶ Reduces energy expenses through efficient reuse
- ▶ Enhances process efficiency and sustainability



# CONCLUSION

## Driving Change For A Better Tomorrow

- ▶ Integrate proven technologies
- ▶ Collaborate strategically
- ▶ Optimize every process
- ▶ Extract full value from waste
- ▶ **Act together. Achieve systemic impact**





# OUR TECHNOLOGY AVAILABLE FOR YOU

## Licensing

Conceptual study

Feasibility study

Standard License and basic engineering, incl prop. equip

Start-up support & personnel training, performance guarantee test supervision, annual health check

## Gasification Island



## Sustainable Fuel & Chemical Facility



# Interested in working with us?

Contact us via:  
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