



Upgrading of biogas for CBG and LBG

Kim Otto Lund Thunbo, MSc.
Project manager – Nærenergi AS
Kim.otto@narenergi.no

Biogas – From production to combustion

Produce – Handle – Distribute – Use

- Pre-studies and Concept development
- Risk assessment and documentation
- Financing
- Project management
- Commissioning
- Operation



Upgrading of biogas for CBG and LBG

Available technologies:

- Water Scrubber
- Pressure swing adsorption
- Membrane filtering
- Amine scrubber

Waterscrubber

- Compression of both methane and CO₂
- H₂S cleaning in the methane stream
- Risk of corrosion in compressor and other parts
- Water is a relatively inefficient absorbent of CO₂

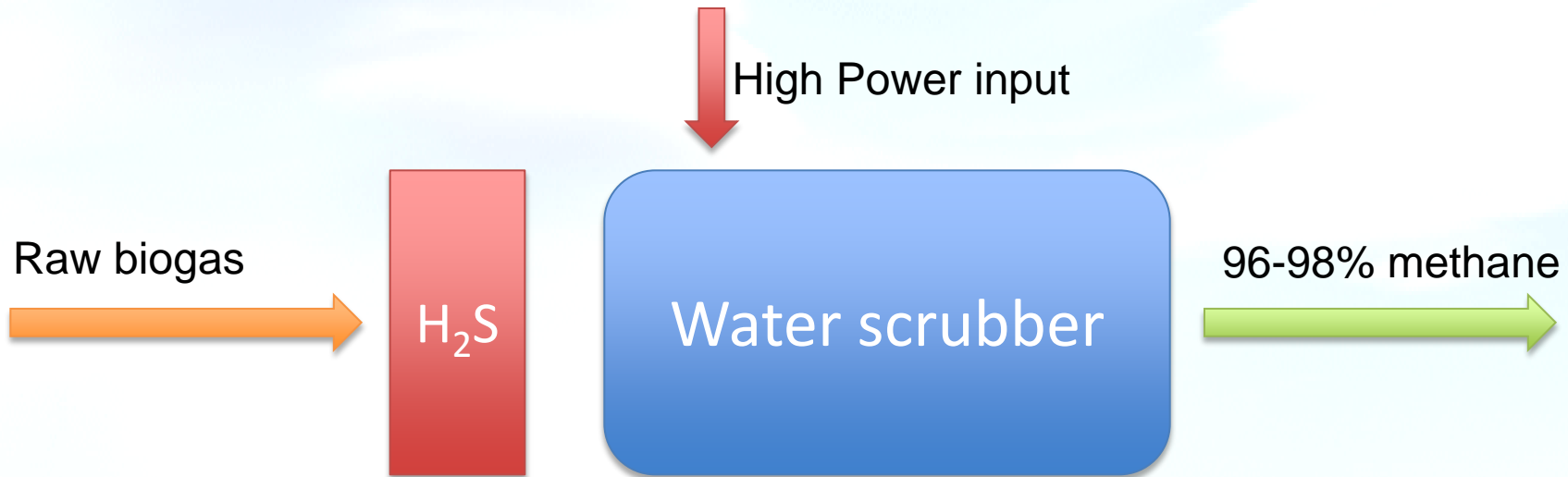
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Water scrubber

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Pressure swing adsorption

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- H₂S cleaning in the methane stream
- Risk of corrosion in compressor and other parts
- High maintenance cost because of high pressure

Pressure swing adsorption

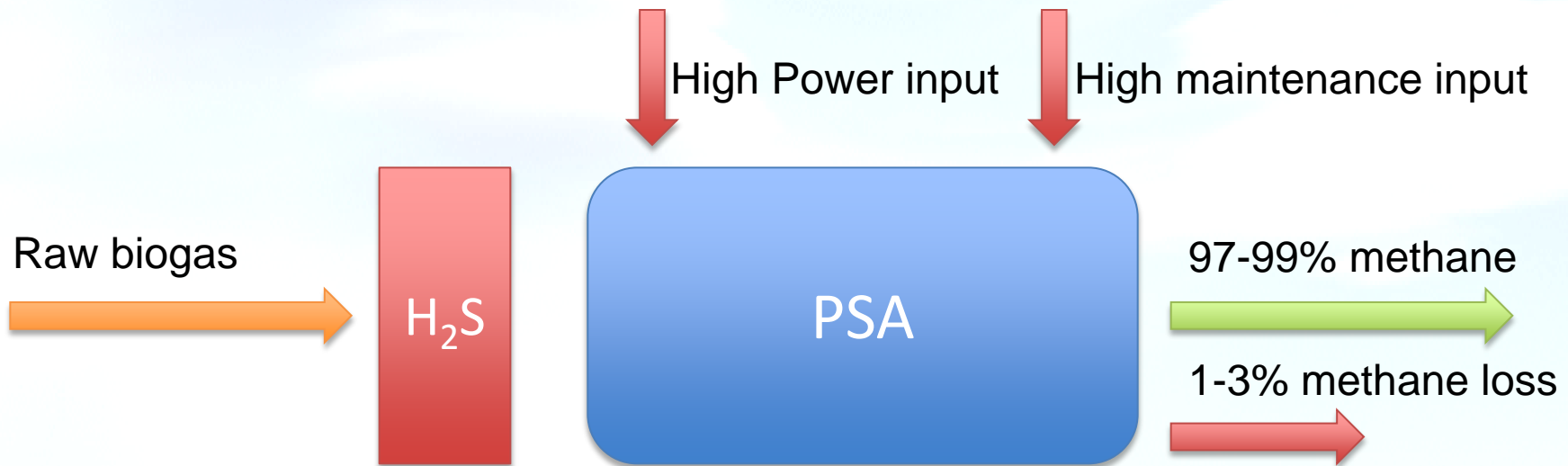
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PSA

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Membrane filtering

- Compression of both methane and CO₂
- The biogas must be cleaned very well before entering the membranes
- Large methane loss
- New technology -> what are the maintenance costs?

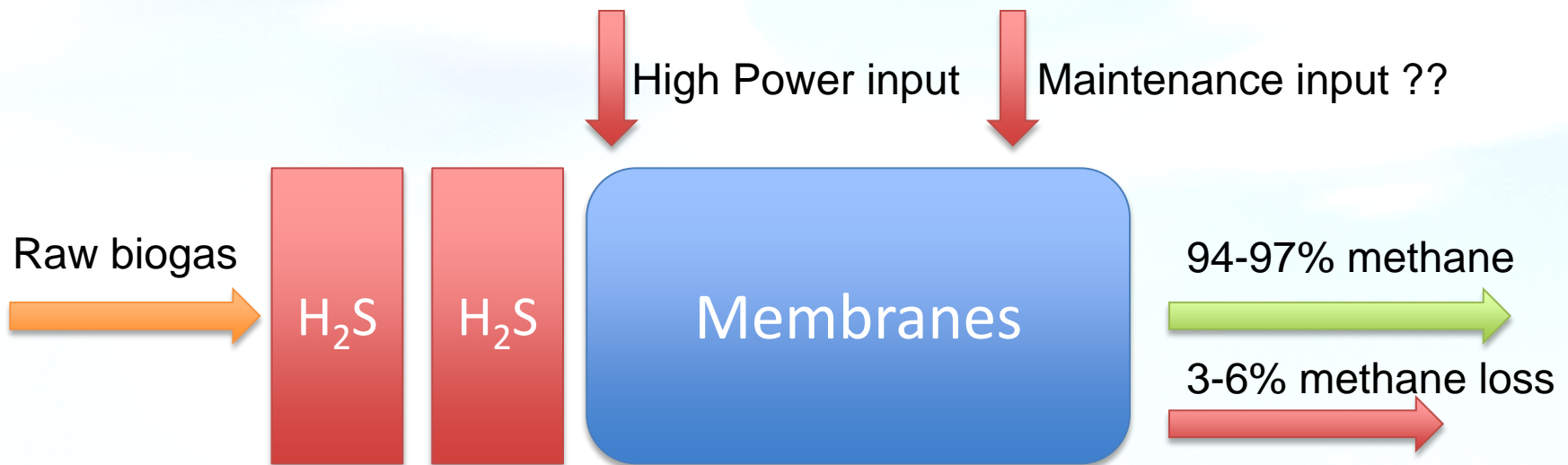
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Membranes

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Amine scrubber

- Pressure less system
- The amine solution also absorbs H₂S
- No methane loss
- Low power consumption and maintenance
- Requires heat for regeneration of amine solution

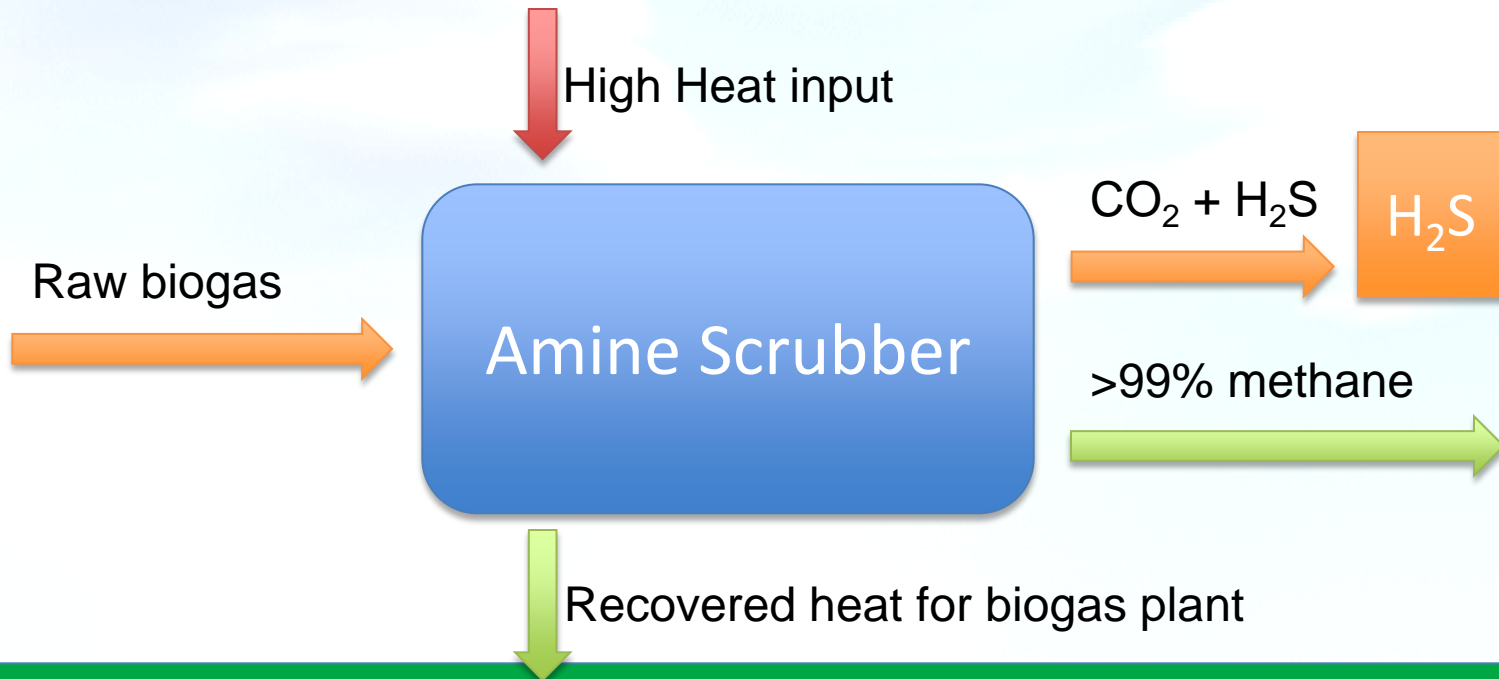
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Amine Scrubber

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Thank you for your attention

nærenergi