

Ireland's 2018 Greenhouse Gas Emissions Projections

Greenhouse Gas Emission Projections 2017-2035

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Presentation Overview

- EPA role in preparing GHG emission projections
- EU and national targets
- Approach to preparing projections
- Sectoral emissions projections
- 2020, 2030 and 2050 Trajectory
- Conclusions

EPA's role in GHG emission projections

- The EPA produces GHG emission projections annually
 - National Climate Change Strategy 2007
 - Service Level Agreement with DCCA
 - Climate Action and Low Carbon Development Act 2015

- Biennial report to European Commission – 525/2013 & 749/2014
 - Report any changes in the intervening year (e.g. 2018)

- National Communication and Biennial report to UNFCCC

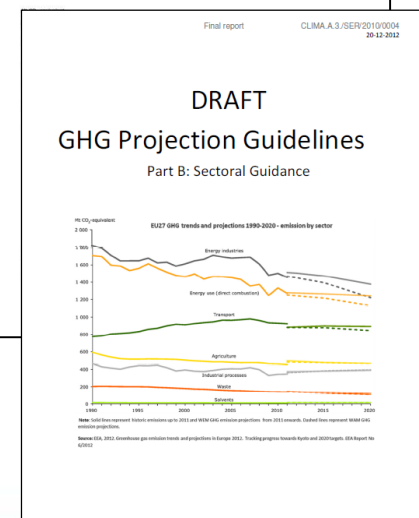
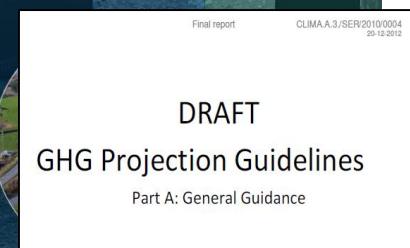
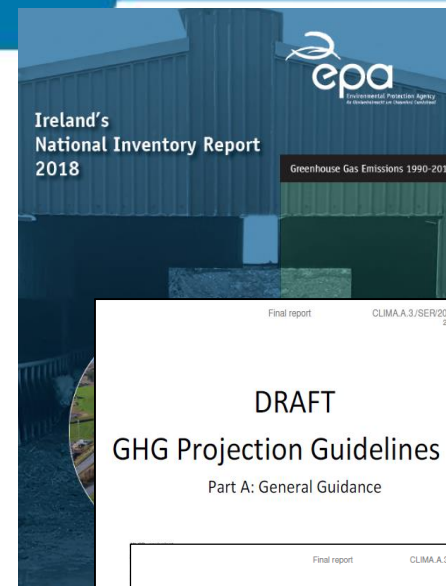
- Annual assessment of progress towards EU targets and national policy
 - Under Decision 406/2009/EU (Effort Sharing Decision) for the Non Emissions Trading Scheme Sector (Non ETS)
 - Effort Sharing Regulation (2021 – 2030)
 - National Policy Position

GHG Emission Reduction Targets

- **2020 Climate & Energy Package**
 - ETS = 21% below 2005 levels (EU Target)
 - Non ETS = 10% below 2005 levels (EU Target)
- **2030 Climate & Energy Framework**
 - ETS = 43% below 2005 levels (EU Target)
 - Non ETS = 30% below 2005 levels (EU Target)
- **2050 National Policy Position**
 - an aggregate reduction in carbon dioxide (CO₂) emissions of at least 80% (compared to 1990 levels) by 2050 across the electricity generation, built environment and transport sectors;
 - in parallel, an approach to carbon neutrality in the agriculture and land-use sector, including forestry, which does not compromise capacity for sustainable food production.

Approach to GHG Projections

- ❑ National system for preparing greenhouse gas emission projections
- ❑ Biennial report to European Commission – 525/2013 & 749/2014 (Report any changes in the intervening years)
- ❑ Projections use guidelines, where applicable (e.g. Commission guidelines)
- ❑ Projections are subjected to Commission quality review soon after submission



Approach to Projections

- Multi body / agency input



Roinn Cumarsáide, Gníomhaithe
ar son na hAeráide & Comhshaoil
Department of Communications,
Climate Action & Environment



Approach to 2018 Projections

- ❑ **Reference year** - latest national greenhouse gas emission inventory (1990-2016)
- ❑ **Energy-related emission projections** - based on energy projections provided by Sustainable Energy Authority of Ireland in April 2018
- ❑ **Energy projections** based on a set of macroeconomic projection supplied by the Economic and Social Research Institute – Macro Economic Model (COSMO)
- ❑ **Agriculture** emission projections are based on data provided by Teagasc in April 2018
 - Food Wise 2025
 - Updated outlook for the sector

Approach to 2018 Projections

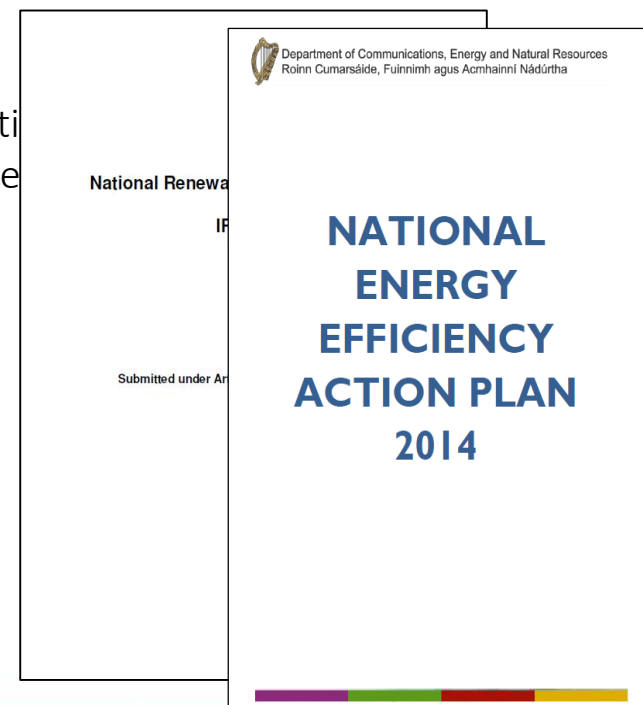
Greenhouse gas emissions are projected to 2035 using two scenarios:

- ❑ ***With Existing Measures*** scenario assumes that no additional policies and measures, beyond those already in place by the end of 2016 (latest national greenhouse gas emission inventory), are implemented.

- ❑ The ***With Additional Measures*** scenario assumes implementation of the following scenario in addition to progressing of renewable and energy efficiency measures:
 - ❖ National Renewable Energy Action Plan
 - ❖ National Energy Efficiency Action Plan

With Existing Measures = SEAI Baseline Scenario

With Additional Measures = SEAI Advanced Scenario



2018 Energy Projections

Key macro-economic assumptions

	2017 – 2020	2021-2025	2026-2030	2031-2035
Average Annual % Growth Rate				
GDP	+3.74%	+3.53%	+3.26%	+3.31%
GNP	+5.06%	+5.08%	+4.99%	+5.01%
Personal Consumption	+3.09%	+2.93%	+2.07%	+2.07%
	2017	2020	2025	2030
Housing Stock ('000)	1,974	2,059	2,286	2,490
Population ('000)	4,736	4,866	5,077	5,276
EUETS: Carbon € ₂₀₁₃ /tCO ₂	10.5	15	22.5	33.5
Carbon tax € ₂₀₁₃ /tCO ₂	18.3	15	22.5	33.5
Coal \$ ₂₀₁₃ /boe	10.8	8.3	9.3	10.1
Oil \$ ₂₀₁₃ /boe	37.7	42.3	46.8	51.7
Gas \$ ₂₀₁₃ /boe	25.1	24.7	25.3	25.7
Peat €/MWh	25	25	25	25

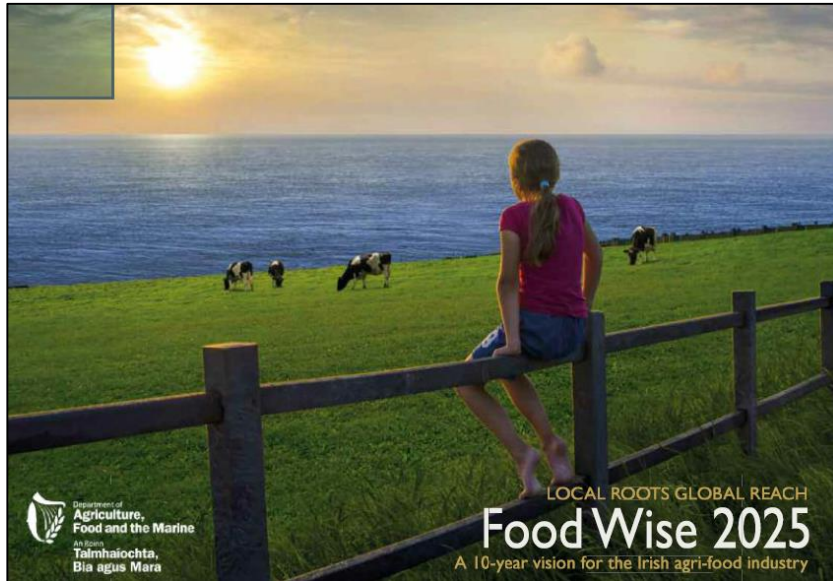
2017 Energy Projections

Key macro-economic assumptions

	2016 – 2020	2021-2025	2026-2030	2031-2035
Average Annual % Growth Rate				
GDP	+3.74%	+3.24%	+2.59%	+2.59%
GNP	+3.42%	+3.32%	+1.97%	+1.97%
Personal Consumption	+2.97%	+2.57%	+1.11%	+1.11%
	2016	2020	2025	2030
Housing Stock ('000)	1,967	2,018	2,112	2,206
Population ('000)	4,674	4,834	5,027	5,209
EUETS: Carbon €₂₀₁₃/tCO₂	9	15	22.5	33.5
Carbon tax €₂₀₁₃/tCO₂	18.3	15	22.5	33.5
Coal \$₂₀₁₃/boe	9.8	9.9	11.6	10.6
Oil \$₂₀₁₃/boe	40.5	56.8	62.8	69.4
Gas \$₂₀₁₃/boe	27.0	20.4	24.6	27.3
Peat €/MWh	25	25	25	25

Agriculture

Revised Activity Projections

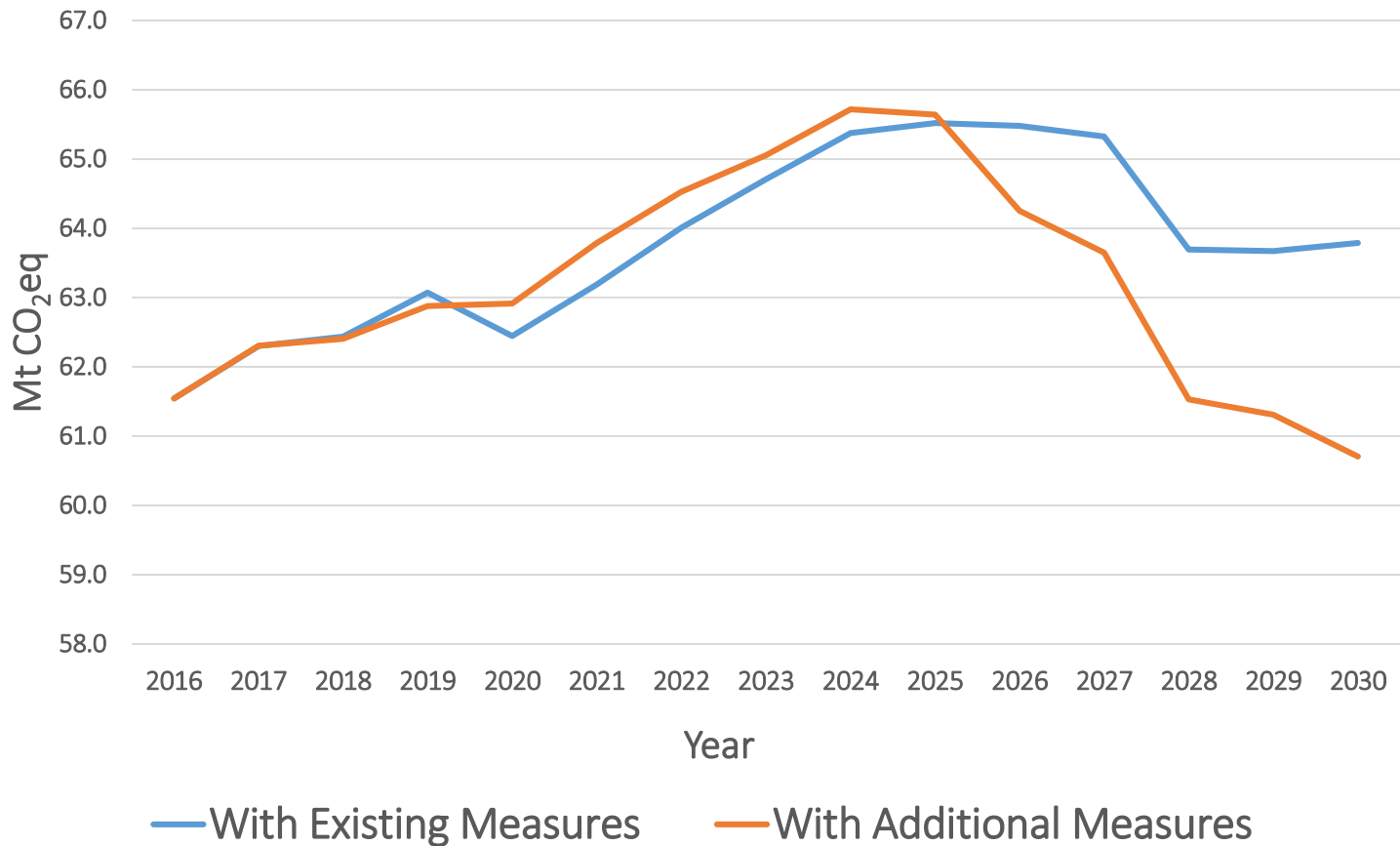


- New data takes into account development in the cattle population (elimination of milk quota)
- Updated outlook for the sector

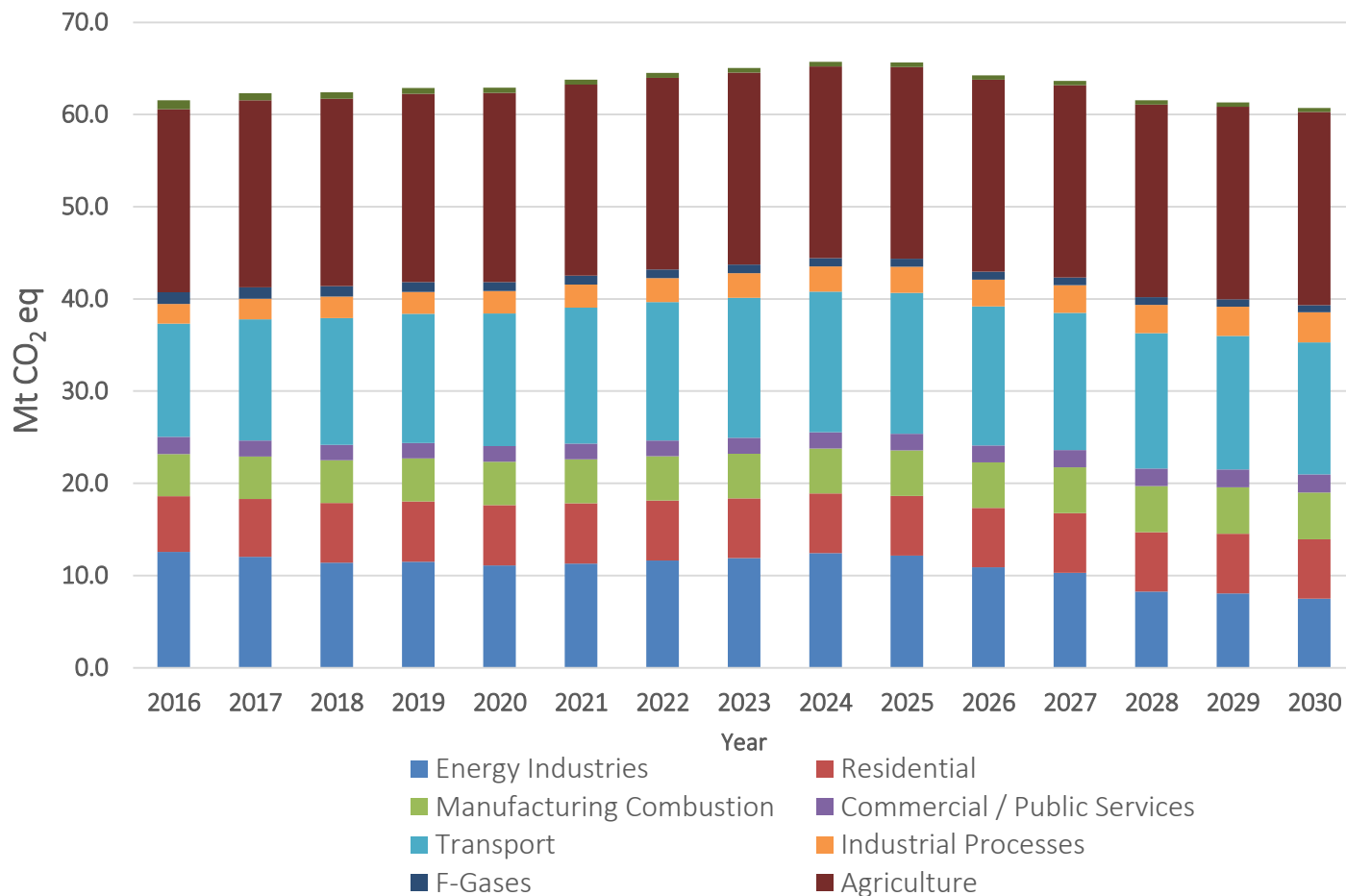
Agriculture - projected activity

Activity	% Difference 2017-2020	% Difference 2017-2030
Dairy Herd	+10	+22
Beef Herd	+1.2	-2.1
Sheep	-12	-25
Pig	+11	+26.3
Poultry	+11	+25
Fertiliser use (<i>With Measures</i>)	+14	+21
Fertiliser use (<i>With Additional Measures</i>)	+6	-12

Total Emissions

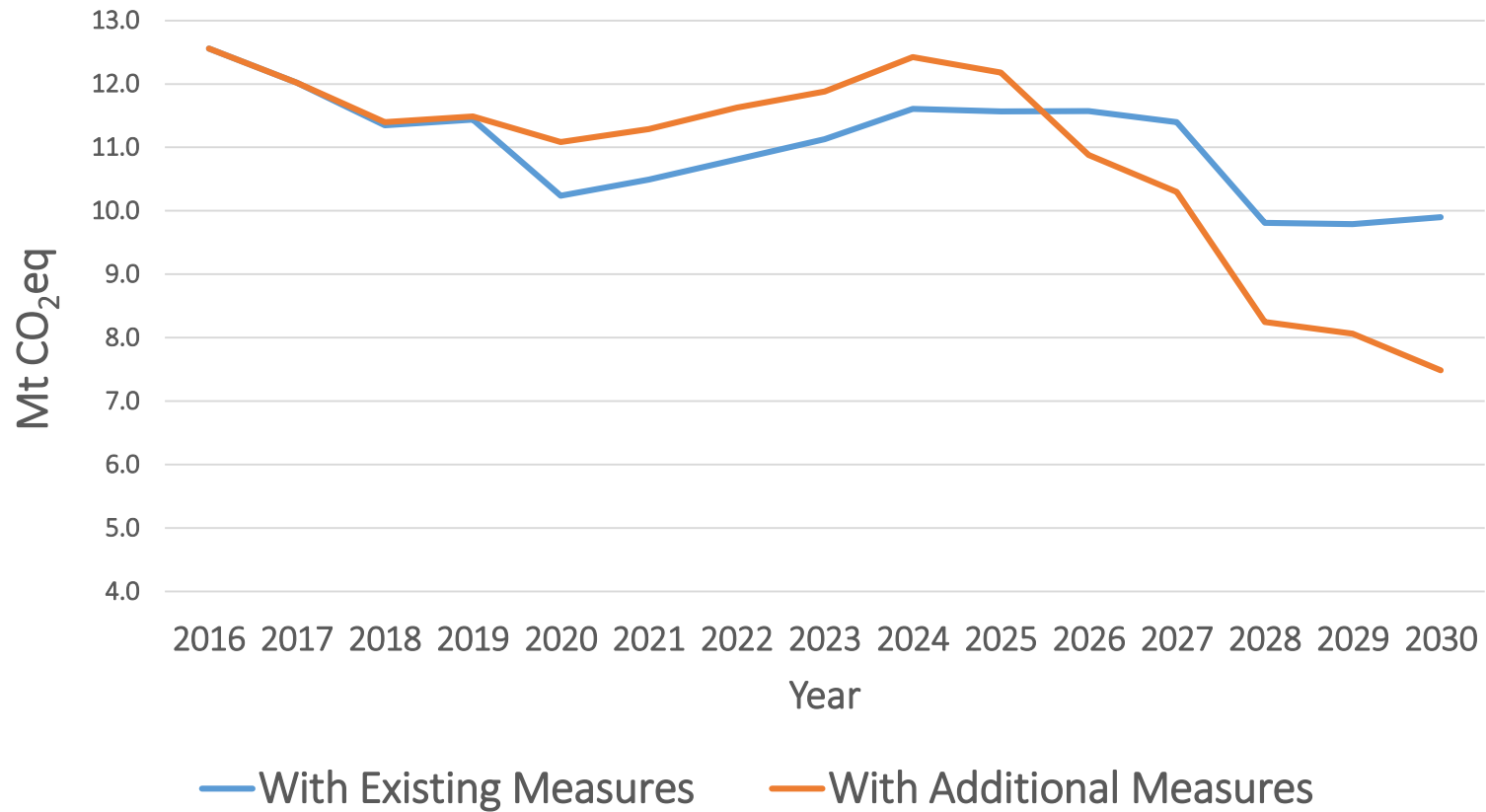


Sectoral Share (With Additional Measures)



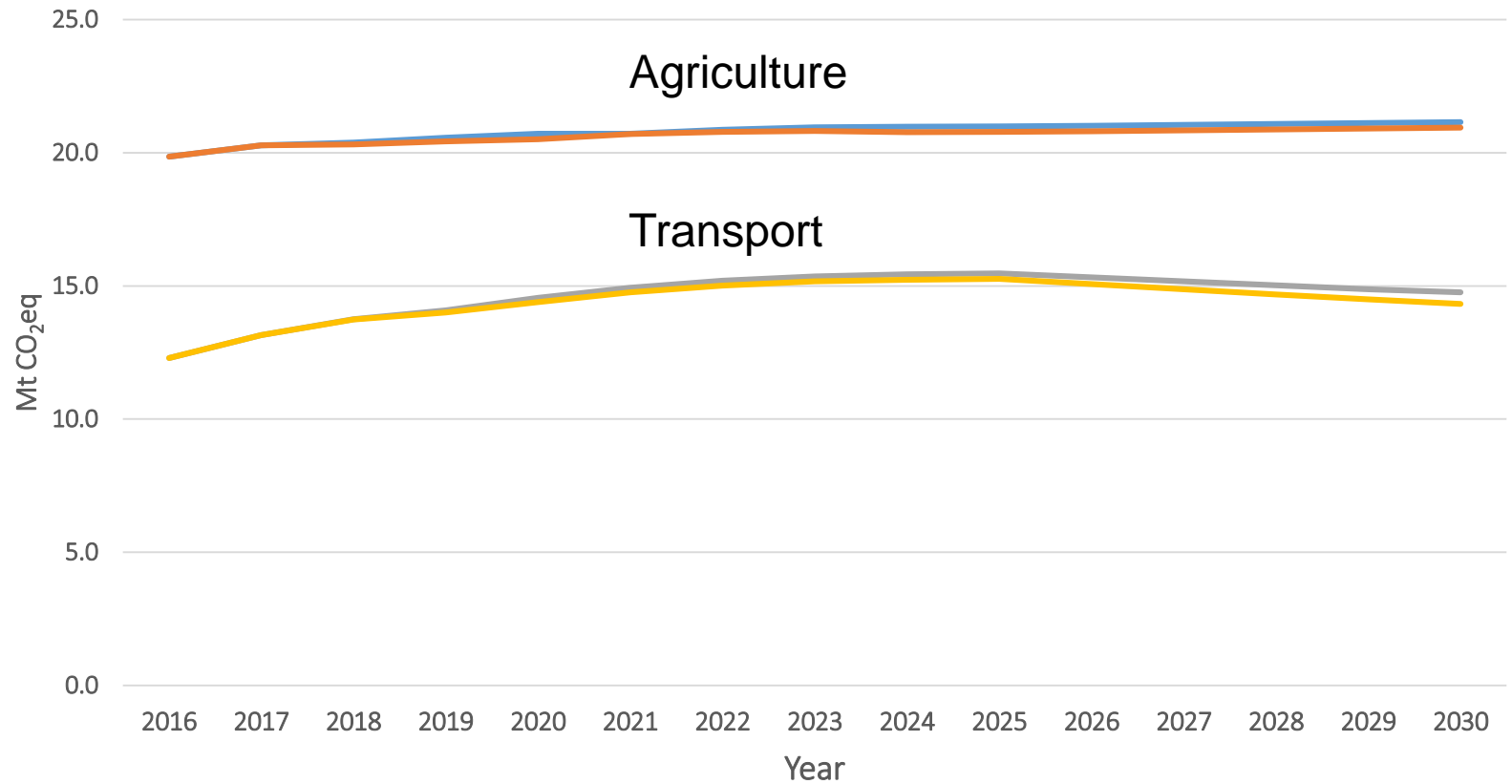
Sectoral Emissions

Energy Industries



Sectoral Emissions

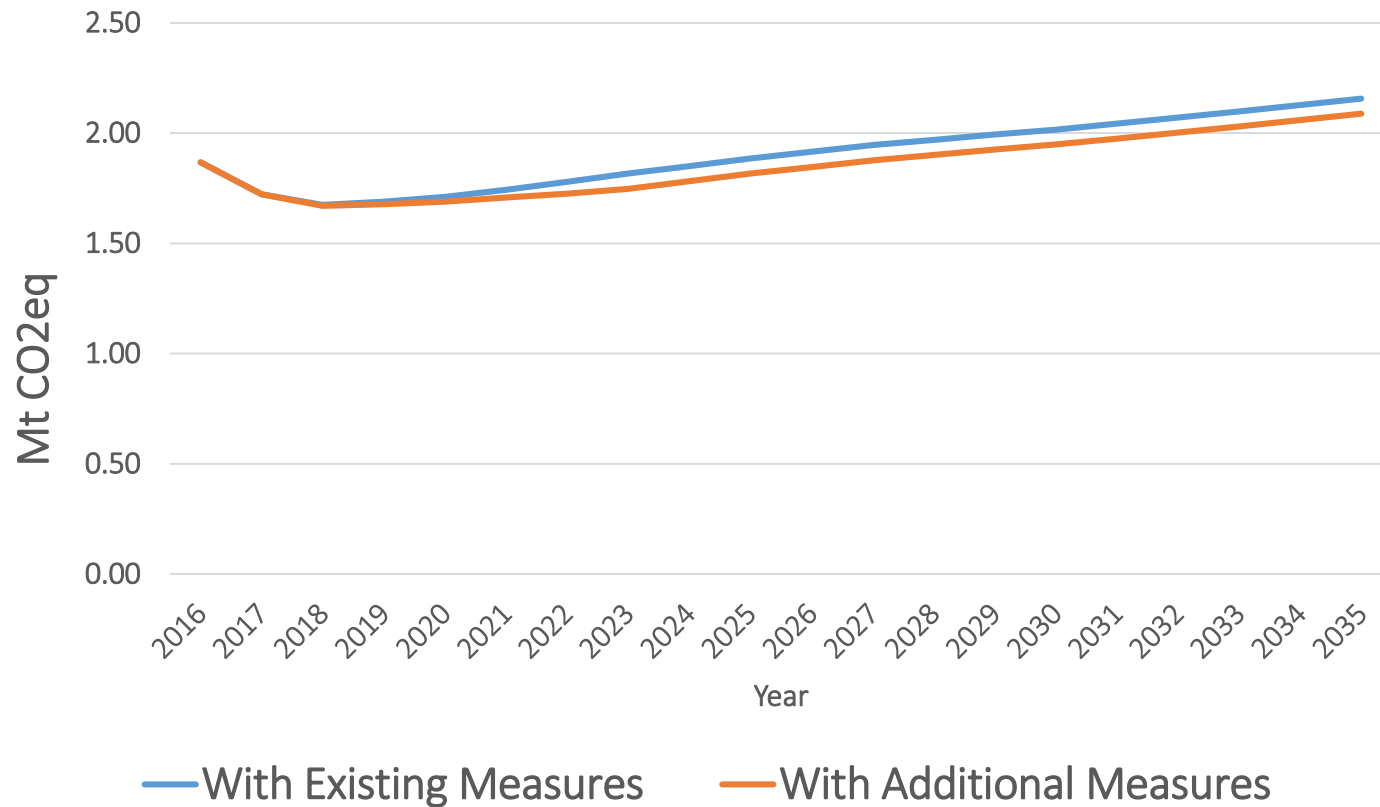
Agriculture & Transport



— Agriculture WEM — Agriculture WAM — Transport WEM — Transport WAM

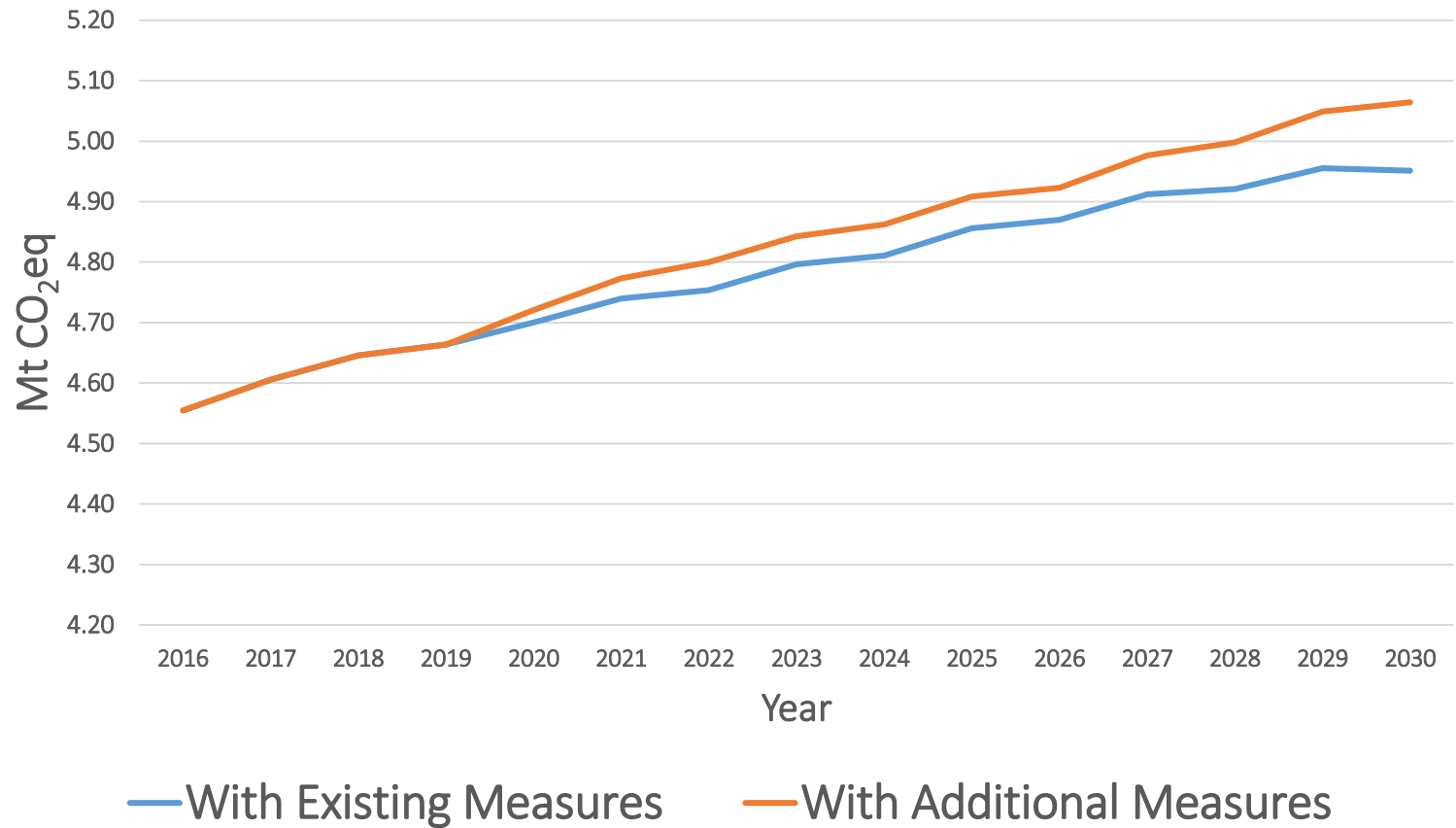
Sectoral Emissions

Commercial and Public Services



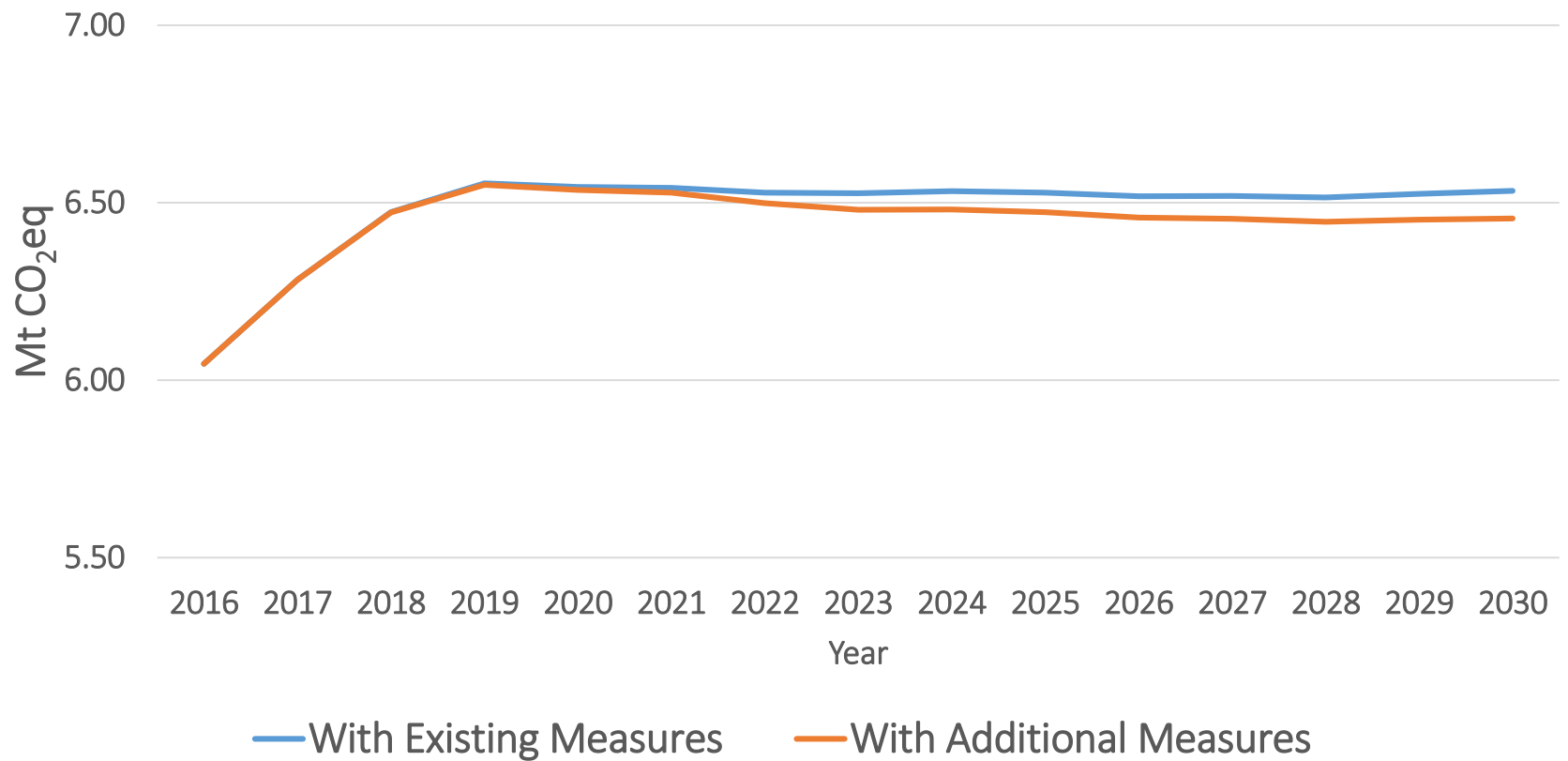
Sectoral Emissions

Manufacturing Combustion



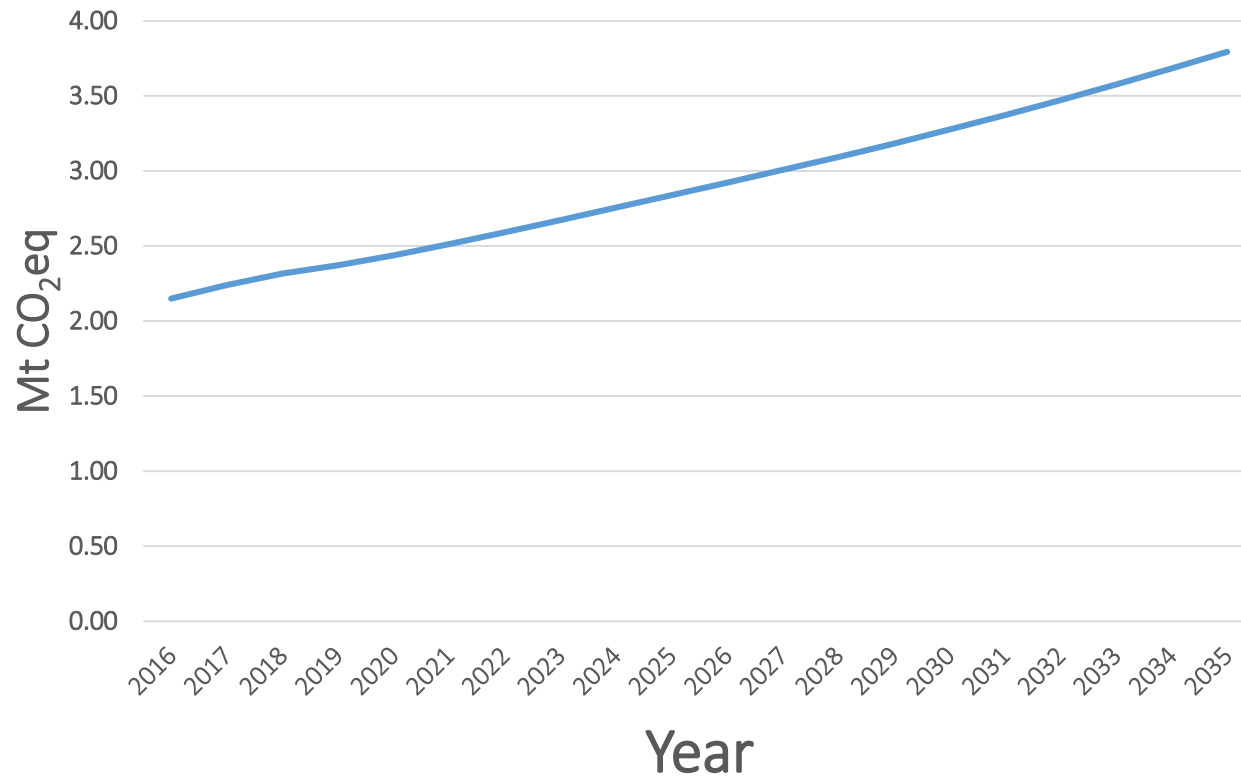
Sectoral Emissions

Residential



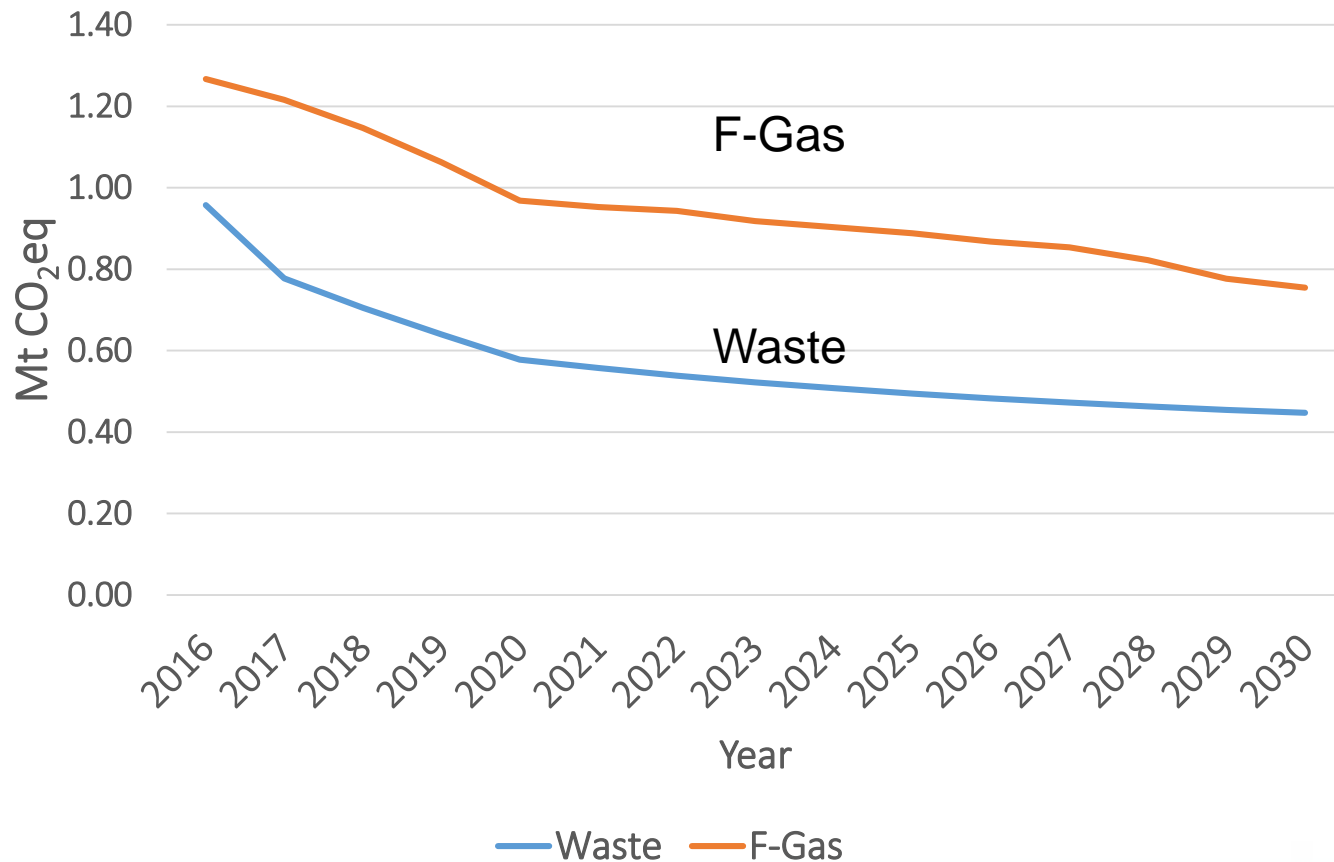
Sectoral Emissions

Industrial Processes (With Existing Measures)



Sectoral Emissions

Waste & Fluorinated Gases



2018 EPA Projections – *With Additional Measures Scenario* – RENEWABLES SHARE

- By 2020, the *With Additional Measures* scenario assumes Ireland will have achieved:
 - 37.7% renewable electricity (RES-E) share (full target is 40%)
 - 7.4% renewable heat (RES-H) share (full target is 12%)
 - 9.1% renewable transport (RES-T) share (full target is 10%)
- In terms of the overall **16%** Renewable Energy Share (RES) target in 2020, it is expected that **11.9%** will be achieved by 2020 based on current progress.

Note: Based on model input assumptions underpinning the Advanced energy projection which does not include the impact of measures included in the National Development Plan and uses relatively low oil prices (compared to current oil prices).

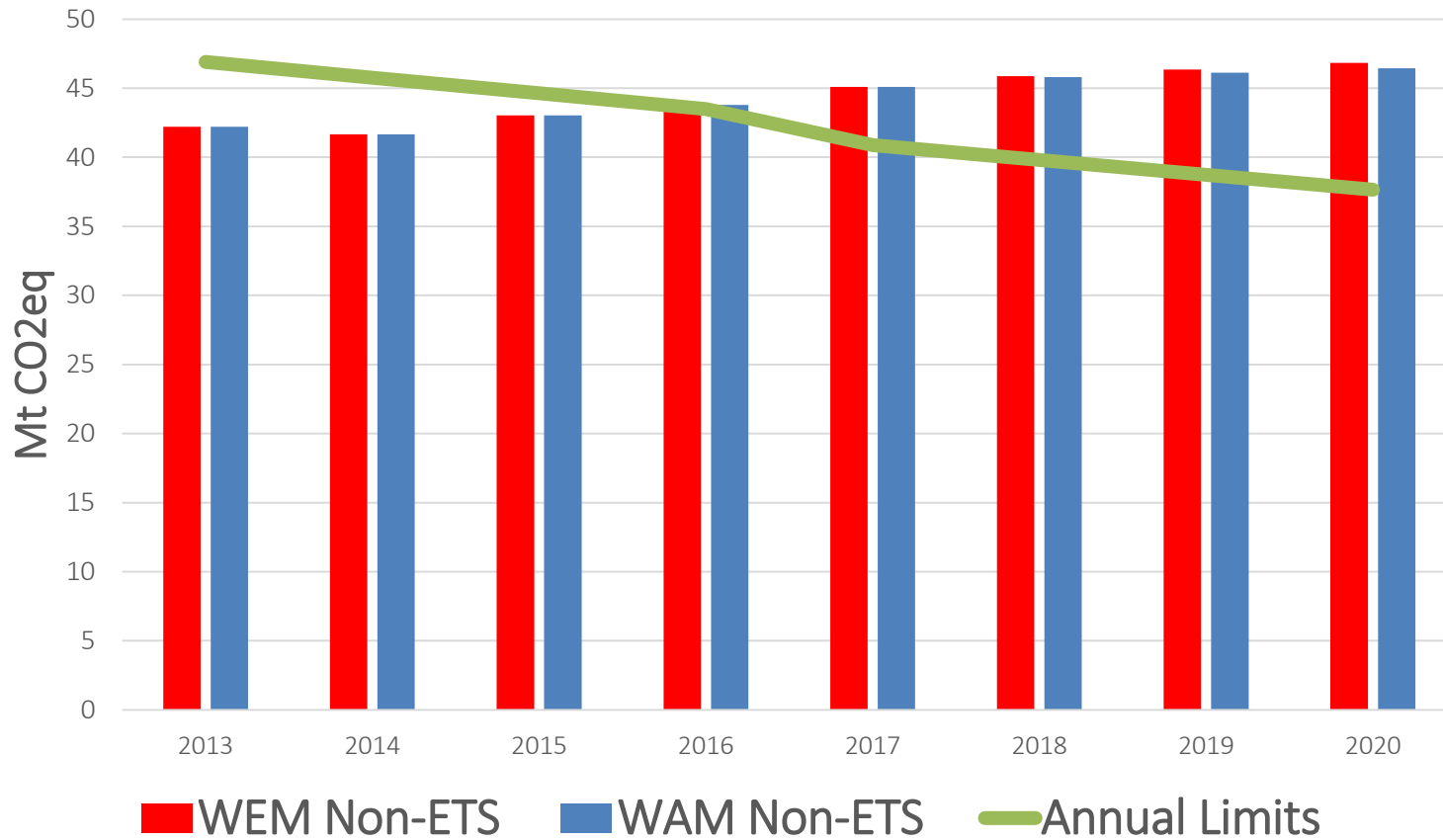
Effort Sharing Decision (406/2009/EC)

– Non ETS

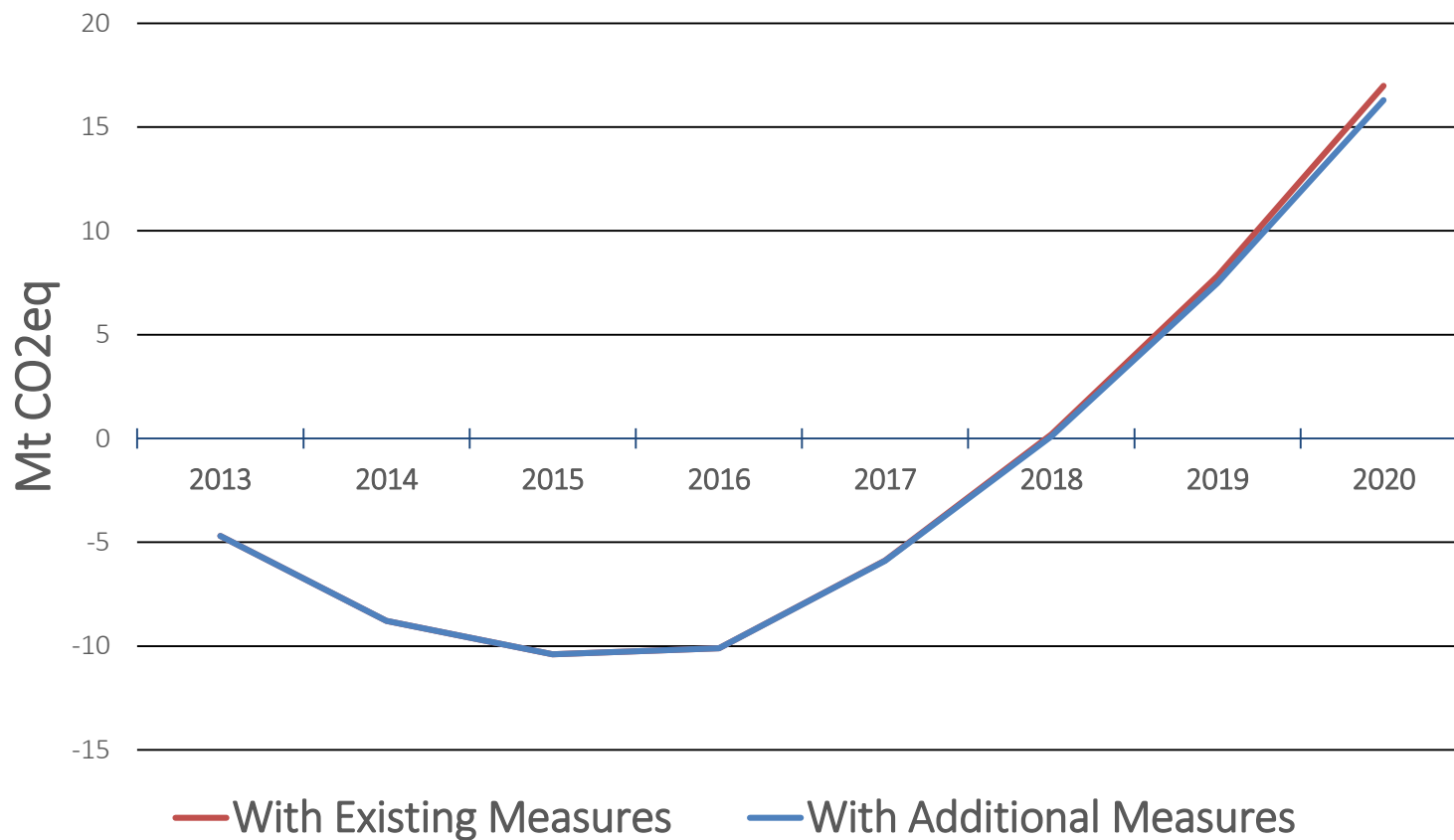
- Ireland's **2020 target** is to achieve a **20% reduction** in non-ETS sector emissions **compared to 2005**
- **Non-ETS** sector emissions
 - Agriculture
 - Transport
 - Residential
 - Commercial
 - Non-energy intensive industry
 - Waste
- Binding **annual limits** set for each year over the period 2013-2020
- Flexibility mechanism – e.g. **banking and borrowing**

2018 Projections

Non ETS - Trajectory to 2020

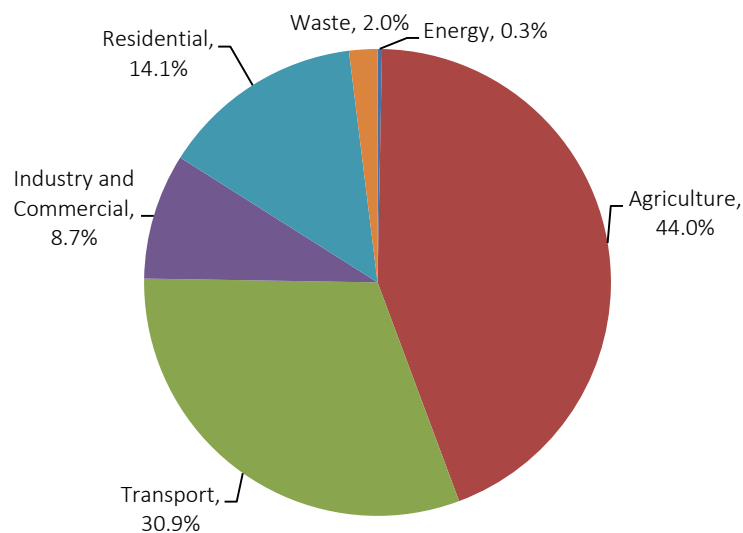


Projected cumulative distance to target for Non-ETS Sector for the period 2013-2020

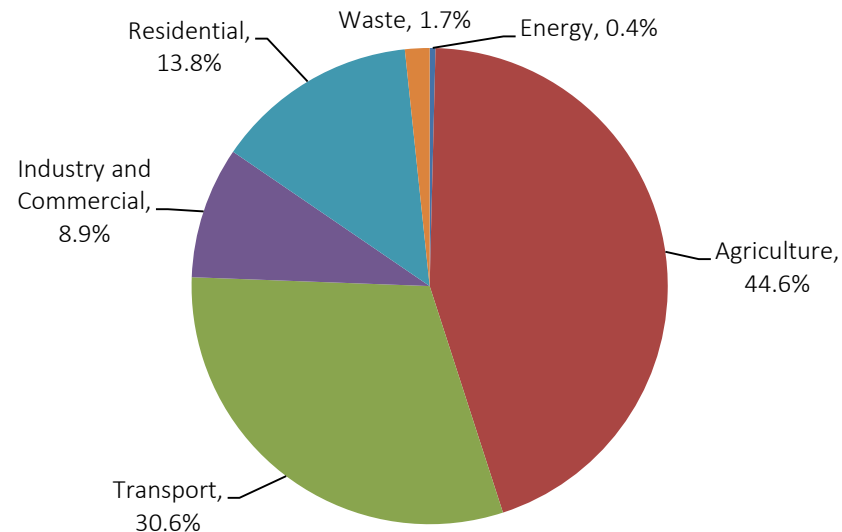


Sectoral Analysis – non ETS

Year 2020



Year 2030



Agriculture and transport sector emissions account for ~75% of total non-ETS emissions in 2020

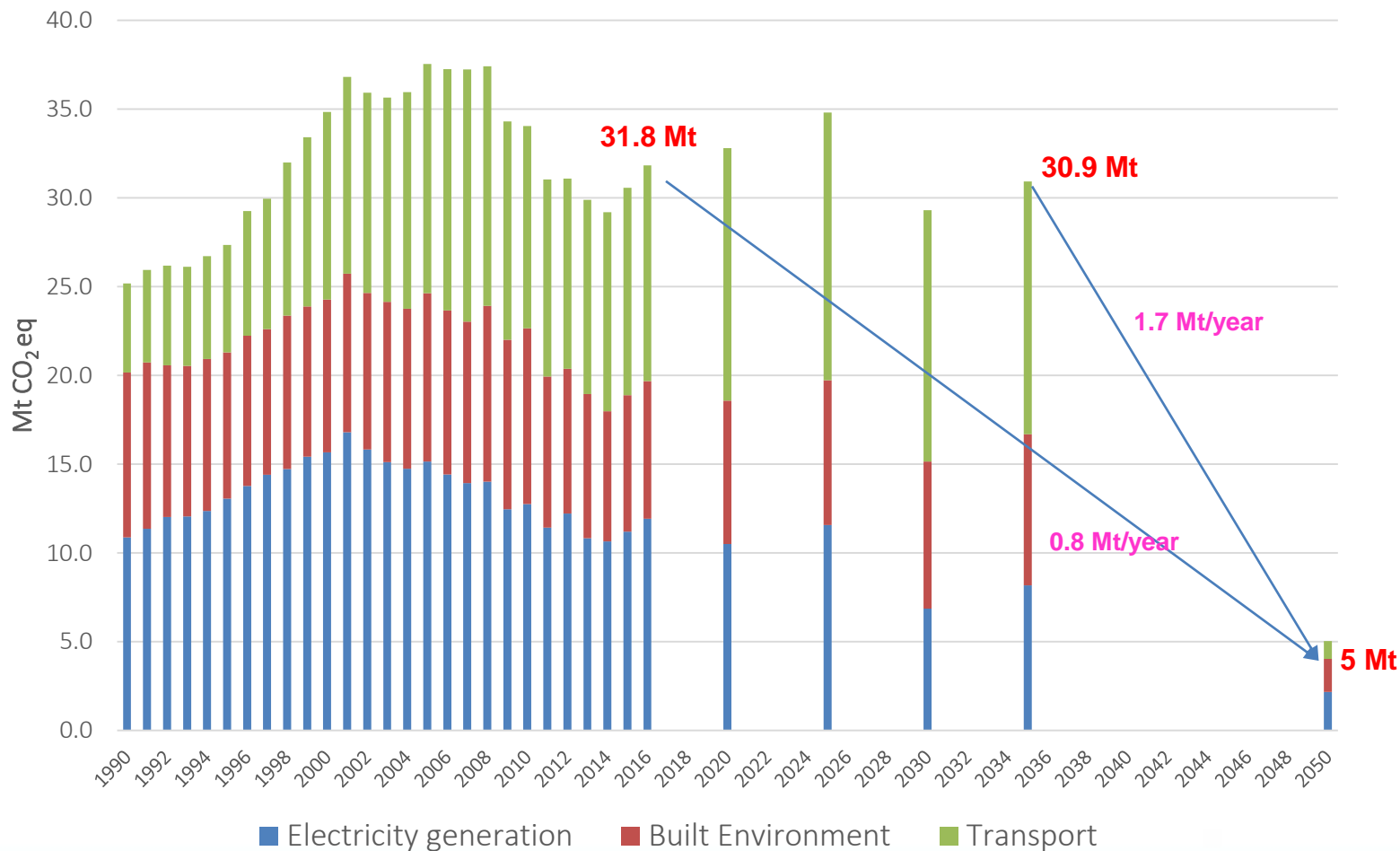
Non-ETS – 2021-2030 Targets

- On 14th May 2018, the European Council adopted a regulation on greenhouse gas emission reductions – Effort Sharing Regulation
- Starting point is an average of 2016-2018 Emissions with binding emission reduction targets for the period 2021-2030
- Provides two new flexibilities (use of ETS allowances and credit from action undertaken in the Land Use, Land Use Change and Forestry (LULUCF) sector) to allow for a fair and cost-efficient achievement of the targets
- Latest projections indicate that Ireland will exceed the allowable carbon budget implied by those limits by between 47Mt and 52Mt over the period assuming the allowed for flexibilities are fully utilised

2050 National Policy Position

- Long-term vision of low-carbon transition based on:
 - an aggregate reduction in carbon dioxide (CO₂) emissions of at least 80% (compared to 1990 levels) by 2050 across the electricity generation, built environment and transport sectors;
 - in parallel, an approach to carbon neutrality in the agriculture and land-use sector, including forestry, which does not compromise capacity for sustainable food production.

Electricity Generation, Built Environment and Transport – 2018 Projections v 2050 policy trajectory



Conclusions

- Greenhouse gas emissions are projected to increase from most sectors
- At best, Ireland will only achieve a 1 % reduction by 2020 compared to a target of 20%
- Fossil fuels such as coal and peat are expected to continue to be significant contributors to emissions from power generation
- Agriculture emissions are projected to increase with an expansion of animal numbers
- Further growth in emissions from the transport sector is projected in line with a growth in fuel consumption in diesel cars and freight up to 2025
- Not on the right trajectory towards decarbonization in the longer term (2030 and 2050 challenge)
- Anticipated impact of new and extended policies and measures in the recent National Development Plan has yet to be incorporated into the projections
- Early implementation of new and extended policies and measures is needed