

Bioenergy with Carbon Capture and Storage (BECCS)

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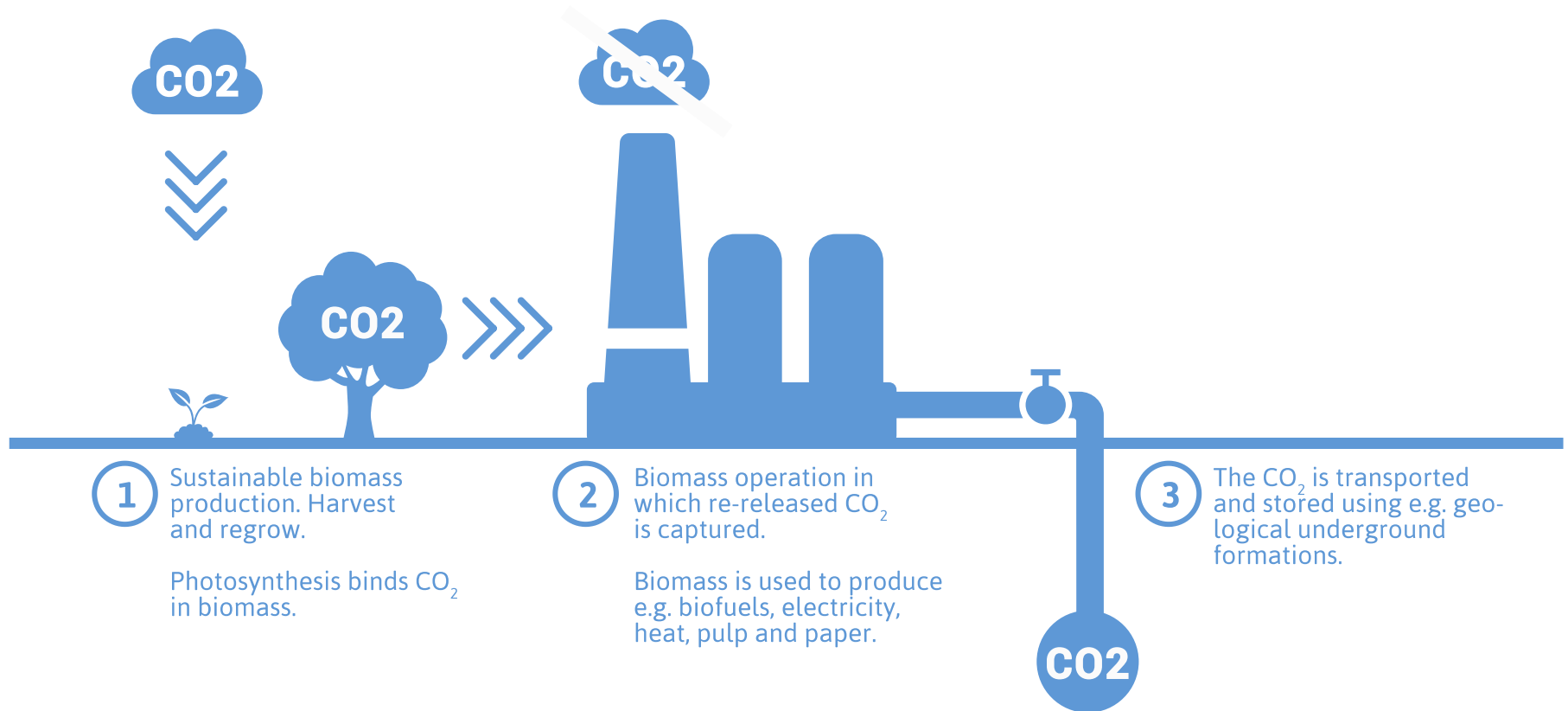
SEA programme conference

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Mathias Fridahl and Björn-Ola Linnér (LiU)

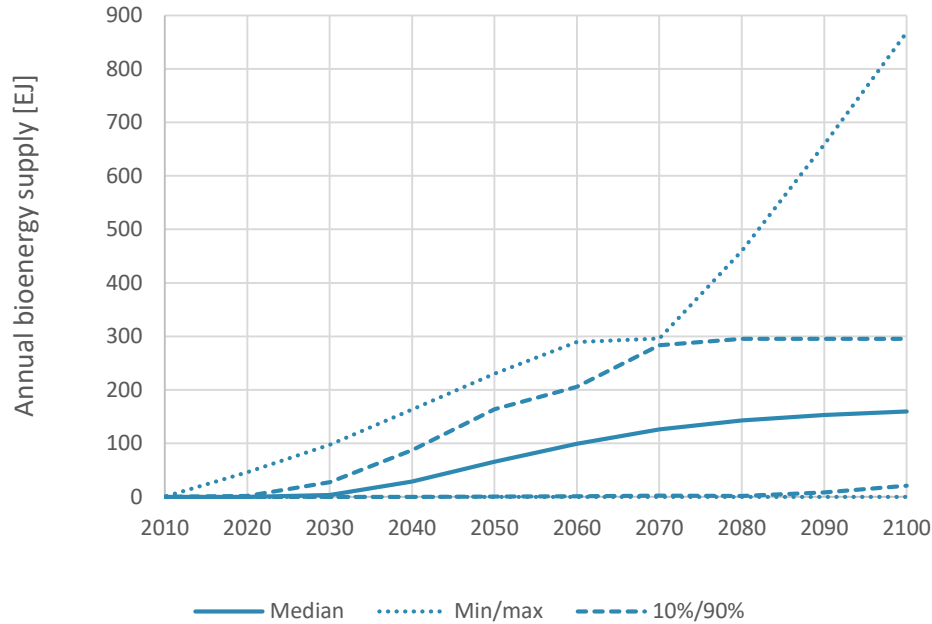
Mariliis Lehtveer (LiU/Chalmers), Daniel Johansson (Chalmers), and Rob Bellamy (Oxford)
Anders Hansson och Simon Haikula, LiU.

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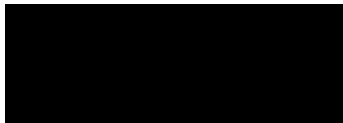
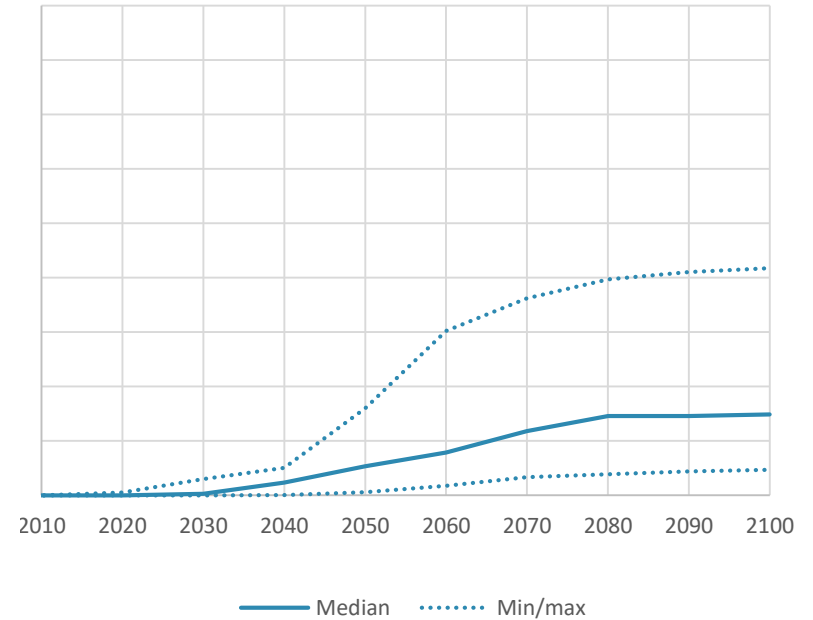


Background

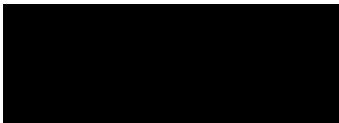
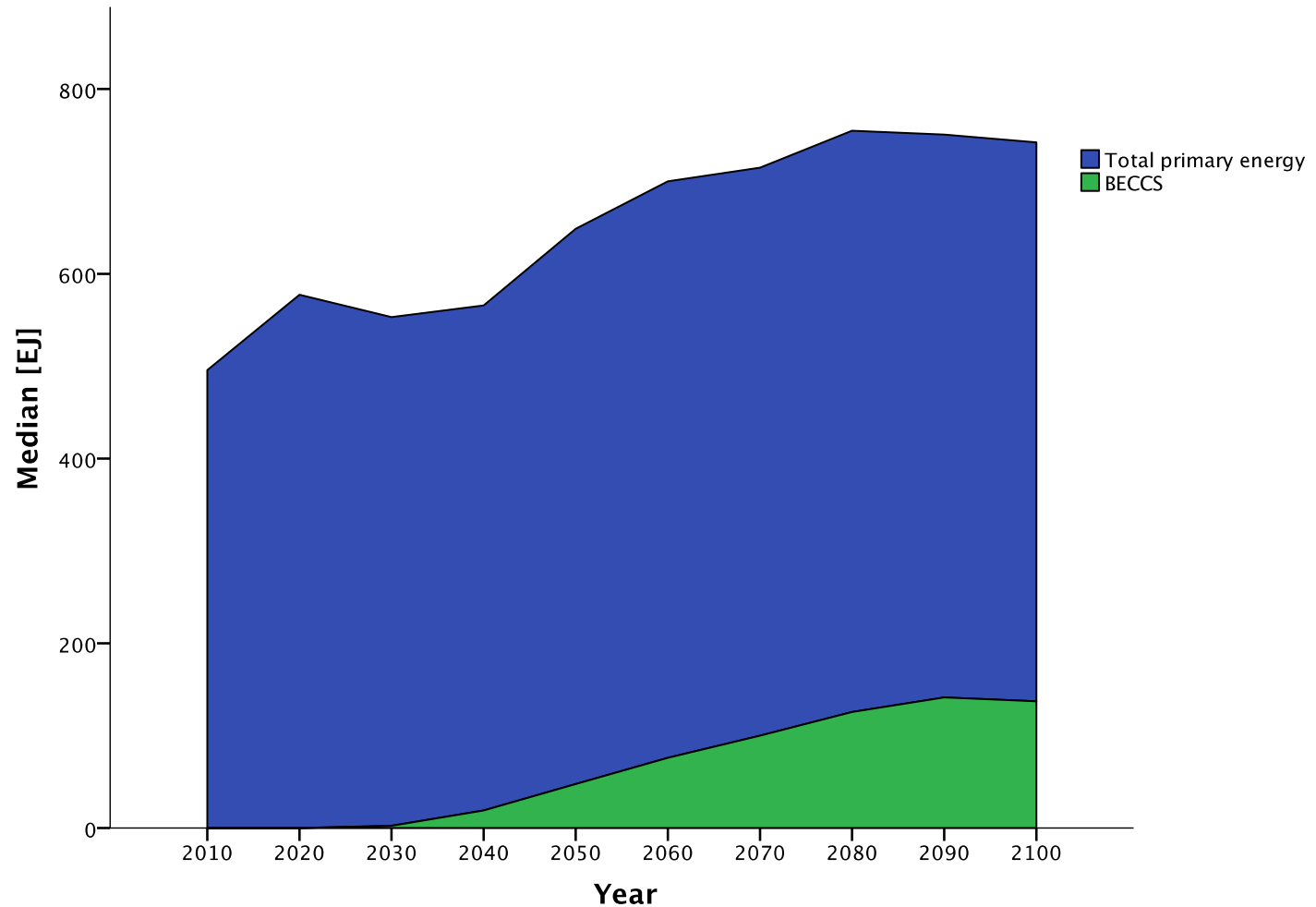
BECCS in IPCC AR5 scenario DB,
450ppm CO₂ or lower by 2100



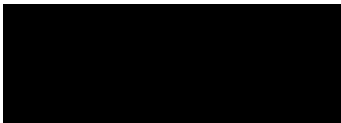
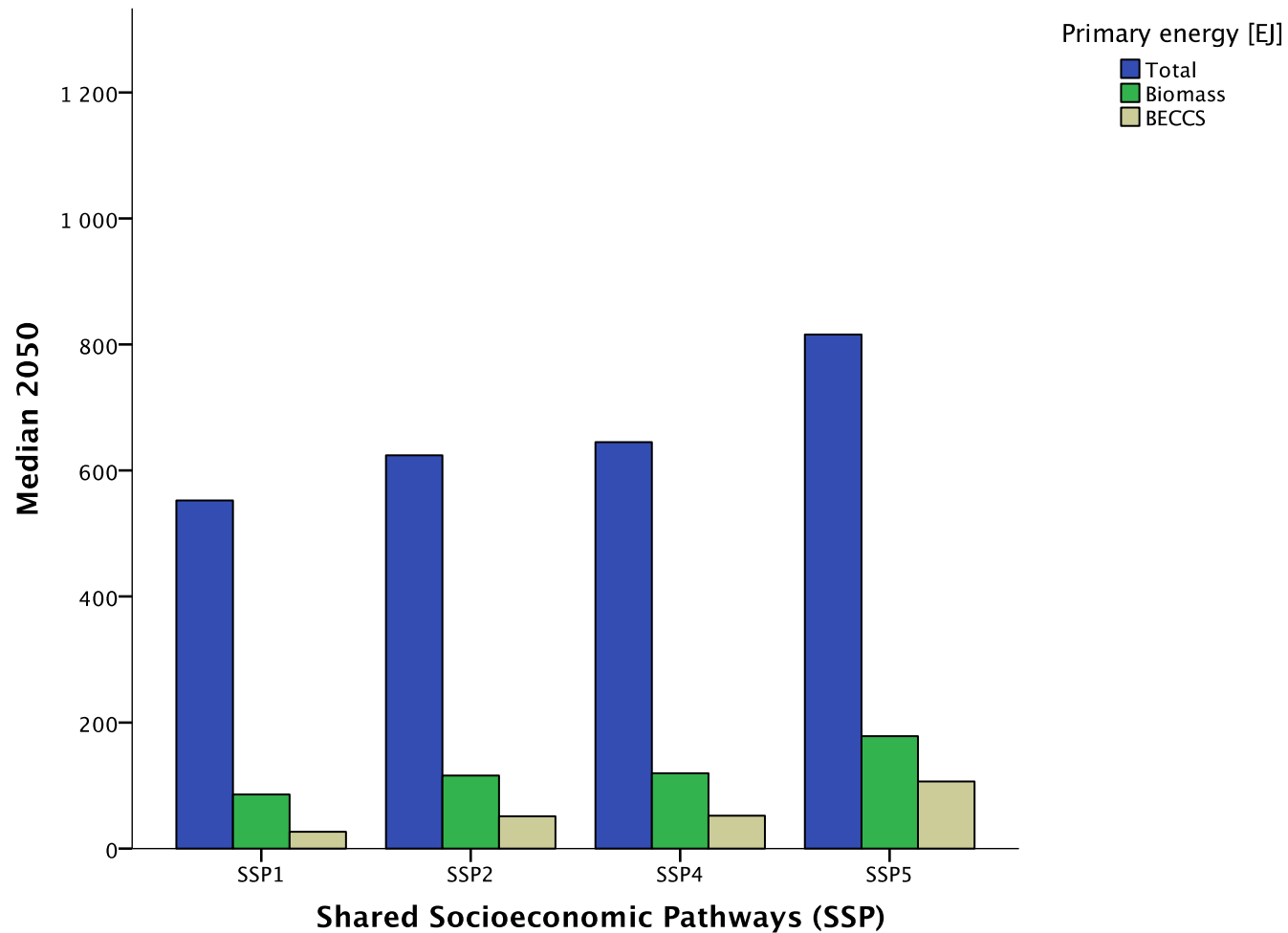
BECCS in SSP scenario DB,
2.6 W/m²



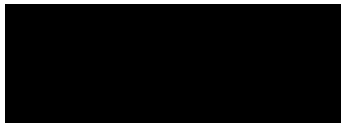
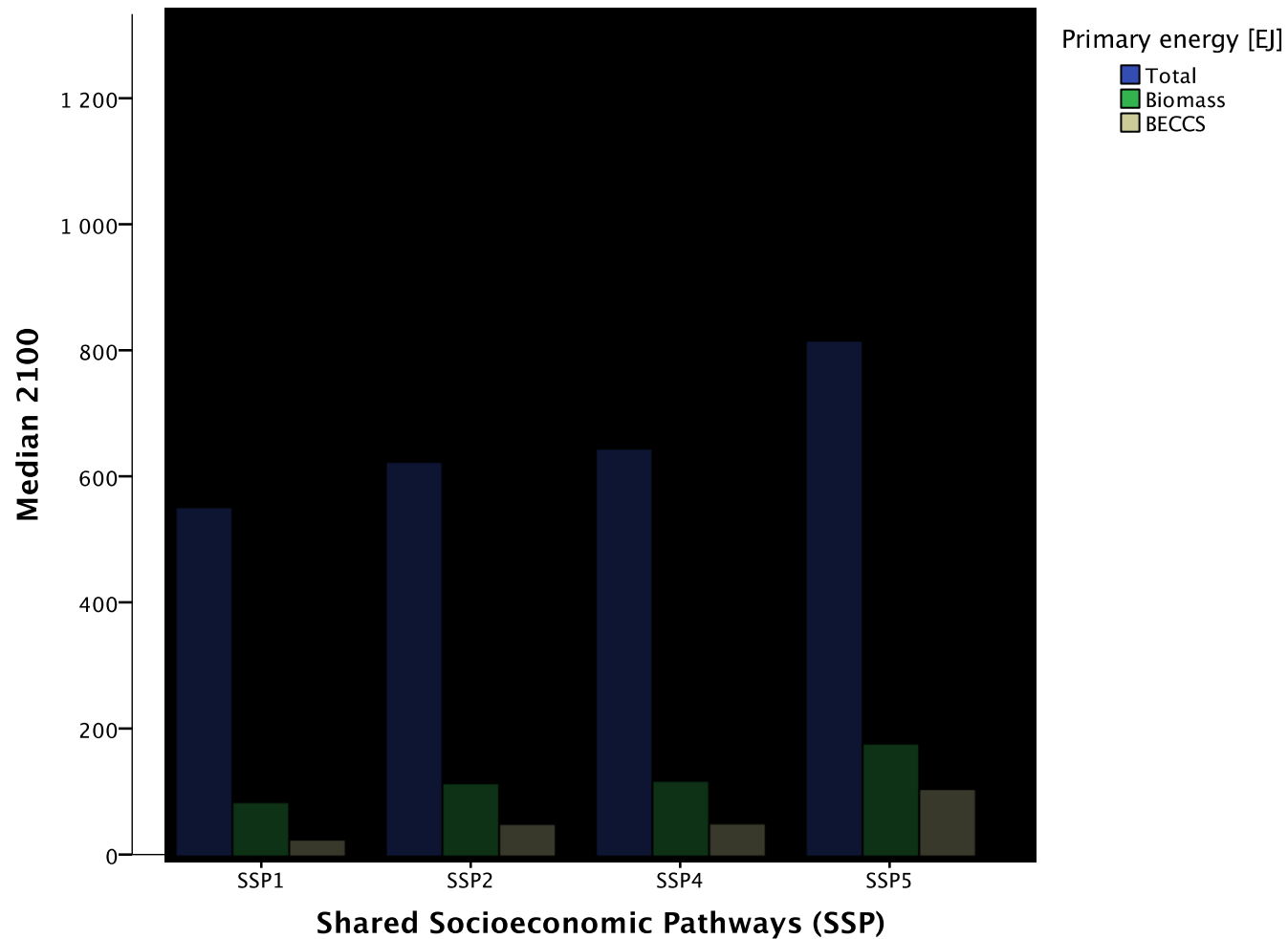
SSP 2.6 W/m²: Primary energy by year



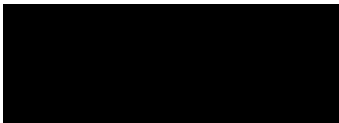
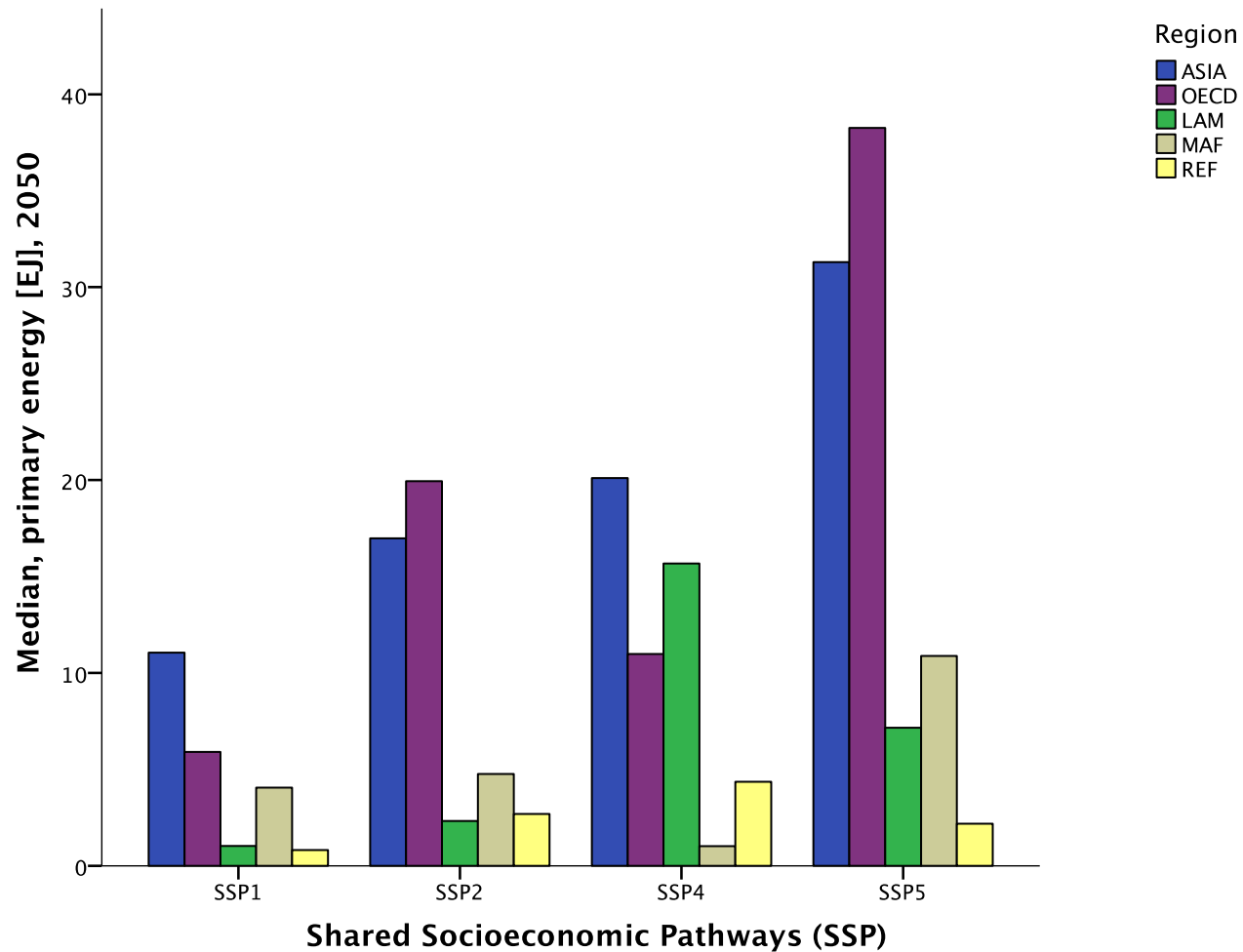
Primary energy in different SSPs, 2050



Primary energy in different SSPs, 2100

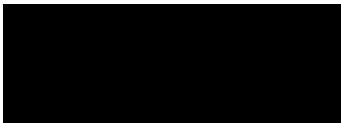


Primary energy (BECCS) in SSPs by region (2050)



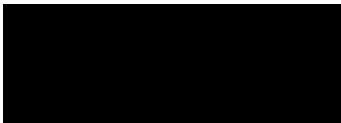
Crux

- Transformation through transition management requires both that the technology is socially acceptable and prioritized politically.
- Socio-political pre-conditions for BECCS deployment have thus far received only limited attention.



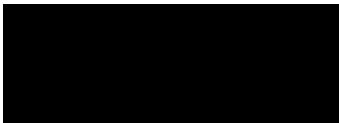
Focus: context

- UN delegates' views of potential, investment needs, and barriers
- Global potential by country
- Modelers' views of their scenarios' feasibility, and key uncertainties and responsibilities
- Long term strategic planning
- Existing and alternative policy instruments in Sweden
- Sociopolitical preconditions in Tanzania



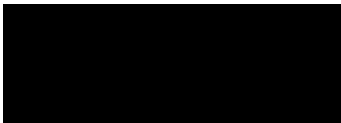
Focus: Today

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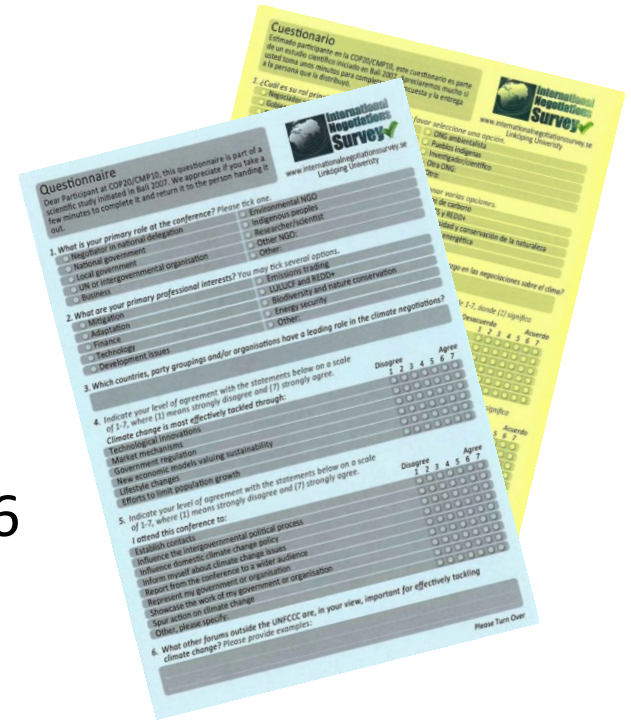
UN delegates

- How is preferences for investing in BECCS prioritized compared to other low carbon technologies?
- Do preferences correlate with regional technical potential?
- How do delegates understand the domestic versus global potential for BECCS?
- What are the main perceived (domestic) barriers for BECCS?
- Do actor type, level of knowledge, country of residence etc influence views?

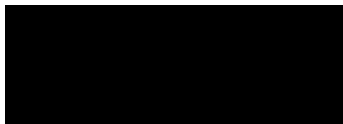
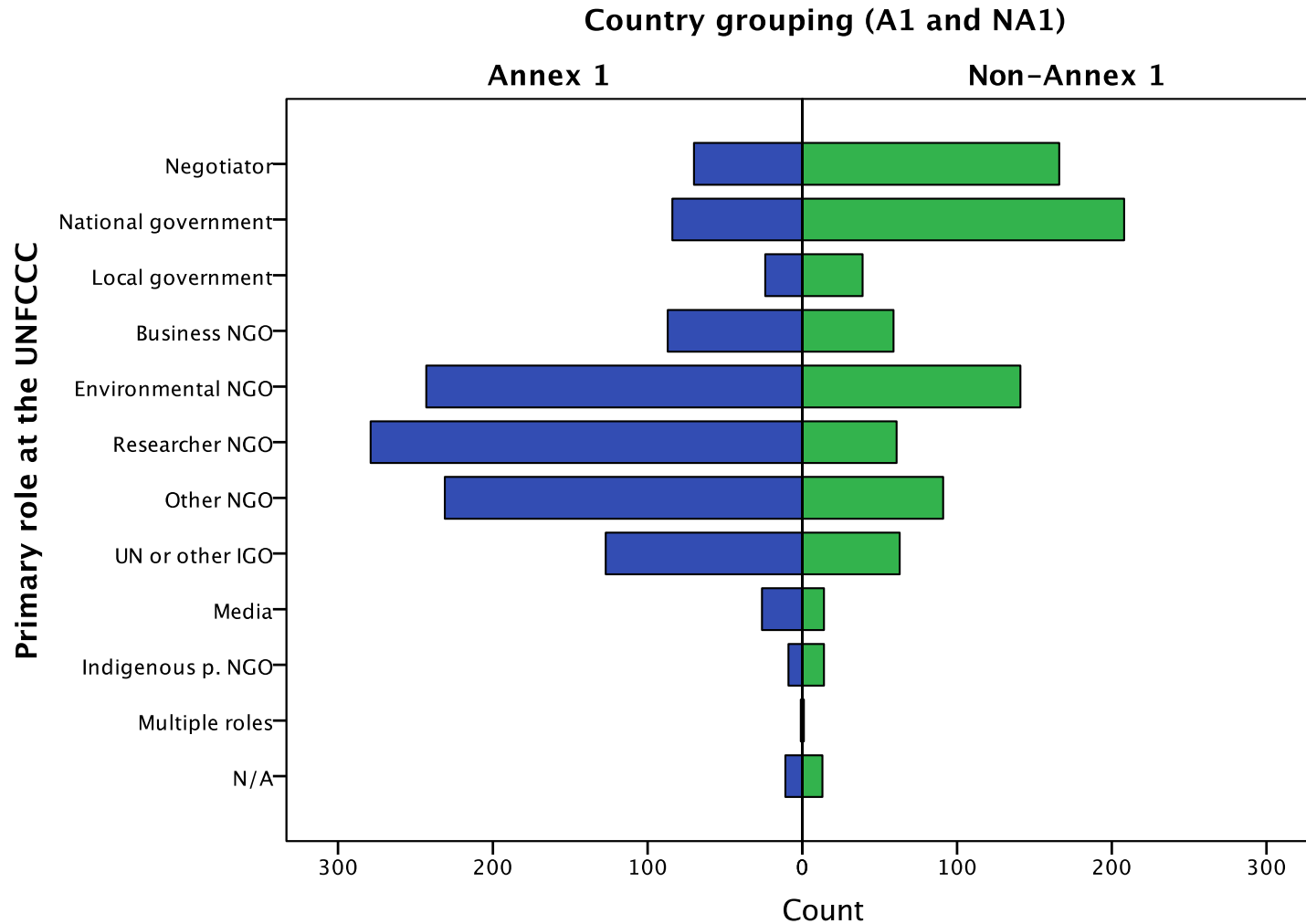


UN delegates, method

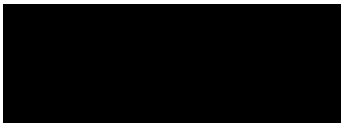
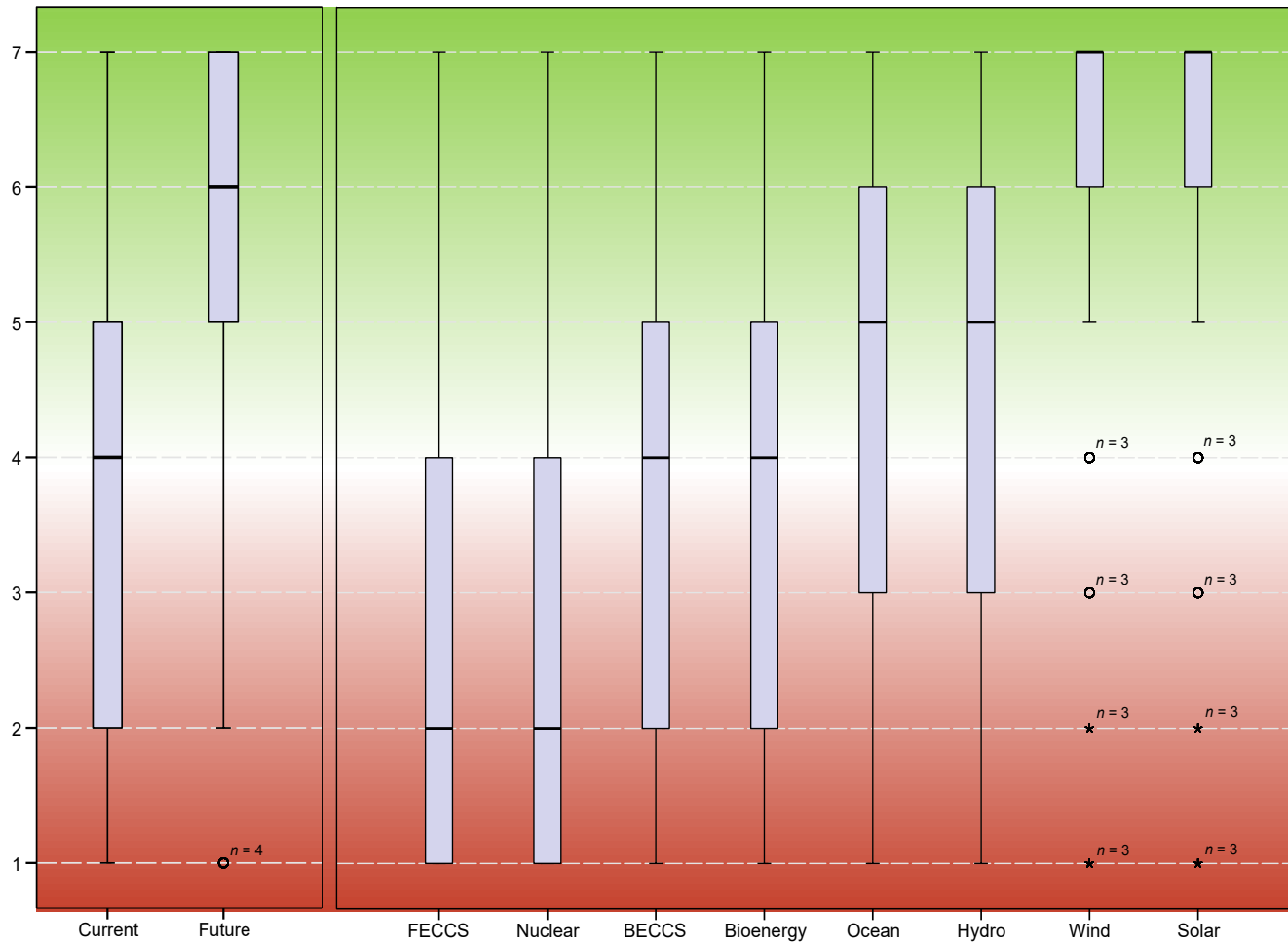
- UNFCCC delegates at:
 - SB42, Bonn, June 2015
 - COP21, Paris, December 2015
 - COP22, Marrakech, November 2016
 - COP23, Bonn, November 2017
- 2538 respondents for investment preferences
- 289 respondents for more detailed BECCS questions
- Non-parametric statistical analysis



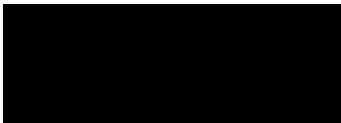
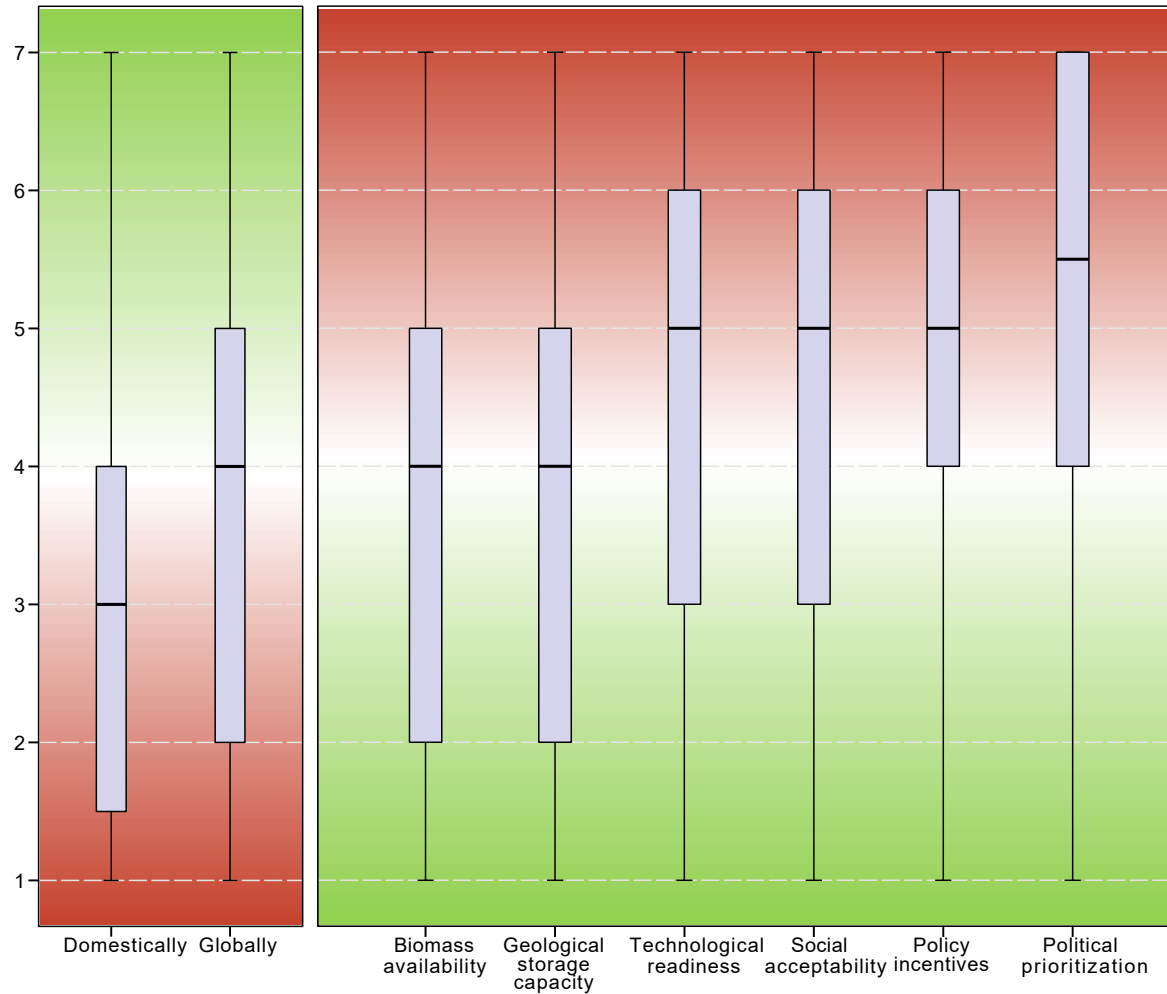
UN delegates, sample



Investment needs and preferences



Potential and domestic barriers



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Data from EEA's E-PRTR
 (<http://prtr.ec.europa.eu>) database, Swedish
 pulp production in 2014 (activity code 6.a).
 248 visningar

[DELA](#) [REDIGERA](#)

- Less than 1 Mt biogenic CO2**
- ^
- 1 Södra Cell Mörrum
 - 2 Iggesunds Bruk
 - 3 Skoghalls Bruk
 - 4 BillerudKorsnäs Karlsborgs AB
 - 5 BillerudKorsnäs Skog & Industri AB, Frövi
 - 6 SCA Munksund
 - 7 Vallviks Bruk
 - 8 Mondi Dynäs AB
 - 9 Domsjö Fabriker AB
 - 10 SCA Obbola AB
 - 11 Bäckhammars Bruk
 - 12 Munksjö Aspa Bruk AB
 - 13 STORA ENSO KVARNSEVDEN AB
 - 14 STORA ENSO FORS AB
 - 15 Stora Enso Hylte AB
 - 16 Munksjö Paper AB Billingsfors

- More than 1 Mt biogenic CO2**
- ^
- 1 Södra Cell Mönsterås
 - 2 Metsä Board Sverige AB, Husums fabr
 - 3 Skutskärs Bruk
 - 4 Korsnäsverken
 - 5 Södra Cell Värö
 - 6 Gruvöns bruk
 - 7 Smurfit Kappa Kraftliner Piteå
 - 8 SCA Östrands massafabrik



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