Developing and improving the GHG baseline for your local authority area

EMAQ webinar (net zero 1)

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RICARDO EMAQ+

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AGENDA

- What is a GHG baseline and why are they important?
- How they are developed
- Introduction to LAGHG
- What is the 2021 data showing us?
- Building on the LAGHG data
- Questions and discussion

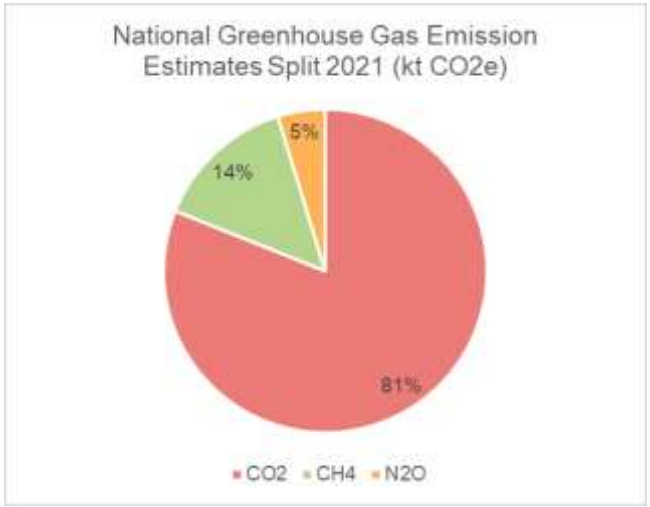
What is a GHG baseline and why are they important?

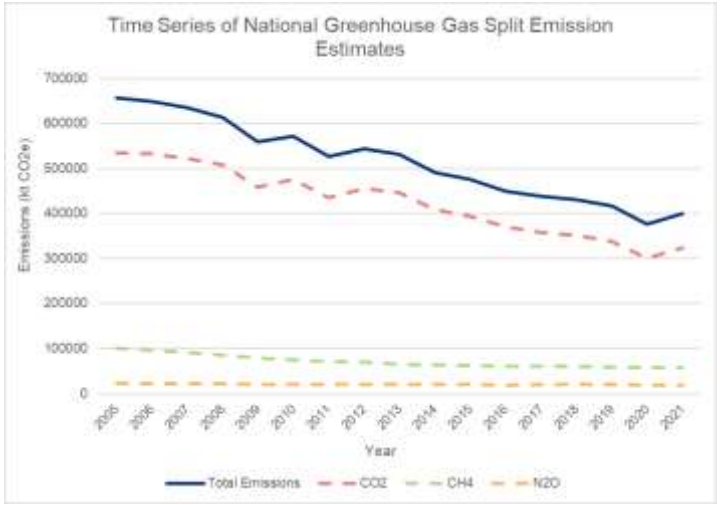
What?

- Shows emissions sources and sinks for a defined geographic area and a defined time frame

Why important?

- Starting point for all net zero work
- Give insights into priority areas for action
- Allows progress to be tracked (but depends on approach)
- Increases transparency, which can build confidence

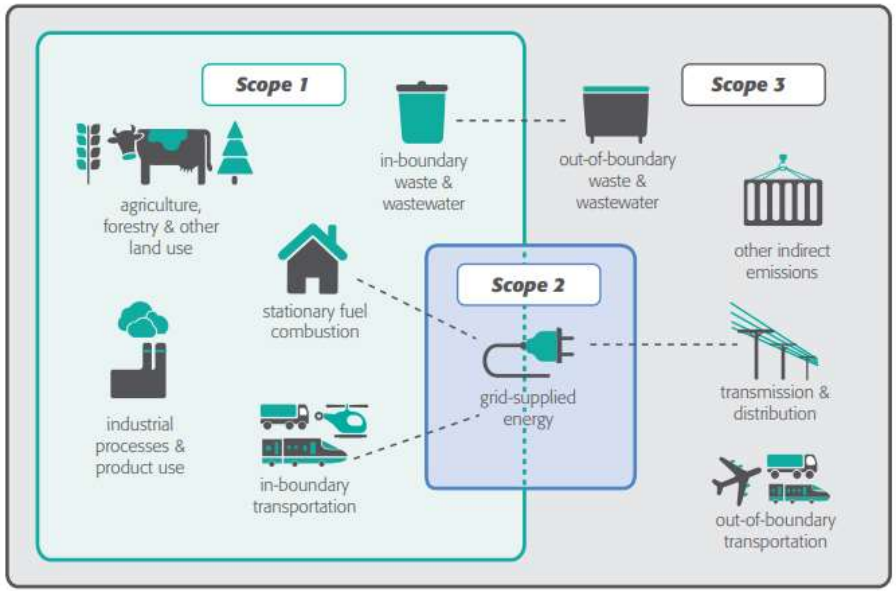




2021 UK Greenhouse Gas Emissions, Final Figures

How are they developed

- **Decide on scope**
  - End user vs source
  - Scope 1, 2 and 3



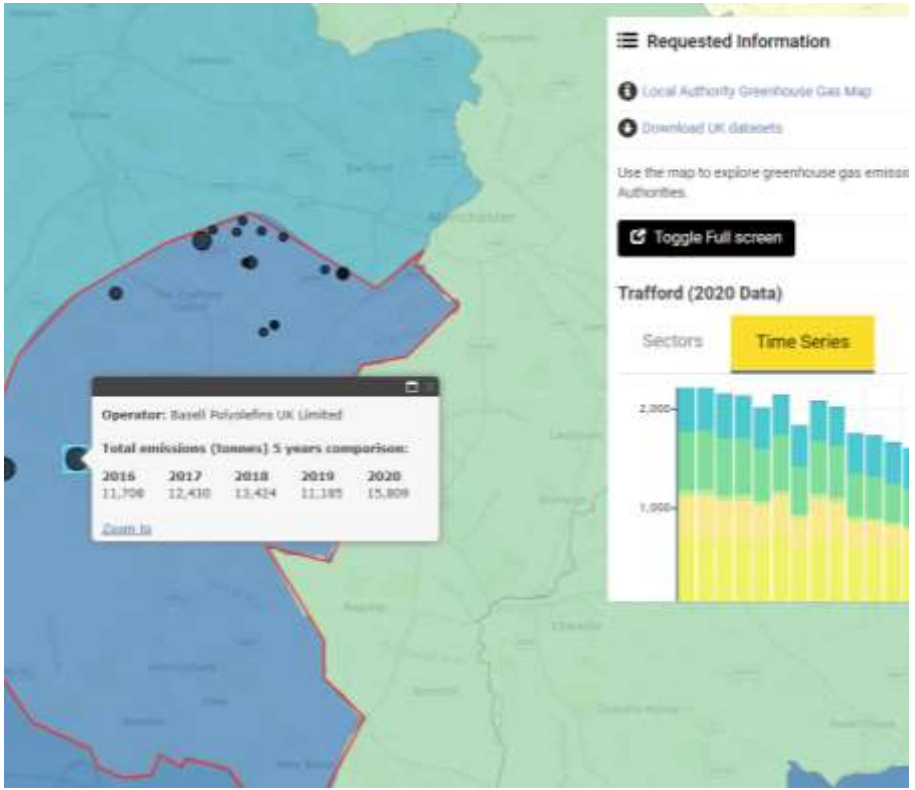
- **Calculate emissions**
  - Activity data x emissions factors
  - Tier 1, 2 and 3
  - Example in transport:
    - Tier 1 = volume of fuel sold x carbon intensity of the fuel
    - Tier 3 = number of vehicles x efficiency of the vehicles x carbon intensity of the fuels x distance travelled

LA GHG

- Annual emissions estimates for each local authority area
- Consistent comparable methodology
- Published every summer, 2 years in arrears
- Previously only CO_2 – data goes back to 2005
- But since 2022 publication, also includes methane and nitrous oxide (also back to 2005)

Industry, Commercial, Public sector	Land use, land use change and forestry (LULUCF)
Domestic	Agriculture (livestock, soils, energy)
Road transport, rail & other (e.g., waterways)	Waste management

LA GHG web tool

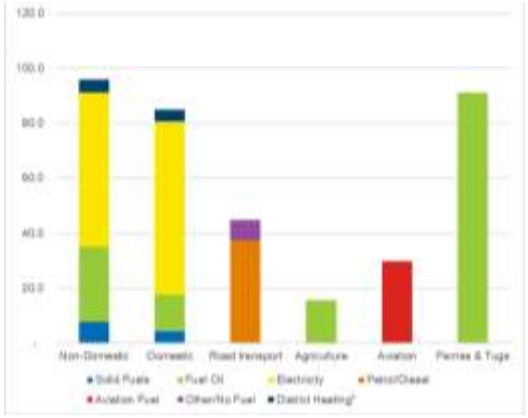


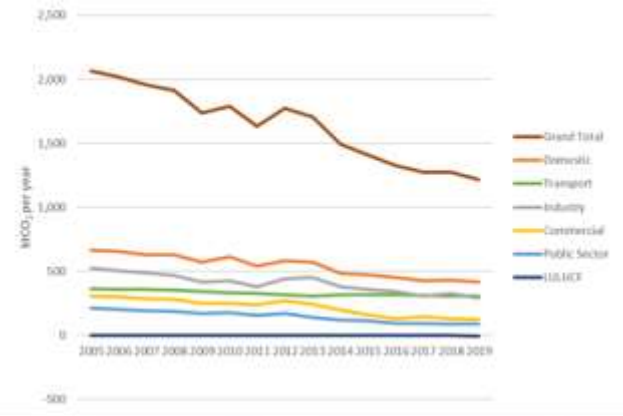
https://naei.beis.gov.uk/laghgapp/

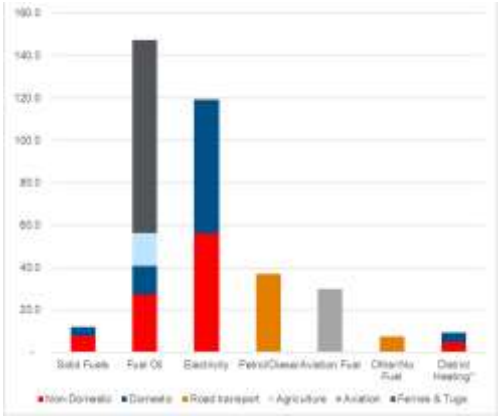
How LAGHG is developed

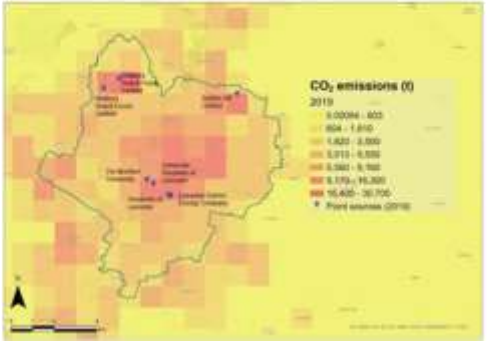
- Buildings – based on data from electricity and gas meters
- Road transport - vehicle fleet composition data + fuel consumption factors + emissions factors
- Large industry – map sources from NAEI + information on fuels burnt during 2005-2020 from EA etc + information on emissions of GHG from combustion processes during 2005-2020 reported by operators
- Agriculture (livestock) – detailed agricultural census data, land cover data, agricultural practice information (e.g., fertiliser application rates, stocking densities) and emission source strength data from the NAEI
- Waste (landfill emissions) – DA level methane emissions from landfill sites + data on waste sent to landfill by origin LA

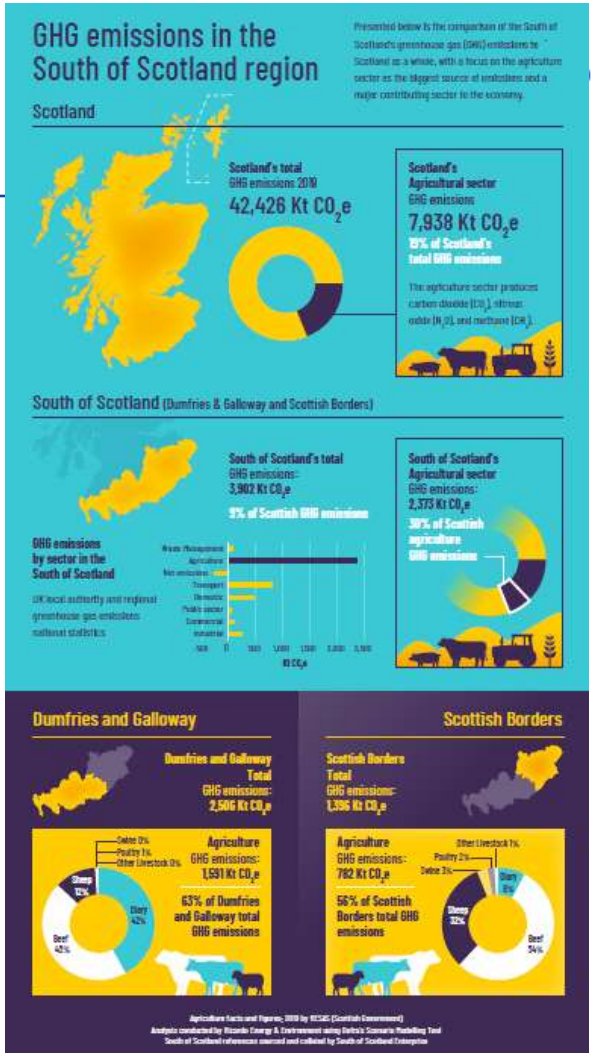
Visualising the data



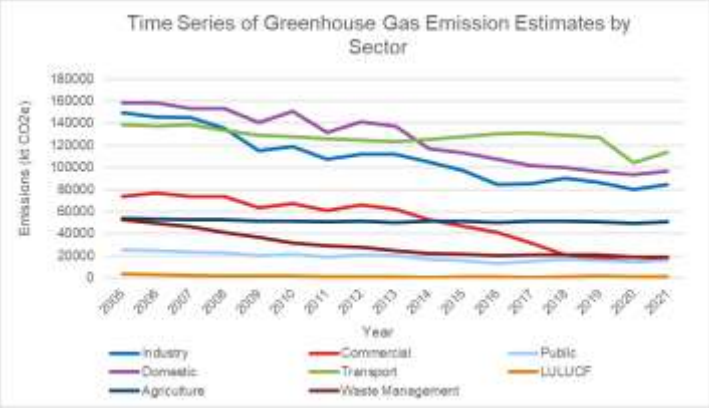


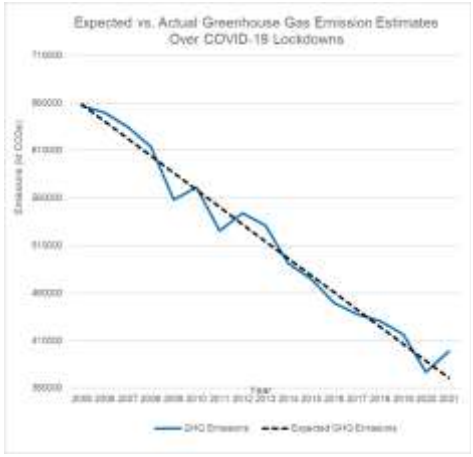


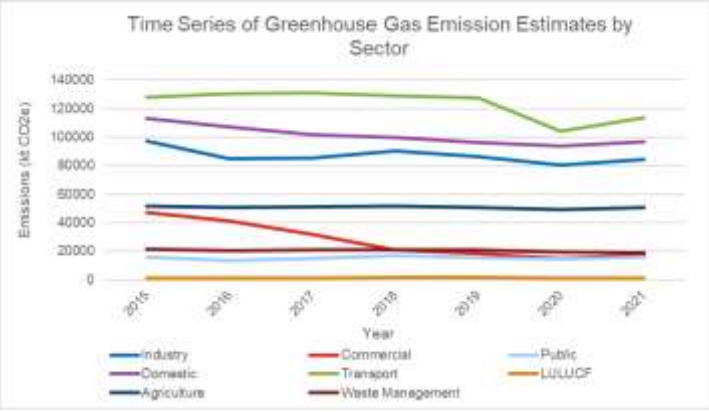


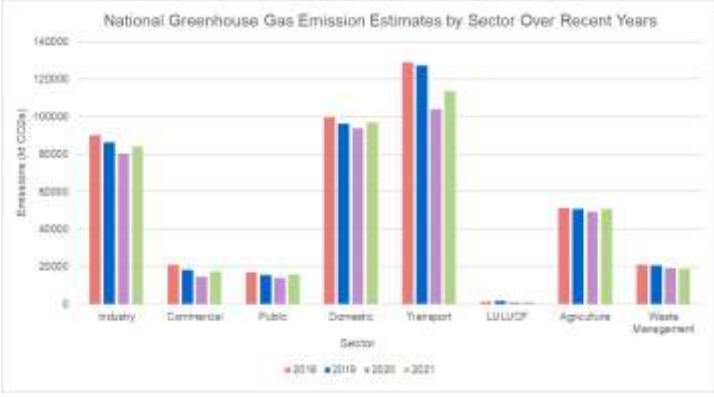


What is the 2021 data showing us (trends)?

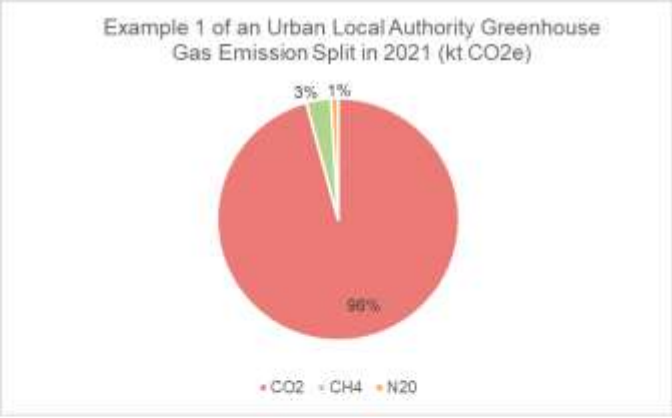


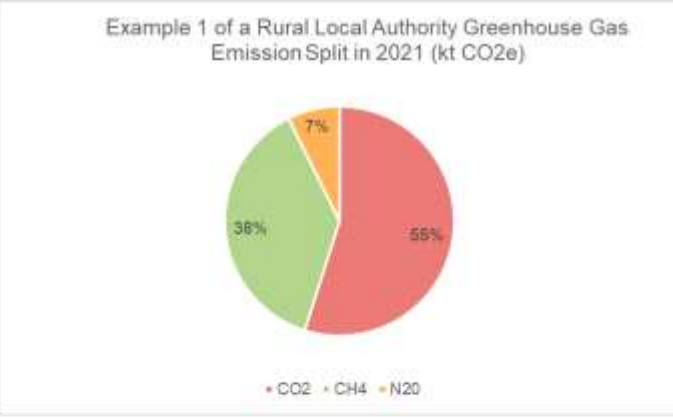


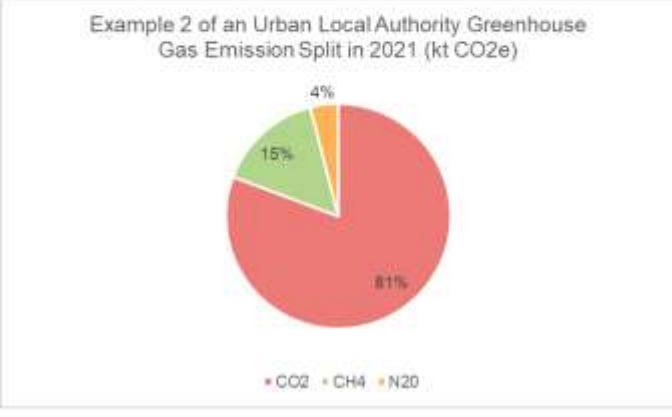


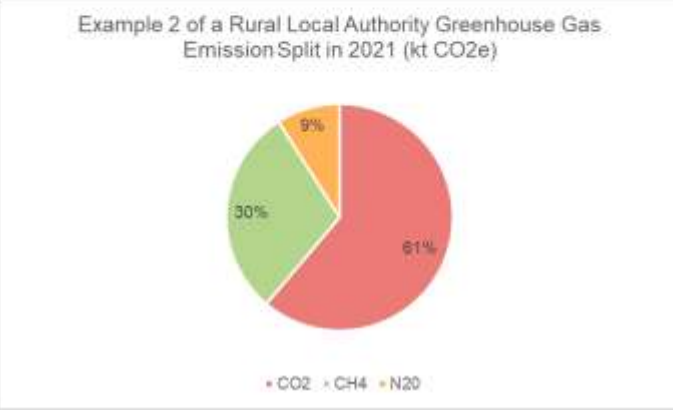


What is the 2021 data showing us (methodological impacts)?

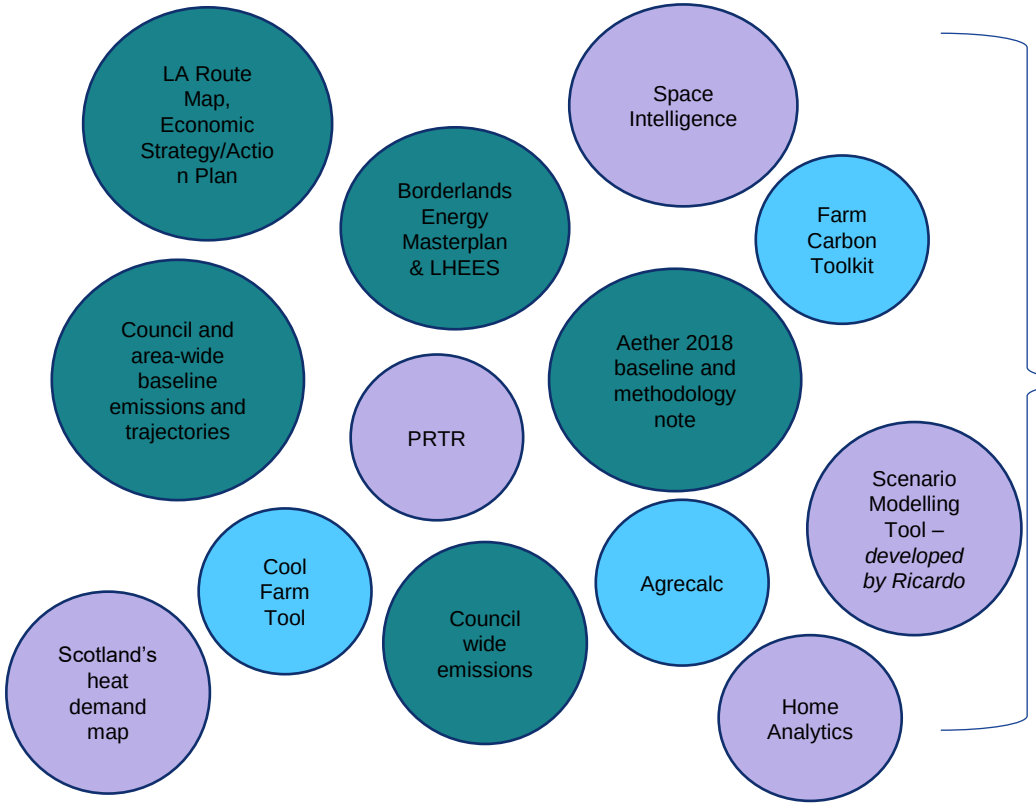








Building on the LAGHG



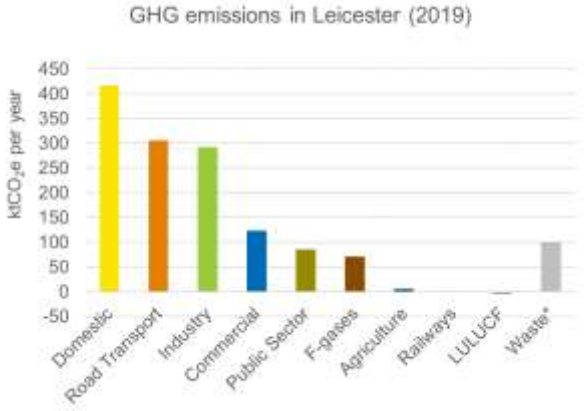
The data sets reviewed are useful in terms of understanding GHG sources but not as useful when generating the LA baseline.

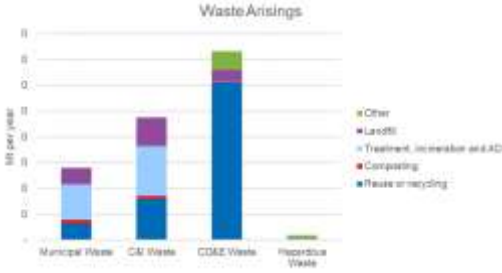
Key Conclusions

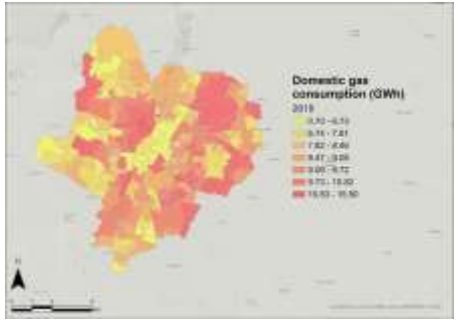
We concluded that majority of these datasets can not be used to easily to re-evaluate the current LAGHG data, for a variety of reasons:

- Datasets do not offer complete coverage
- The data tends not to be quality assured/verified
- National datasets VS localised ones
- Confidentiality issues
- The SMT data set provided a more useful and granular view

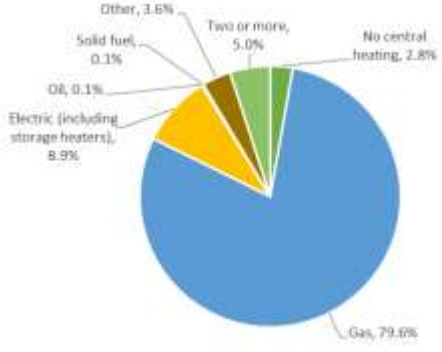
GHG +

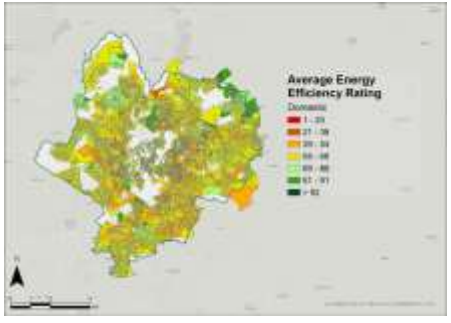

GHG emissions in Leicester (2019)
ktCO2e per year
450
400
350
300
250
200
150
100
50
0
-50
Domestic
Road Transport
Industry
Commercial
Public Sector
F-gases
Agriculture
Railways
LULUCF
Waste*


Waste Arisings
Other
Landfill
Composting
Reuse or recycling


Domestic gas consumption (GWh)
2019

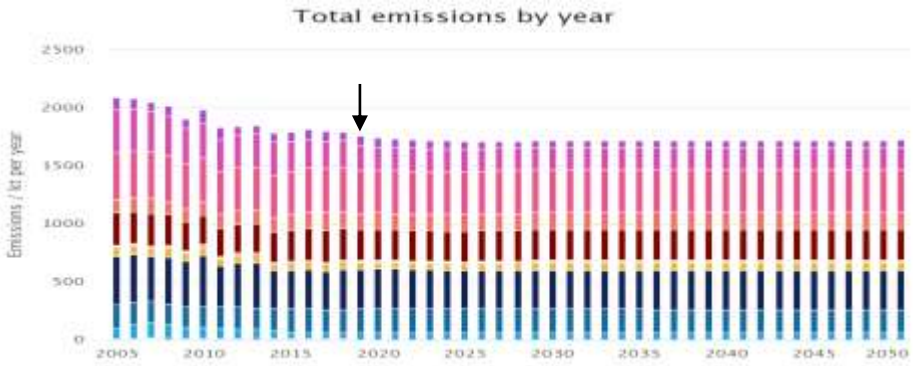

10 + miles
5-10 miles
1-5 miles
<1 mile
0%
10%
20%
30%
40%
50%
60%
70%

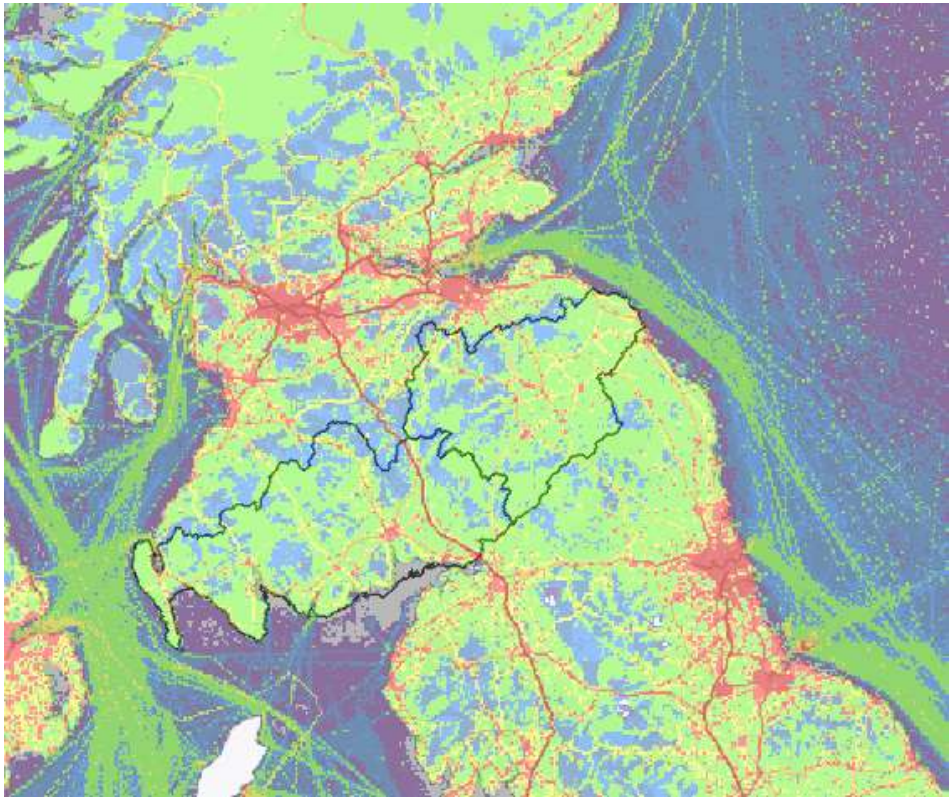

Other, 3.6%
Two or more, 5.0%
No central heating, 2.8%
Solid fuel, 0.1%
Oil, 0.1%
Electric (including storage heaters), 8.9%
Gas, 79.6%


Average Energy Efficiency Rating
Domestic

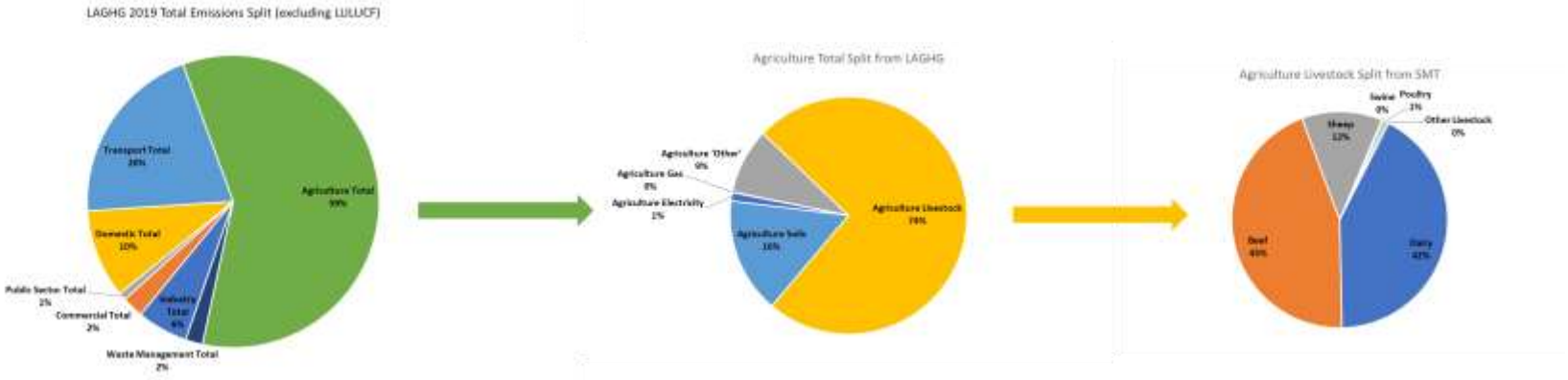
Defra's Scenario Modelling Tool

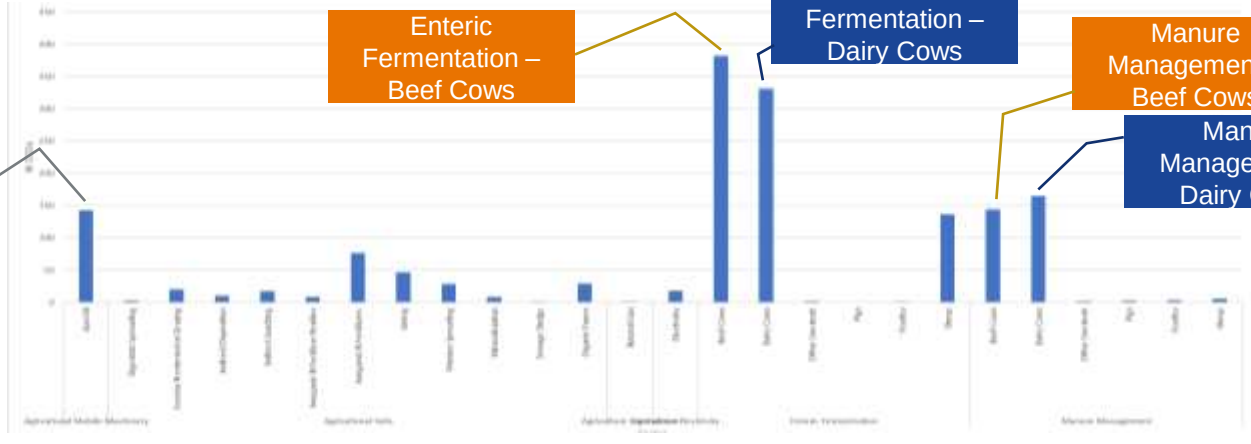
- 1x1 km mapped emissions by NFR code
- Emission and projection timeseries from 2005-2050
- AQ tool including GHGs
- Emissions by source
- Top down estimates





Disaggregating agriculture emissions – South of Scotland





Questions and discussion