National energy and climate plan and measures in LULUCF sector, and some other things…

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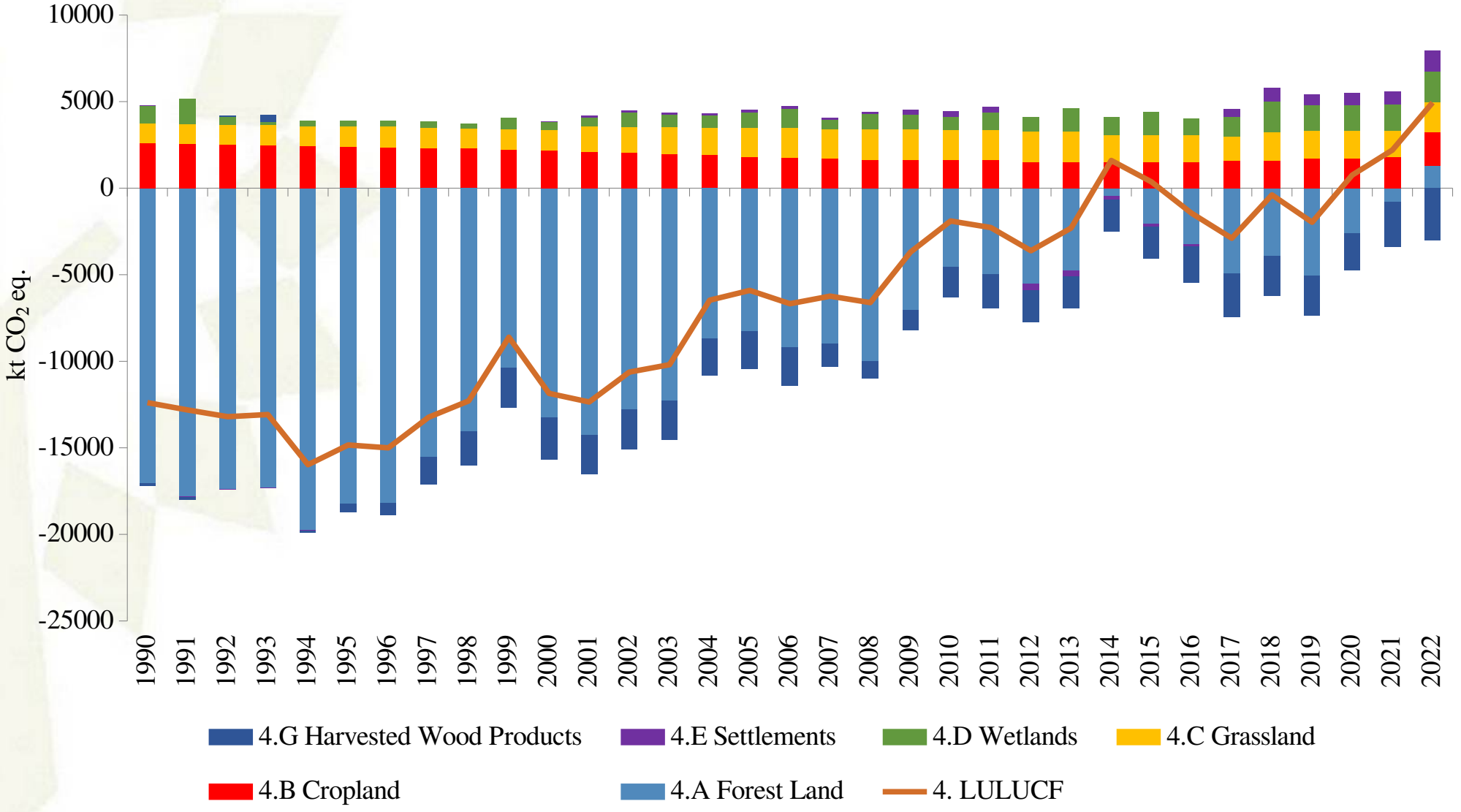
Where we are now...



Climate change mitigation targets in 2025, 2030, 2050 and beyond

2025:

- Forest reference level (-1709 Gg CO_2 eq yr^{-1}) in forest land;
- emissions due to deforestation do not exceeds removals due to afforestation;
- net emissions from grassland do not exceed 784 Gg CO_2 eq yr^{-1};
- net emissions from cropland do not exceed 1681 Gg CO_2 eq yr^{-1};
- total target – net emissions do not exceed 757 Gg CO_2 eq yr^{-1}.

2030:

- LULUCF sectoral target – net removals 641 Gg CO_2 eq in 2030.

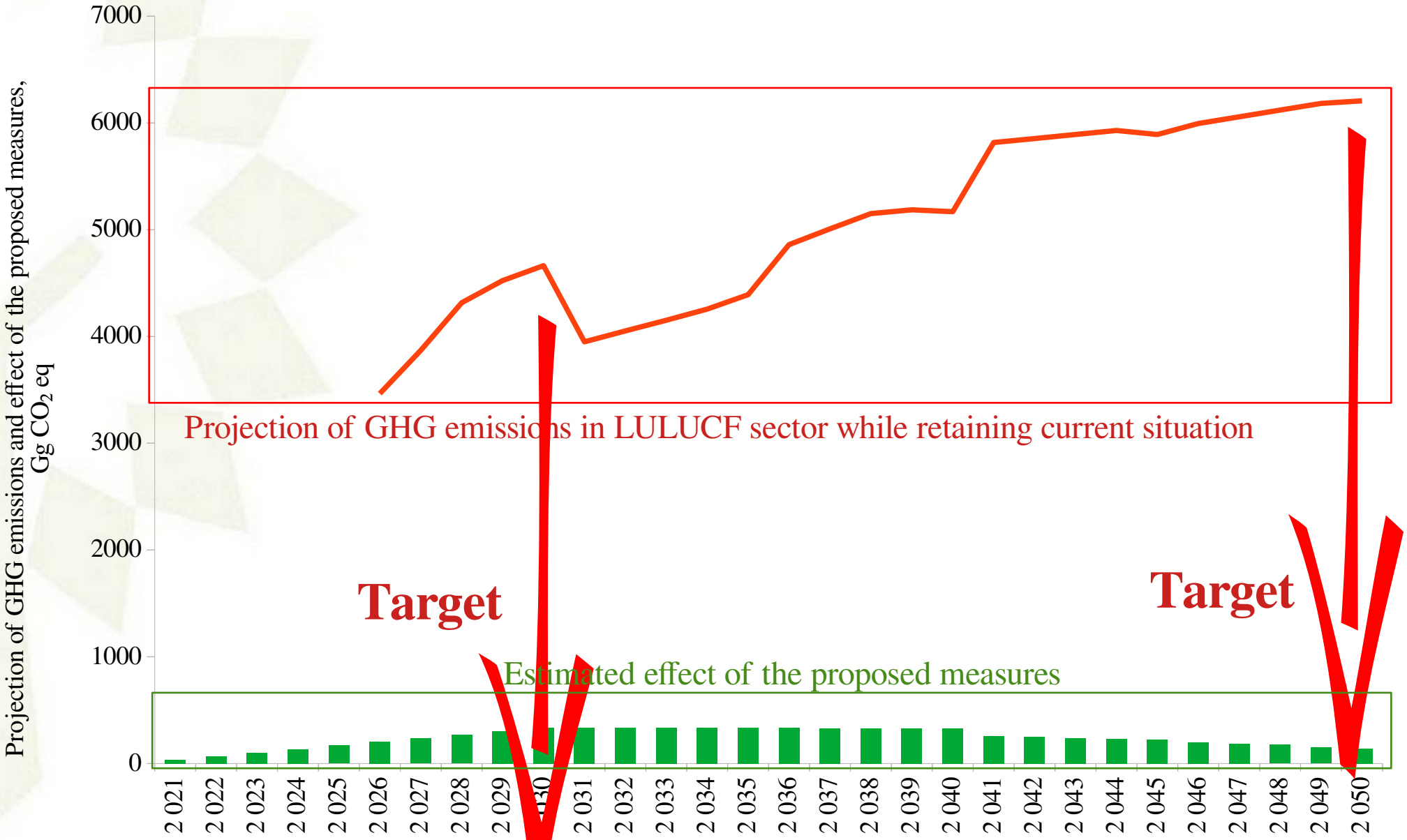
2040 *(not yet legally binding)*:

- climate neutrality in AFOLU sector (LULUCF + agriculture);
- net removals in LULUCF sector around 2000 Gg CO_2 eq in 2040.

2050 *(not yet legally binding)*:

- climate neutrality in all sectors, LULUCF should compensate 10% of the national GHG emissions;
- net removals in LULUCF sector around 2200 Gg CO_2 eq in 2050.

How we are moving towards the goal of climate neutrality



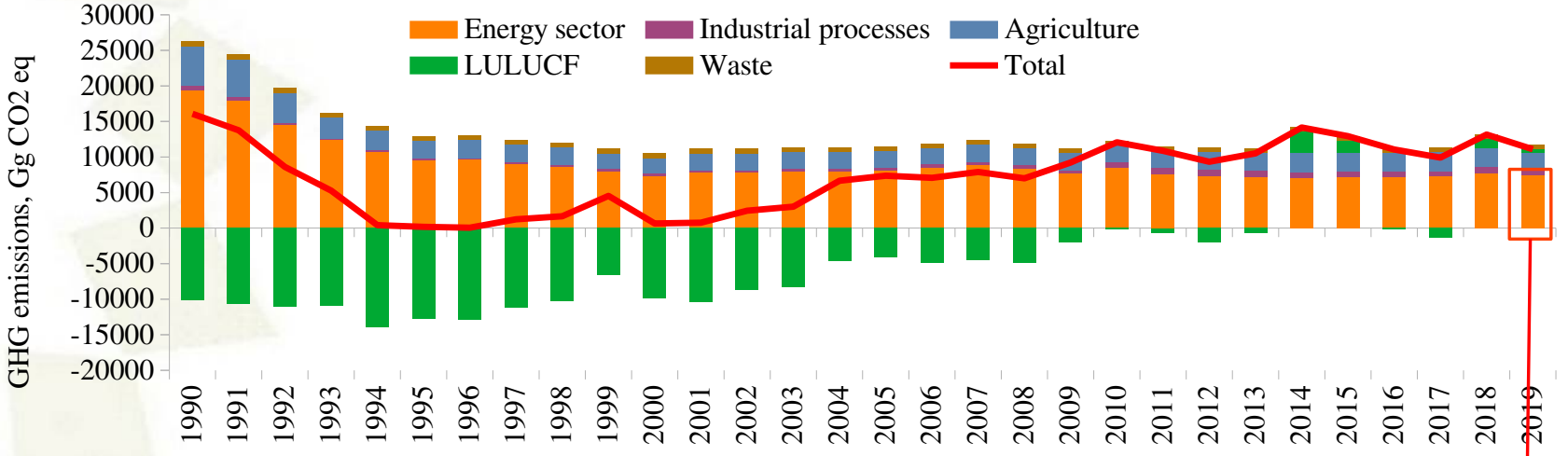
Main drivers affecting GHG emissions in land use sector

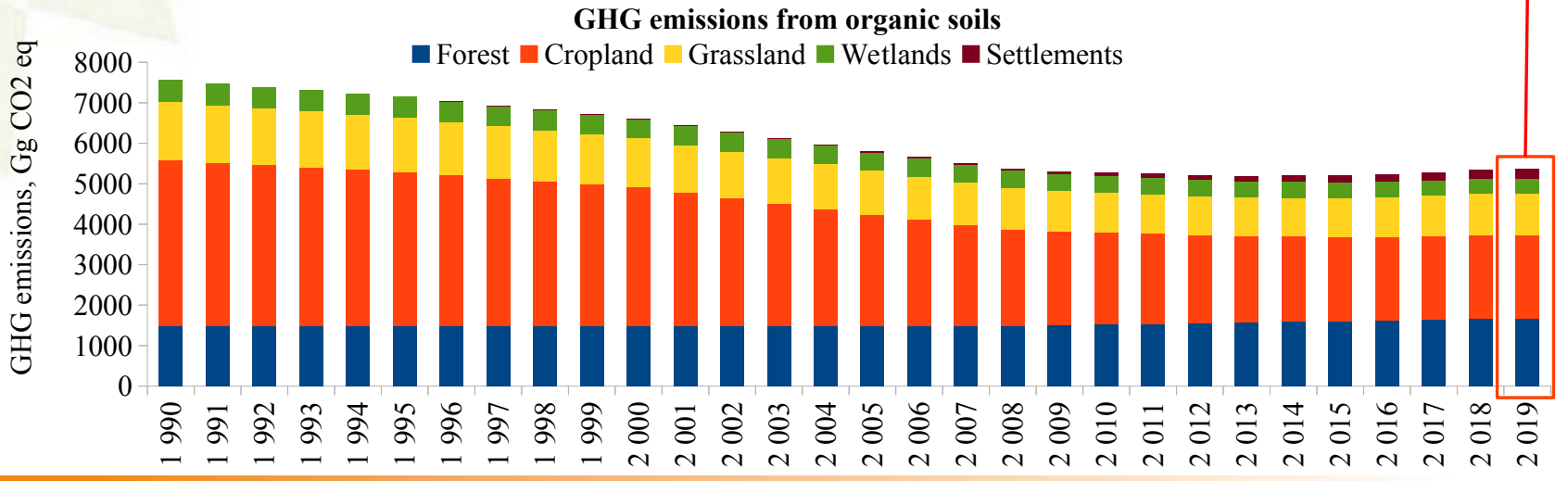
Increased harvest rate *(tripled in comparison to 1990)*

Increased **peat production** for horticulture and **export**

Ageing of forest and reduction of growth potential

Continuously high emissions from **organic soils**





A bit of history

National studies
2007-2013
Long term (~50 years) effect of drainage on the carbon losses from organic soils

Standardised measurement design

LIFE Restore
2015-2019
The largest (by number of sites) project to that time on GHG fluxes from ***nutrient poor peat soils****.*

LIFE Peat Restore
2016-2021
Short term effect of rewetting of ***nutrient poor (LT, LV) and rich (DE, PL) peat soils****.*

LIFE OrgBalt
2019-2023
The largest (by number of sites and measures) project to that time on GHG fluxes from ***nutrient rich peat soils****.*

Accredited methods for gas sampling and laboratory analyses

LIFE PeatCarbon
2022-2027
Short term and middle term (~20 years) effect of rewetting of nutrient poor peat soils, GEST types.

Alfawetlands
2022-2026
Effect of berry cultivation, afforestation, wood ash recycling and rewetting of peat soils, longer measurement periods.

Contribution to National GHG Inventory

Land use type	GHG	Unit	IPCC 2013, Wetlands Supplement*	National, developed by LSFRI Silava
Forest land	CO_2	t CO_2-C ha^{-1} yr^{-1}	2.6	0.52 ⇓
Cropland	CO_2	t CO_2-C ha^{-1} yr^{-1}	7.9	4.80 ⇓
Cropland, cranberry plantations	CO_2	t CO_2-C ha^{-1} yr^{-1}	7.9	0.32 ⇓
Cropland, blueberry plantations	CO_2	t CO_2-C ha^{-1} yr^{-1}	7.9	0.60 ⇓
Grassland	CO_2	t CO_2-C ha^{-1} yr^{-1}	6.1**	4.4 ⇓
Wetlands, peat extraction	CO_2	t CO_2-C ha^{-1} yr^{-1}	2.8	1.21 ⇓
Grassland	CH_4	kg CH4 ha-1 yr-1	16**	77.1 ⇑
Wetlands, peat extraction	CH_4	kg CH_4 ha^{-1} yr^{-1}	6.1	10.83 ⇑
Cropland	N_2O	kg N2O-N ha-1 yr-1	13	7.1 ⇓
Grassland	N_2O	kg N_2O-N ha^{-1} yr^{-1}	8.2**	0.3 ⇓
Wetlands, peat extraction	N_2O	kg N_2O-N ha^{-1} yr^{-1}	0.3	0.44 ⇑

** Temperate, nutrient-rich; ** Deep-drained*

Contribution to National climate & energy plan (NCEP)

Application of mineral fertilisers in forest lands, *21 kh in 2030, funding 7 mill. €*	Application of wood ash in forest lands with peat soils *21.5 kha in 2030, funding 3 mill. €*	Improving the hydrological regime in forest lands *80 kha in 2030, funding 120 mill. €*
Replacement of unproductive forest stands *10 kha in 2030, funding 24 mill. €*	Afforestation and rewetting of organic soils in agricultural lands *40 kha in 2030, funding 259 mill. €*	Afforestation of organic soils in agricultural lands *40 kha in 2030, funding 99 mill. €*
Afforestation of less valuable agricultural lands *75 kha in 2030, funding 186 mill. €*	Trees in shelter belts (agroforestry) *22 kha in 2030, funding 38 mill. €*	Willow plantations for biofuel production *15 kha in 2030, funding 41 mill. €*
Group of trees in pastures *(0.09 ha per 1 ha pasture, agroforestry)* *150 kha in 2030, funding 37 mill. €*	Afforestation of extracted peatlands *6 kha in 2030, funding 15 mill. €*	Biochar use on arable land starting from 2029 *126 kha, 322 mill. €*

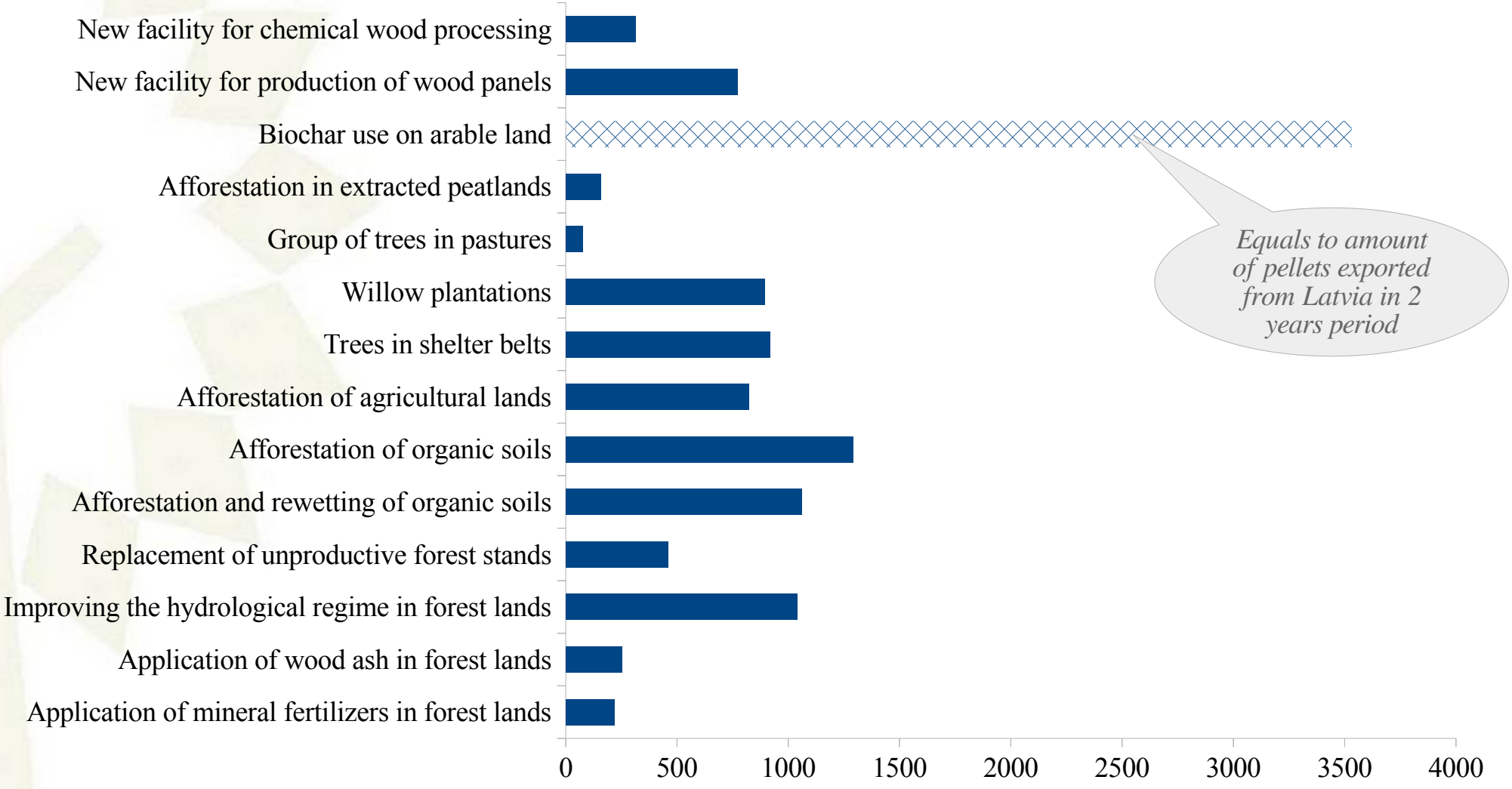
Next steps:

Higher tier methods

Monitoring methods

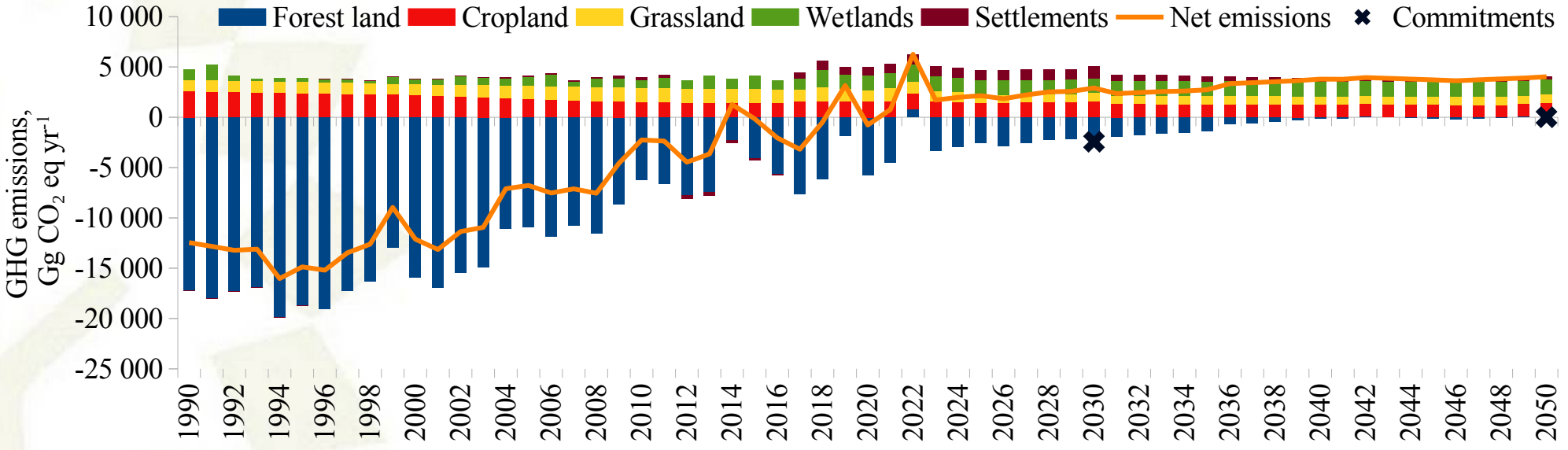
Significantly increased accuracy

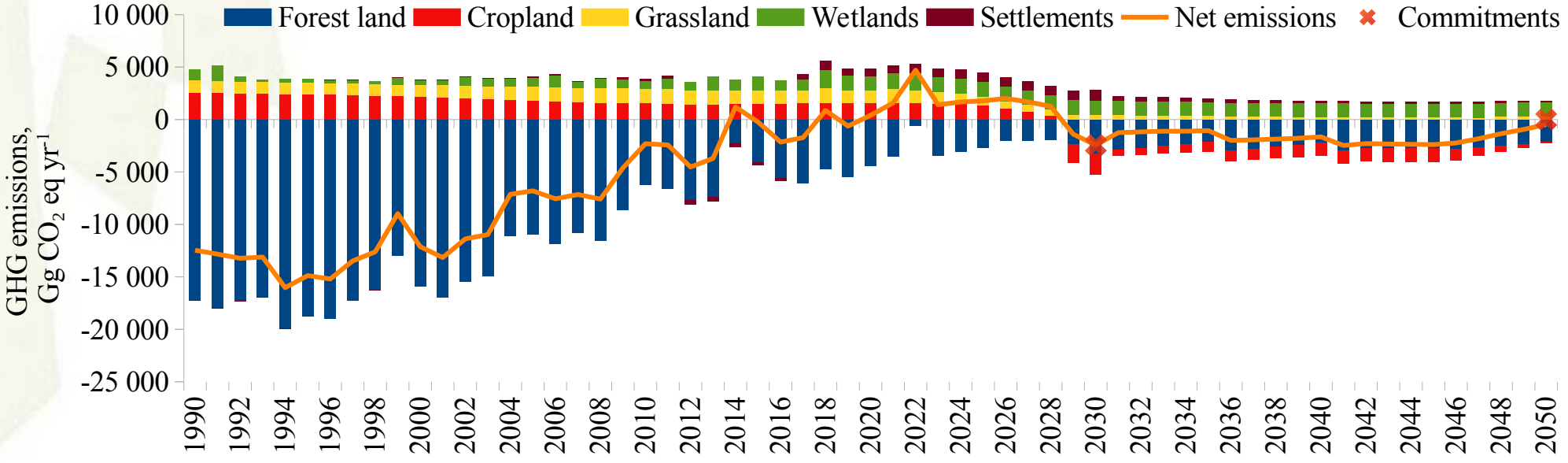
Proposed GHG mitigation effect of NCEP



Investments – 2451 mill. €.
Mitigation effect – 11818 Gg CO_2 eq.

Business as usual and the “target” scenarios for land sector





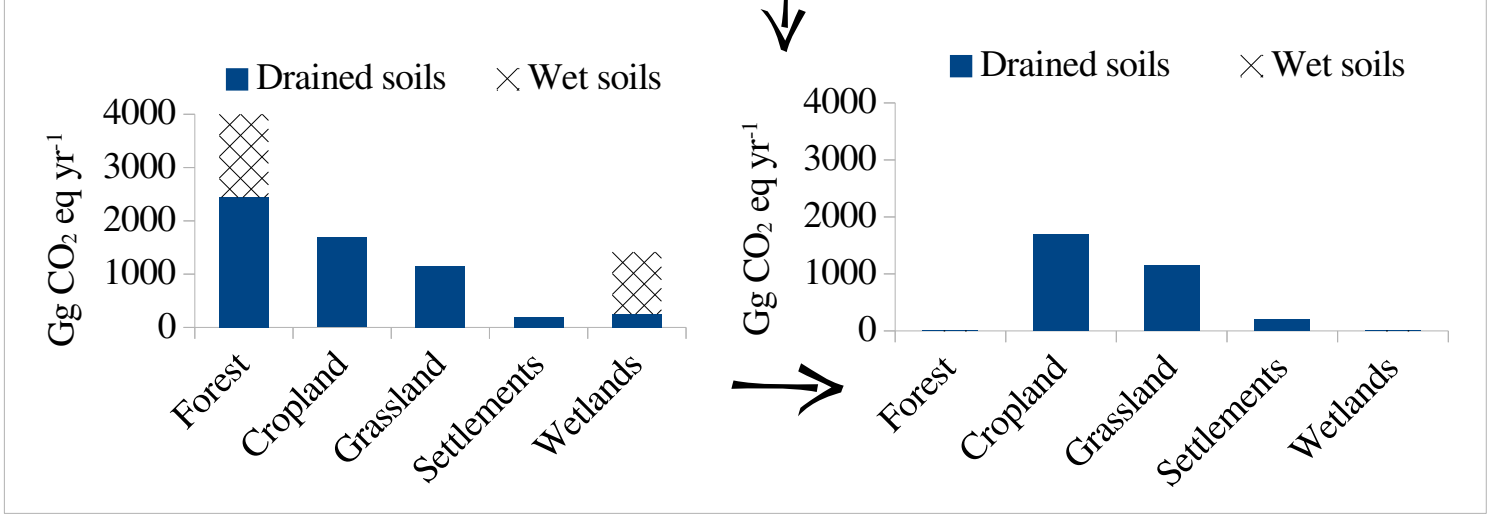
Knowledge gaps to be solved

Land use definitions and definitions of organic soils *(organic soil 1, 3, 6 or 12% of C in topsoil or 40 cm deep peat layer)*

Management definitions *(direct and indirect anthropogenic effect, what and why something is unmanaged)*

Global lack of long term monitoring data *(enormous field for speculations)*

Separation of anthropogenic emissions from baseline level *(Latvian slow motion volcanos)*



Other challenges to overcome

Soil carbon and soil GHG fluxes *(uncertainty, activity data, projections)*

Peat production and decomposition *(substitution for instant oxidation method)*

Switching to "wall to wall" reporting *(activity data updates, land use changes, Annex 5, part 3)*

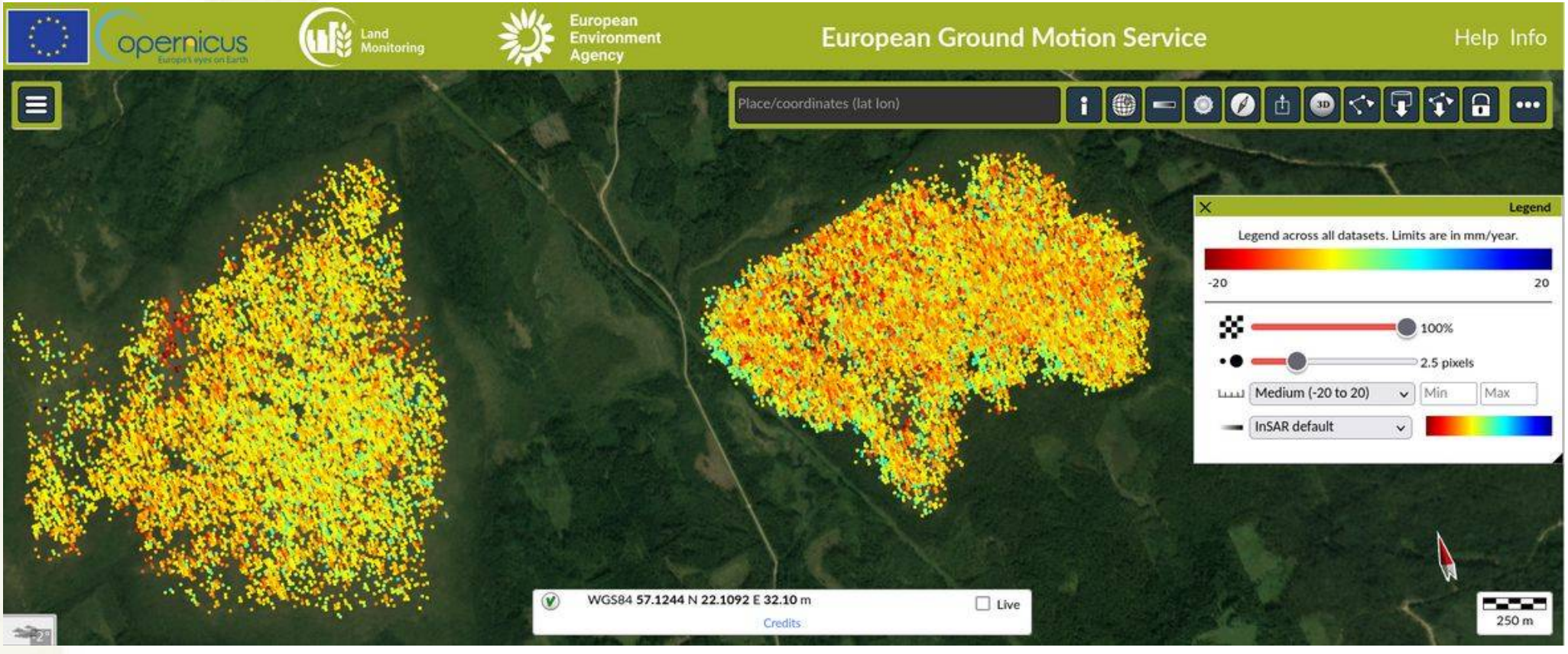
if we take it seriously...

Substantiation of mitigation measures and "myth-busting"

Increasing monetary value of LULUCF sector *(scientific evidences are affected by commercial interests)*

Insufficient cooperation in Nordic & Baltic region *(LULUCF targets, EU carbon credit market, taxonomy...)*

GHG fluxes in “pristine” wetlands



Potential threats to maximise national and company level contribution

Nature restoration law:

- restoration targets – management restrictions in up to 30% of the country area;
- restrictions in management & afforestation of organic soils;
- promotion of continues cover forestry *(not suitable for the most of the tree species in Latvia)*.

Voluntary carbon trading regulation at EC:

- restrictions on activities in areas with organic soils;
- limited number of supported measures and restrictions for suitable for the areas;
- list of measures is being updated from Brussels, limited options to set national priorities.

Sustainability schemes:

- "non-sustainable" management of peatland forests;
- deforestation and high emissions rate can turn forest biofuel into "non-sustainable" product.

Reduction of competitiveness of local resources and motivation to manage forests.

New project – Research and Innovation Based Solutions to Support the Peat Sector's Transition to a Climate Neutral Economy

PeatTransform

Consortium:

Project objective:
To develop a knowledge-based wetland management strategy *(policy instruments and monitoring tools)* that enables Latvia to achieve climate neutrality by 2050, while fulfilling biodiversity objectives, avoiding social tension and maintaining Latvia's position in the growing media market.

Expected project impact:
100% reduction of emissions from soils at peat extraction sites by improving accounting methodologies and implementing emission reduction measures. 50% reduction in emissions from peat products by substituting raw peat in growing media, reusing peat, and producing long-lifespan peat materials. A further 50% substitution of GHG emissions from peat products through additional CO_2 removals and emission reduction measures.