

Updates since the last release

KATE CALVIN

2017

Overview of Updates

- ▶ Major changes and new capabilities:
 - Non-CO₂ features and markets
 - BECCS supply & demand updates

- ▶ Minor updates and bug fixes:
 - New API for GCAM coupling
 - Updated agricultural commodity prices and production costs
 - Reduced carbon contents for managed forest & pasture
 - Include non-energy input cost for industry
 - Correctly pass LUC emissions from GCAM to Hector
 - Fix capacity factors for intermittent technology backup calculations
 - Catch exceptions from Hector
 - Upgrade baseX version



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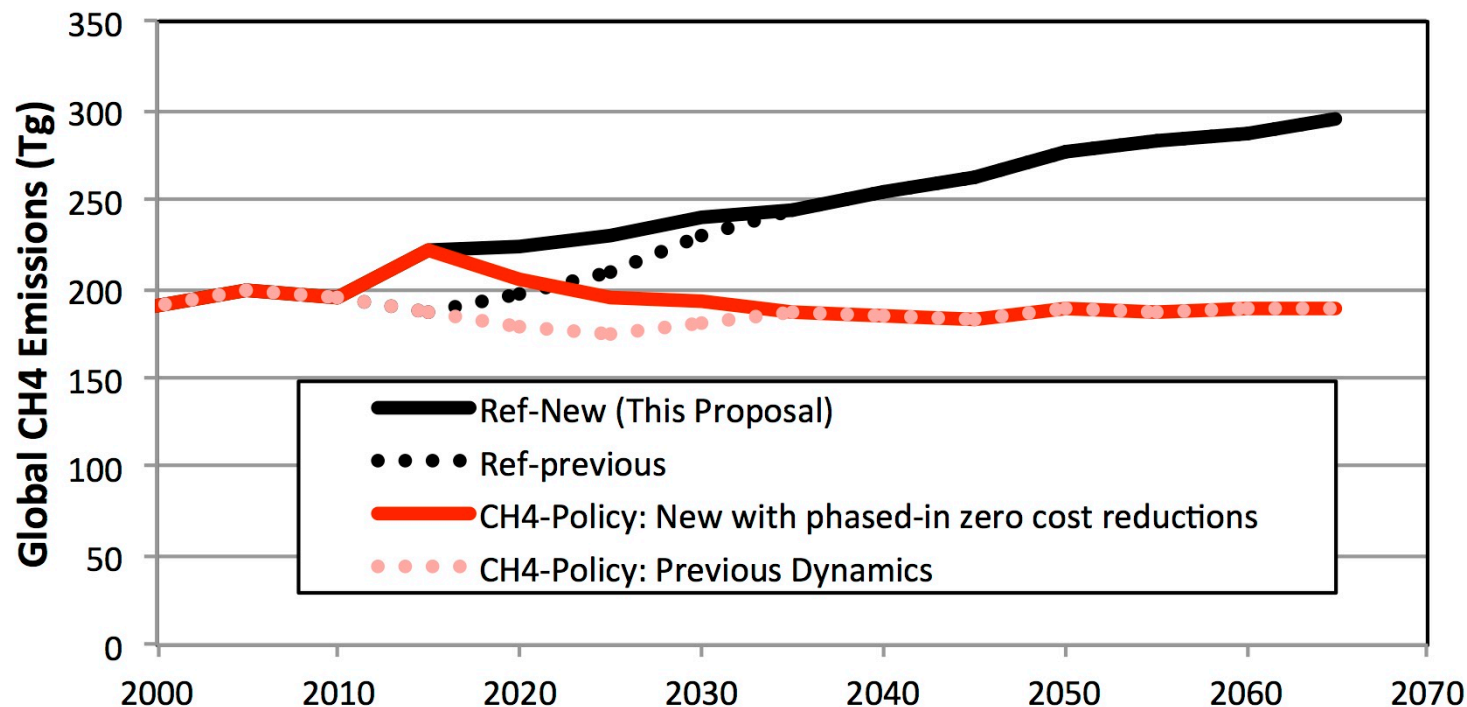
Non-CO₂ features and markets

Non-CO₂ features and markets

- ▶ Phase in zero cost reductions in MAC curves
- ▶ Establish markets for non-CO₂ gases
- ▶ Linear emissions control object
- ▶ Adjust GHG control objects over time

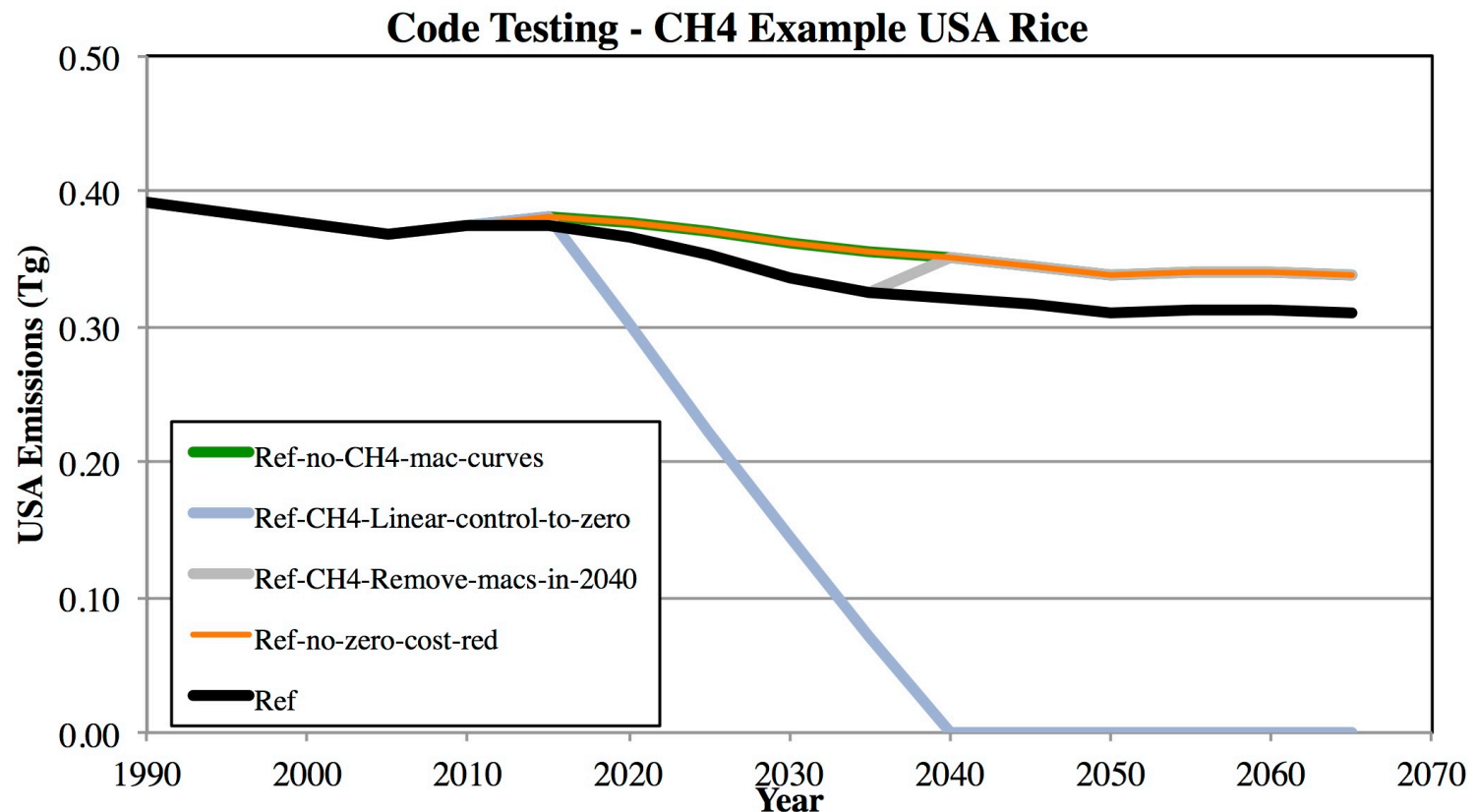
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Non-CO₂ MAC Curve Changes



Non-CO₂ features and markets

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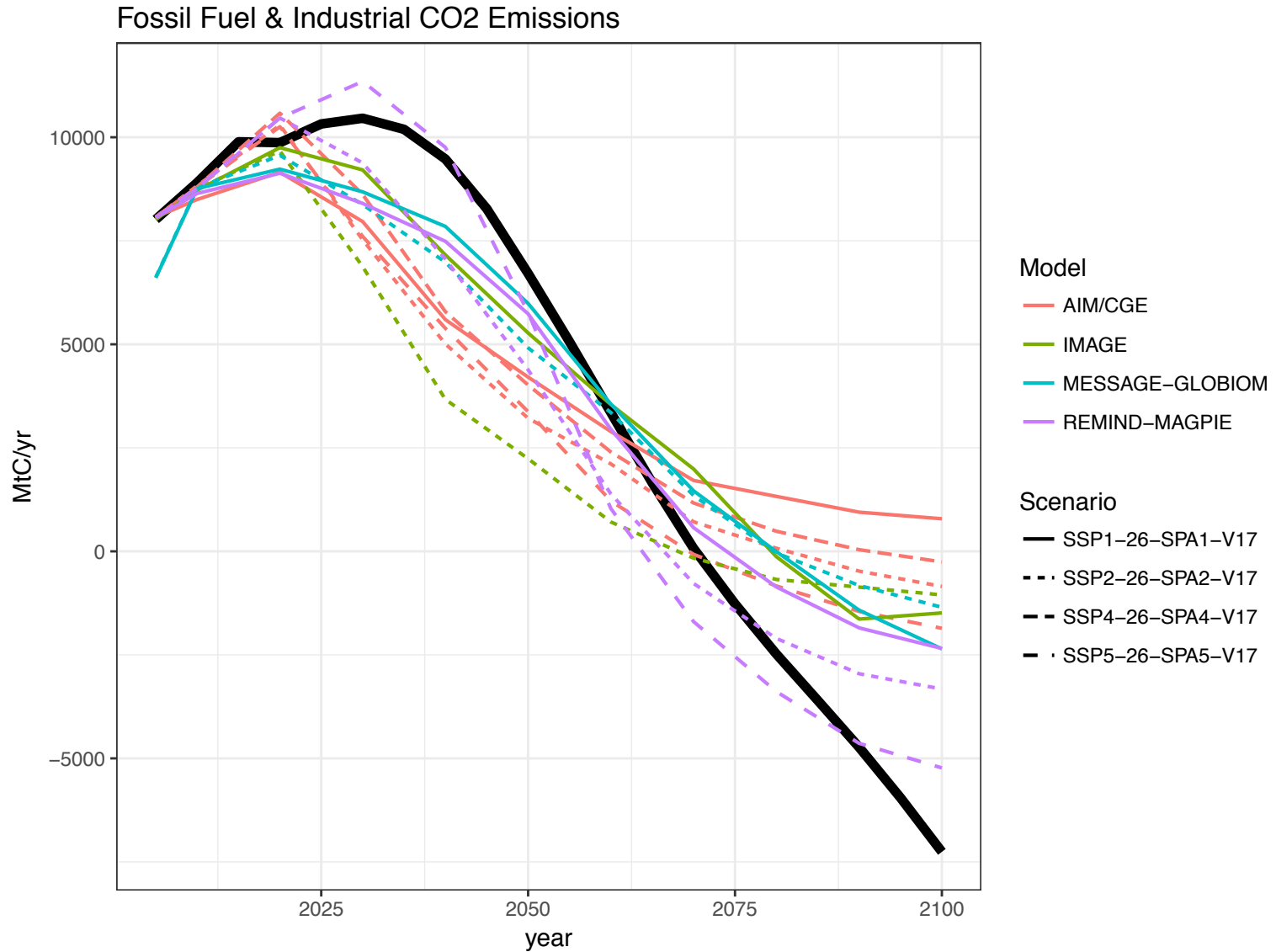




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BECCS supply & demand updates



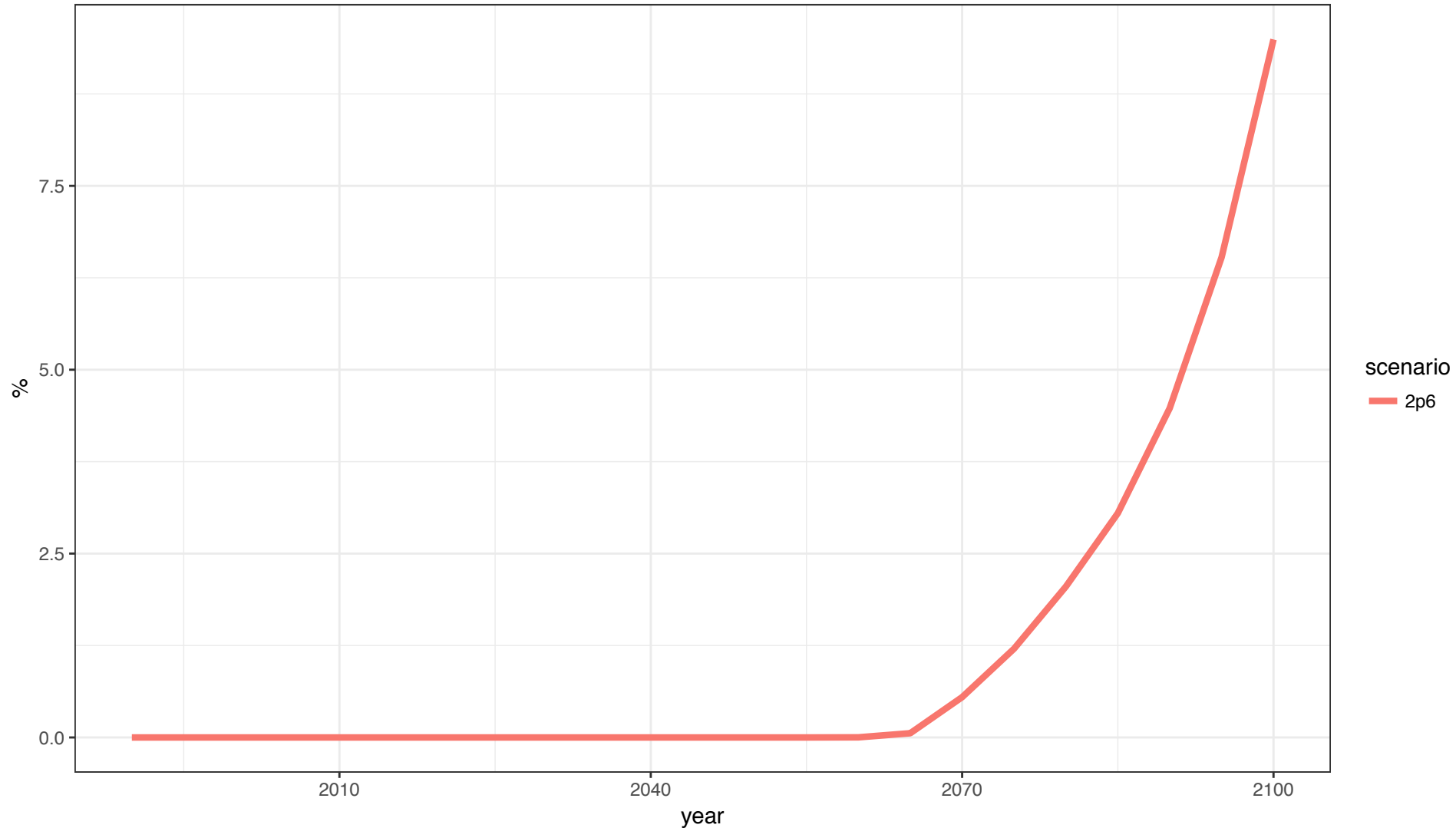
Changes related to BECCS

▶ Demand:

- Liquids level 2 CCS capture rates reduced to 90%
- Transportation technology competition adjustments
- Limits on the use of bioliquids for feedstocks or oil electricity

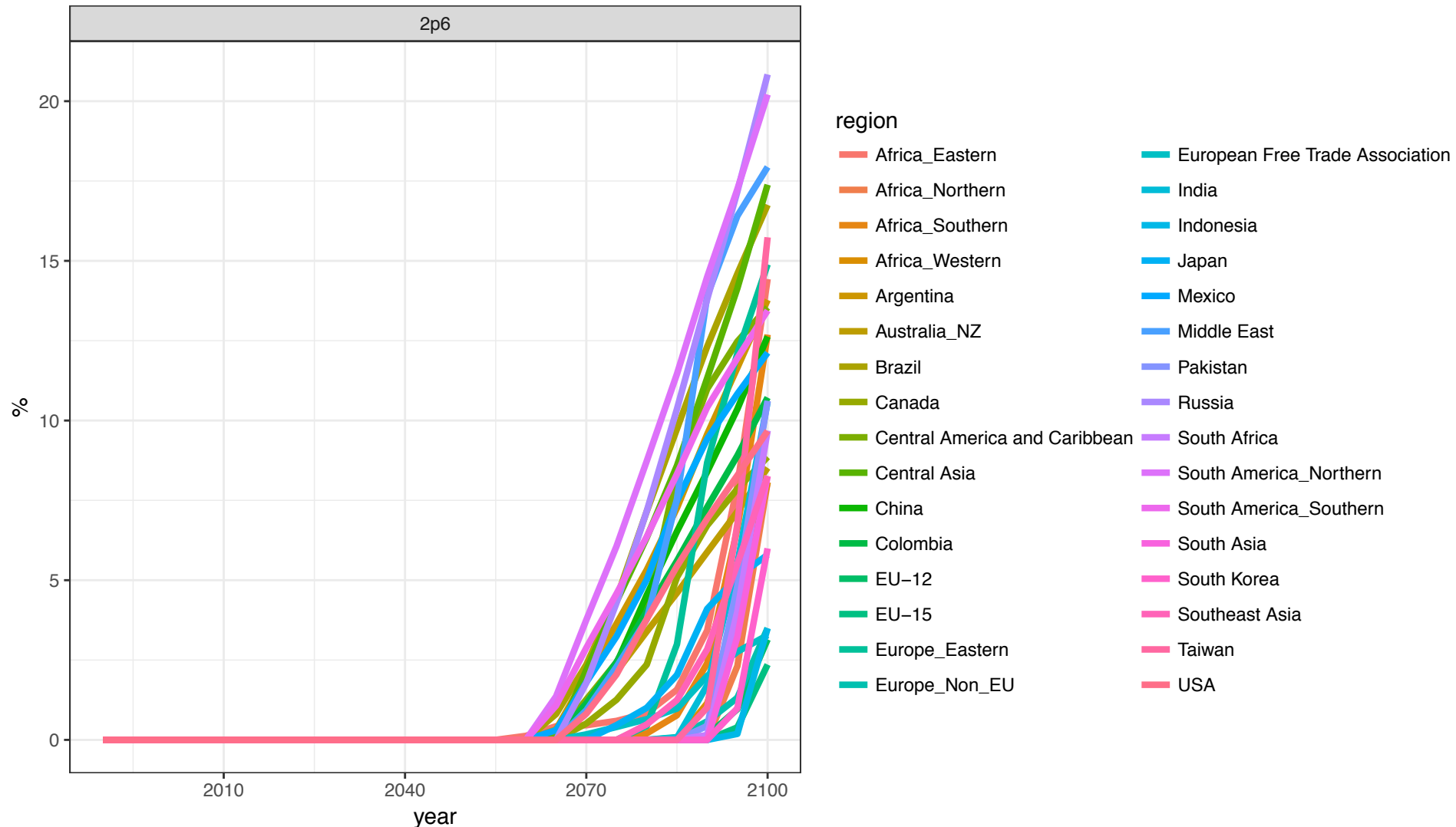
Net Negative Emissions Subsidies

Global Subsidy Cost as % of GDP



Net Negative Emissions Subsidies

Subsidy Cost as % of GDP

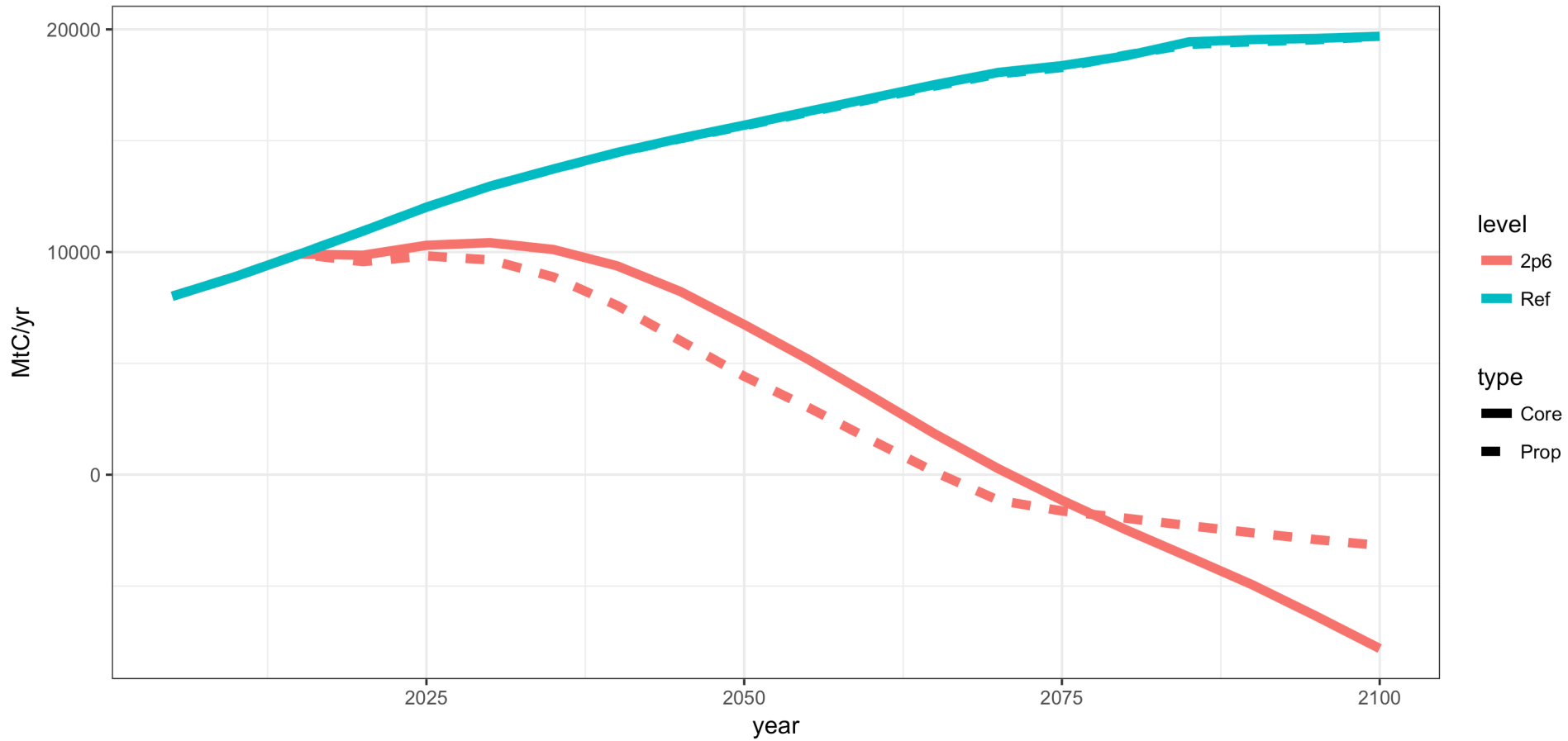


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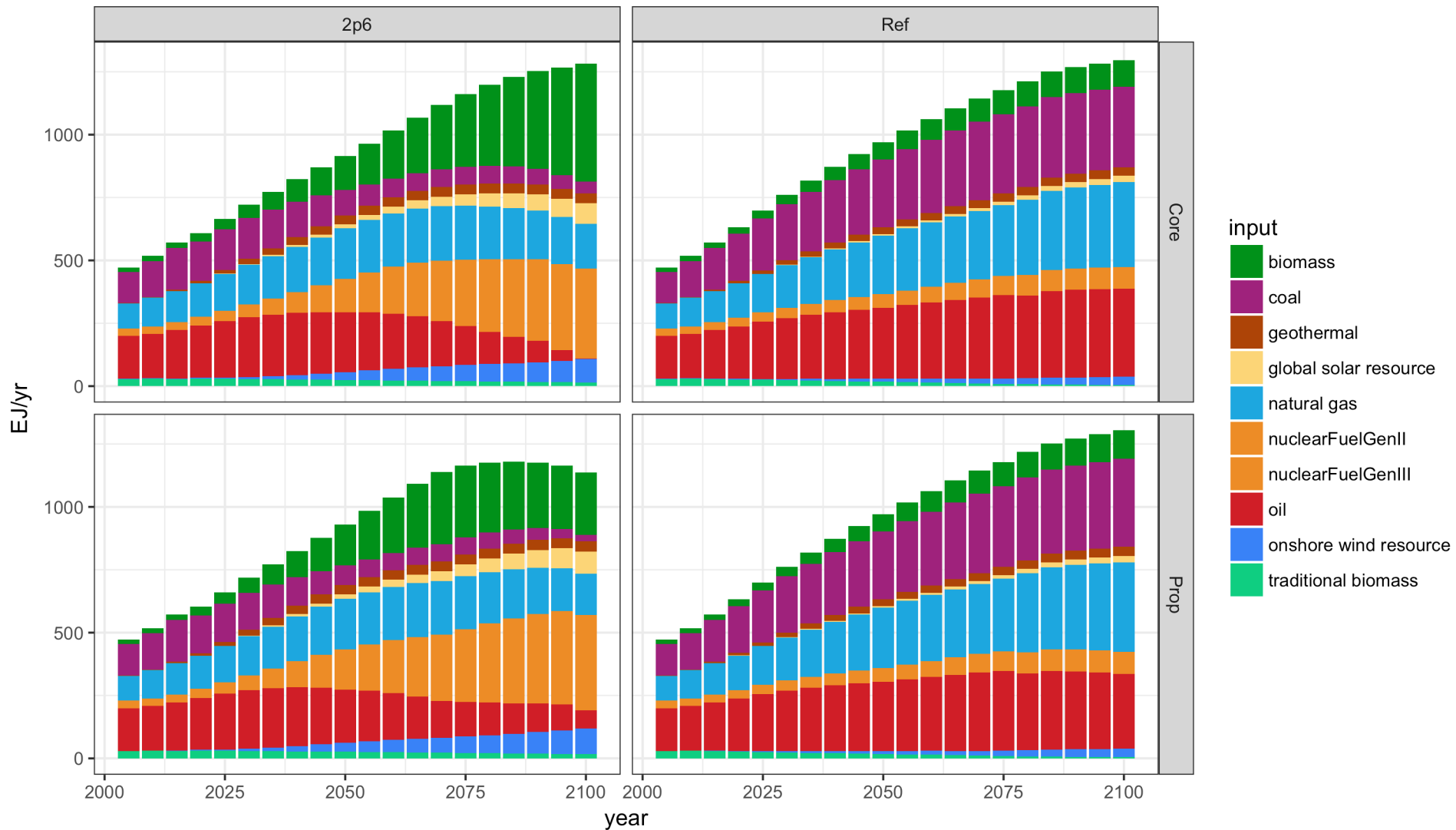
- ▶ Supply
 - Limits on net negative emissions linked to GDP

Fossil Fuel & Industrial CO2 Emissions



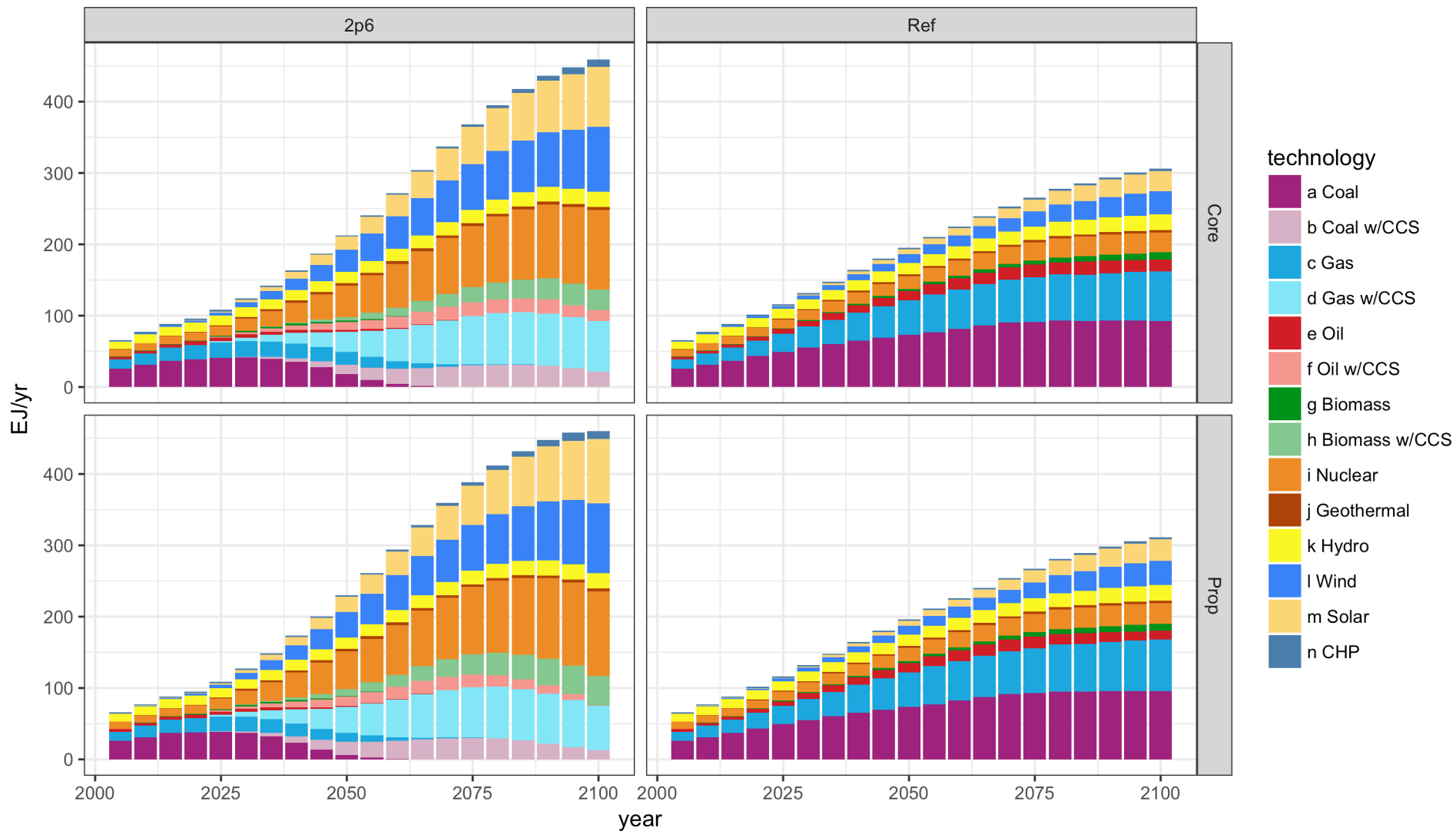
Updated GCAM

Global Primary Energy Consumption



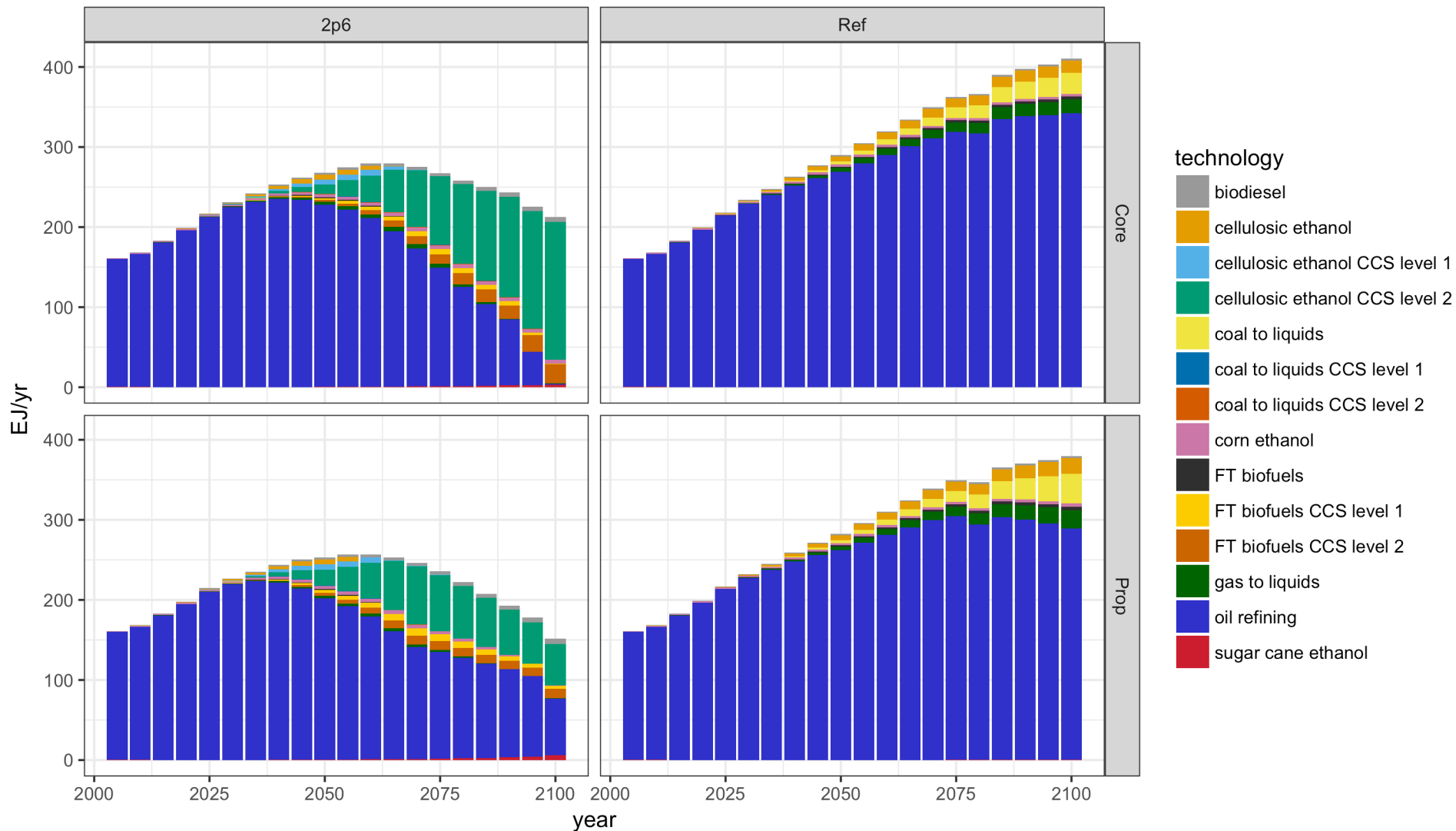
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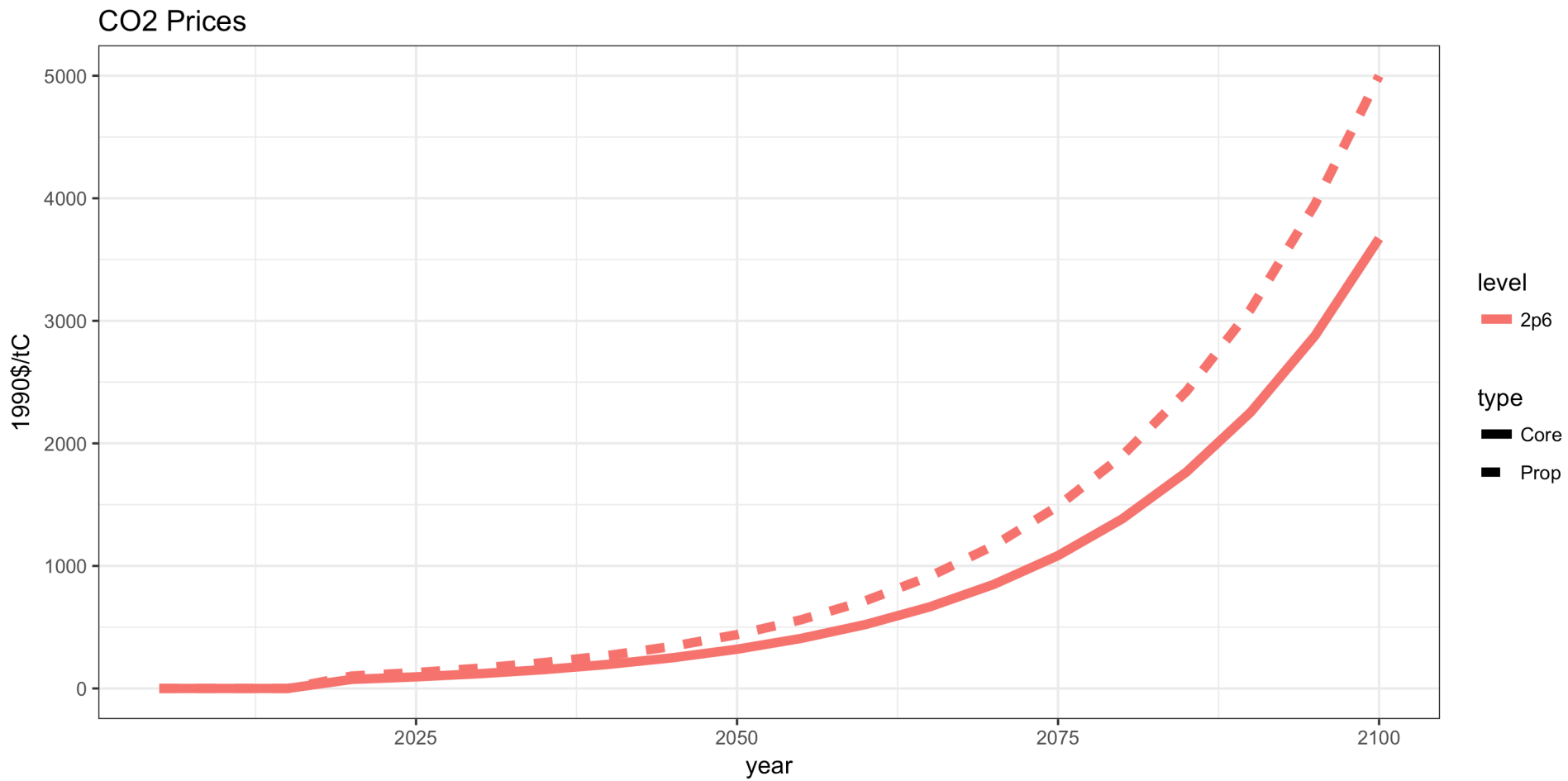
Electricity Generation



Updated GCAM

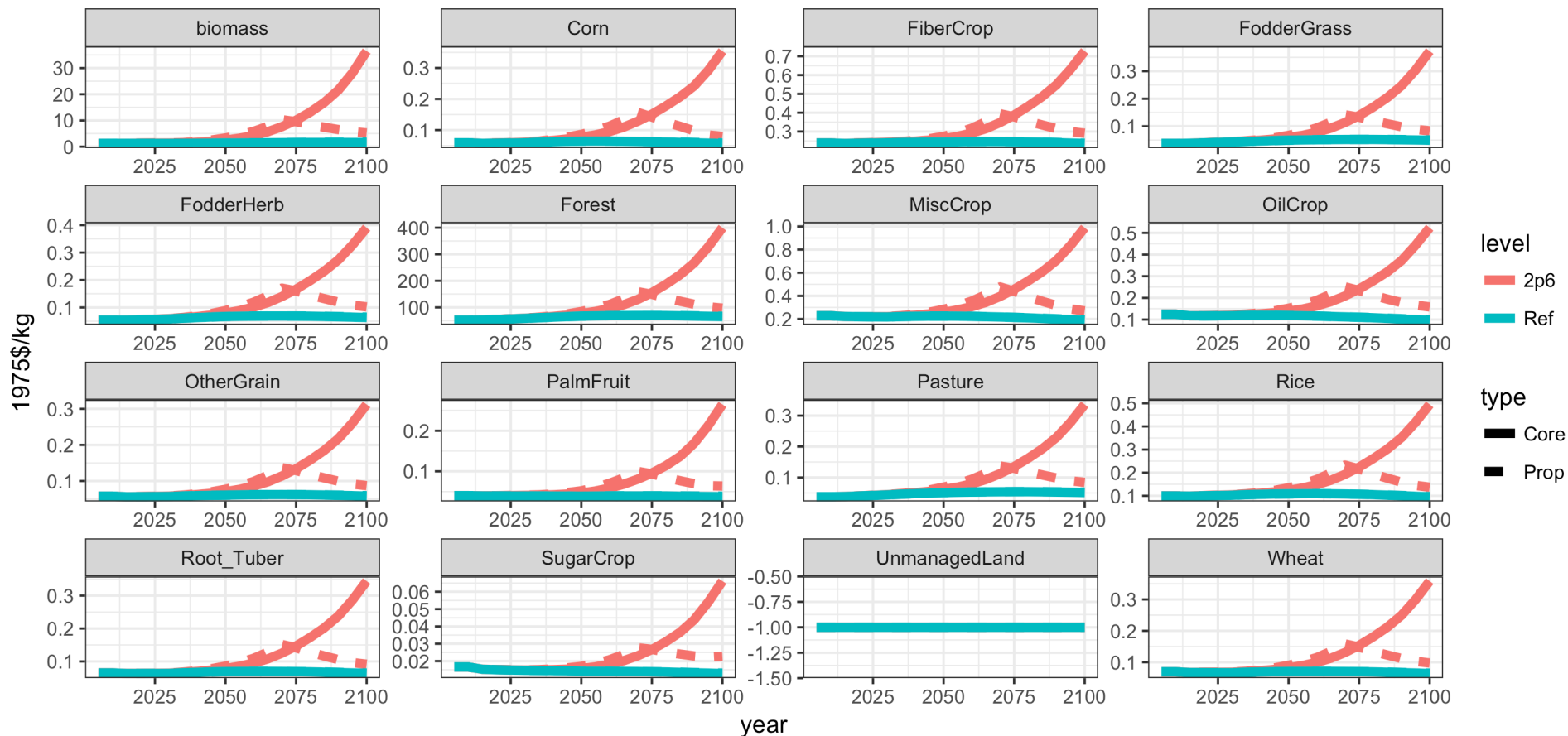
Global Refined Liquids





Updated GCAM

Ag commodity prices in USA



Changes related to BECCS

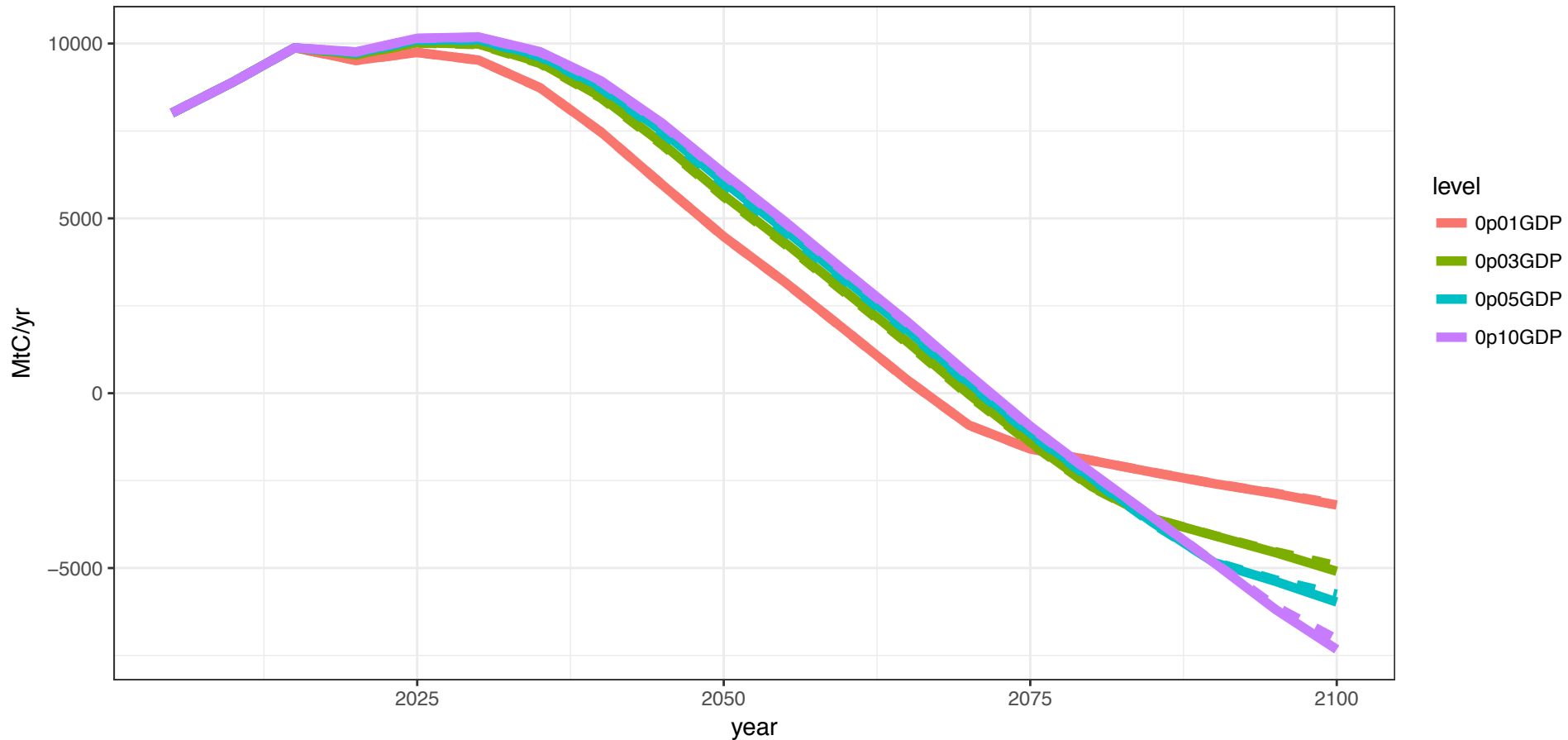
- ▶ Demand:
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- ▶ Supply
 - Limits on net negative emissions linked to GDP

- ▶ Solving
 - Adjustments to the unconventional oil supply curve
 - Solver updates related to pre-conditioning, forecasting demand, trial prices

Note: This is user-configurable

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