



IEA Bioenergy
Technology Collaboration Programme



IEA Bioenergy Task 44 Flexible Bioenergy

WP 2 Report «Expectation and implementation of flexible bioenergy in different countries»

Daniela Thrän, Co-task lead and national team leader Germany

Webinar, 18 March 2021

The IEA Bioenergy Technology Collaboration Programme (TCP) is organised under the auspices of the International Energy Agency (IEA) but is functionally and legally autonomous. Views, findings and publications of the IEA Bioenergy TCP do not necessarily represent the views or policies of the IEA Secretariat or its individual member countries.

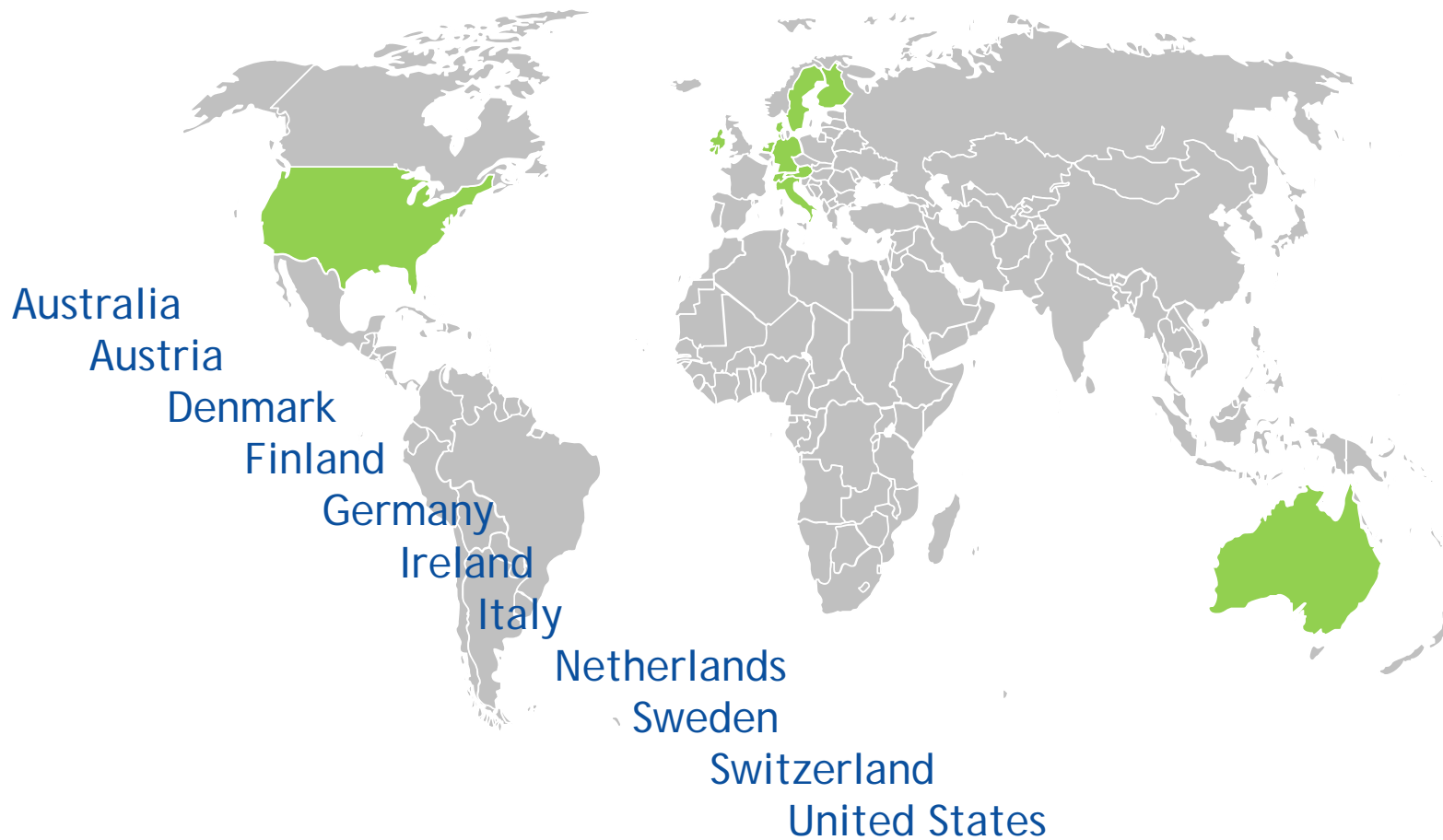
Technology Collaboration Programme

by **iea**

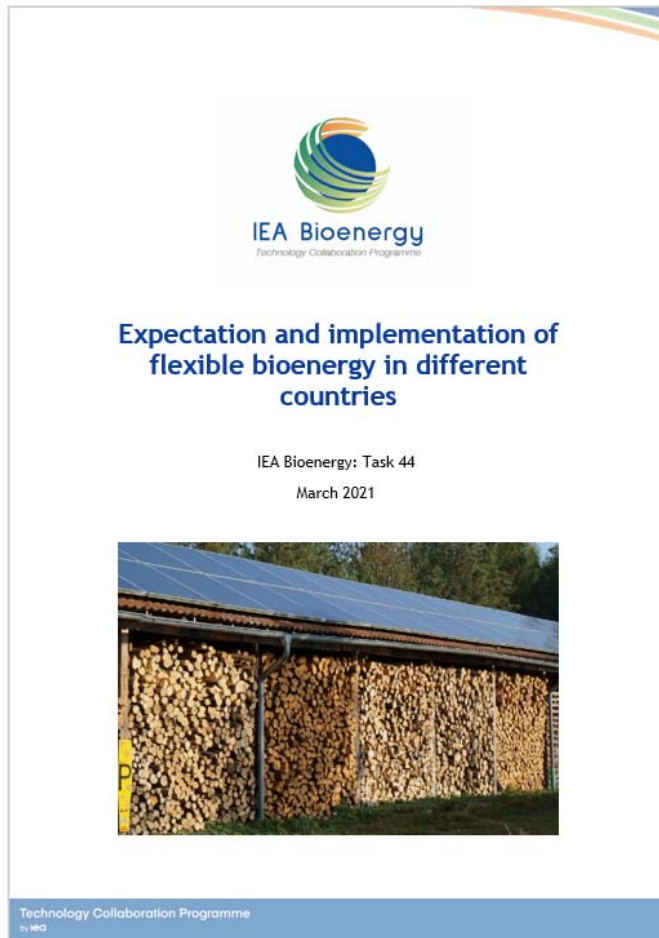
Approach

- Leading questions:
 - What is the status / state of the art of flexible bioenergy in the Member States?
 - What are the bottlenecks (technological, economic, and systemic) that limit the flexibility of bioenergy?
 - What type of market and policy measures are needed to support successful introduction of flexible bioenergy solutions to the energy system?
- Survey in IV/2019 and I/2020, review of survey in II/2020
- Report available:
<https://task44.ieabioenergy.com/iea-publications/>

Contributing countries



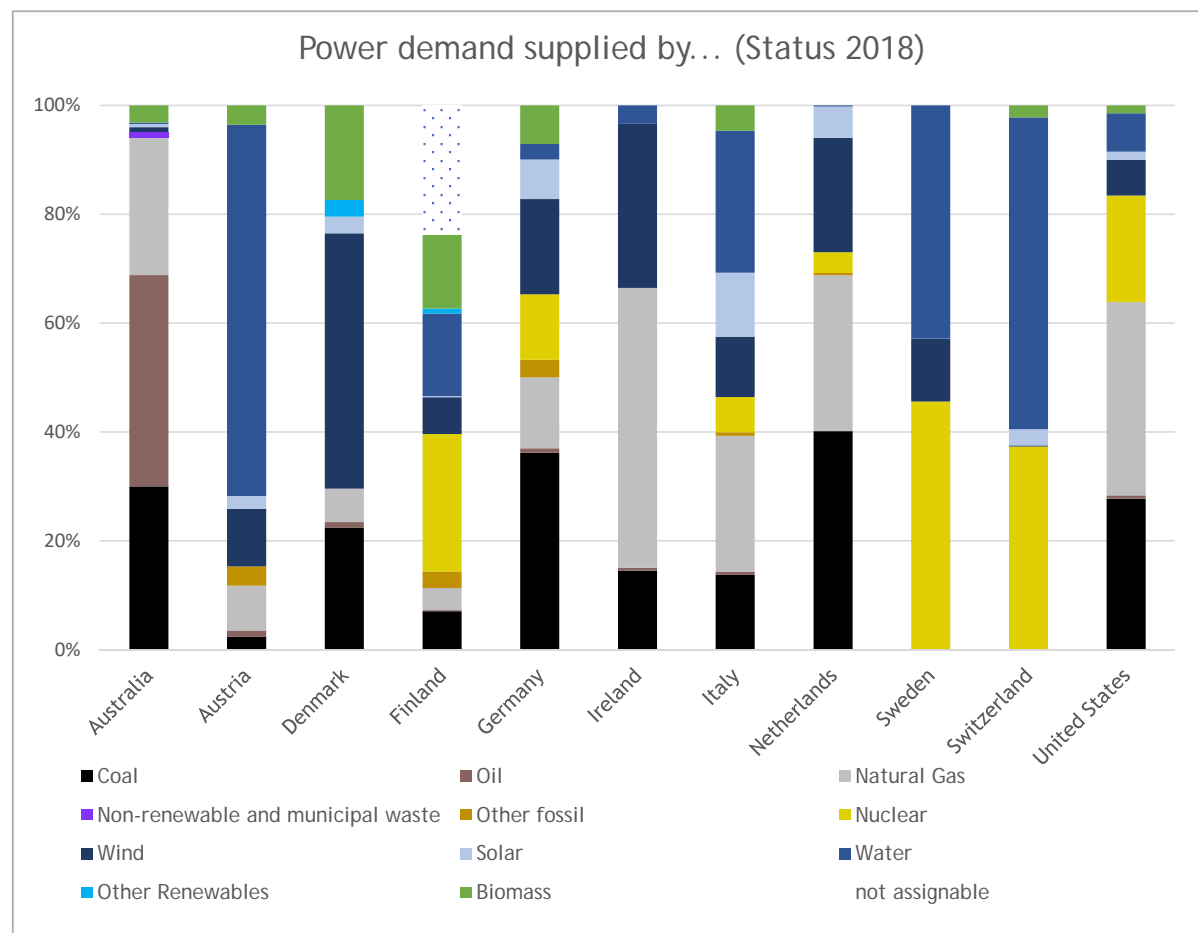
Report



Australia.....	
General country information	
Status Quo and Country classification.....	
Flexible Energies capacities	
Legal Framework	
Policy instruments	
Opportunities	
Barriers and bottlenecks	
Phase out strategies	
Key sectors and key actors.....	
Goals and Expectations.....	
Research, development and Innovation	
Scenarios and Forecasts.....	
Best practises	

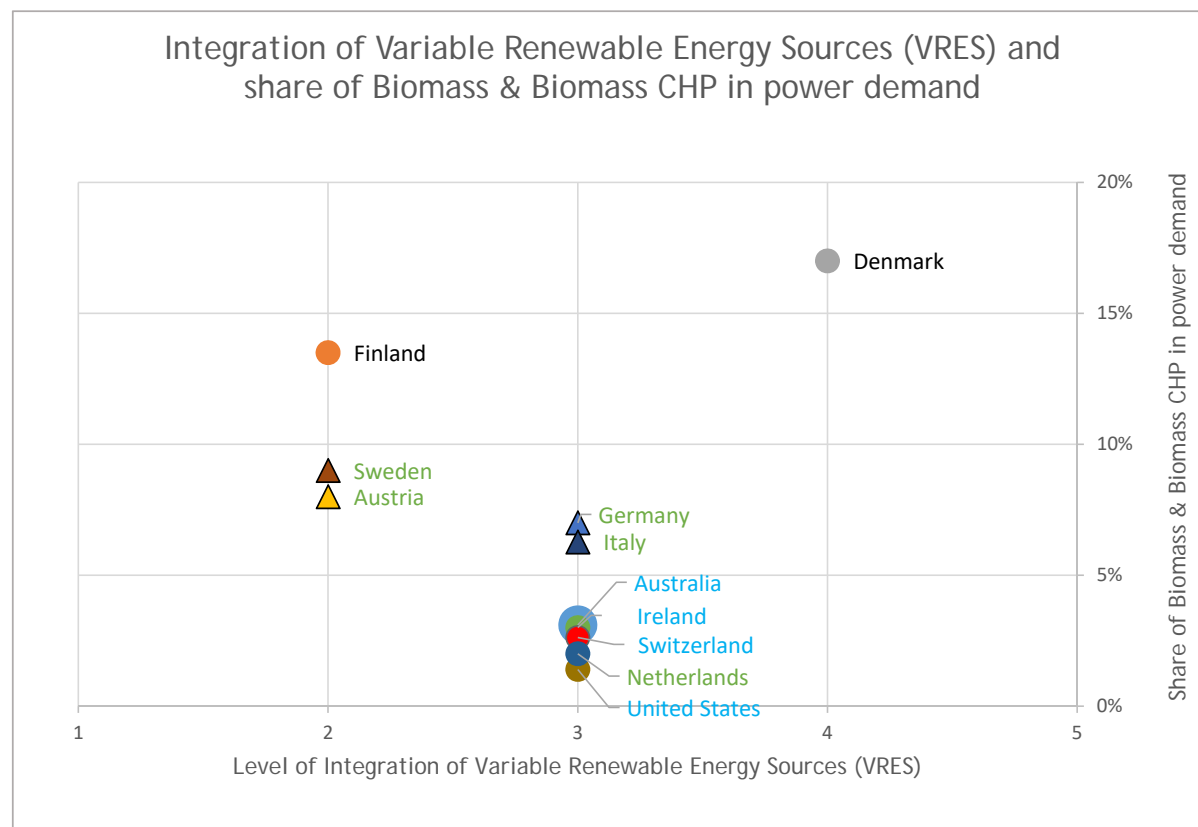
Energy transition in different countries

- Bioenergy is applied in all sectors
- Shares vary between sectors and countries
- But also the energy background varies, i.e. different coal exit strategies, different natural resource potential



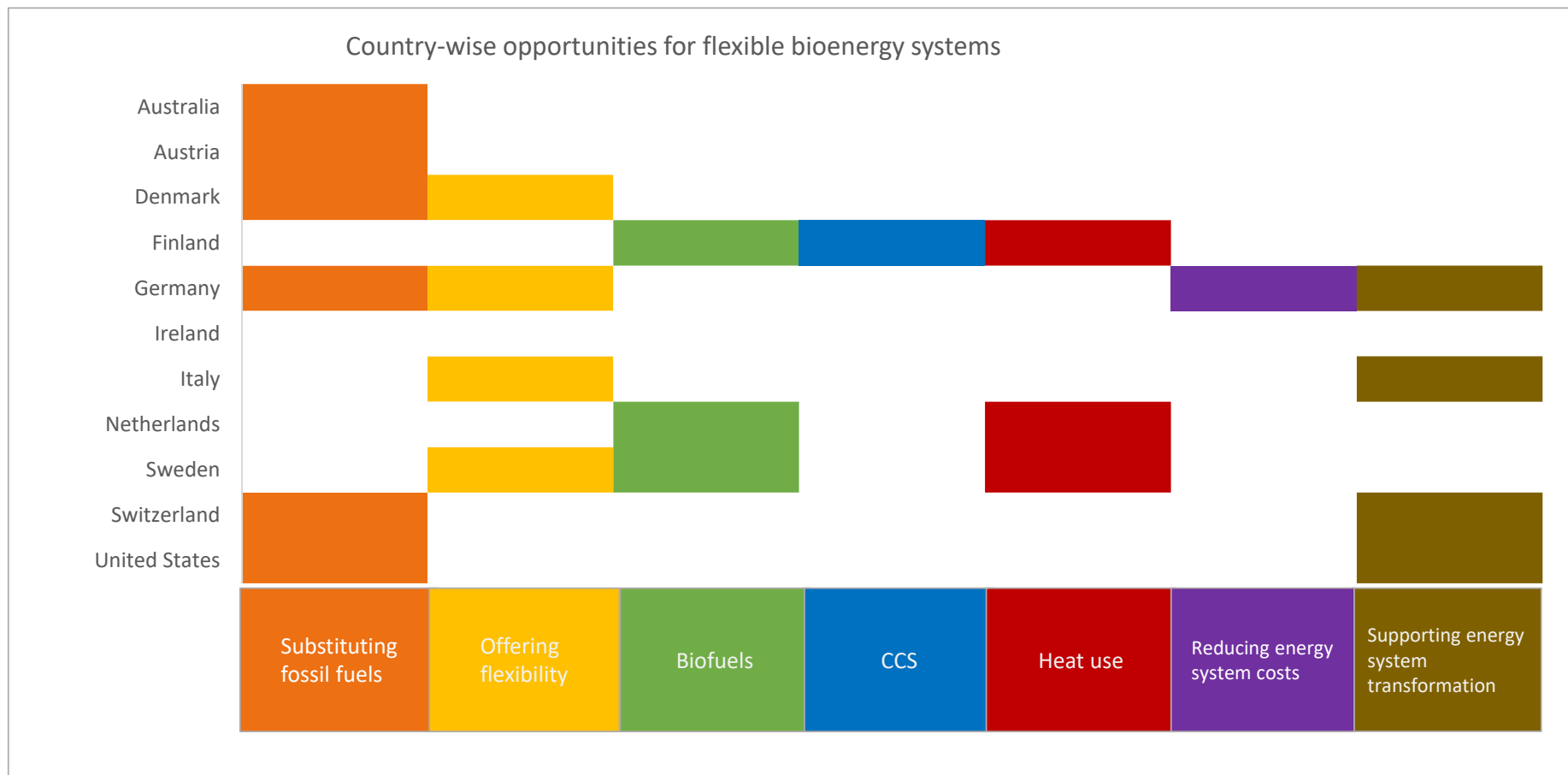
Flexibility role in different countries

- Countries are in different stages of integration of variable renewables
- The development of flexible power provision is not strongly related (i.e. amount and information)
- Expectation goes behind flexible power



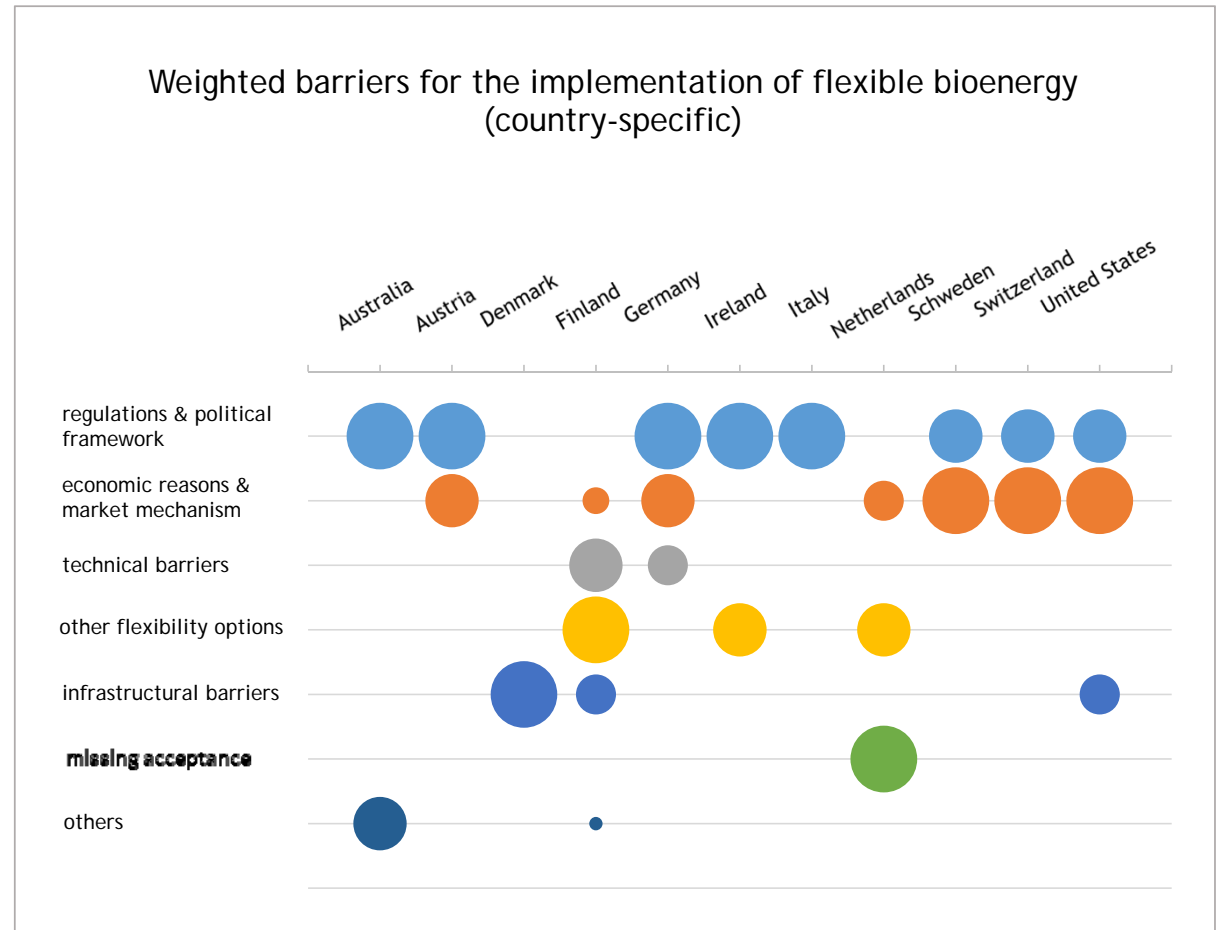
Color of country indicates if data on flexible bioenergy capacities are **available**, **not available** or not provided

Reasons for flexibility ...



Hurdles

- Lack of regulation and policy
- Lack of information for energy sector and policy makers
- Market mechanisms & economic reasons



Best practices

- Examples cover temporal flexibility and product flexibility
- Adapted to regional policy, resources and energy infrastructure

Examples (selection)	Temporal	Product
Goulburn Bioenergy Project (AUS)	X	
MSM Milling Biomass Fuel Switch Project (AUS)	X	
Richgro Bioenergy Plant (AUS)	X	X
District Heating with CHP (AT)	X	X
Companies producing bio-oil from waste products (DK)		X
Aalborg University Pilot plant (DK)	X	
Energy Company St 1 & Q Power (FI)	X	
VTT & St 1 (FI)	X	
FLEXCHX H2020 (FI)	X	X
Heating in detached houses (FI)	X	X
AUDI e-gas plant Werlte (DE)	X	X
PtG plant Allendorf (DE)	X	
SLURRES (IRL)		X
Ards Friary (IRL)	X	
+Gas ENEA (IT)		X
Biogas Upgrading to natural gas (NL)		X
CHP based on biomass (NL)	X	X
District heating with heat storage (NL)	X	
Biorefinery in Norrköpping (SWE)		X
Falun Energy & Water (SWE)	X	X
Single domestic heating with pellets (CH)	X	
Biomass Swarm (CH)	X	X
Renewable gas generation from curtailed power (US)	X	

Conclusions

- Terminology and definition still not very established
- Chances and barriers are seen for integration of variable renewable energies but also beyond
- Lack of regulatory/policy and financing regulations are main barriers, but also politicians and energy sector need more information
- Best practice examples given from all countries - very promising starting point for acceleration of implementation
- Research on system integration, sector coupling and economic aspects needed



IEA Bioenergy
Technology Collaboration Programme

www.ieabioenergy.com

Technology Collaboration Programme
by **iea**