



Knowledge grows

Green Hydrogen in Ammonia Production

Chris Rijksen, General Manager
Yara Pilbara, August 31st, 2018



Our Mission

*Responsibly feed the world
and protect the planet*

Our Vision

*A collaborative society;
a world without hunger;
a planet respected*

Yara Pilbara at A Glance

Yara Pilbara Fertilisers (YPF)

One of the world's largest single train ammonia plants

Average production is 840,000 MT

5% of world market / 15% of Yara trade

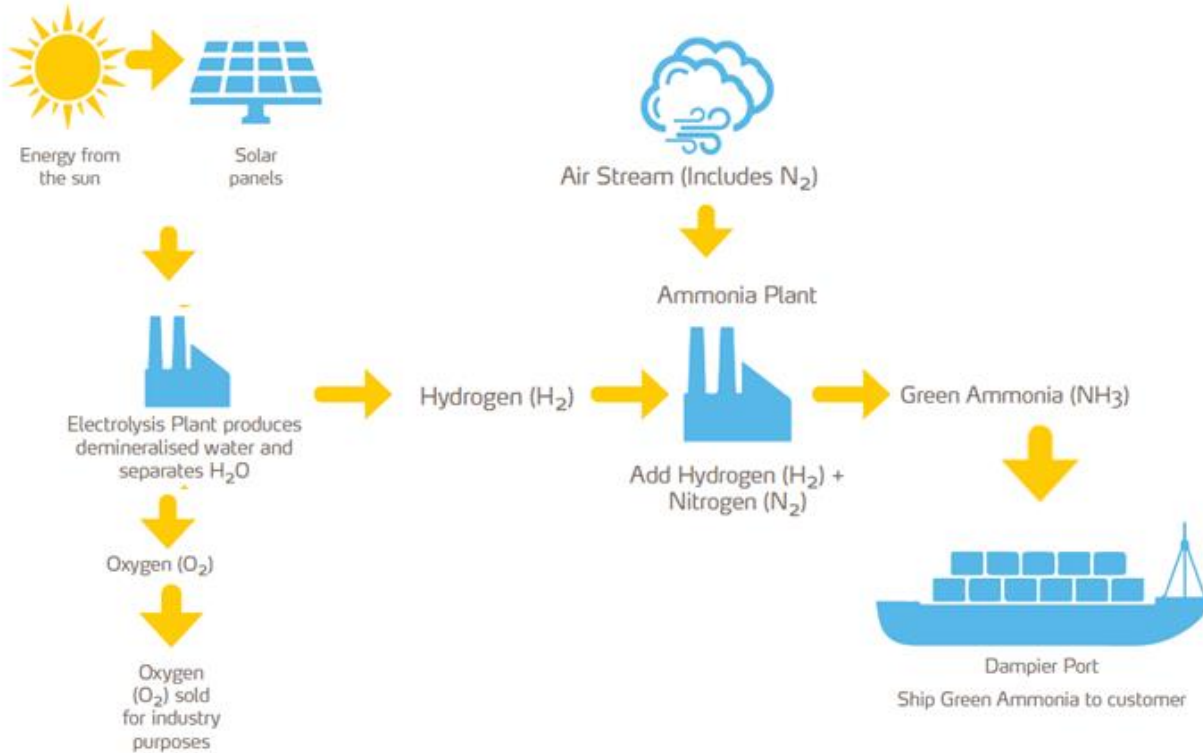
Yara Pilbara Nitrates

World's first modular Technical Ammonium Nitrate (TAN) plant

Design capacity of 330,000mt

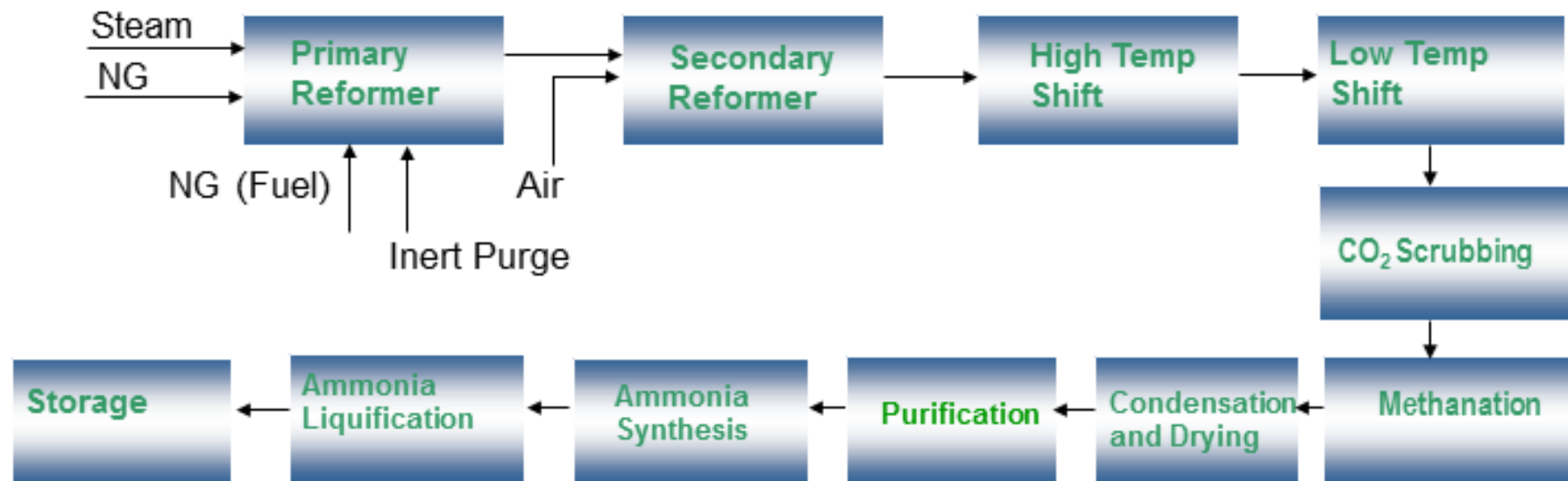


Yara Pilbara's Renewable Ammonia Project

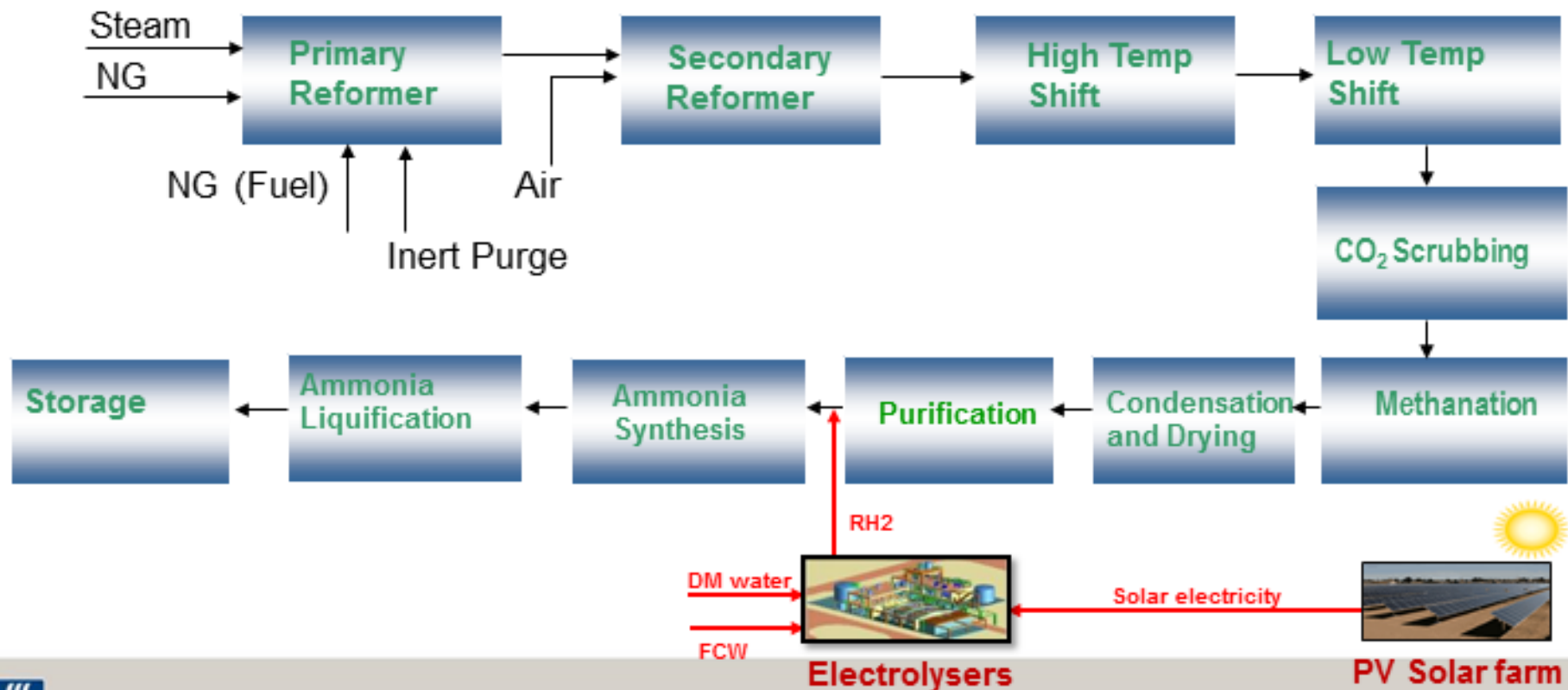


- Currently in feasibility study for project to deliver 80 tpd of 'green' ammonia
- Integrate green hydrogen into existing facility
- > 100MW, so over 200ha solar array required
- First step in developing a "green" ammonia market

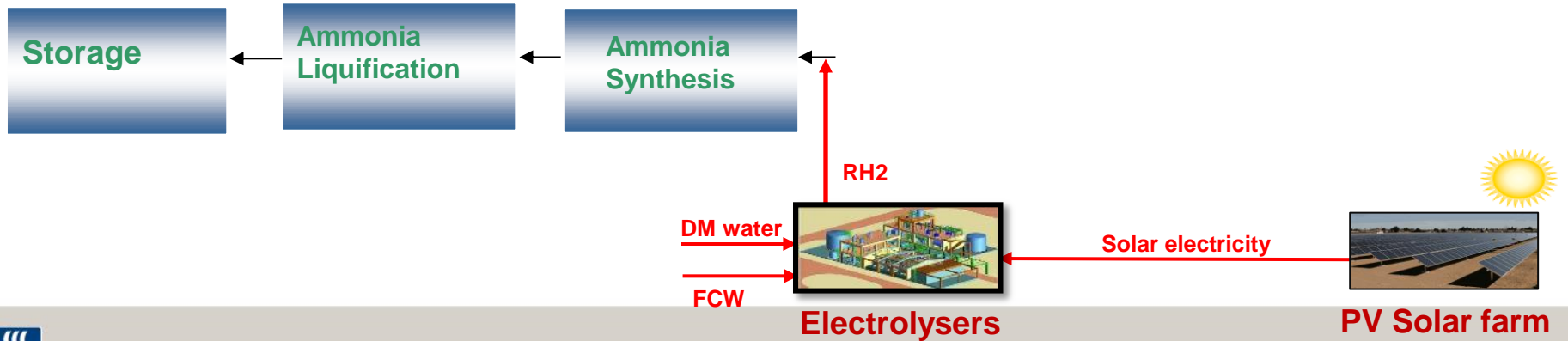
RH₂ Integration in Ammonia production



RH₂ Integration in Ammonia production



RH₂ Integration in Ammonia production



Current status of our project

- Feasibility project in execution
- Exploring opportunities with Australian and International stakeholders
 - Market
 - Synergies from partnerships for implementation
 - Liaising with the Yara International Innovation team
- And, second...is the first loser

Current status of our project

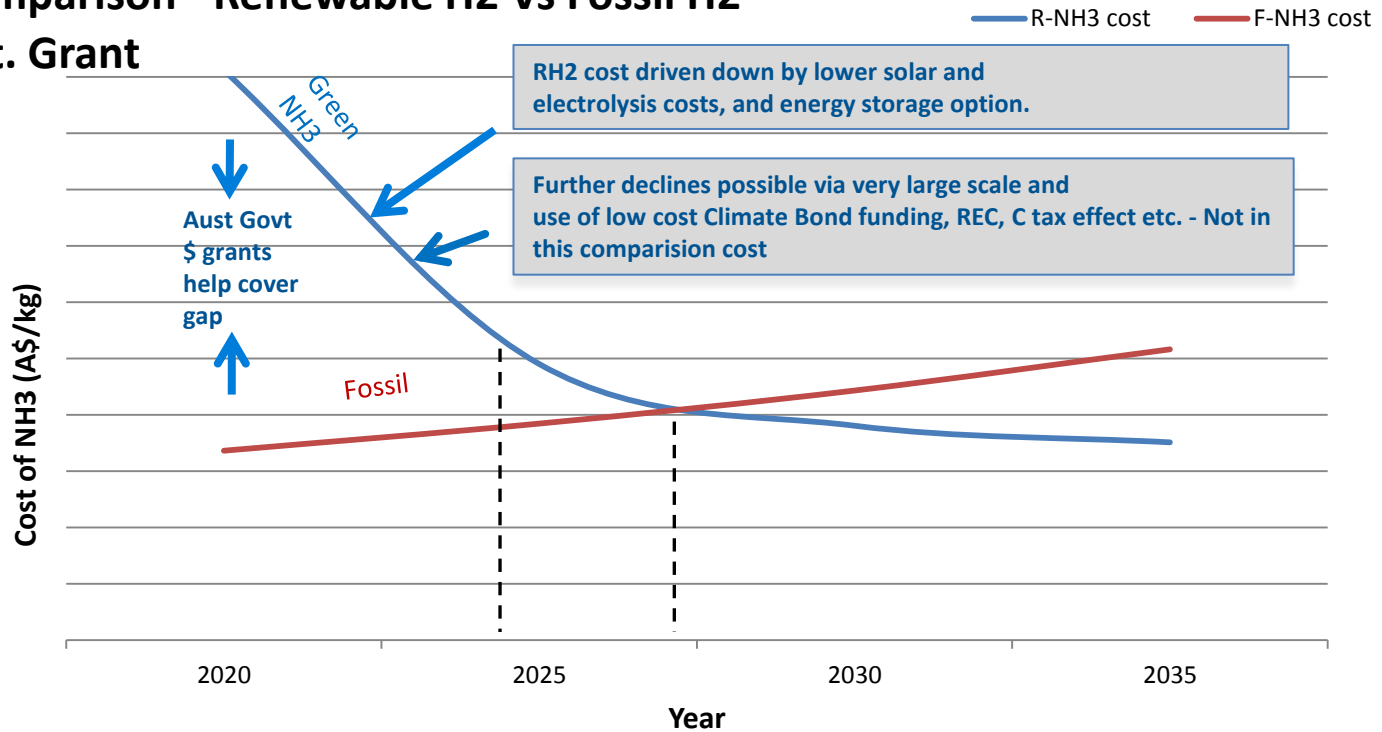
Hydrogen



Renewable Ammonia Project

Cost Comparison - Renewable H2 Vs Fossil H2

No Govt. Grant



Opportunities created by Yara's integrated business model

