

Air Quality in Ireland

Report 2024



Key Messages

Air Quality
Monitoring

Air Quality in
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New EU
Legislation

Pollutant
Sources

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(What can I do?)

Coordinated Action

Visualising Air
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Key Messages

1. Air Pollution Puts Our Health at Risk

Around 1,700 premature deaths occur in Ireland each year because of poor air quality.

2. Ireland is Compliant with 2024 Air Quality Standards

Air Quality in Ireland is generally good and met all legal requirements.

3. New Limits will be More Stringent from 2030

A new law was adopted by Europe in October 2024. Meeting the new requirements will be challenging for Ireland.

4. Clean Air is Good for Our Health

We need to do more to protect clean air in towns, villages and cities around the country.

5. Cleaner Air Requires a Plan

Implement control measures to tackle pollution from traffic and heating.

What can
we do?

We can all help improve the quality of the air we breathe by:

- Using less solid fuel and cleaner fuels to heat our homes.
- Reducing our use of cars to go to school, work and play; stop idling.

There are supports to encourage us to move to:

Better
alternatives
to solid fuel
combustion



Public
and active
transport



Better
insulated
homes



Electric
vehicles



Air Quality Monitoring

Stay Informed – What and How we Monitor Air Quality in Ireland

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The monitoring network

Ireland has 115 air quality monitoring stations that check the quality of the air we breathe. These stations are run by the Environmental Protection Agency (EPA), in partnership with Local Authorities and other organisations.

The EPA shares up-to-date real time air quality information online and gives health advice based on the Air Quality Index for Health (AQIH), which tells you how clean or polluted the air is near you.

You can check your local air quality and get helpful tips at www.airquality.ie.



See how to navigate
www.airquality.ie

Dioxins

Residential, backyard burning and illegal burning of waste, are major sources of dioxins. We monitor dioxin levels in the environment by analysing cow's milk. Dioxin concentrations, as in recent years were below European limit values.

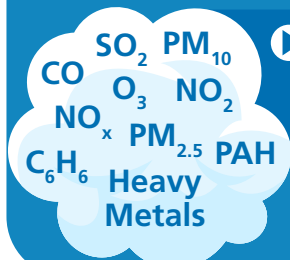


WATCH THE VIDEO



What did we monitor

in Ireland's air in 2024



CLICK HERE
for a
description
of each
parameter

Operating a monitoring Station



NEXT PAGE

To view the
step by step
process

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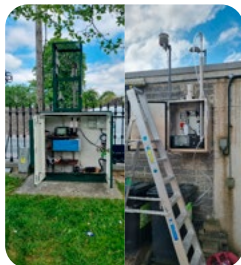
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Operating a Monitoring Network

The EPA is responsible for the ongoing monitoring of the National Network and management of faults.

1. Station Management

- 115 stations managed by EPA with support from several network partners
- >160 monitoring instruments nationwide
- Remote daily and weekly checks
- Fault analysis and diagnostics
- Investigation of erroneous data/alerts
- Fault tracking



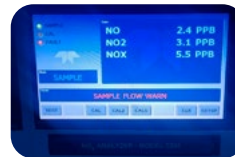
2. Calibrations/operational checks:

- Instruments calibrated monthly or quarterly
- >640 Instrument calibrations per year
- Typically half hour to two/ three hours per visit.
- >100 days spent on site (routine work)



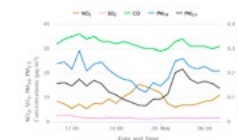
3. Corrective Maintenance:

- Loss of power
- Not communicating to EPA server, website
- Instrument breakdowns (lamps, pumps, line blockages, electronics etc).
- Air con breakdown or stressed in summertime
- Vandalism
- The EPA endeavour to respond to issues within 24-48 hours
- Additional issues by service engineer may take longer



4. Data Availability

- Data downloaded, reviewed and validated
- >1.4 Million Hourly values to be processed
- Real time data available to public
- Website – station information updates
- Monthly Bulletins
- Modelling & Forecasting
- AQIH
- Annual Report
- Reporting to Europe



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Ireland Meets EU Rules – But there's More To Do

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The CAFE Directive

The CAFE Directive is a European legislation designed to improve the quality of the air we breathe. It sets limits on harmful pollutants to help protect our health and the environment. The main goal is to assess air quality and take action to reduce pollution and its harmful effects.

Ireland's most recent air quality measurements in 2024 show that we are meeting the legal limits set by the EU. However, we are not yet meeting the stricter health guidelines from the World Health Organization (WHO), and we're falling behind on targets set in Ireland's Clean Air Strategy for 2026.

There's no completely safe level of air pollution. According to the WHO, even low levels can still harm our health over time.

See how Ireland performed in 2024 in the following tables.

Selected Pollutants Measured in 2024 and their Adherence to EU Legal Limit Values (CAFE Directive)

| Pollutant | Number of stations where parameter monitored in 2024 | Compliance with EU limit values |
|------------------------------------|--|---------------------------------|
| PM ₁₀ | 107 | No exceedance |
| PM _{2.5} | 103 | |
| NO ₂ | 37 | |
| Ozone (O ₃) | 23 | |
| Sulphur dioxide (SO ₂) | 15 | |
| PAHs | 5 | |
| Heavy metals | 5 | |
| Dioxins | 22 | |

Air Monitoring Trends

Air quality in Ireland is moving in a positive direction although Ireland has not yet met the Clean Air strategy and guidelines set out by the WHO.

Each Parameter

long-term trends - next page.



View
the challenges
facing Ireland
on page 6

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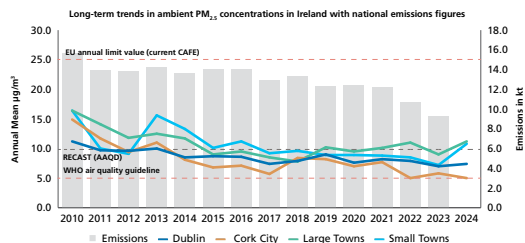
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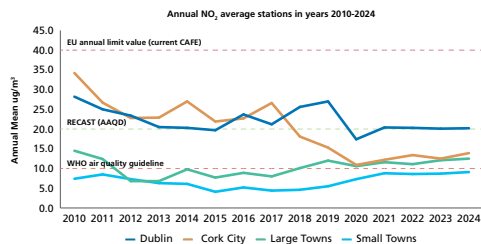
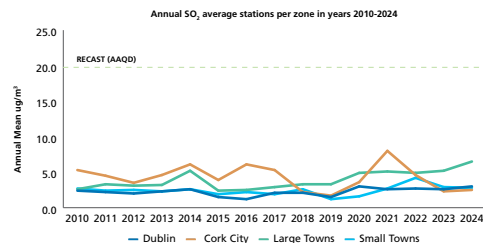
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Long Term Trends of selected pollutants in ambient air in Ireland



Note: Emissions figures are published with inventory emissions data and for *2024 will be available Q1 2026
Note: Ambient air examples of select stations are not representative of entire zones



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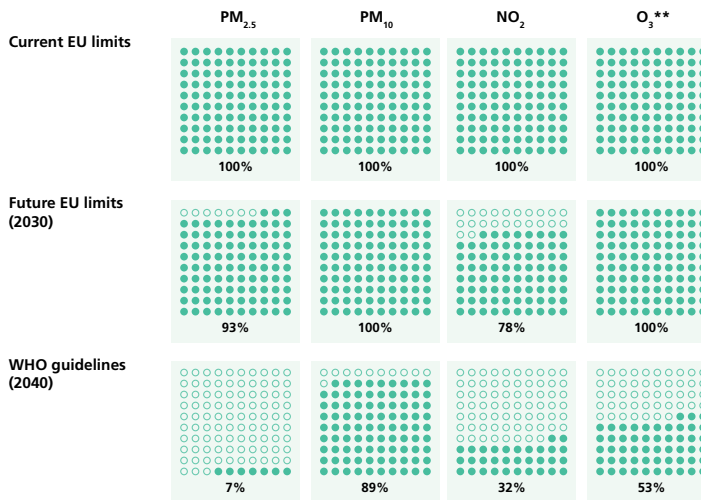
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The Challenges Facing Ireland

Percentage of monitoring stations in 2024 in Ireland
achieving annual average limit/guideline values*



* stations with at least 50% data capture

** Maximum daily 8-hour mean limit exceedances averaged over 3 years



New EU Legislation

Ambient Air Quality Directive (2024/2881/EU)

The EU has published a new Ambient Air Quality Directive, key points include:

- ▶ The revised EU Ambient Air Quality Directive entered into force on 20 December 2024.
- ▶ It is required to be transposed into Irish legislation by the 11 December 2026.
- ▶ It aims to gradually align EU air quality standards with WHO health-based guidelines.
- ▶ New and updated air quality standards must be met by 1 January 2030 to reduce premature deaths.
- ▶ The directive is a key step toward achieving zero pollution in the EU by 2050.

What it means for Ireland:

Environment & Health

- ▶ Tighter limits in the air we breathe.

Monitoring & assessment

- ▶ Monitoring of new air pollutants – Ultrafine particles and black carbon.
- ▶ Sets out requirements for air quality modelling.

Information & Communication

- ▶ Continue to improve public information.

Governance & Enforcement

- ▶ Implement control measures to tackle pollution.

New CAFE Directive



[READ HERE](#)

EU Zero Pollution Fact Sheet



[READ HERE](#)

View EU air quality standards on next page.



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EU air quality standards:

| Pollutant | Period | Until 2026 (Current CAFE) | As of 2026 | As of 2030 (New CAFE) | As of 2040 (WHO Guideline) |
|------------------------------------|----------------|------------------------------|-----------------------|--------------------------|----------------------------------|
| PM ₁₀ | calendar year | 40 µg/m ³ | 30 µg/m ³ | 20 µg/m ³ | 15 µg/m ³ |
| PM _{2.5} | calendar year | 25 µg/m ³ | 15 µg/m ³ | 10 µg/m ³ | 5 µg/m ³ |
| NO ₂ | calendar year | 40 µg/m ³ | 20 µg/m ³ | 20 µg/m ³ | 10 µg/m ³ |
| Ozone (O ₃) | 8 hours daily* | 120 µg/m ³ | 120 µg/m ³ | 120 µg/m ³ | 100 µg/m ³ |
| Sulphur dioxide (SO ₂) | 24 hours** | 125 µg/m ³ | 50 µg/m ³ | 50 µg/m ³ | 40 µg/m ³ |

* Maximum daily 8-hour mean averaged over 3 years

** Exceedance if more than 3 days per year per station



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Pollutant Sources

Even Low Pollution Can Be Dangerous – Particulate Matter and Nitrogen Dioxide are the most significant pollutants in Ireland.

Solid fuel

Particulate Matter (PM)

What is particulate matter (PM): PM₁₀ and PM_{2.5}?

Particulate matter (PM) are tiny particles of solid or liquid suspended in the air. The EPA monitors PM₁₀ and PM_{2.5}.

Where does it come from?

Fine particulate matter (PM_{2.5}) in Ireland mainly comes from the burning of solid fuels, such as coal, peat, and wood to heat our homes.

How will it impact my health?

PM_{2.5} is the more important pollutant as it causes most health issues. These tiny particles are inhaled deep into the lungs and cause damage. Chronic exposure can also contribute to stroke and heart disease.

When is it at its worst?

PM levels, in our towns, villages and cities, are at their highest during winter because of human activity, with increased burning of solid fuels using fires and stoves for heating.

Traffic

Nitrogen Dioxide (NO₂)

What is nitrogen dioxide?

Nitrogen dioxide is a significant air pollutant (NO₂).

Where does it come from?

The main source of NO₂ in our towns, villages and cities is from traffic (petrol and diesel engines).

How will it impact my health?

NO₂ can affect our lungs and breathing.

When is it at its worst?

High concentration of NO₂ occurs in our cities, where traffic is heaviest.



[WATCH THE VIDEO](#)

WATCH
Clean air is important for good health



SEE HOW
children and adolescents are more vulnerable to air pollution on next page.

SEE The effects of PM_{2.5} on page 11.



Irish Heart Foundation

Pollutant Sources

Even Low Pollution Can Be Dangerous – Particulate Matter and Nitrogen Dioxide are the most significant pollutants in Ireland.

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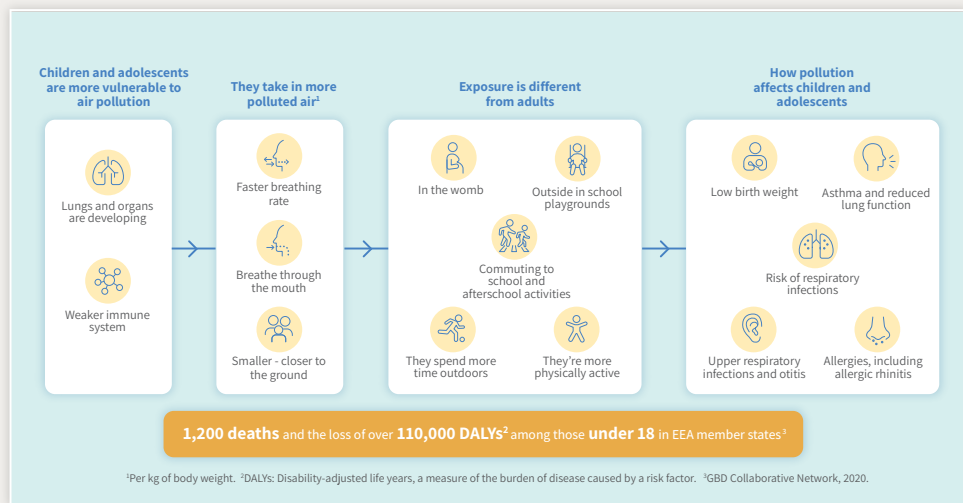
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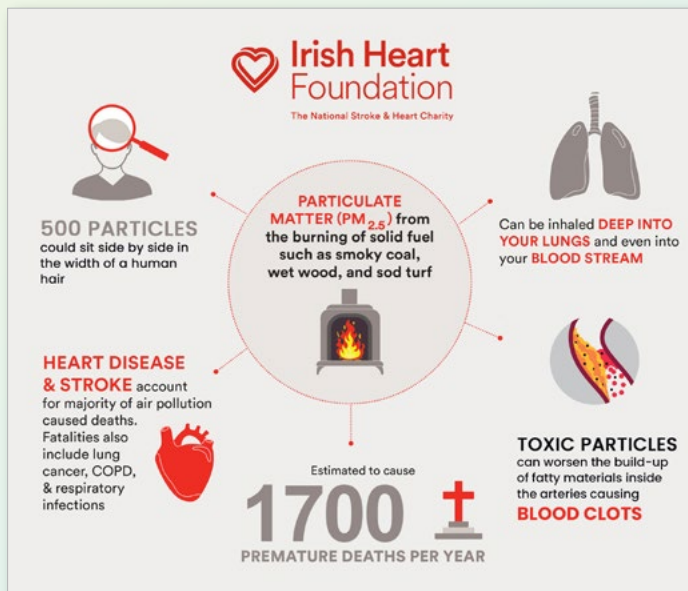
Children and adolescents are more vulnerable to air pollution



Pollutant Sources

Even Low Pollution Can Be Dangerous – Particulate Matter and Nitrogen Dioxide are the most significant pollutants in Ireland.

The effects of PM_{2.5}



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Cleaner Air – Healthier Lives



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Reduce Home Heating Pollution (PM)

Avoid using solid fuels if you have an alternative cleaner heating system.




 **Cleaner ways to heat our homes on page 13**

Change how you heat your home by using cleaner fuel choices.



Make your home more energy efficient and more comfortable.



 **Home energy upgrade one stop shop**

See the effects of solid fuel burning on the air monitoring network.



 **WATCH THE VIDEO**

Reduce Car Pollution (NO_x)



Leave the car at home if you can for 1 day a week.



Carpool and reduce the amount of cars on the road.



Take public transport or walk, or cycle.



Work from home for part of your working week.



Go electric



Stop idling

 **WATCH THE VIDEO**

Behavioural Change

The EPA has developed a summary on behavioural change in relation to air quality.

Click below to find more information on awareness/knowledge on air quality; and attitudes regarding air quality.

 **CLICK HERE**



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Cleaner Air – Healthier Lives

Clean Air
week
2024

About the
burning of
waste

WATCH
ABC for
cleaner Air

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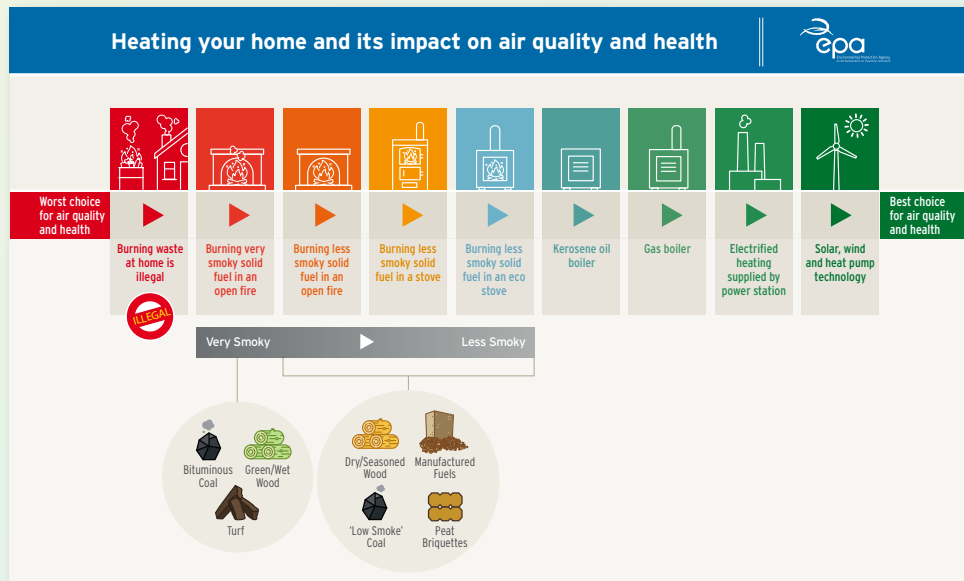
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Change how you heat your home



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Public Sector Roles in Air Quality

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Local Authorities



Prioritise allocation of resources to advance enforcement.



Local authorities need to prioritise solid fuel regulation inspections.



Promote retrofitting of houses and transport measures.



Increase awareness of air quality at local level.



Create more and safer footpaths and cycle lanes.



Policy Challenges



Promote awareness of low smoke fuels.



Implement Clean Air Strategy to reduce air pollution in Ireland.



Maintain and increase investment in clean public transport.



Continue to support policy and investment in active travel.



Role of the EPA



Drive continuous monitoring, validation, and reporting of Ireland's air quality.



Strengthen collaboration with the Department and local authorities to advance solid fuel regulation.



Continue effective enforcement of air emissions from industrial and waste licensed facilities.



Collaborate with local authorities in maintaining air monitoring sites.



TFI Smarter Travel – National Transport



National retrofitting scheme SEAI grants

Visualising Air Quality

Mapping air quality using modelling gives us greater insight into air pollution across Ireland

Air quality modelling is an effective way to visualise air quality, filling in the gaps between monitoring stations - detailing how air quality changes over the entire country.


Models developed within EPAs LIFE Emerald Project provide;

- ▶ Daily air quality forecasts,
- ▶ Hourly updated air quality index for health maps,
- ▶ Annual high-resolution maps.

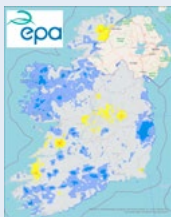
Having these maps puts Ireland at the forefront of compliance with incoming public information requirements. These maps are all freely available through www.epa.ie and on www.airquality.ie.

The LIFE Emerald Project was a finalist in the EU 2025 LIFE Award



 Read more about LIFE Emerald here

PM_{2.5} pollution over time



Fine particulate matter (PM_{2.5}) pollution is largely dependant on a combination of both solid fuel burning and weather. We can see how this pollution changes across Ireland from month to month and year to year, and using air quality modelling.



Watch how PM_{2.5} concentrations changed throughout 2024



Watch how PM_{2.5} concentrations changed from 2019-2024



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The EPA's successful citizen science project Clean Air Together (CAT) involves citizen scientists measuring levels of nitrogen dioxide (NO₂) in their local area. **See full details at [Cleanairtogether.ie](https://cleanairtogether.ie).**

- ▶ Clean Air Together moved to Limerick city in 2024 with 400 citizens, businesses and community groups signing up to measure levels of the traffic-related air pollutant, nitrogen dioxide (NO₂), in their local area.
- ▶ Results for CAT Limerick city showed 73% of locations sampled were in the lowest category for NO₂ (0-10 µg/m³), with a further 25% in the next lowest category (10-20 µg/m³).
- ▶ CAT campaigns across all four cities have provided a useful snapshot of NO₂ levels and has given us important data about this air pollutant, in addition to information from the EPA's existing air quality monitoring network.
- ▶ The information gathered through Clean Air Together campaigns is used by the EPA to assist with its air quality modelling and forecasting.
- ▶ Clean Air Together moved to its fifth city, Waterford City, launched on the 25th August 2025.

WATCH
CAT
Dublin

WATCH
CAT
Cork

WATCH
CAT
Galway

CAT
Limerick

CAT
Waterford



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If you want more information Go to the EPA
Air Quality Frequently Asked Questions






CLICK HERE



USEFUL LINKS



-  Supplementary Information for the 2024 Air Quality Report in Ireland
-  EPA's Air Quality Index for Health (AQIH)
-  Real Time Air Quality Data for Ireland
-  Ireland's State of the Environment Report 2024
-  EPA's Monthly Bulletins
-  Clean Air Strategy
-  Ireland's Climate Action Plan
-  The National Investment Framework for Transport in Ireland
-  Citizen Science in Air Quality

EU & WHO

-  The Cleaner Air for Europe Directive (CAFE Directive) (2008/50/EC)
-  EEA Report: Europe's Air Quality 2025
-  WHO Air Quality Guidelines
-  WHO: Breathe Life - How air pollution impacts your body
-  EU Air Quality Index for Health

Europe as part of the Green Deal and the EU's zero pollution visions for 2050 is revising its air quality standards to align them more closely with the lower WHO recommendations.

AIR QUALITY RESEARCH

-  EPA funded research in Air Quality
-  PEACEPLUS Project



Acknowledgements and Disclaimer

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