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Setting the scene

Summary

September 6, 2018

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China

- Active promotion of low Carbon Energy
- 2017:
  - 13.8% RE
  - 0.9% Bioenergy from 41 Mtoc
- Resources: 460 Mtce, pellets 10 Mton
- Policy:
  - Strengthen: Clean biomass heating, biogas, bioEtOH
- Challenges: Lack of consensus, Logistics
  - No Cofiring implemented
  - No standards for sustainability

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South Korea

- Active promotion of low Carbon Energy
  - From now: 4.8% -> 2035: 11%
- Renewable Electricity supported by RPS:
  - 5% in 2018, to 10% in 2024
  - 15% of Renewable Power from Biomass
  - Imported pellets: 2 Mton from Vietnam/Malaysia
  - May 2018: Change REC credit: 1.0 -0.0 for import
    - But 1.5 for local biomass
    - 4 Mm3 local woody biomass available
  - Policy: 2035: Bioenergy for Heating and biofuels
    - 1 Mtce -> 6 Mtce

Malaysia

- 2 % Renewable Energy
- Resources:
  - 3.9 Mha palmoil plantations -> 94 Mton biomass waste (4.6 Mton PKS)
- Policy:
  - Sabah/Sarawak: industry development plan (5 Mt)
  - RE From 2 -> 20% by 2025
- Sustainability? Align with SDG

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New Zealand

- 82 % Renewable Electricity, half heat, 0 in transport
- Resources:
  - 1.7 Mha forest -> 30 Mm3 harvest/year
  - Residues chips: 4 Mton/yr @ 75 NZ$/ton
- Policy:
  - Electric transport
  - 1 Million tree program
  - Valorisation of export (not logs but timber)
- Sustainability:
  - 100 % FSC

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Indonesia

- R.E. target: 23% in 2025 = 92 Mtoe
  - Biomass: 23 Mtoe
  - Bioenergy power: 5500 MW (potential 32000 MW)
- Now: 214 MWe from Palm waste, papermills, sugar
- Policy:
  - Electricity from waste
  - Biofuel: 2035: B30 and E20
  - Now: B20 since 1 September and E2 at Java
- Export: Biodiesel: 481 Mliter in 2018
- Sustainability ?

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Session 2

Summary by Martin Junginger

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Session 2 summary (1/3)

- Global trade of both solid and liquid biomass has been increasing strongly in the past two decades
- Nowadays, approximately 2% of all bioenergy consumed is traded internationally – but in some countries, the share of imported biomass is much higher
- Growth has been especially rapid in recent years in the Asian region, with Vietnam a major WP exporter, and Korea a major importer
- Demand is almost always triggered by policy incentives – and thus subject to fluctuations
- Trade is expected to grow further with increasing demand for biomass in industrialized countries, such as Japan and Korea

Session 2 summary (2/3)

- Torrefaction is a promising technology, that can potentially lower both the cost and the GHG emissions of biomass by about 10-15% compared to white wood pellets when traded over long distances
- Torrefied biomass has a higher heating value than most other biomass , and also allows for easier integration in existing coal infrastructures- it ships like coal, stores like coal, mills like coal and combusts like coals
- While so far, only pilot plants were producing torrefied biomass, there are several larger projects in the pipeline, hopefully coming online in 2019-2020
- Torrefaction may be an interesting technology for e.g. Japanese and Korean power plants, and an important enabler of trade in the region

Session 2 summary (3/3)

- Japan has ambitious targets to reduce GHG emissions, and sees biomass as one of the key technologies as a renewable, stable baseload power source
- A Feed-in tariff system has been installed supproting biomass power production, which has triggered the use of wood in dedicated power plants. In total, about 1.1 GW of biomass power capacity was installed in 2017, this could increase to >5 GW in the near future
- Japan imports wood pellets and palm kernel shells from neighboring countries and Canada, and these imports could grow further in coming years, possibly to beyond 8 million tonnes by 2023 (from 3 MT in 2018)
- This might be achieved with a “Asian Biomass Community”, i.e. joint ventures to establish a sustainable biomass industry in the region

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Session 3: Large scale utilisation

Tokyo, 6-7 Sept 2018

Jaap Koppejan, task leader

Kees Kwant, Operating Agent

IEA Bioenergy Task 32: Biomass Combustion and Cofiring

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Large scale utilisation session

- Overview of global experience with different cofiring configurations, fly ash utilisation options (Jan Middelkamp, DNVGL, Netherlands)
- Commercial experiences on full conversions to white and black pellets (Brian Mori, Ontario Power Generation)
- Co-firing and biomass utilization of Japan's coal power plants (Dr. Kinya Sakanishi, Fukushima Renewable Energy Institute, AIST(FREA)

Conclusions

- Opportunities, limitations for cofiring and full conversion are now well understood
- Wealth of experiences around the globe
- Main challenges related to safety in fuel handling and storage
- Substitution of large and relatively efficient coal fired plant makes cofiring typically very efficient, reliable and cost effective in terms of USD/ton CO2 and USD/MWh.
- Black pellets are now also proven technology. Particularlly interesting in case an end user plans limited full load hours for the plant.

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Session 4

Sustainability Summary by Thomas Kaberger

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