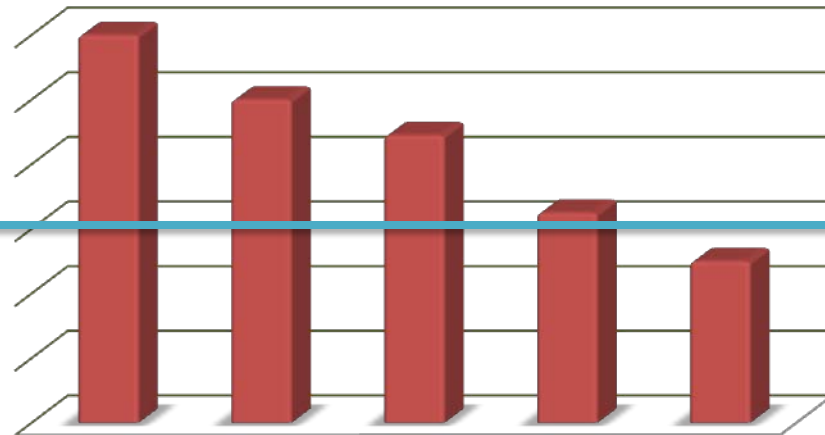


The Attainability of Emission Ceilings

CIAM Report 1/2011

Perspective on

Ireland



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Quick Introductory Notes

- **Expert** perspectives as distinct from formal national position
- Present **inventory for 2009** as benchmark of where we are now
- Present **GAINS Ireland forecasts** using official national data – these are not official national projections.
- Various methodological **reasons** for this choice – either approach would have caveats.
- Took **BL value from the model** in March/April. **Ambitions from the report** March 28th.

Sulphur SO₂

Ireland



2009 Inventory	2020 G-IRL 11 BL	2020 G-IRL 11 WAM	2020 EU BL
33	21	19	28

2020 Ambition Levels from EU Baseline					
LOW	Low *	Mid	High *	HIGH	MTFR
27	27	26	22	22	20

Gaps / Proportions to Ambition Levels						
Reduce by...	LOW	Low *	Mid	High *	HIGH	MTFR
From 2009 Inventory	6 / 18%	6 / 18%	7 / 21%	11 / 33%	11 / 33%	13 / 39%
From 2020 G-IRL BL	-6 / -29%	-6 / -29%	-5 / -24%	-1 / -5%	-1 / -5%	1 / 5%
From 2020 G-IRL WAM	-8 / -42%	-8 / -42%	-7 / -37%	-3 / -16%	-3 / -16%	-1 / -5%
From 2020 EU BL	1 / 4%	1 / 4%	2 / 7%	6 / 21%	6 / 21%	8 / 29%

Measures

- Major refit at Moneypoint impacting. Economic conditions reducing activities e.g. Industry, cement.
- Sulphur free transport fuels, VA's **(to legislation) for solid fuels, bituminous coal ban extension, cleaner gas.**
- Note - recent GAINS scenario underplayed SO₂ by 4kt due to prior approach to setting EF with control balances

Verdict **Strong national and international action in this area. Strict IED interpretation applied for 2020.**

Nitrogen Oxides NO_x Ireland

2009 Inventory	2020 G-IRL 11 BL	2020 G-IRL 11 WAM	2020 EU BL
90	69	65	69



2020 Ambition Levels from EU Baseline					
LOW	Low *	Mid	High *	HIGH	MTFR
62	62	60	58	53	53

Gaps / Proportions to Ambition Levels						
Reduce by...	LOW	Low *	Mid	High *	HIGH	MTFR
From 2009 Inventory	27 / 30%	27 / 30%	29 / 33%	31 / 35%	36 / 40%	36 / 40%
From 2020 G-IRL BL	7 / 10%	7 / 10%	9 / 13%	11 / 16%	16 / 23%	16 / 23%
From 2020 G-IRL WAM	3 / 5%	3 / 5%	5 / 8%	7 / 11%	12 / 18%	12 / 18%
From 2020 EU BL	7 / 10%	7 / 10%	9 / 13%	11 / 16%	16 / 23%	16 / 23%

Measures

- Gas and renewable penetration will support reductions. Cement unlikely to rise. Low-NO_x burners installed as standard in many power stations.
- Transport relevant. Comparatively new fleet, and dieselisation trend resulting from carbon tax an issue. Euro standard issue to remain problematic? (~15kt in 2010) – underscores need for flexibility mechanism incl. though not limited to a relative ceiling approach. Is compliance with 2010 assumed? EU BL suggests no - report says Yes.
- Technical and non-technical balance required. Activity taxation possible but challenging.

Verdict **Significant initiatives in place and activity much reduced for now.**

Particulates PM_{2.5}

Ireland



2009 Inventory	2020 G-IRL 11 BL	2020 G-IRL 11 WAM	2020 EU BL
9.1	N/A	N/A	8

2020 Ambition Levels from EU Baseline					
LOW	Low *	Mid	High *	HIGH	MTFR
8	8	8	7	8	6

Gaps / Proportions to Ambition Levels						
Reduce by...	LOW	Low *	Mid	High *	HIGH	MTFR
From 2009 Inventory	1.1 / 12%	1.1 / 12%	1.1 / 12%	2.1 / 23%	1.1 / 12%	3.1 / 34%
From 2020 G-IRL BL	N/A / N/A	N/A / N/A	N/A / N/A	N/A / N/A	N/A / N/A	N/A / N/A
From 2020 G-IRL WAM	N/A / N/A	N/A / N/A	N/A / N/A	N/A / N/A	N/A / N/A	N/A / N/A
From 2020 EU BL	0 / 0%	0 / 0%	0 / 0%	1 / 13%	0 / 0%	2 / 25%

Verdict

- Important pollutant in regard to value and benefits of abatement
- Uncertainty with regard to both measurement and control.
- Can we regulate if we cannot reliably and consistently measure?
- Efforts ongoing nationally to improve assessment of particulates
- International obligations should be treated with caution – relative ceilings are the obvious approach.
- Alternatively focus on programmes of source abatement directly

Ammonia NH₃

Ireland

2009 Inventory	2020 G-IRL 11 BL	2020 G-IRL 11 WAM	2020 EU BL
108	123	123	98



2020 Ambition Levels from EU Baseline					
LOW	Low *	Mid	High *	HIGH	MTFR
91	86	85	81	82	76

Gaps / Proportions to Ambition Levels						
Reduce by...	LOW	Low *	Mid	High *	HIGH	MTFR
From 2009 Inventory	17 / 16%	22 / 20%	23 / 21%	27 / 25%	26 / 24%	32 / 30%
From 2020 G-IRL BL	32 / 26%	37 / 30%	38 / 31%	42 / 34%	41 / 33%	47 / 38%
From 2020 G-IRL WAM	32 / 26%	37 / 30%	38 / 31%	42 / 34%	41 / 33%	47 / 38%
From 2020 EU BL	7 / 7%	12 / 12%	13 / 13%	17 / 17%	16 / 16%	22 / 22%

Measures

Principally animal manure and fertiliser use. Gradual decline in cattle population from 1999. Expectations for 2020 are unclear. Available controls will struggle to counter growth in the basic driver of herd size. Sensitive sector nationally. National variations in terms of herd outside 2/3 of the year, weather constraints on more early spreading. Official National Forecast ~ 106kt. Milk yield approach of GAINS requires thought. Soils/N-Excretion also require more work. 'GOTHPRIMESBL2009' is 98kt, but all other 'PRIMES' based scenarios give 110kt. Optimisations are based on 98kt? Is 09 the right basis for the assessment of ambition? Controls account for some of the variation. For example, LNF features strongly – not supported by national research for grazing cattle – subject to debate in TFRN...

Verdict BL of 98 is an issue. FH2020 has revised projections. Can controls counter where herd size grows?

VOCs

Ireland



2009 Inventory	2020 G-IRL 11 BL	2020 G-IRL 11 WAM	2020 EU BL
52	46	46	49

2020 Ambition Levels from EU Baseline					
LOW	Low *	Mid	High *	HIGH	MTFR
44	44	43	41	33	30

Gaps / Proportions to Ambition Levels						
Reduce by...	LOW	Low *	Mid	High *	HIGH	MTFR
From 2009 Inventory	8 / 15%	8 / 15%	9 / 17%	11 / 21%	19 / 37%	22 / 42%
From 2020 G-IRL BL	2 / 4%	2 / 4%	3 / 7%	5 / 11%	13 / 28%	16 / 35%
From 2020 G-IRL WAM	2 / 4%	2 / 4%	3 / 7%	5 / 11%	13 / 28%	16 / 35%
From 2020 EU BL	5 / 10%	5 / 10%	6 / 12%	8 / 16%	16 / 33%	19 / 39%

Measures

Solvents:

Population and other activities counterbalanced by VOC controls and IPPC

Transport:

Euro standards delivering progress, fleet shares are important

Residential coal use:

Anticipated reductions in this activity will further reduce emissions.

Verdict

Greater focus needed on measures we can control and expected performance of those outside of our control. Official National Forecasts are higher.

Closing Thoughts

Distance from 2020 Forecasts suggest some reasonable]challenges... today.

Will 2020 Activity levels be the projected values? Agriculture?

Will technologies deliver on their promised potential? Euro Standards?

International Policy, Economic Events, Scientific Progress... will change.

The process must acknowledge uncertainty in the ultimate testing of compliance, not only in the formulation of what will become fixed targets.

- *Flexible approaches to target setting can improve cost-effectiveness as we saw from Markus.*
- *Flexible approaches to compliance testing can similarly improve cost-effectiveness and offer some contingency versus the unknown.*
- *Relative ceilings can help to address uncertainties, new sources in and outside baseline.*
- *Three year averaging can help to address timing and 'lumpiness'*

Which Path?

Benefits to cost seem to suggest Mid as a good balance of reward to investment.

- **Personal perspective** suggests Low, Low* or Mid as the LCD for all but NH3.
- NH3 BL assumptions are an issue - the 98kt baseline is out of sync with all other scenarios.
- PRIMES 09 or 10 is not a major issue – however Agriculture choice requires attention.

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