

# AVIATION CO<sub>2</sub> REDUCTIONS



## STOCKTAKING SEMINAR

TECHNOLOGY · OPERATIONS · SUSTAINABLE AVIATION FUELS





# Sustainable Aviation Fuels (SAF)

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STOCKTAKING 2020



ipcc  
INTERGOVERNMENTAL PANEL ON climate change

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## Climate Change and Land

An IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems

Summary for Policymakers



WG I WG II WG III

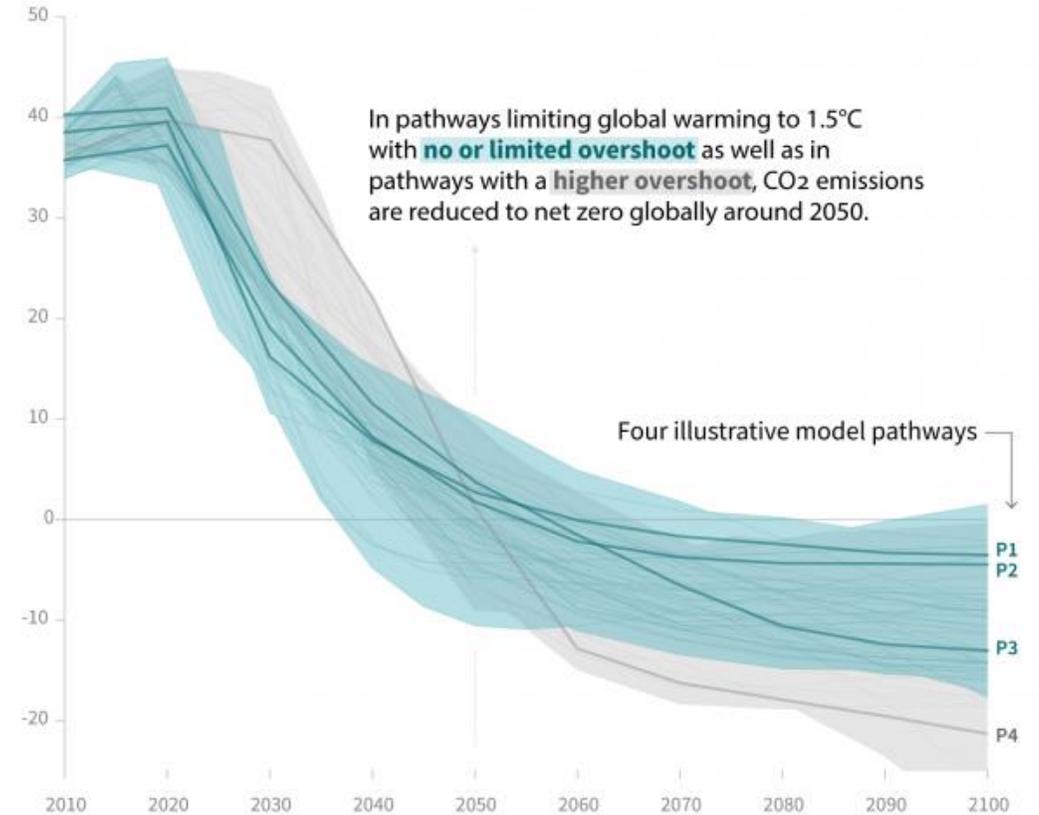


# The Challenge ahead

**1.5°C goal: CO<sub>2</sub> emissions should decline by about 45% by 2030 and reach net zero around 2050**

Global total net CO<sub>2</sub> emissions

Billion tonnes of CO<sub>2</sub>/yr



# Bioenergy & Climate Change Mitigation

## Sustainability-focused (SSP1 at 1.5°C)

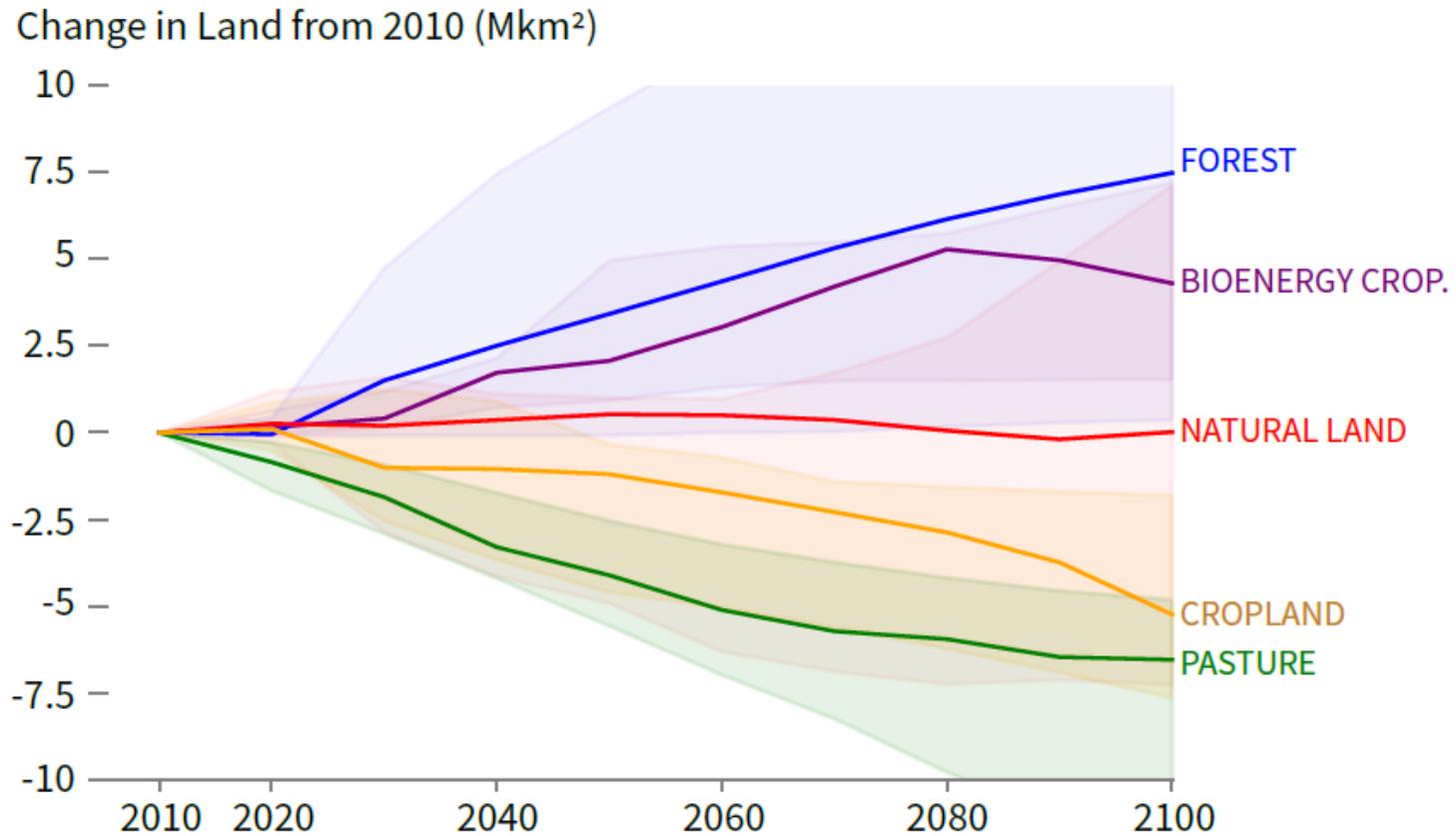


Figure SPM.4



# Bioenergy

Impacts depend on the scale of deployment, initial land use, bioenergy feedstock, climatic region and management regime (high confidence).

# Bioenergy & The role of previous land use



**Bioenergy crops on previous forest land (deforestation):** large CO<sub>2</sub> emissions from loss of vegetation and soil carbon, loss of many ecosystem services

**Bioenergy crops on grassland:** effects are case-specific (depend on climate, type of vegetation and bioenergy crop)



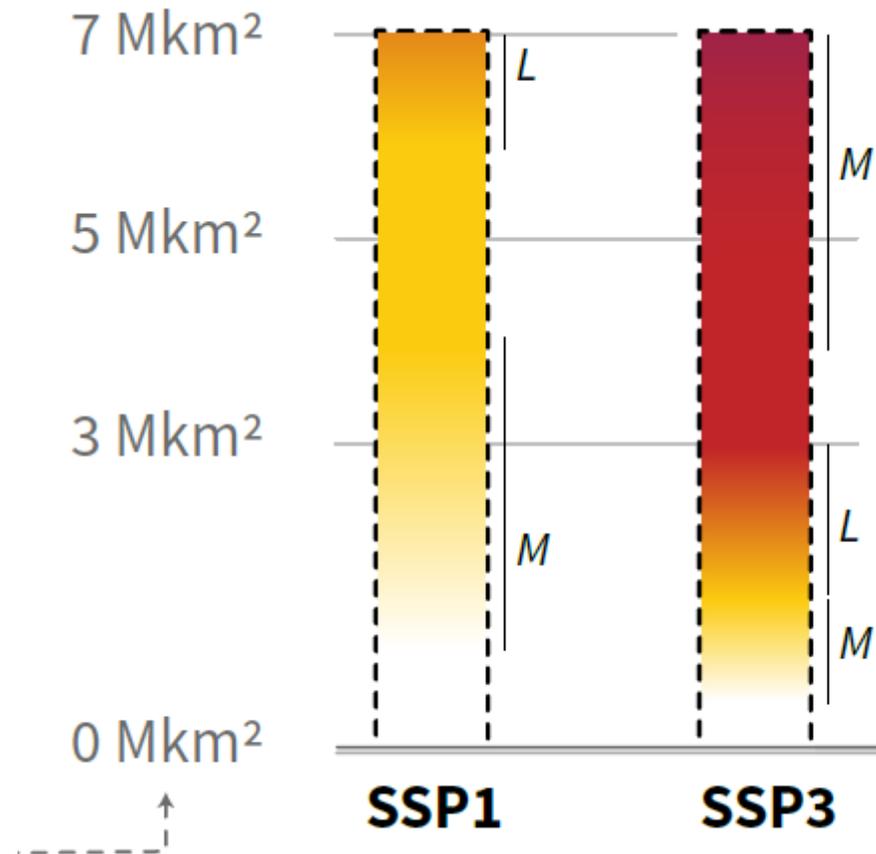
**Bioenergy crops on cropland:** typically increases soil carbon and improves many ecosystem services

**Bioenergy from forestry:** case-specific effects that change over time (benefits are usually larger in the longer term), location, management practice, and accounting



# Future socioeconomic pathways affect risks from large-scale bioenergy deployment

## Environmental damage

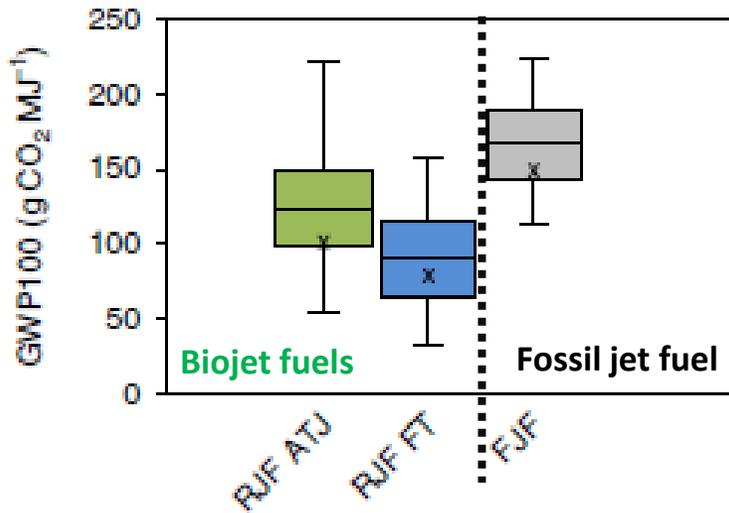


# Contribution of jet fuel from forest residues to multiple Sustainable Development Goals

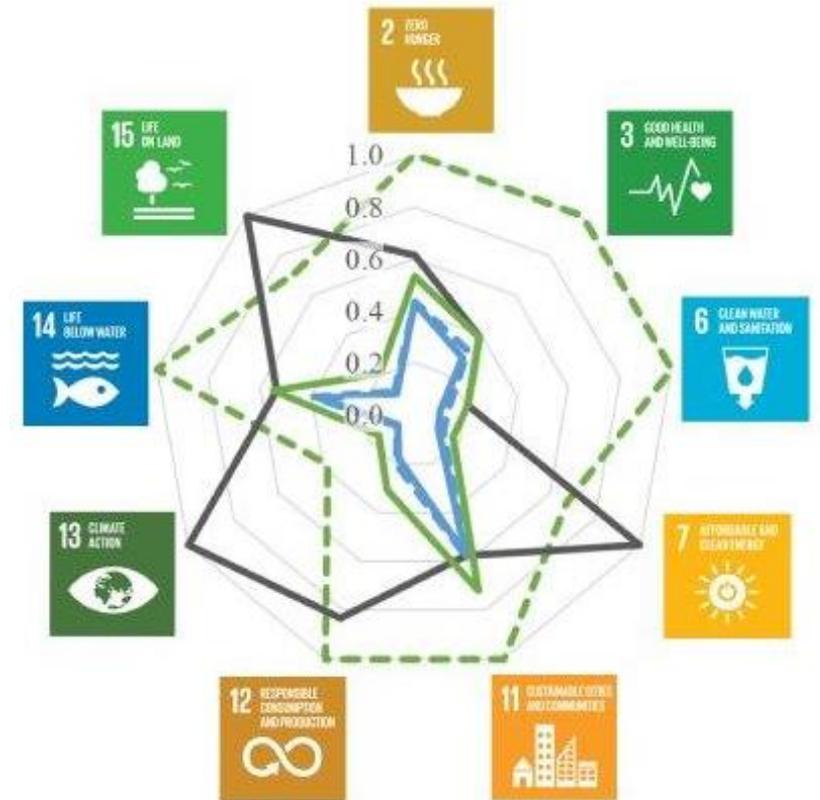
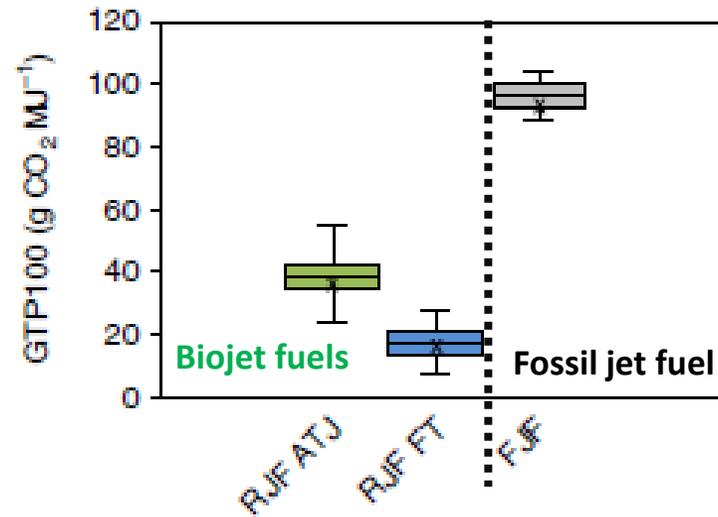
Otavio Cavalett \* and Francesco Cherubini

**10 PJ/year  
(20% of jet fuel use) from  
forest residues in Norway**

Mid-term (≈40 y.)



Long-term (≈100 y.)



— Fossil jet fuel — Biojet fuel (FT) — Biojet fuel (ATJ)

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# Thank You



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Montréal

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