



energy

Department:
Energy
REPUBLIC OF SOUTH AFRICA

DRAFT INTEGRATED ENERGY PLANNING REPORT



energy

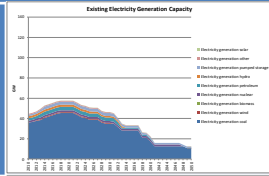
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Energy
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DRAFT IEP REPORT DETAILED MODELLING RESULTS

Dr Philip Goyns
Supply Options Modelling Specialist

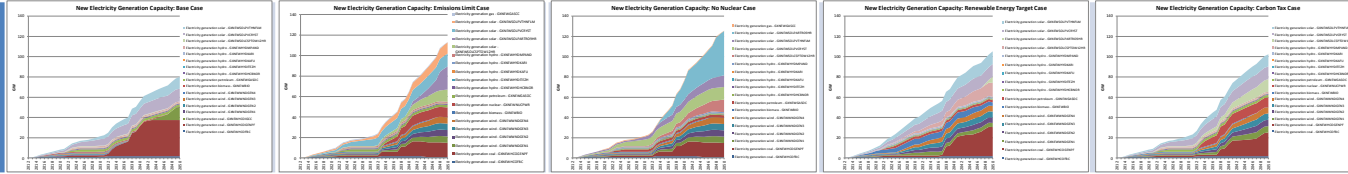
Electricity generation

Existing capacity

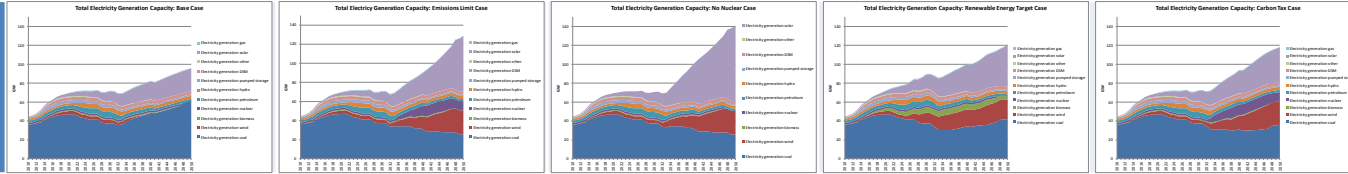


All cases start with same existing capacity

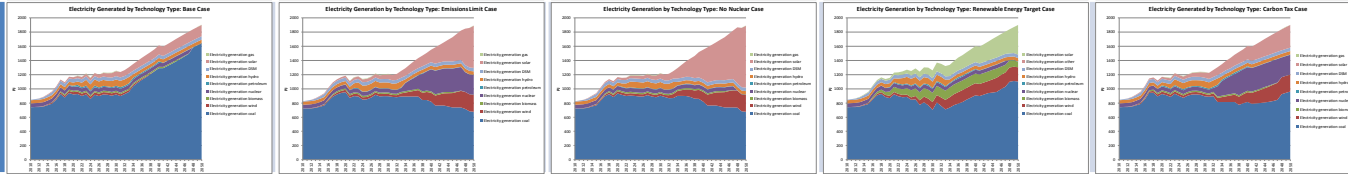
New capacity



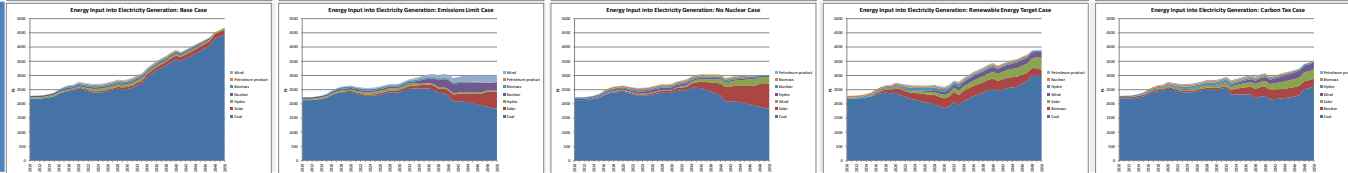
Total capacity



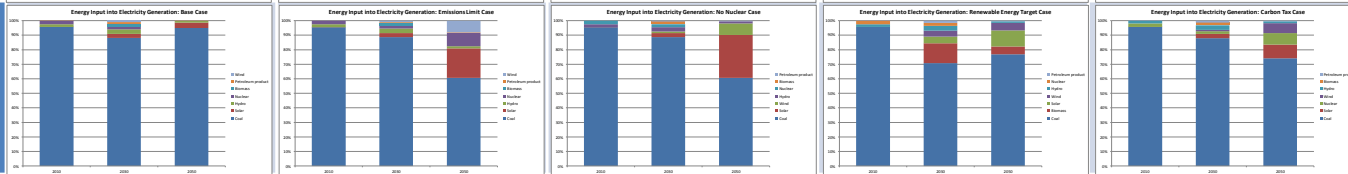
Electr. out



Primary energy



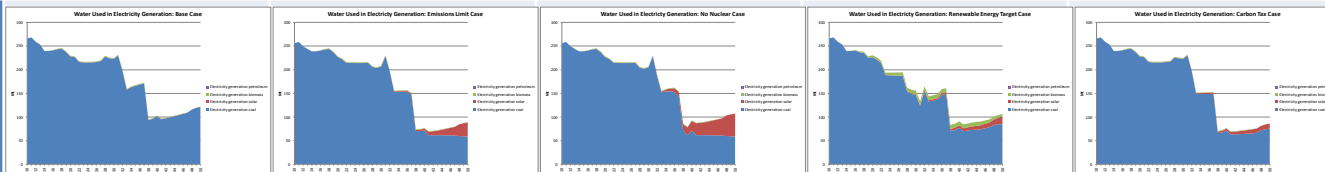
Primary energy



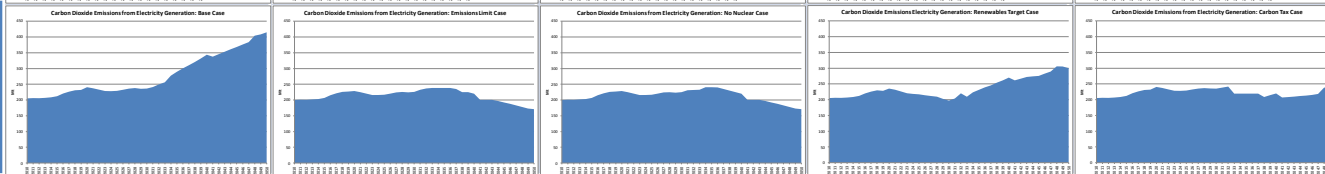
Same as base case

Electricity

Water cons.

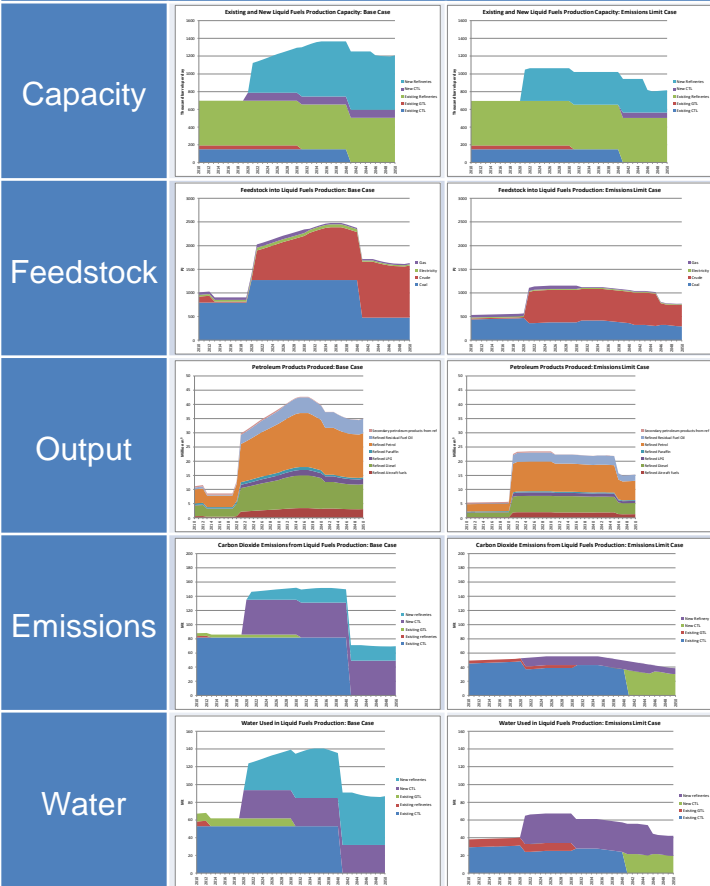


CO₂ Emissions



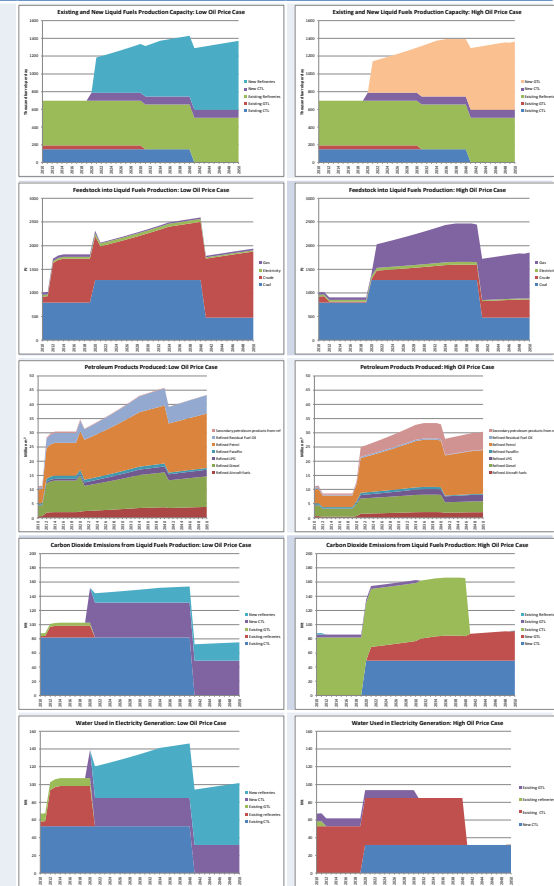
Same as base case

Liquid fuels production

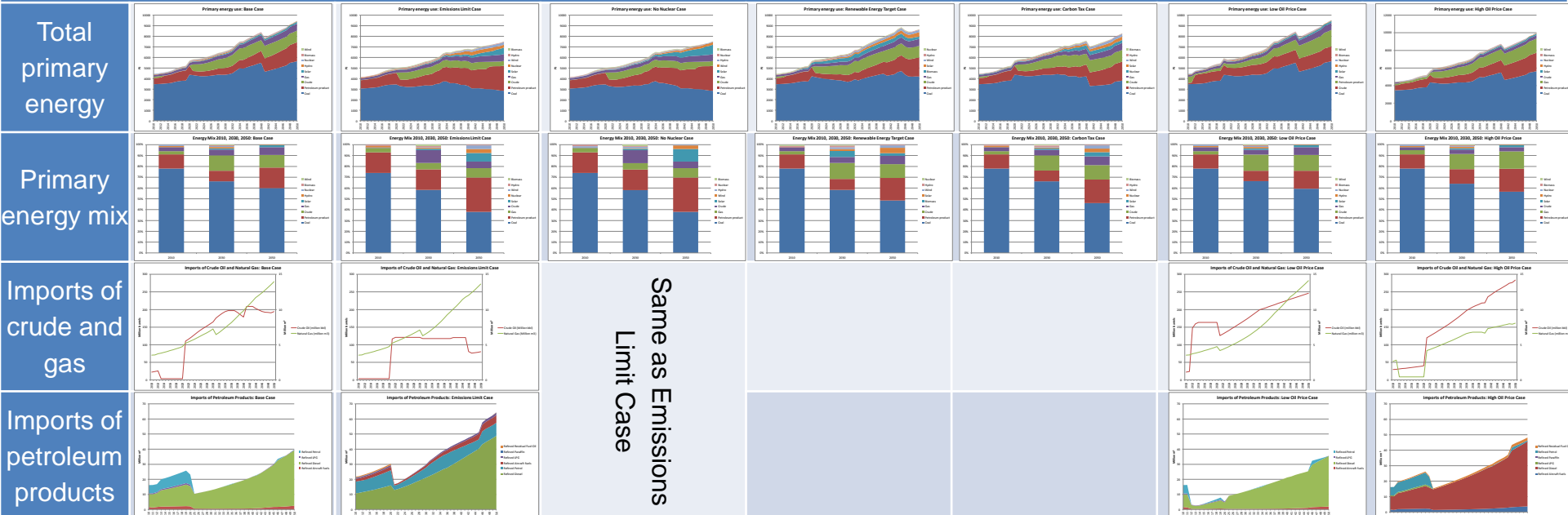


Same as Emissions Limit Case

Same as Base Case

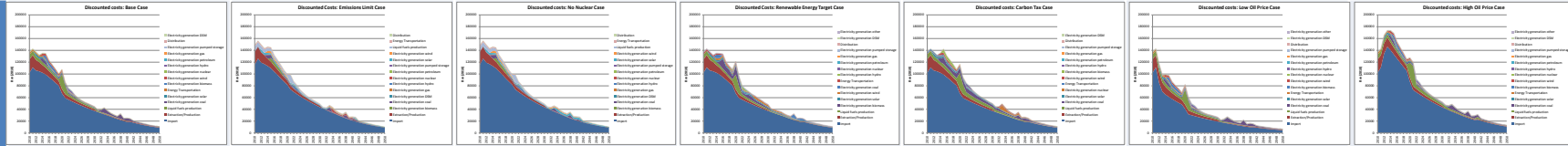


Primary energy

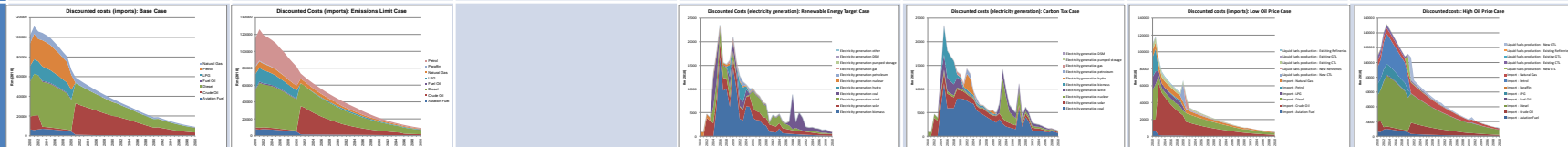


Summary

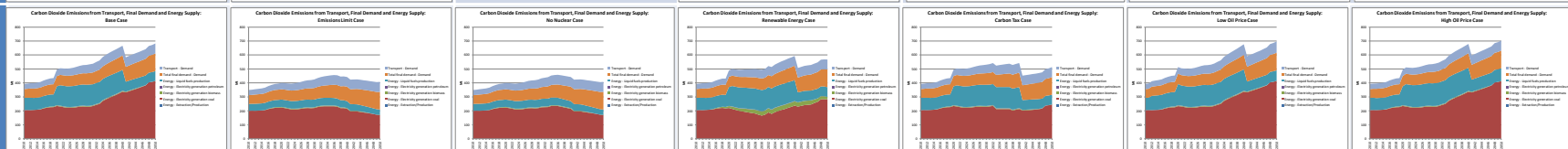
Total Costs



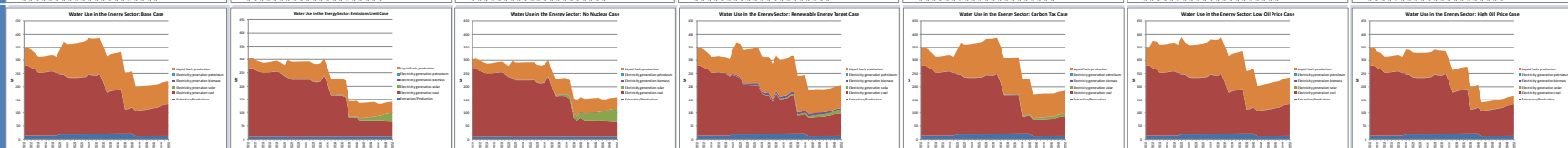
Costs (subsector)



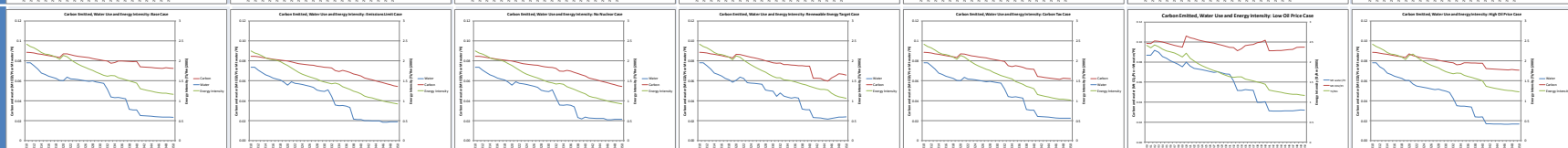
Emissions by subsector



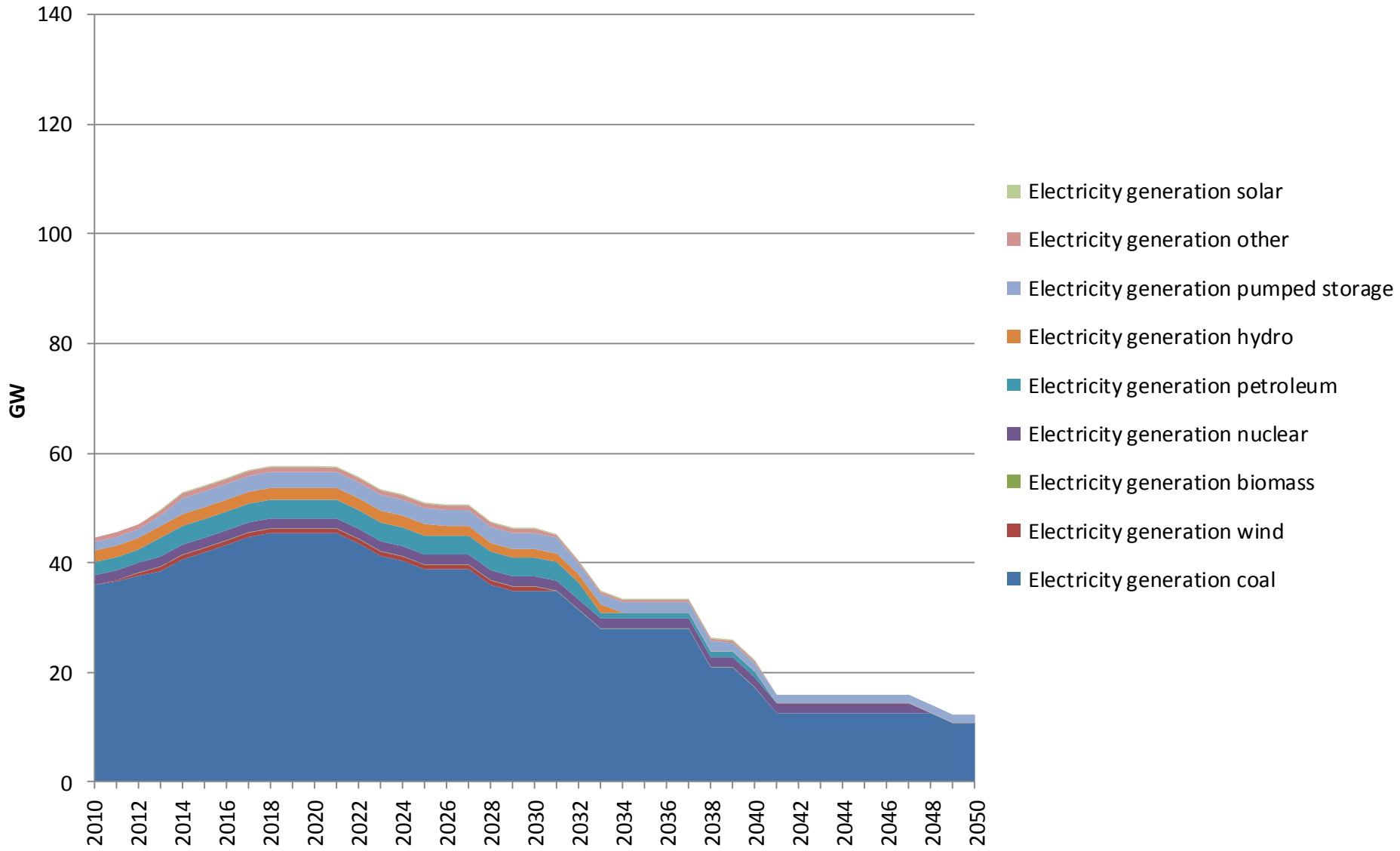
Water consumption by subsector



Summary

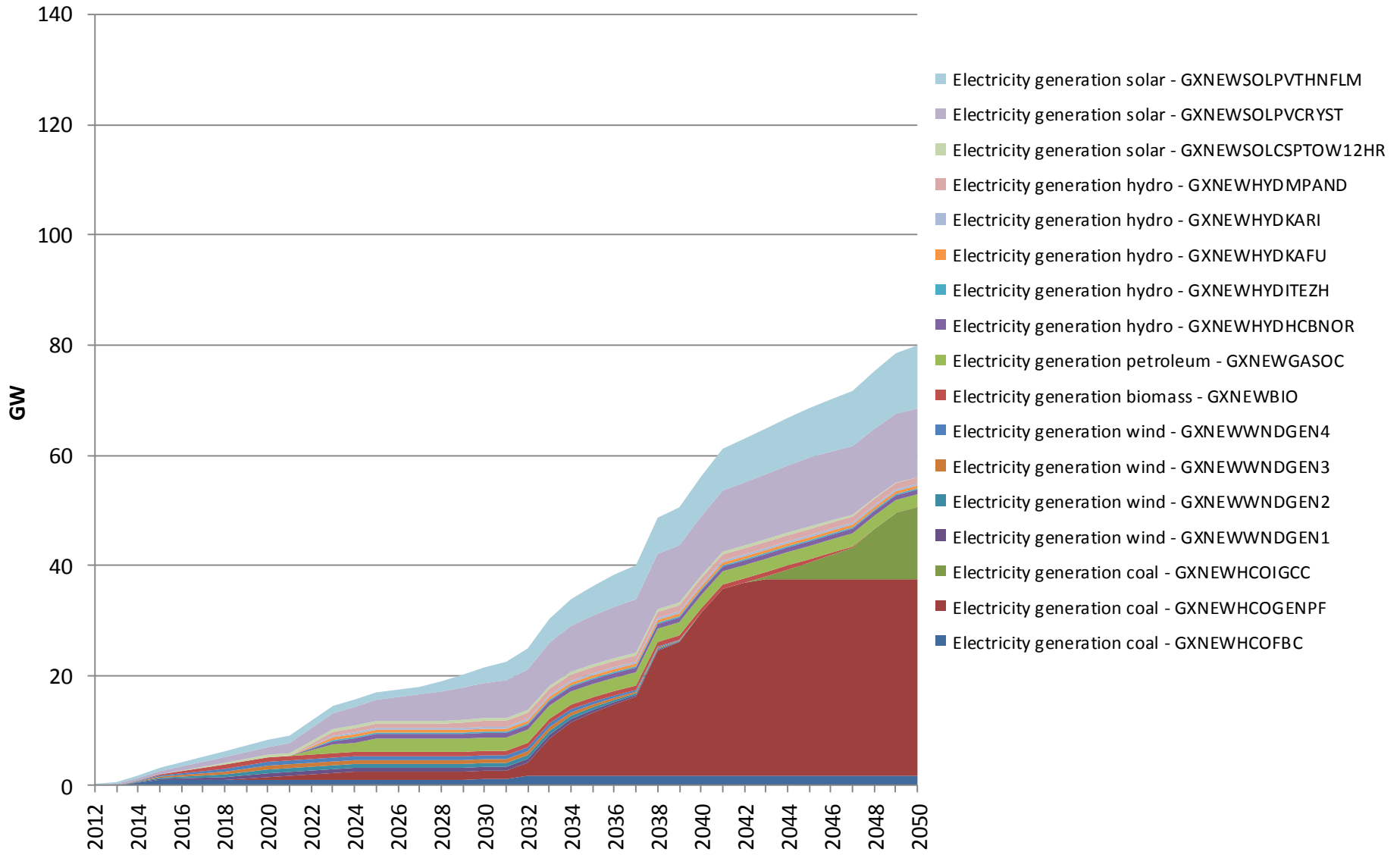


Existing Electricity Generation Capacity



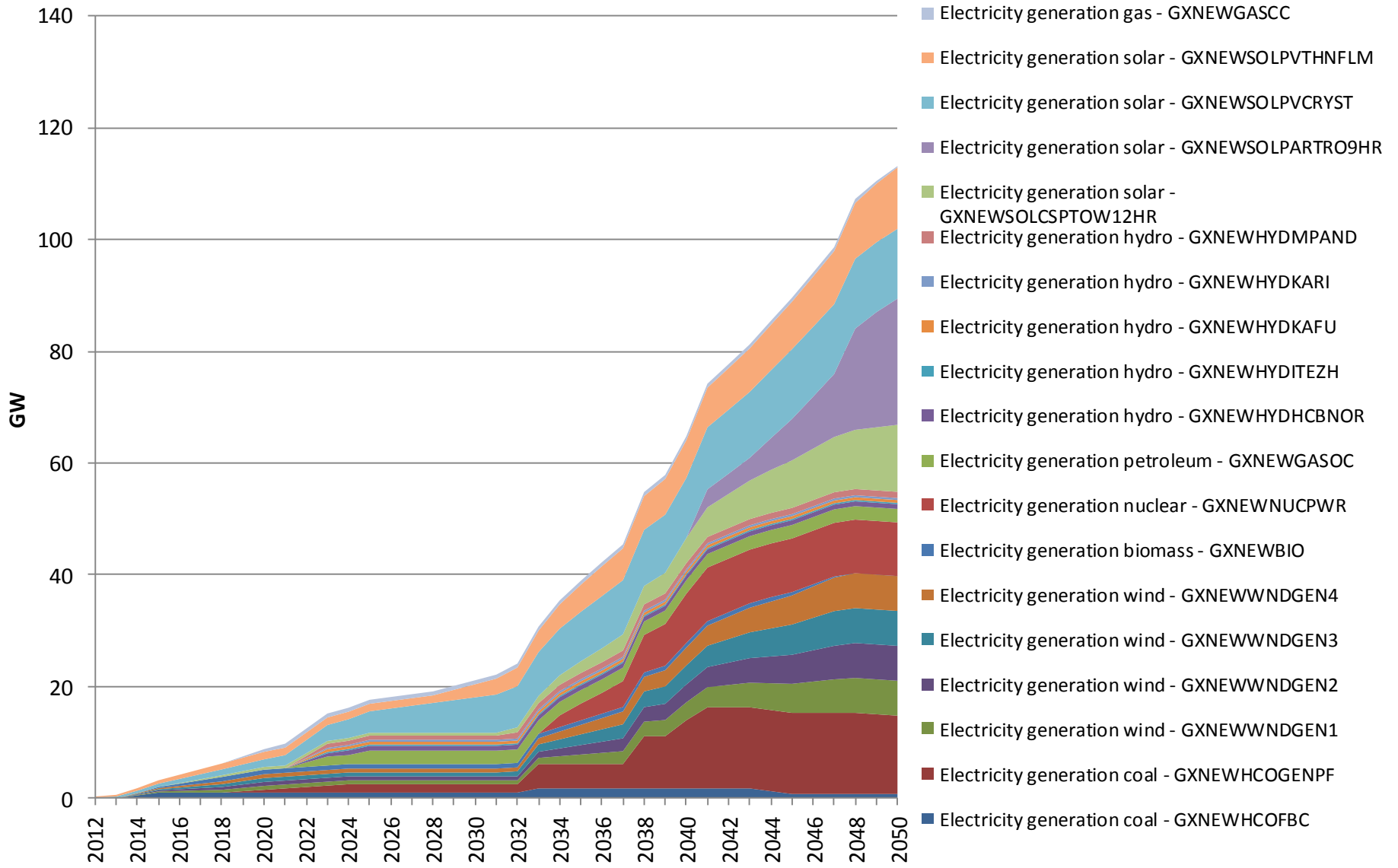
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New Electricity Generation Capacity: Base Case



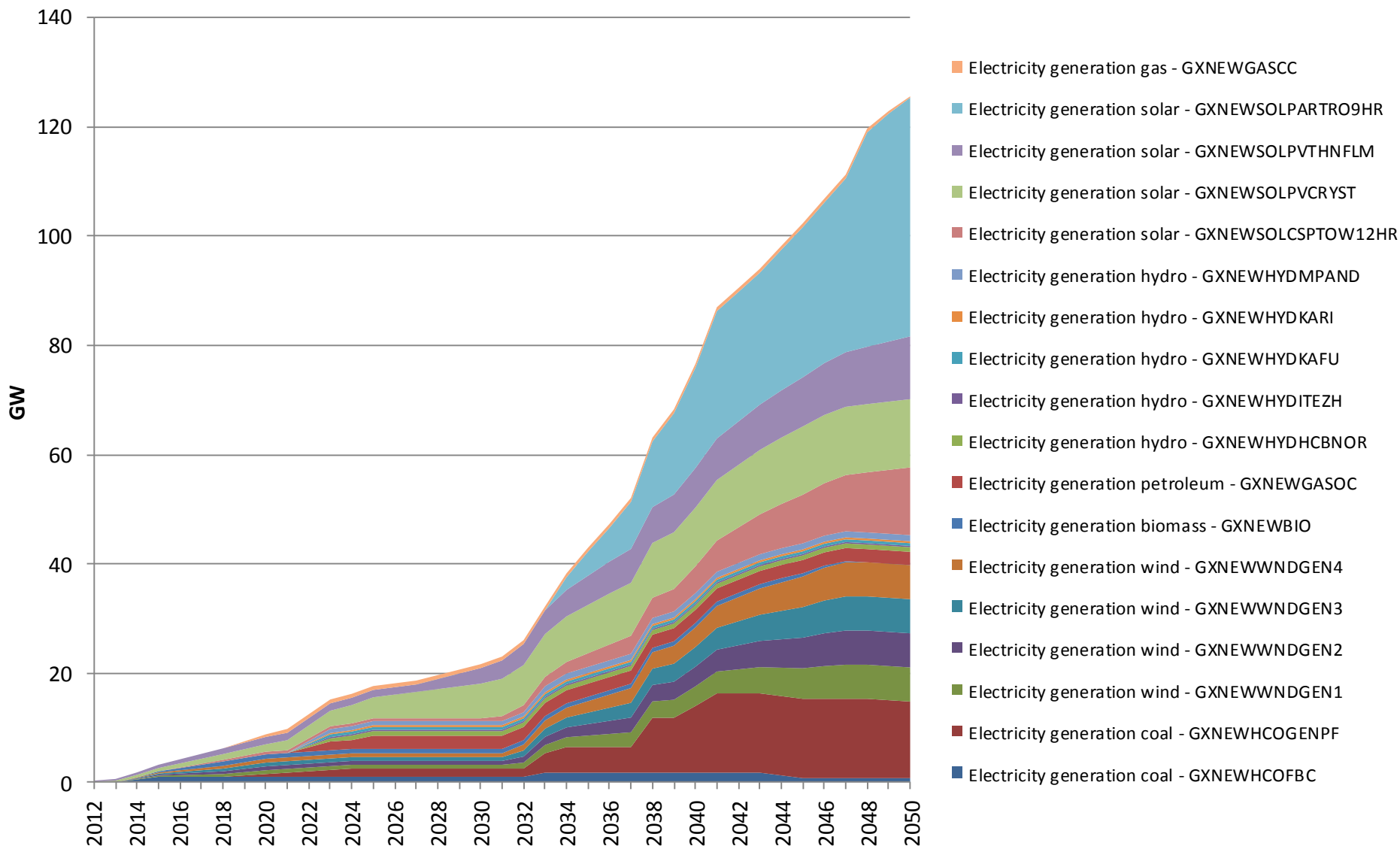
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New Electricity Generation Capacity: Emissions Limit Case



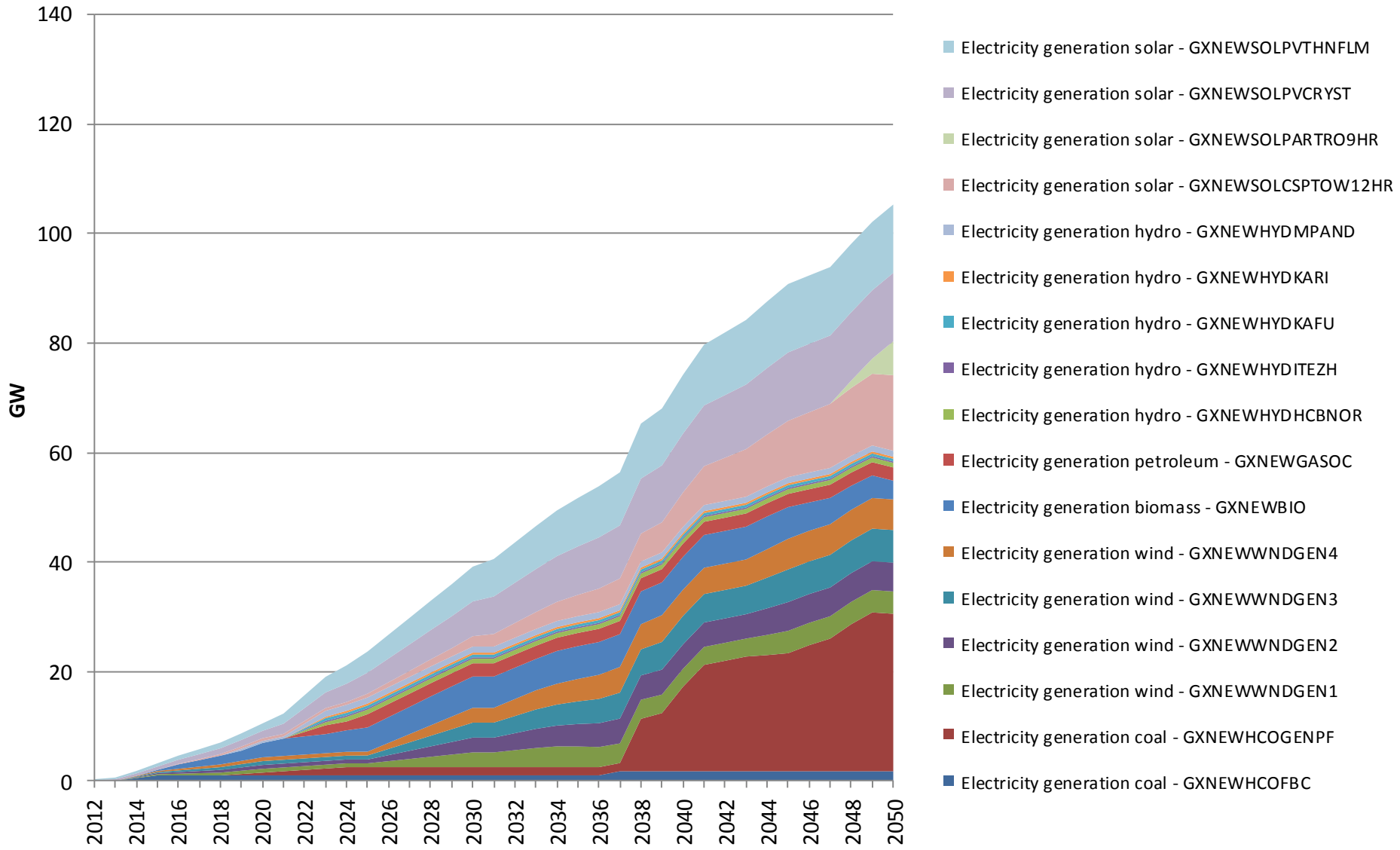
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New Electricity Generation Capacity: No Nuclear Case



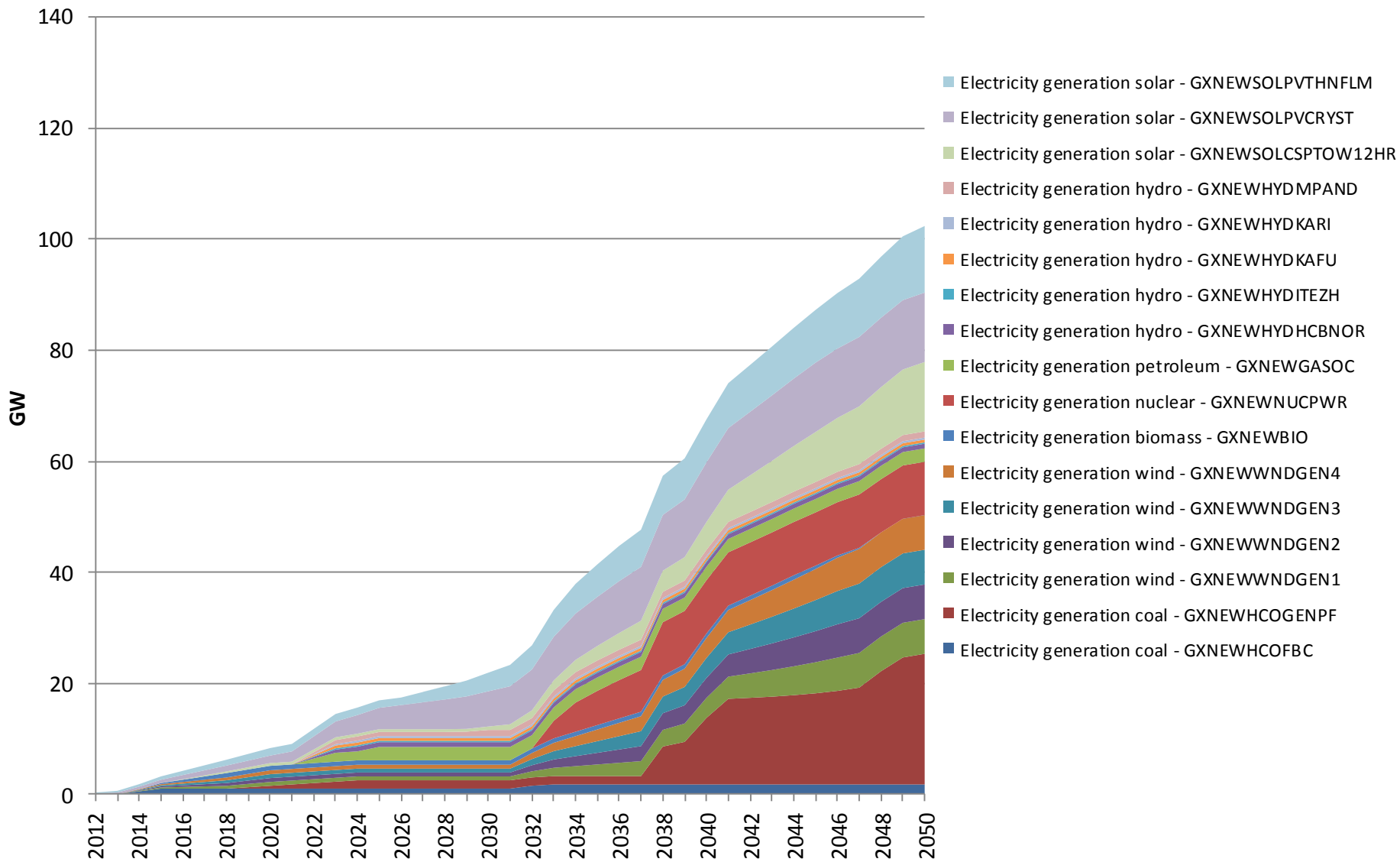
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New Electricity Generation Capacity: Renewable Energy Target Case



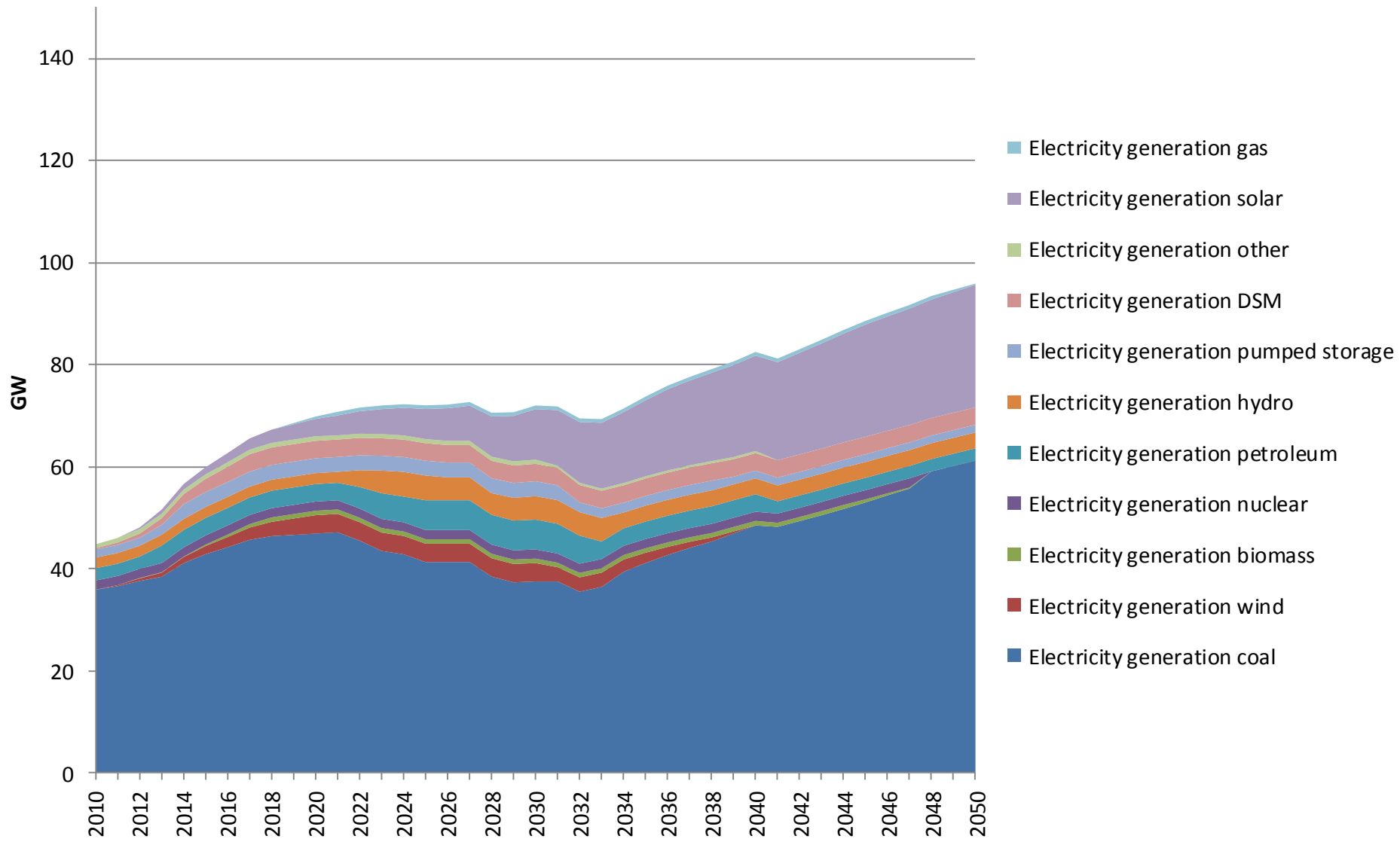
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New Electricity Generation Capacity: Carbon Tax Case



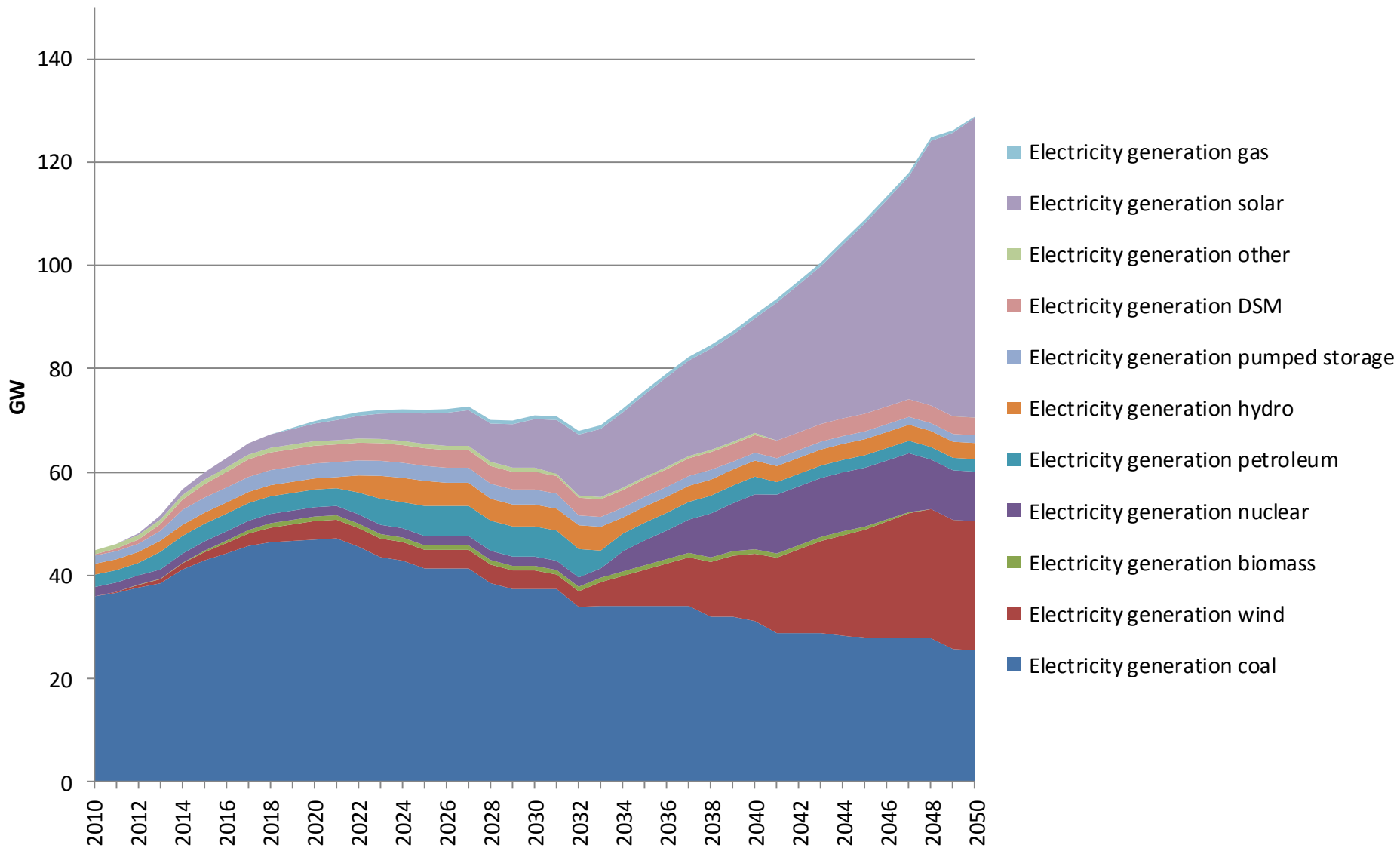
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Total Electricity Generation Capacity: Base Case



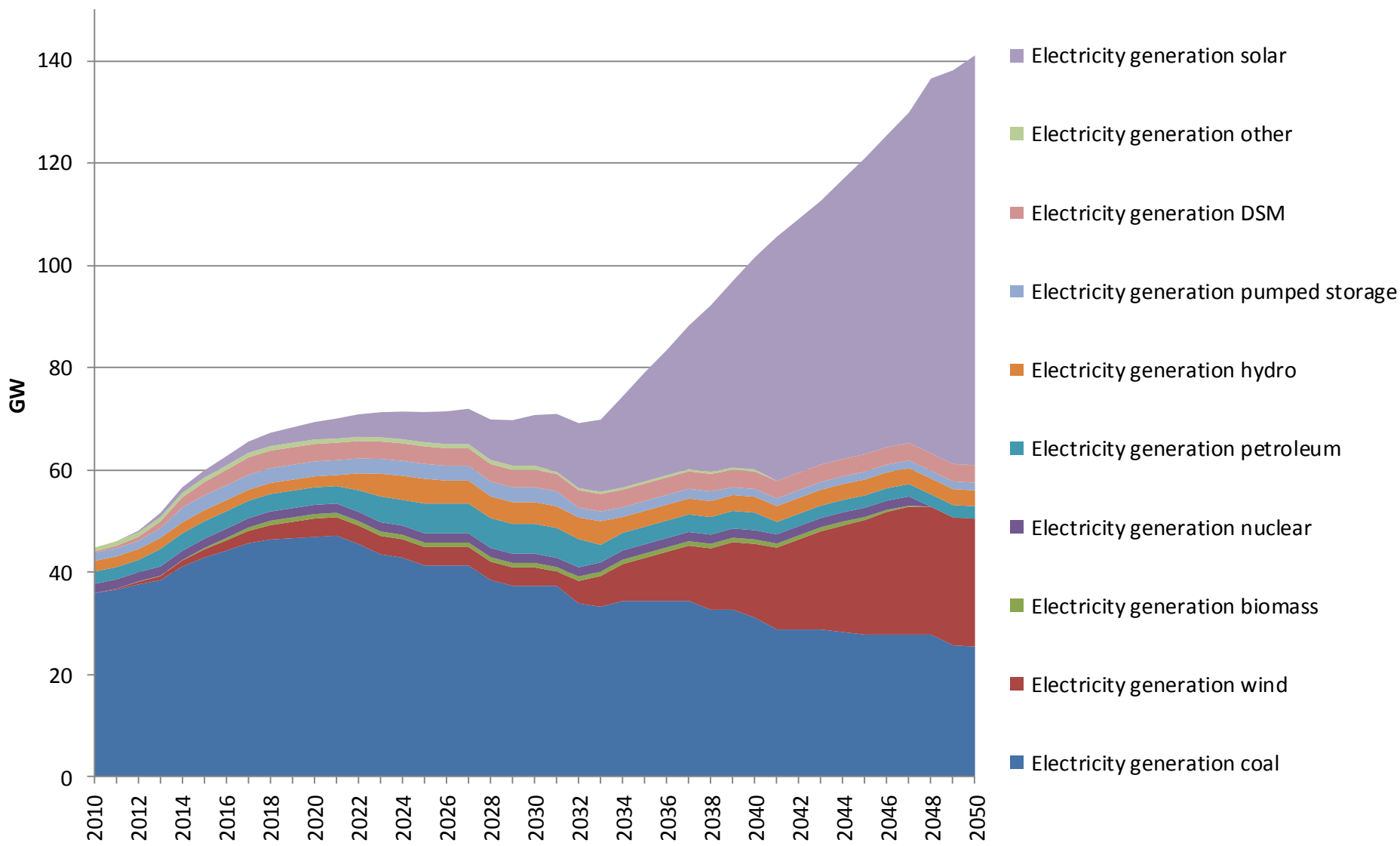
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Total Electricity Generation Capacity: Emissions Limit Case



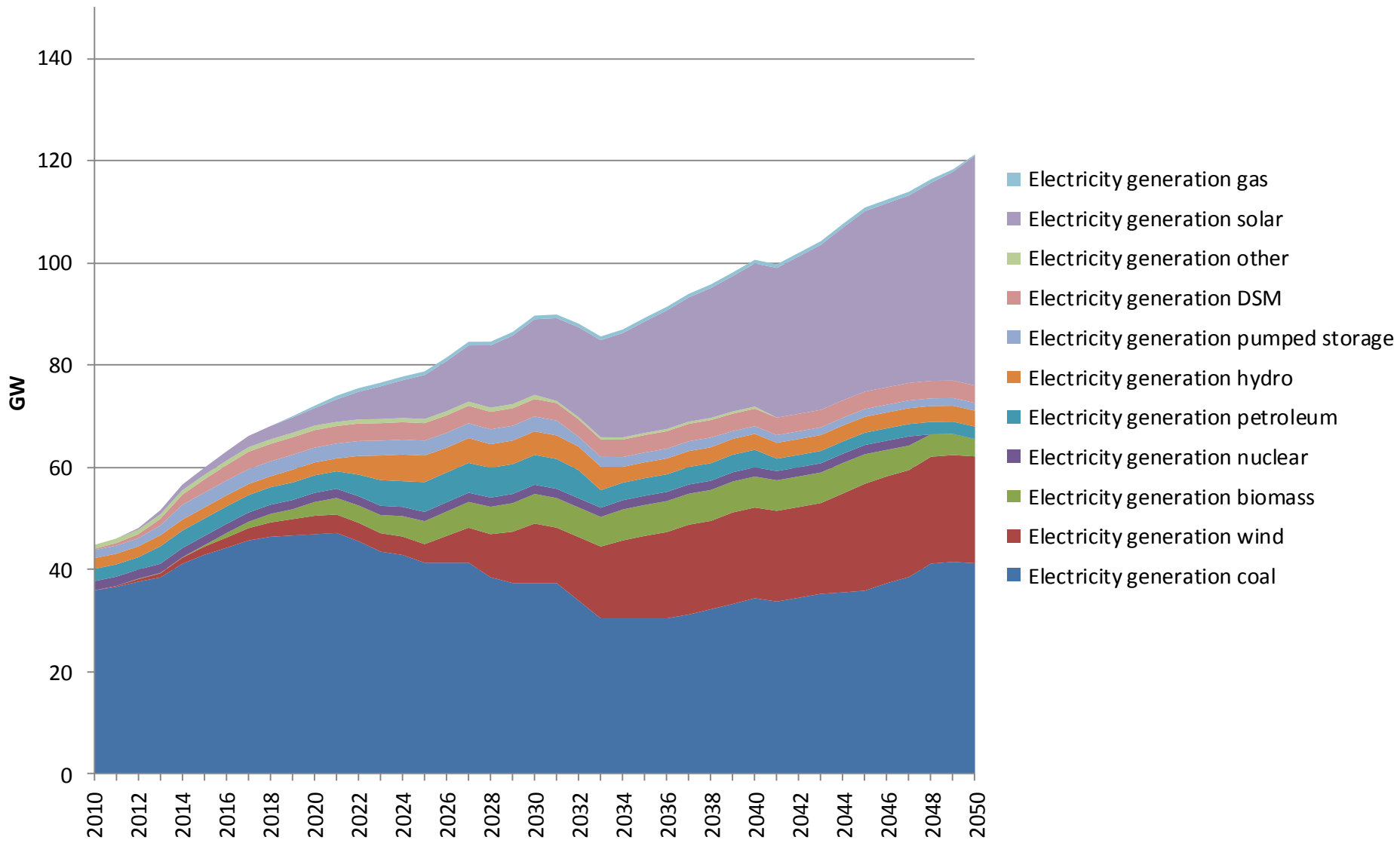
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Total Electricity Generation Capacity: No Nuclear Case



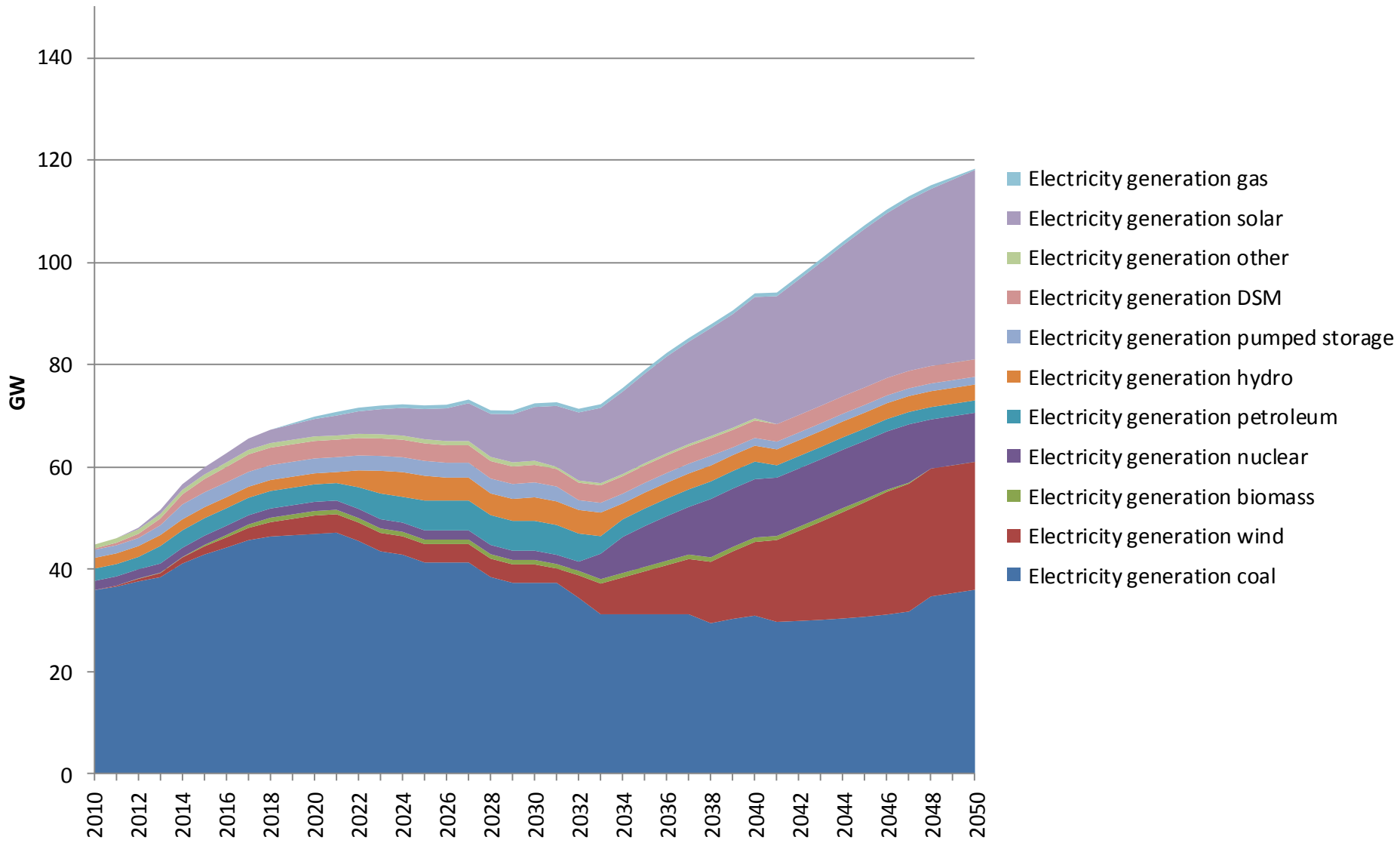
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Total Electricity Generation Capacity: Renewable Energy Target Case



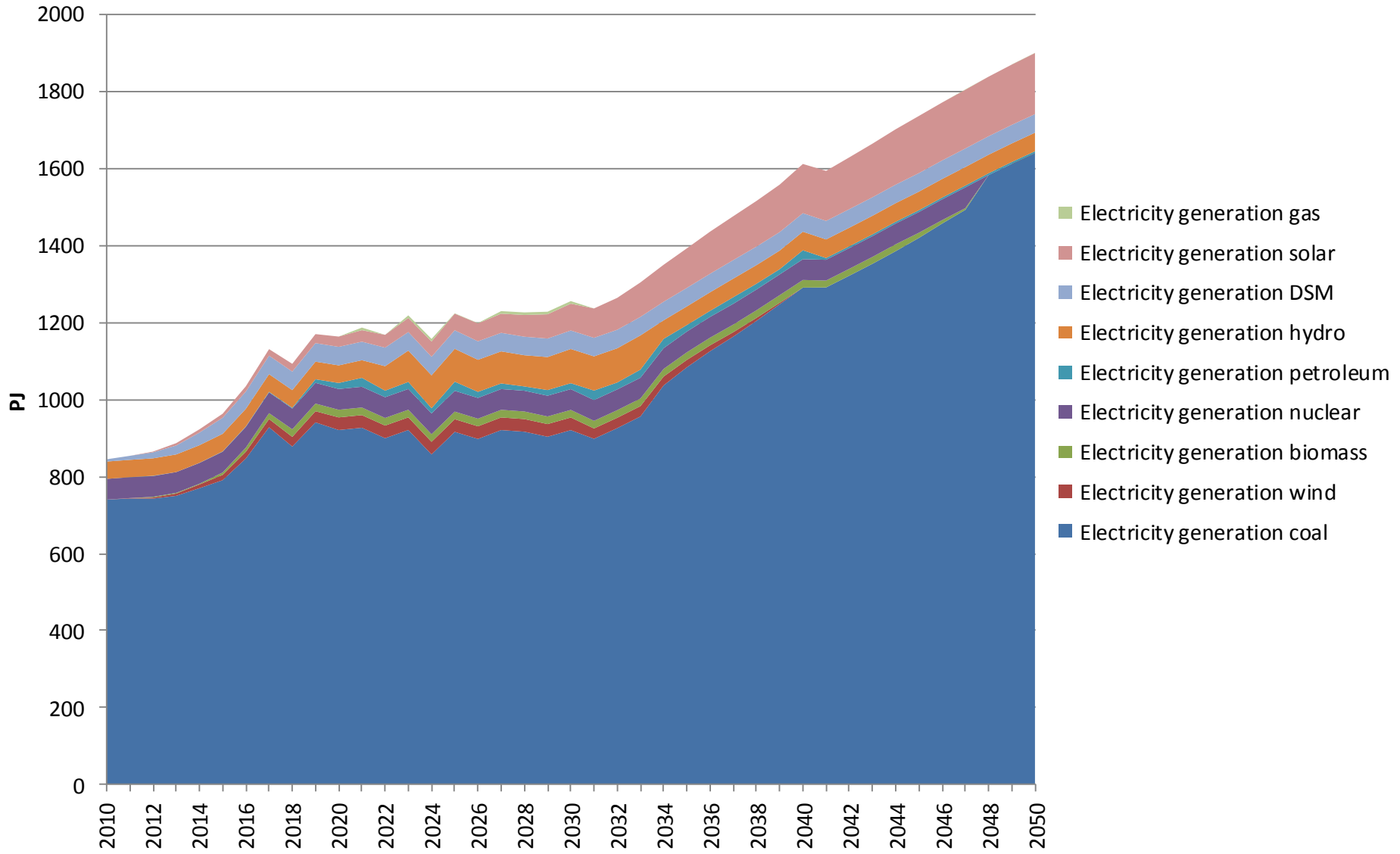
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Total Electricity Generation Capacity: Carbon Tax Case



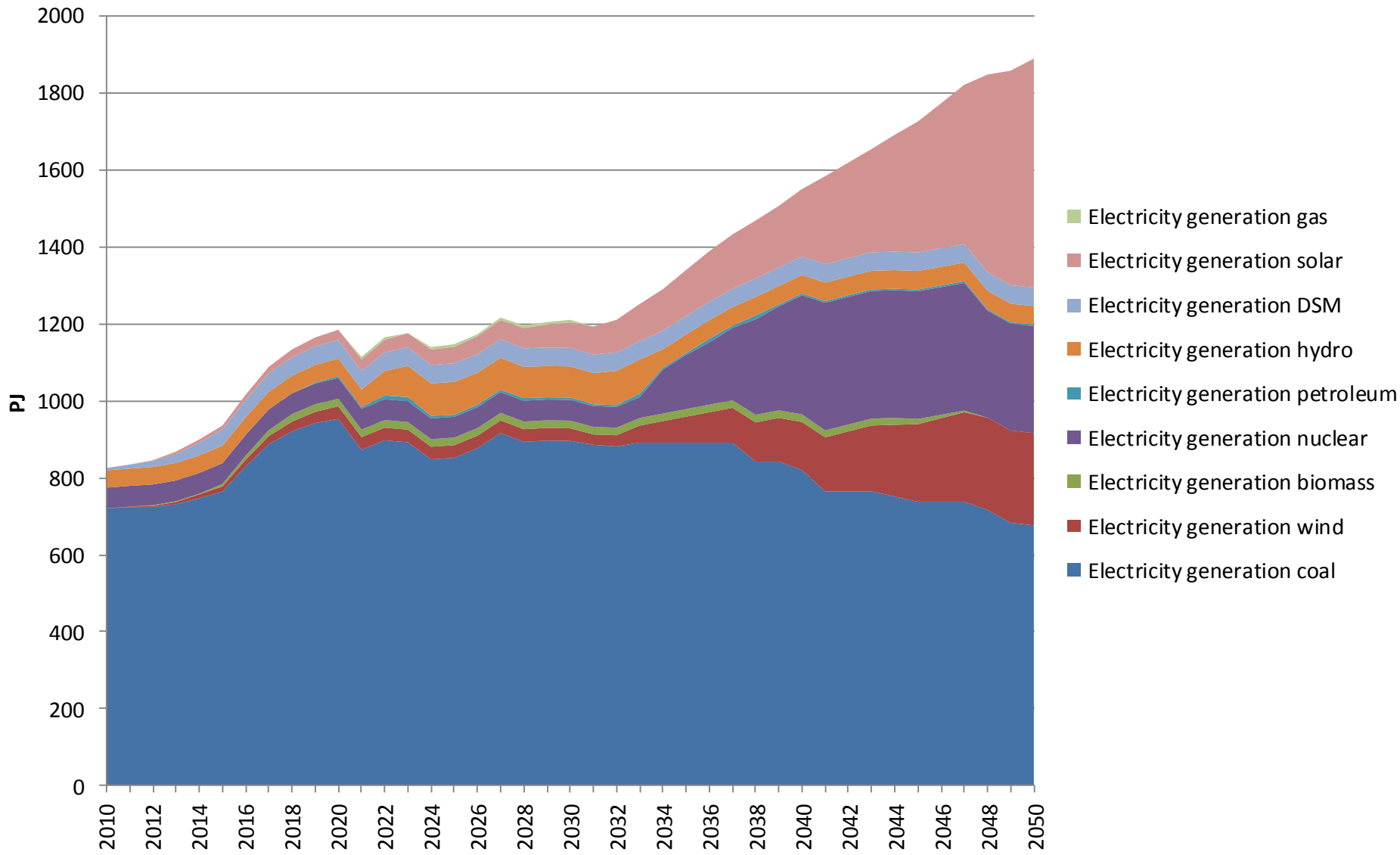
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Electricity Generated by Technology Type: Base Case



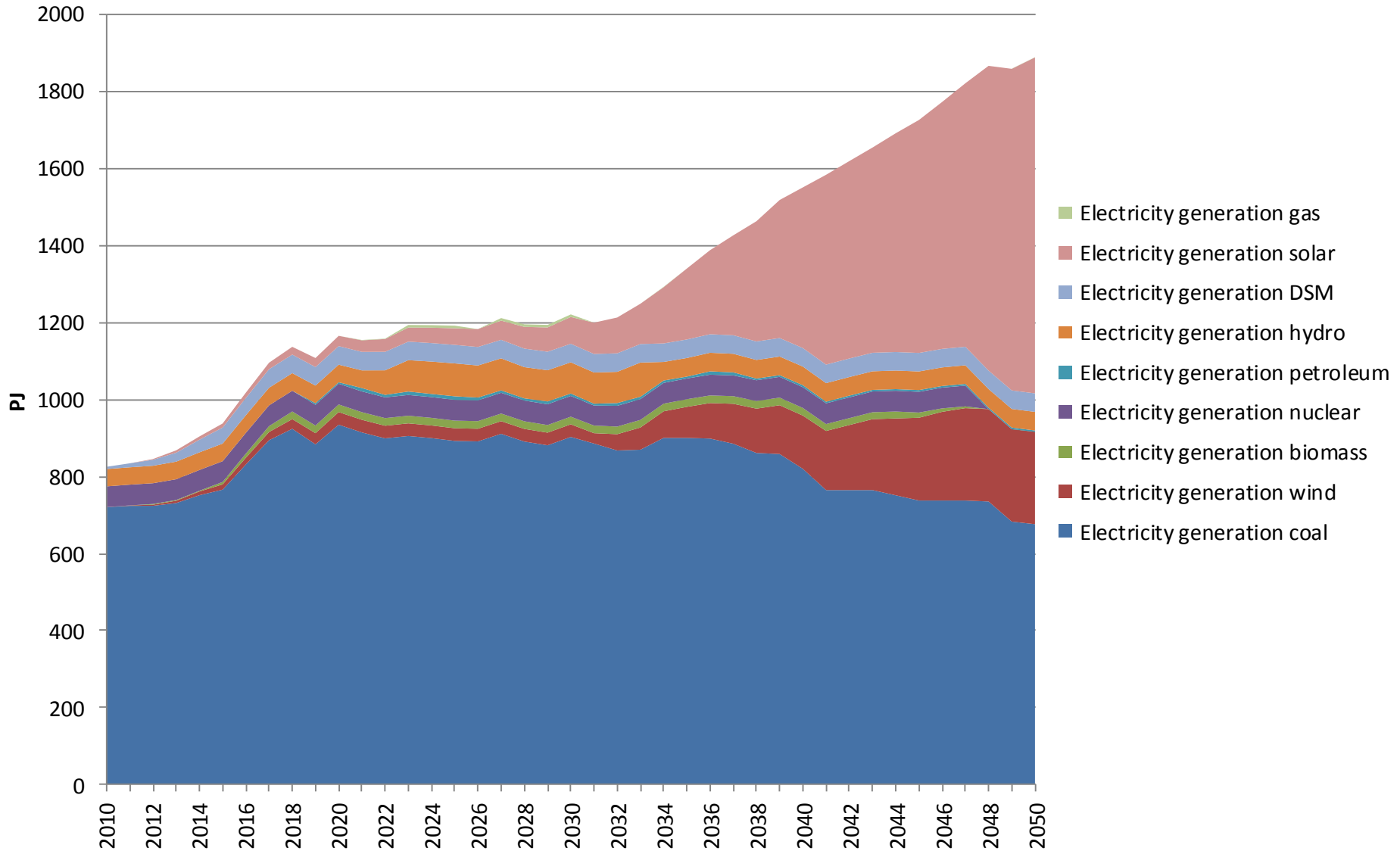
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Electricity Generation by Technology Type: Emissions Limit Case



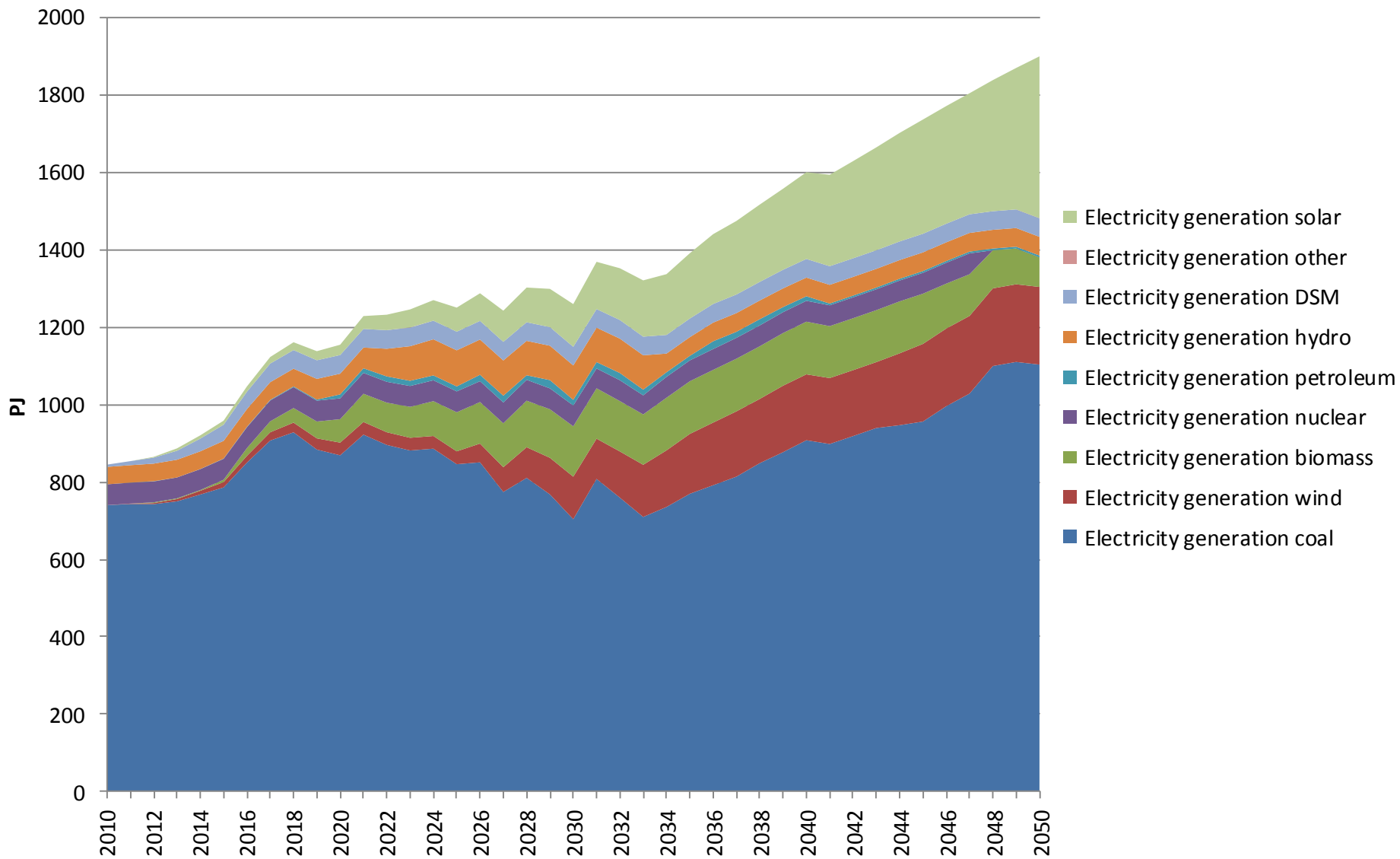
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Electricity Generation by Technology Type: No Nuclear Case



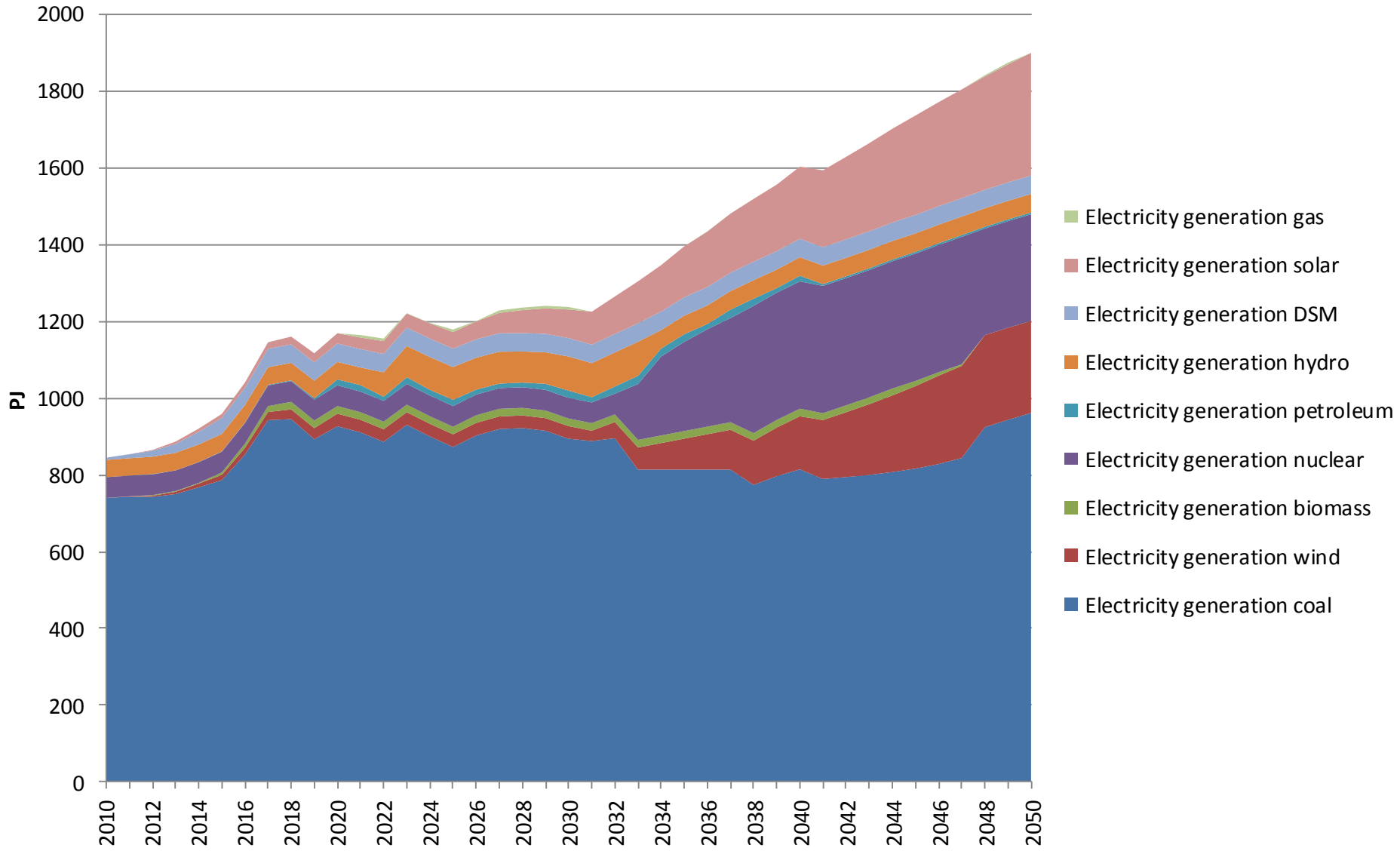
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Electricity Generation by Technology Type: Renewable Energy Target Case



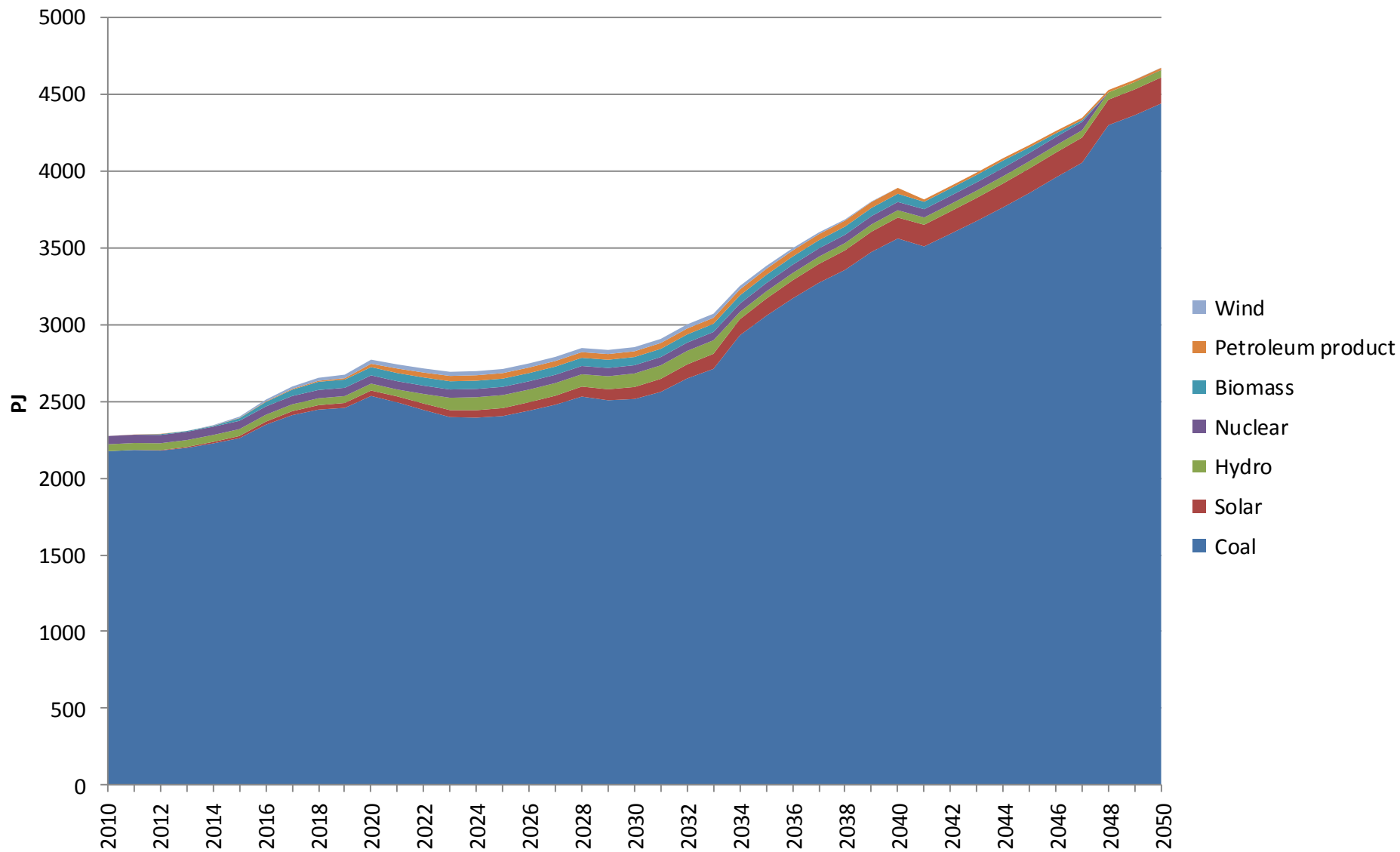
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Electricity Generated by Technology Type: Carbon Tax Case



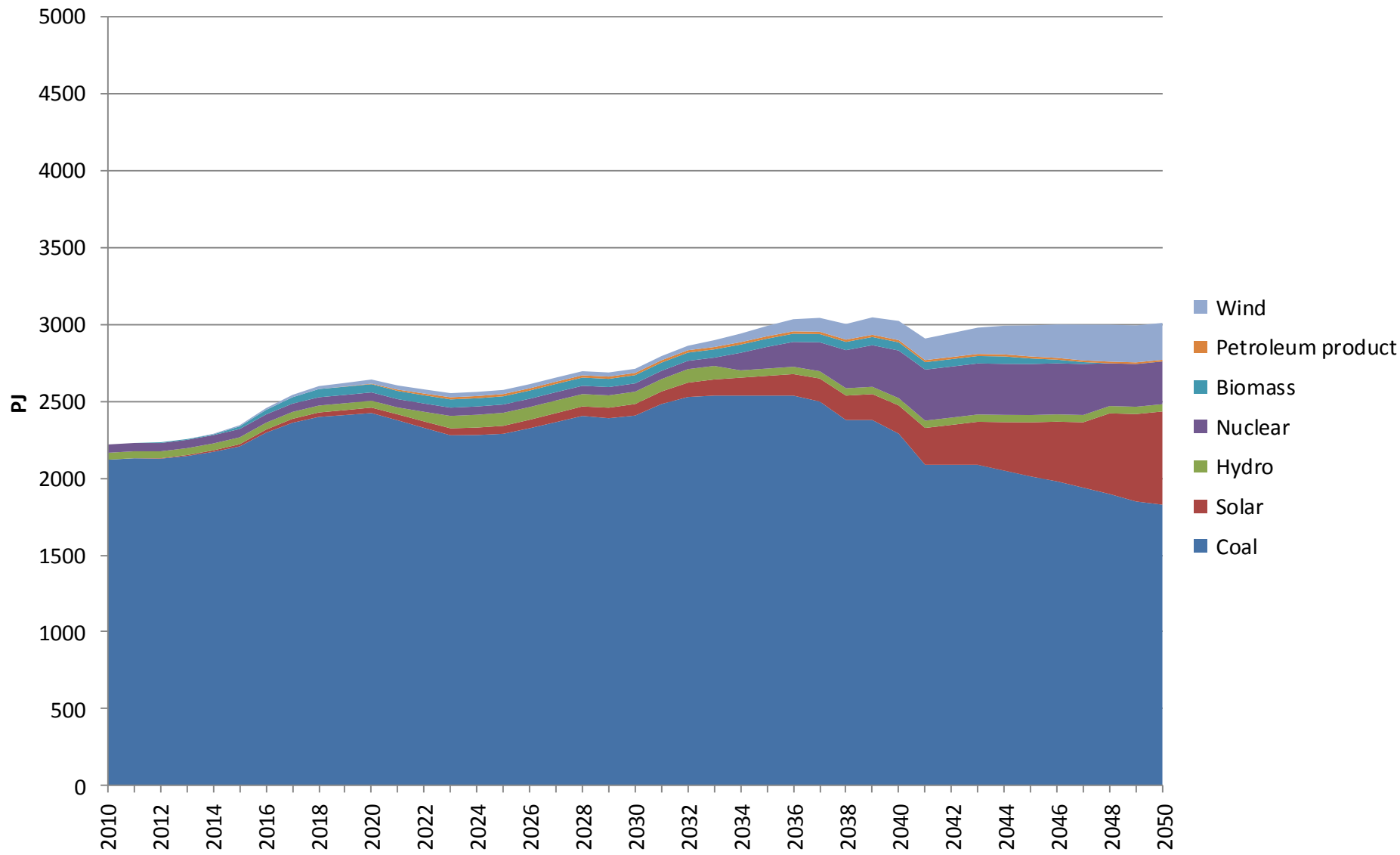
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Energy Input into Electricity Generation: Base Case



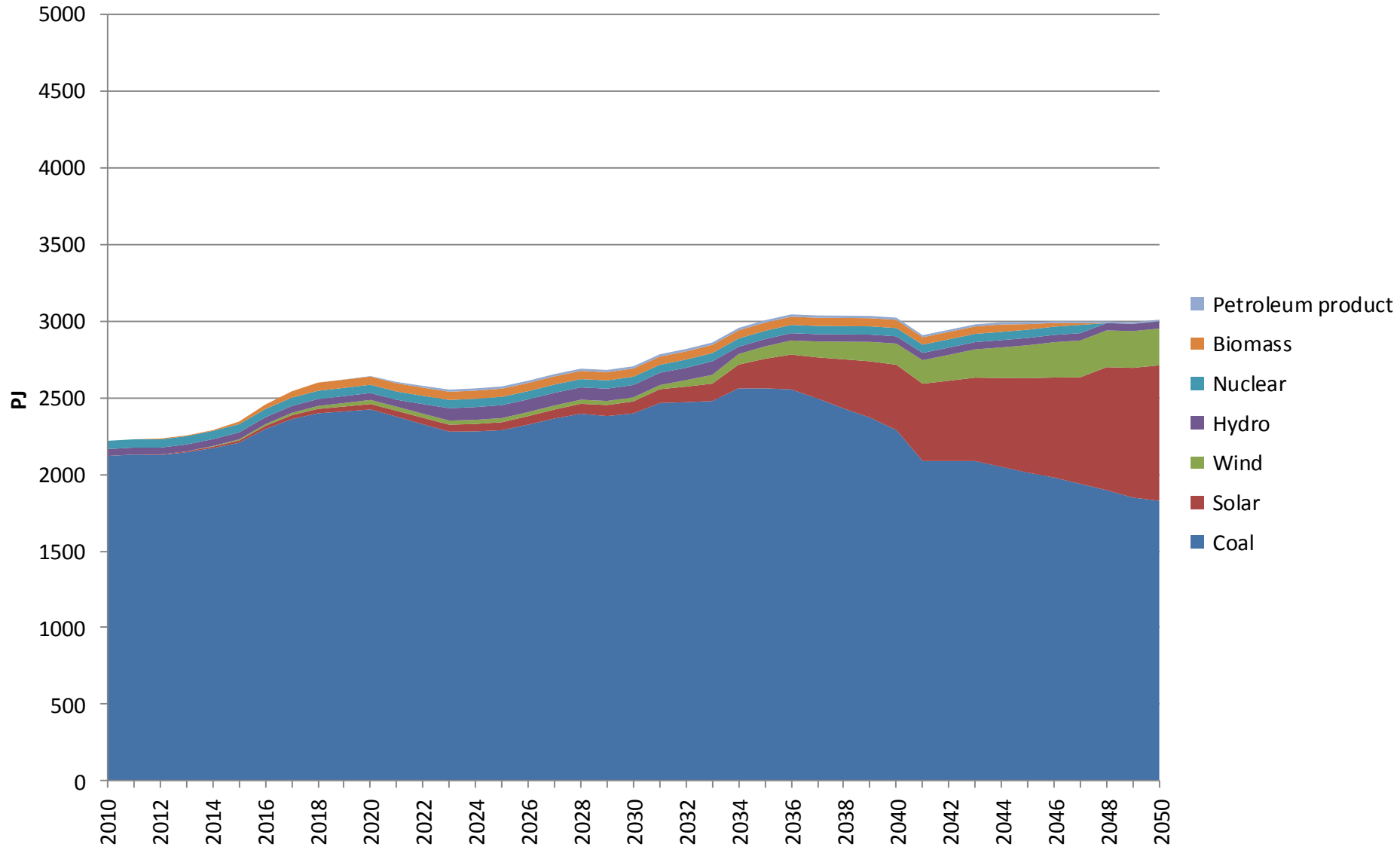
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Energy Input into Electricity Generation: Emissions Limit Case



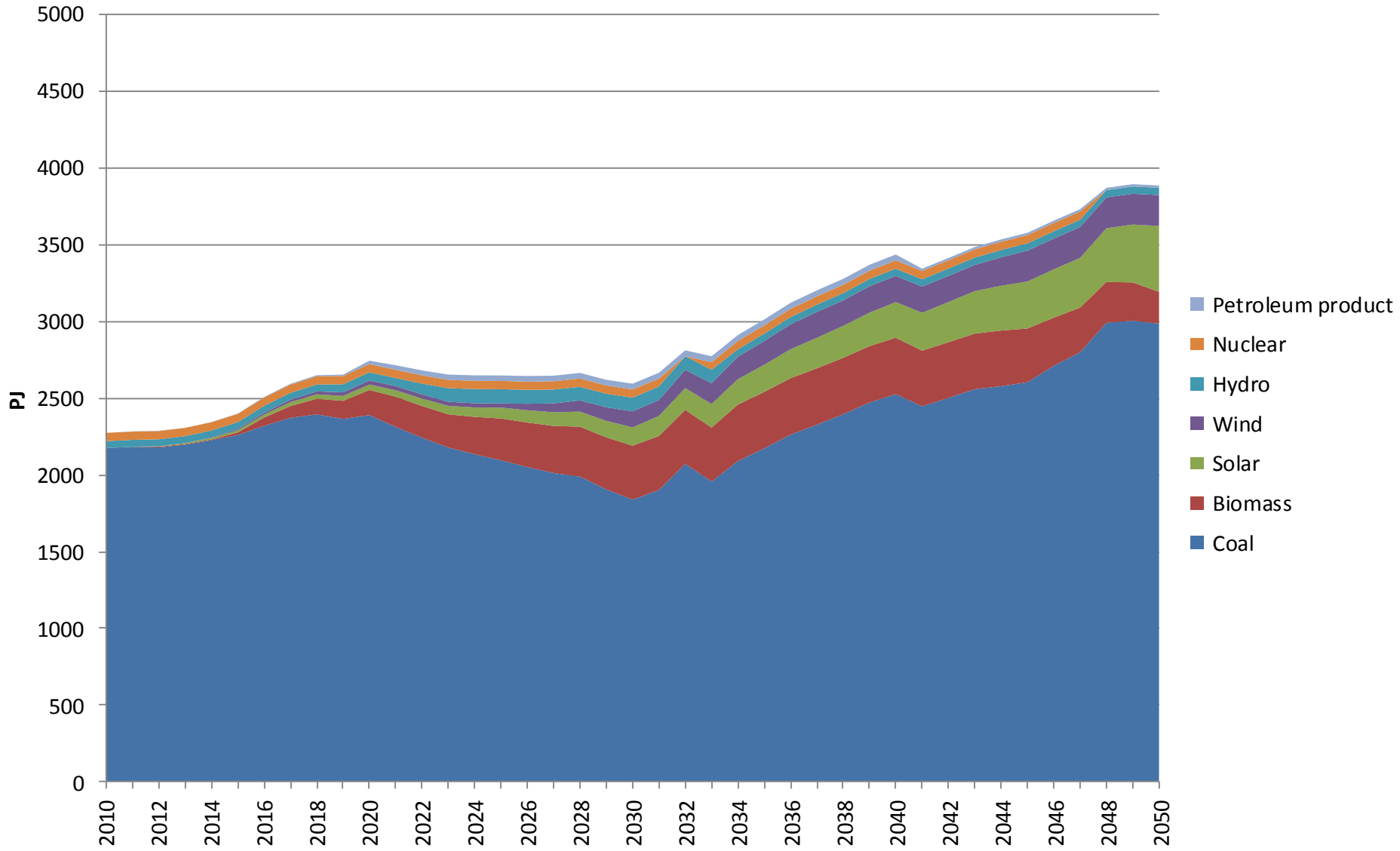
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Energy Input into Electricity Generation: No Nuclear Case



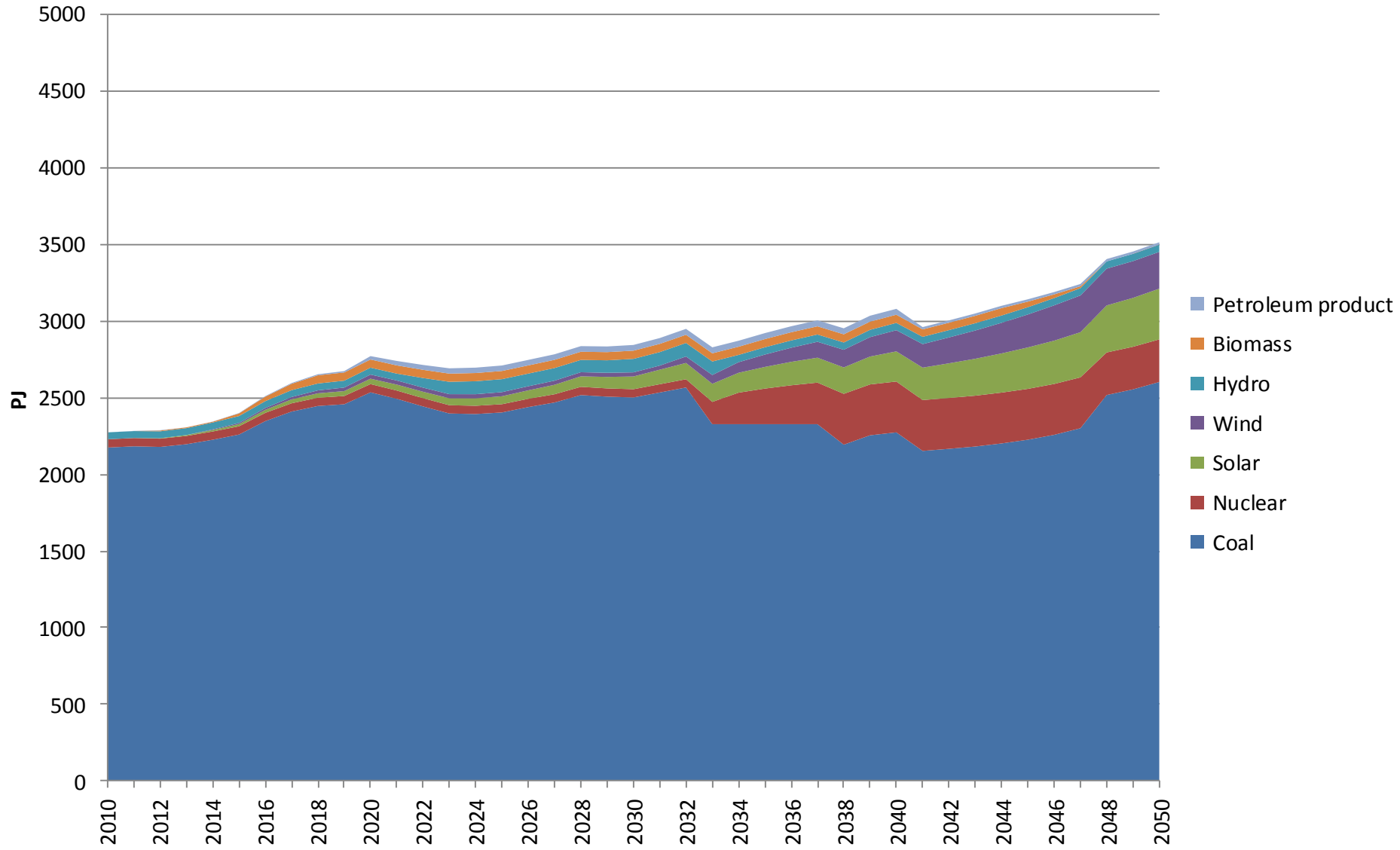
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Energy Input into Electricity Generation: Renewable Energy Target Case



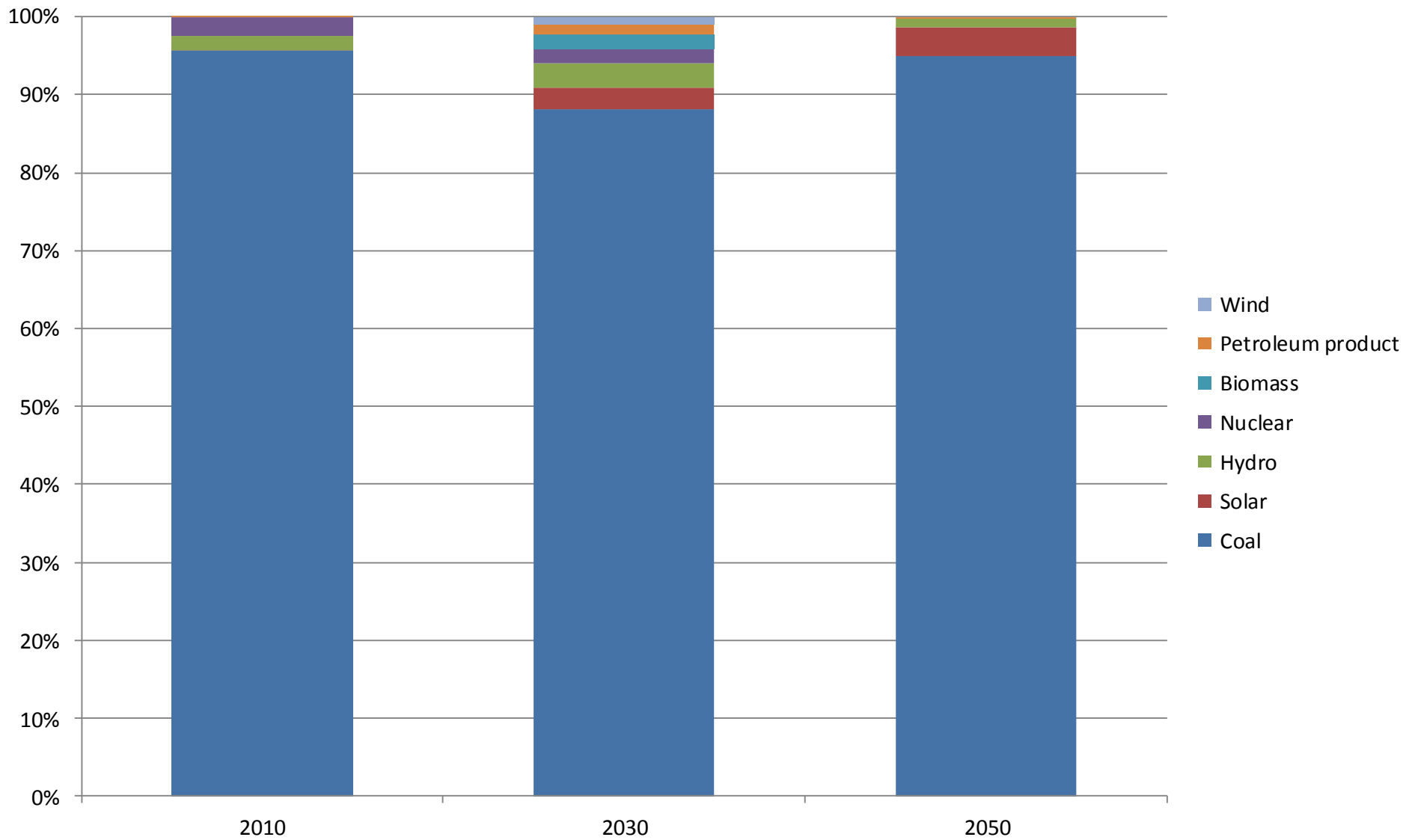
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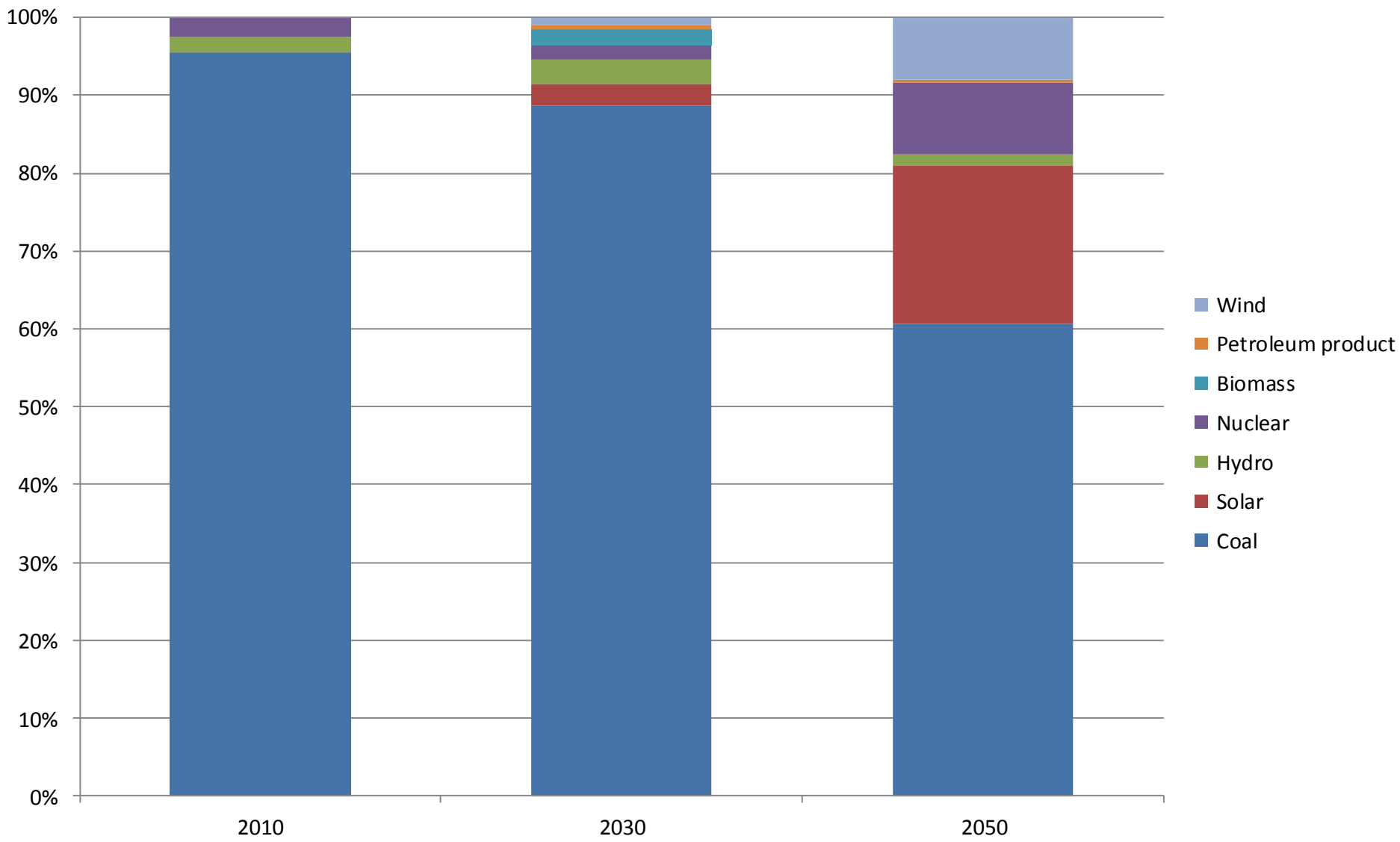
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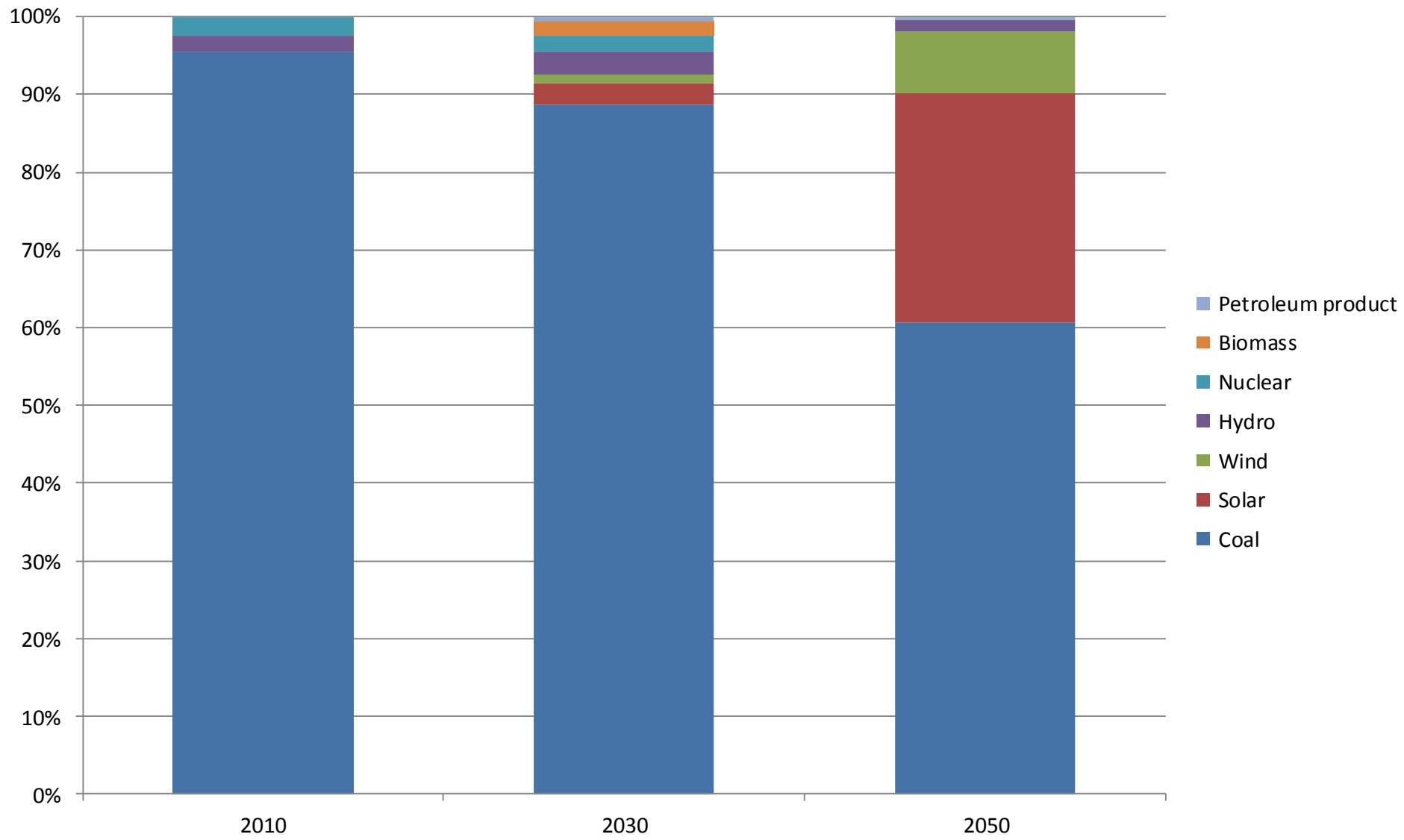
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Energy Input into Electricity Generation: Emissions Limit Case



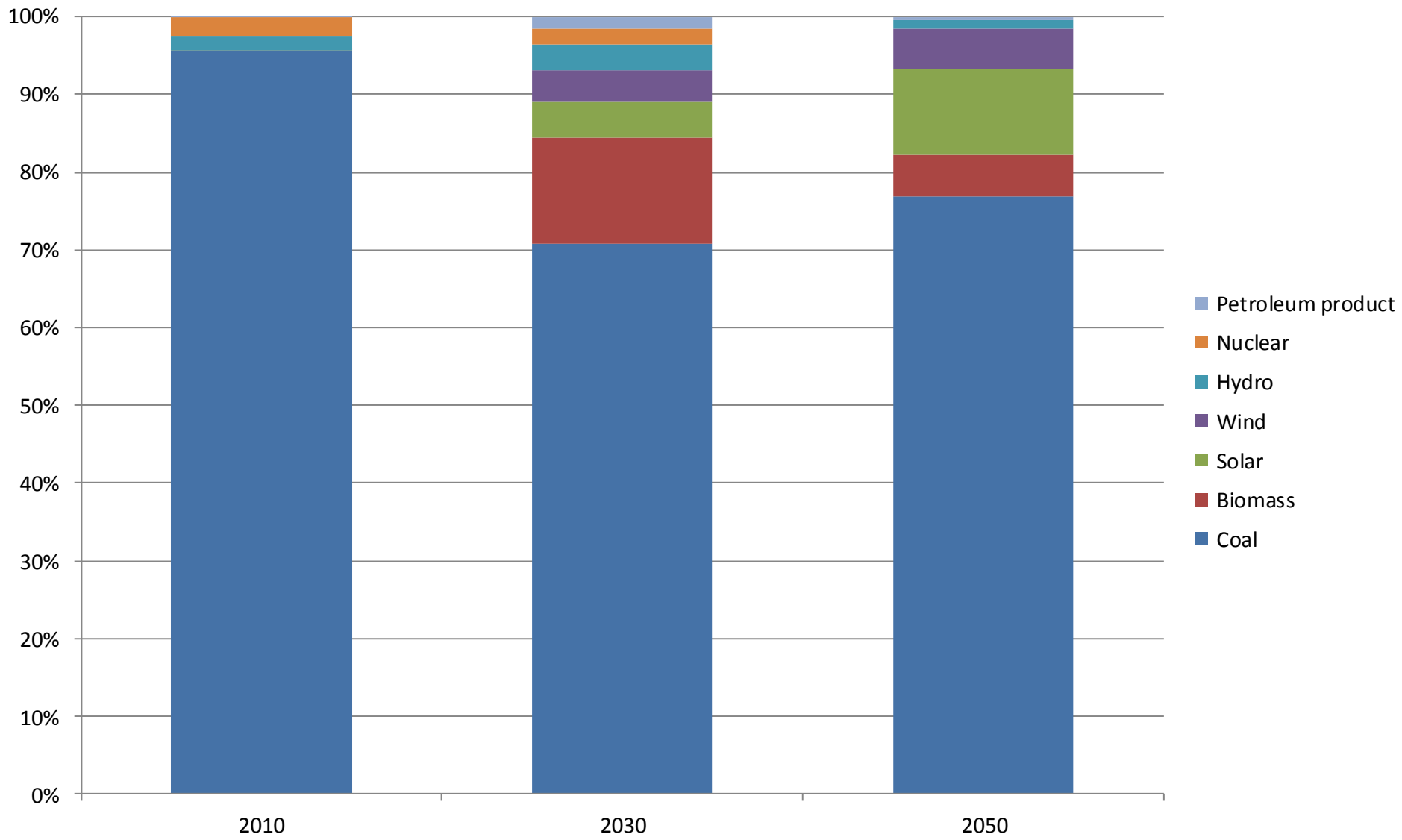
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Energy Input into Electricity Generation: No Nuclear Case



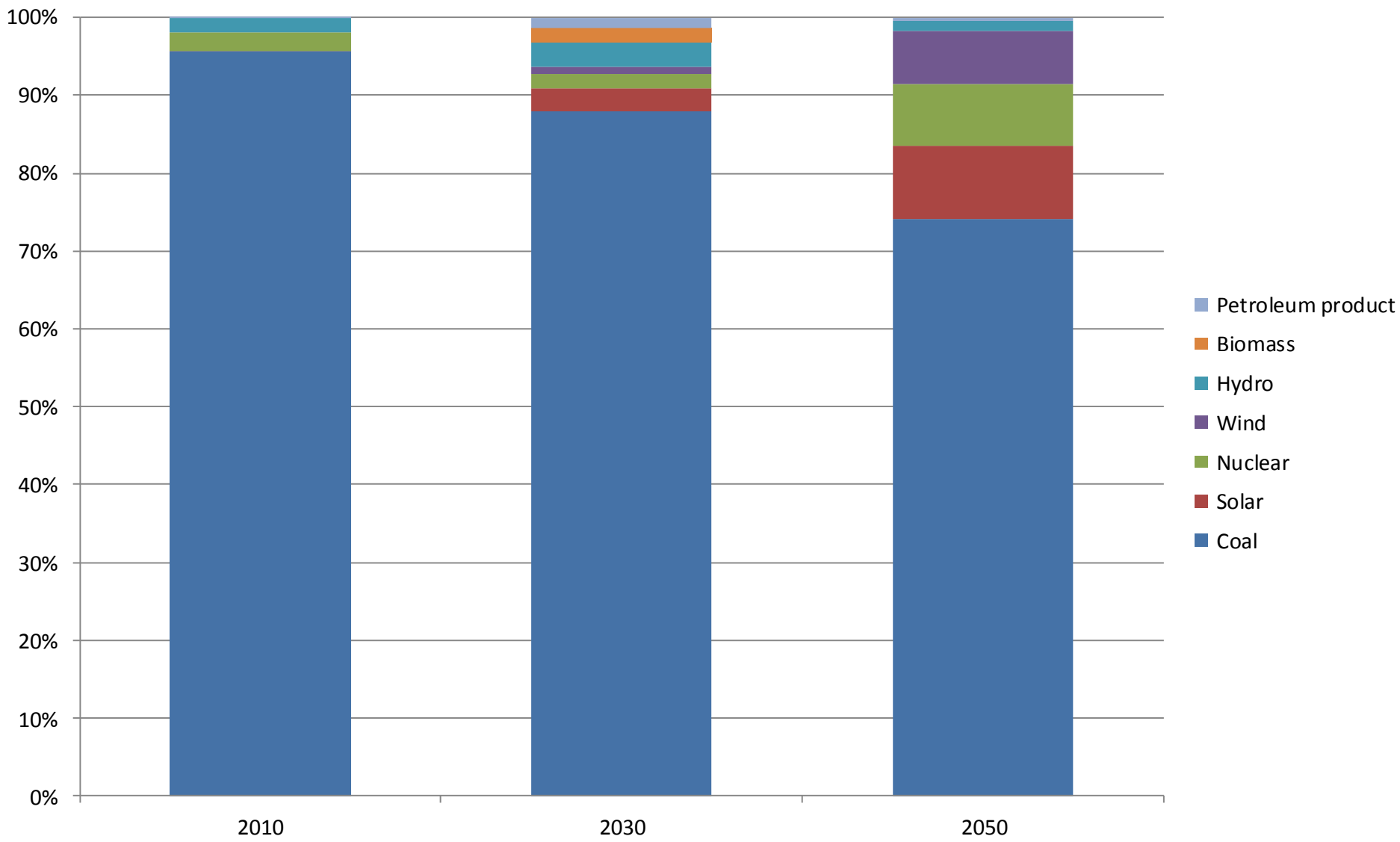
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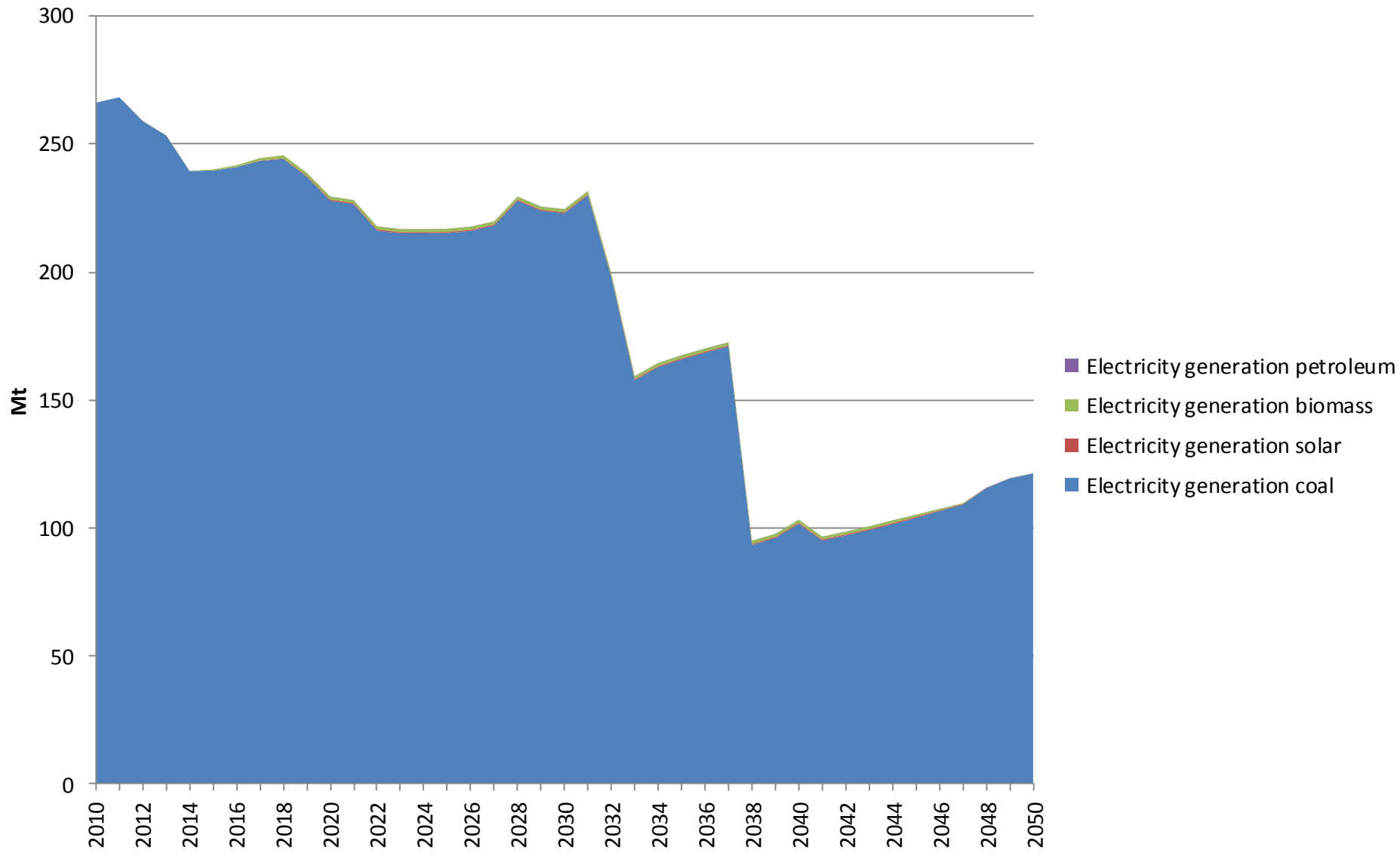
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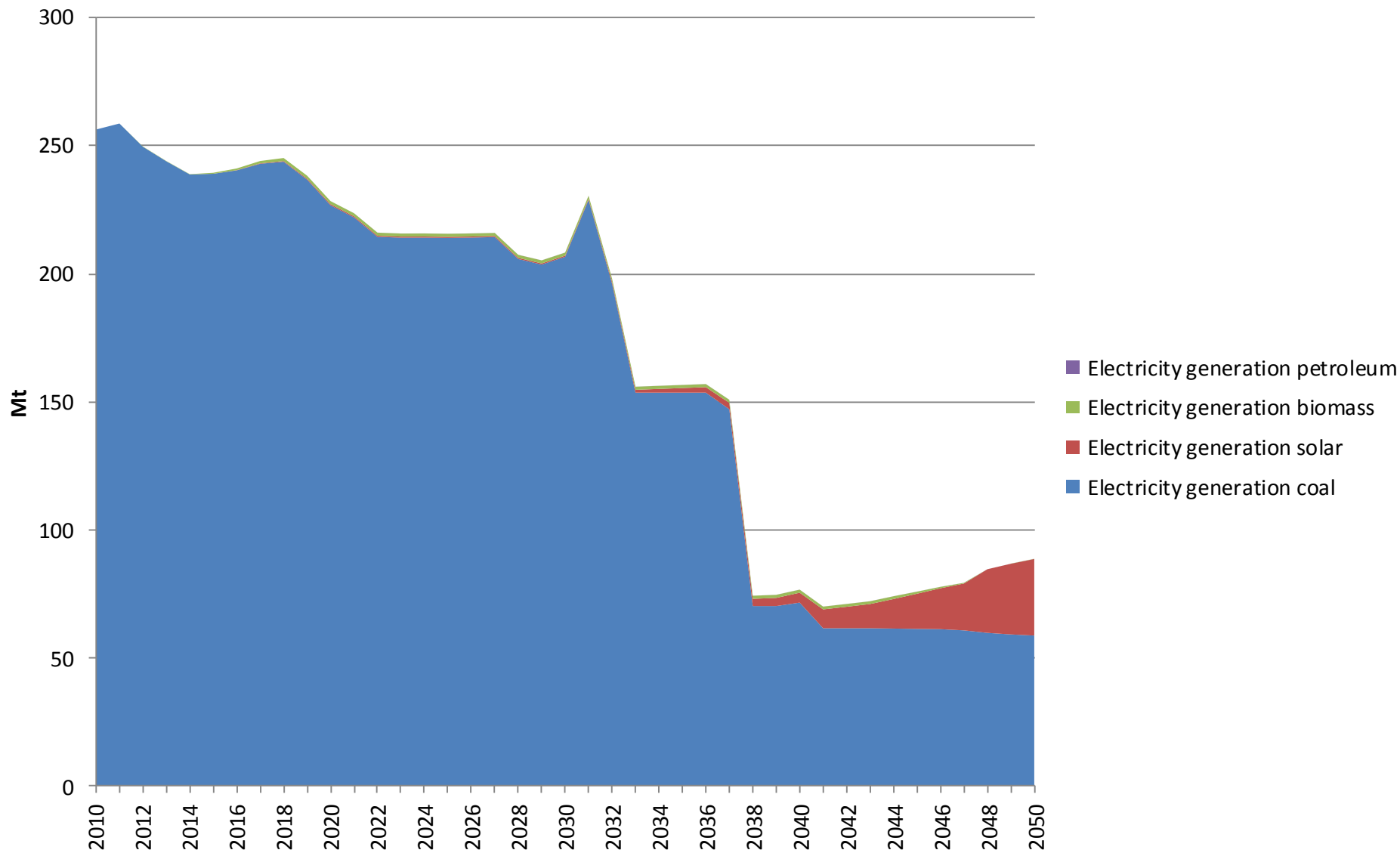
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Water Used in Electricity Generation: Base Case



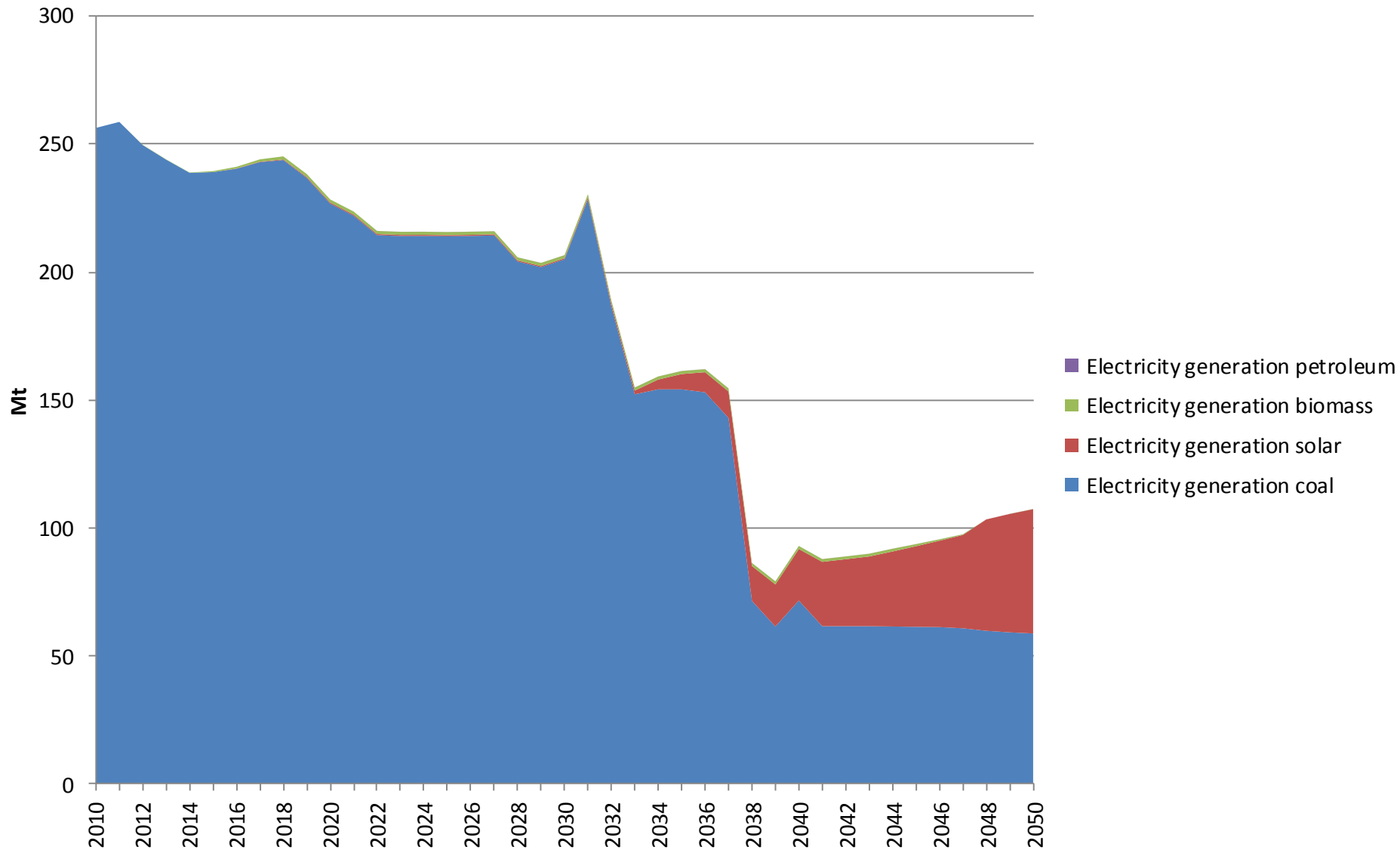
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Water Used in Electricity Generation: Emissions Limit Case



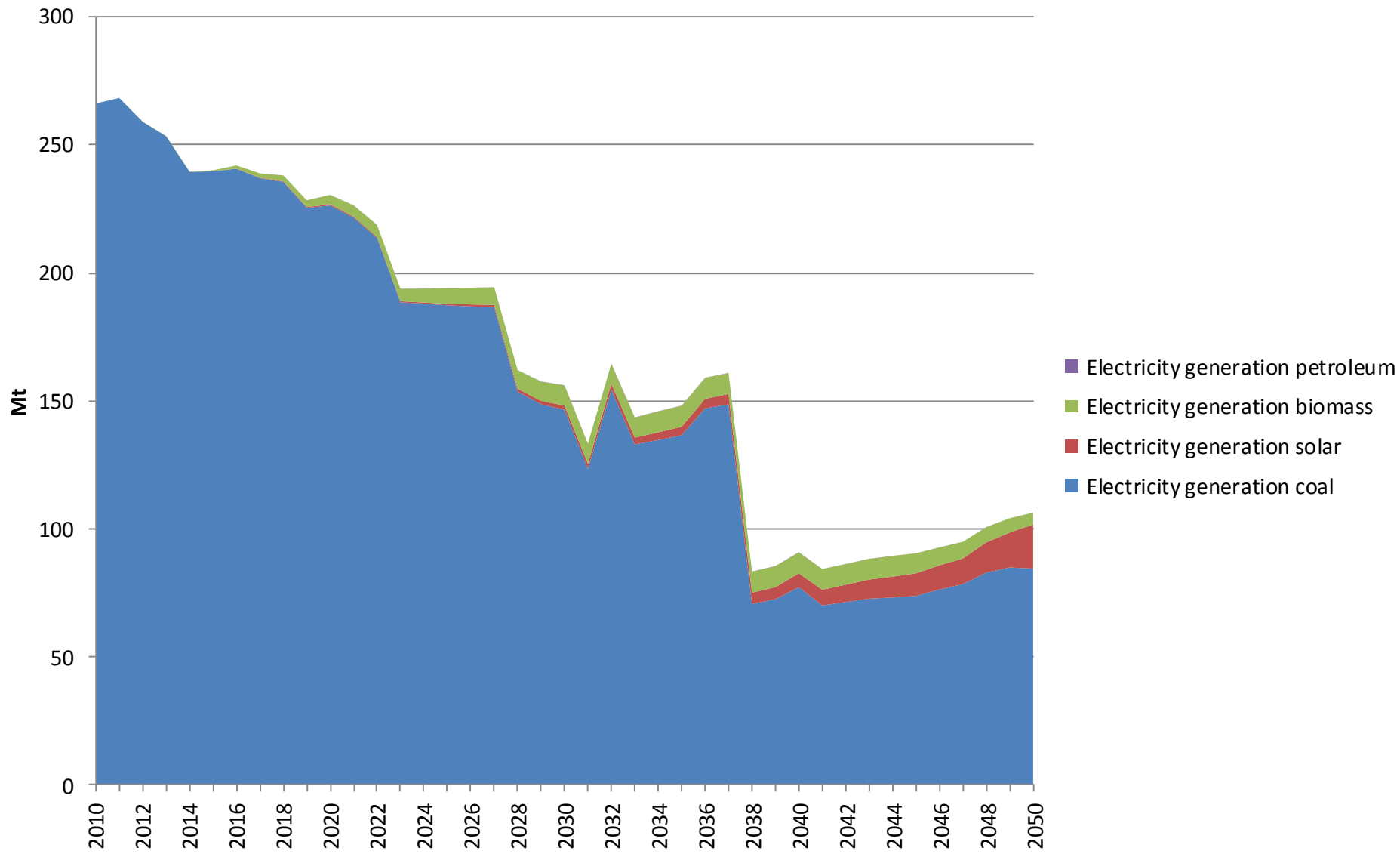
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Water Used in Electricity Generation: No Nuclear Case



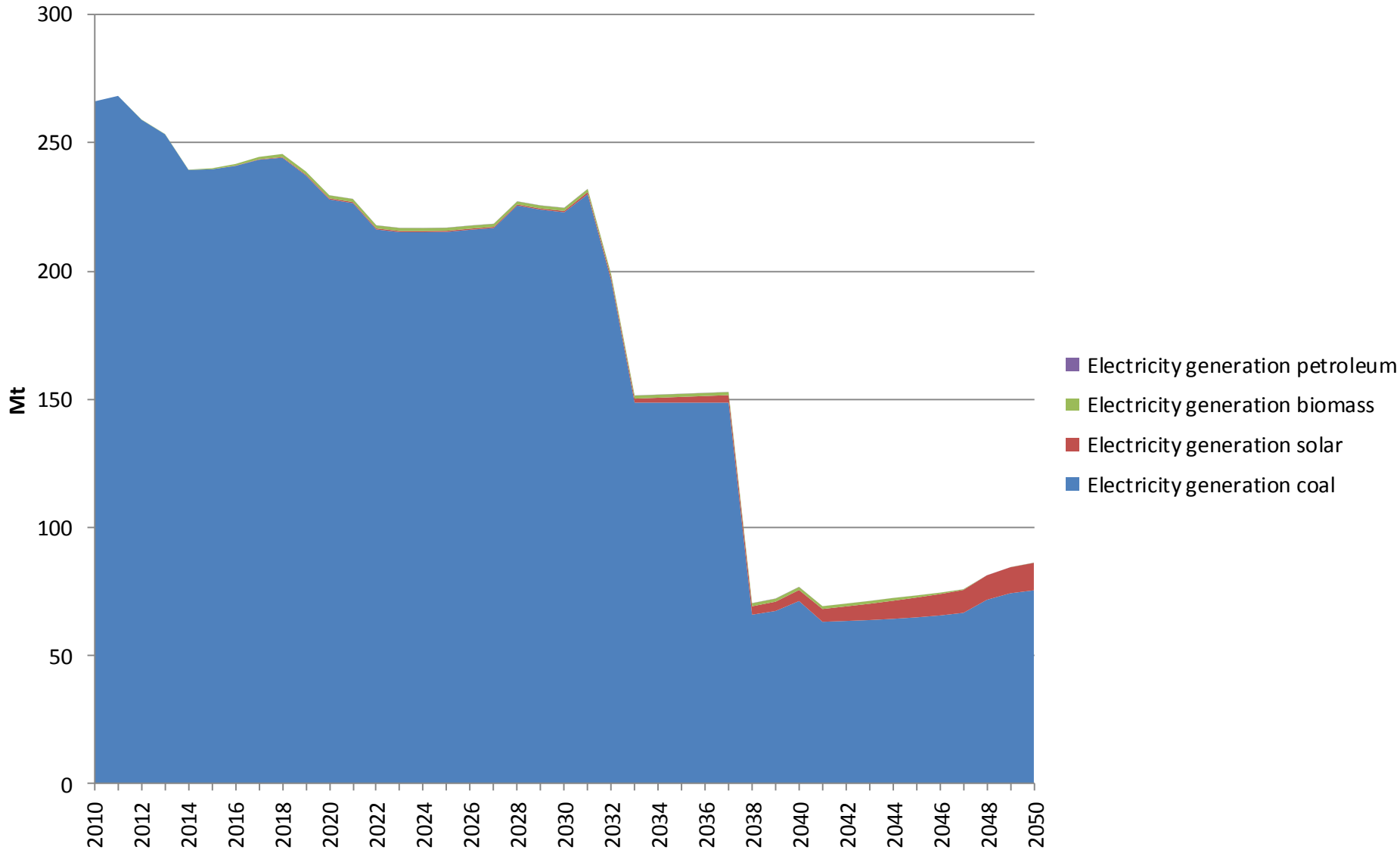
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Water Used in Electricity Generation: Renewable Energy Target Case



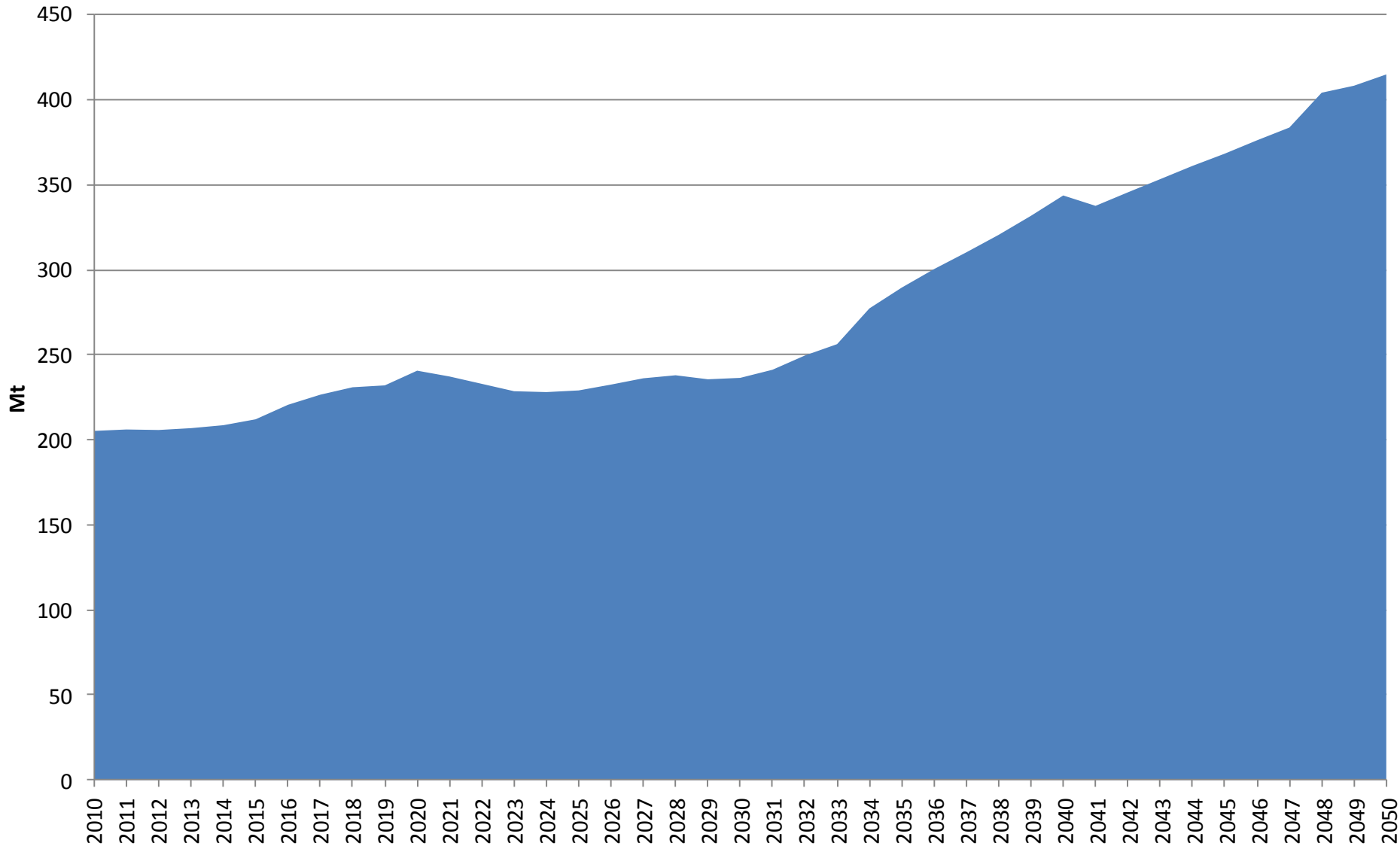
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Water Used in Electricity Generation: Carbon Tax Case



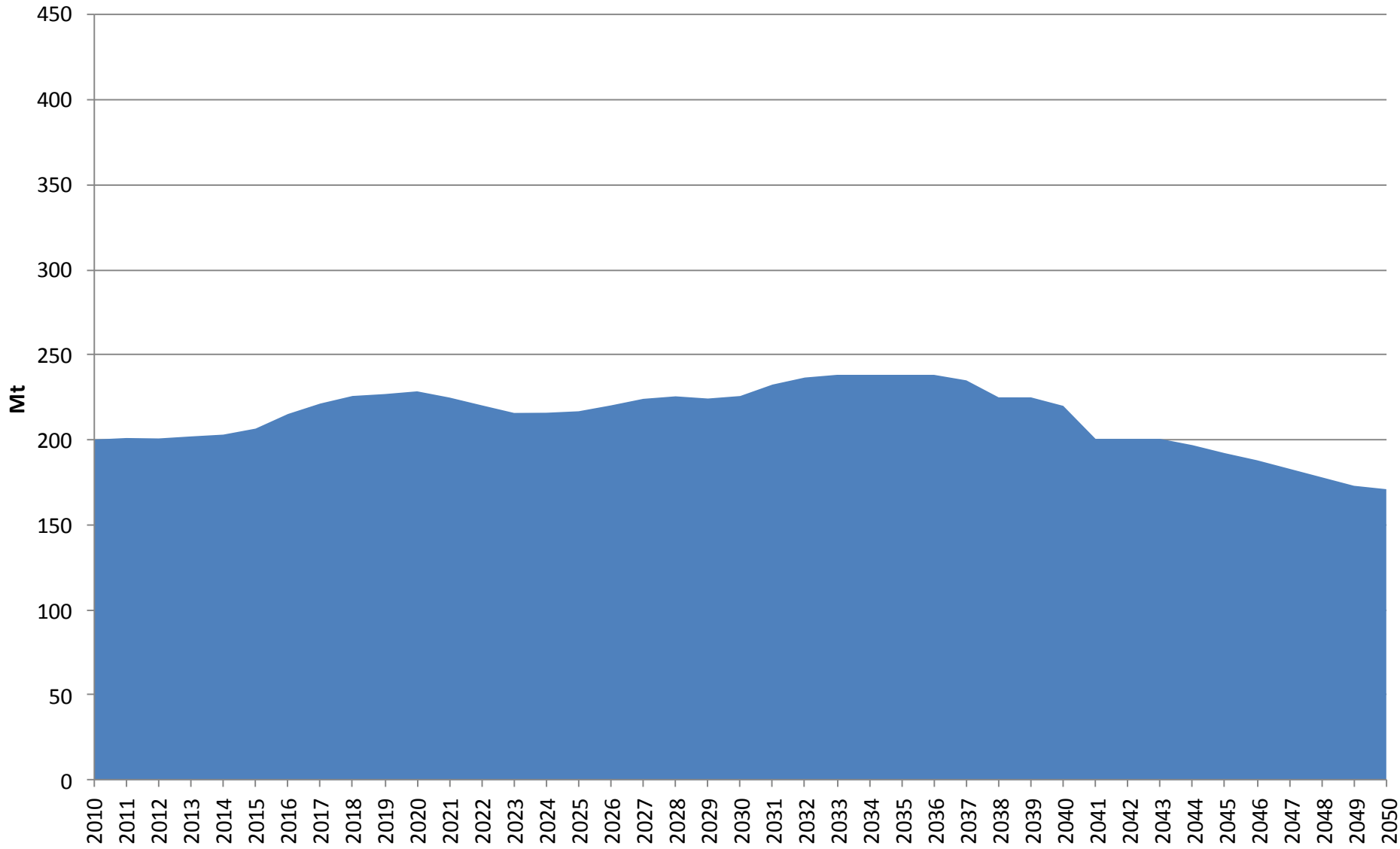
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Carbon Dioxide Emissions from Electricity Generation: Base Case



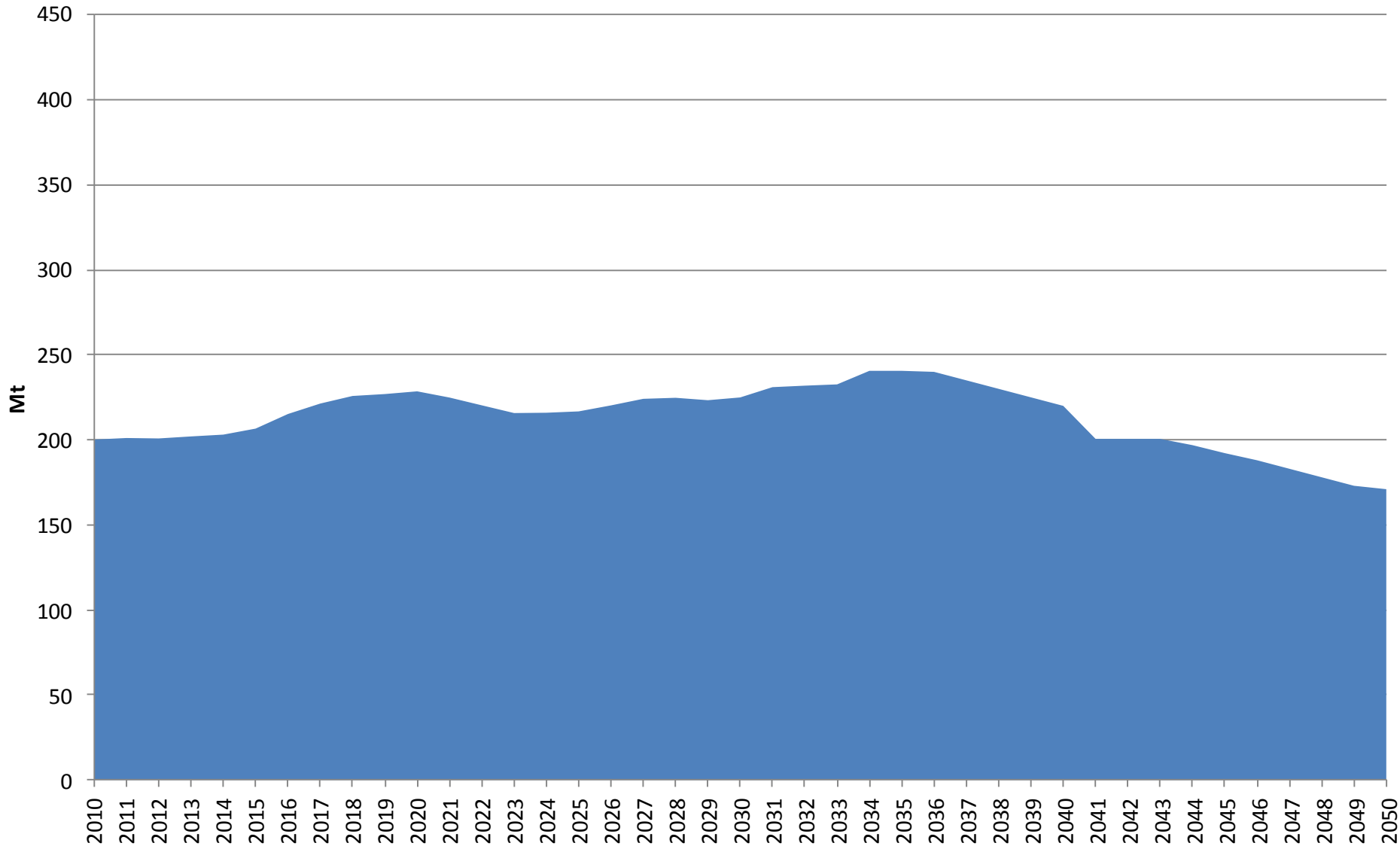
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Carbon Dioxide Emissions from Electricity Generation: Emissions Limit Case



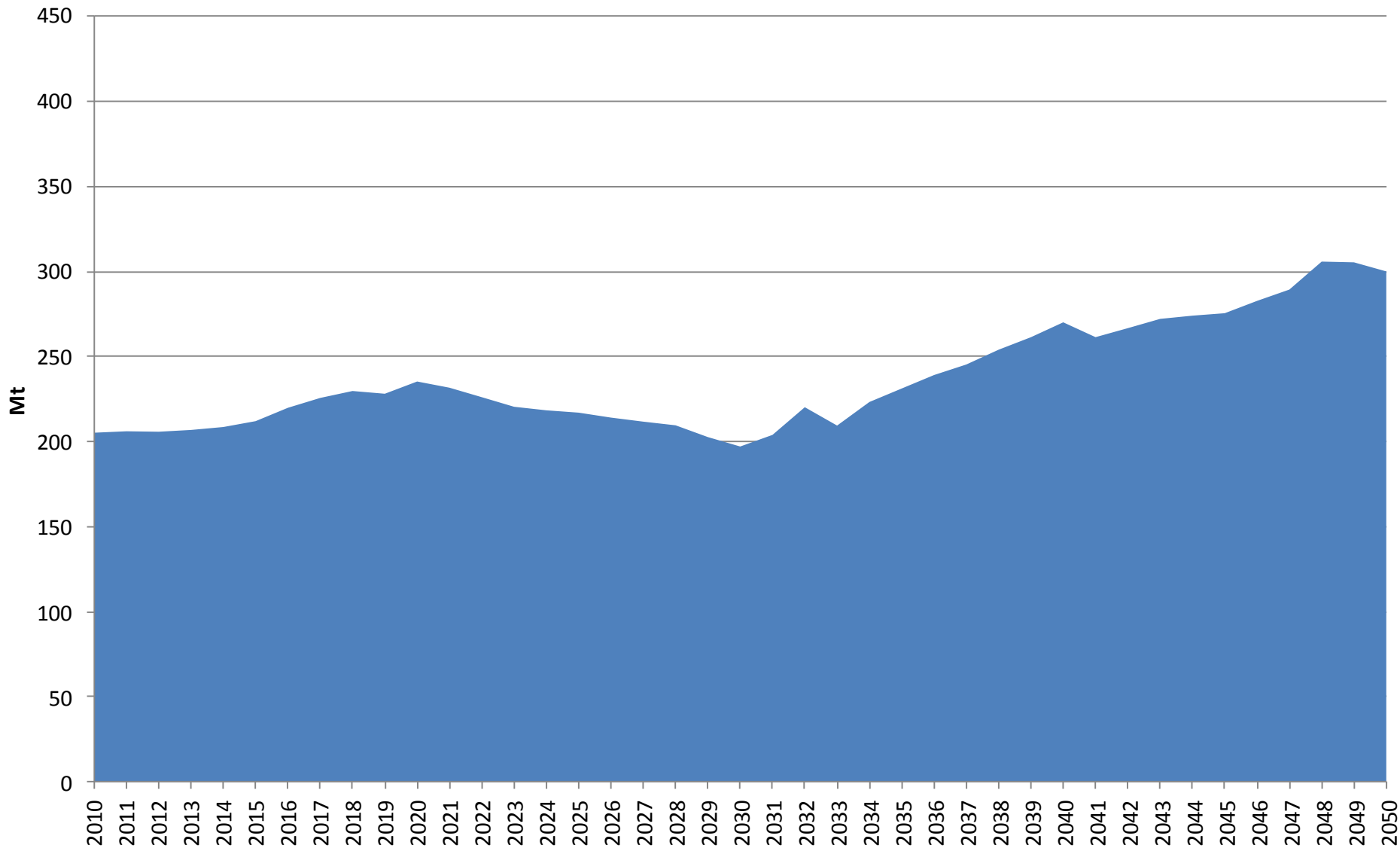
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Carbon Dioxide Emissions from Electricity Generation: No Nuclear Case



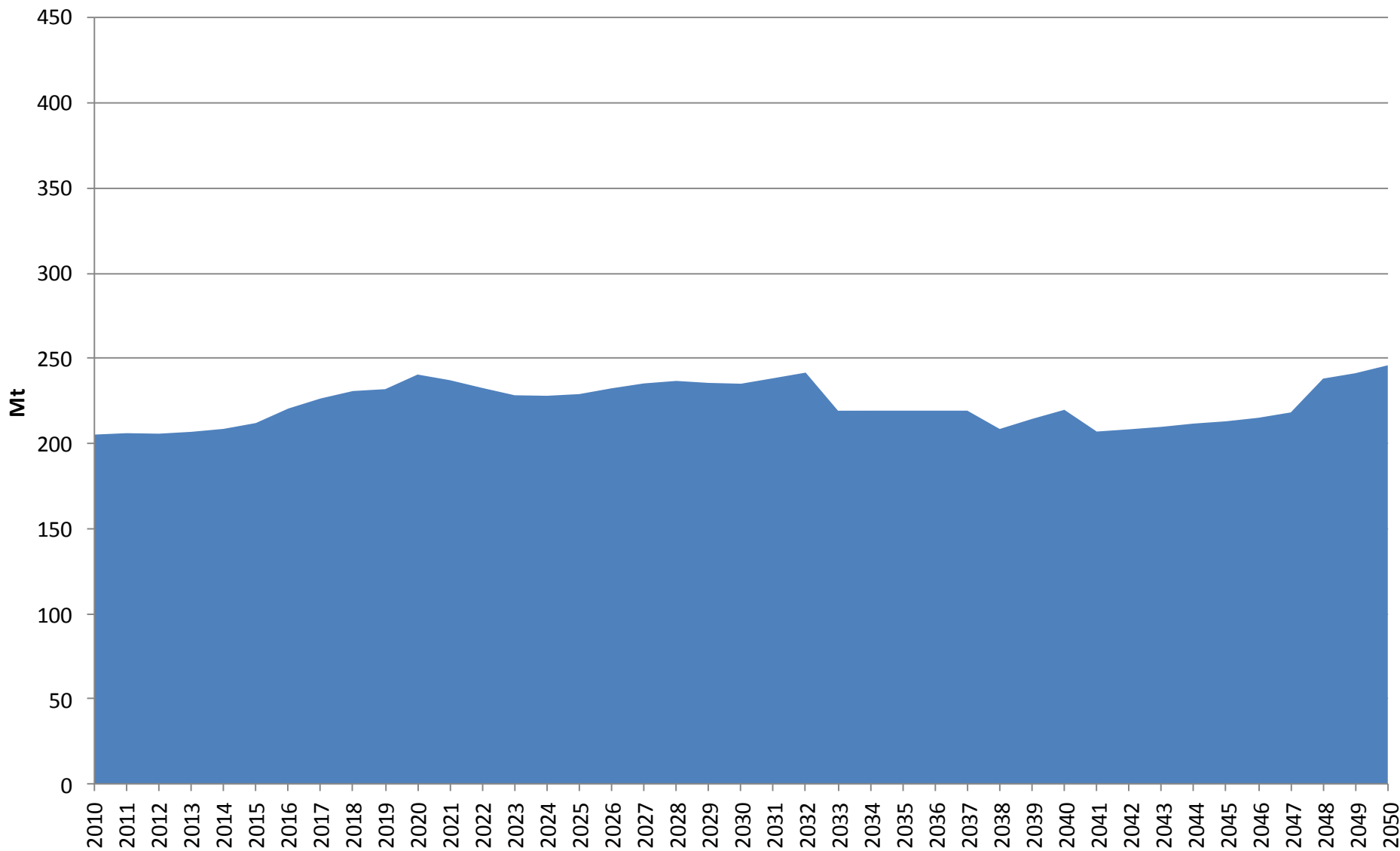
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Carbon Dioxide Emissions Electricity Generation: Renewables Target Case



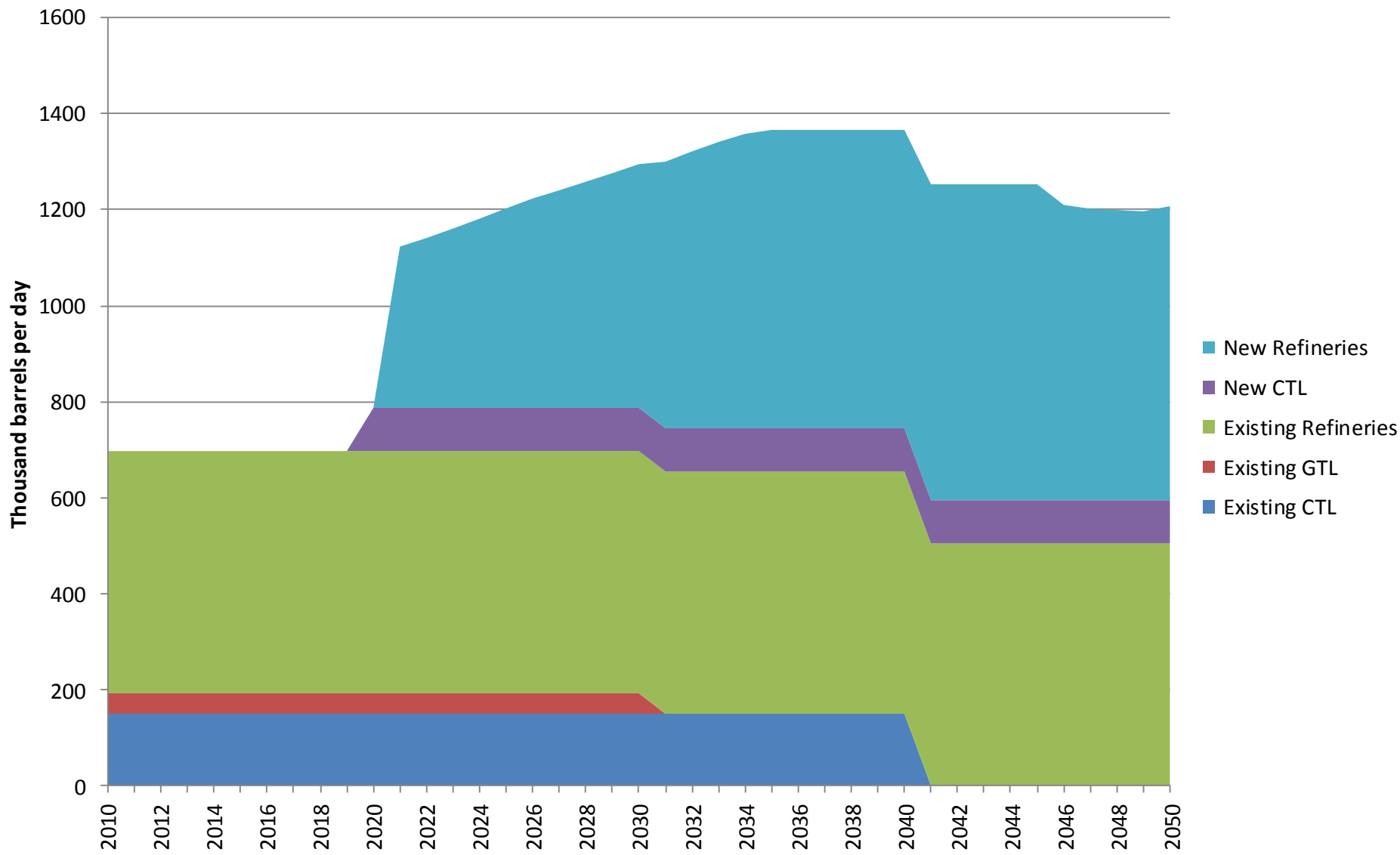
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Carbon Dioxide Emissions from Electricity Generation: Carbon Tax Case



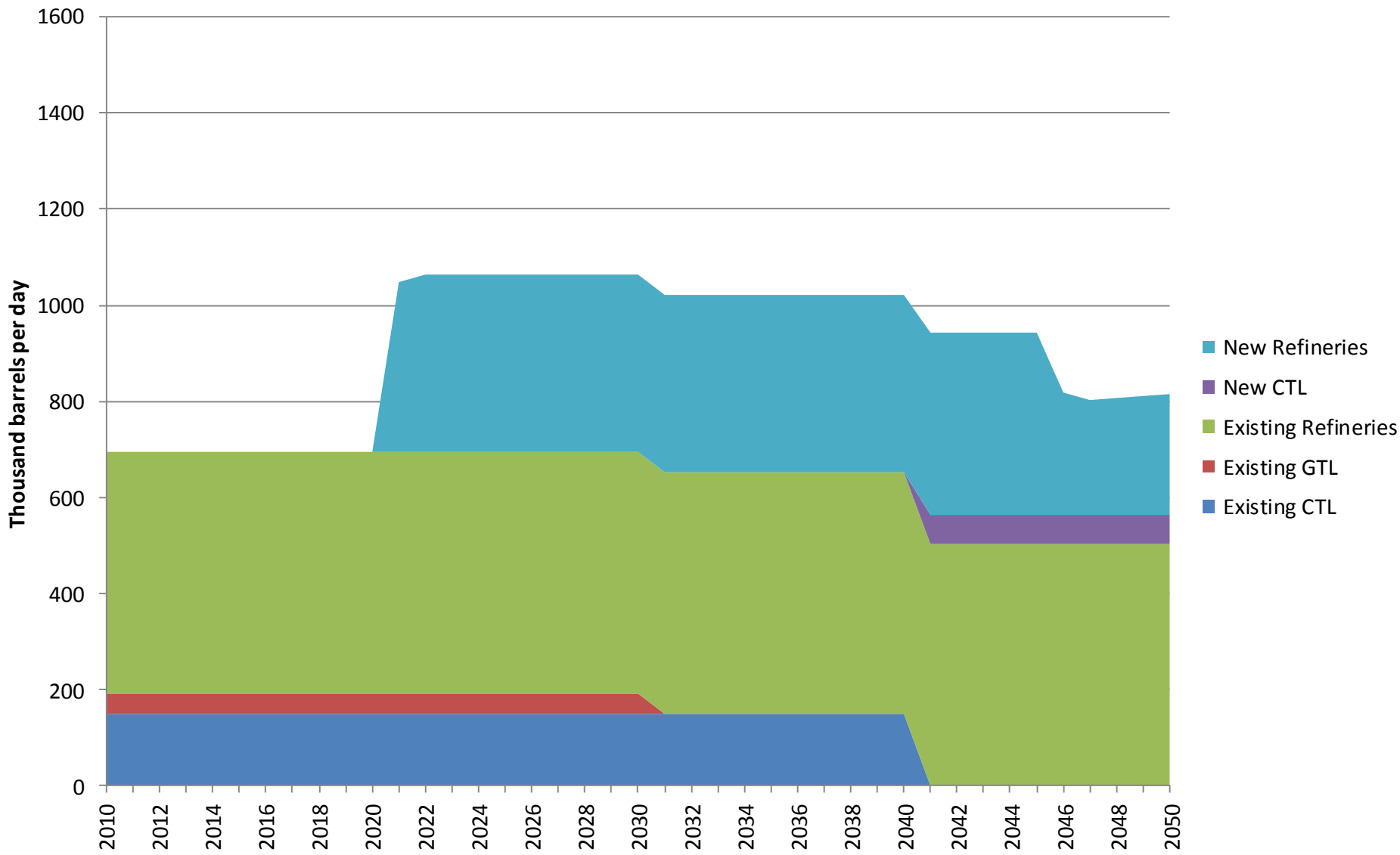
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Existing and New Liquid Fuels Production Capacity: Base Case



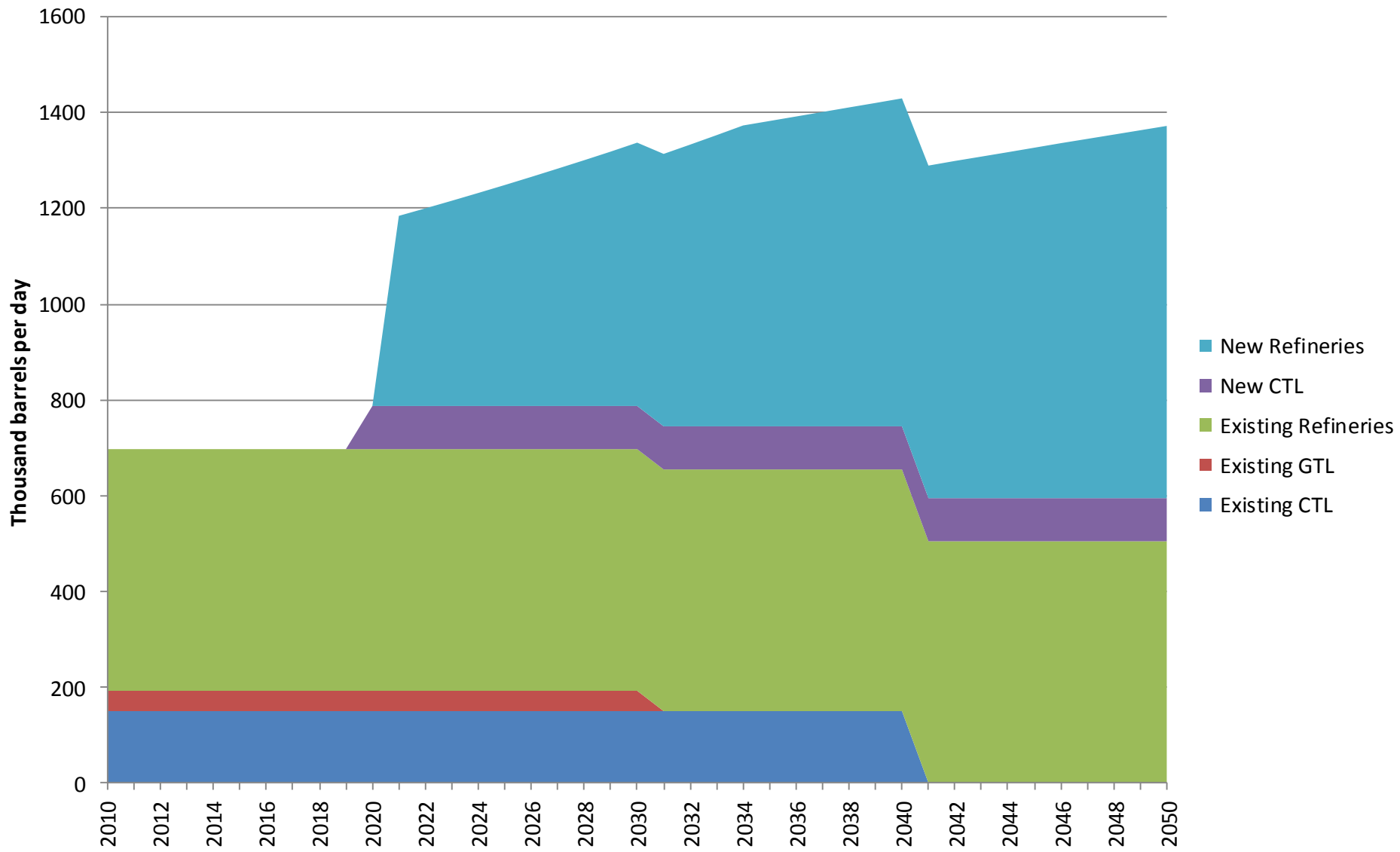
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Existing and New Liquid Fuels Production Capacity: Emissions Limit Case



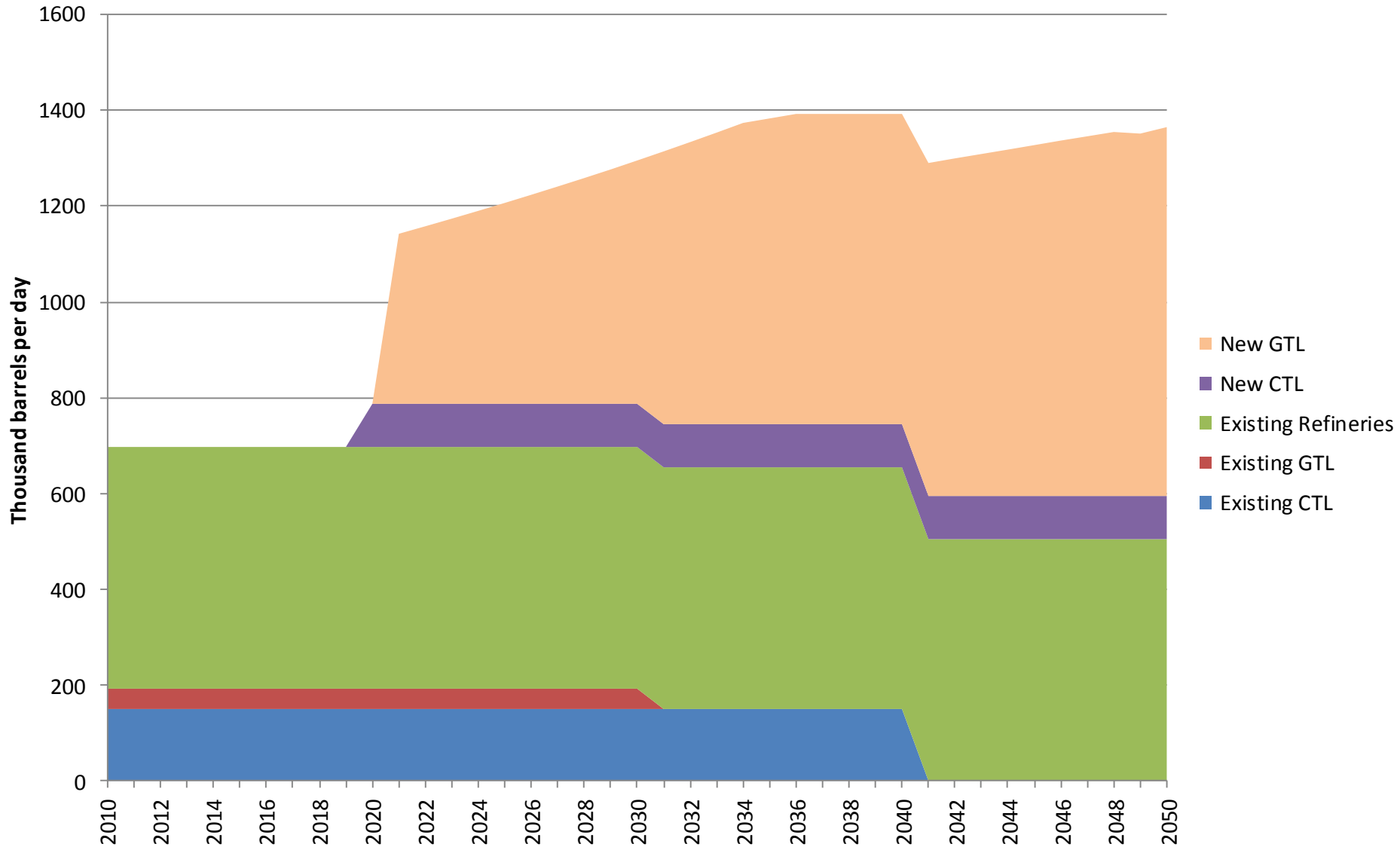
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Existing and New Liquid Fuels Production Capacity: Low Oil Price Case



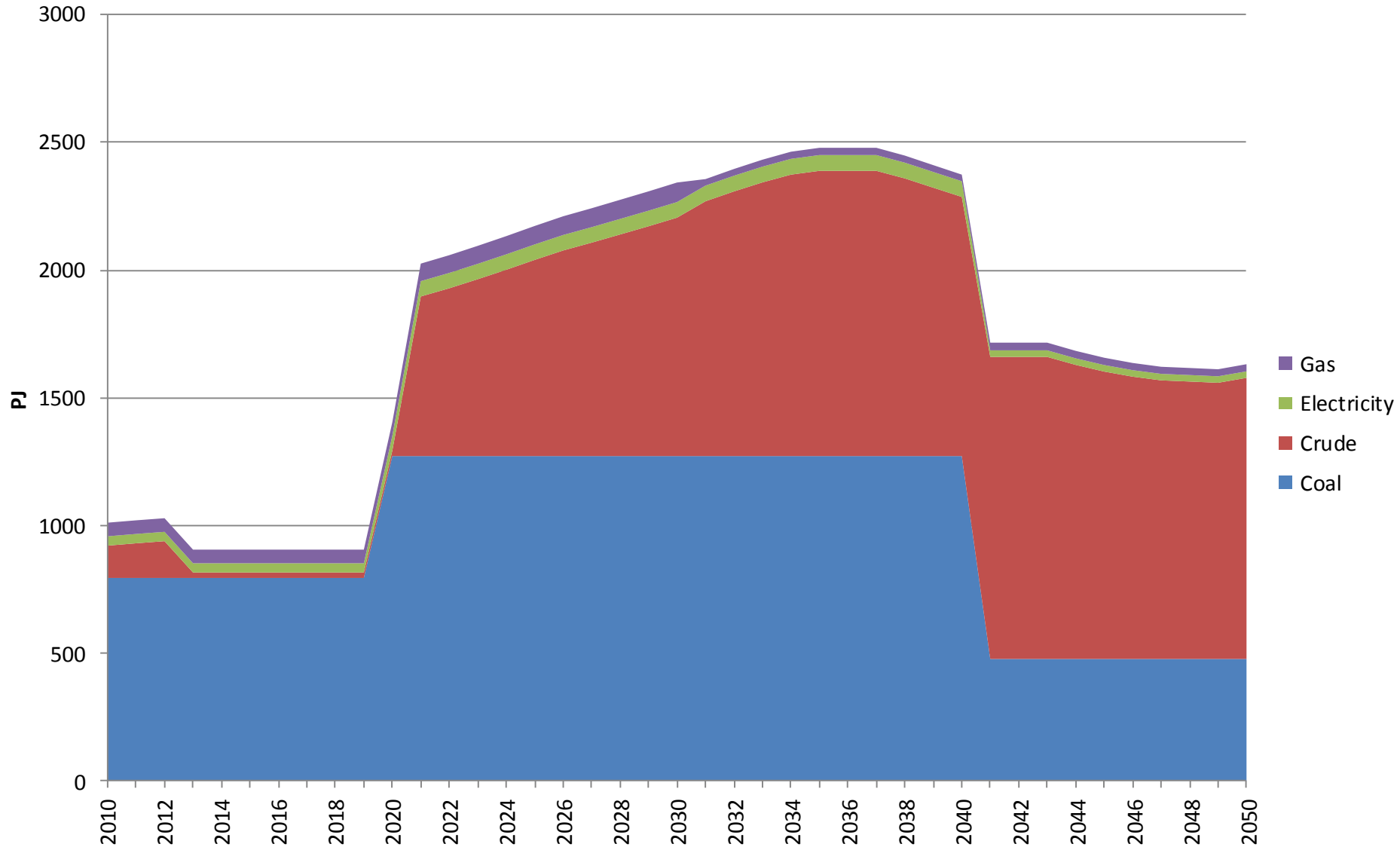
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Existing and New Liquid Fuels Production Capacity: High Oil Price Case



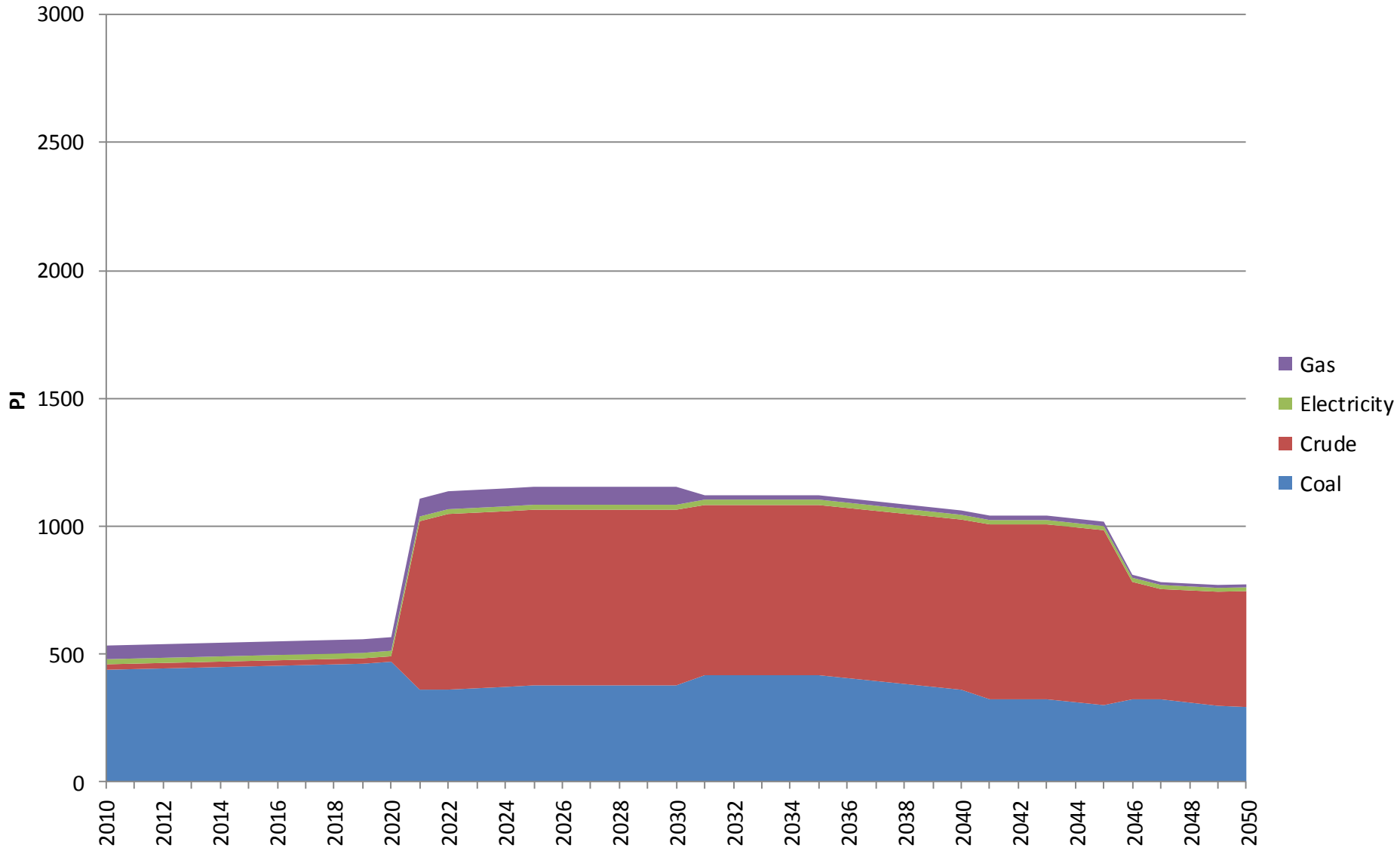
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Feedstock into Liquid Fuels Production: Base Case



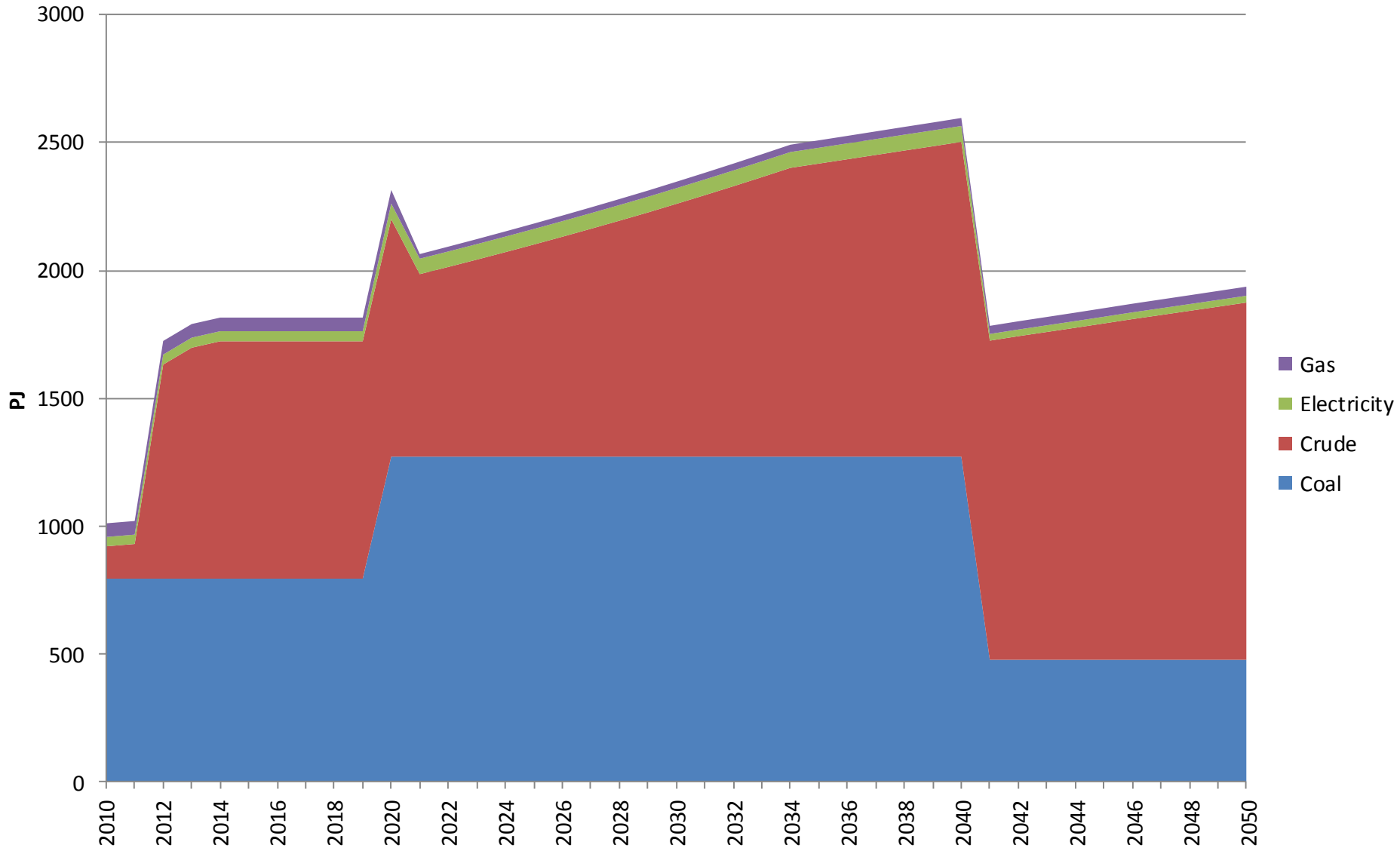
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Feedstock into Liquid Fuels Production: Emissions Limit Case



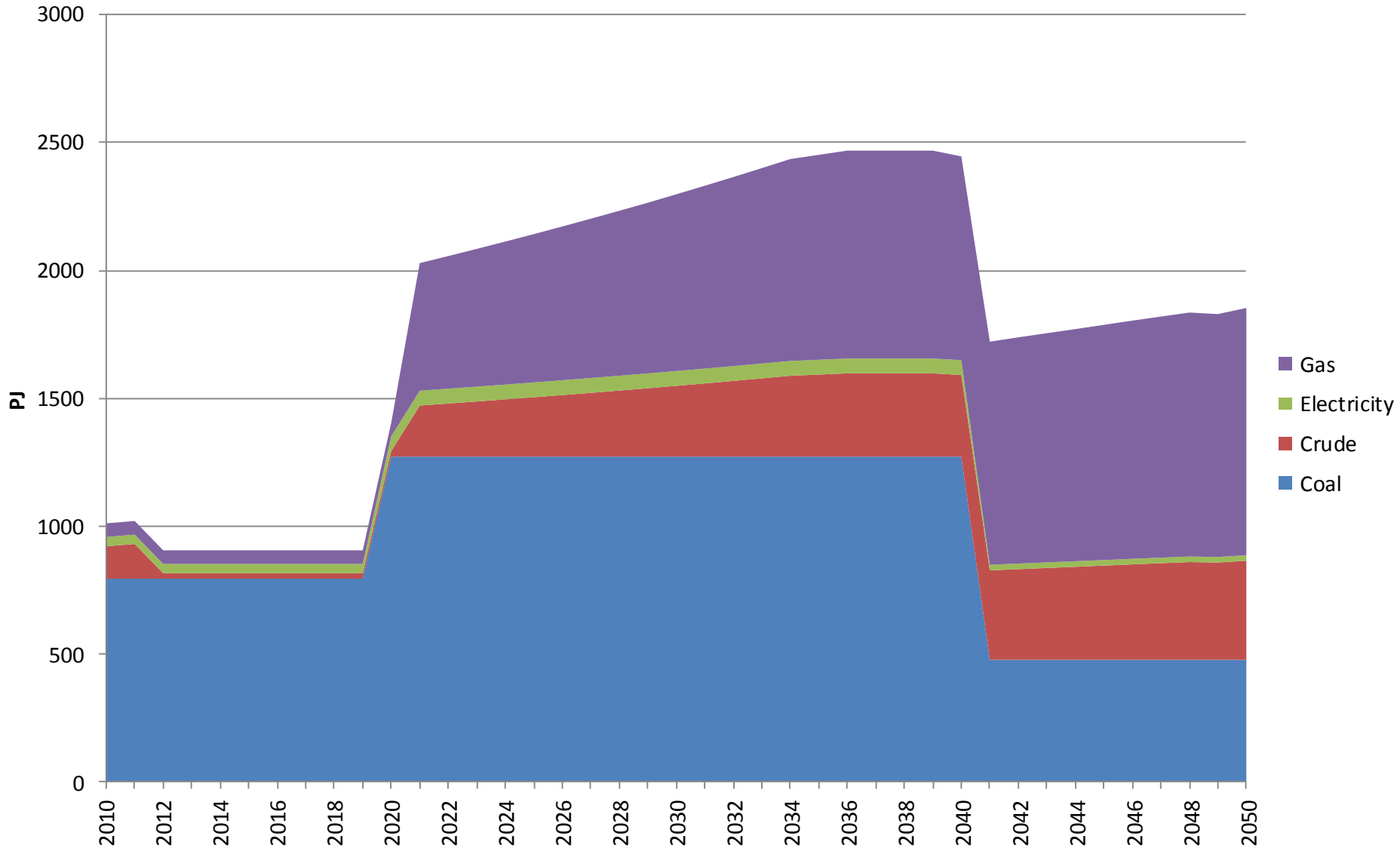
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Feedstock into Liquid Fuels Production: Low Oil Price Case



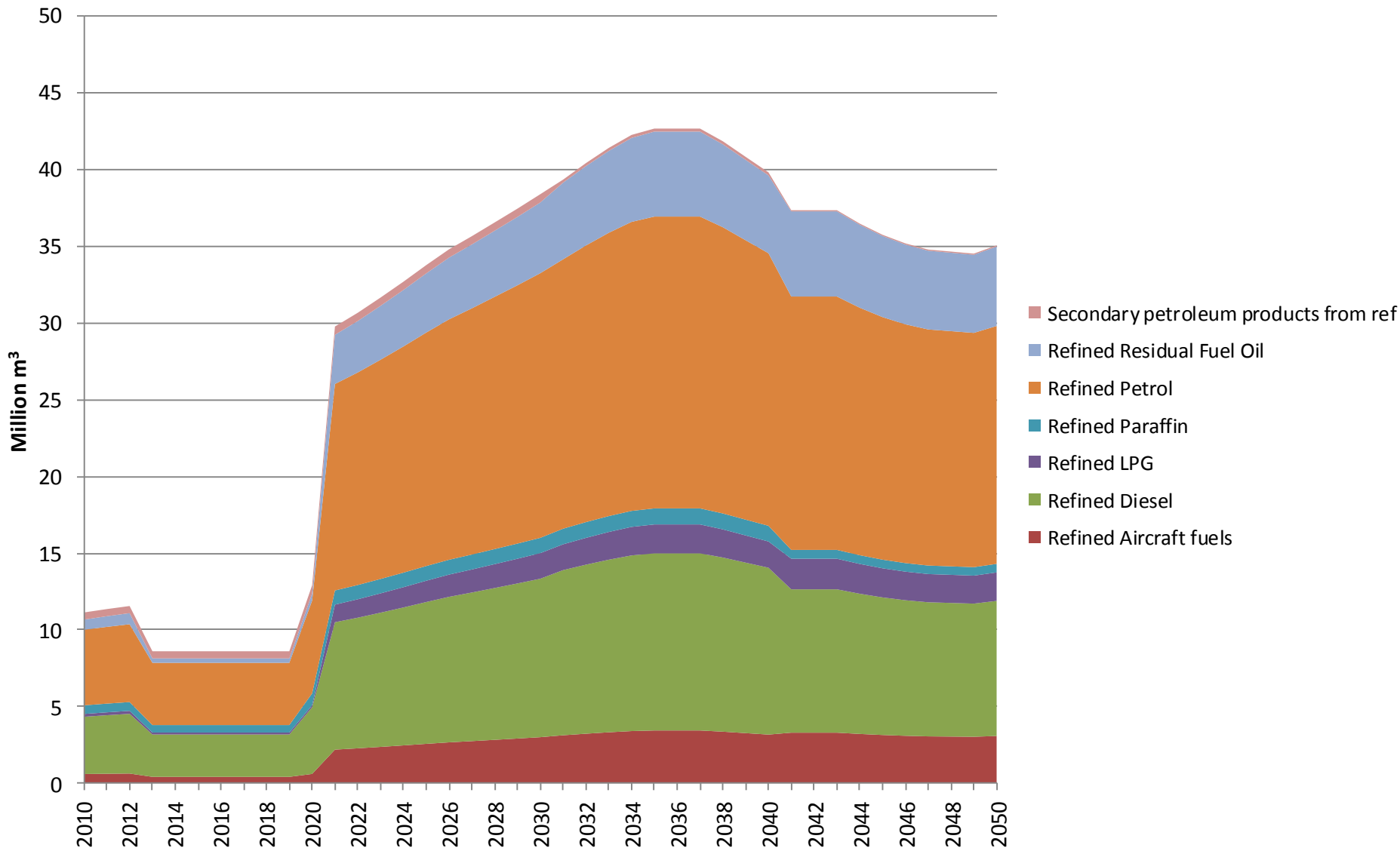
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Feedstock into Liquid Fuels Production: High Oil Price Case



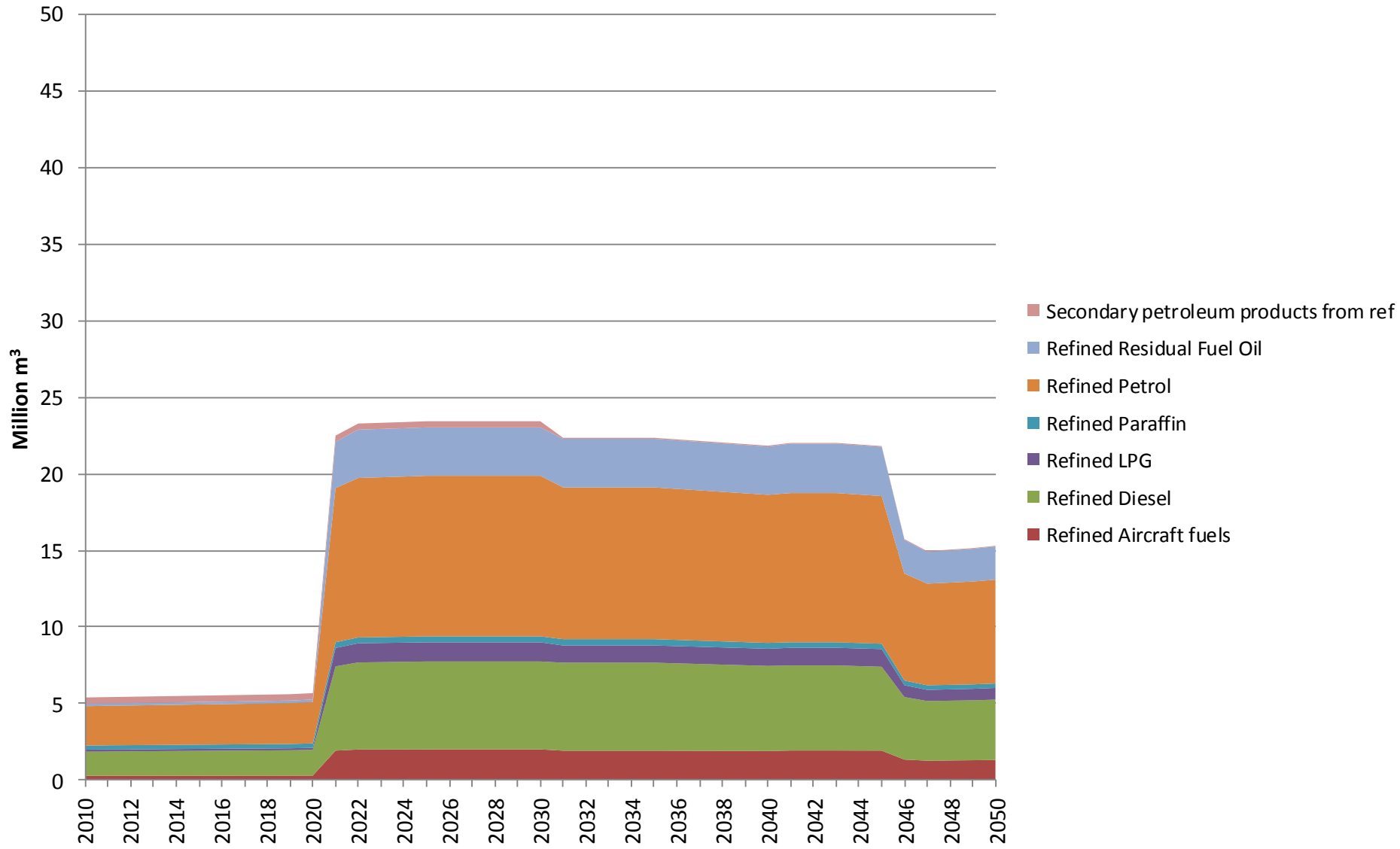
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Petroleum Products Produced: Base Case



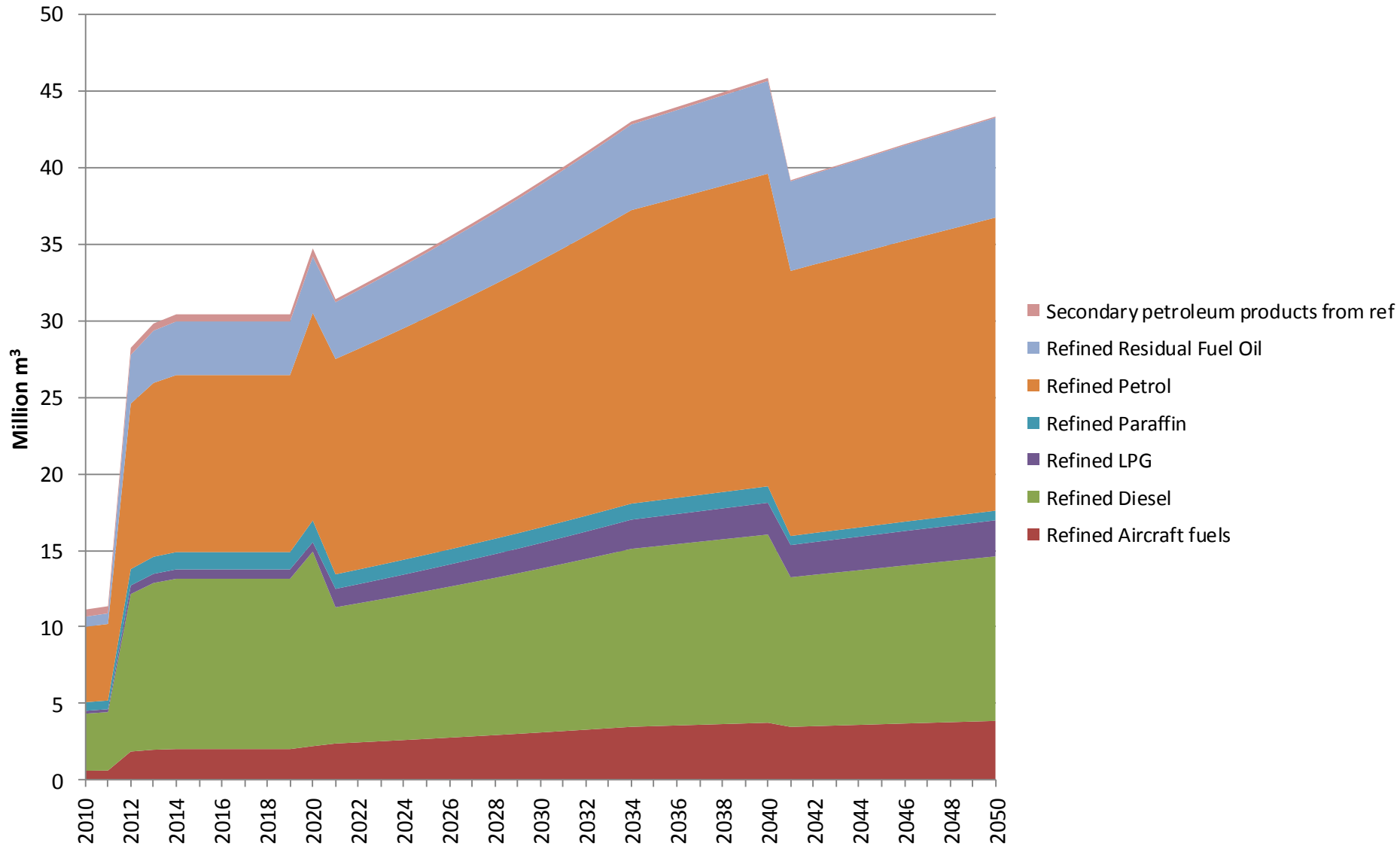
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Petroleum Products Produced: Emissions Limit Case



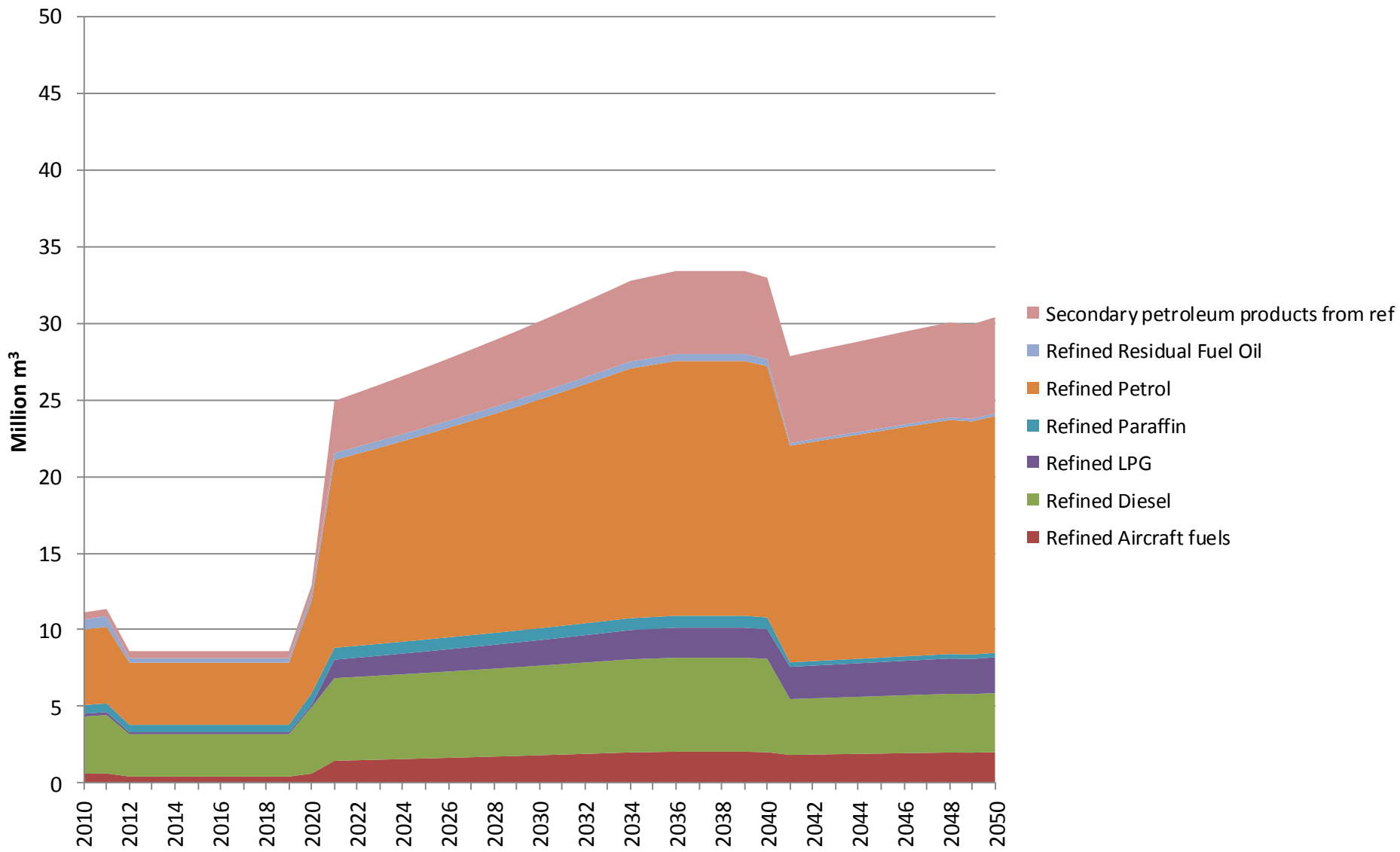
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Petroleum Products Produced: Low Oil Price Case



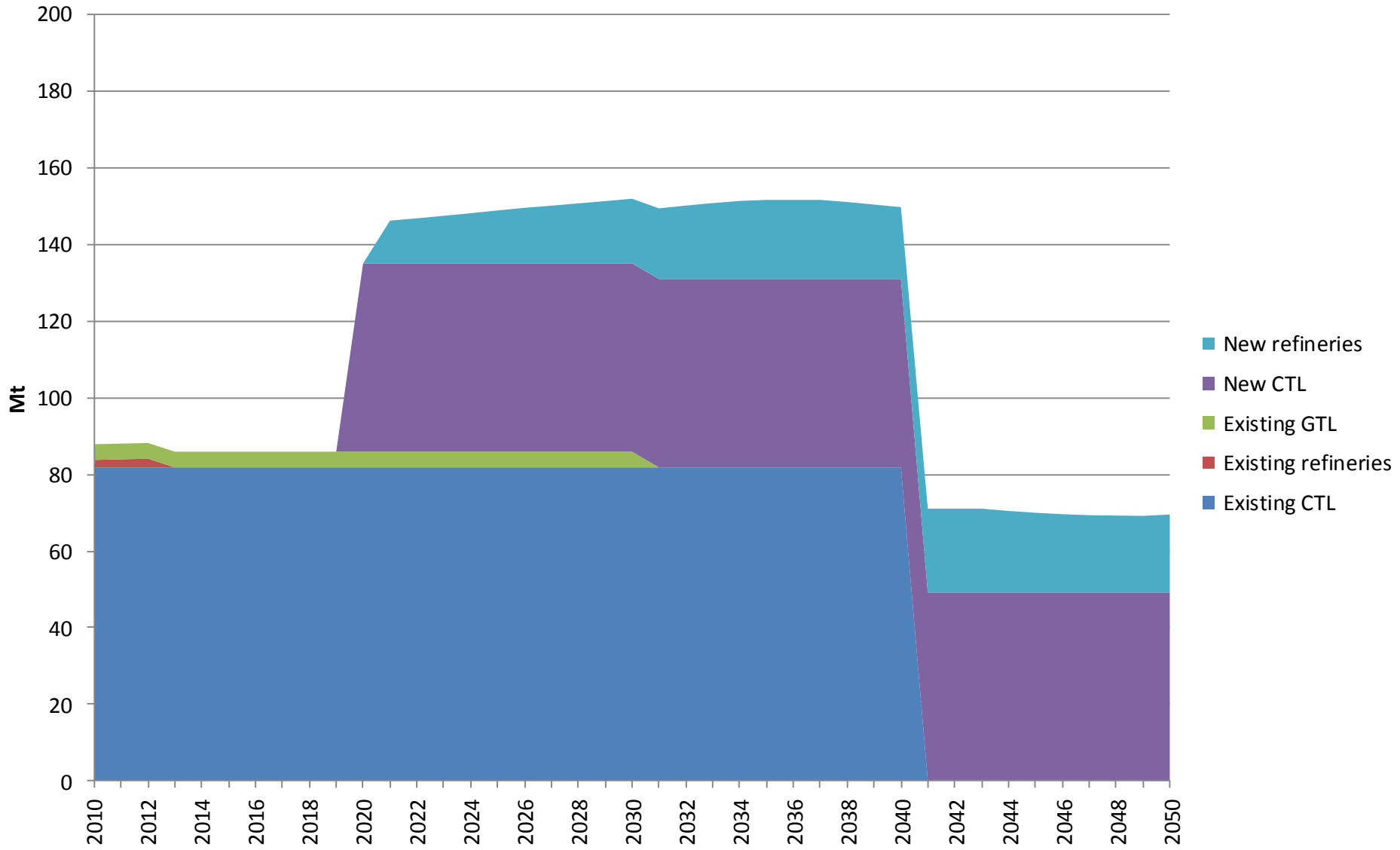
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Petroleum Products Produced: High Oil Price Case



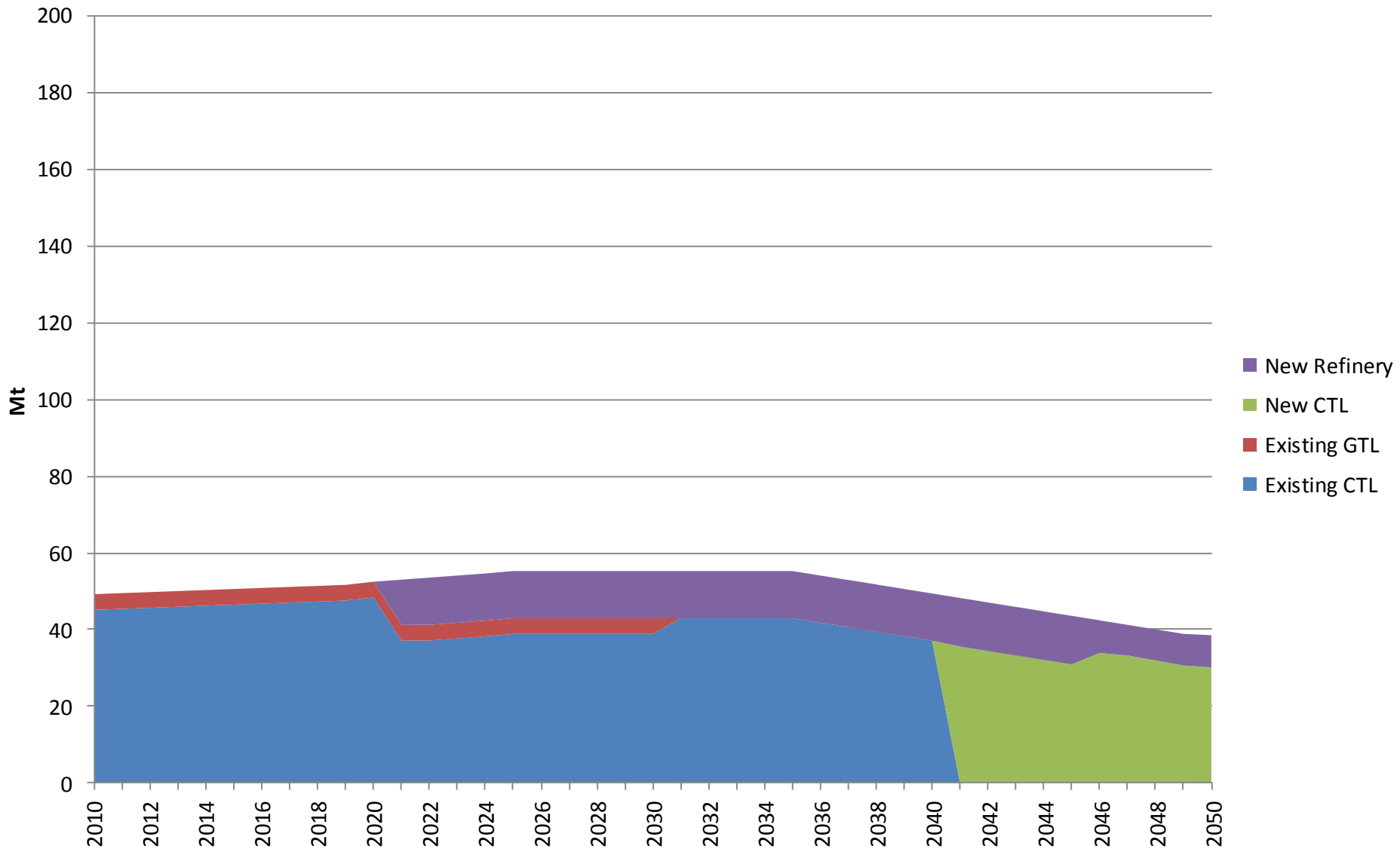
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Carbon Dioxide Emissions from Liquid Fuels Production: Base Case



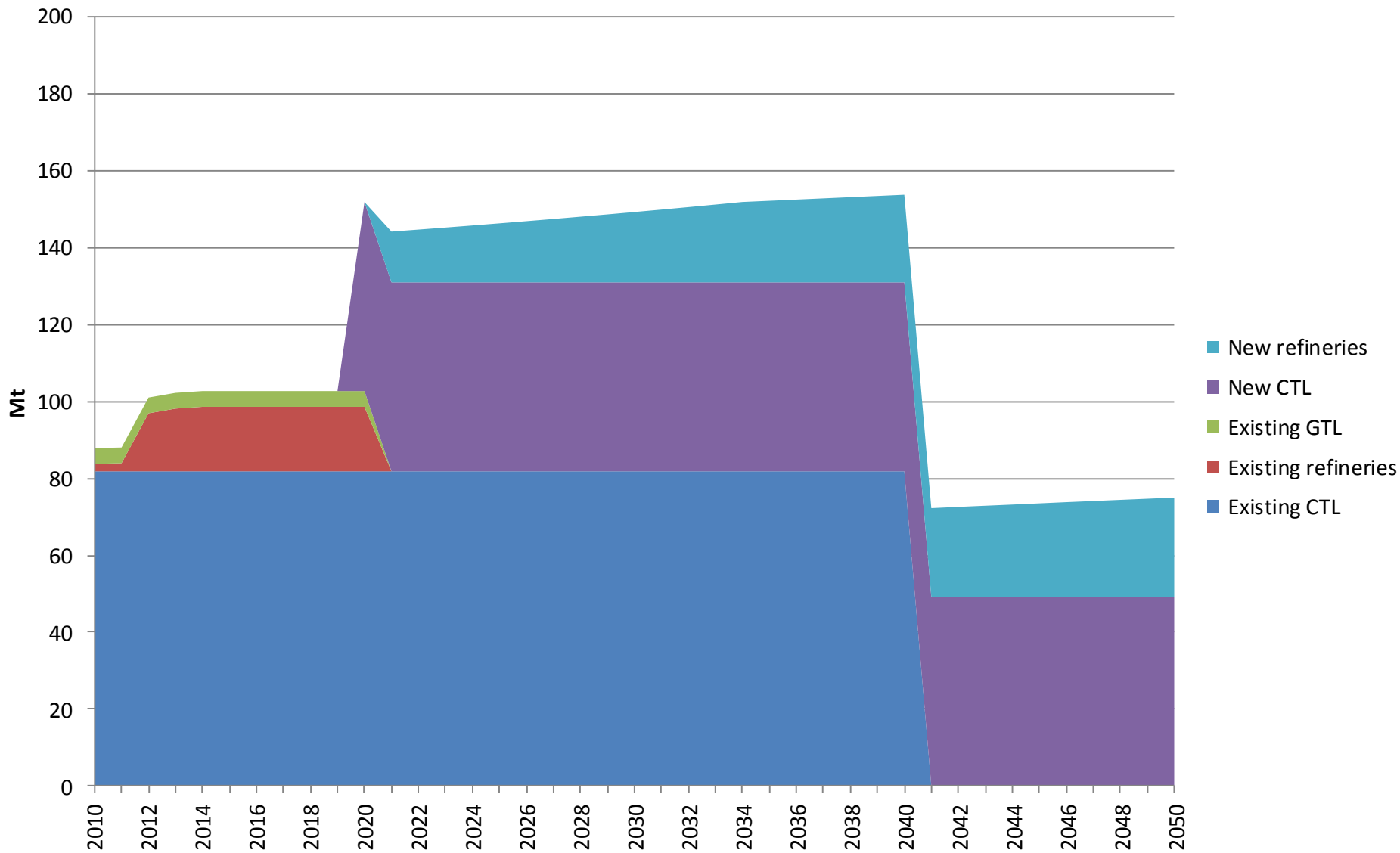
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Carbon Dioxide Emissions from Liquid Fuels Production: Emissions Limit Case



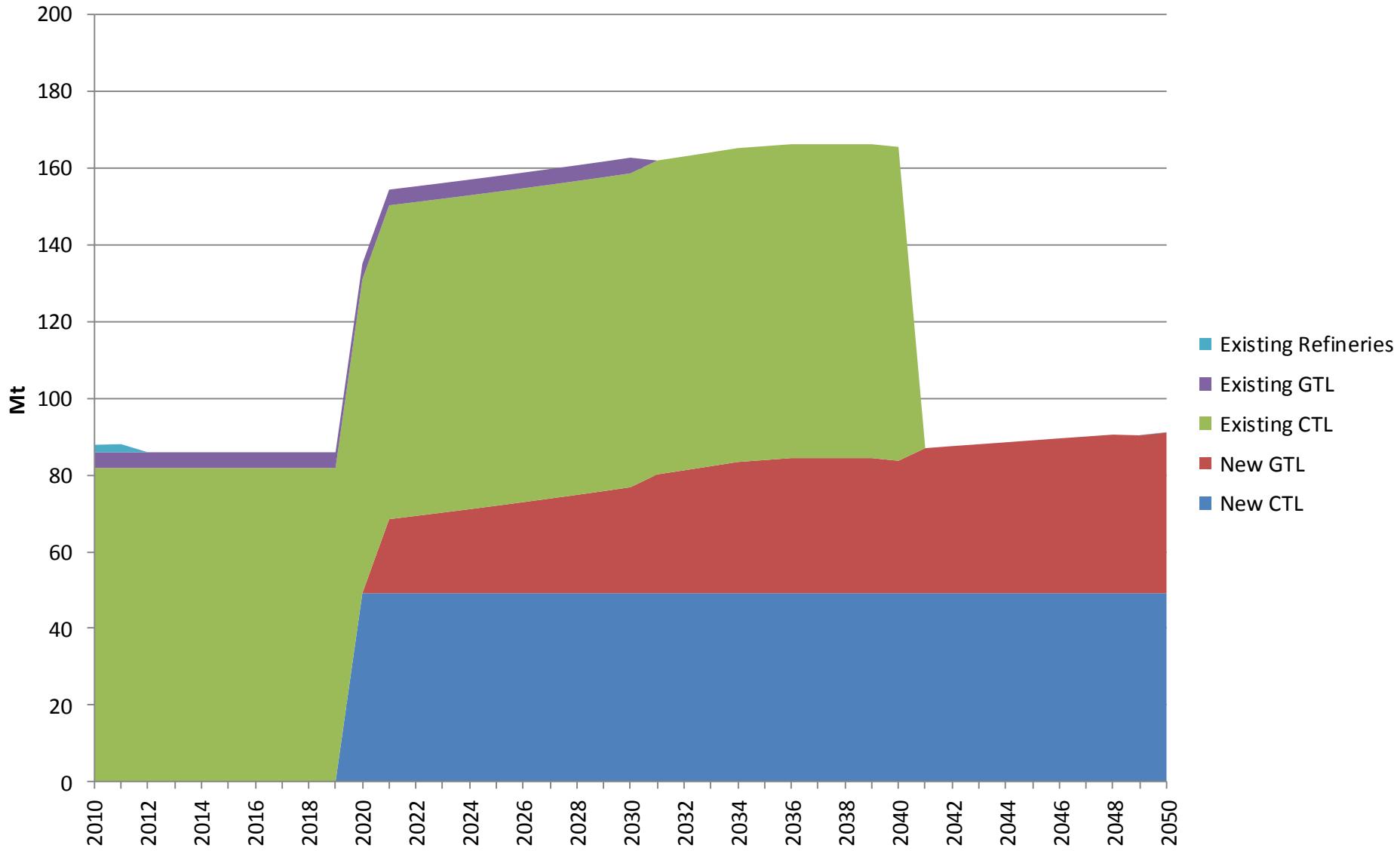
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Carbon Dioxide Emissions from Liquid Fuels Production: Low Oil Price Case



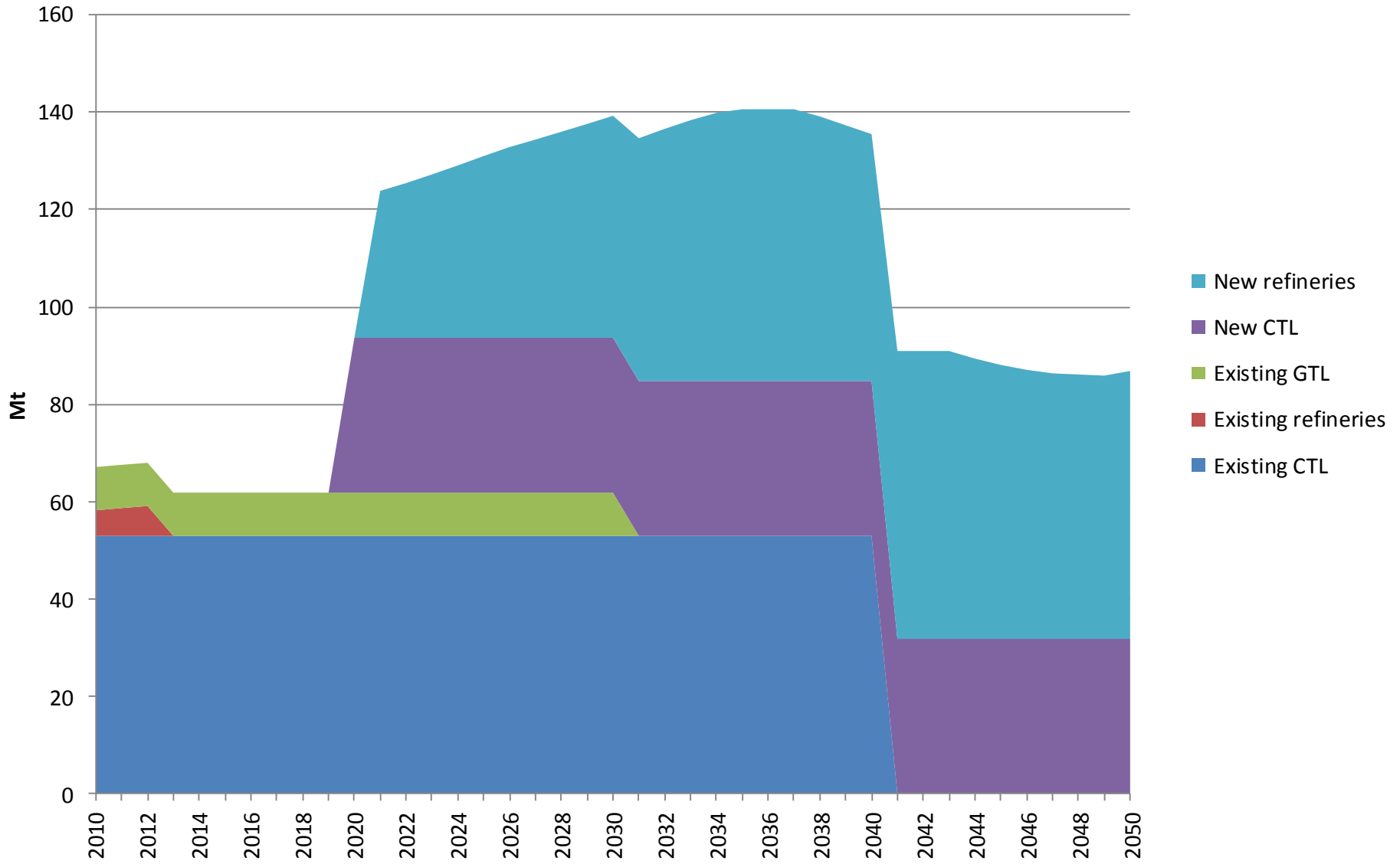
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Carbon Dioxide Emissions from Liquid Fuels Production: High Oil Price Case



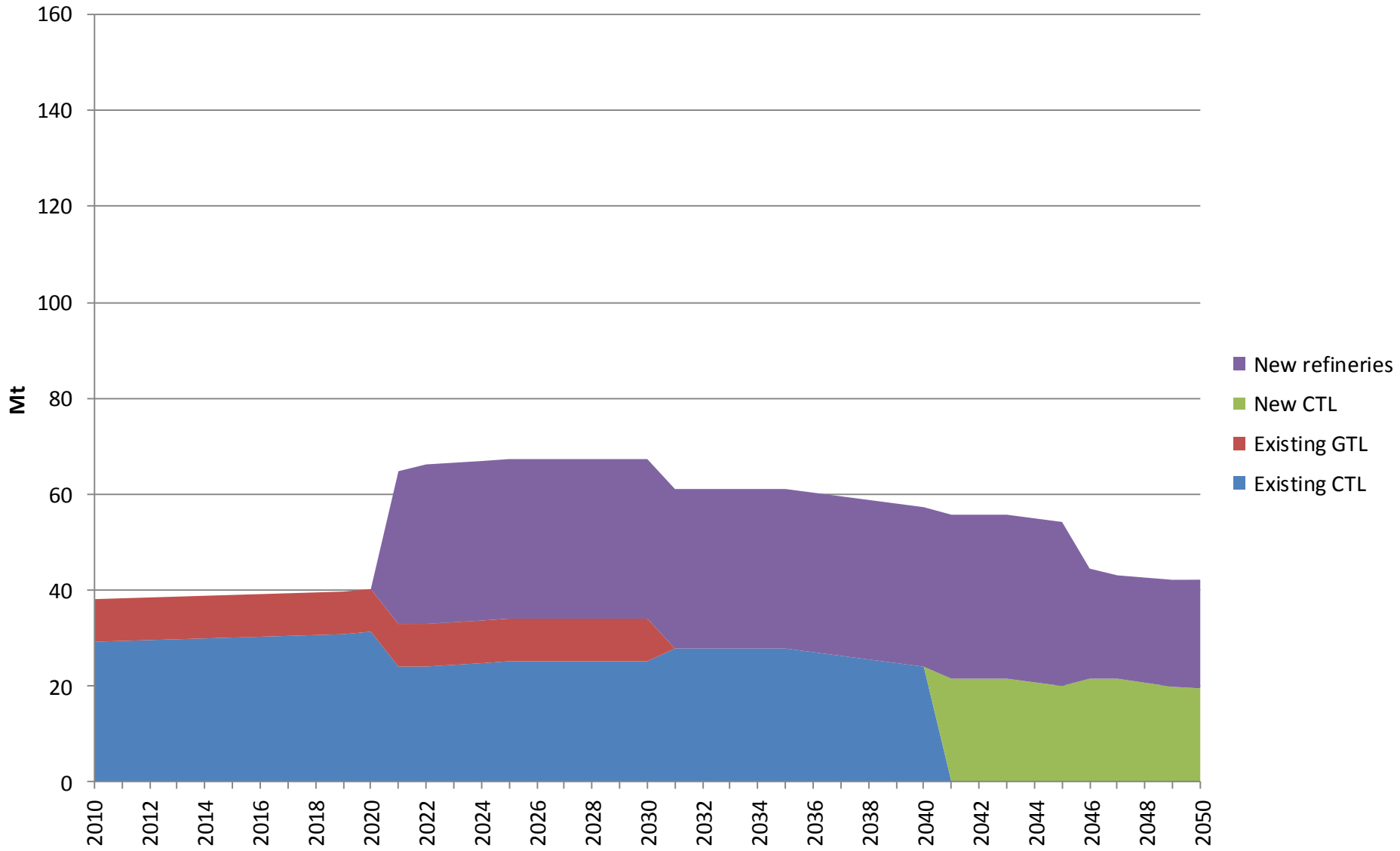
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Water Used in Liquid Fuels Production: Base Case



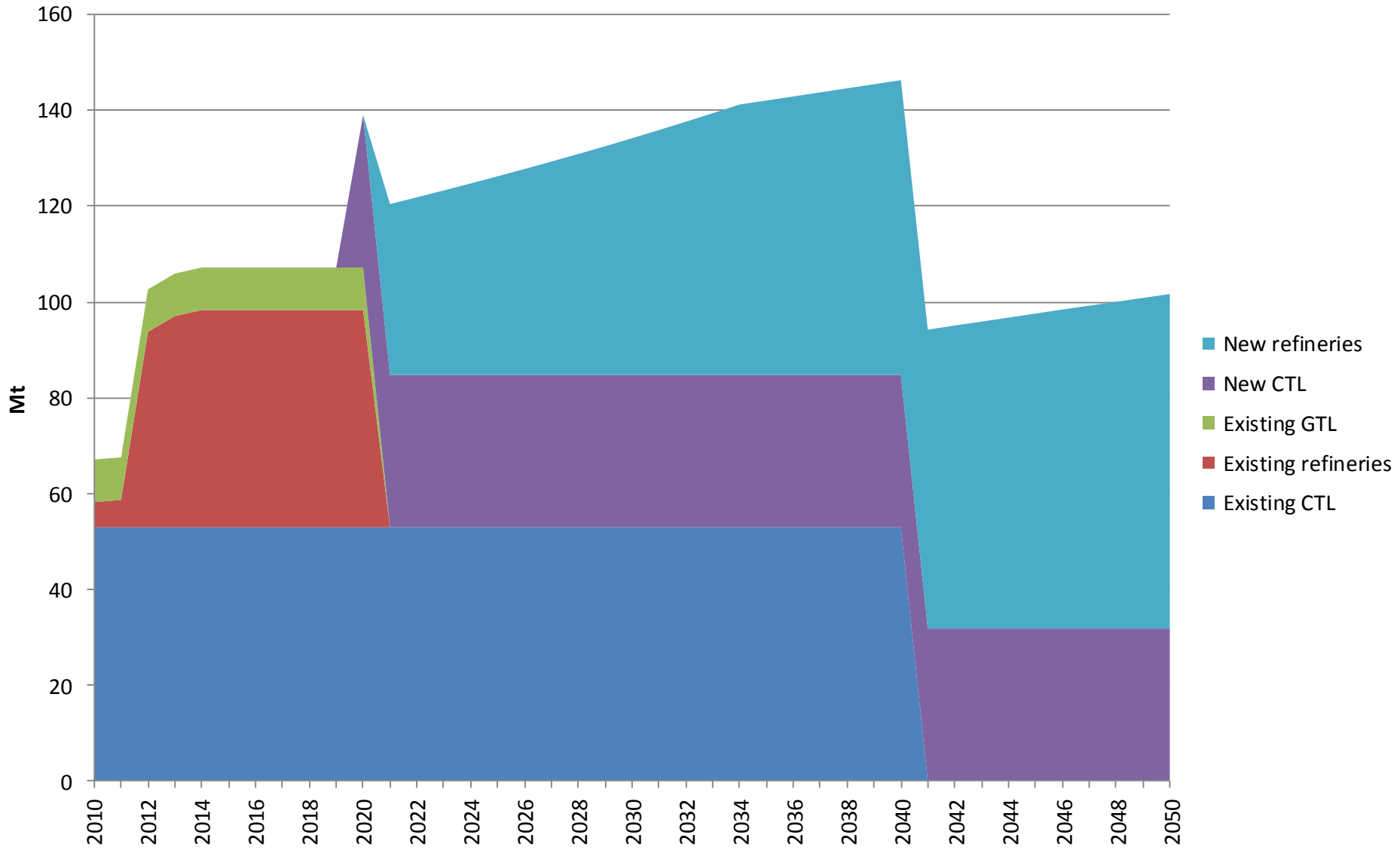
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Water Used in Liquid Fuels Production: Emissions Limit Case



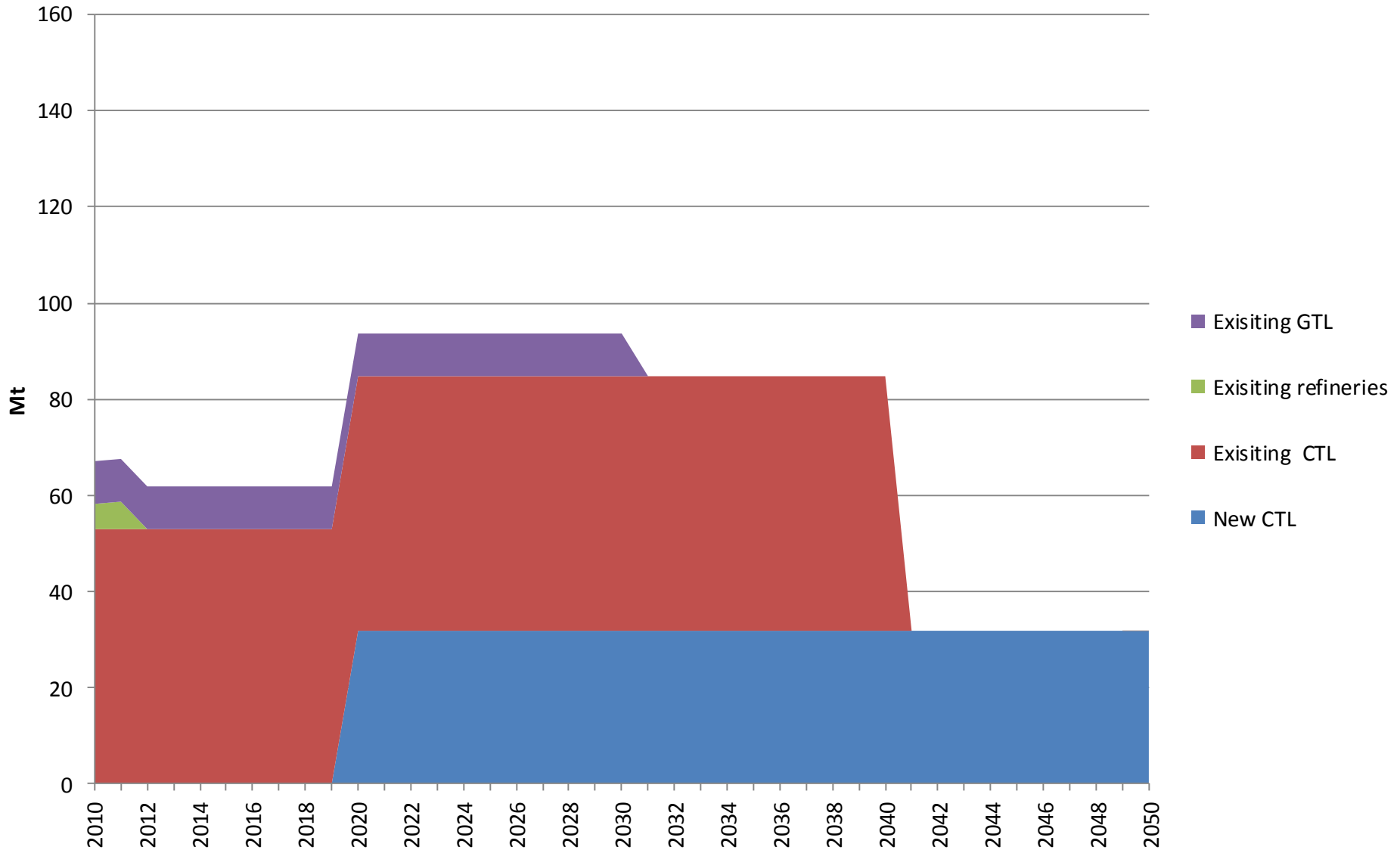
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Water Used in Electricity Generation: Low Oil Price Case



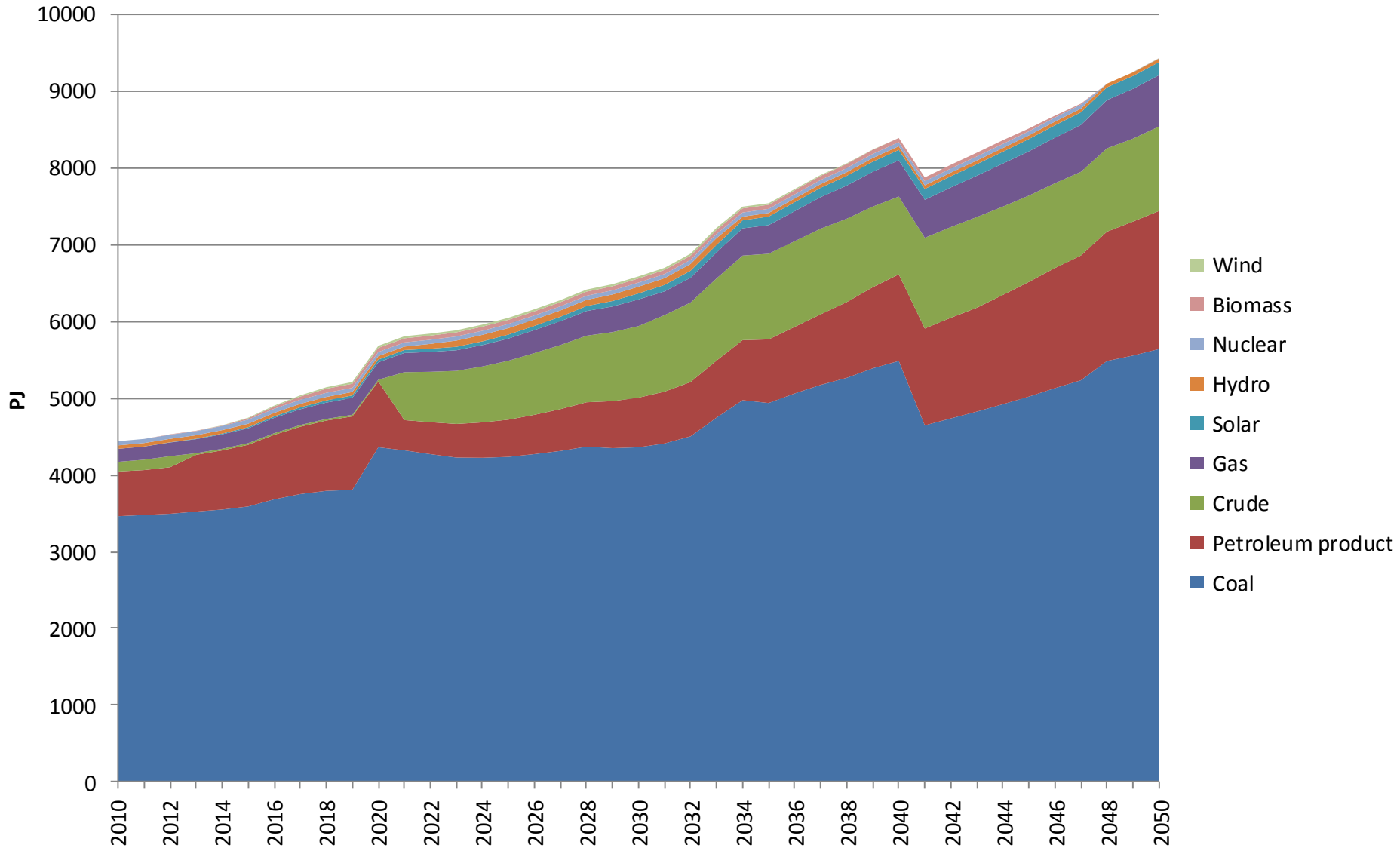
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Water Used in Electricity Generation: High Oil Price Case



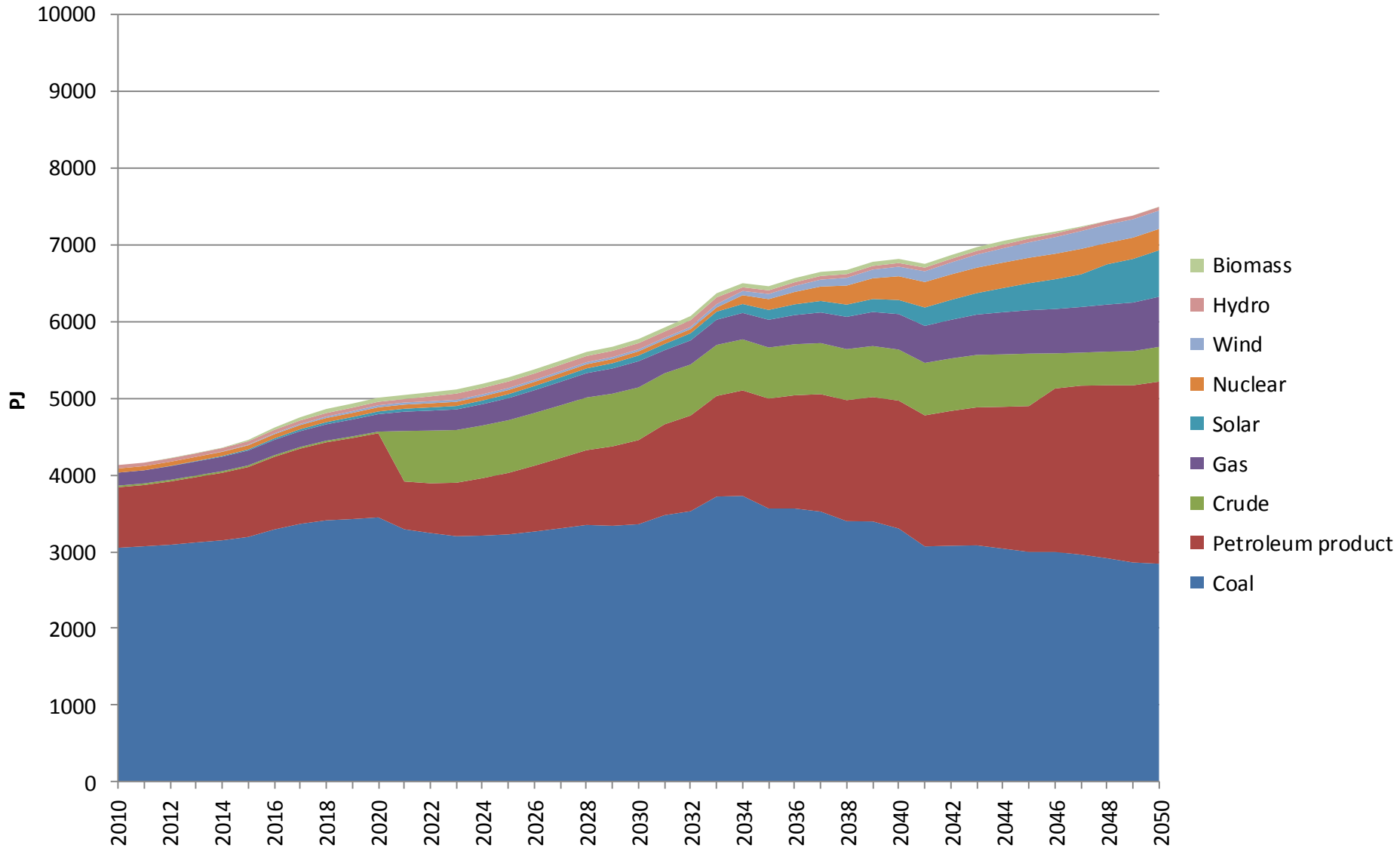
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Primary energy use: Base Case



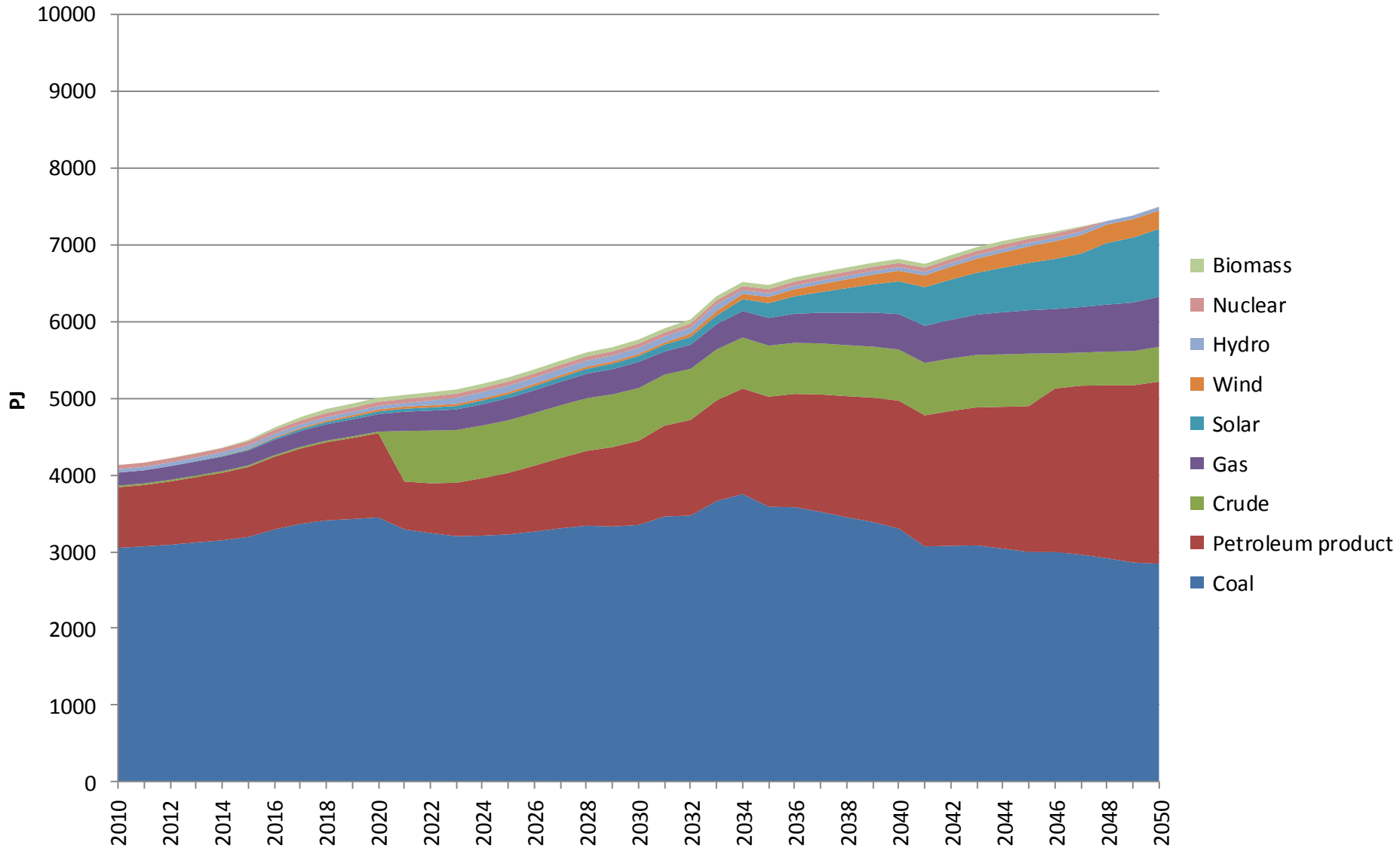
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Primary energy use: Emissions Limit Case



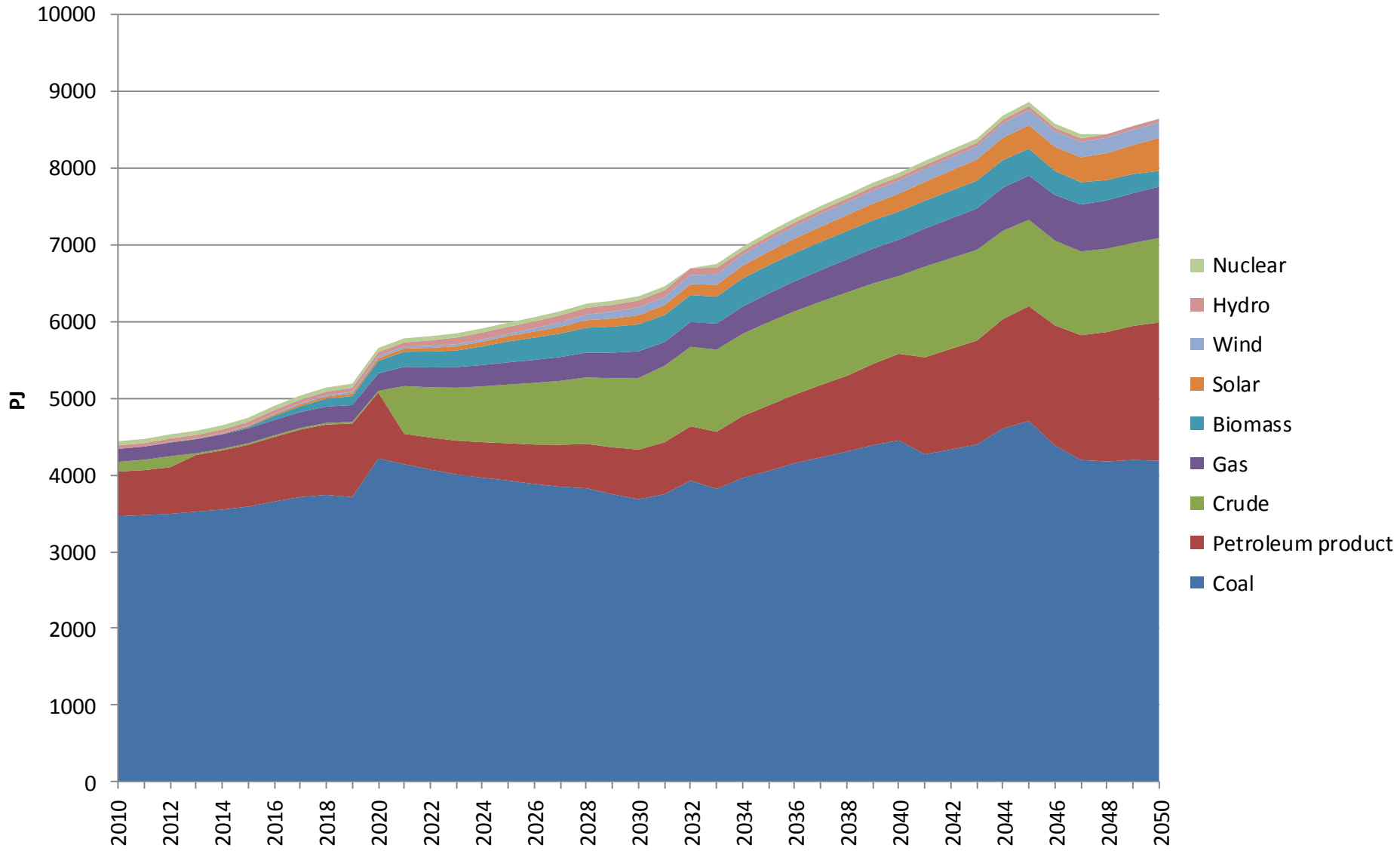
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Primary energy use: No Nuclear Case



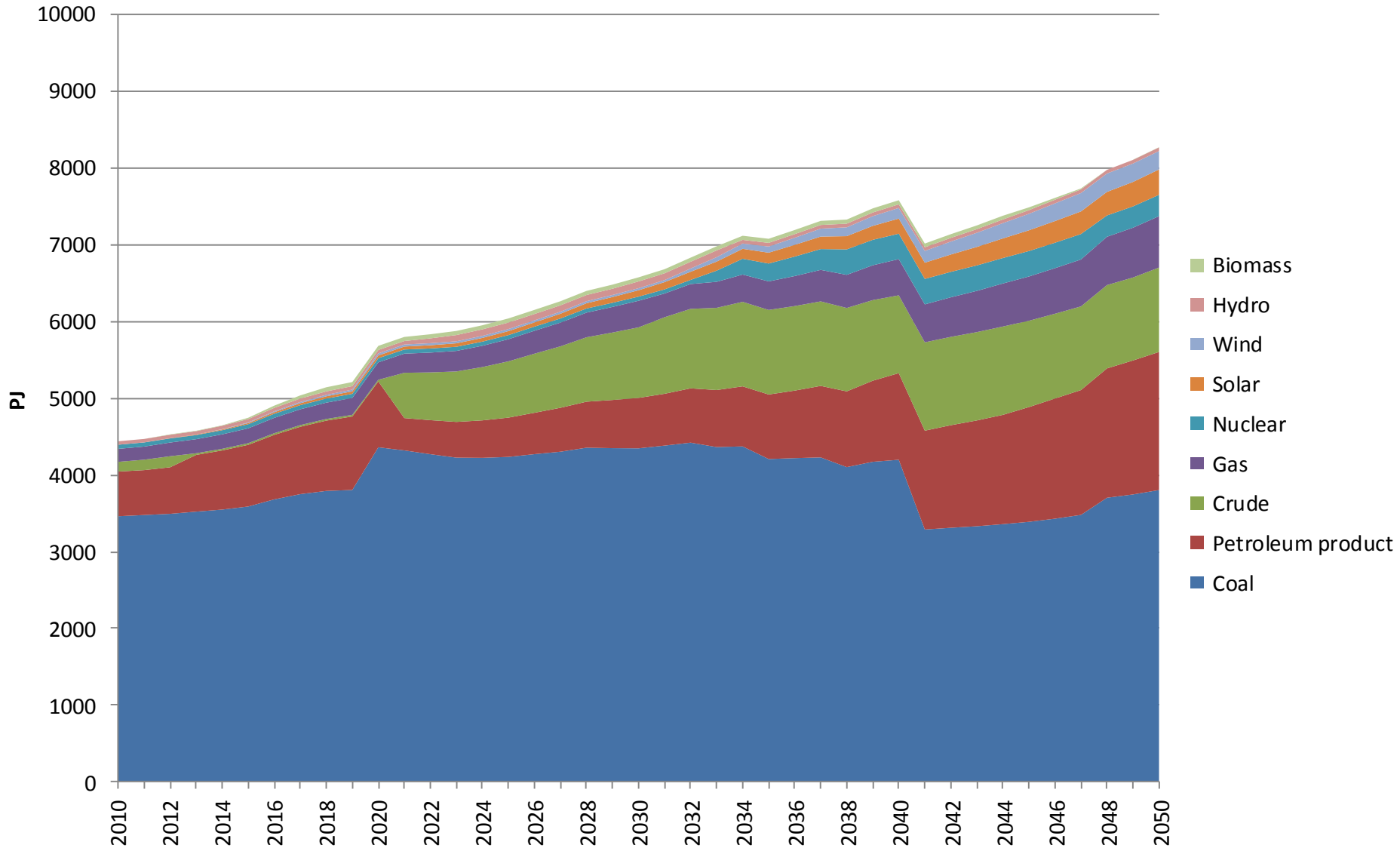
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Primary energy use: Renewable Energy Target Case



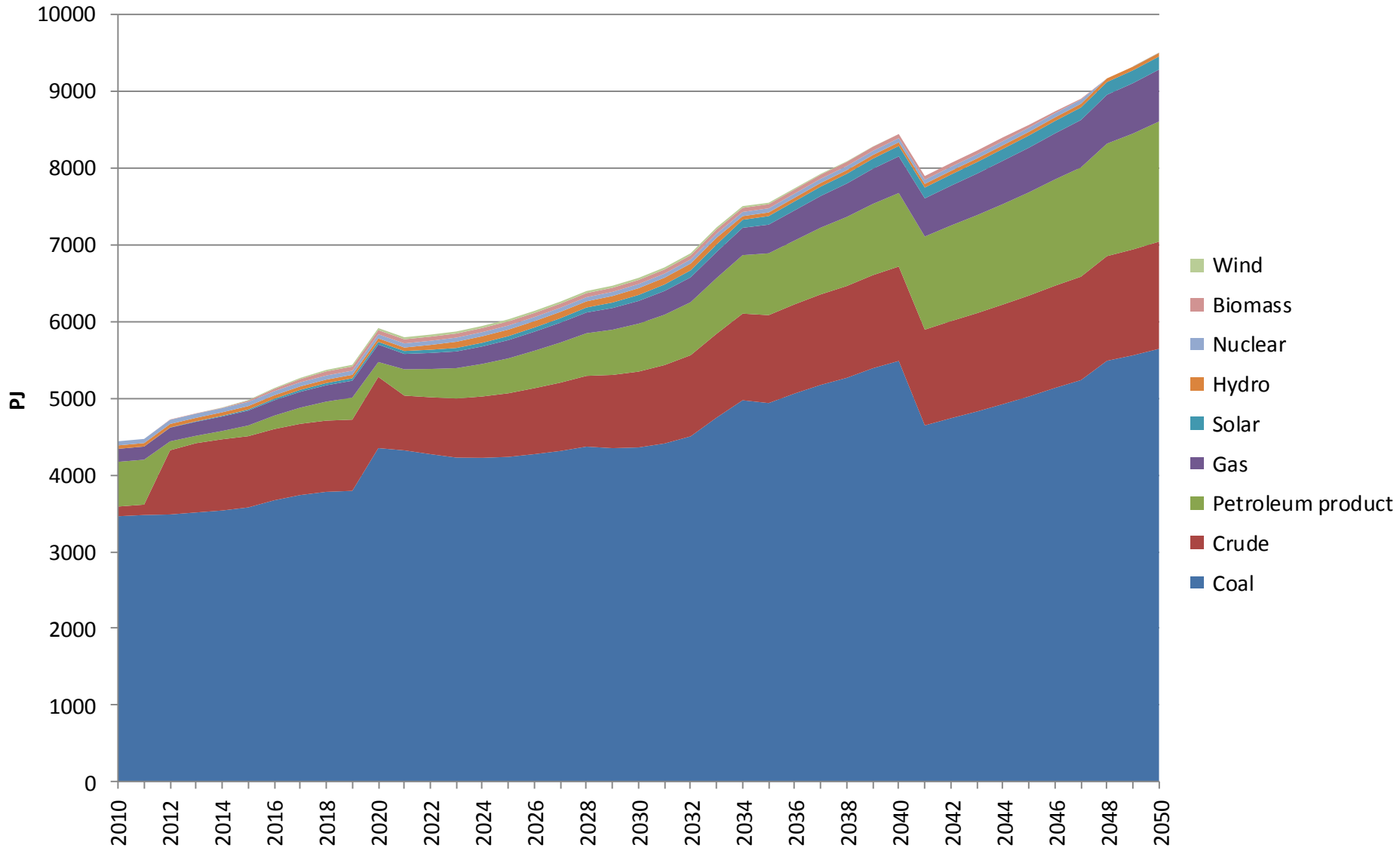
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Primary energy use: Carbon Tax Case



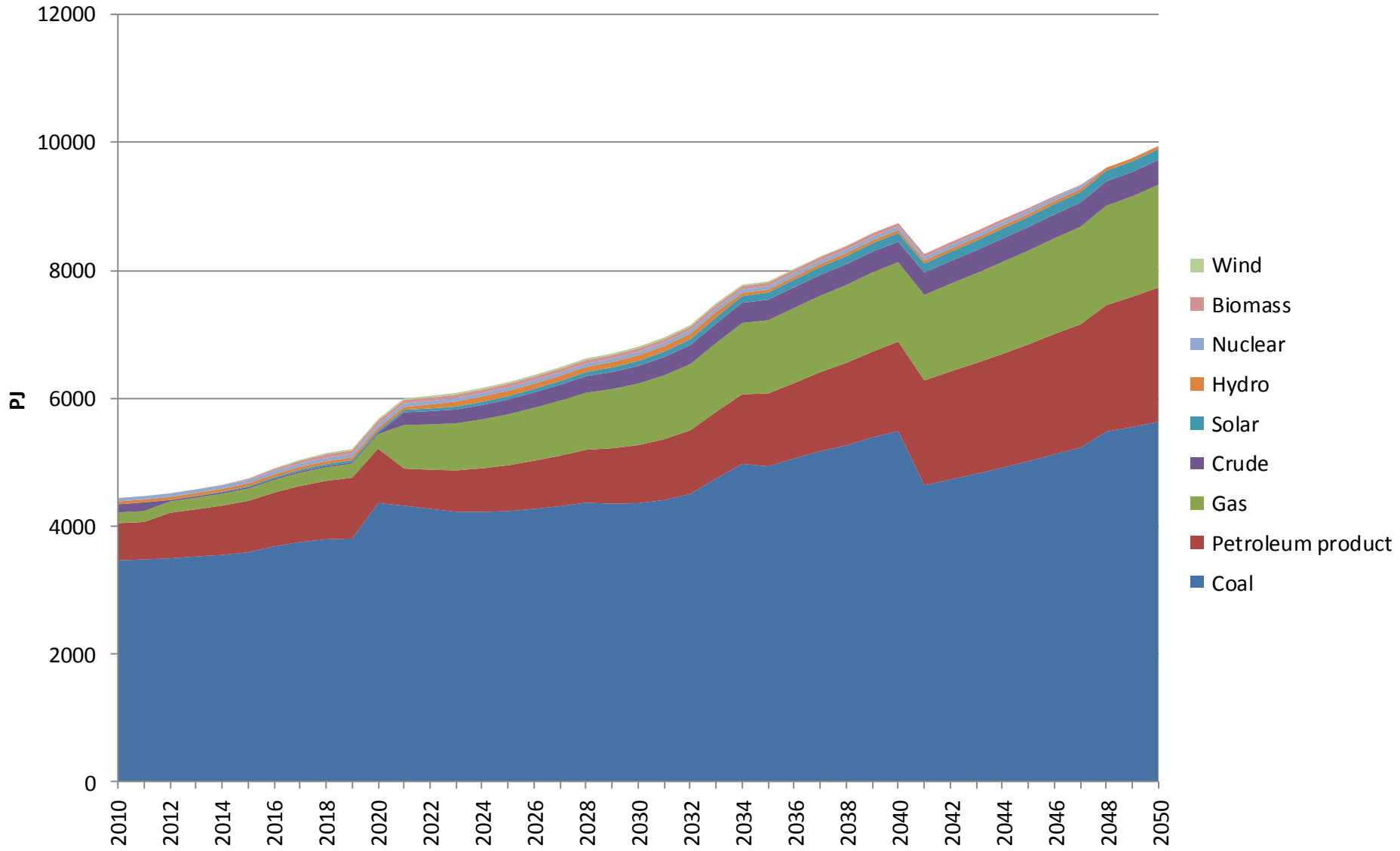
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Primary energy use: Low Oil Price Case



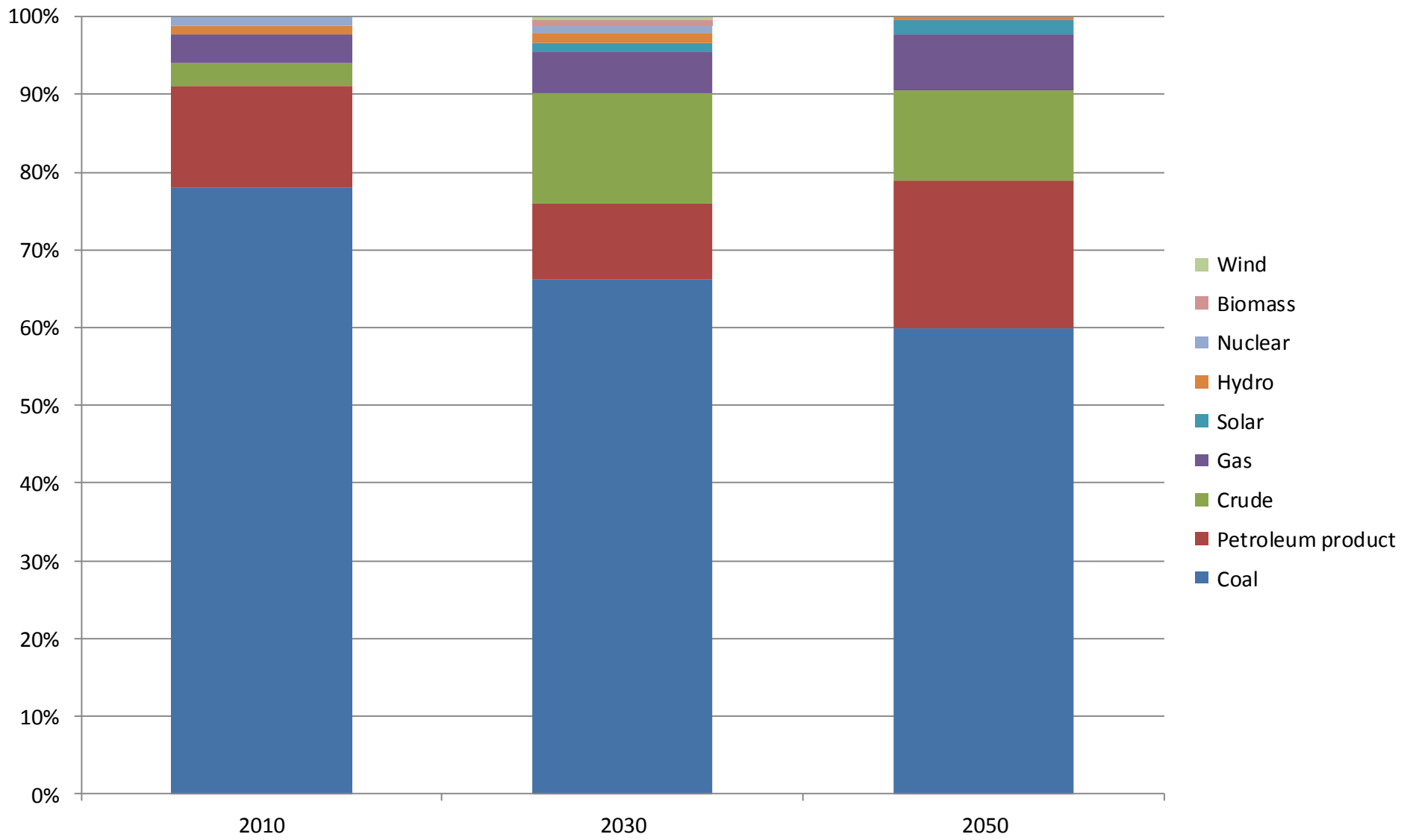
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Primary energy use: High Oil Price Case



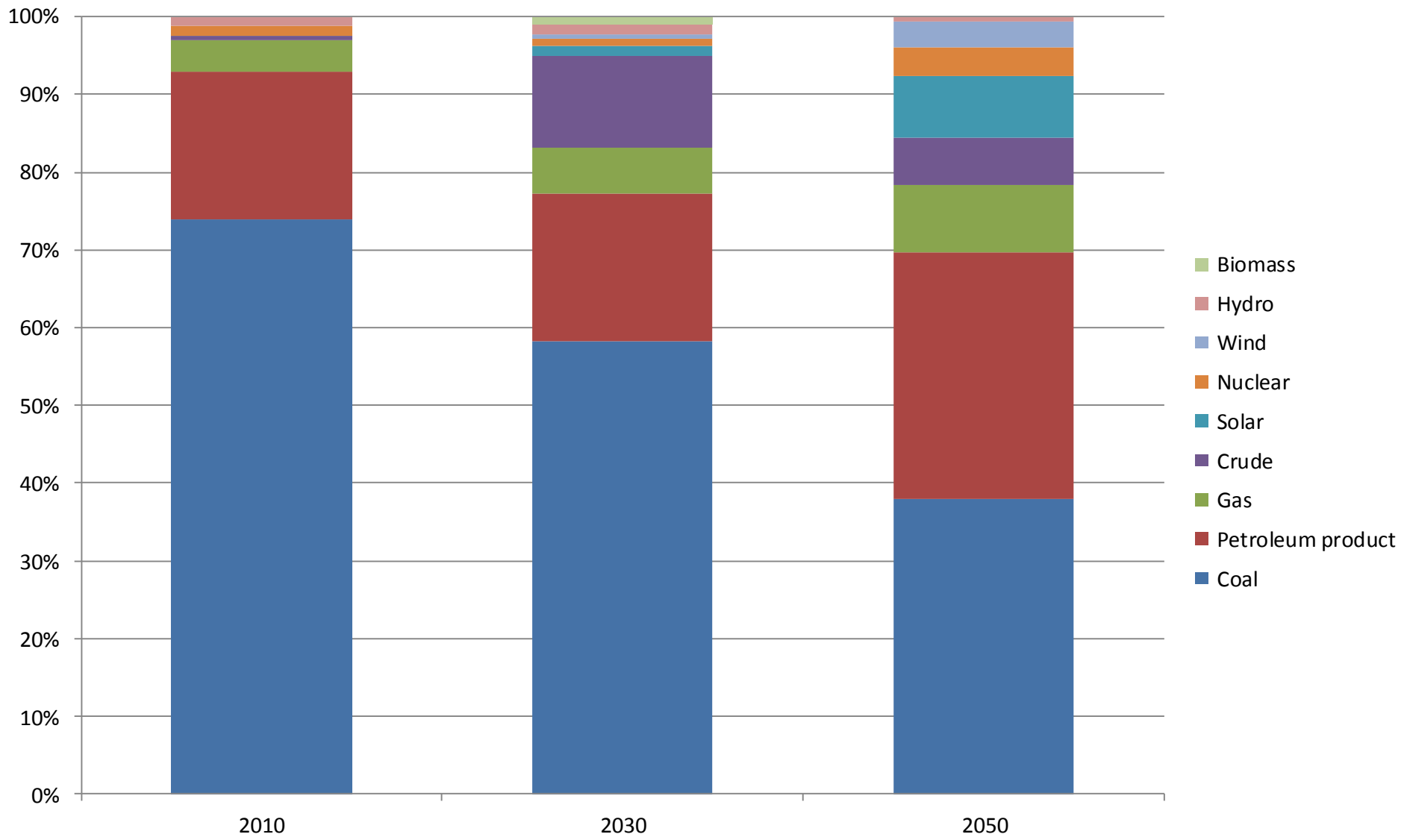
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Energy Mix 2010, 2030, 2050: Base Case



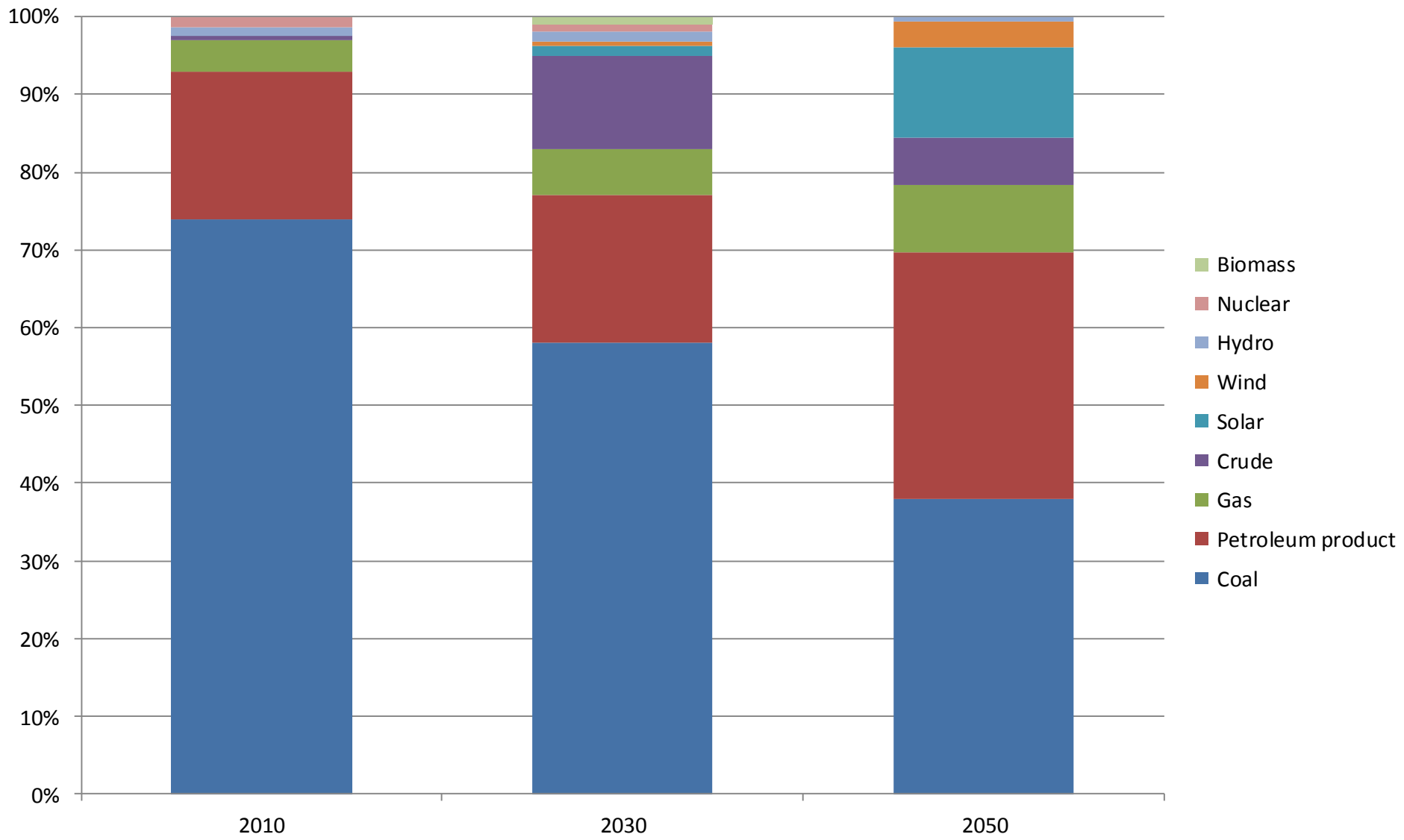
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Energy Mix 2010, 2030, 2050: Emissions Limit Case



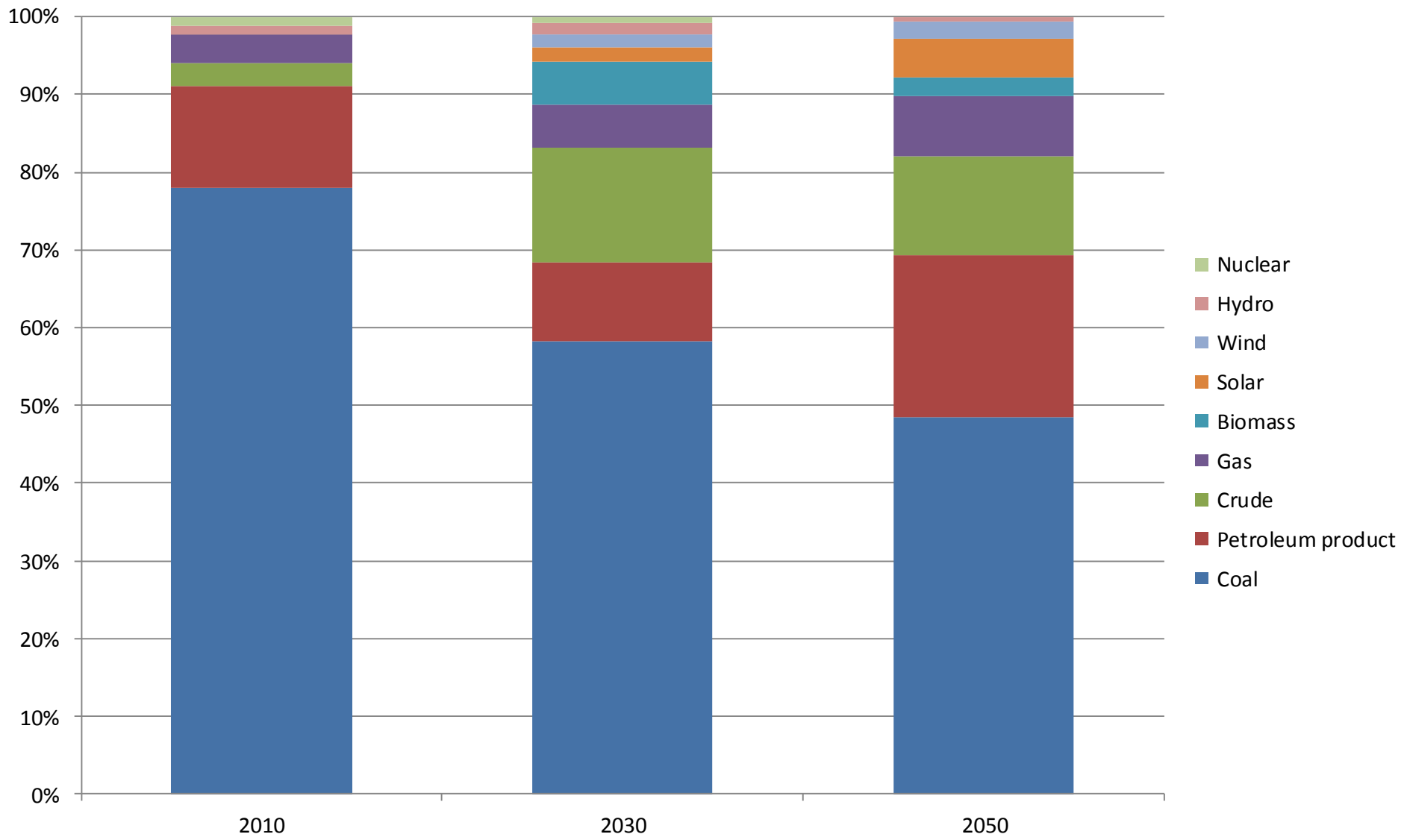
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Energy Mix 2010, 2030, 2050: No Nuclear Case



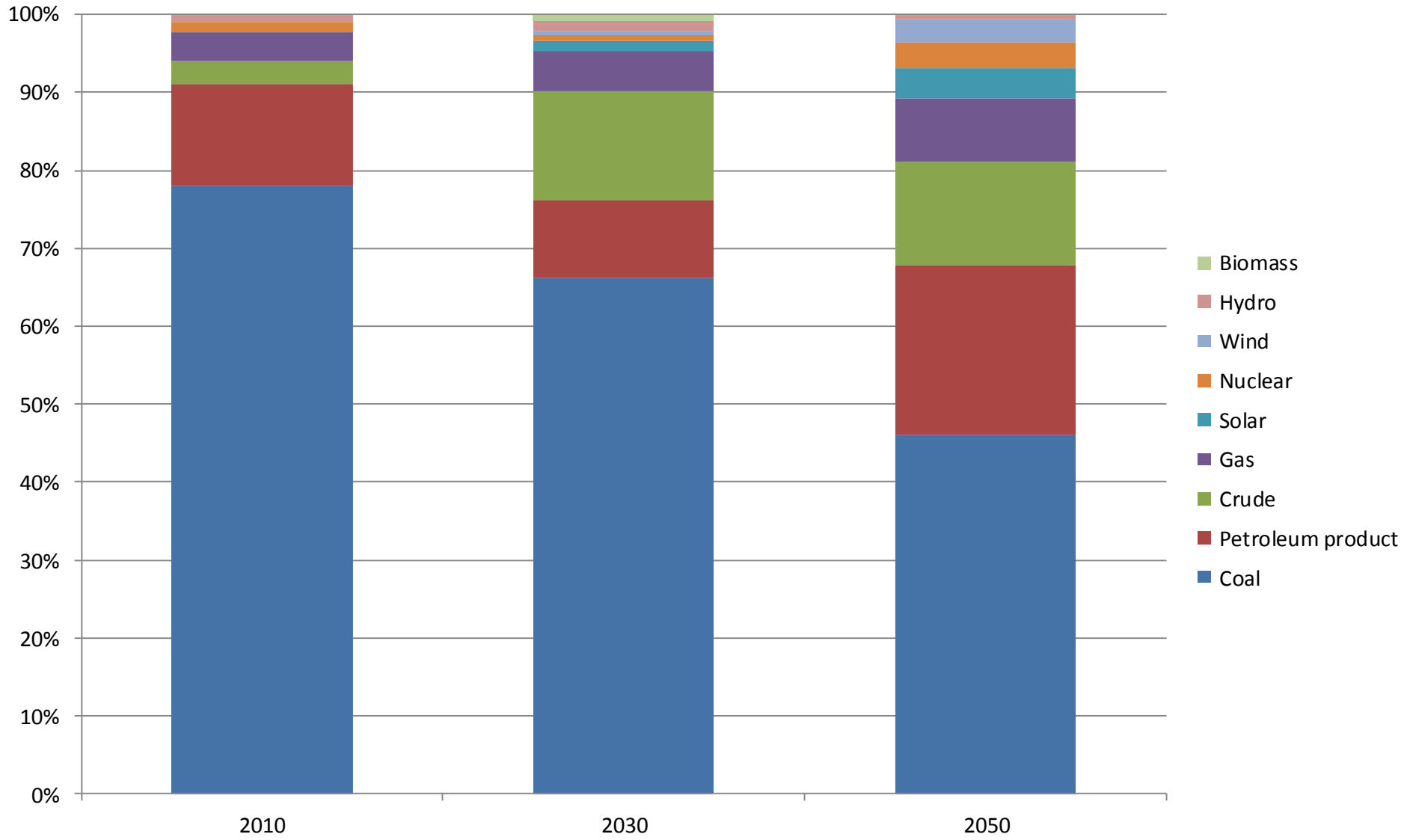
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Energy Mix 2010, 2030, 2050: Renewable Energy Target Case



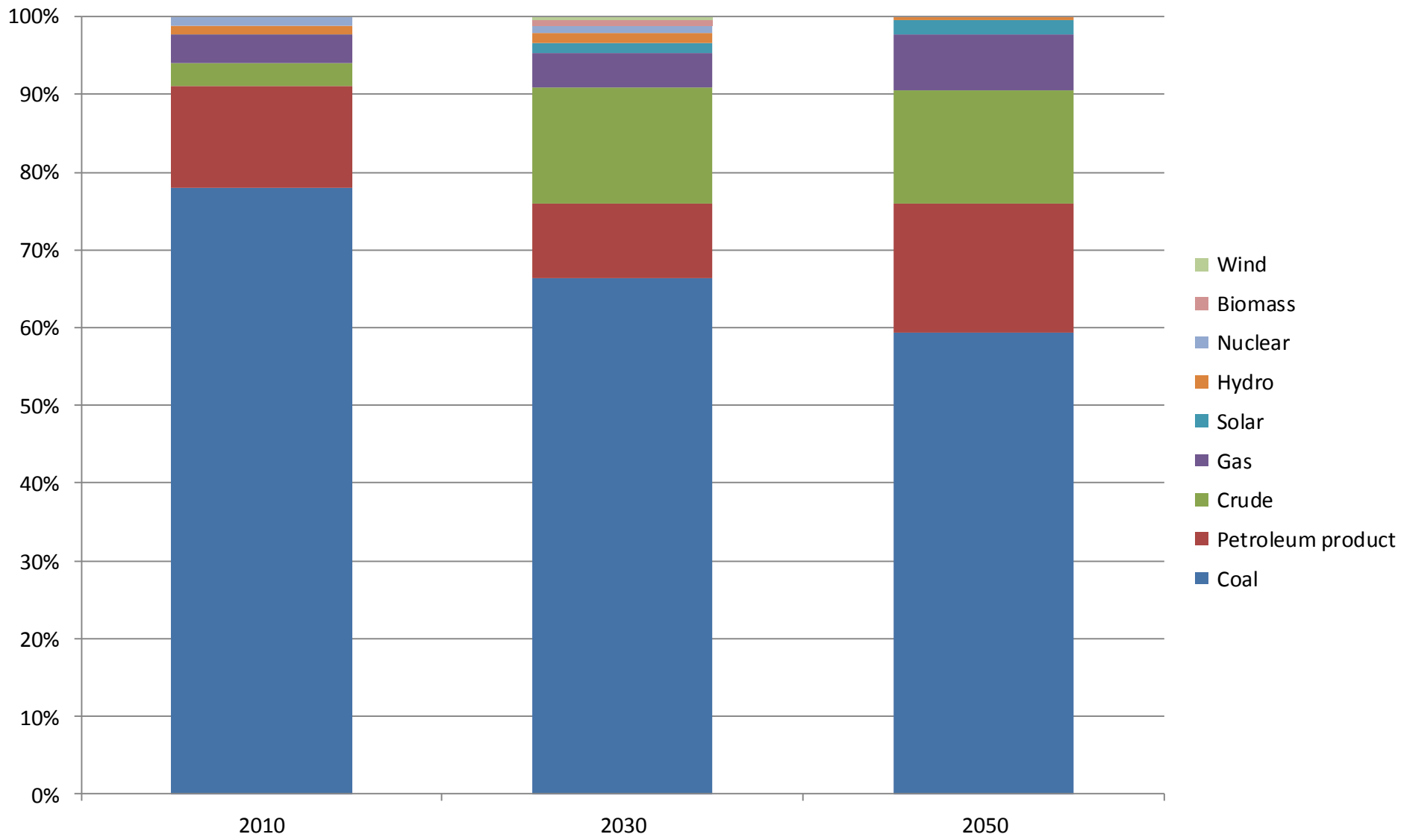
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Energy Mix 2010, 2030, 2050: Carbon Tax Case



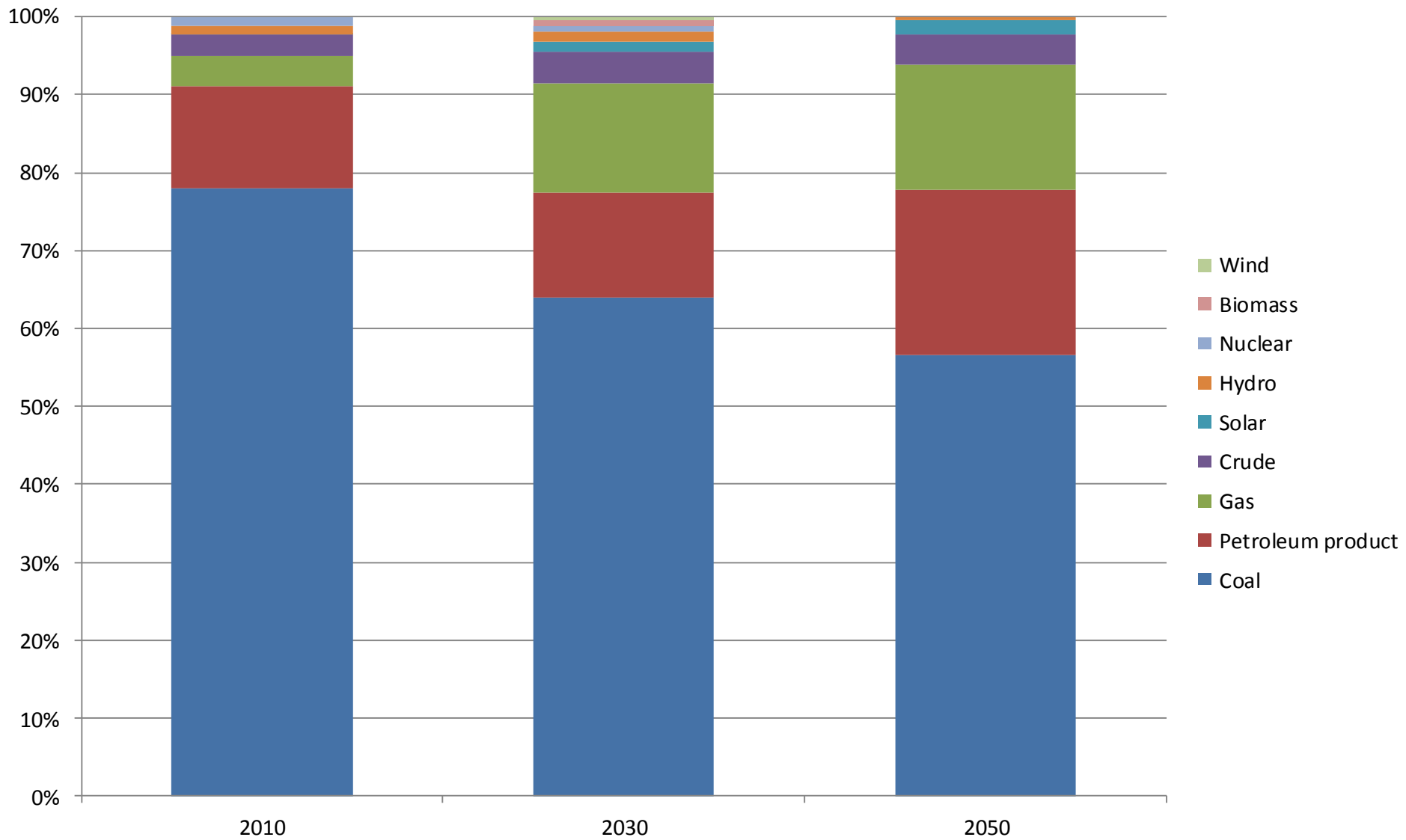
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Energy Mix 2010, 2030, 2050: Low Oil Price Case



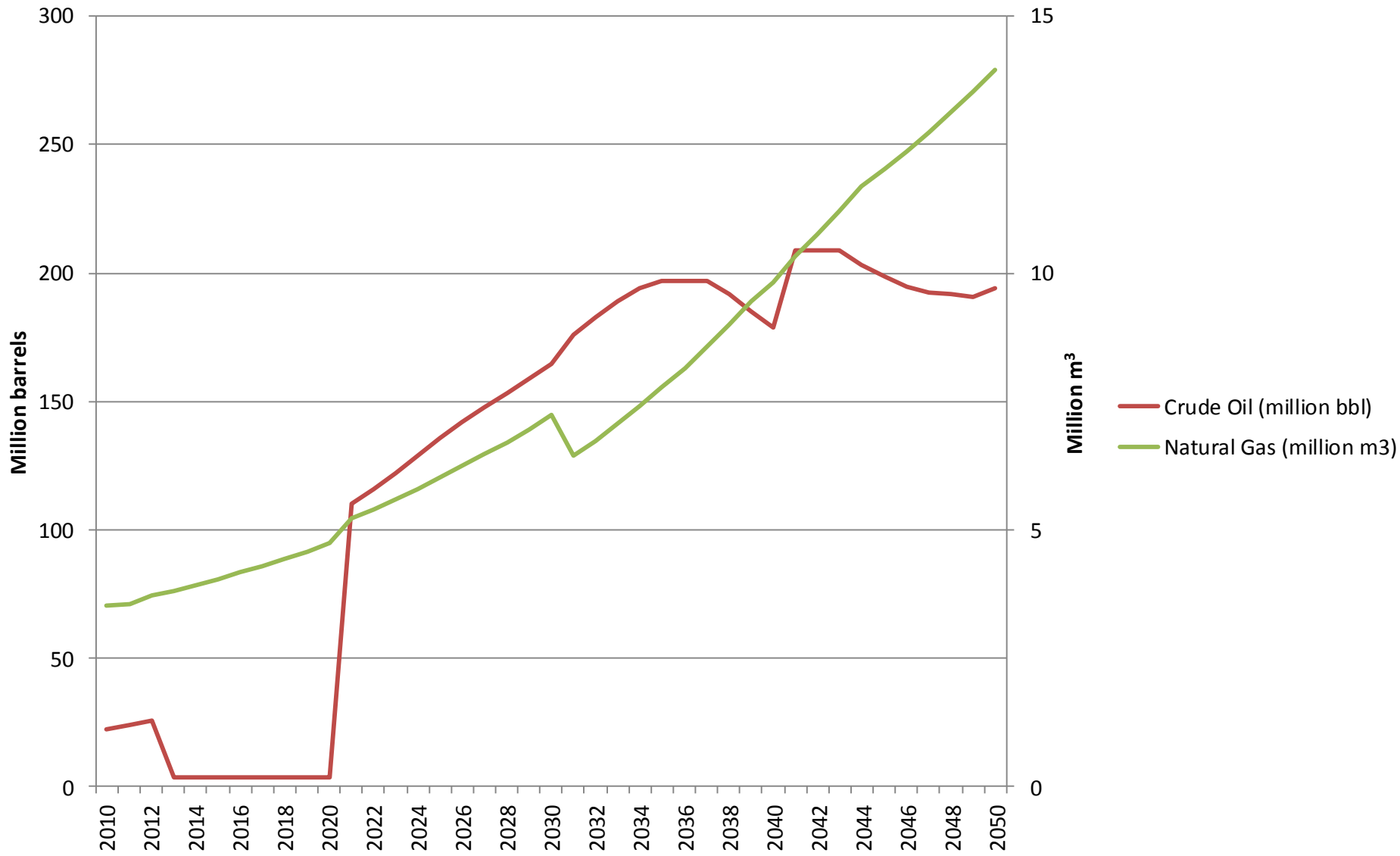
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Energy Mix 2010, 2030, 2050: High Oil Price Case



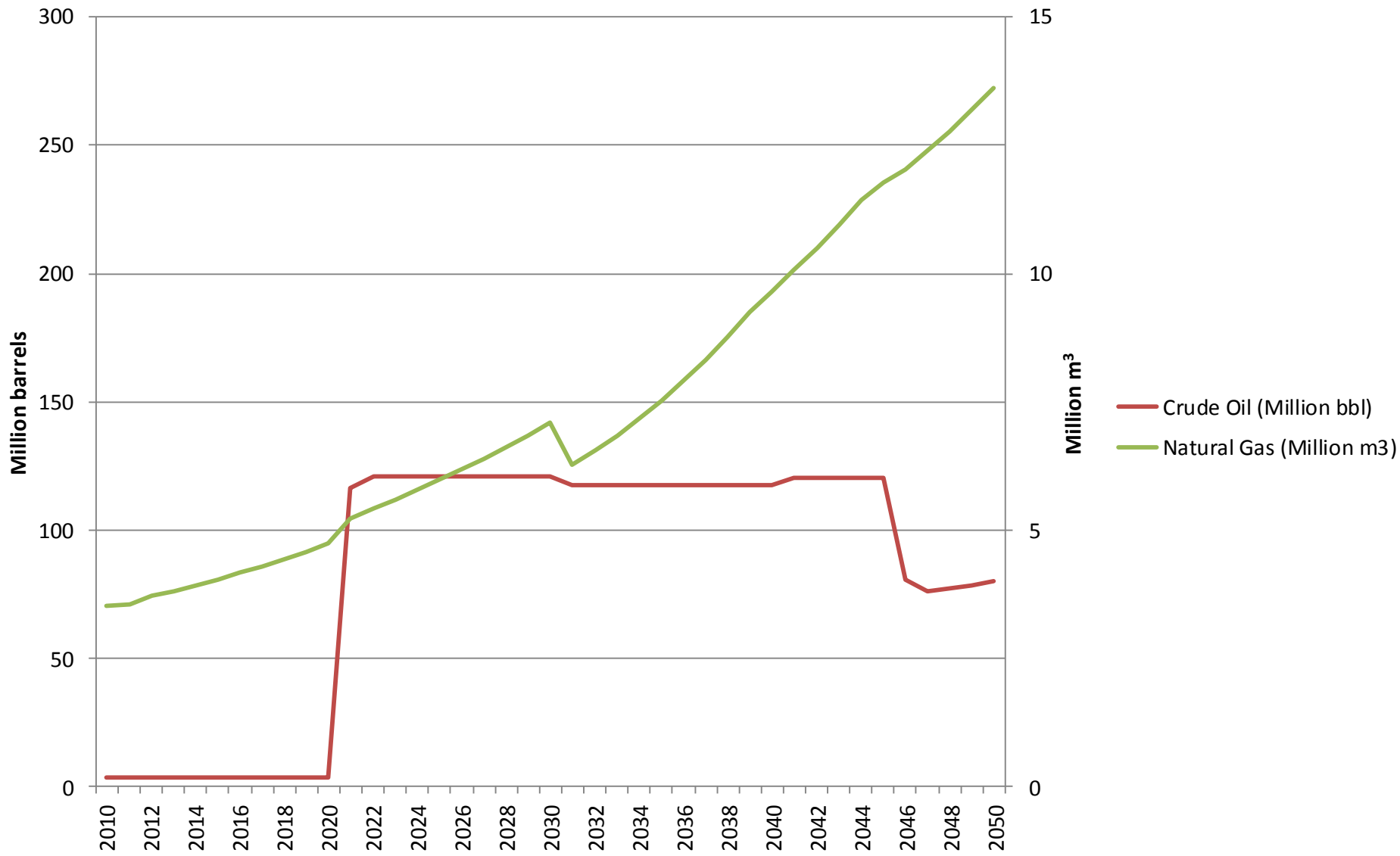
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Imports of Crude Oil and Natural Gas: Base Case



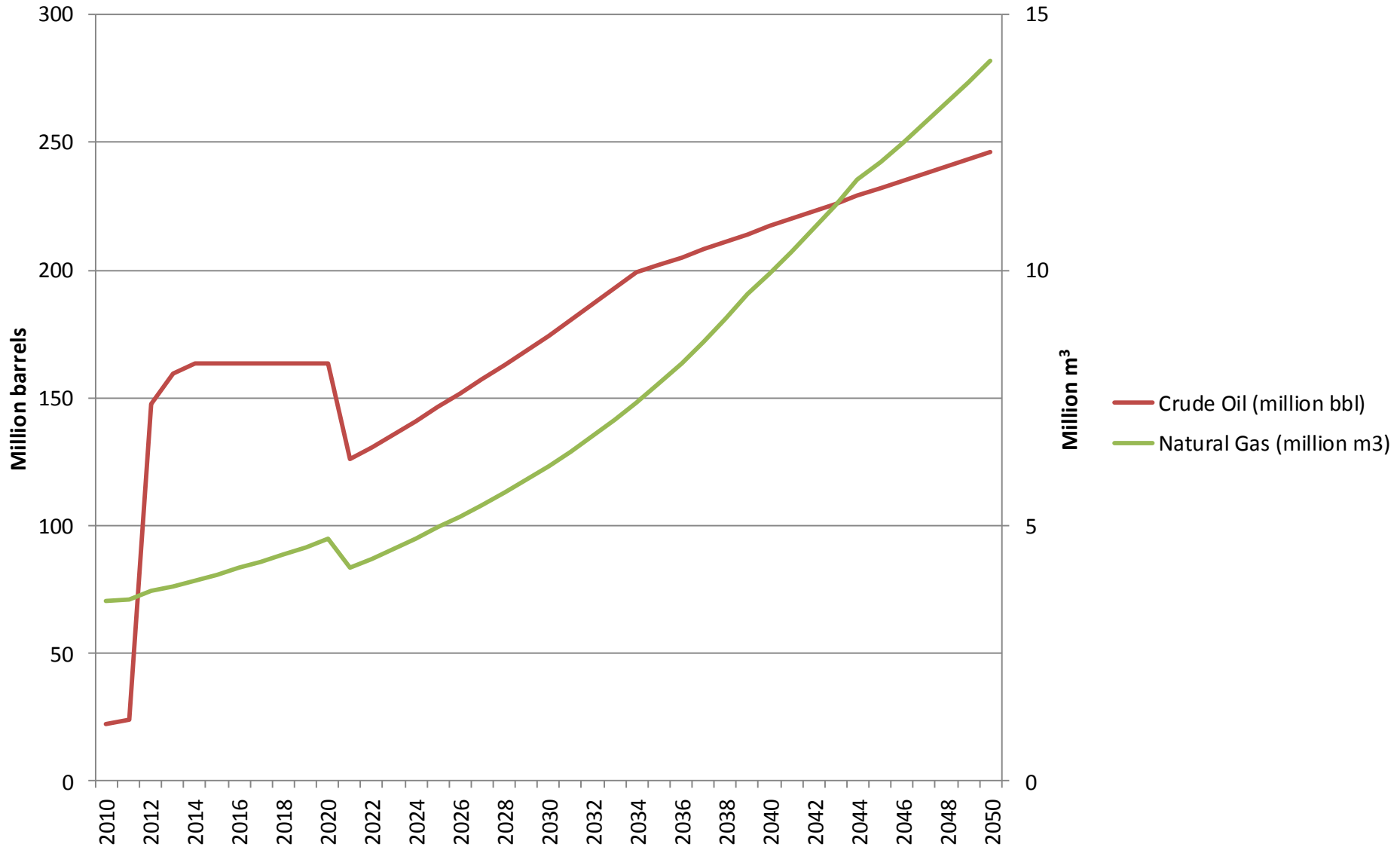
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Imports of Crude Oil and Natural Gas: Emissions Limit Case



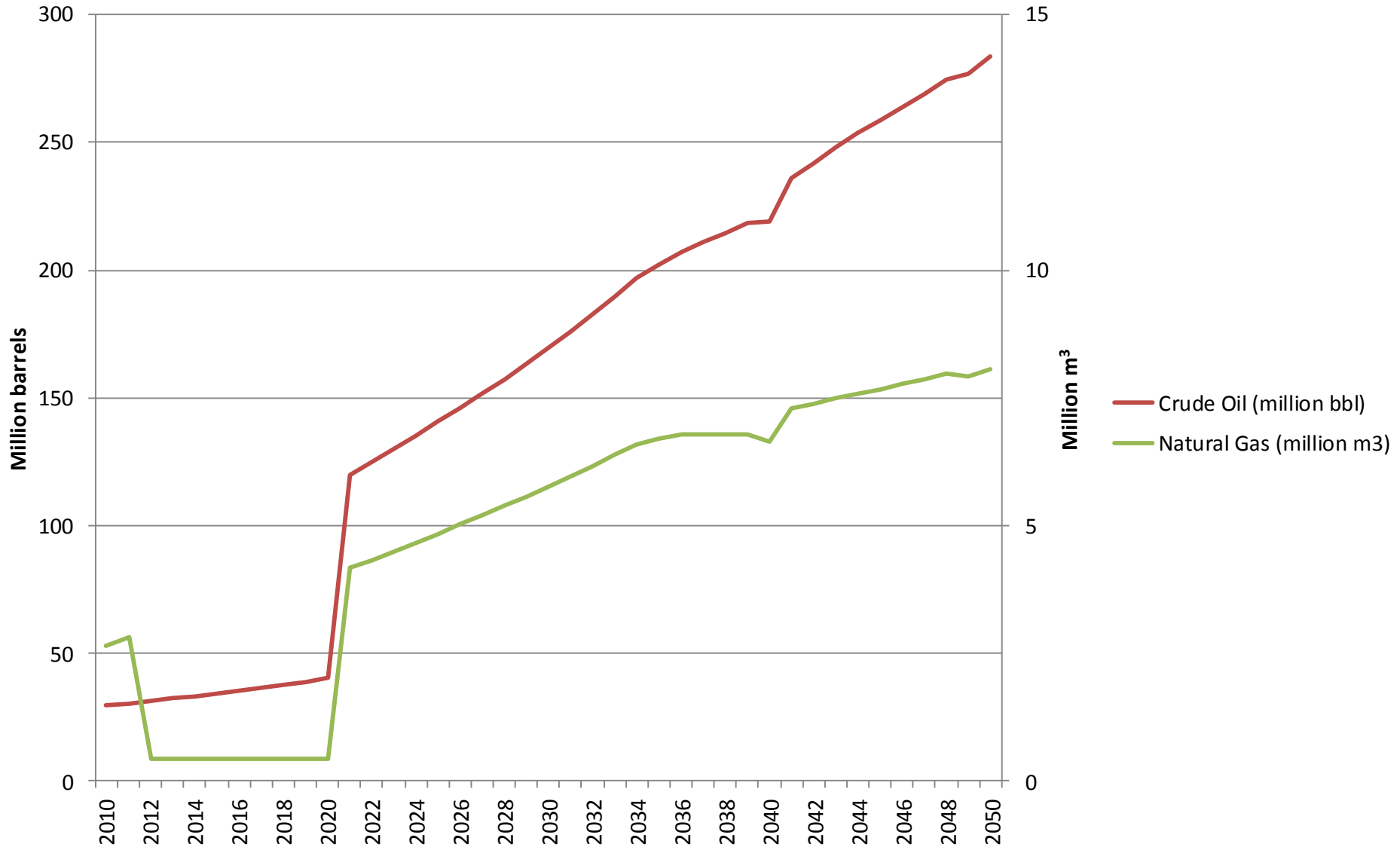
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Imports of Crude Oil and Natural Gas: Low Oil Price Case



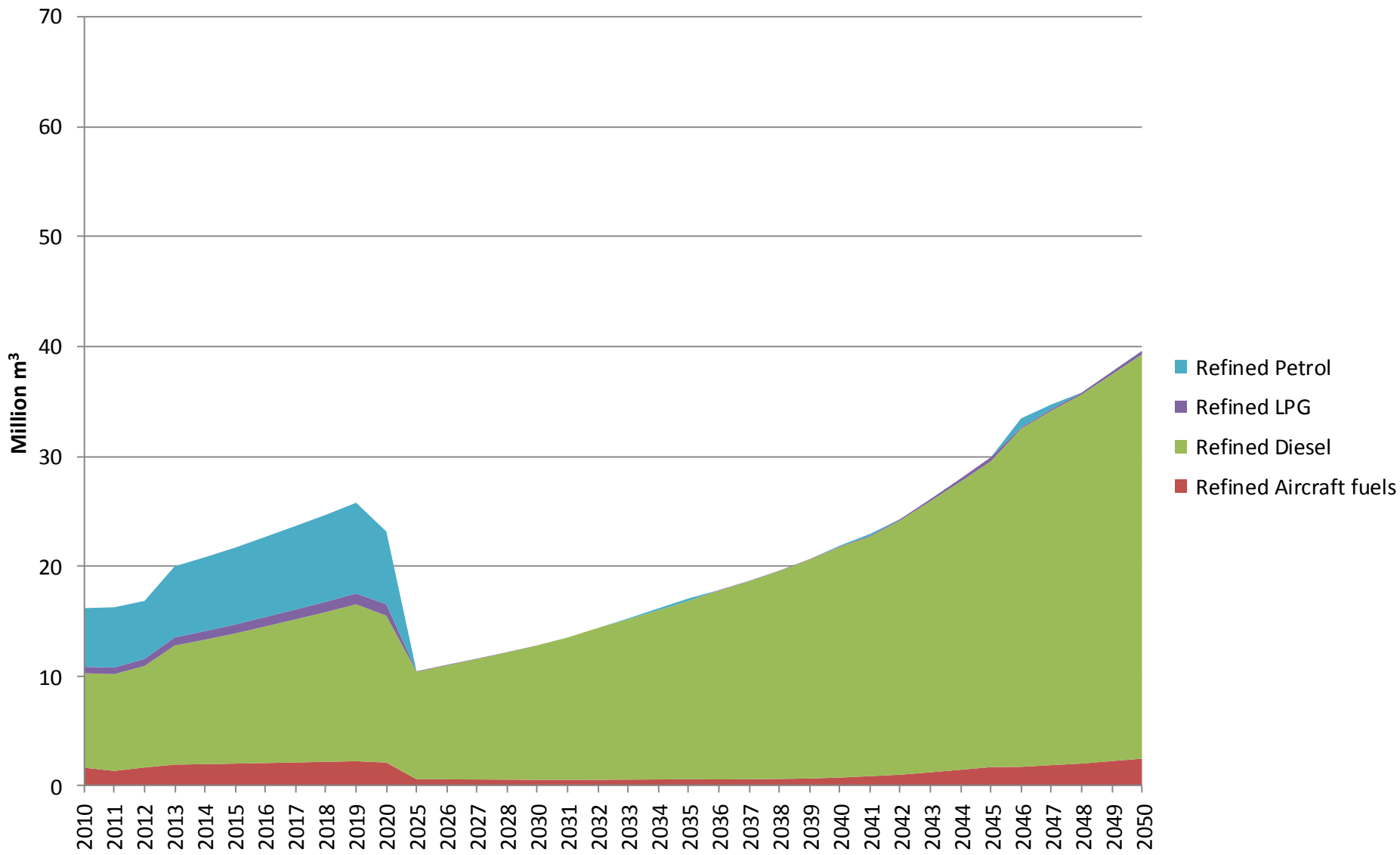
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Imports of Crude Oil and Natural Gas: High Oil Price Case



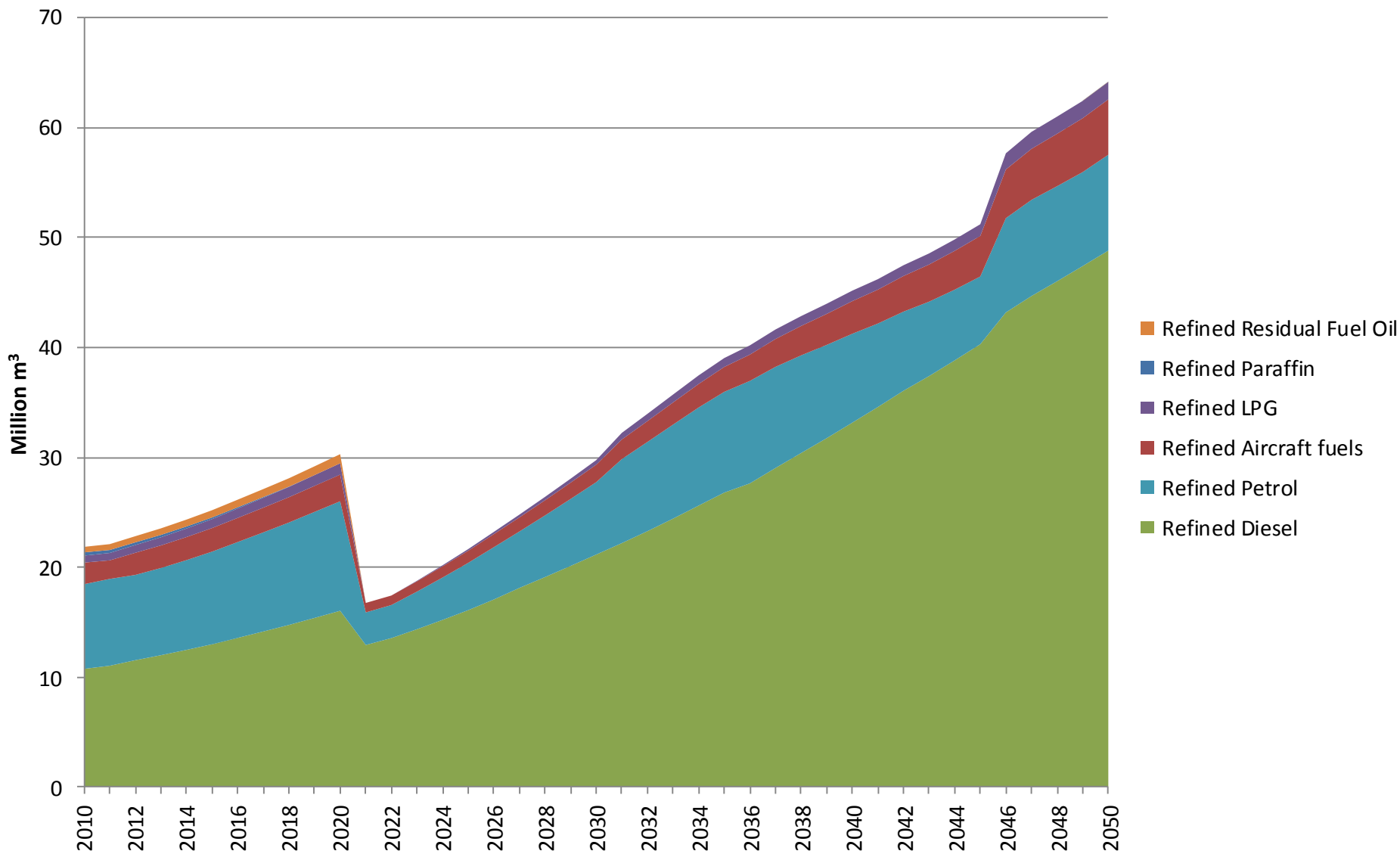
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Imports of Petroleum Products: Base Case



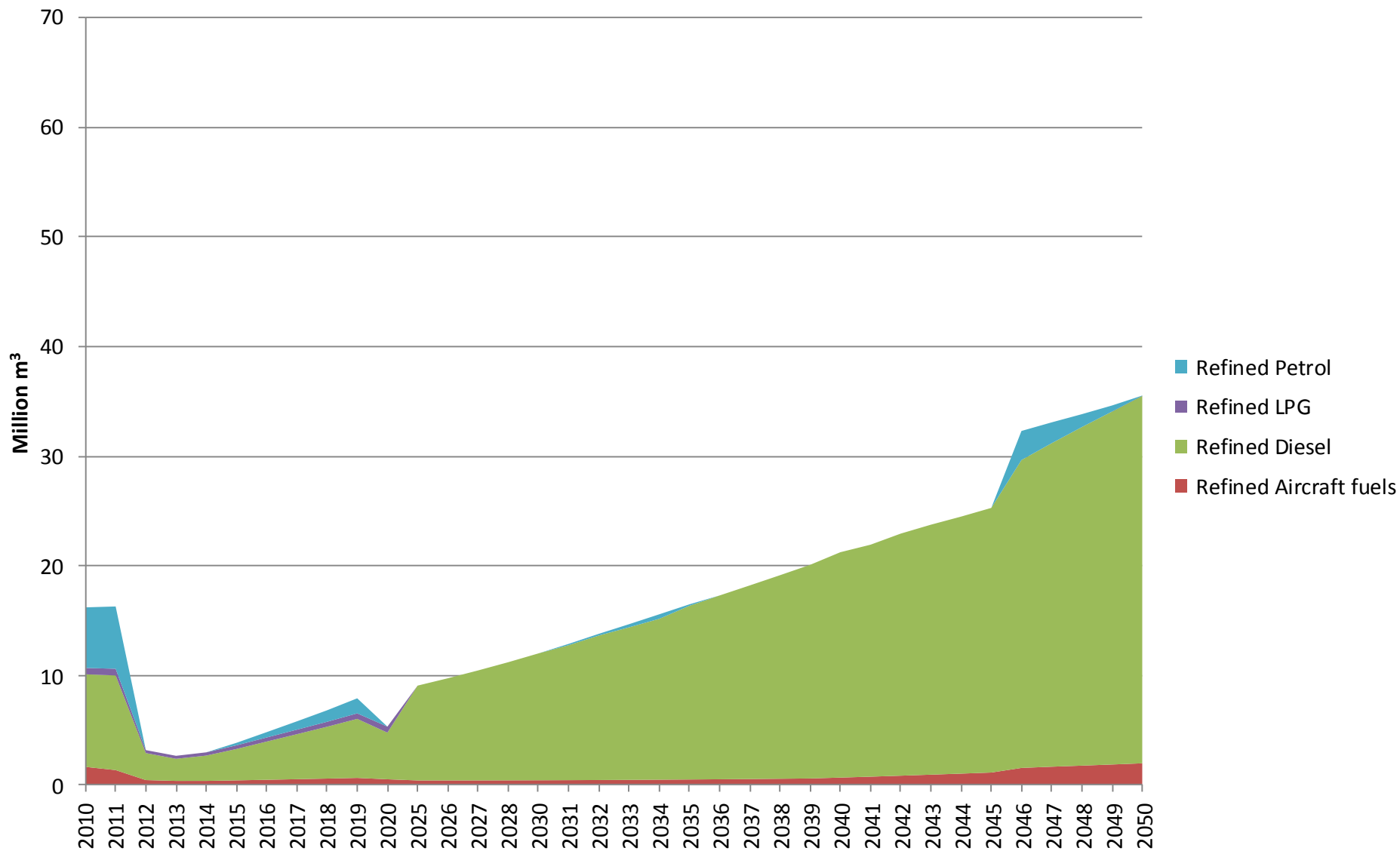
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Imports of Petroleum Products: Emissions Limit Case



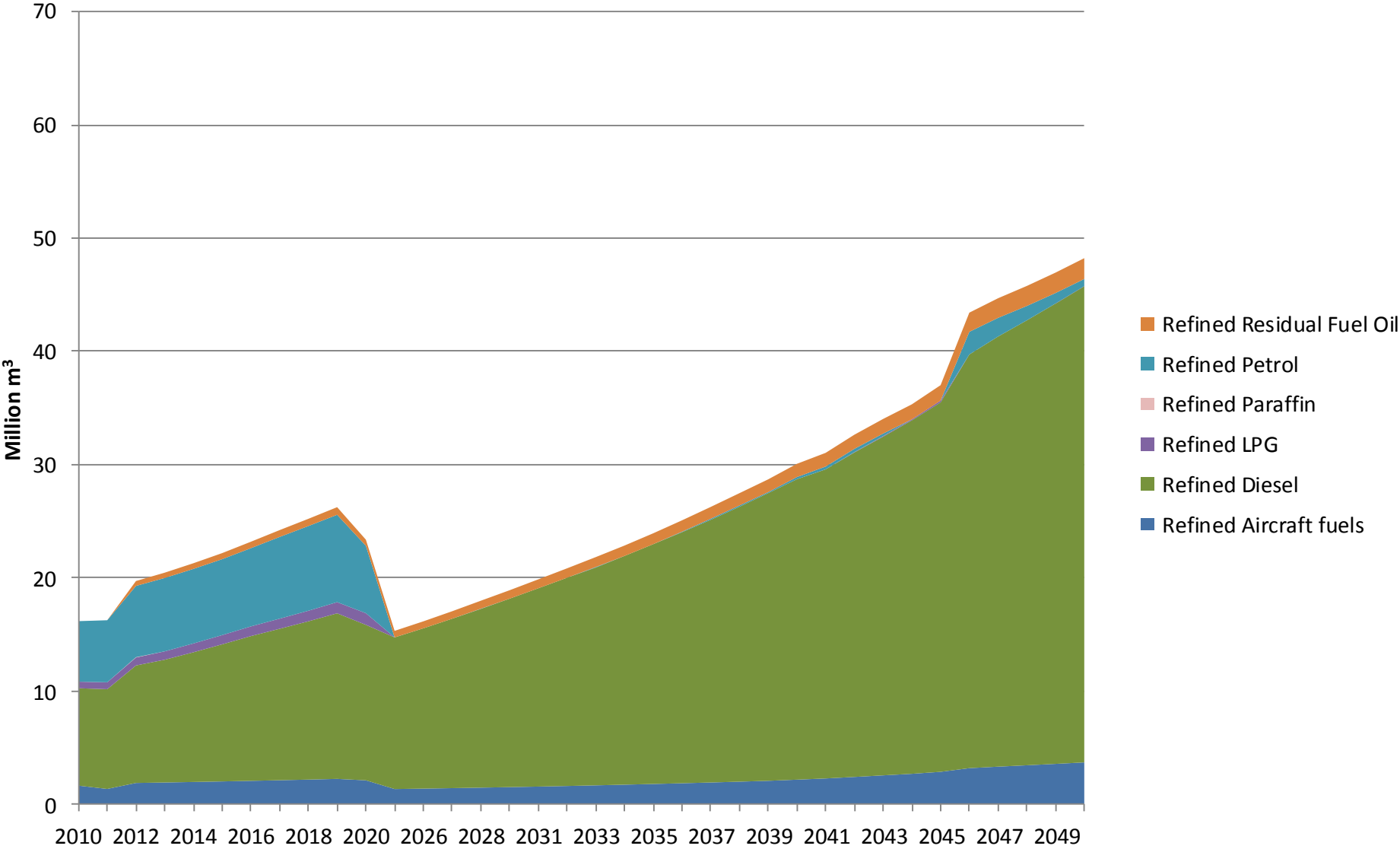
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Imports of Petroleum Products: Low Oil Price Case



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Imports of Petroleum Products: High Oil Price Case



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