

CCS and BECCS, policy and public support challenges

Tom Mikunda, ECN



The Energy Centre of the Netherlands

- ECN develops technologies and generates knowledge for a sustainable energy future
- 500 employees, offices in NL and China
- Tech departments: Wind, Solar, Biomass (gasification / torrefaction), Energy Efficiency
- Policy studies: Key in Dutch energy and climate policy, also active in EU and global energy and climate policymaking

Today's presentation

- Status of CCS in Europe
- Challenge 1: Funding and incentives
- Challenge 2: Regulatory framework
- Challenge 3: Public support
- Challenge 4: International climate finance





Status of CCS in Europe

- Yet to realise a fully integrated CCS project
- Storage successfully demonstrated in Norway
- ROAD post-combustion (Rotterdam, NL) project at most advanced stage. Green Hydrogen and Don Valley.
- CCS plays a key role in EU climate strategies
- Target of 12 demo's by 2015 will not be reached



Challenge 1: Funding and incentives

- CCS is an expensive technology which will not be deployed without strong incentives
- Key mechanism: EU Emission Trading Scheme
- Additional EU demo funding: European Energy Programme for Recovery (EEPR), New Entrants Reserve 300.
- Member State commitments: UK (£1bn) and NL (€200k)



Funding and incentives: Issues

- EU ETS price is too low and uncertain for long-term business models
- NER300 pot reduced through low CO₂ price
- Funding gaps remain despite EU and MS funding.
- EU Commission – no more funding available
- Can enhanced oil recovery provide the answer?



Challenge 2: Regulatory framework

- EU CCS Directive 2009 – An enabling regulatory framework
- Site selection, characterisation, risk assessment, permits, monitoring, access, transfer of responsibility, financial security.
- EU ETS amendment / MRG guidelines 2010 – emissions from capture, transport, storage and enhanced oil recovery operations

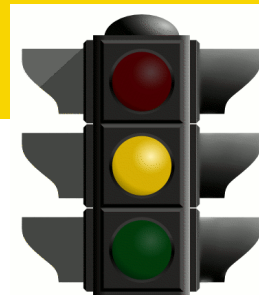


Regulatory framework: Issues

- The regulatory framework provides certainty, but also places additional demands on projects
- Transfer of responsibility, min 20 years. Member State discretion – Germany, 40 years!
- Financial security provision – showstopper?
- Long-term liability / EU ETS link liability – potentially huge and very uncertain

Challenge 3: Public support

- Two major CCS demo's stopped primarily due to local opposition
- Understanding of CCS and CO₂ amongst general public very low
- CCS projects forced offshore, increasing costs
- Important to distinguish between public perception, and local support



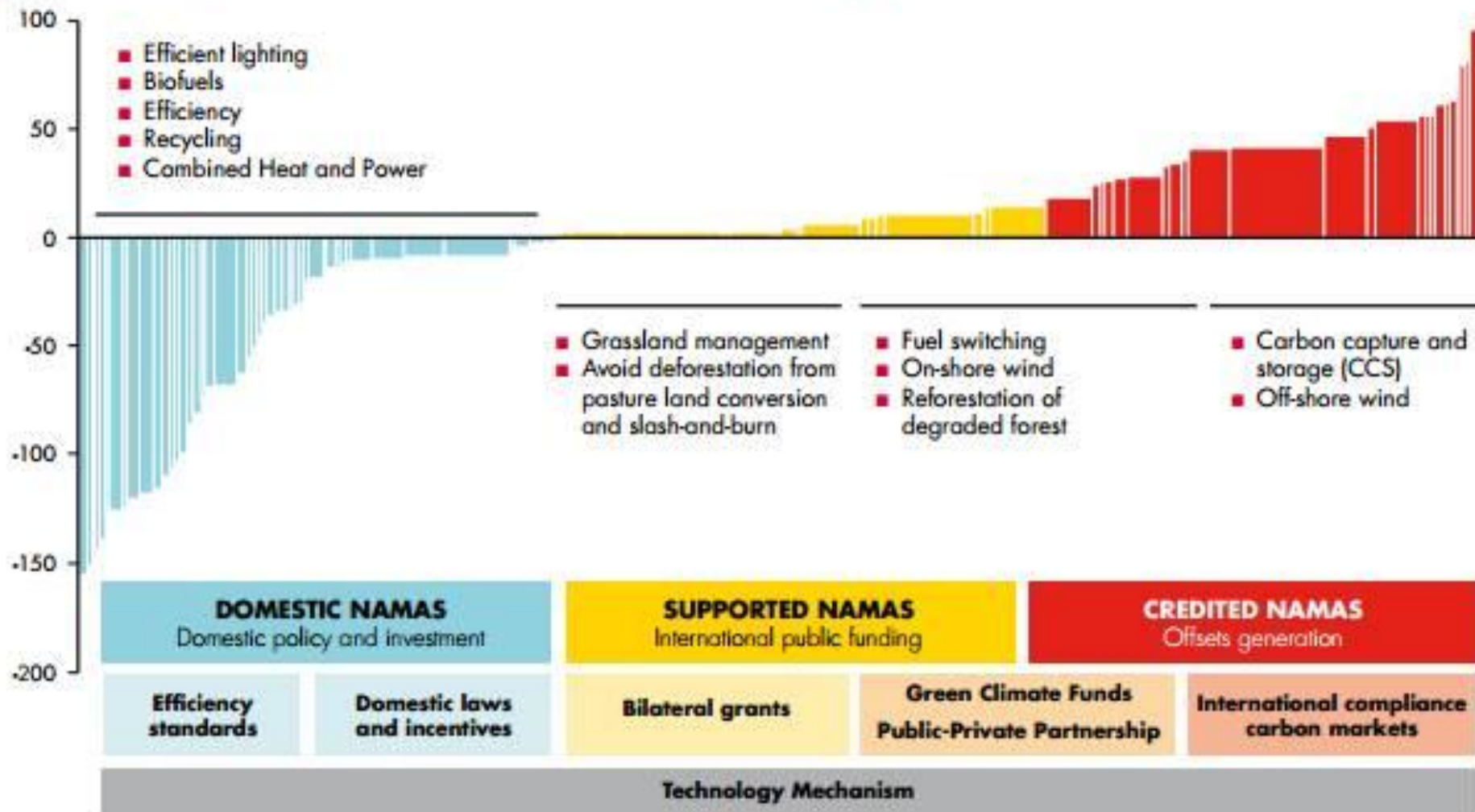
Public support – way forward?

- Public support: Education and information – can industrial CCS and BECCS change attitudes?
- Local communication –
 - ✓ engage early
 - ✓ allow stakeholders in decision process
 - ✓ effective communication techniques
 - ✓ address misconceptions
 - ✓ local/national government and industry ambitions aligned

Challenge 4: International Climate Finance

- Funding: CCS permitted activity under the Clean Development Mechanism (CDM)
- However – uncertainty on legally binding Kyoto Protocol 2nd commitment period
- Demand for CERs dropping / EU restrictions
- Where could BECCS fit into new mechanisms, such as NAMAs and New Market Mechanisms?

Figure 2 Recasting the abatement curve in the context of developing country NAMAs.





International finance challenges

- For BECCS to fit into NAMA framework, associated sustainable development benefits are key
- NAMA guidelines, selection criteria and financing models still to be developed and tested
- Monitoring, reporting and verification for NAMAs and baseline development must be established to lever both public and private finance



Take home messages

- (BE)CCS requires capital investment funding coupled with long-term incentives
- Regulatory framework essential, however the impacts on business case cannot be overlooked
- Local resistance can be a real showstopper
- International finance for CCS – mechanisms have to mature – developing and developed country dialogue must accelerate

Thank you for the invite and your attention!

Tom Mikunda
mikunda@ecn.nl