

Uncertainty calculation for the New Zealand Greenhouse Gas Inventory 1990 - 2003 excluding LULUCF removals (following IPCC Tier 1)

| IPCC Source category | Gas | Base year emissions | Year t emissions | activity data uncertainty | emission factor uncertainty | combined uncertainty | combined uncertainty as a % of the total emissions in year t | type A sensitivity | type b sensitivity | Uncertainty in the trend in national totals introduced by emission factor uncertainty | Uncertainty in trend in national total introduced by activity data uncertainty | Uncertainty introduced into the trend emissions | Emission /removal factor quality indicator | Activity data quality indicator | column M ² | column M ² |
|---------------------------------|------------------|---------------------|------------------|--------------------------------|-----------------------------|----------------------|--|---------------------------------|--------------------|---|--|---|--|---------------------------------|-----------------------|-----------------------|
| Energy sector | CO ₂ | 22652.63 | 31229.51 | 5 | 0 | 5 | 2.07 | 0.0564 | 0.5074 | 0.0000 | 3.5876 | 3.59 | M | R | 4.290655141 | 12.87084016 |
| Industrial processes sector | CO ₂ | 2662.18 | 3470.04 | 5 | 0 | 5 | 0.23 | 0.0034 | 0.0564 | 0.0000 | 0.3986 | 0.40 | M | R | 0.052973782 | 0.158907454 |
| Energy sector | CH ₄ | 796.92 | 840.98 | 5 | 50 | 50 | 0.56 | -0.0022 | 0.0137 | -0.1096 | 0.0966 | 0.15 | D | R | 0.314256835 | 0.021355932 |
| CRF2A - mineral products | CH ₄ | NO | NO | | | | | | | | | | | | | |
| CRF2B - chemical industry | CH ₄ | 21.59 | 42.91 | 45 | 120 | 128 | 0.07 | 0.0003 | 0.0007 | 0.0321 | 0.0444 | 0.05 | D | R | 0.005322356 | 0.002999703 |
| CRF4A - enteric fermentation | CH ₄ | 21530.77 | 23592.21 | 2 | 53 | 53 | 16.60 | -0.0449 | 0.3833 | -2.3822 | 1.0841 | 2.62 | M | M | 275.5245222 | 6.850299874 |
| CRF4B - manure management | CH ₄ | 574.51 | 549.44 | 2 | 100 | 100 | 0.73 | -0.0025 | 0.0089 | -0.2504 | 0.0252 | 0.25 | M | M | 0.531465804 | 0.063344131 |
| CRF4E- prescribed burning | CH ₄ | 2.82 | 0.84 | 20 | 60 | 63 | 0.00 | 0.0000 | 0.0000 | -0.0025 | 0.0004 | 0.00 | D | R | 4.99442E-07 | 6.61691E-06 |
| CRF4F - burning of residues | CH ₄ | 18.78 | 22.91 | 50 | 40 | 64 | 0.02 | 0.0000 | 0.0004 | -0.0001 | 0.0263 | 0.03 | D | R | 0.000378841 | 0.000692944 |
| LULUCF sector | CH ₄ | 88.90 | 85.68 | 10 | 35 | 36 | 0.04 | -0.0004 | 0.0014 | -0.0132 | 0.0197 | 0.02 | | | 0.001711651 | 0.000561395 |
| CRF 6A - Solid waste disposal | CH ₄ | 2177.70 | 1425.48 | 0 | 20 | 20 | 0.38 | -0.0202 | 0.0232 | -0.4033 | 0.0000 | 0.40 | M | R | 0.143032734 | 0.162619975 |
| CRF 6B - wastewater handling | CH ₄ | 156.66 | 166.11 | 0 | 20 | 20 | 0.04 | -0.0004 | 0.0027 | -0.0084 | 0.0000 | 0.01 | D | R | 0.001942248 | 7.00009E-05 |
| Energy sector | N ₂ O | 144.56 | 250.43 | 5 | 50 | 50 | 0.17 | 0.0012 | 0.0041 | 0.0596 | 0.0288 | 0.07 | D | R | 0.027867001 | 0.004381346 |
| CRF4D -Agricultural soils | N ₂ O | 10021.98 | 12968.99 | 5 | 73 | 73 | 12.59 | 0.0113 | 0.2107 | 0.8231 | 1.4899 | 1.70 | M | M | 158.4687556 | 2.897164353 |
| CRF4B - manure management | N ₂ O | 15.91 | 61.07 | 2 | 100 | 100 | 0.08 | 0.0007 | 0.0010 | 0.0676 | 0.0028 | 0.07 | | | 0.006565186 | 0.004572734 |
| CRF4E- prescribed burning | N ₂ O | 0.51 | 0.15 | 20 | 60 | 63 | 0.00 | 0.0000 | 0.0000 | -0.0005 | 0.0001 | 0.00 | D | R | 1.66671E-08 | 2.20816E-07 |
| CRF4F - burning of residues | N ₂ O | 6.46 | 7.61 | 50 | 40 | 64 | 0.01 | 0.0000 | 0.0001 | -0.0002 | 0.0087 | 0.01 | D | R | 4.18347E-05 | 7.65565E-05 |
| LULUCF sector | N ₂ O | 9.02 | 8.70 | 10 | 35 | 36 | 0.00 | 0.0000 | 0.0001 | -0.0013 | 0.0020 | 0.00 | | | 1.76289E-05 | 5.78205E-06 |
| CRF6B - wastewater handling | N ₂ O | 145.70 | 162.89 | 0 | 1200 | 1200 | 2.59 | -0.0003 | 0.0026 | -0.3031 | 0.0000 | 0.30 | D | R | 6.723485567 | 0.091891729 |
| CRF2F | HFCs | 0.00 | 403.96 | 105 | 60 | 121 | 0.65 | 0.0066 | 0.0066 | 0.3938 | 0.9745 | 1.05 | D | R | 0.419977485 | 1.104767259 |
| CRF2C | PFCs | 515.60 | 80.70 | 0 | 30 | 30 | 0.03 | -0.0089 | 0.0013 | -0.2684 | 0.0000 | 0.27 | M | M | 0.001031437 | 0.072042138 |
| CRF2F | SF ₆ | 9.46 | 12.38 | 66 | 63 | 91 | 0.01 | 0.0000 | 0.0002 | 0.0008 | 0.0188 | 0.02 | | | 0.000224532 | 0.000353085 |
| Total emissions/removals | | 61552.65 | 75383.00 | Uncertainty in the year | | | 21.1% | Uncertainty in the trend | | | 4.9% | | | | 446.514228 | 24.3069534 |

assumptions as per IPCC GPG

- where only total uncertainty is known for a source category then the following rules have been used.
 - if uncertainty is assumed to be correlated across years, then total uncertainty is entered as emission factor uncertainty
 - if uncertainty is assumed not to be correlated across years, then the total uncertainty is entered as activity data uncertainty
- Column K: The same emission factor is used in both years and the emission factors are fully correlated.
- Column L: The activity data in both years is assumed independent (not correlated).

Note that the total emissions shown will not equal the total reported in the CRF/NIR as not every source is specified in the uncertainty analysis