

Session 3 : Air Quality and Solid Fuel Testing – Donegal's Experience

Is trying to keep warm harming our health and environment



**Comhairle Contae
Dhún na nGall**
Donegal County Council

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Donegal County Council
October 2025



An Roinn Aeráide,
Fuinnimh agus Comhshaoil
Department of Climate,
Energy and the Environment



An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

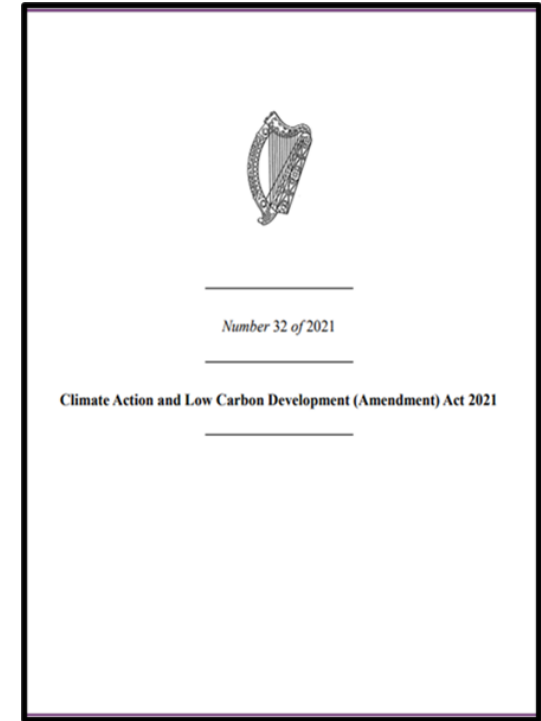


ESTG
ANNUAL
CONFERENCE
2025
15TH OF OCTOBER
PEACE CAMPUS MONAGHAN

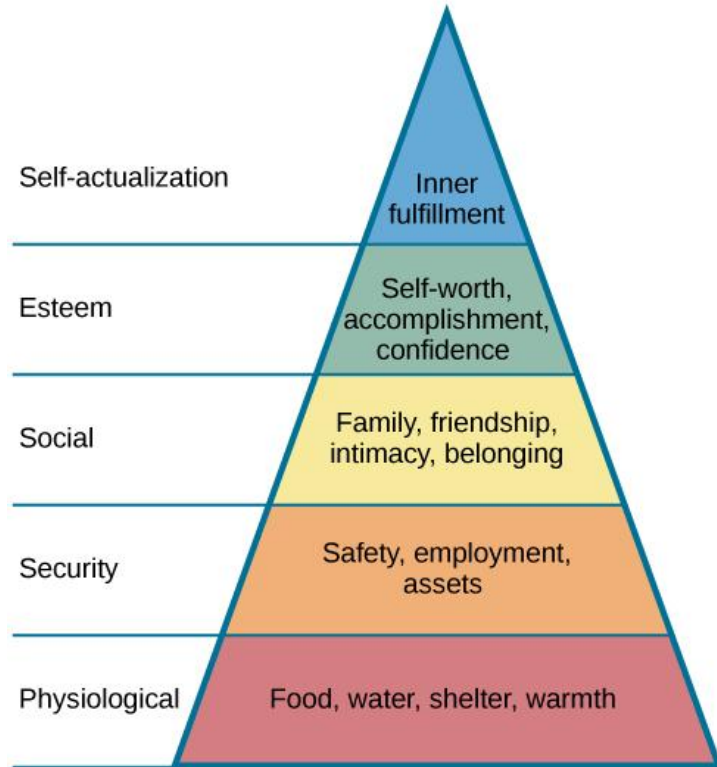
Climate Targets

Places on a statutory basis a 'national climate objective', which commits to pursue and achieve no later than 2050, the transition to a climate resilient, biodiversity-rich, environmentally-sustainable and climate-neutral economy

- *By 2030, GHG emissions must be 51% less than in 2018*
- *By 2050, the Irish economy must be carbon neutral*



Maslow's Hierarchy of Needs



A snapshot of the EPA Air Quality Index for Health (AQIH) at the weekend.

Letterkenny recorded the poorest air quality in country

Posted: 5:00 pm January 6, 2025

SHARE



By Róise Collins

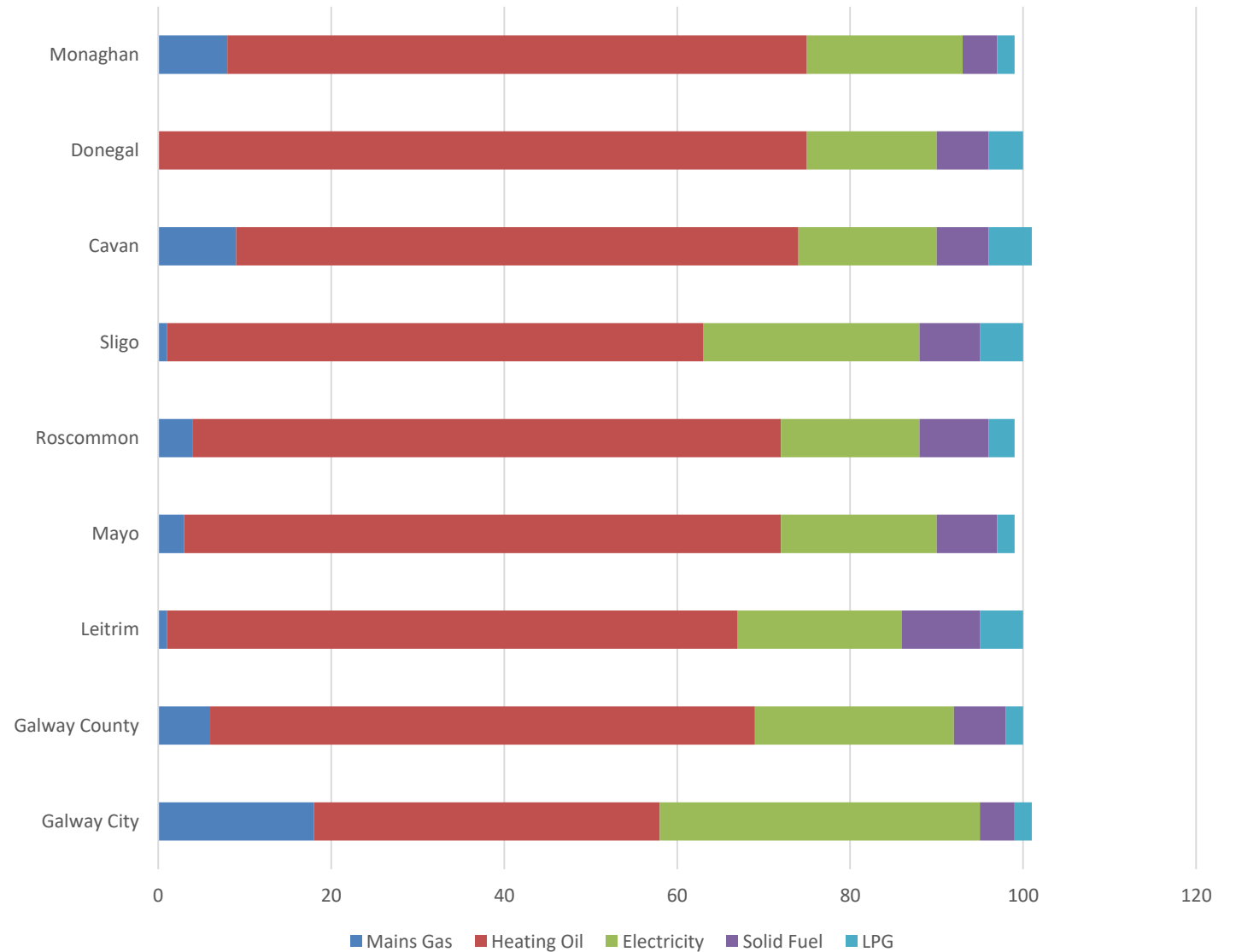
Letterkenny has recorded some of the poorest air quality in the country according to monitoring from the Environmental Protection Agency (EPA).

Saturday, January 4, saw the largest spike in dangerous pollutants such as particulate matter, which can increase the risk of health problems such as heart disease and asthma.

The main source of this pollutant is the burning of solid fuels such as coal, peat and wood.

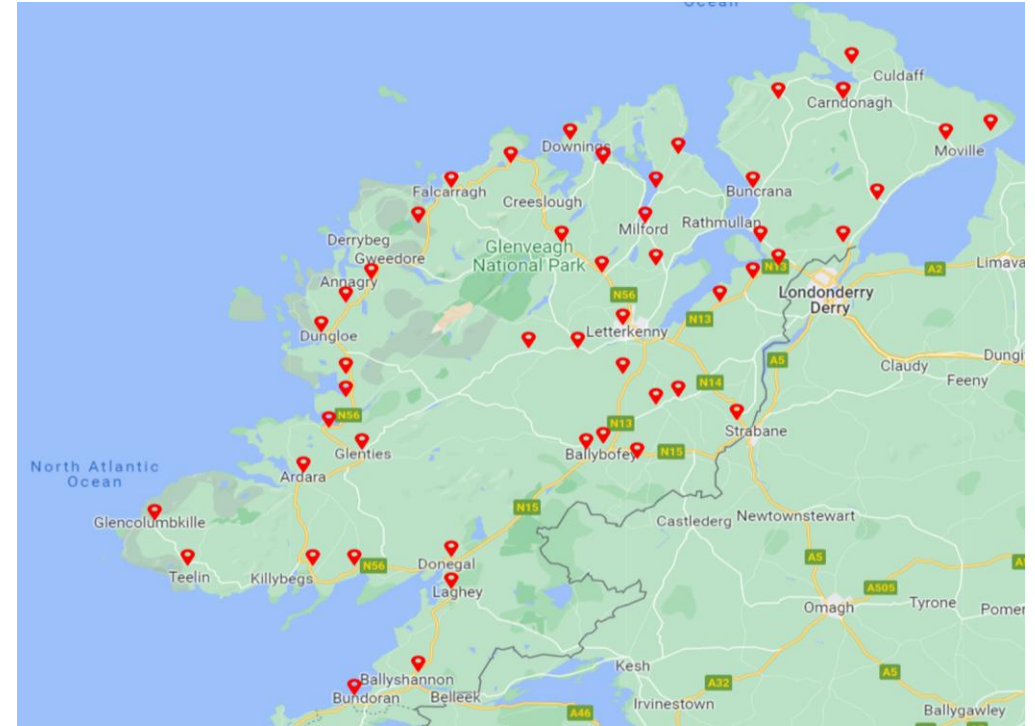
Maslow's Hierarchy of Needs

Main Space Heating Fuel by County (2009-2024)



Solid Fuel Use and Regulation

- Three Sectors –
Coal Baggers, Retailers and Users
 - Surveillance / Enforcement
 - Fuel Sampling
 - Awareness
 - Engagement
 - Air Monitoring





Surveillance and Enforcement

- Coal Sellers – Bellmen and Retailers
- Checkpoints
- Retailer Awareness Visits
- Open Source Investigations
- Follow ups
- Retailer Investigations
- Out of hours
- Court

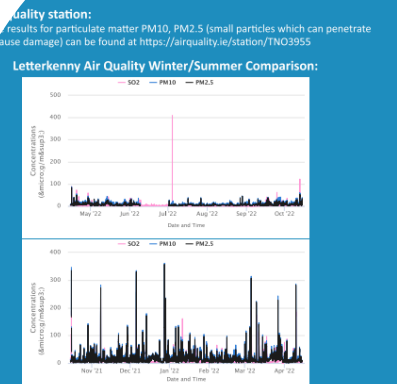
Householders Burning Fuel

- Engagement
- Sharing information
- Complaint investigation – limited
- Signage on approach roads into Letterkenny
- Social media videos
- Majority of people now burning approved solid fuel.....

Change is in the air when it comes to solid fuels.

New regulations for solid fuels will come into effect from 31st October 2022.

Letterkenny Air Quality Winter/Summer Comparison:



For further information on specific air pollutants please refer to www.airquality.ie

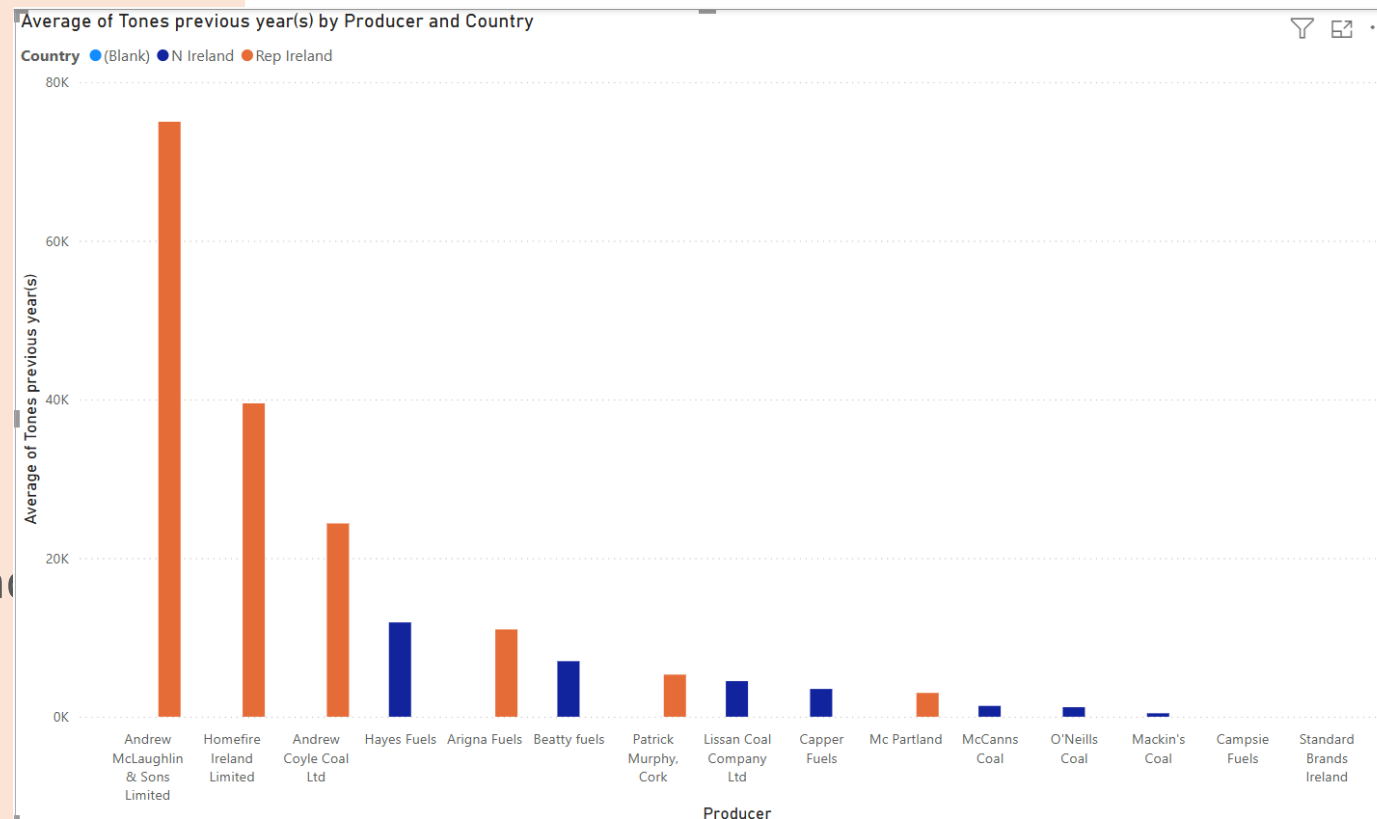
Contact Details

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Solid Fuel Enforcement – Non Compliant Producers - Sulphur

- A lot of sampling done to date.
- RMCEI 2023 = 240
- RMCEI 2024 = 310 (159 + 151)
- Samples taken at retailer level around the country
- 3 biggest producers in the ROI.



Fuel Sampling in Donegal



- Over the last 5 years, 120 coal samples were taken in Donegal and analysed
- 60% of samples non compliant
- Unaccredited
- Knew that coal in bag was not what it was supposed to be
- Complaints from public

What next with the information

- Identified short comings of the **registration system**
- Advocated for **change to legislation**
- EPA and DECC were hugely **supportive**
- Secured **funding** from DECC and took part in National Pilot
- Shared data with EPA on high Sulphur content of registered coal baggers – despite both our efforts it wasn't possible to remove baggers from register and registered baggers continue to sell coal that exceeds the targets
- Secured additional funding in 2024 to carry out further sampling and get accredited results

Sampling and Accredited Results – 2024

DECC huge support
again

Went out to tender
and procured SGS to
carry out sampling
and analysis

11 samples of coal for
Sulphur Content

3 samples for Smoke
Emissions

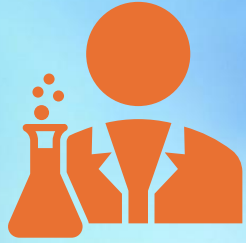
Authorise staff under
Air Pollution Act

Agree procedures

Anticipate that work
will be used in
prosecution

Purchasing of coal

Results from Accredited testing



**60% of Samples from
the registered coal
baggers were **above
the 2% Sulphur Limit****



**The three samples tested
for Smoke Emissions did
exceed the 2% Sulphur
Limit but were **below the
Smoke Emission Limit****

3 samples were over 5g/h average
(UK Threshold) but below 10g/h (Irish
Threshold)

Next Steps for 2025 / 2026



Prepare a prosecution file – uncharted territory for us under the new regs



Review new legislation and continue to advocate for improvement



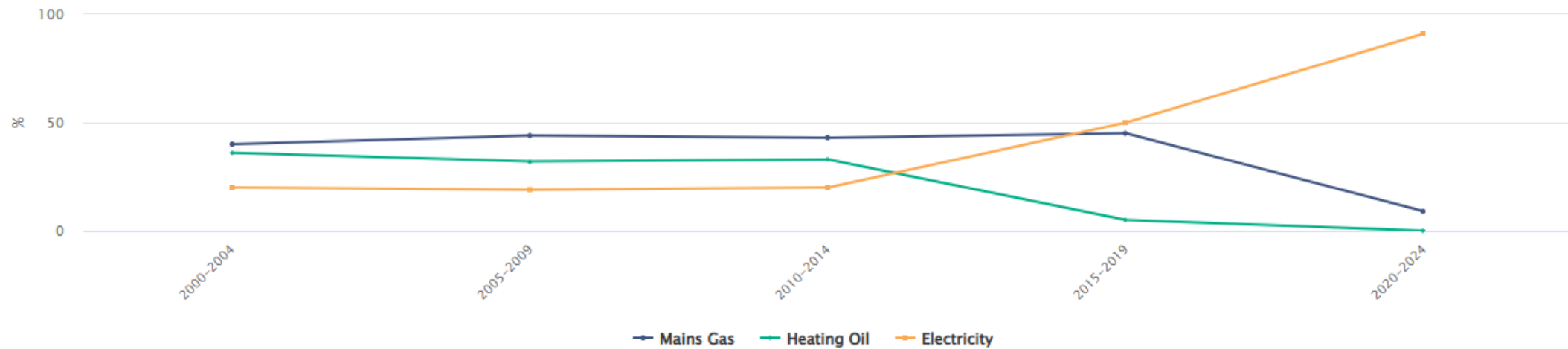
Take part in the Air Enforcement Working Group chaired by the EPA



Work with colleagues in neighbouring jurisdictions and try and find a way to share results submitted to the EPA with other jurisdictions

Changes to how we are heating our homes

Figure 1: Main Space Heating Fuel by Period of Construction (2000-2024)



Source: CSO Ireland
Highcharts.com

Move away from Solid fuel



Even if get all coal to be compliant with the regulations need to do more



Supports – retrofit programmes, fabric of building, energy generation, new heating technologies



Supports also available for businesses - BERs

Letterkenny Air Quality Monitoring

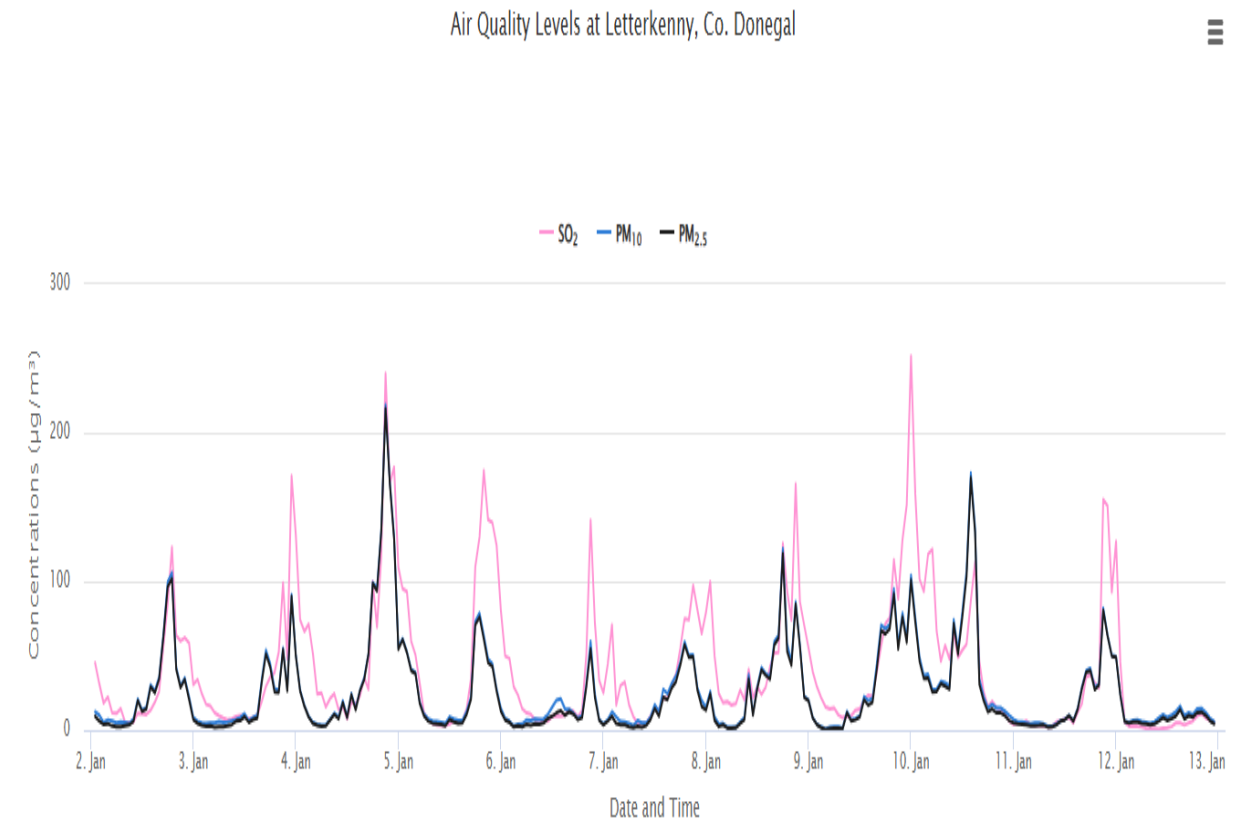
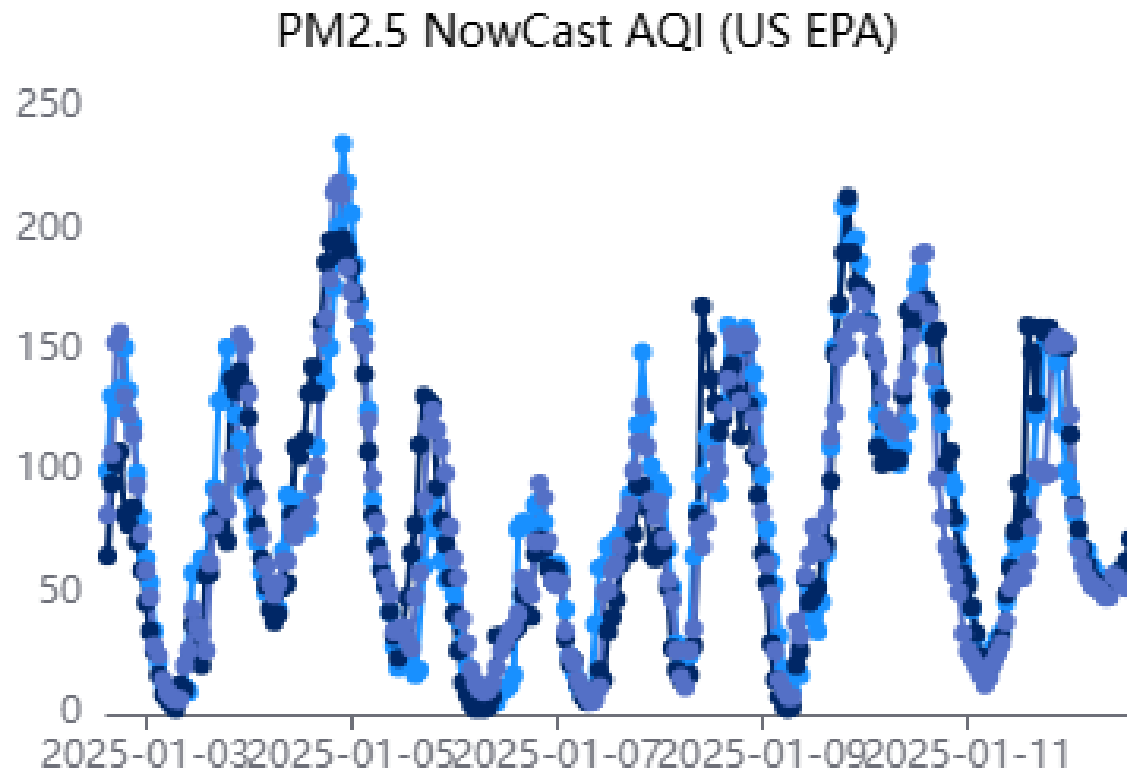


Aims of Air Monitoring Project, (funded by DECC)

1. Confirm that the EPA Air Q Monitor is representative of air quality in Letterkenny
2. Identify residential areas in the town showing the highest levels of $\text{PM}_{2.5}$ and SO_2 , suggesting non-compliant fuel use
3. Examine the impact of temperature inversion on $\text{PM}_{2.5}$

Confirm that the EPA Air Q Monitor is representative of air quality in Letterkenny

- Co-locate all Clarity Nodes at the County Museum, site of EPA AQ Monitor – good agreement
- Comparison of 3 Clarity Nodes (graph on LHS)
- These 3 nodes were subsequently located at Museum, Circular Road, Knocknamona Park



Letterkenny Air Monitoring Locations to examine $\text{PM}_{2.5}$ & SO_2 in various areas



Equipment deployed

Clarity Nodes and Gradko Diffusion Tubes for SO₂



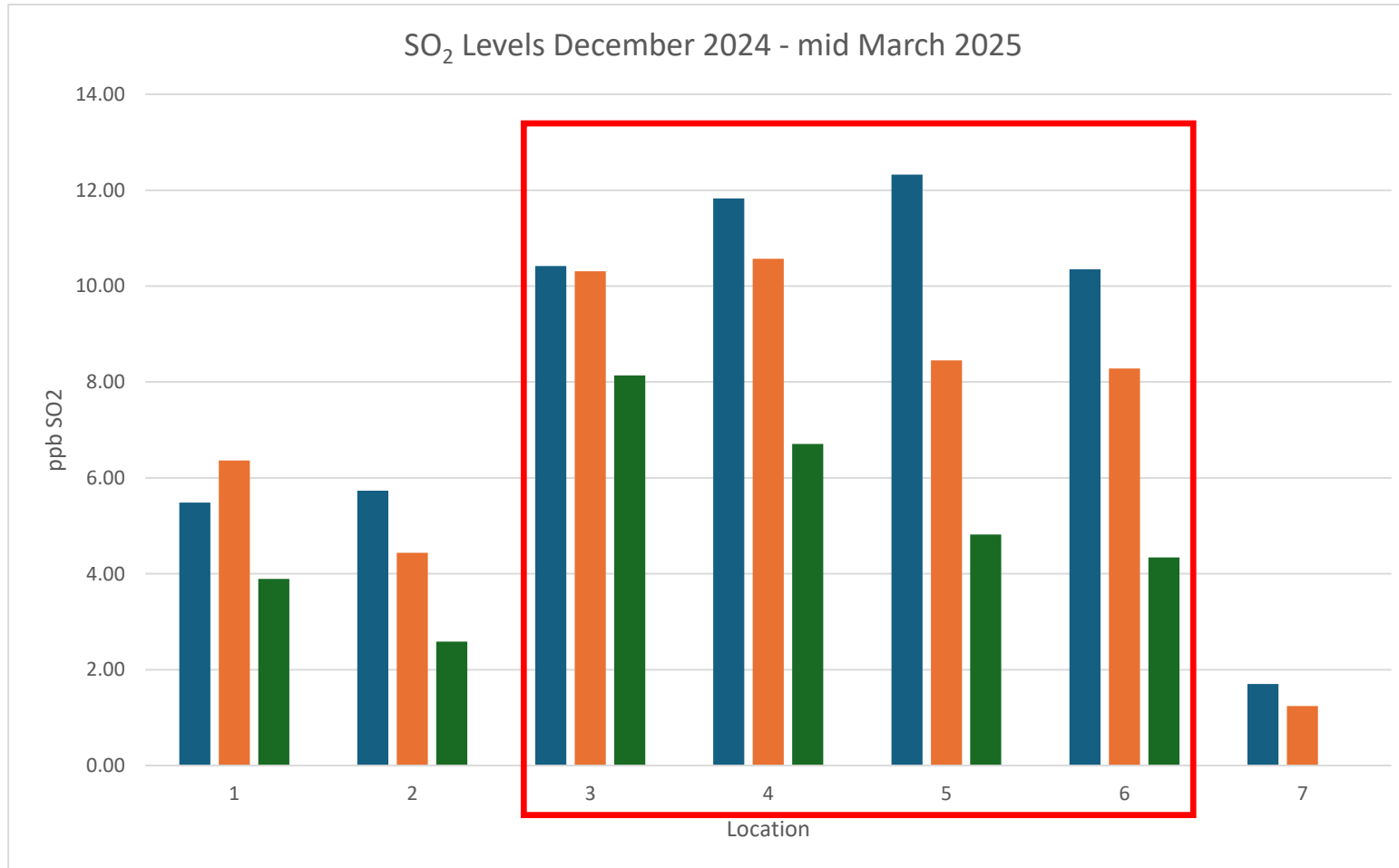
Sulphur Dioxide Monitoring by Diffusion Tubes

December –January/mid February- mid March 2025

Location	SO ₂ ppb*	SO ₂ ppb*	SO ₂ ppb*
1 McNeely Villas	5.48	6.36	3.89
2 Hawthorn Heights	5.73	4.44	2.59
3 Circular Road	10.42	10.31	8.13
4 Iona Road	11.83	10.57	6.71
5 Knocknamona Park	12.33	8.45	4.82
6 Thorn Road	10.35	8.28	4.34
7 Letterkenny Public Services Centre	1.70	1.24	

Sulphur Dioxide Monitoring by Diffusion Tubes

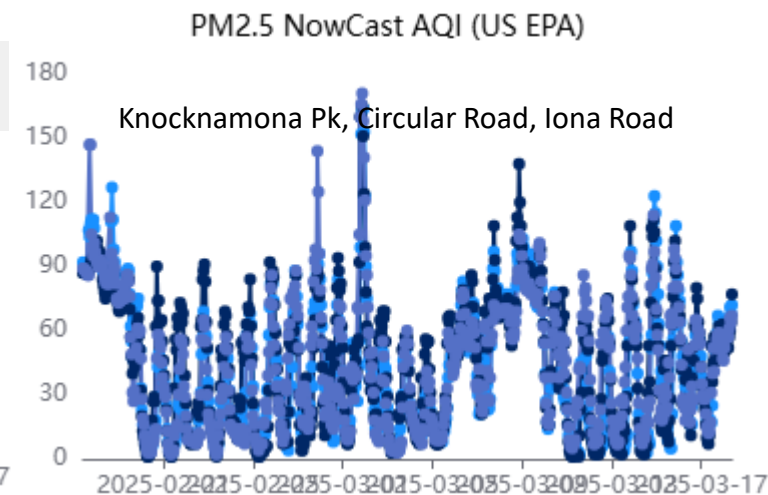
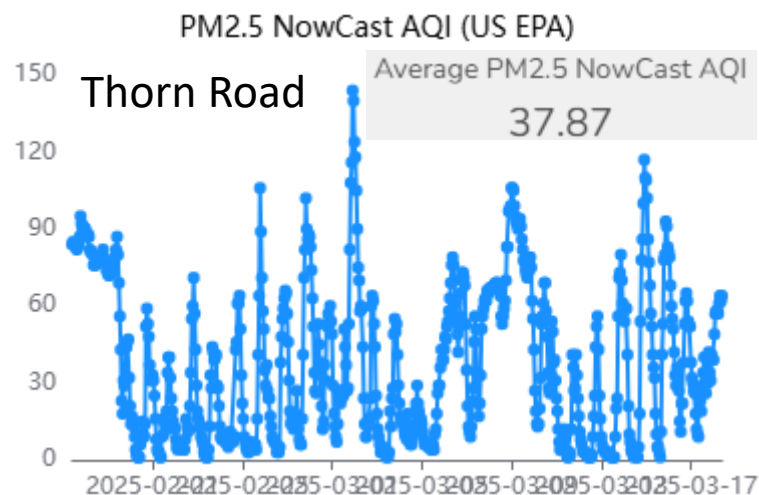
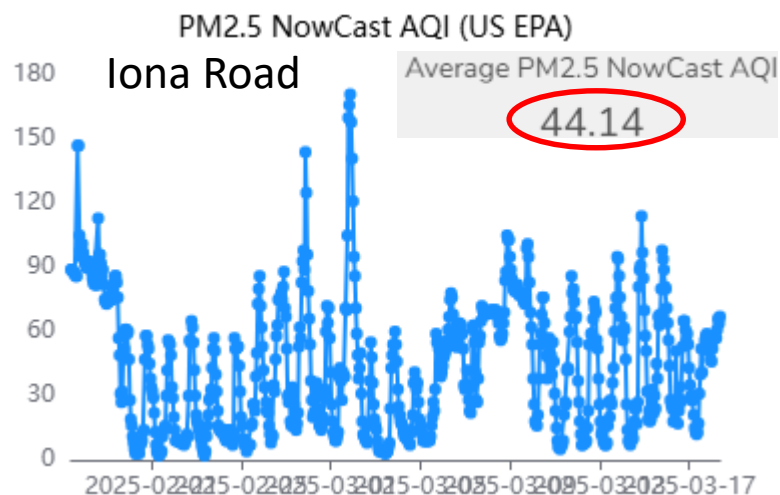
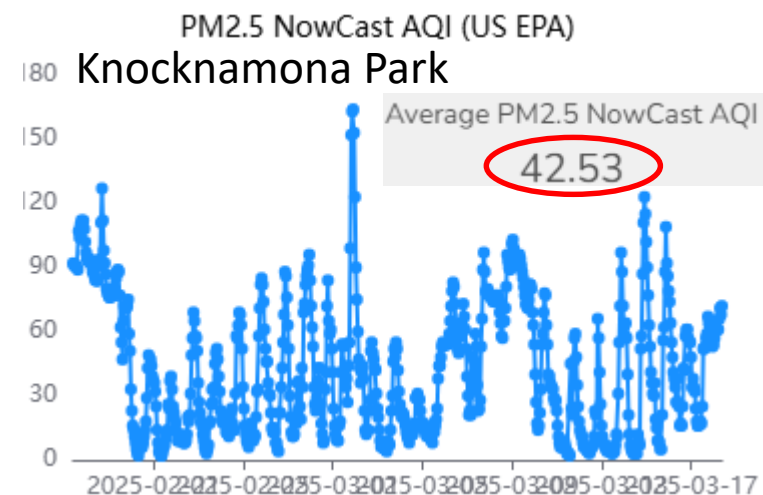
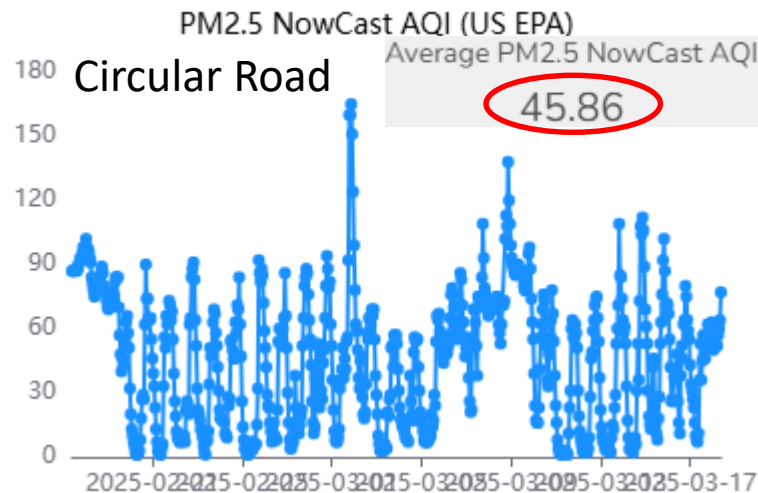
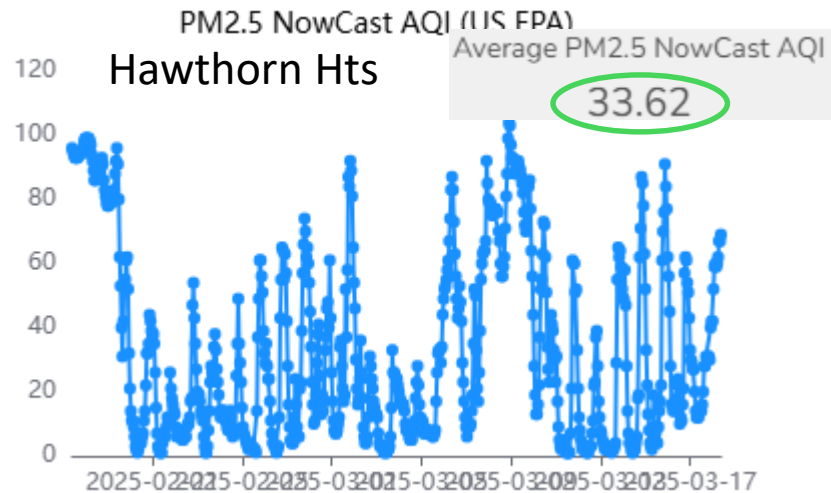
December -January – mid March 2025



Letterkenny – Sulphur Dioxide Results, December, January & Feb/March

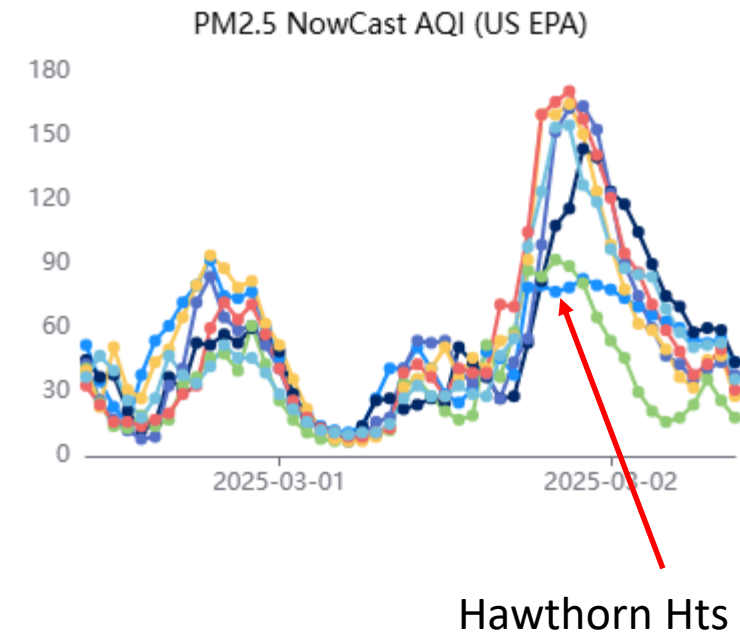


Air Quality Monitoring using Clarity Nodes from 17th February – 18th March 2025



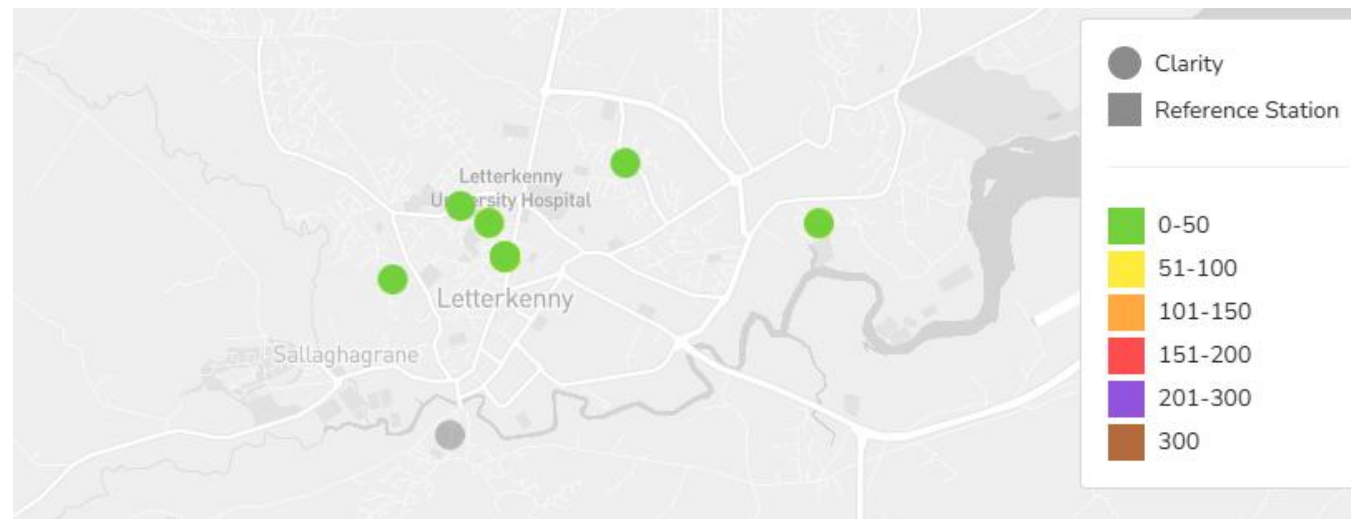
Comparative PM2.5 data for 1st -3rd March

Location	AQI PM2.5
1 McNeely Villas	51.42
2 Hawthorn Heights	34.29
3 Circular Road	57.6
4 Iona Road	54.75
5 Knocknamona Park	52.19
6 Thorn Road	51.83

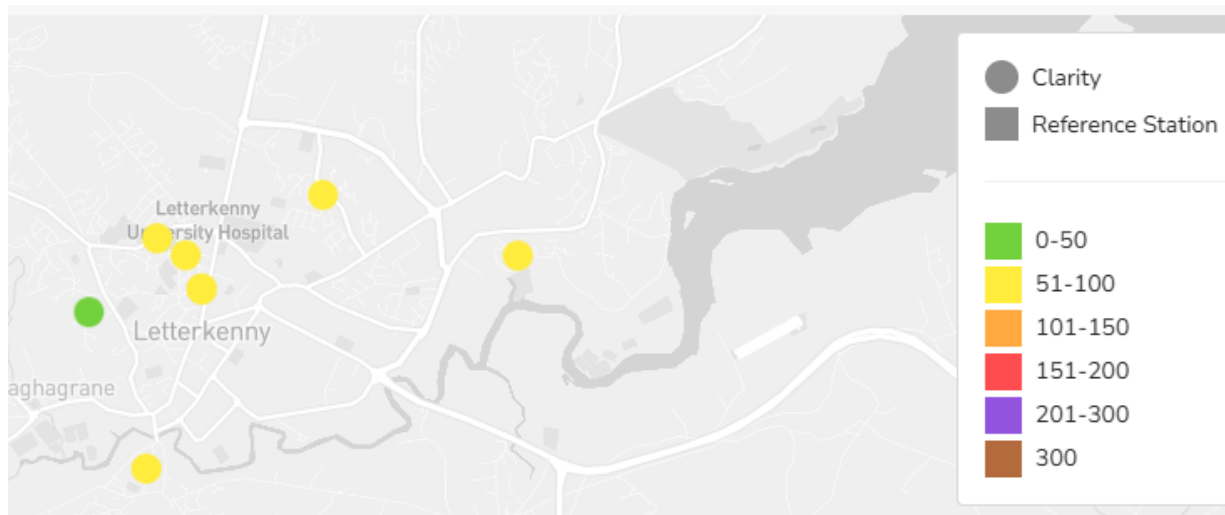


Clarity Nodes Air Quality Monitoring, PM2.5

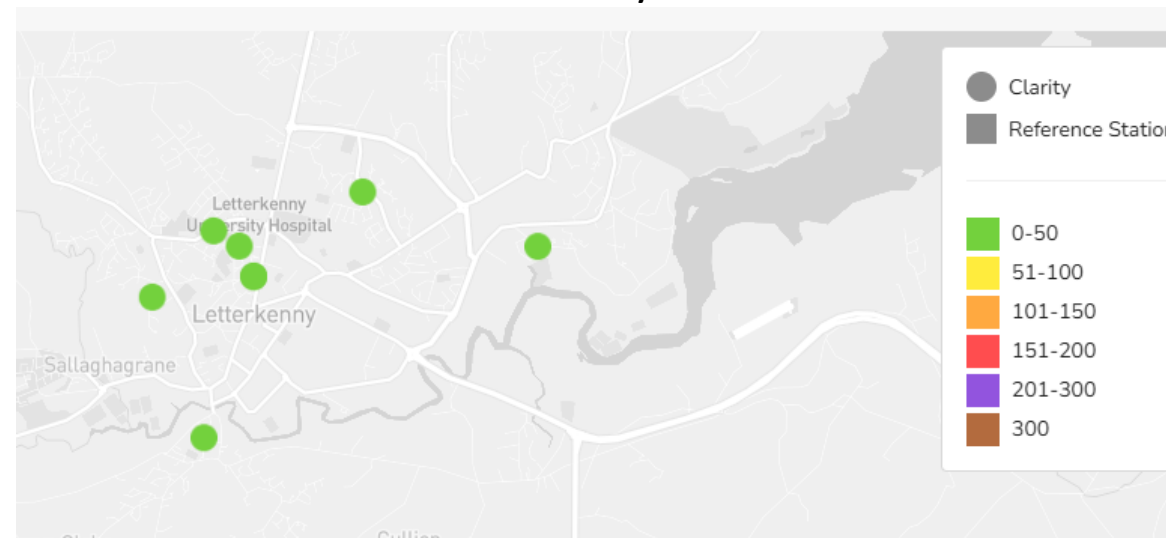
Mild weather 2nd December – 6th January



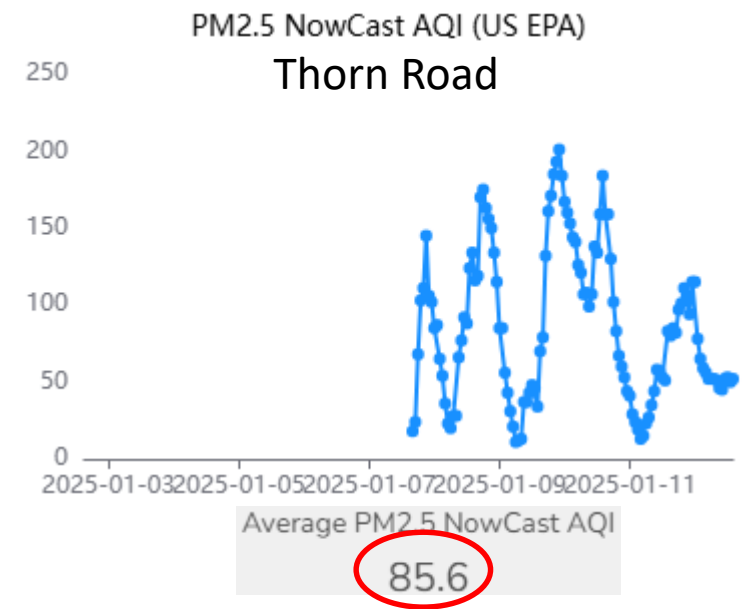
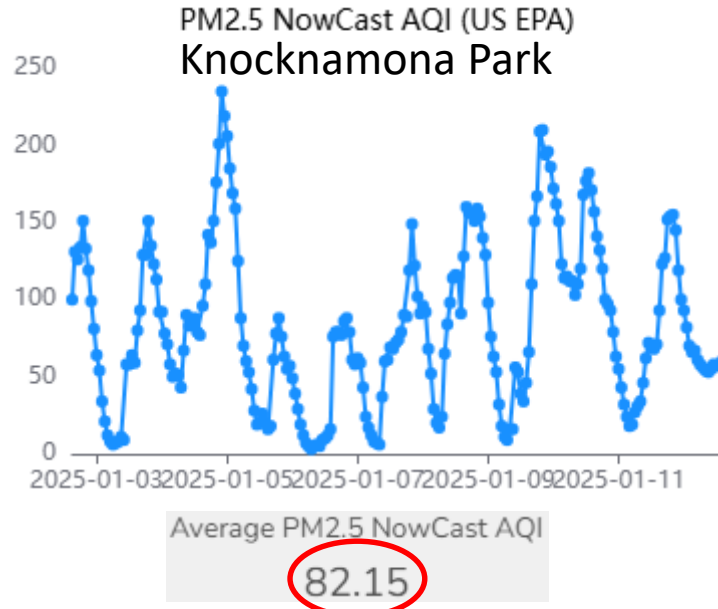
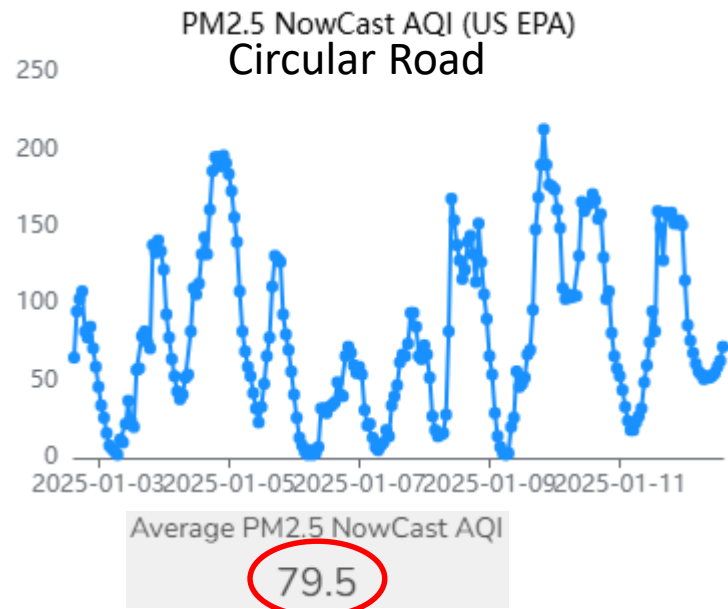
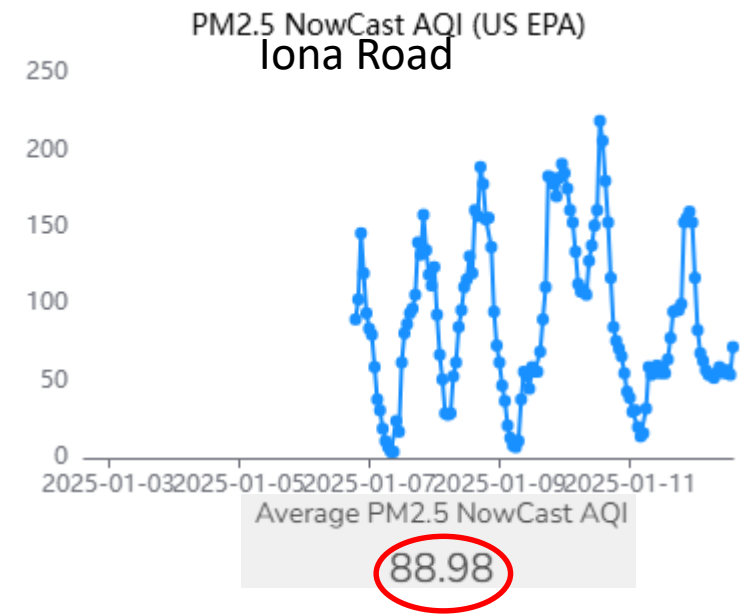
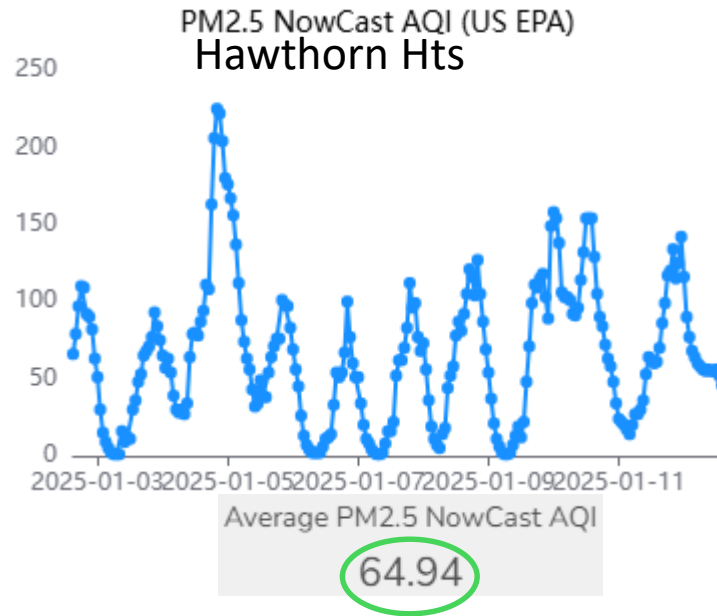
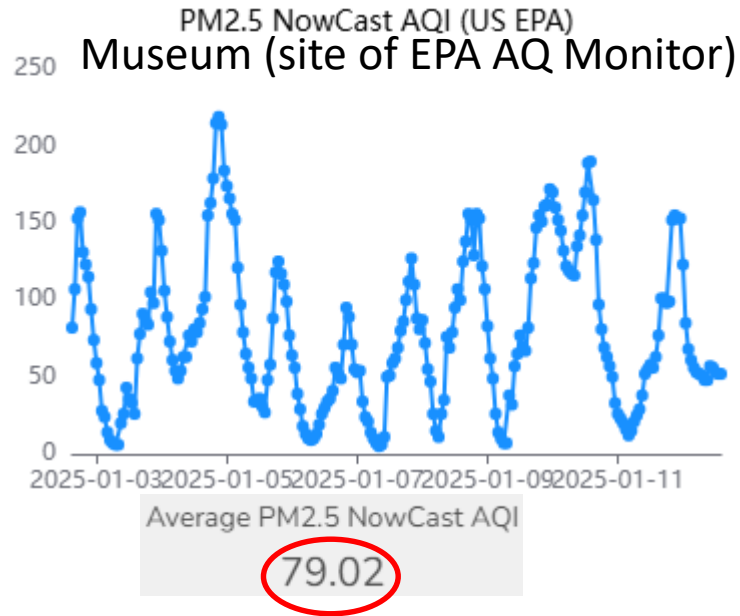
Cold weather 6th January - 17th February



Milder weather 17th February - 18th March



Comparison of sites during cold spell, 2nd January - 12th January, showing elevated average PM2.5



Temperature Inversion effect

Letterkenny is surrounded by hills, with areas at lower altitude impacted.
Evident on cold, calm days as smoke is captured by colder air above, preventing dispersion.

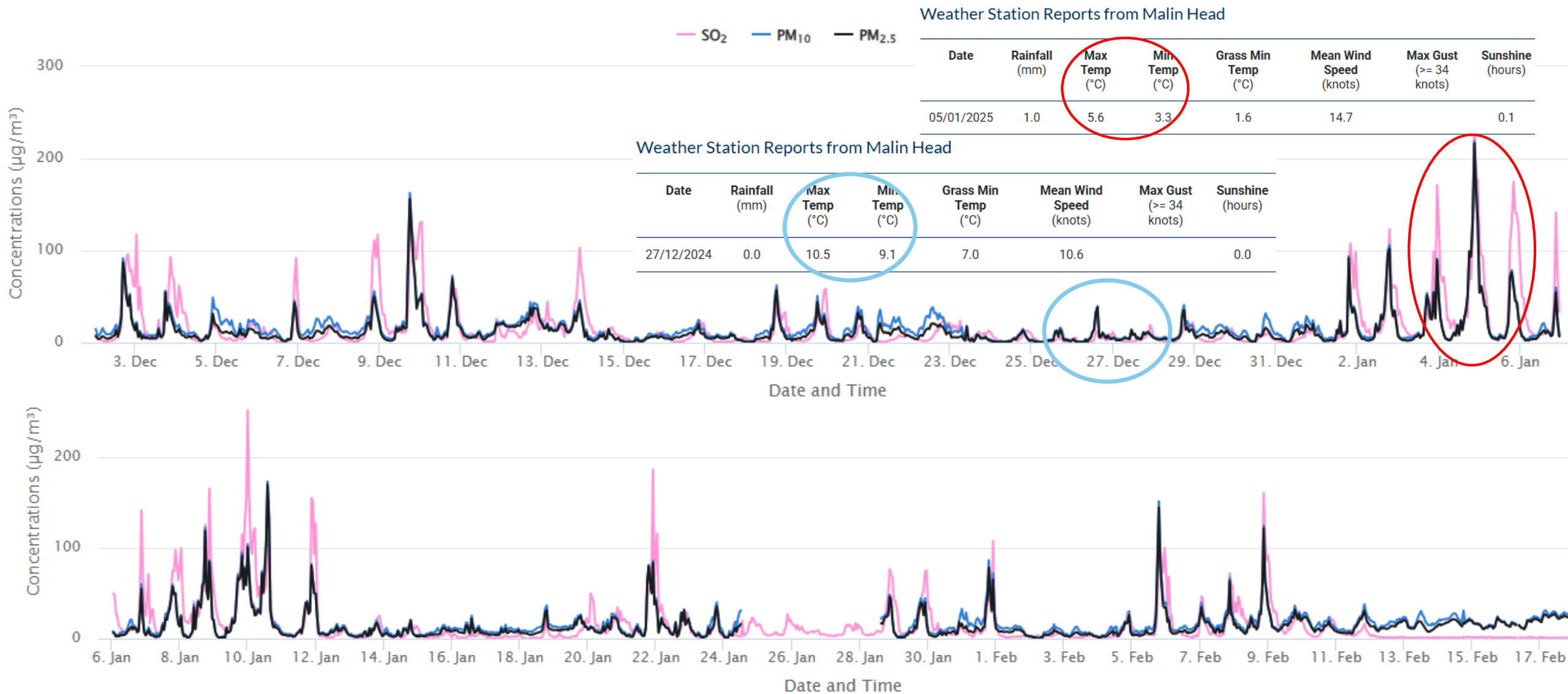
Hawthorn Heights



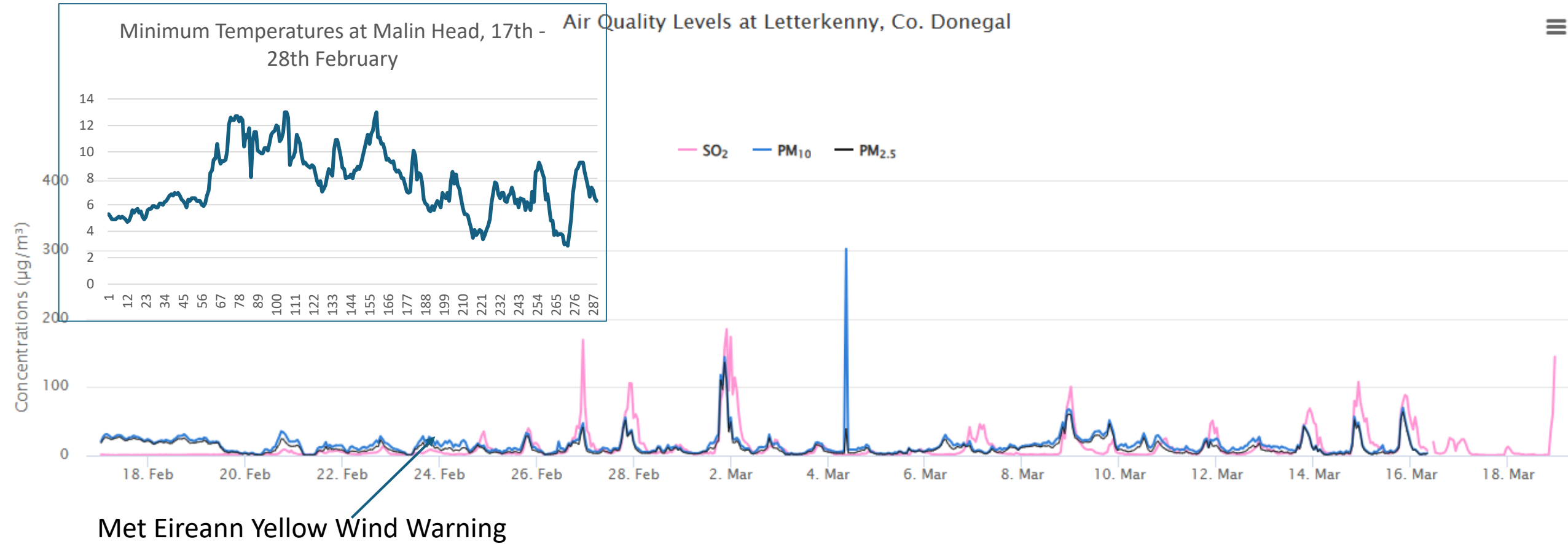
Circular Road



EPA Air Quality Monitor Letterkenny (Tier 2) Dec-Jan-Feb 2025



EPA Air Quality Monitor Letterkenny (Tier 2) 17th Feb – 18th March 2025



Outcomes of Air Monitoring Project

1. The EPA Tier 2 Air Quality Monitor is representative of air quality in Letterkenny, showing good agreement with Clarity Nodes
2. Three residential areas in the town have consistently shown higher levels of PM_{2.5} and SO₂, suggesting :
 - a) residents may be more vulnerable to health impacts
 - b) potential non-compliant fuel use and
 - c) priority target areas for engagement & enforcement
3. The impact of topography and temperature inversion effects on PM_{2.5} are indicated in residential areas on lower ground.
4. Sulphur Dioxide monitoring using diffusion tubes is a very inexpensive way of monitoring for solid fuel

Future Projects



Session 3: Air Quality and Solid Fuel Testing – Donegal`s Experience

THANK YOU



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