ENVIRONMENTAL RESEARCH INSTITUTE
UNIVERSITY COLLEGE CORK

MaREI
Centre for Marine and Renewable Energy

A TRADITION OF INDEPENDENT THINKING

UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

Renewable Heat Incentive

How Much, What and Who?

Brian Ó Gallachóir, Emma Hanley, Richard O'Shea and Jerry Murphy

5th Annual ESRI-UCC Seminar on Energy Policy Research

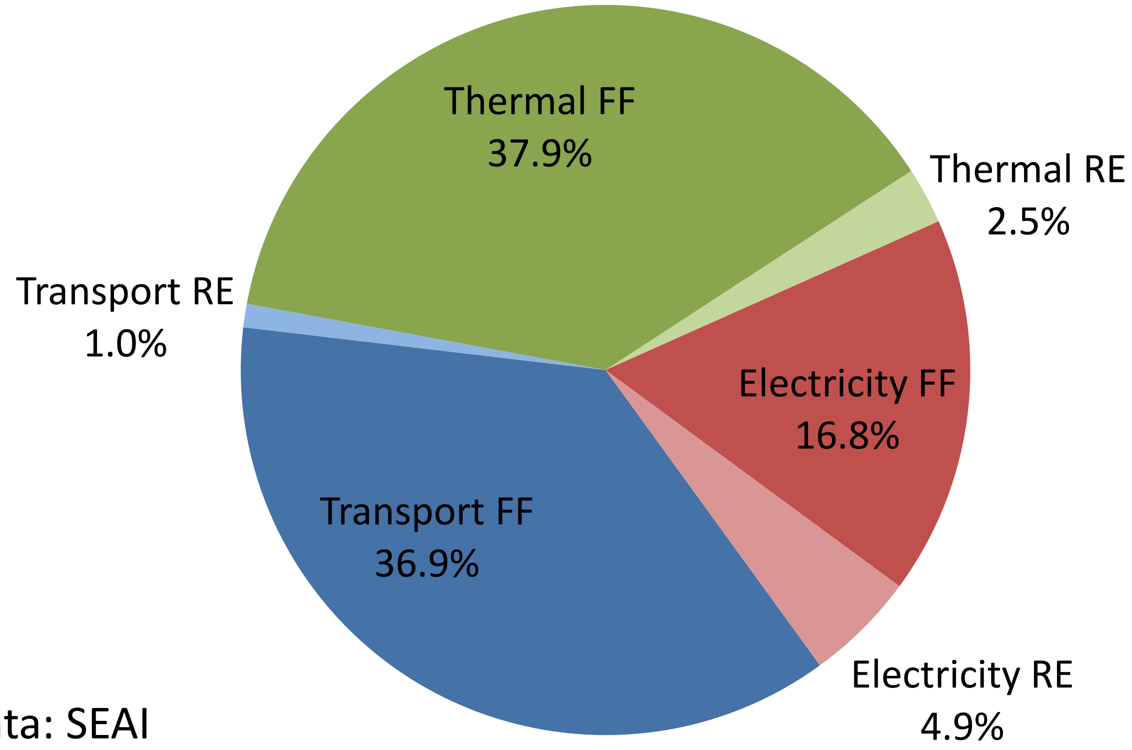
Overview

- Context
- How Much?
  - What level of subsidy is appropriate?
  - What level of subsidy is required?
- What?
  - What role could green gas play?
- Who?
  - Should ETS companies be excluded?

Ireland’s gross energy consumption 2014

ENERGY

2014 Energy Use



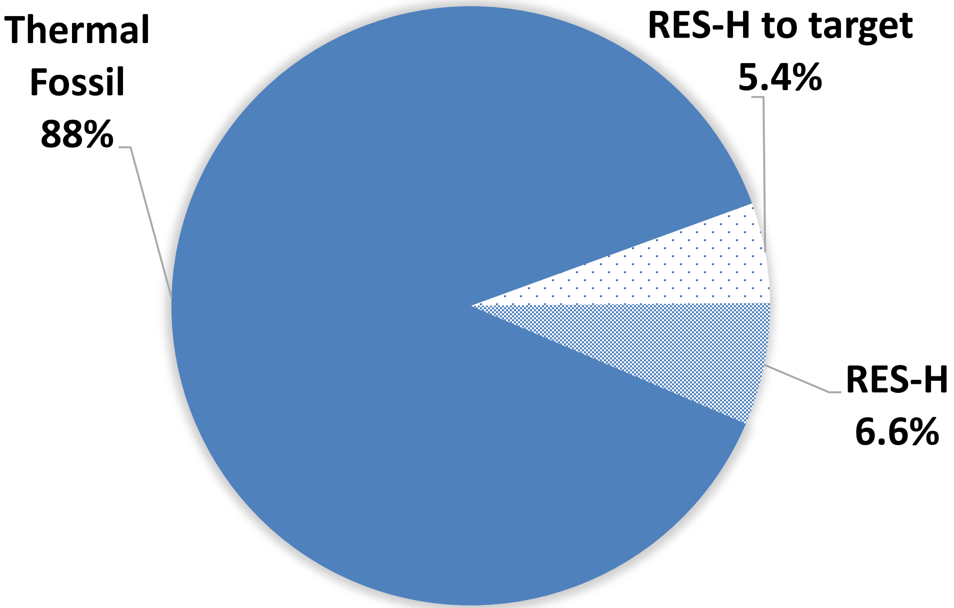
Ireland’s gross final consumption of energy in 2014 was 130 TWh.

electricity accounted for 22%, transport energy 38% and thermal energy 40% of energy use

renewable energy contributed 8.5% of energy use, comprising
5% from renewable electricity (wind and hydro),
1% from renewable transport (biofuels) and
2.5% renewable heat (biomass).

Data: SEAI

Renewable Targets and Progress to Date



thermal gross energy consumption 2014
~ 50 TWh

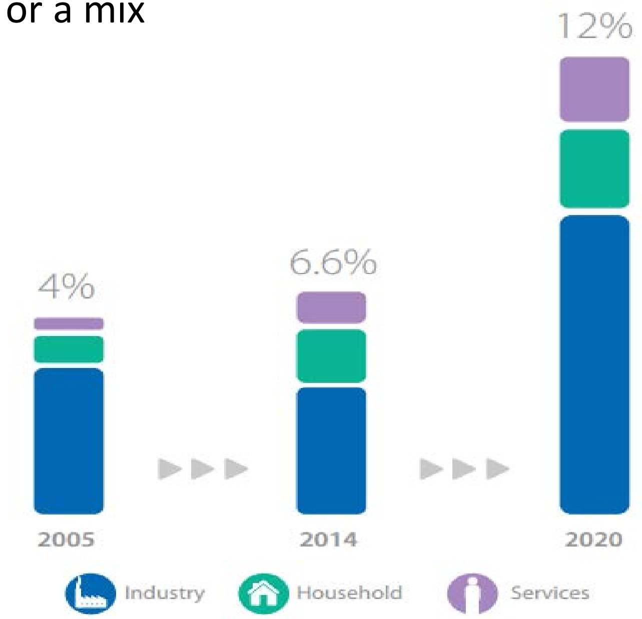
⇨ 12% RES-H ~6 TWh

Data: SEAI

Renewable Heat – is 12% RES-H sufficient?

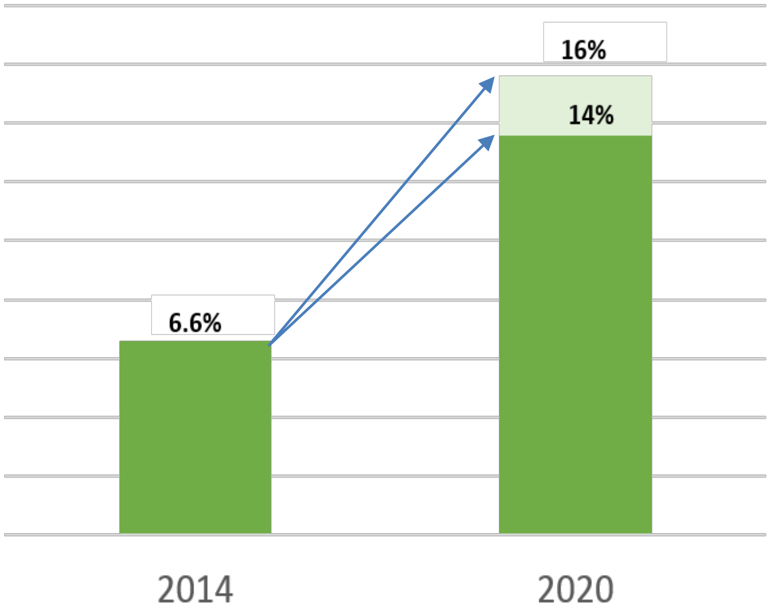
SEAI: to achieve 12% RES-H by 2020

- **300,000 homes**
- **3,000 services/public sector buildings** or
- **200 large industrial sites**
- or a mix

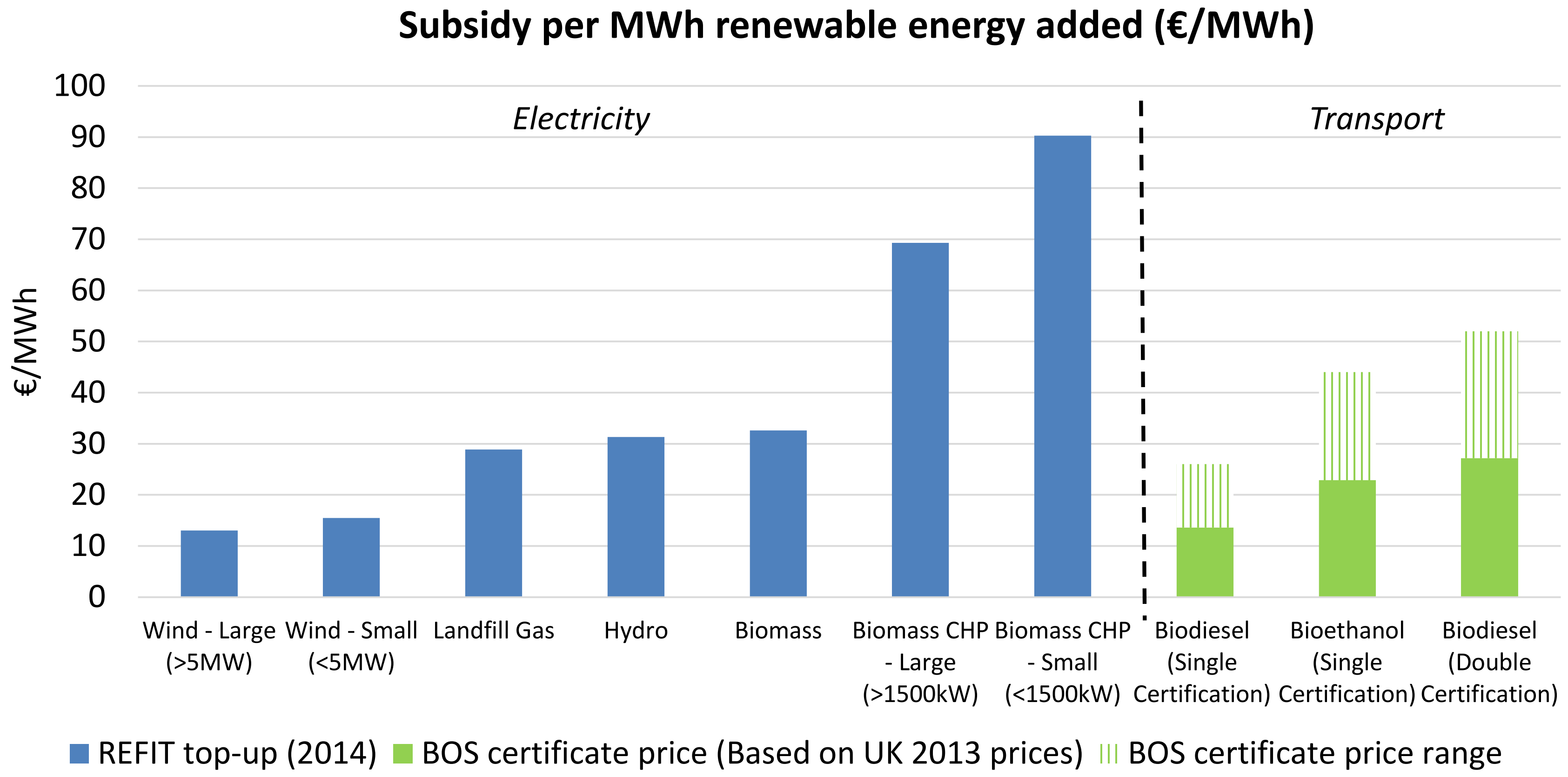


A larger RES-H target may be required as

- 40% RES-E + 10% RES-T + 12% RES-H ≠ 16% RES
- May need up to 16% RES-H ~ **8 TWh**



What level of subsidy is appropriate?



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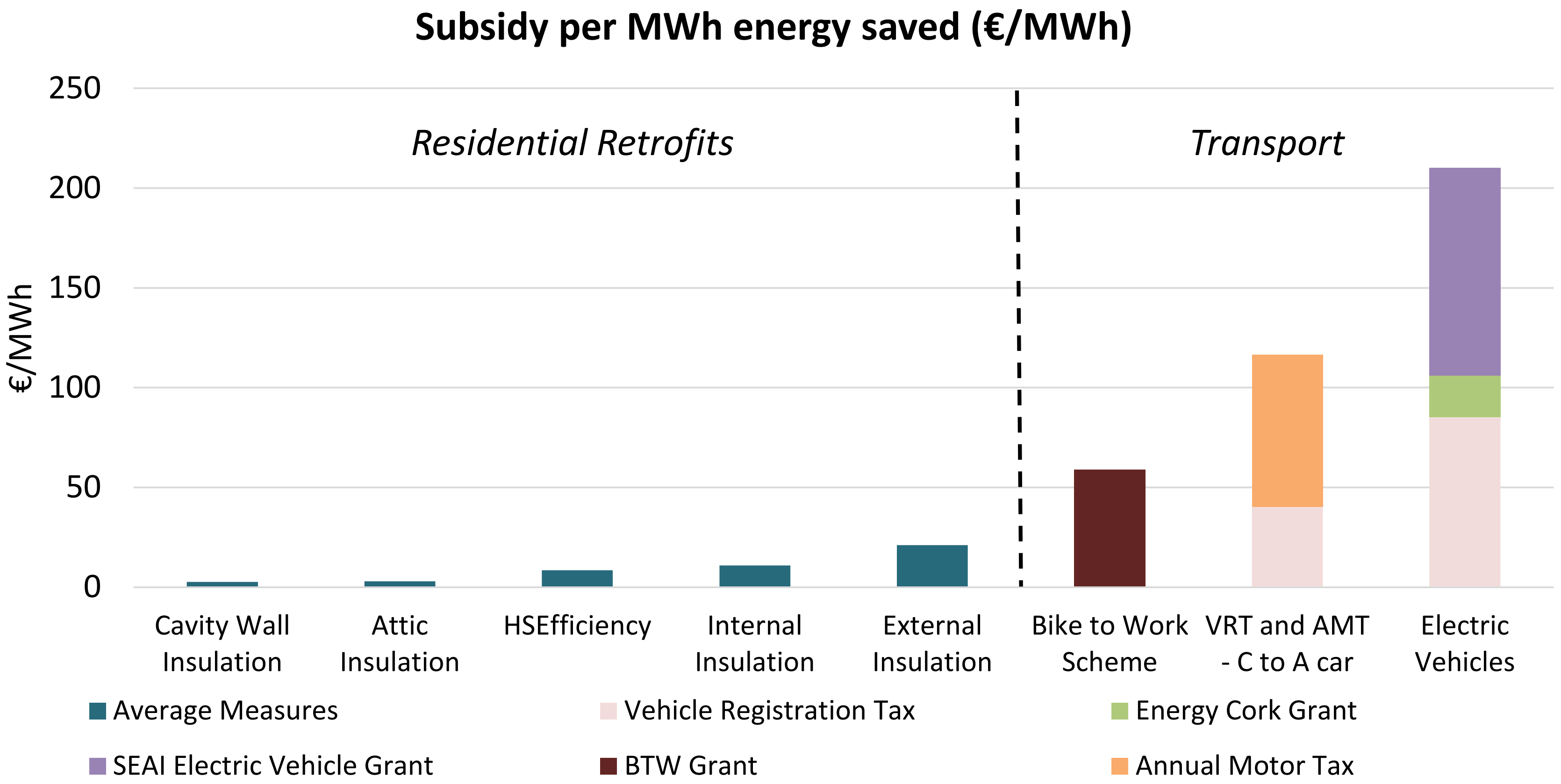

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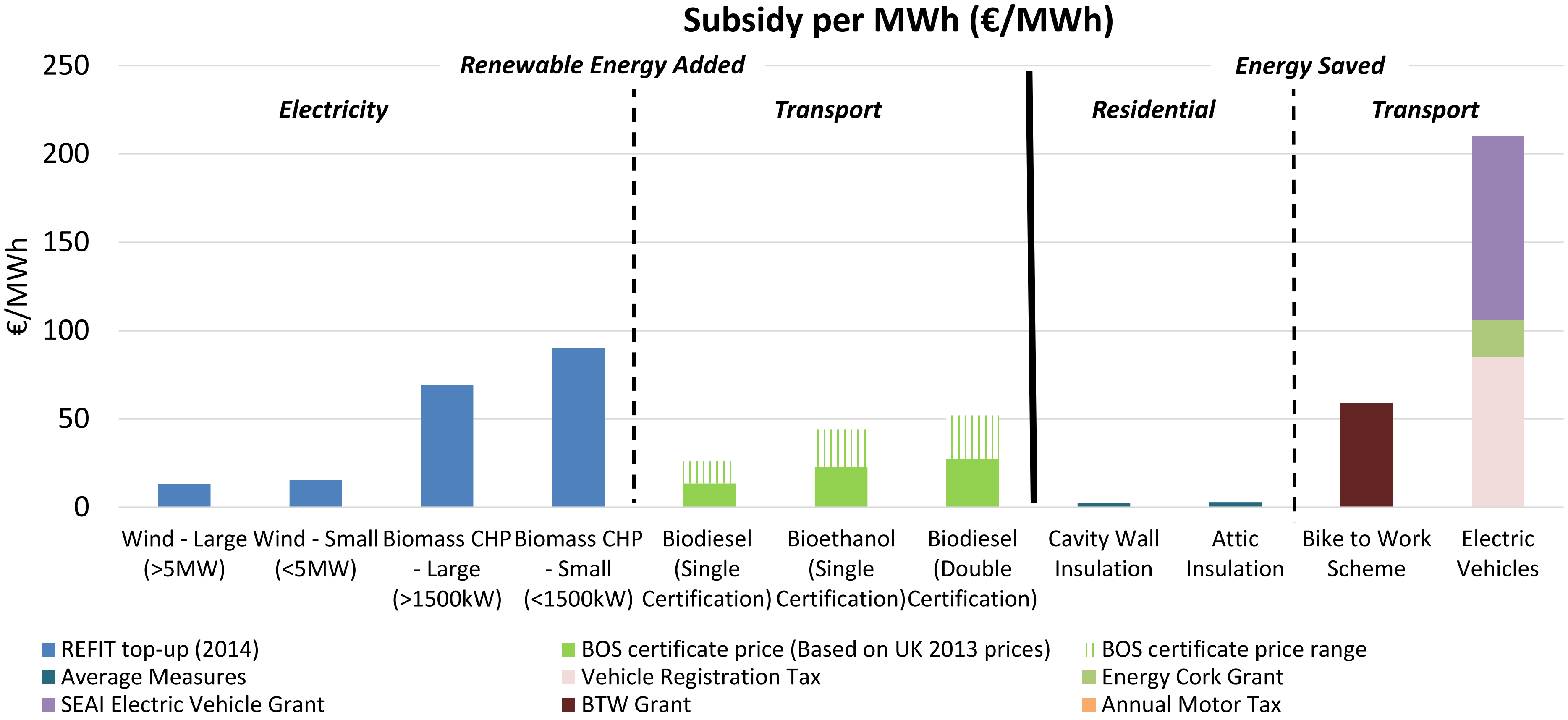
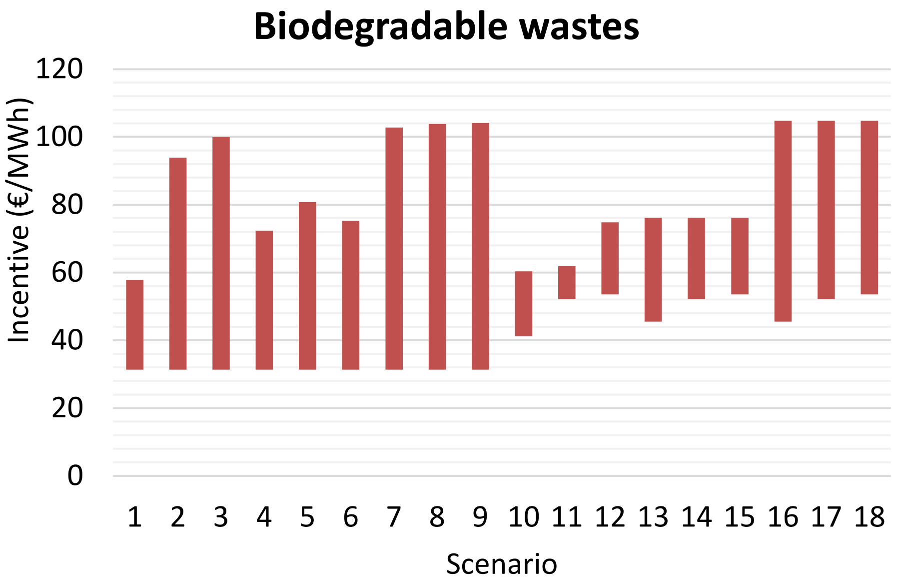
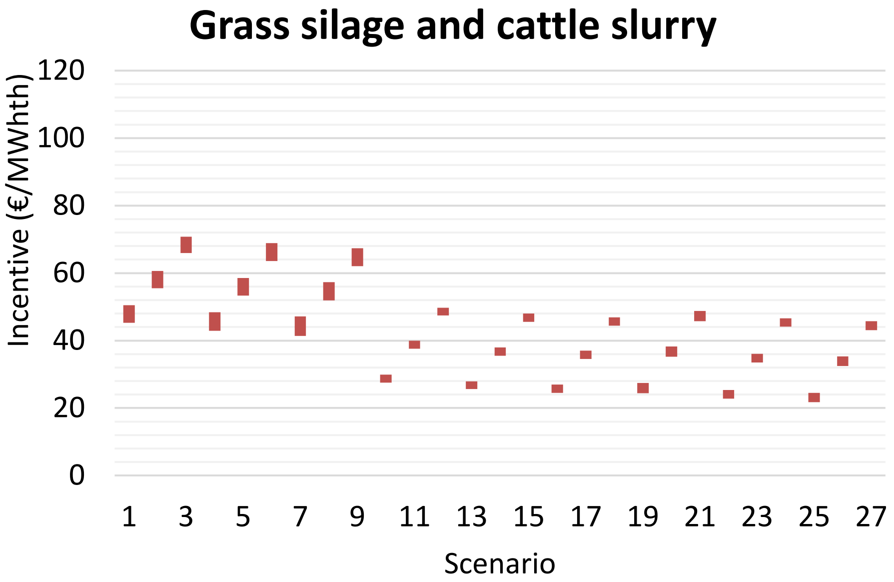


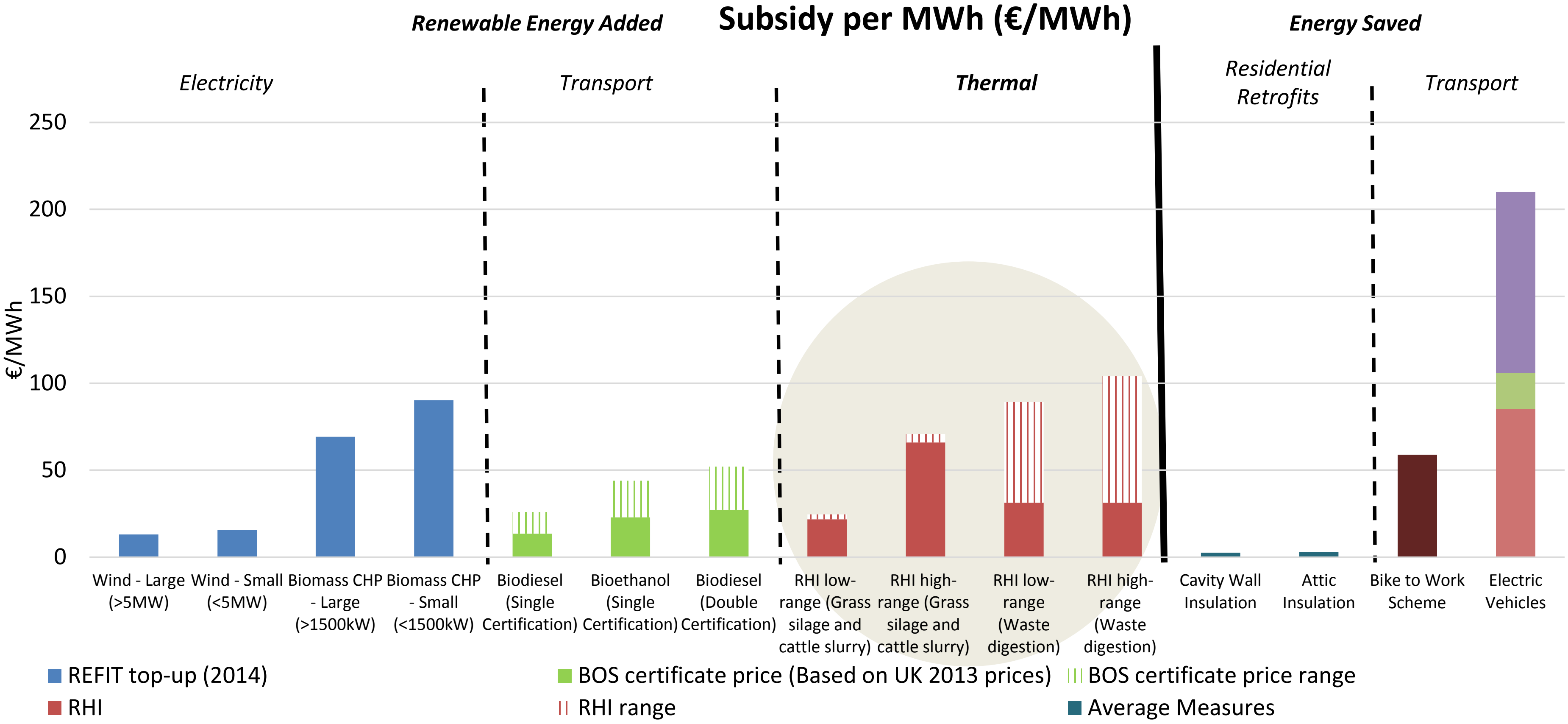
What level of Subsidy is required ?

- Graphs show the range in incentive level required for Biodegradable Waste and Grass Silage and Cattle Slurry facilities to achieve a Net Present Value of zero in each scenario
- **Subsidy required must be greater than this incentive**
- *LCOH of biomethane production – market price gas under various scenarios*

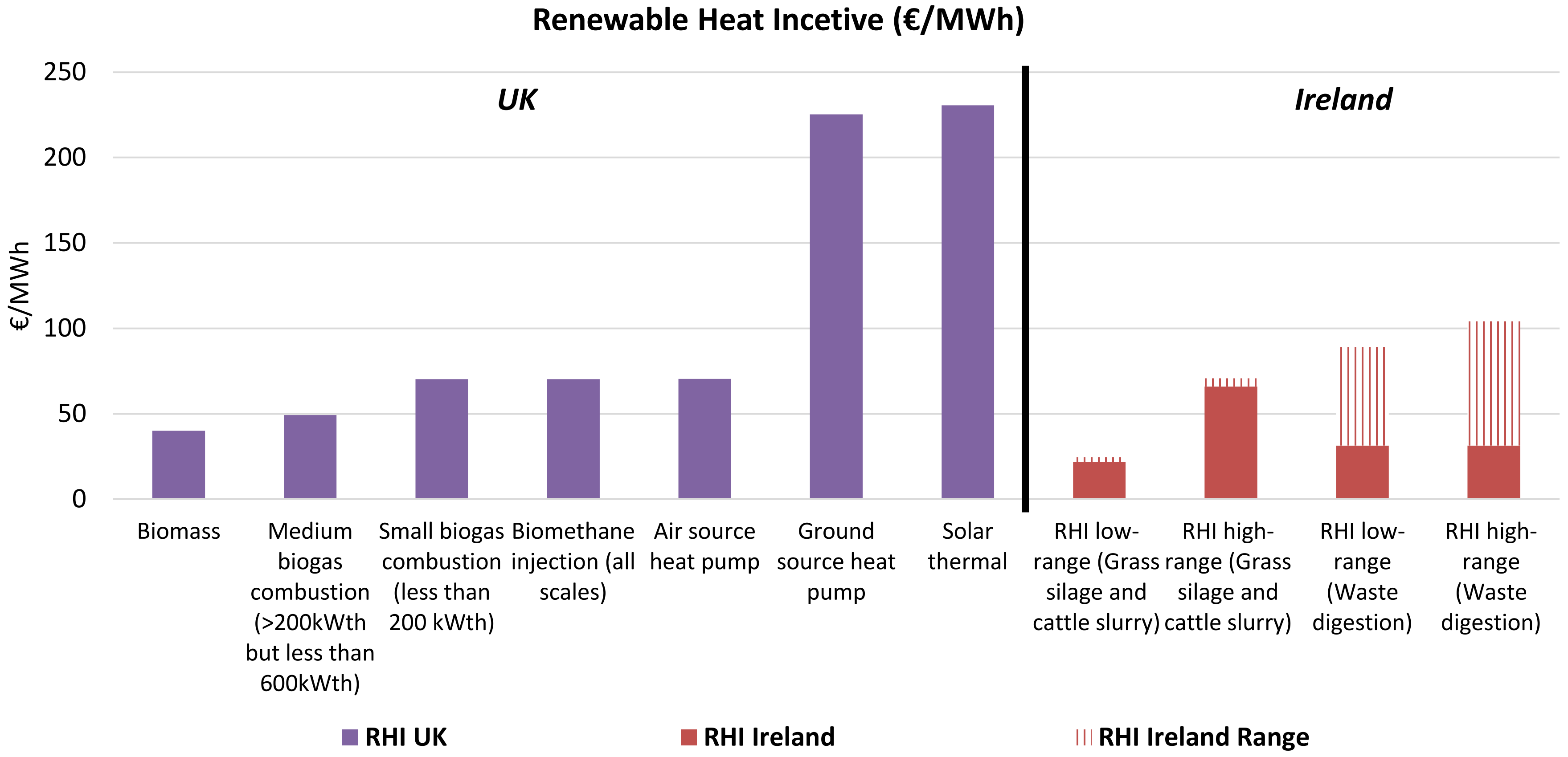




Is the required subsidy appropriate?



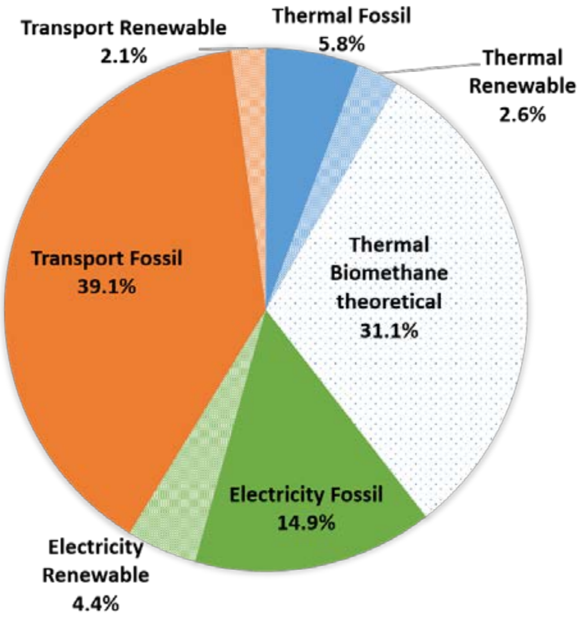
How does this compare with RHI elsewhere?



How much energy can green gas provide?

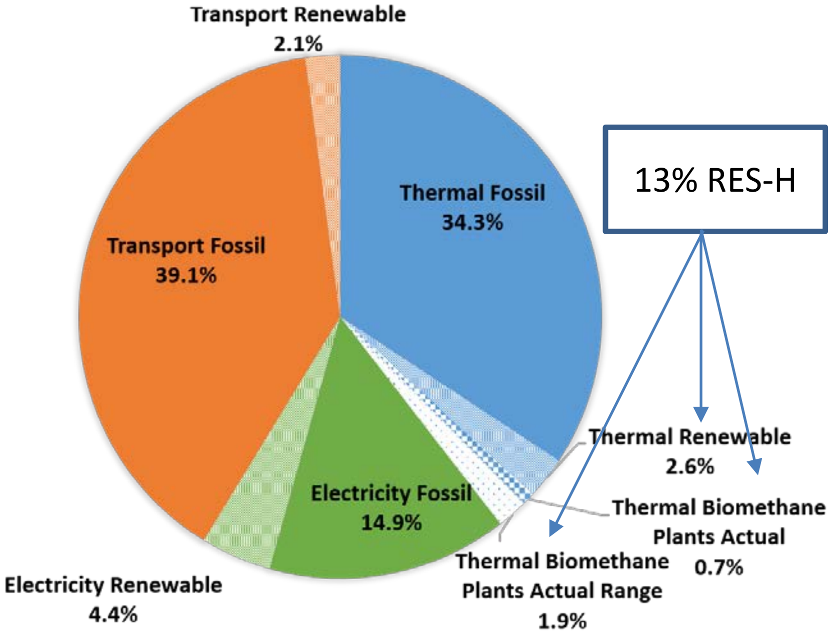
*Total **Theoretical** biomethane Resource*

- Waste Streams (3.5 TWh) + Grass Silage (35.7 TWh)
- ***39.2 TWh***



***Short term** biomethane plant resource*

- ***0.92-3.33 TWh*** *(pie-chart based on 3.33 TWh)*



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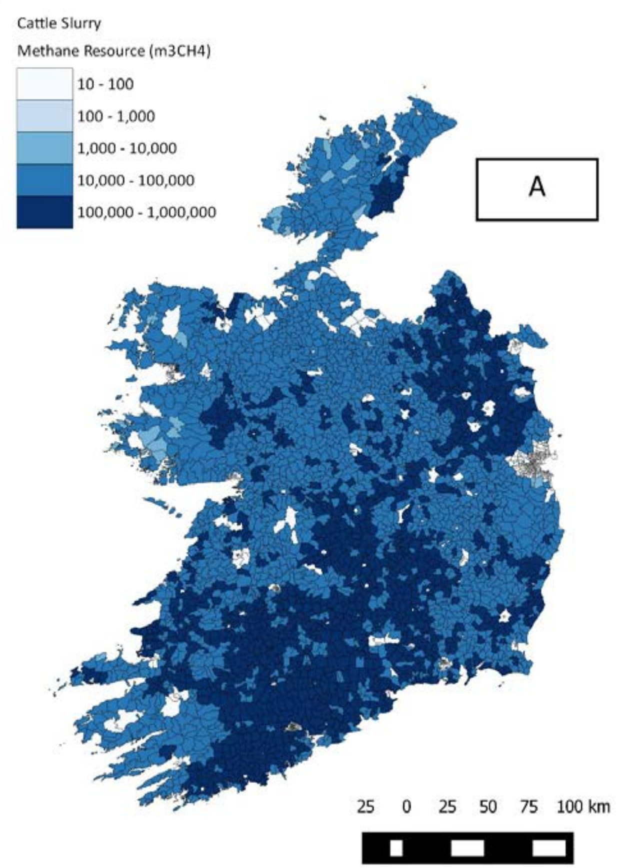
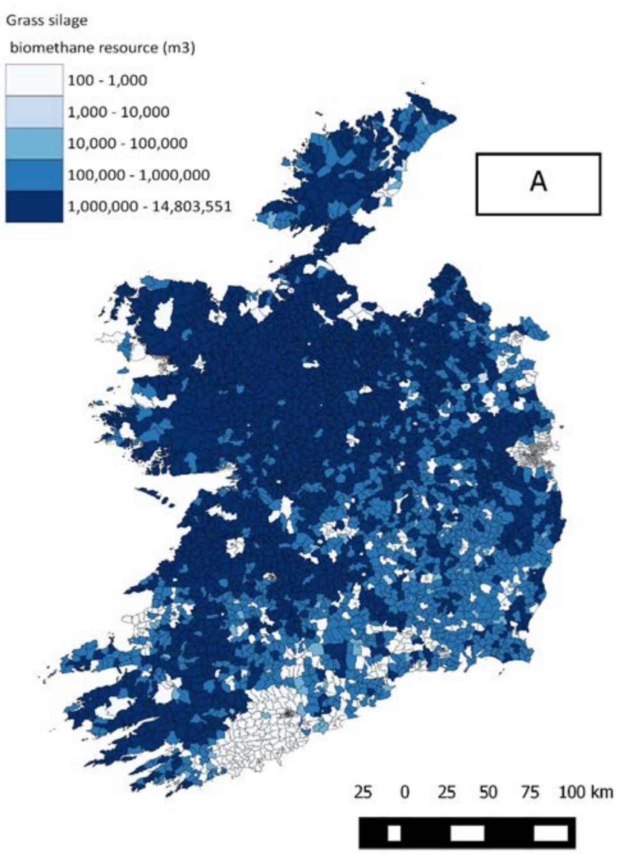
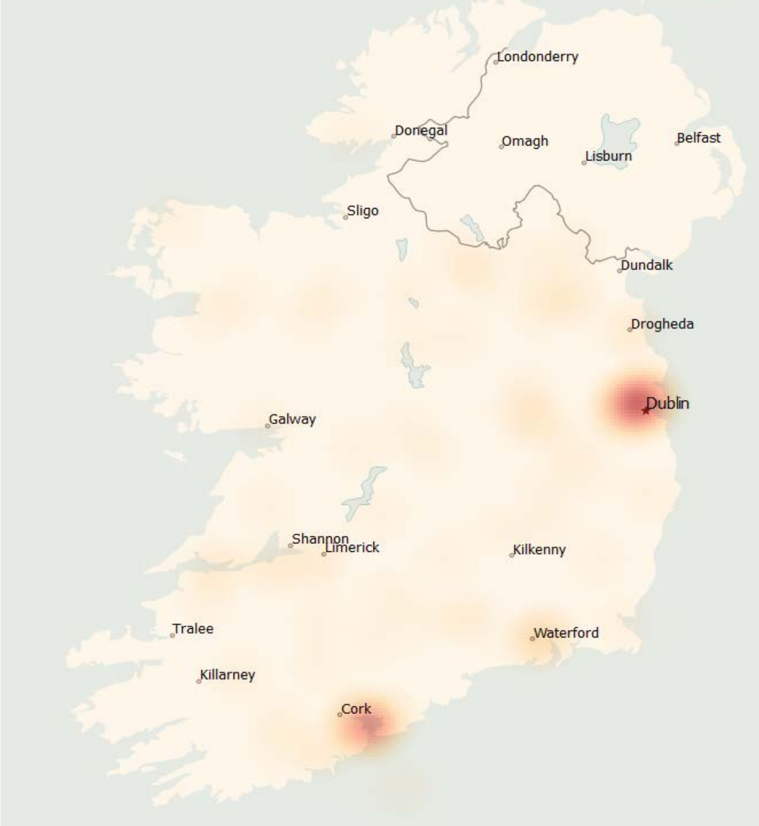




Should ETS companies be excluded ?

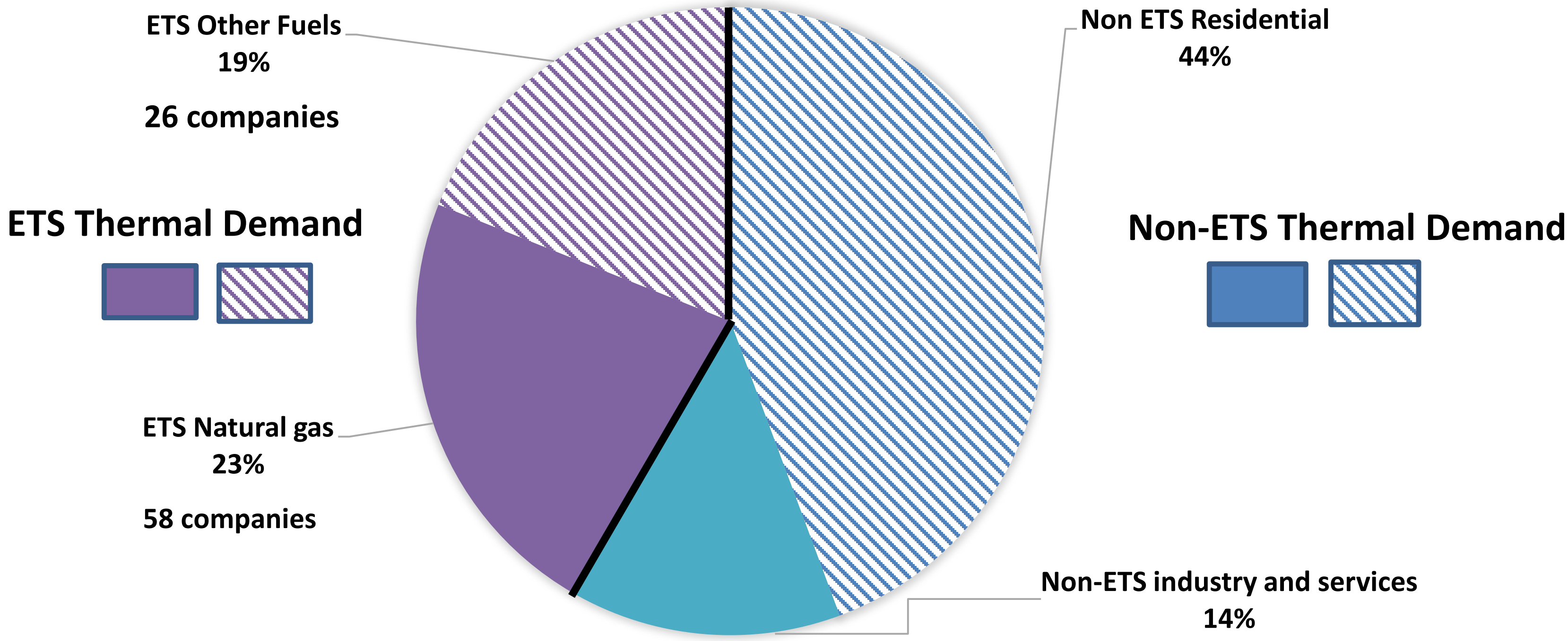
- *‘we will introduce a Renewable Heat Incentive (RHI) in the non-Emission Trading Scheme (non-ETS) sector from 2016’* – White Paper
- RHI will then contribute to GHG (non-ETS) target
- Makes sense after 2020 but not before
- By same logic REFIT should be discontinued
- UK ETS companies can benefit from the Renewable Heat Incentive

Heat Map of ETS company locations



How significant are ETS companies to RES-H?

ETS thermal energy use = **20.5 TWh** ETS natural gas thermal energy use = **11.2 TWh**



Conclusions

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- Context we're not on track for RES and need 16% RES-H
- How Much?
  - What level of <u>subsidy</u> is appropriate? up to €90/MWh (or €210 incl EV)
  - What level of <u>subsidy</u> is required? €20/MWh - €103/MWh
- What?
  - What role could green gas play? 7%-*75%* of 'H'
- Who?
  - Should ETS companies be excluded? Not before 2020, excludes 40% 'H' if so, RES-E REFIT should also go.

Collaborators and funders

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ESRI

Science Foundation Ireland sfi For what's next

ENERGY xemplar

EIRGRID

Queen's University Belfast

epa Environmental Protection Agency

Gas Networks Ireland

NTR FOUNDATION securing a greener future

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KTH VETENSKAP OCH KONST

Roinn Cumarsáide, Fuinnimh & Acmhainní Nádúrtha
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