Evaluation of the effects on GHG emissions of policies and measures

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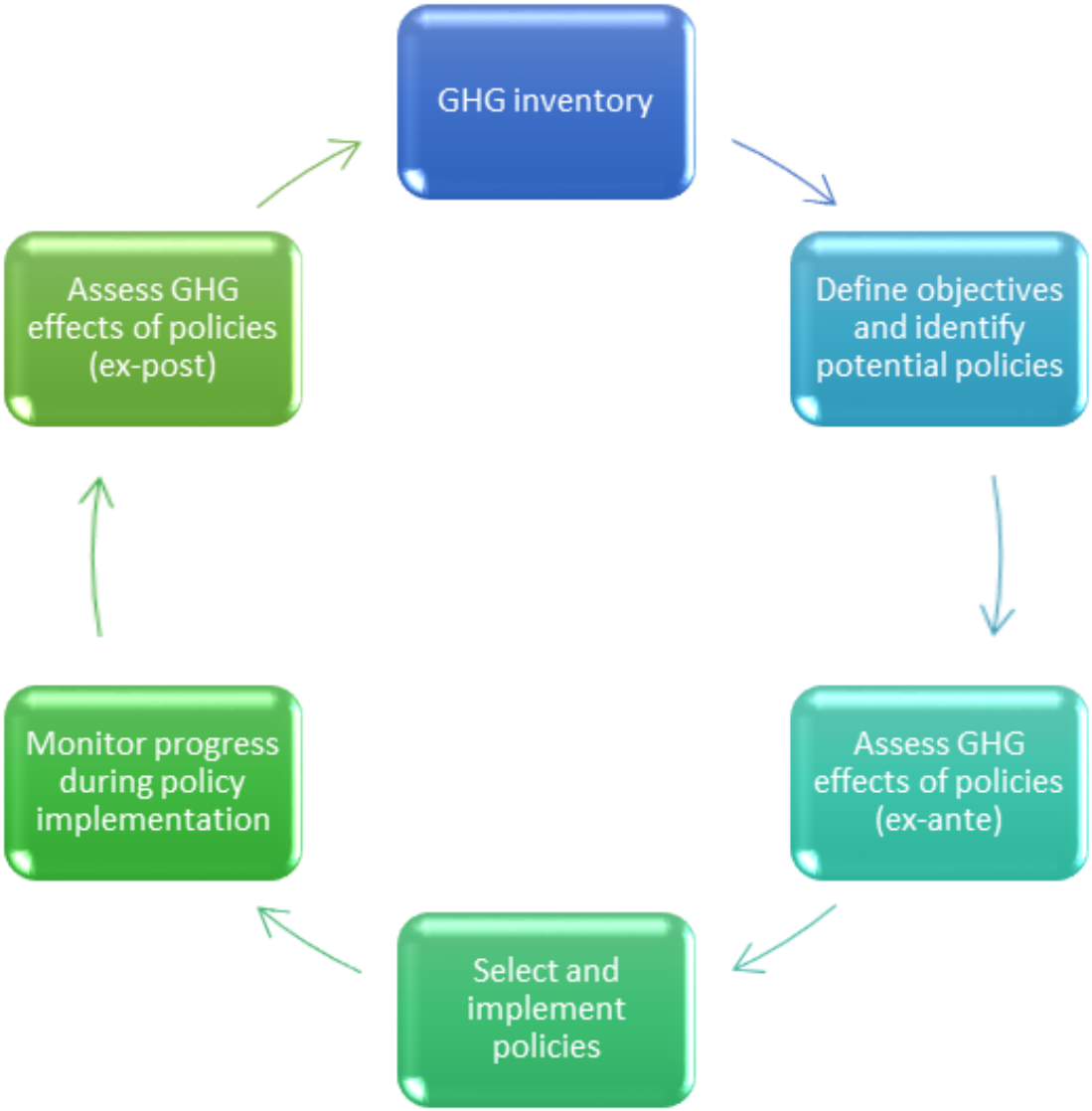
RIGA, April 1, 2016
Ministry of Environment Protection and Regional Development

Overview

- Introduction
- Implemented methods and models
- Energy sector cases

Role of policy impact quantification



Role of GHG inventory and GHG policy impact assessment

- GHG policy impact assessments differ from GHG inventory, but these two types of GHG analysis can complement each other.
- A GHG inventory is the first step of GHG management, helping understand the background and identify the mitigation potential of a country.
- However, GHG inventories do not explain the reasons for emission growth or decline, or reveal the effects of individual policies or actions.
- GHG impact assessments of policy instruments can provide complementary information to GHG inventories to help governments better understand the reasons for changes in GHG inventories.

Role and steps for impact assessment

- Policy impact assessment can serve many purposes, such as choosing policies, assisting policy design, tracking policy effects, summarizing experiences, assessing emission reductions achieved by policies;
- After determining the assessment objective, it is necessary to decide whether to assess an individual policy or a package of policies and choose the assessment type according to the policy's stage (ex-ante or ex-post);
- Scenario development, description is important stage for PAMs impact assessment (baseline, what policies include,..).

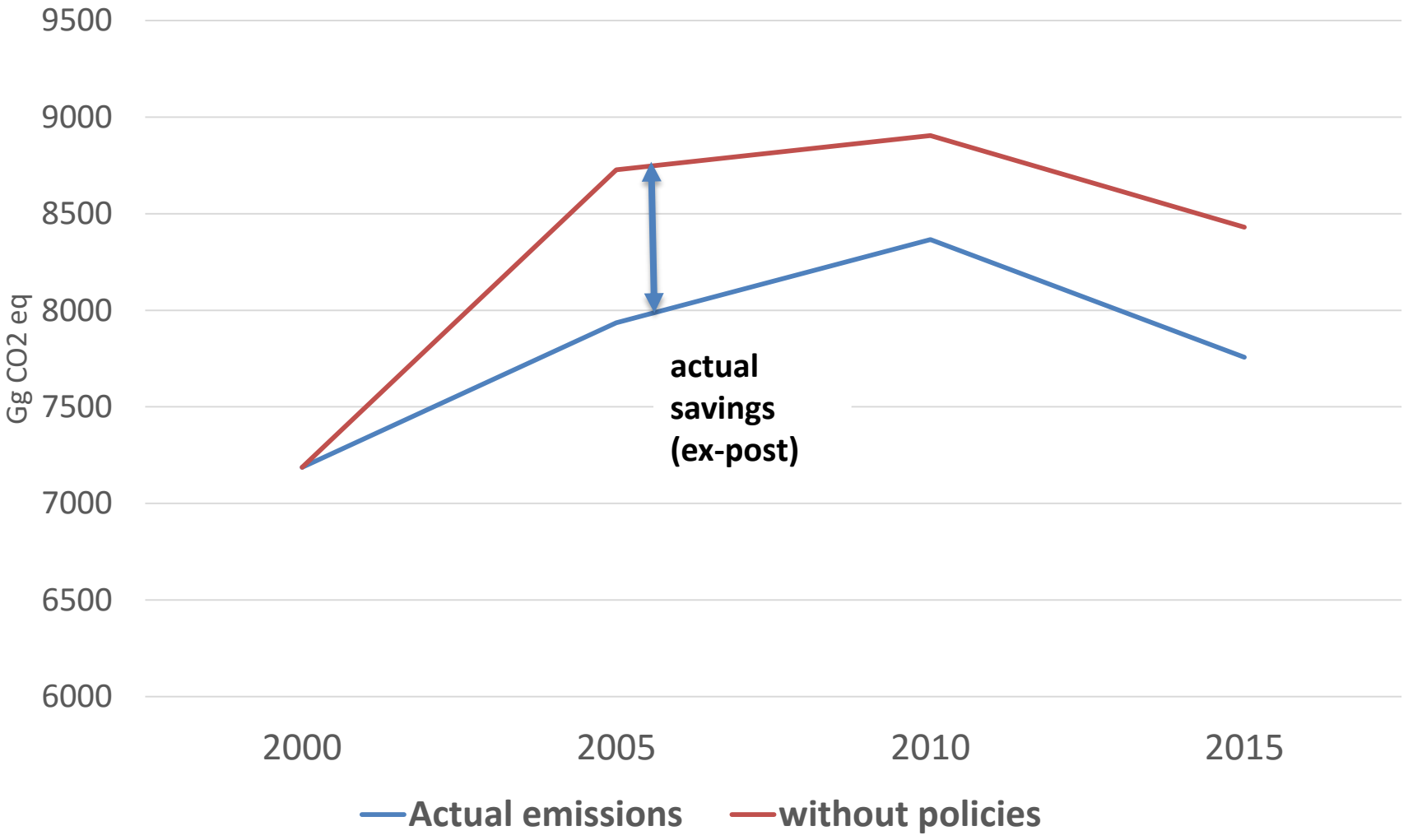
Experience from PAMs impact assessment in Latvia

- Both of approaches have been used (bottom-up and top-down) for quantification of policy impact;
- In Latvia mainly ex-ante assessment have been performed, ex-post assessment have been performed only for energy sector;
- **Weakness of bottom-up approach:**
  - Static baseline;
  - It can usually leads to overestimation;
  - To avoid overestimation evaluation should take consideration of any policy overlaps and interactions
- For top-down approach we mainly assessed a package of policies instead to an individual policy.

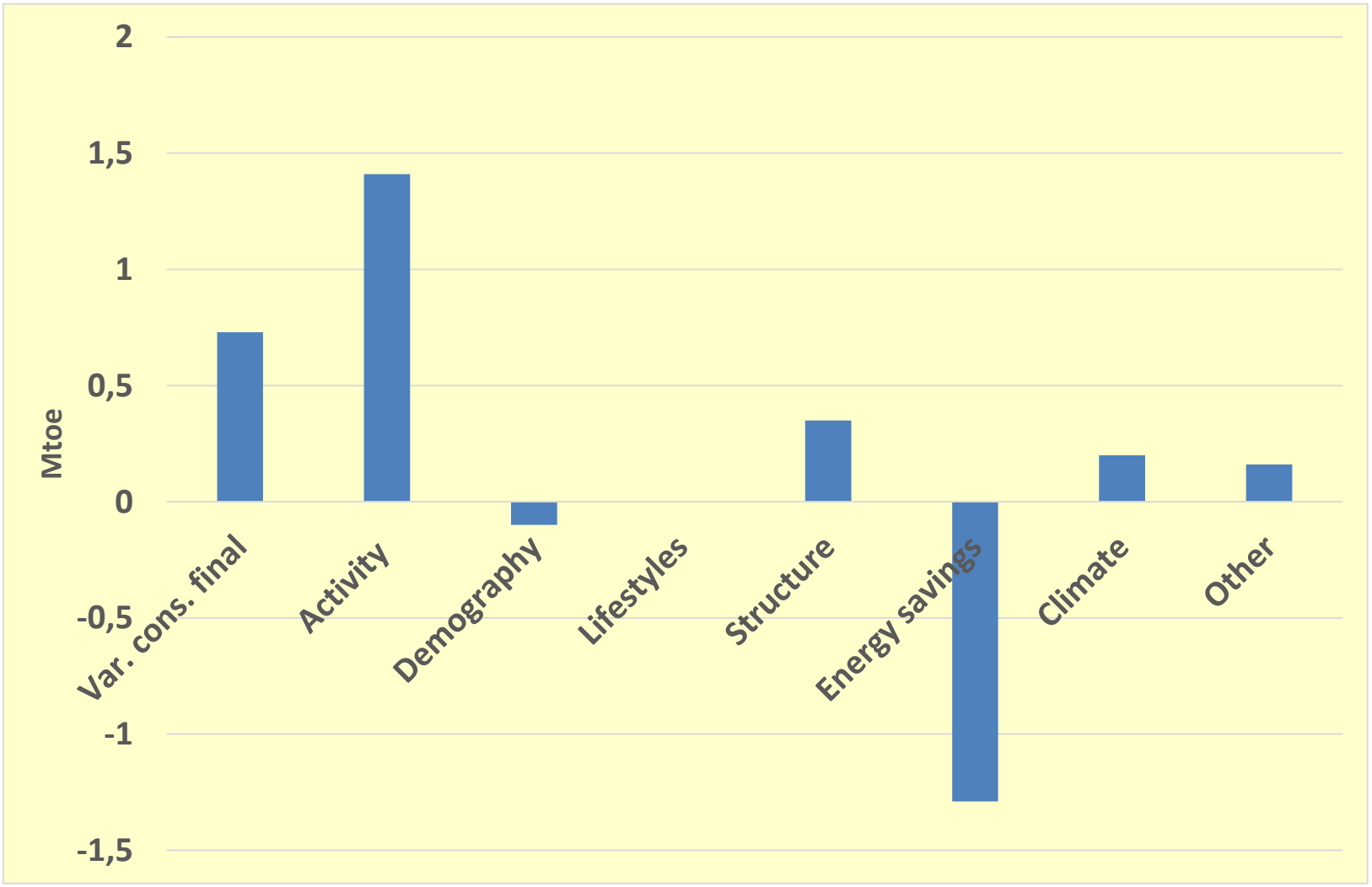
Assessment of PAMs with bottom-up approach

	NDP Program 2007-2013 (ex-post)	NDP Program 2014-2020 (Ex-ante)	
	2015	2020	2023
Biomass boiler houses	169,9 kt	59,5 kt	98.5 kt
EE Improvement of DHS	50,1 kt	12,6 kt	25.0 kt
Residential sector: EE improvement in multi family houses	43 kt	26,4 kt	40.0 kt
Energy production from biomass of agriculture origin	69.5 kt		

Ex-post assessment by MARKAL model in energy sector



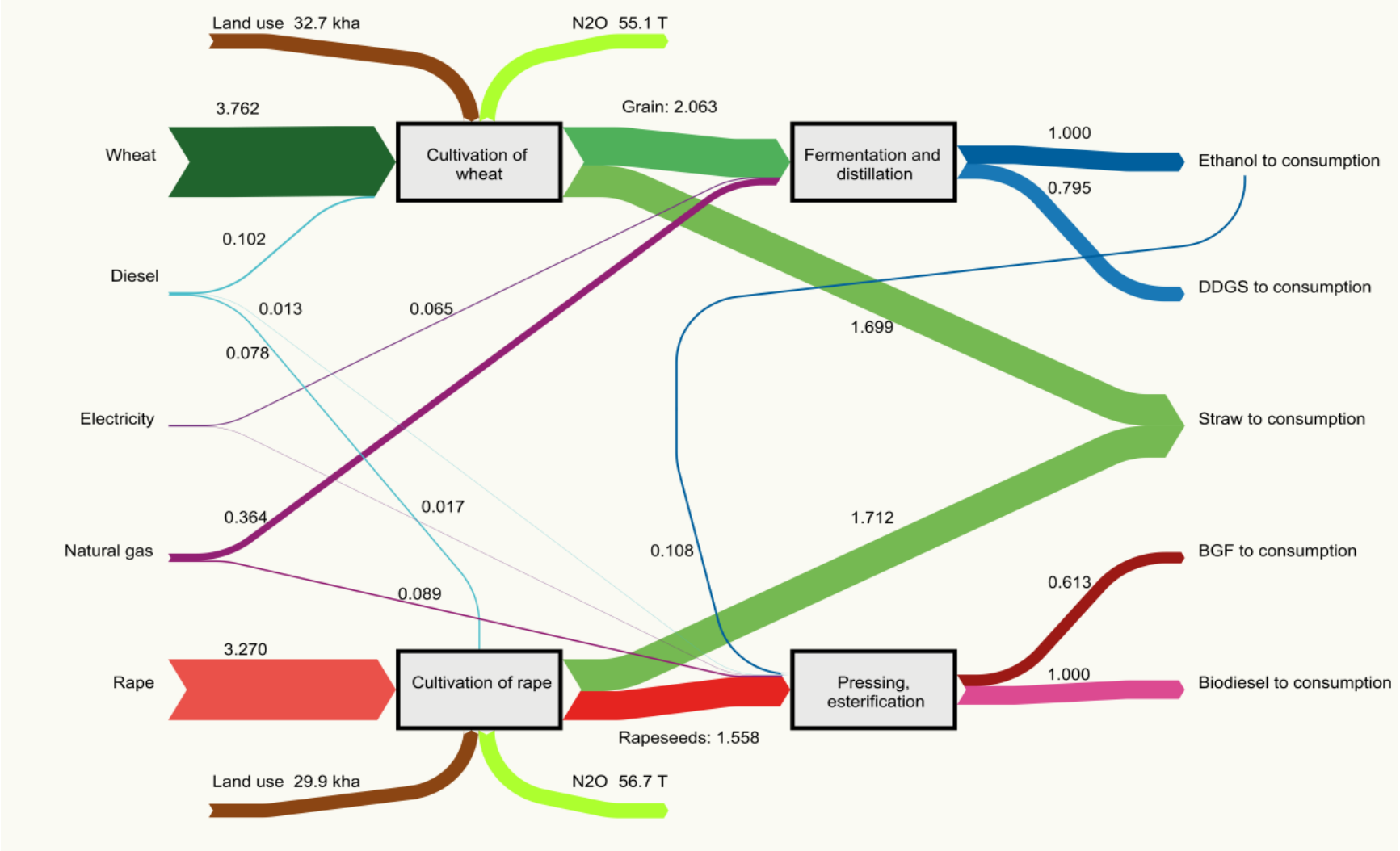
Variation in final energy consumption - Latvia (2000 – 2013)



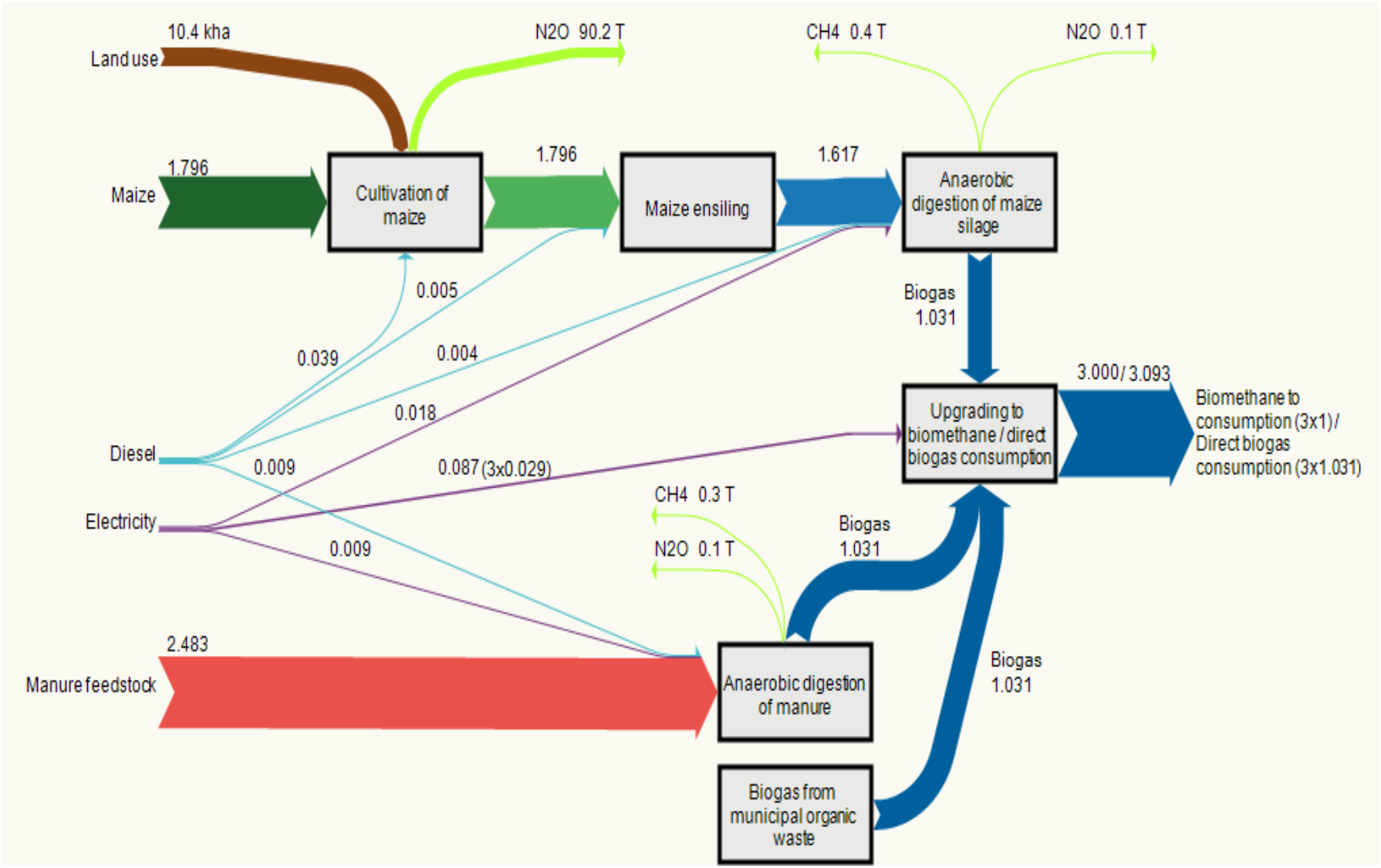
Development of tools for policy impact assessment

- Objective for development of MARKAL-LV model was to ensure performing of integrated policy impact assessment;
- Implementation of developed tool with focus to cross-sectoral policies;
- The main benefit from integrated assessment is preventation/decreasing of impact overestimation or underestimation;
- Involved sectors: energy, agriculture, waste.
- Model development has performed in the framework of state research Program «EVIDENT»;

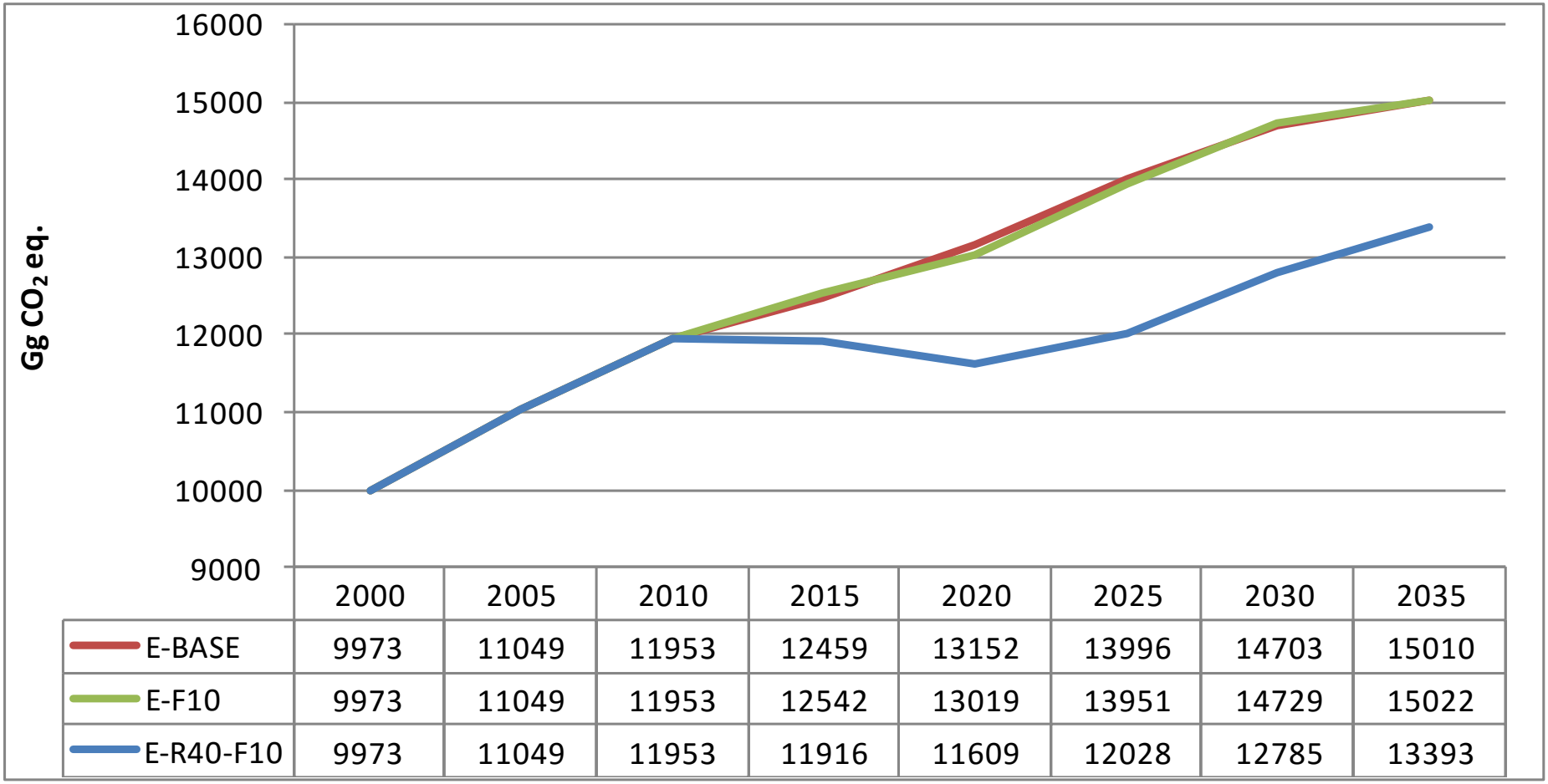
Description of biofuel production chain in MARKAL-LV model



Description of biogas/biomethan production chain in MARKAL-LV model



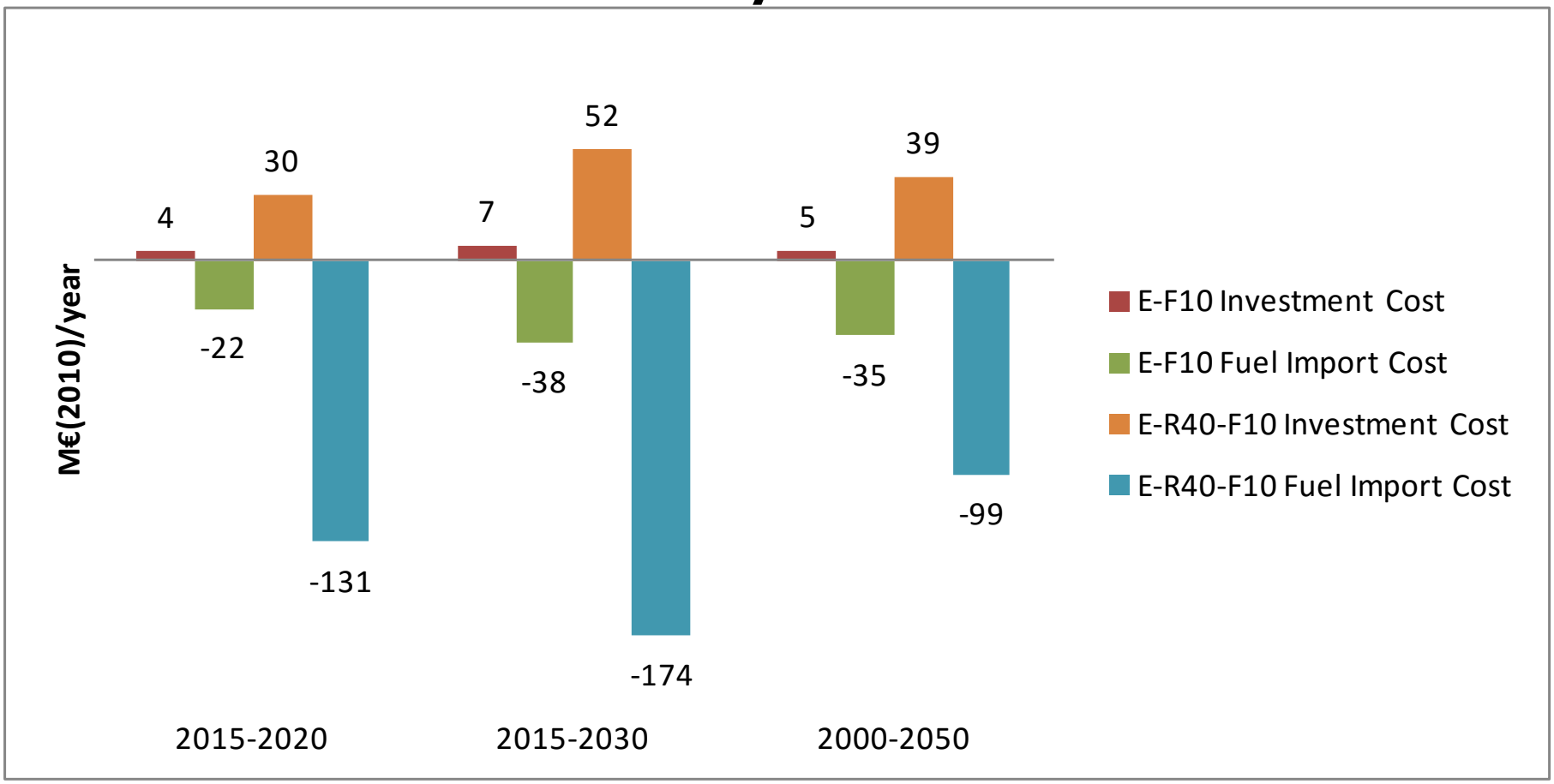
Impact of 1st generation biofuel using to GHG emissions in Latvia



	2000	2005	2010	2015	2020	2025	2030	2035
E-BASE	9973	11049	11953	12459	13152	13996	14703	15010
E-F10	9973	11049	11953	12542	13019	13951	14729	15022
E-R40-F10	9973	11049	11953	11916	11609	12028	12785	13393

Without integrated approach GHG emission reduction is 176 kt $CO_{2\ eq}$
With integrated approach GHG emission reduction is 133 kt $CO_{2\ eq}$

Next step after GHG impact - Cost-effectiveness analysis



Average GHG emission reduction cost E-F10 scenario – 379 EUR/t CO_2

Average GHG emission reduction cost E-R40-F10 scenario 77 EUR/t CO_2

Biofuel using reduce expenses for imported fuel by 38 MEUR/year

RES target in 2020 reduce expenses for imported fuel by 174 MEUR/year

Thank you for attention!

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EVIDENT