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How **FRLs** will be developed in **France**

**Toward an adapted reuse of the
Colin et al. (2016)'s constant silviculture scenario
following Forsell et al. (2018)'s guidance**

CEPF-CEPI-EOS-EUSTAFOR joint workshop
LULUCF: practical consequences for the forest-based sector
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<http://www.ademe.fr/disponibilites-forestieres-lenergie-materiaux-a-lhorizon-2035>

Forsell, N. et al. (2018) *Guidance on developing and reporting Forest Reference Levels in accordance with Regulation (EU) 2018/841*. ICF, IIASA, Aether, DG CLIMA
<https://publications.europa.eu/en/publication-detail/-/publication/5ef89b70-8fba-11e8-8bc1-01aa75ed71a1/>

General figures

Forest area: 25,5 Mha (40%)

16,8 Mha (31%, mainland)

+0,7%/yr since 1980

8,7 Mha (98%, oversea), mainly French Guiana

Harvest intensity: 50 % (mainland)

Net increment: 5.7 m³/ha/yr

Harvested volume: 2.9 m³/ha/yr

Large heterogeneity

Ownership: 75% private (44%-90%)

3.5 million of forest owners

Biodiversity: 136 tree species (mainland)

Broadleaves (67 % area):

pedunculate oak, sessile oak, beech, chestnut, hornbeam, pubescent oak, ash, holm oak

Coniferous (33 % area):

silver fir, Norway spruce, Scots pine, maritime pine, Douglas fir

Commercialised timber

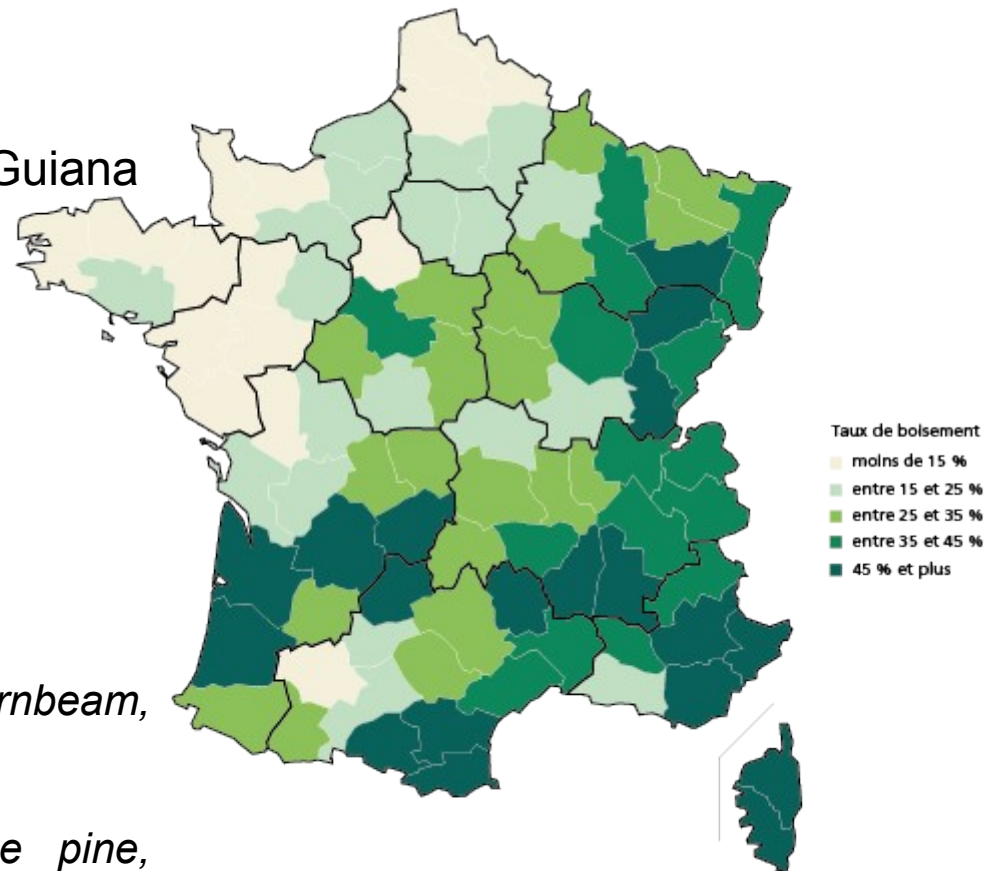
Standing timber: 2.6 Gm³

Commercial timber harvest: 38 Mm³

Lumber: 19.4 Mm³

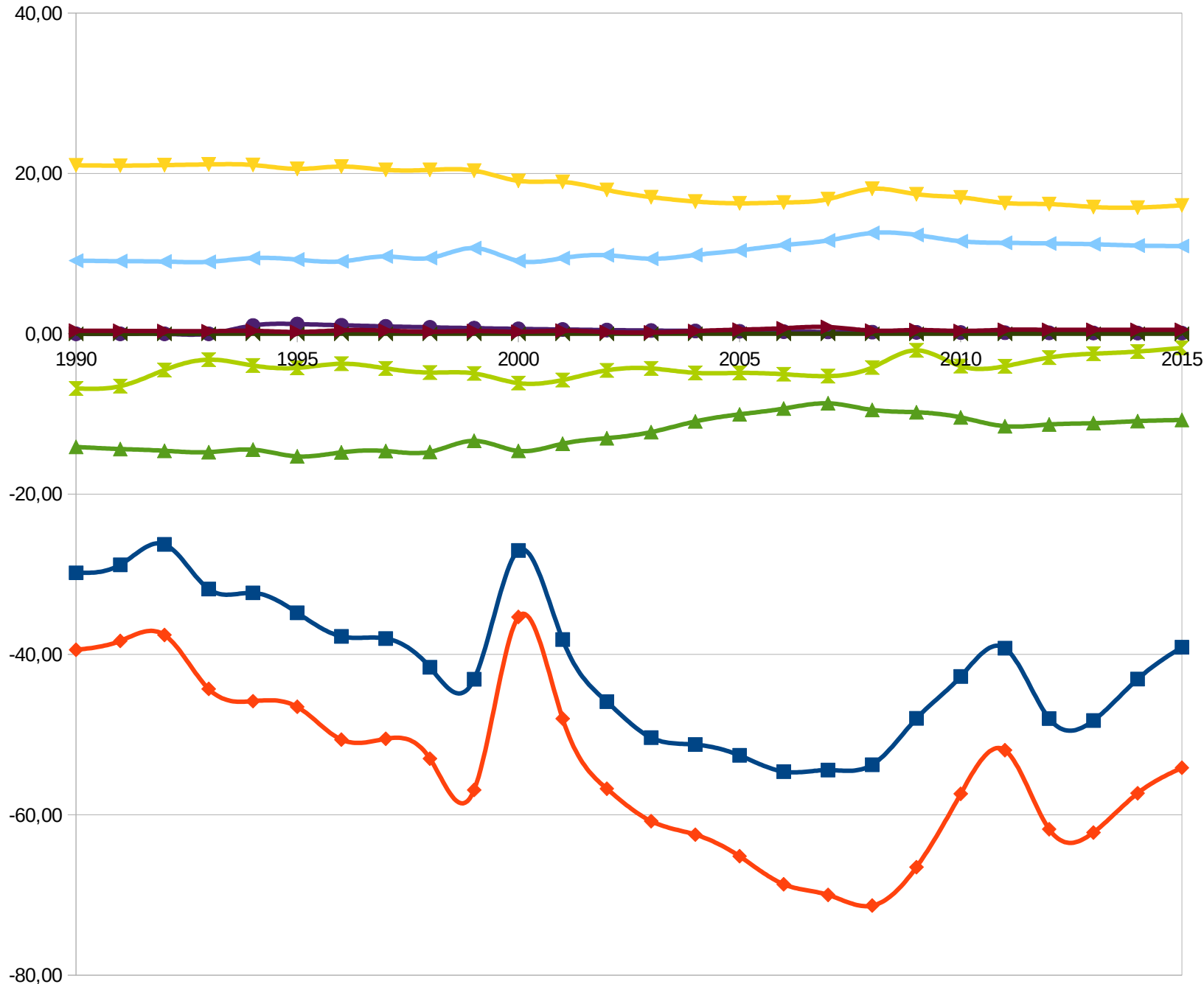
Industrial timber: 10.6 Mm³

Fuelwood: 8 Mm³



IGN 2017 ; Agreste 2018

Background information on French forests



- Land Use, Land-Use Change and Forestry
- ◆ A. Forest land
- ▼ B. Cropland
- ▲ C. Grassland
- ◆ D. Wetlands
- ◄ E. Settlements
- ◆ F. Other land
- G. Harvested wood products
- H. Other

France LULUCF trends (Mt_{eq} CO₂)

Context

Promoting sustainable management of forests

Increasing wood mobilization

Adapting forest stands to climate change

Equilibrating the trade balance

Implementing strategic policies

13/10/2014 – Law for the future of agriculture, food and forestry (LAAF)

18/08/2015 – Energy Transition and Green Growth Law (LTECV)

08/02/2017 – National forest and timber programme (PNFB) for 2016-2026

16/03/2018 – National Biomass Mobilization Strategy (SNMB)

Objectives of the study

Prospective analysis by 2035 of the French mainland forest-wood sector

Detailed projections of forest availabilities

Projections of national supply, by sector and use

Juxtaposition of supply and demand

Projection of forest availabilities

Two silvicultural scenarios

Constant silviculture

Progressive dynamic management

Breakdown of availabilities

Material timber (BO)

Industrial timber (BI)

Energy wood (BE)



Colin et al. (2016)

2035 projections context and objectives

Forest stratification

Non-poplar forests: 116 studies area ("forest strata")

Forest cover type

Targeted species

Ownership category

Biogeographical region (GRECO)

Cultivated poplar stands

5 groups of clones

4 large regions

Forest dynamic simulator

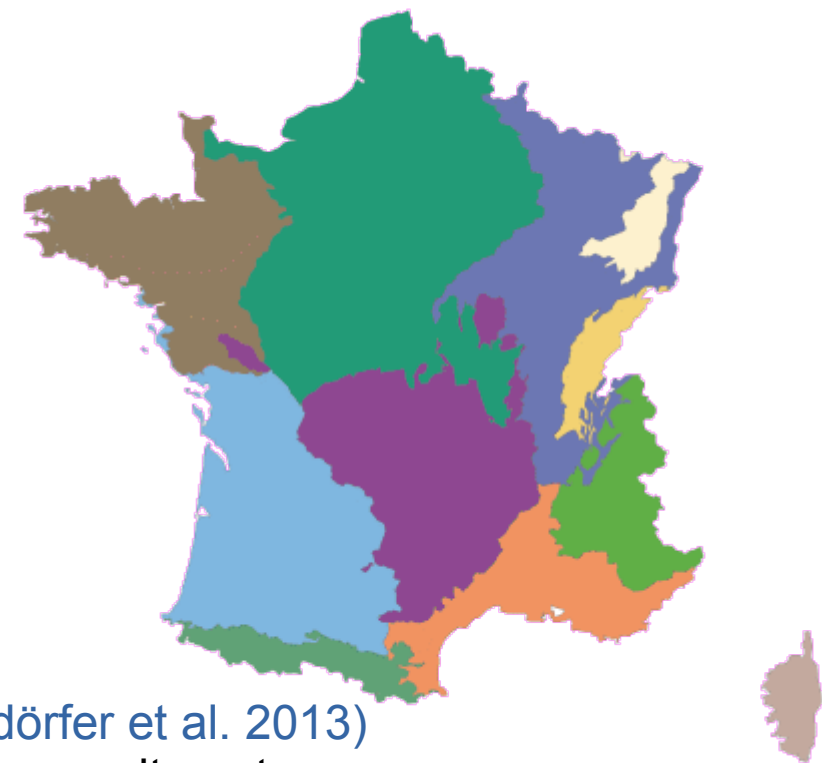
Matrix models

Non-poplar forests: MARGOT matrix model (Wernsdörfer et al. 2013)

Forest dynamic rates: growth, mortality, harvest, recruitment

Poplar forests: age class matrix model (IFN et AFOCEL, 1983)

Colin et al. (2016)



Statistical estimation based on 4 campaigns of National Forest Inventory (NFI)

Assumption of climate and meteorological stability

Constant silviculture scenario

Species- and diameter- specific harvest rates

Based on 2005-2013 observations from NFI

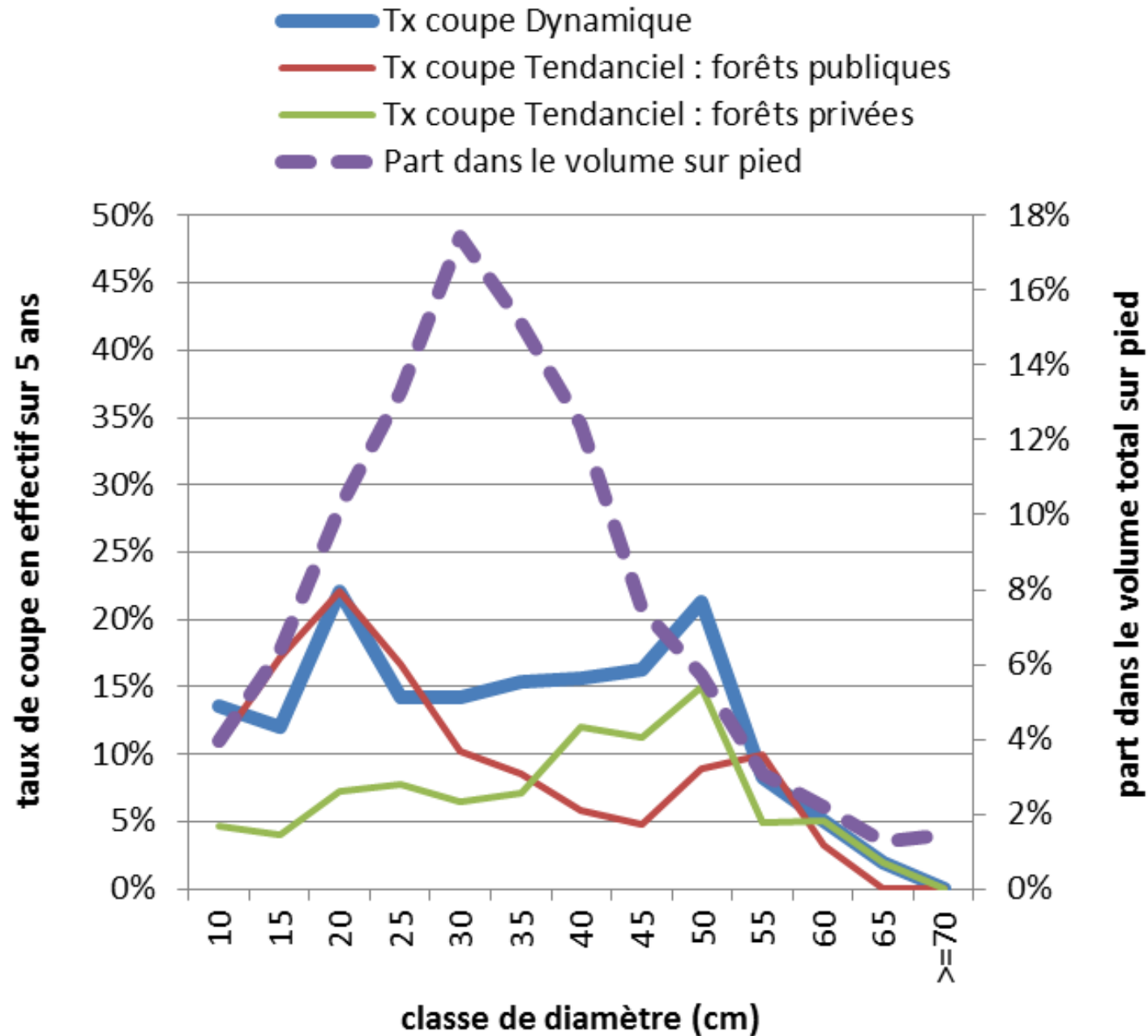
Zoning-based modulation, depending on ownership and main purpose

Particular treatment for South-West pine forests (2009 Klaus storm)

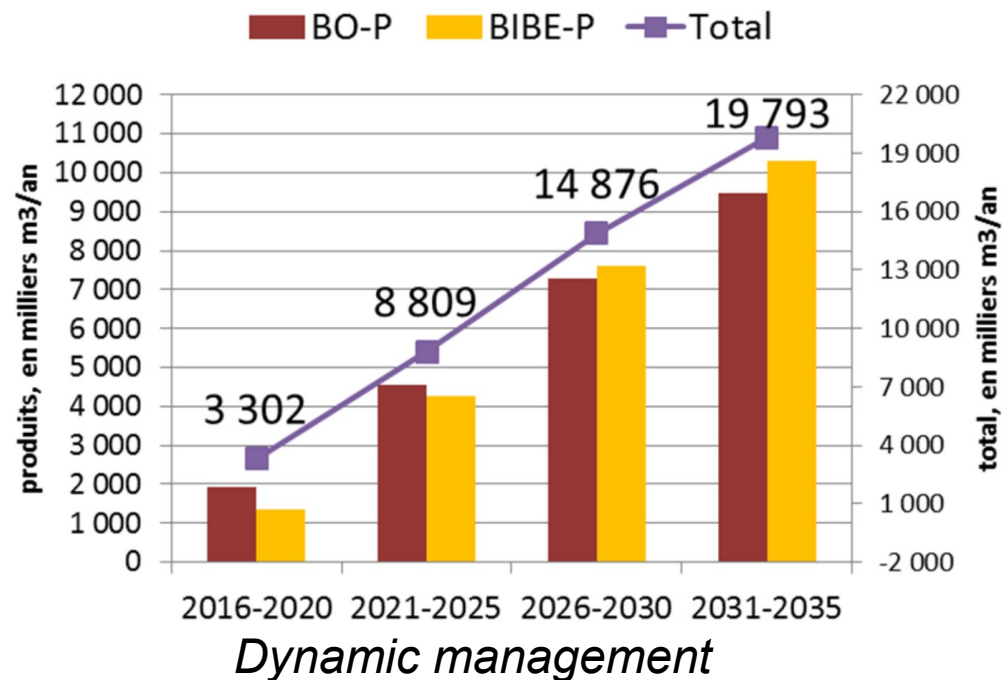
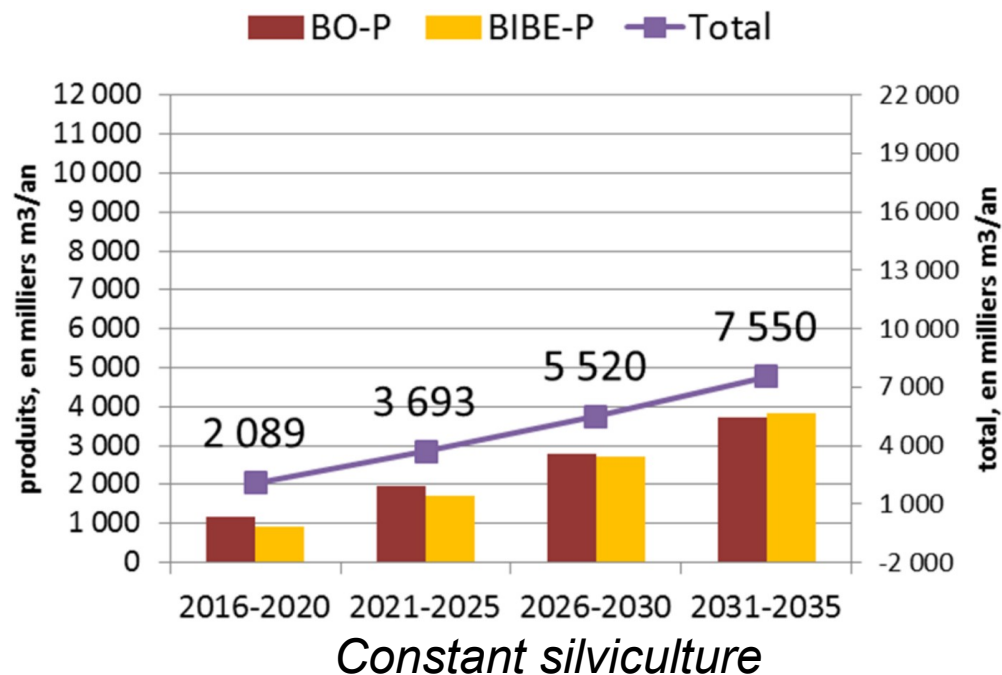
Initialisation on the latest known state of forest (2016 on 2014)

2035 projections methodology

Peuplements de pin sylvestre - Nord-Ouest



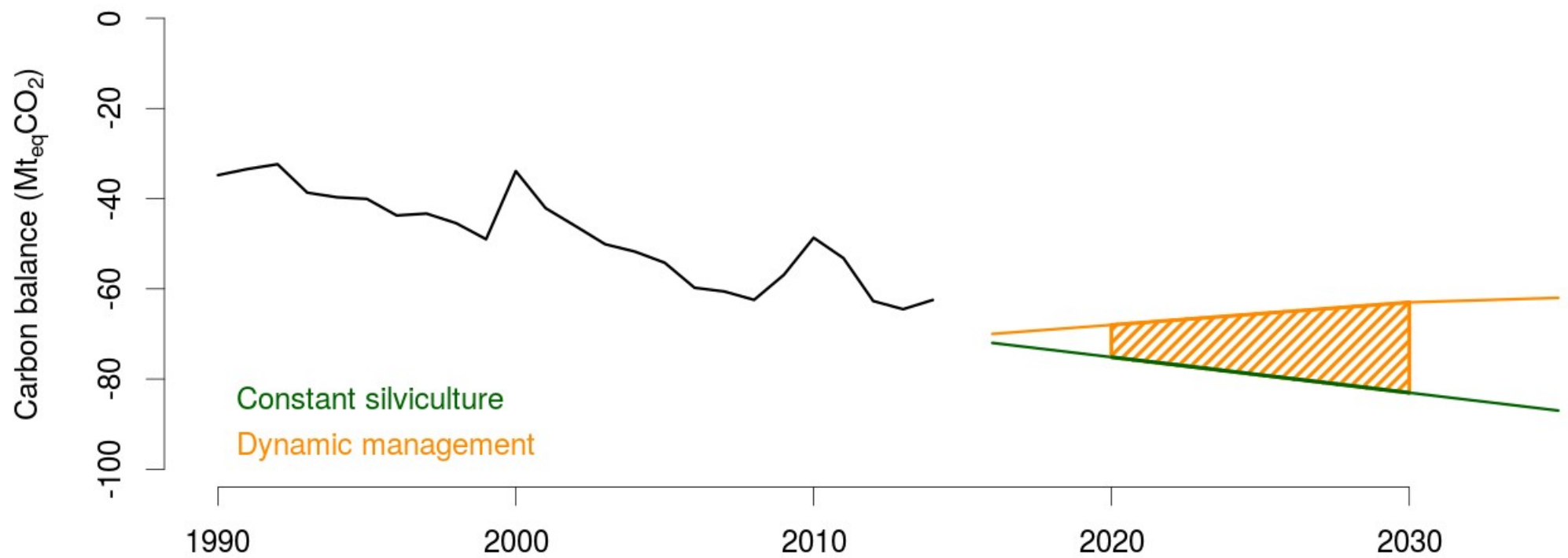
Example of management practices on a strata



Projected timber harvests

National objective of harvest (PNFB):
+12 Mm³ in 2026 compared to 2016
 (+5 Mm³ age effect, +7 Mm³ dynamic management)

Main results of 2016 projections for 2035



Amount of projected debit on managed forest lands:
 $\approx 100 \text{ Mt}_{\text{eq}} \text{CO}_2$ on the period 2021-2030

To meet the LULUCF non-debit rule (Art 4)

Intra LULUCF flexibilities (Art 12)

Credits from other land categories and pools

Managed forest land flexibility (Art 13)

Compensation of some debits

Projections of LULUCF accounting

Mainland and oversea forests

Simplified variant for each oversea, based on available data

Forests area without any data: assumption of non-anthropogenicity

Step 1 – Forest stratification

Reuse of the Colin et al. (2016) stratification in 116 stratas

EUROPEAN COMMISSION

Step 2 – Documentation of 2000-2009 forest management practices (FMPs)

Strata-, species- and diameter-specific harvest rates

Preference for the new NFI methodology (2005)

Guidance on developing and reporting Forest Reference Levels in accordance with Regulation (EU) 2018/841

Step 3 – Selection of methodology

Methodology updated with newest NFI and soils data

Density-dependency assumptions of forest growth



CONSORTIUM LEADER:
ICF Consulting Limited (ICF), United Kingdom

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2018

Directorate-General for Climate Action

Forsell et al. (2018)

Adaptations following DG Clima guidance

Step 4 – Calibration and validation

Model's ability to reflect 2000-2009 NFI and NIR observations
Comparison of 2010-2016 projections and observations

Step 5 – Projection over commitment periods

2010 as starting year
Dynamic development of managed forest land
FMPs assumed to be constant, unless there is a clear lack of sustainability
2000-2009 usage statistics for HWP (BO-BE-BI ratios, consumption surveys, ...)

Step 6 – Calculation of FRLs

Average of emissions and absorptions by pools

EUROPEAN COMMISSION

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No direct consequences of LULUCF regulation for private parties

No accounting or reporting obligations for private parties, including farmers and foresters.

LULUCF regulation – Consideral 11

Interlinked regulations

With Governance regulation: long-term low emission strategy

the Member State [...] has included ongoing or planned specific measures to ensure the conservation or enhancement, as appropriate, of forest sinks and reservoirs;

LULUCF regulation – Art 13.2.a (managed forest land flexibility)

With RED 2: LULUCF requirements in sustainability criteria for forest biomass

the country [...] of origin of the forest biomass [...] ensures that either changes in carbon stock associated with biomass harvest are accounted

RED 2 – Art 26.6 (sustainability criteria – forest biomass)

Practical consequences for the forest sector

French low-carbon development strategy (SNBC 2) – in preparation

Aim for carbon neutrality by 2050

Forest sector: 3 recommendations

1. Ensure the long-term conservation and enhancement of carbon sinks and stocks in the forest-wood sector, as well as their resilience to climate stresses
2. Maximise substitution effects and carbon storage in wood products by influencing supply and demand
3. Evaluate the implementation of induced policies and adjust them regularly to ensure the achievement of expected results and co-benefits, including biodiversity

Practical consequences for the forest sector

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