MaREI
Energy · Climate · Marine

A World Leading SFI Research Centre

Science Foundation Ireland sfi For what's next

Ireland's Carbon Budgets and EU 55% target

Brian Ó Gallachóir

Presentation to CCAC Carbon Budgets Committee June 14 2021

HOST INSTITUTION

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

PARTNER INSTITUTIONS

DCU · DIAS · Dundalk Institute of Technology Dhún Dealgan · ESRI Economic & Social Research Institute · Maynooth University National University of Ireland Maynooth · MTU Ollscoil Teicneolaíochta na Mumhan Munster Technological University · NUI Galway OÉ Gaillimh · Trinity College Dublin Coláiste na Tríonóide, Baile Átha Cliath The University of Dublin · TU Dublin · Tyndall National Institute · UCD University College Dublin An Coláiste Ollscoile, Baile Átha Cliath · University of Limerick Ollscoil Luimnigh

CAPACITY
CLIMATE ACTION PATHWAYS & ABSORPTIVE CAPACITY

EU 2020 Climate Policy Targets

- The European Council of March 2007 committed to achieve at least a 20% reduction of greenhouse gas emissions by 2020 compared to 1990
- The Council further decided to use the EU Emissions Trading Scheme (ETS), which was introduced in 2005 (under Directive 2003/87/EC). Phase 1 (2005-2007) was a pilot phase, followed by the Kyoto Phase (2008-2012).
- Since 2005, ETS emissions were quantifiable distinctly from other GHG emissions. Hence 2005 became the reference year for ETS and non-ETS emissions targets.
- The 20% target was allocated between ETS and non-ETS emissions on a ‘cost effective’ basis.
- A 20% reduction in GHG relative to 1990 is equivalent to a 15% reduction in GHG relative to 2005. The cost effective way to achieve this 15% reduction relative to 2005 comprises a 21% reduction for ETS emissions and a 10% reduction for non-ETS emissions.
- The Council further decided that the EU ETS 21% target would be met by collectively by ETS installations within the EU, whereas the non-ETS 10% target would be distributed amongst Member States under an Effort Sharing Decision (406/2009/EC)
- Effort sharing was determined by relative GDP per capita levels of Member States, capped by -20% or +20% change in non-ETS emissions relative to 2005 levels. Annual emissions caps were agreed with banking and borrowing from between years and emissions allowances trading between Member States

MaREI
Energy · Climate · Marine

EU 2020 Climate Policy Targets

GHG 20% below 1990 by 2020

- ETS Directive 2009/29/EC
- Decision 2009/406/EC

ETS GHG

21% below 2005 by 2020

Non-ETS GHG

10% below 2005 by 2020

LUX -20%

DEN -20%

IRL -20%

…

BUL 20%

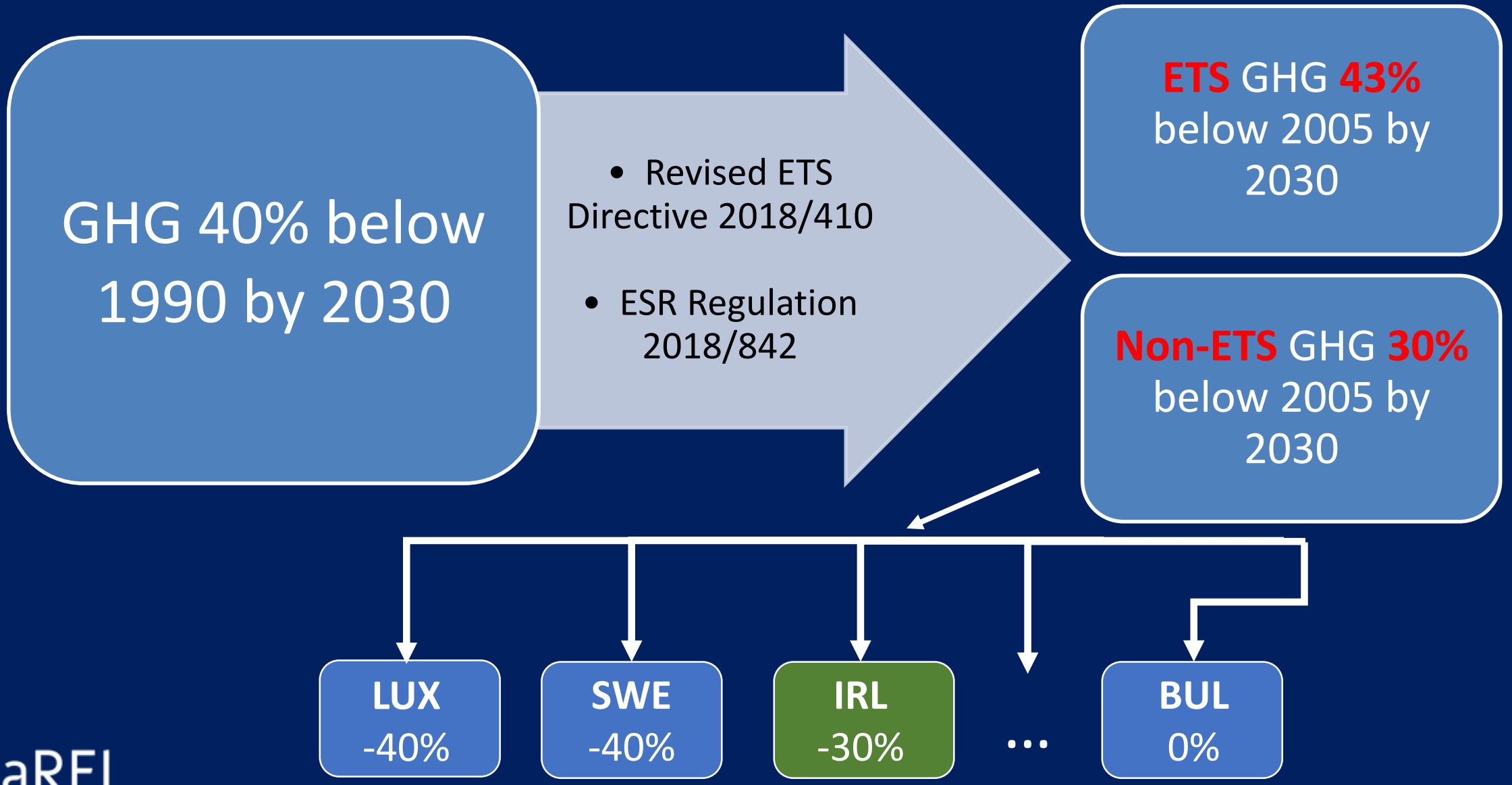
MaREI
Energy · Climate · Marine

EU 2030 Climate Policy Targets

- The European Council stated in 2009 that the EU's objective, in the context of necessary reductions by developed countries as a group, is to reduce GHG emissions by 80-95% in 2050 compared to 1990.
- The Council further decided in October 2014 to set a target of minimum 40% reduction in EU GHG emissions to be achieved by 2030 relative to 1990 levels. The 2030 40% target was allocated between ETS and non-ETS emissions on a 'cost effective' basis, as in the case of the 2020 20% target.
- This is equivalent to a 37% reduction in GHG relative to 2005. The cost effective way to achieve this comprised a 43% reduction for ETS emissions and a 30% reduction for non-ETS emissions.
- The Council again decided that the EU ETS 43% target would be met by collectively by ETS installations within the EU (Directive 2018/410), whereas the non-ETS 30% target would be distributed amongst Member States under an Effort Sharing Regulation (2018/842).
- Effort sharing was again determined on the basis of GDP per capita levels of Member States, adjusted to reflect 'cost-effectiveness in a fair and balanced manner', within the range 0% to 40% reductions in non-ETS emissions relative to 2005 levels.
- Annual emissions caps were agreed with flexibility mechanisms comprising transfers between Member States, banking and borrowing between years, and one off ETS transfers. In addition, credits were permitted for 280 Mt $C0_2$ net emissions removals from LULUCF, capped for each Member State in accordance with the share of GHG emissions from agriculture.

MaREI
Energy · Climate · Marine

EU *previous* 2030 Climate Policy Targets



MaREI
Energy · Climate · Marine

EU 2030 NEW Climate Policy Targets

- The European Council committed to achieving climate neutrality by 2050 at its June 2019 Council meeting.
- The European Council endorsed in December 2020 a new binding EU target for a net domestic reduction in greenhouse gas emissions of at least 55% by 2030 compared to 1990 levels.
- It is anticipated that the 2030 55% target will be allocated between ETS and non-ETS emissions on a 'cost effective' basis, as in the case of the previous targets, although there is uncertainty regarding the possible extension of the ETS to include additional sectors.
- A 55% reduction in GHG by 2030 relative to 1990 levels is equivalent to a 52% reduction in GHG relative to 2005 levels. If the ETS and non-ETS sectors remain as is, the cost effective way to achieve this reduction comprises a 62% reduction for ETS emissions and a 40% reduction for non-ETS emissions.
- It is currently uncertain what the non-ETS allocations will be for Member States. It is expected to broadly follow previous effort sharing approaches. Effort sharing for non-ETS emissions is again likely to be determined by relative GDP per capita levels of Member States, and possibly within the range 10% to 50% reduction in non-ETS emissions relative to 2005 levels.
- It is also unclear how LULUCF emissions will be treated. For the EU, these emissions constitute a net sink (i.e. negative emissions). In Ireland, LULUCF emissions constitute source of emissions. As mentioned, under the current Regulation (2018/842) net emissions removals from LULUCF were allowed, capped for each Member State.

MaREI
Energy · Climate · Marine

EU *revised* 2030 Climate Policy Targets

if no change in sectoral split …

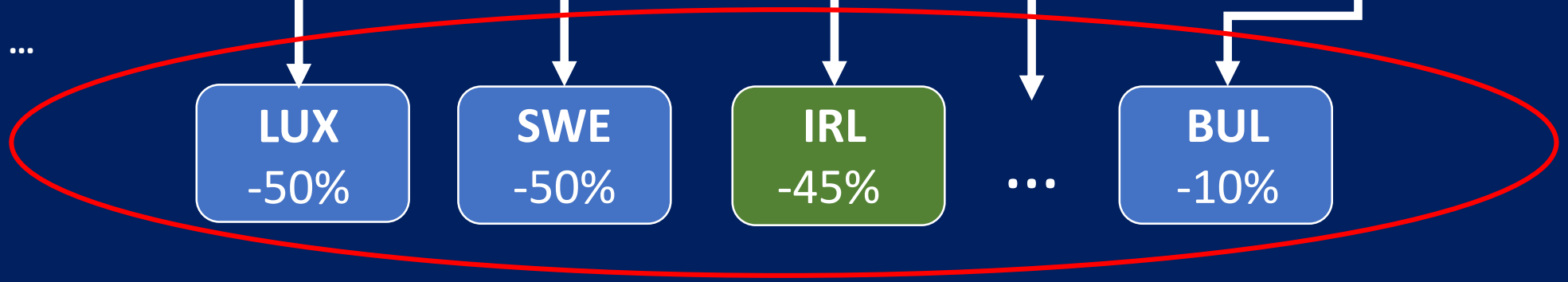
GHG 55% below 1990 by 2030

- Revised ETS Directive (2021)
- Revised Effort Sharing Decision (2021)

ETS GHG **62%** below 2005 by 2030

Non-ETS GHG **40%** below 2005 by 2030

early estimates …



MaREI
Energy · Climate · Marine

Implications for Ireland's Carbon Budgets

- Using the early estimate of a possible 45% non-ETS (emissions reduction relative to 2005 levels) target for Ireland, this would translate into a non-ETS target for Ireland of **26 Mt CO_{2eq} by 2030**.
- Combining this with an ETS projection based on applying the EU ETS target %'age reduction to Ireland's ETS emissions (acknowledging this is not how the ETS system works), this results in a total GHG emissions projection of **34 Mt CO_{2eq} by 2030** (note this excludes LULUCF emissions).
- This compares with a national target (revised Climate Bill 2021) of **31.1 Mt CO_{2eq}** (note this also excludes LULUCF emissions).
- Based on these assumptions (and inherent uncertainties) about the possible outcome of EU negotiations, this would result in a carbon budget (excluding LULUCF emissions) or **255 Mt CO_{2eq}** for the 1st period and **196 Mt CO_{2eq}** for the second period (i.e. **451 Mt CO_{2eq}** for the 10 year period).
- Currently, the EU allows *net removals* from LULUCF to be taken into account in meeting mandatory 2030 non-ETS targets. In Ireland's case, we can currently include net emissions removals up to 26.8 Mt CO_{2eq} for the 10 year period. It this were still to apply, this would increase Ireland's carbon budget over the 10 year period to **478 Mt CO_{2eq}** for the 10 year period.

MaREI
Energy · Climate · Marine

Possible Carbon Budgets for Ireland

Estimate based on EU increased ambition

451 Mt CO_{2eq} (No LULUCF)

Title	Period	EU 55% Target Carbon Budget	Non-ETS	ETS
CB_1	2021-2025	255	195	61
CB_2	2026-2030	196	148	48
CB_{1+2}	2021-2030	451	343	108

Proposed Carbon Budgets for Ireland

503 Mt CO_{2eq} (incl. LULUCF)

469 Mt CO_{2eq} (no LULUCF)

Title	Period	With LULUCF	No LULUCF
CB_1	2021-2025	298	278
CB_2	2026-2030	205	192
CB_{1+2}	2021-2030	503	3469

MaREI
Energy · Climate · Marine

Uncertainties

- **Sectoral split between ETS and non-ETS:** The analysis here assumes the same **sectoral split** of EU GHG emissions between ETS and non-ETS sectors. There are current deliberations underway regarding the possible inclusion of buildings and road transport emissions into the ETS.
- **Treatment of LULUCF emissions:** Under the current (40% target) Effort Sharing Regulation, 280 Mt of emissions credits are allowable from net emissions removals in the period to 2030. The draft EU Climate Law limits emissions removals to 225 Mt CO2 (in the context if the revised 55% target).
- **Effort sharing distribution:** the allocation of the non-ETS emissions to Member States has previously been within a range. Hence the range proposed here (10% to 50% reduction).
- **Target for Ireland:** The analysis here points to a possible non-ETS 2030 target for Ireland of a 45% reduction relative to 2005 levels. This is a rough estimate based on previous allocations that combine relative economic activity within Member States with cost effectiveness considerations.
- **Carbon budget:** The quantification of 255 Mt CO_{2eq} for 2021-2025 and 196 Mt CO_{2eq} for 2026-2030 is based on combining i) the estimated non-ETS target together with ii) an 'ETS target' for Ireland based on applying the EU ETS target %'age reduction to Ireland's ETS emissions (acknowledging this is not how the ETS system works). In addition there is no provision made for LULUCF emissions or possible net emissions removals allowances

MaREI
Energy · Climate · Marine

MaREI

Energy · Climate · Marine

FUNDED BY:

Ireland's European Structural and Investment Funds Programmes 2014-2020

Co-funded by the Irish Government and the European Union

European Union
European Regional Development Fund

Science Foundation Ireland sfi For what's next