



MaREI research findings on climate action

Brian Ó Gallachóir

Presentation to Oireachtas Committee on Climate Action Dec 12th, 2018

Key Policy Insights

- We have introduced **some successful** measures but **not enough**

- Ireland's gap to target for **mandatory 2030 target** is approx. **100 Mt CO₂**.

- Early and sustained climate action is **essential** and requires **political leadership**

- Energy transition = **efficiency, bioenergy, renewable electricity** and **CCS**.

- Don't forget **28%** of households experiencing **energy poverty**

- More **community development approaches** needed in community energy.

MaREI Mission

“To advance **energy** and **marine** research, innovation, and commercialisation to **facilitate Ireland’s leadership** in confronting urgent global challenges, specifically the **energy transition, climate action**, and blue growth; and to provide the underlying **policy context**, industry collaborations, societal engagement, and capacity building to **enable** this”





Marine
Renewable
Energy
Technologies



Materials &
Structures



Observation
& Operations



Coastal &
Marine
Systems



Bioenergy

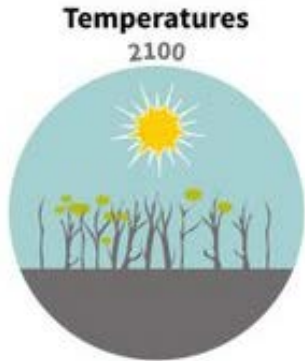


Energy
Policy &
Modelling



Energy
Management

Informing Delivery of Paris Agreement



• Keep warming “well below 2 degrees Celsius”. Continue all efforts to limit the rise in temperatures to 1.5 degrees Celsius”

CLIMATE POLICY
2019, VOL. 19, NO. 1, 30–42
<https://doi.org/10.1080/14693062.2018.1464893>

Taylor & Francis
Taylor & Francis Group

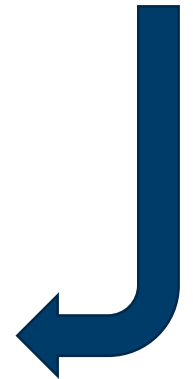
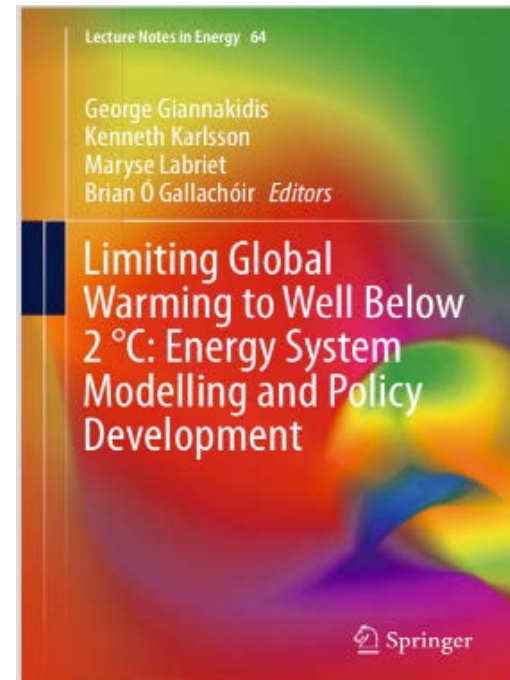
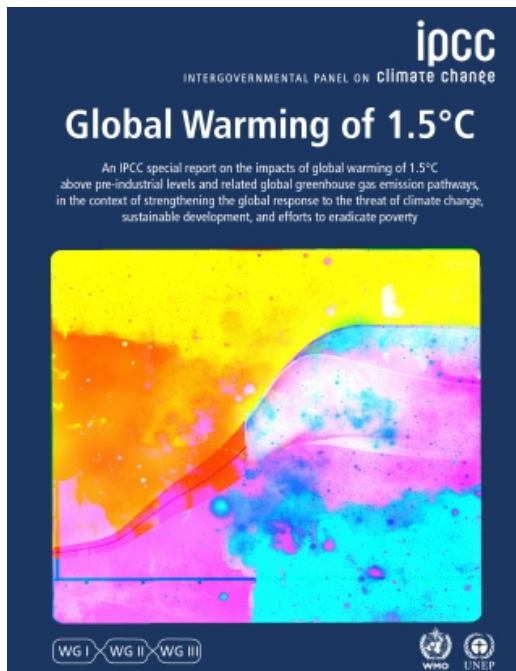
RESEARCH ARTICLE

OPEN ACCESS Check for updates

Zero carbon energy system pathways for Ireland consistent with the Paris Agreement

James Glynn ^{a,b}, Maurizio Gargiulo ^{a,b,c}, Alessandro Chiodi ^{a,b,c}, Paul Deane ^{a,b}, Fionn Rogan ^{a,b} and Brian Ó Gallachóir ^{a,b}

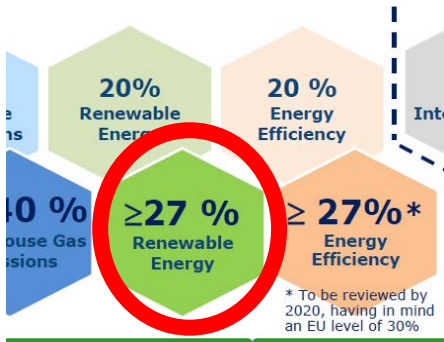
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Increasing EU 2030 Renewable Energy Ambition



Agreed headline targets 30 Framework for Climate and Energy



New governance system + indicat



Energy Strategy Reviews 22 (2018) 147–165

Contents lists available at [ScienceDirect](#)

Energy Strategy Reviews

journal homepage: www.elsevier.com/locate/esr

ELSEVIER

ENERGY STRATEGY REVIEWS

Check for updates

Planning the European power sector transformation: The REmap modelling framework and its insights

Seán Collins^{a,b,*}, Deger Saygin^{c,1}, J.P. Deane^{a,b}, Asami Miketa^c, Laura Gutierrez^c, Brian Ó Gallachóir^{a,b}, Dolf Gielen^c

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European Parliament

Headlines Press room Agenda FAQ

Press room / Energy: new target of 32% from renewables by 2030 agreed by MEPs a...

Energy: new target of 32% from renewables by 2030 agreed by MEPs and ministers

Press Releases ENVU IIRE 14-06-2018 - 13:38

European Commission | IRENA
International Renewable Energy Agency

**Renewable Energy Prospects
for the European Union**



First Low Carbon Roadmap

Climate Legislation

White Paper

Mitigation Plan

EU Negotiations

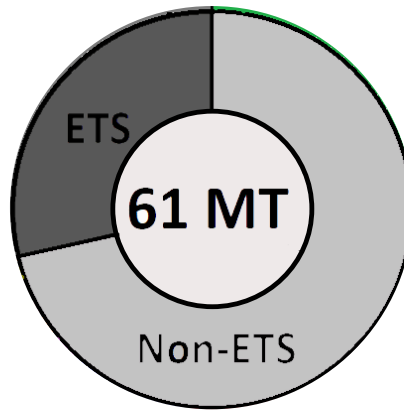
NECP

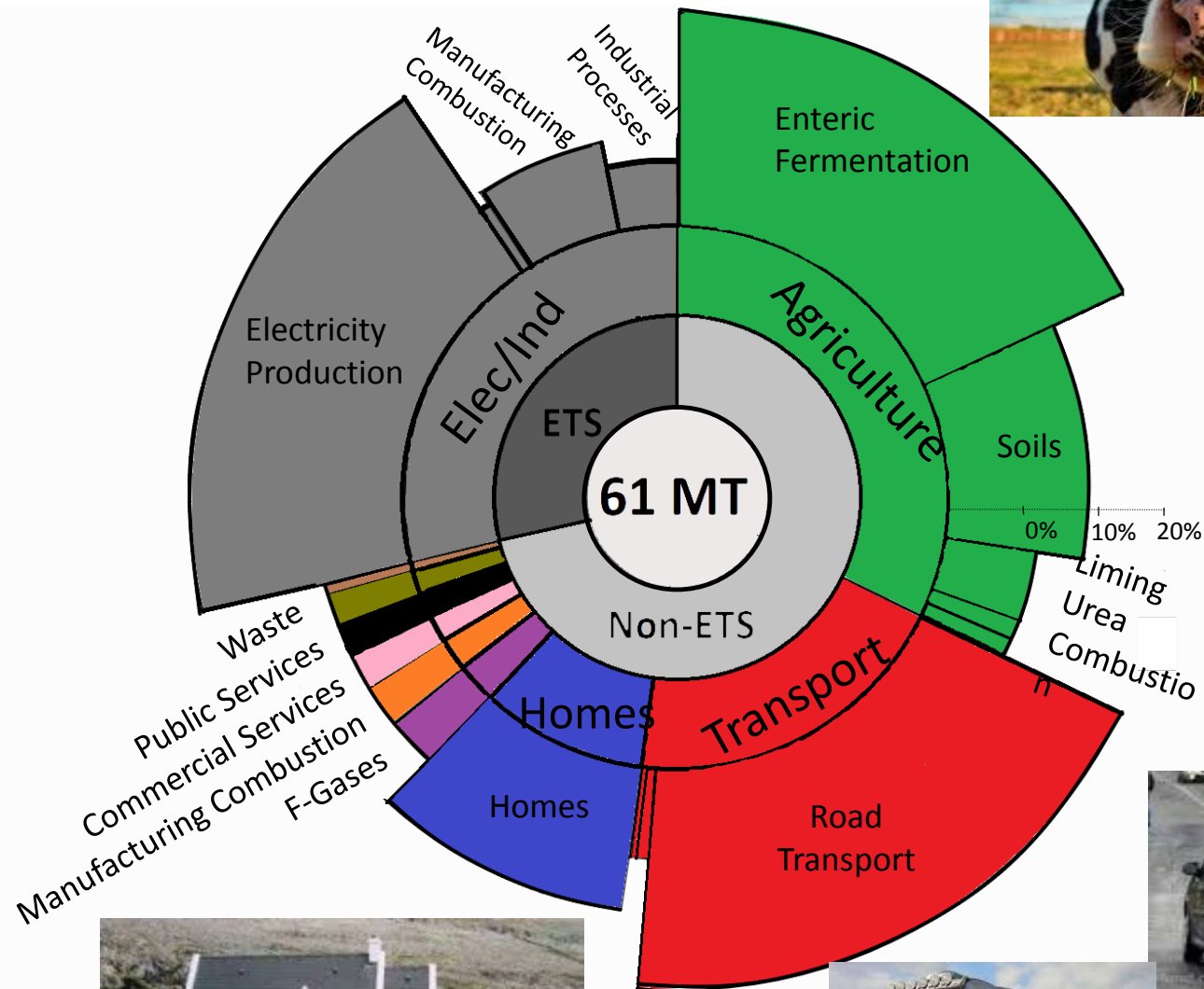
Zero Emissions



Economic Whitaker 2 Sir John R Dublin 2 Tel: (01) 8 Fax: (01) 8 john.curtis







What have we done well?

1. Electricity

Carbon intensity halved since 1990

Wind Energy – now 30% of our electricity (7% in 2005) - globally leading in wind integration

2. Transport

Carbon intensity of new cars 1/3 lower than 2008

Biofuel obligation avoids 300 kt CO₂ yearly

~4,000 EVs on the road (~26,000 hybrids)

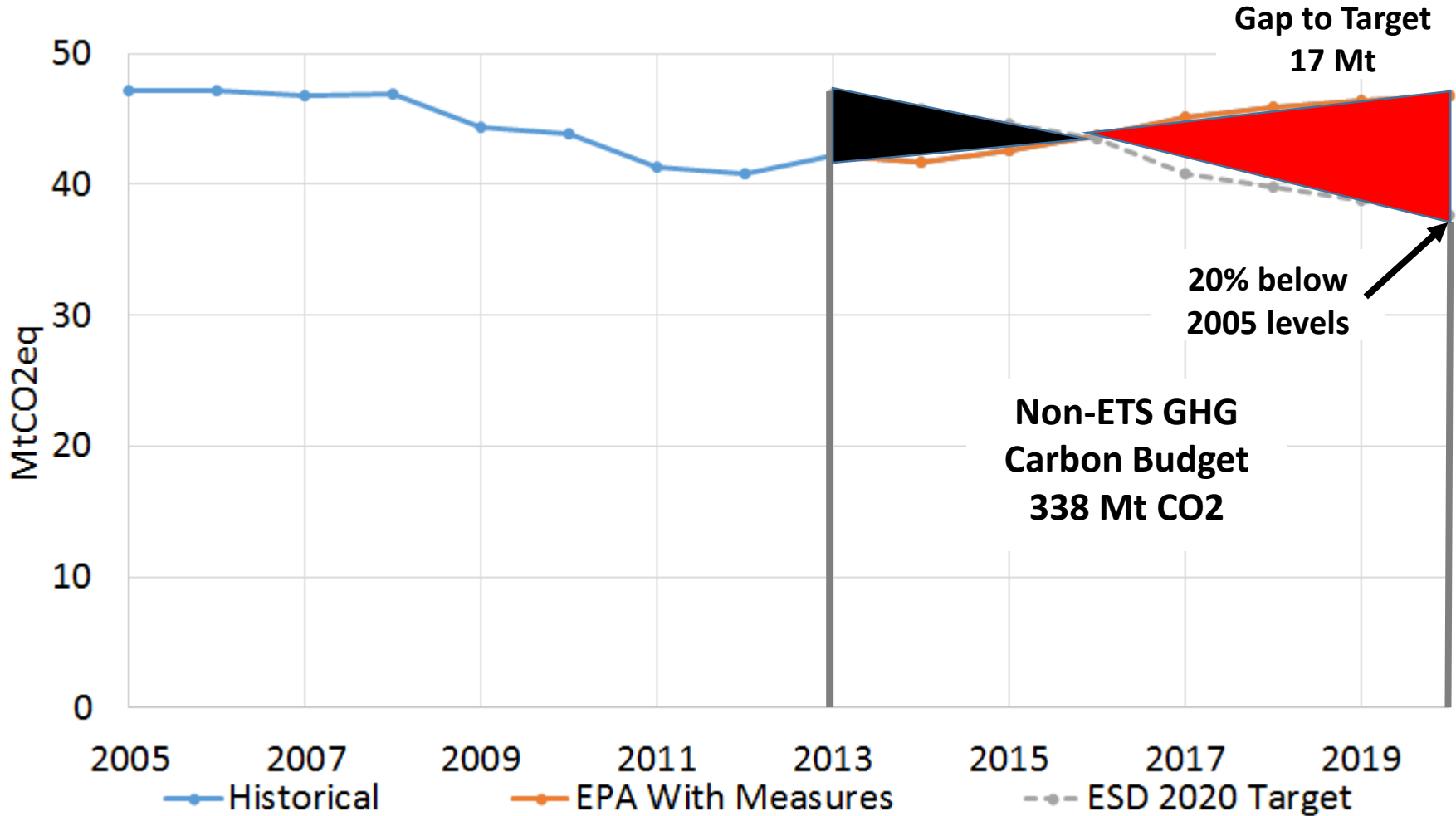
3. Heat

Building regs – new homes 70% better than 2005

391,000 homes retrofitted



Ireland's 2020 Non-ETS GHG Emissions Pathway



So why are we so far from target?

1. Growth and politics

16% growth in people, 30% in economy since '05
political leadership on climate action lacking

2. Electricity

changes in electricity don't contribute to target

3. Transport

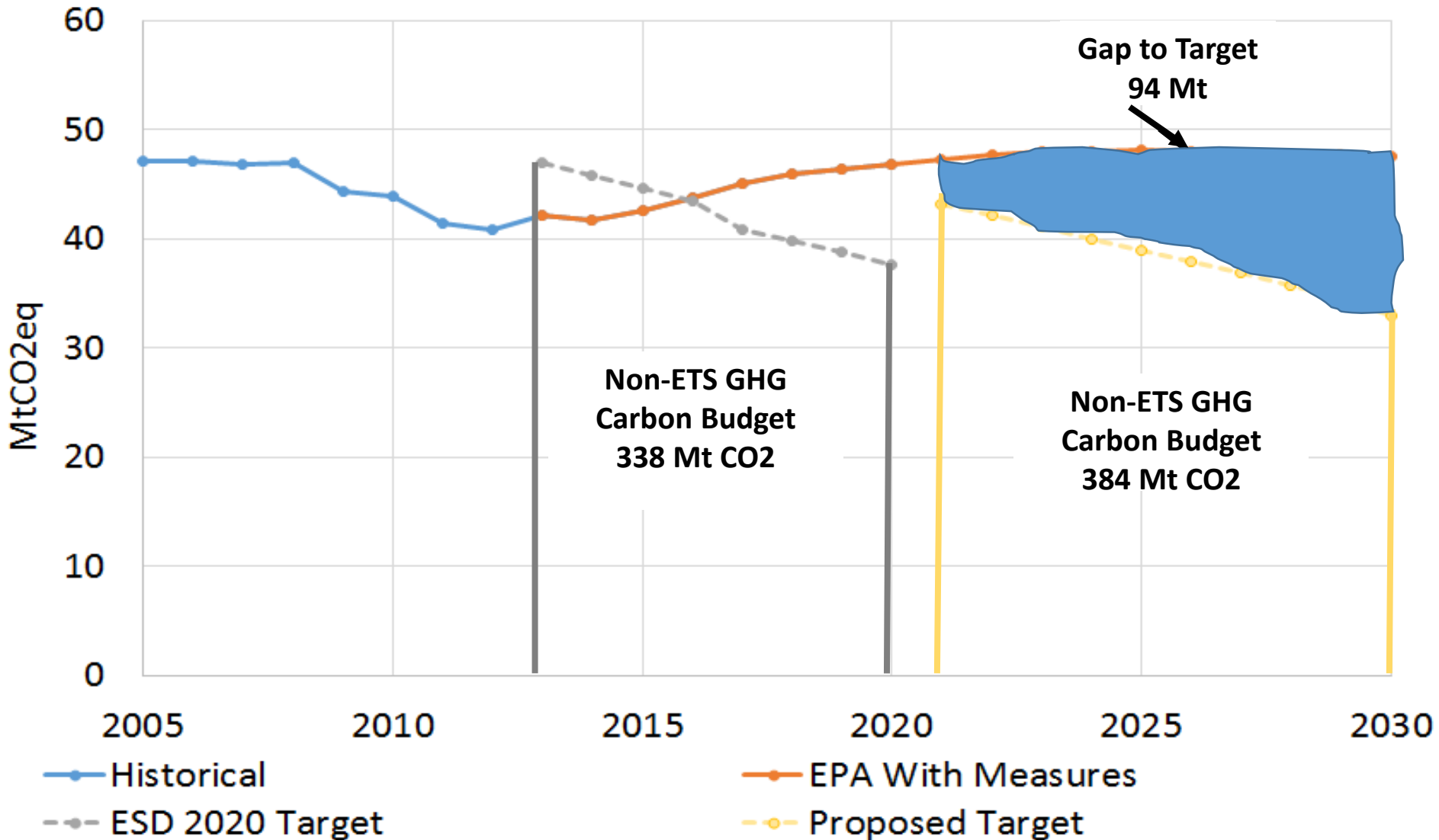
24% increase in annual km driven since '05
no measures in freight (watch out for growth!)

3. Heat

great building regs but few new houses built
most retrofits to date are 'shallow'
no renewable heat support



Ireland's 2030 Non-ETS GHG Emissions Pathway



Key 2030 Mitigation Findings

1. Measures in 2021 contribute 10 times more than 2030 measures
2. Need urgent focus on renewable heat & transport



Key 2030 Mitigation Findings

3. Retrofitting and electrification are important but take time



Individual actions take time to accumulate



Key 2030 Mitigation Findings

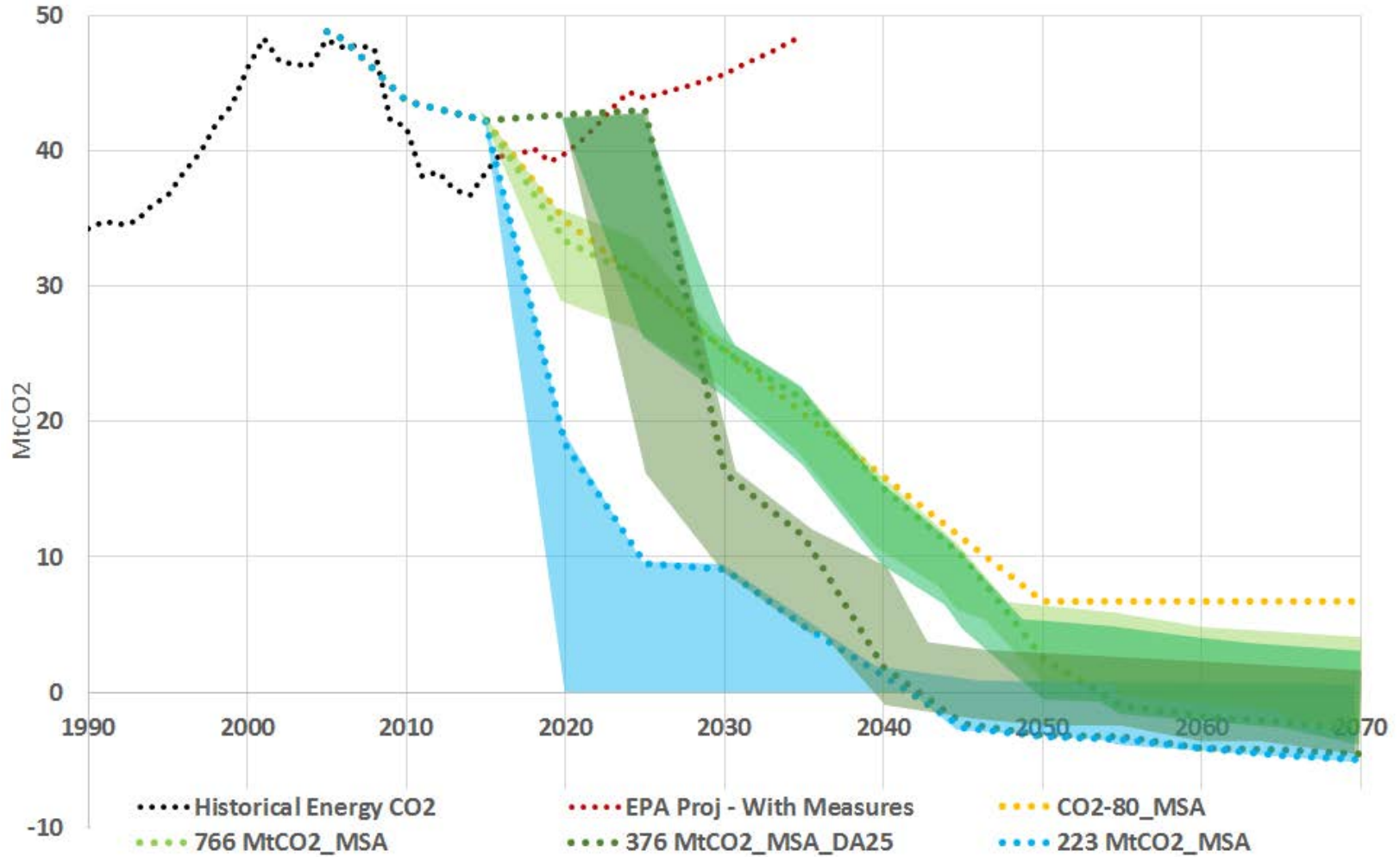
4. Carbon tax important but needs careful approach



**Energy Poverty is a significant but
largely hidden problem**



Ireland's 2050 GHG Emissions Pathways



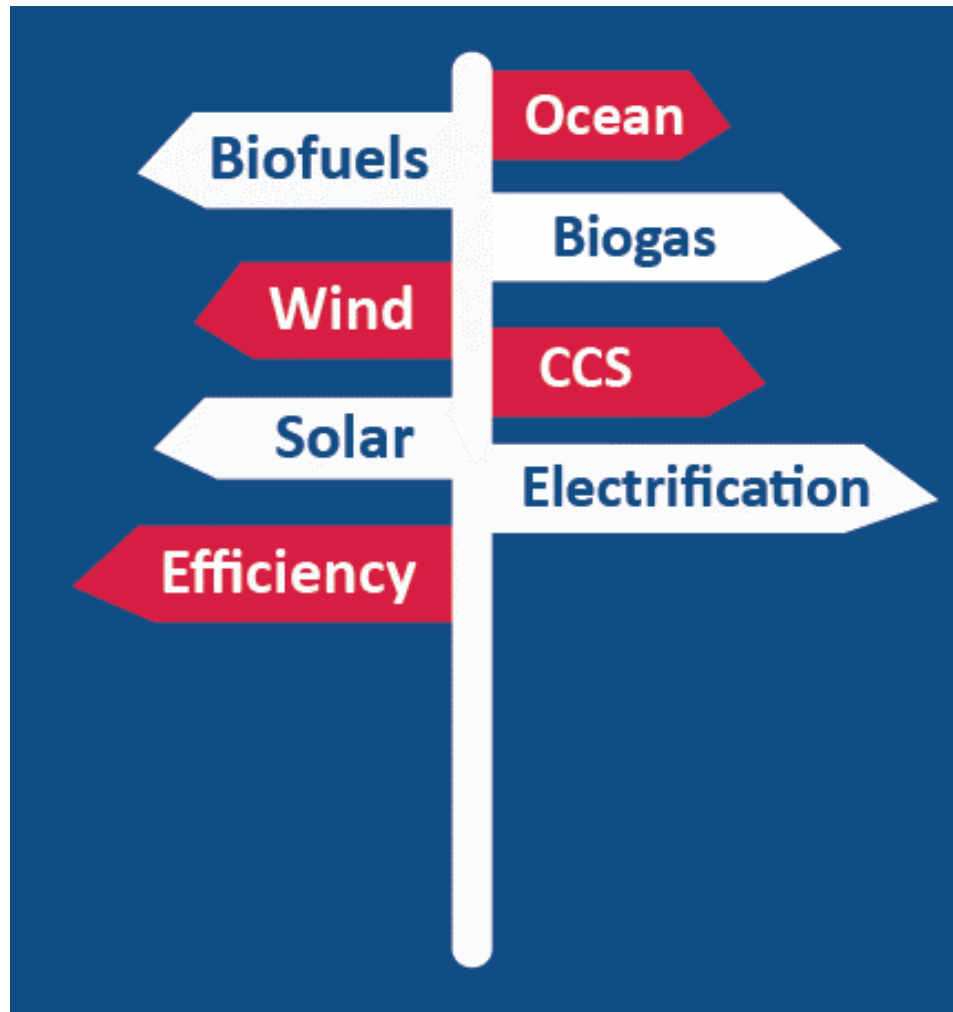
Key 2050 Mitigation Findings

1. Time to act is now!



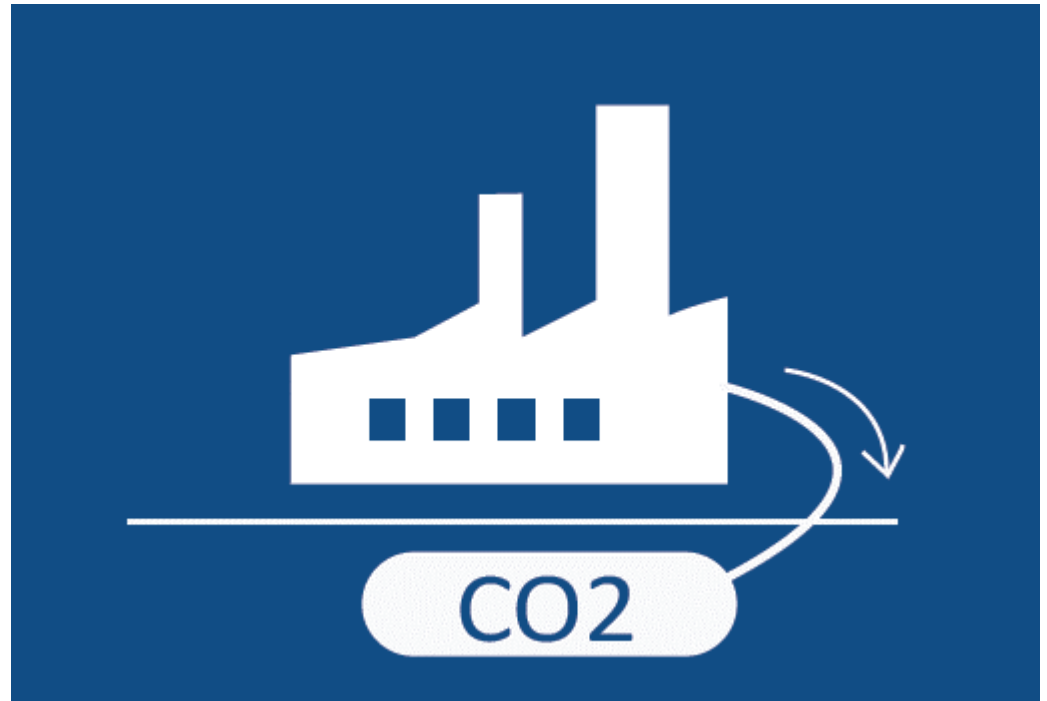
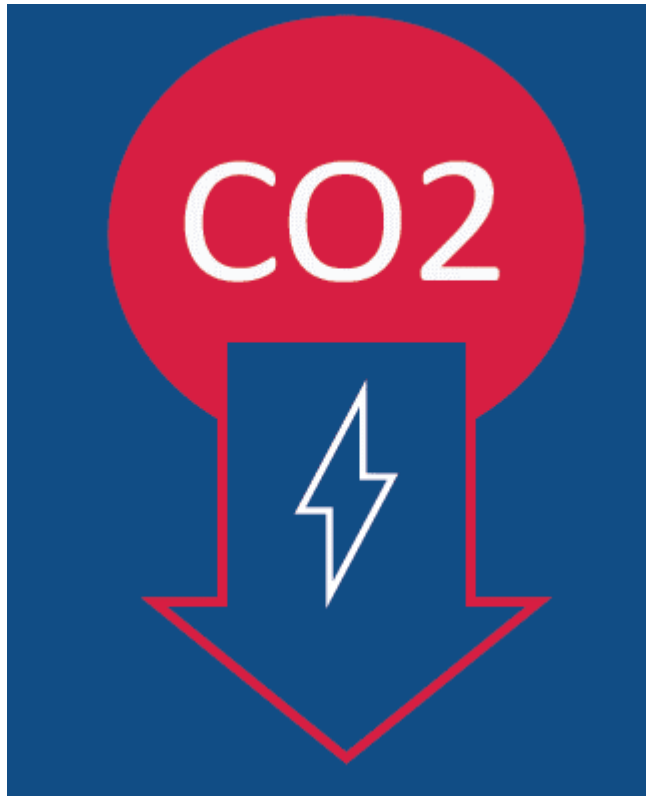
Key 2050 Mitigation Findings

2. There are no silver bullets! We need everything and more!



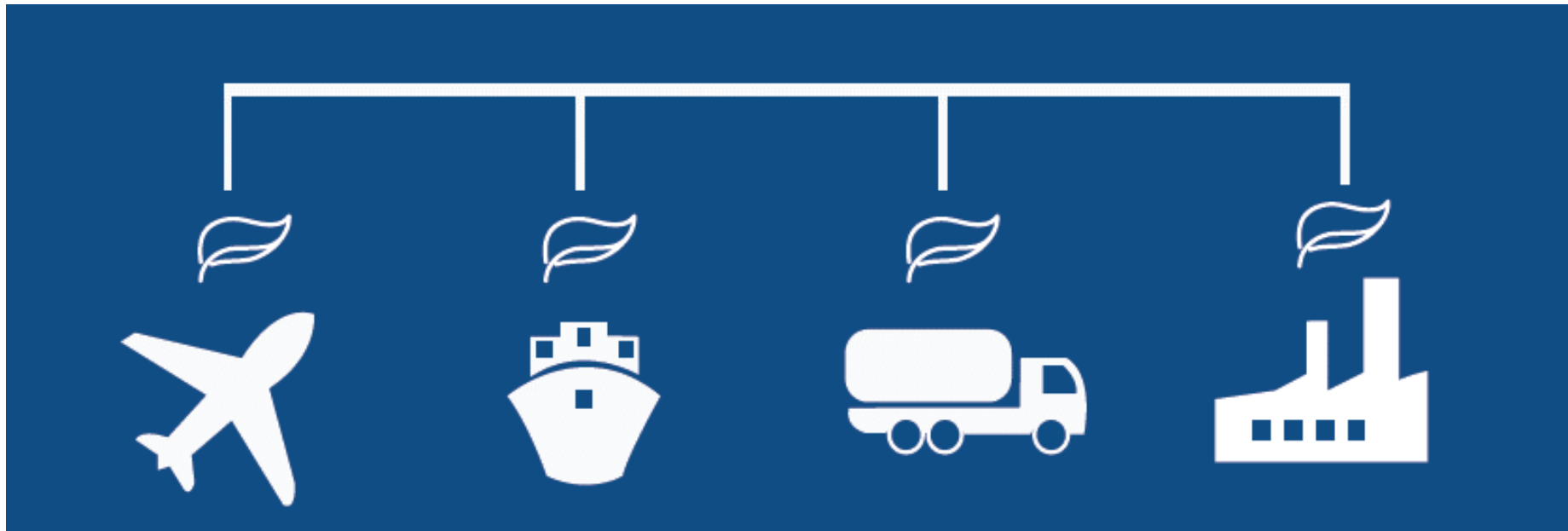
Key 2050 Mitigation Findings

3. We need zero or near zero electricity



Key 2050 Mitigation Findings

4. The transition is not just about electricity! We need bioenergy (from waste, grass, algae, wood, etc.)



Community Energy

1. Energy communities are struggling
2. Untapped climate action potential within *intermediaries*
3. Infrastructural supports emerging but need more coherence
4. More community development approaches needed in community energy supports
5. We expect a lot from volunteers!
6. Community energy does not guarantee community acceptability
7. Unhelpful to talk up community energy while barriers continue



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