

Annex: answers for zones BEF01S;BEF02A

For the zones BEF01S;BEF02A a new Excel-file is added with extra information answering the questions. The cells that are changed are marked by using a green background color in the cell. Please note that we also changed in different forms of the Excel-file the term "sanitation plan" into the correct "derogation request".

The responses on the different questions are also in short given in the tables below.

General

Zone	Description of information required
BEF01S;BEF02A	In Annex to Form 1 there are currently no web-links for ref6, ref7, ref8 und ref9. Please provide these web-links.
BE response	
See green cells in Excel file, three web-links are provided (for ref7, ref8, and ref9) and one document is added as an annex (ref 6). Ref 9 was the sanitation plan that was added as an annex 1 to the derogation request. We also added new references to the NEC reduction program.	

Zone	Description of information required
BEF01S;BEF02A	In Form 3A, the total for the regional background is provided, but the percentage contribution of each sub sector (from within Member State, transboundary) is reported as N/A. Please provide an estimate of this partition. Urban background is also missing, please provide the total contribution from urban background and the percentage contribution from each sector, or confirm that the urban background is included in the local contribution.
BE response	
The urban background and the transboundary contribution are both included in the local contribution. So the total measured (and modeled) concentration at street level is $45 \mu\text{m}^3$ (see e, row 37). This includes urban background and regional background and is therefore marked as 100%. But, we also added the split for the urban and regional background in the form (see green cells in Excel file), both marked as 100% since $16 \mu\text{g}/\text{m}^3$ is the measured (and modeled) background concentration and $34 / 36 \mu\text{g}/\text{m}^3$ is the measured (and modeled) urban background. Please note that the background for BEF01S is not urban, since the zone is an industrialized and traffic intensive harbor.	

First condition: Limit values for NO2 could not be achieved before the initial attainment date 1 January 2010

Zone	Description of information required
BEF01S;BEF02A	Chapter H6 of Uitsluitaanvraag_Luchtkwaliteitsplan_N02_VL explains which measures did not perform as expected. However, specific information on the contributions at the various exceedance situations, as requested in Form 3B, seems to be missing. Please provide this information, if possible.
BE response	
An estimation is added as extra information in the Excel file (form 3B).	

Zone	Description of information required
BEF01S;BEF02A	In Form 5A, please fill in the estimated levels, not the measured values, taking into account the combined impacts of all measures on ambient NO2 levels in 2010 for all exceedance situations.
BE response	
The measured levels are changed in modeled levels for 2010 in the Excel file (see green cells).	

Zone	Description of information required
BEF01S;BEF02A	Impact of measures on the urban and local backgrounds are not quantified in Annex to Form 5 A and impact of measures are missing in Annex A to Form 7. Please provide numerical values in respective fields in Annex to Form 5A and Annex A to Form 7.

BE response

Impact of measures on the urban and local backgrounds:

Extra data is included in the Excel file (cells in green), row d Annex form 5A.

Impact of measures on NO₂ concentration: row e annex form 5A

The impact of the measures in 2010 has been calculated in 2001 with the emission factors known at that moment (estimated impact). The calculated NO_x concentrations for 2010 were so low that the conclusions was that the limit values would have been achieved everywhere. The same conclusion was stated in the study "Economic evaluation of air quality targets for sulfur dioxide, nitrogen dioxide, fine suspended particulate matter and lead" from IIASA for the Commission (1997).

Recalculation for 2010 of the NO₂ concentrations with our recent models that include complex chemistry with current emission factors for the "without measures" scenario is not available. We concentrated in the modelruns on the impact of additional measures. For this reason we calculated a BAU scenario (with measures taken before 2010) for 2010 and 2015 and a scenario "with additional measures" (with measures taken between 2010 and 2015) for 2015. For that reason we have no recalculated reference scenario (without measures) for 2010.

Impact of measures on NO_x emissions: row c annex form 5A

The impact of the measures taken before 2010 on emissions (difference between reference (without measures) and BAU (including NEC) with the current and old emission factors for 2010) is available.

From the NEC program we can provide extra information on the effective impact of measures on emissions. In annex A to form 7 and chapter H7.3 we added information on the impact of measures reducing emissions from stationary sources (difference between reference (without measures) and BAU (including effect of NEC measures for stationary sources) and transport. The following information is added in the derogation request (chapter H7.3):

"De impact van de maatregelen op de emissies is terug te vinden in de evaluatie van het NEC reductieprogramma. Een eerste reductieprogramma werd goedgekeurd in 2003 (ref 10), een geactualiseerd programma in 2006 (ref 11). In 2008 werd een evaluatie gemaakt (ref 12).

Het Belgisch plafond bedraagt 176 kton. Dit is onderverdeeld in een plafond voor stationaire bronnen per gewest en een Belgisch plafond voor niet stationaire bronnen. Het Vlaams emissieplafond voor NO_x voor stationaire bronnen bedraagt 58,3 kton. Het Belgisch plafond voor niet-stationaire bronnen (transport) bedraagt 68 kton.

De maatregelen voor de stationaire sector hebben het gewenste effect bereikt. Onderstaande tabel geeft per sector het referentiescenario weer (zonder maatregelen) en het maatregelenscenario (in kton).

	2010 without measures	2010 with additional measures	verschil
Elektriciteit	29	11	18
Raffinaderijen	8,8	5,2	3,6
Ferro	7,6	5,4	2,2
Non-ferro	1,3	1	0,3
Chemie	13,5	10,2	3,3
Niet-industriële sectoren	15,4	14,5	0,9
Overige industriële bronnen	12,6	11,4	1,2
<i>totaal</i>	<i>88,2</i>	<i>58,7</i>	<i>29,5</i>

	(uit NEC2006)	(uit VORA2008)	
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Uit de evaluatie die in 2010 werd gemaakt, blijkt dat de uiteindelijke emissies voor stationaire bronnen 55 kton bedragen in 2010, onder de raming van 2008.

De maatregelen die bij de technische voorbereiding van de NEC-richtlijn door de Europese Commissie in de modelberekeningen (RAINS berekeningen) zijn opgenomen, zijn, voor de transportsector, allen technologische maatregelen. Deze technologische maatregelen vormen tevens de basis voor de verstrenging van de emissiereglementering voor voertuigen en de aanscherping van brandstofeigenschappen op Europees niveau. De Europese Commissie ging er bij de totstandkoming van de emissieplafonds met andere woorden van uit dat het Europees beleid (Euronormen) zou volstaan voor de transportsector. De Belgische autoriteiten hebben hier op vertrouwd. Aanvullend keurde de Vlaamse overheid extra maatregelen goed om de emissies van transport te verminderen (zie NEC-programma 2010). Tijdens de evaluatie in 2006, bleek dat, rekening houdend met de emissiefactoren en off-road sectoren die bij de totstandkoming van de plafonds in rekening waren genomen, het Belgisch NOx plafond voor de transportsector met 7,9 kton zou worden overschreden. Extra maatregelen werden daarom vooropgesteld (zie excel 7-10 en bijlage 2). Deze resulteren in volgende emissiereductie ten opzichte van de referentiesituatie (ref 11):

Maatregel	Reductie (kiloton)
Pakket maatregelen uit Mobiliteitsplan Vlaanderen	3,7
Extra Mobiliteitsmaatregelen Vlaanderen	1,2
Maatregelen milieuvriendelijke voertuigen en rijgedrag Vlaanderen	1,6

Samen met de extra maatregelen van het Brusselse en het Waalse Gewest werd een emissie van 70,44 kton NOx voorspeld in 2010¹, een lichte overschrijding van het Belgische plafond voor transport dat door de lagere emissies van stationaire bronnen wordt gecompenseerd.”

Second condition: Conformity with the relevant limit values will be achieved at the latest by expiry of the extended deadline

Zone	Description of information required
BEF01S;BEF02A	In the letter by the Belgian authorities it is stated that a time extension is notified for 5 years. However, projections in Form 5B indicate that concentrations will be significantly below the limit value in 2015 in zone BEF01S and BEF02A. Therefore, an extension of 5 years may not be needed. Please provide information on when the levels in these zones will comply with the limit value.
BE response	
Extra information is included in the Excel file (form 5B, cells in green). For the zone BEF02A a new monitoring station will be placed next to the pavement (actual monitoring station is at 33 m from the pavement). The concentrations at curb side will be higher, the modeled concentration at curb side in 2015 is 39µg/m ³ . This is only slightly below limit value. Most of the measures will only have full effect between 2014 and 2015 and some even beyond 2015 (full technological change due to measures implemented between 2010-2015). Furthermore, the decrease in concentration is not linear between 2010 and 2015 and will go down steeply at the end of that period. Therefore we ask for (and need) a derogation of 5 years till 2015. For the same reasons (timing measures and model uncertainty) we also ask for a derogation of 5 years till 2015 for the zone BEF01S.	

¹ Rekening houdend met de nieuwe emissiefactoren (zie H6) bekomt men 133 kton.

Zone	Description of information required
BEF01S;BEF02A	The impact of measures on the NO ₂ level is given but the split between regional, urban and local background is missing. Please provide this information.
BE response	
Extra information is added in annex to form 5b (see green cells)	

Zone	Description of information required
BEF01S;BEF02A	Please provide information about the implementation date and date when the measure takes full effect for all measures implemented before the extended deadline for compliance.
BE response	
Extra information is added in annex b to form 7 (see green cells) and in form 7-2015 (and 7-2010)	

Zone	Description of information required
BEF01S;BEF02A	In Annex B to Form 7 it is stated that the impact of individual measures on emissions and ambient concentrations is not calculated. However, in order to assess whether appropriate, effective measures will be taken before the extended deadline, please provide quantitative information on the effects of measures, as far as available.
BE response	
<p>In preparation of this derogation request we investigated the impact of the total package of adopted measures. The impact of the ultimately approved <i>individual</i> measures hasn't been modeled but we have examined which potential measures have the greatest impact. In summary, the following items are relevant:</p> <ul style="list-style-type: none"> - The impact of Euro 6 and VI (passenger cars and trucks) is small in 2015 and will only have effect much later (2020) - A reduction of the speed limit from 120 km/h to 100 km/h for passenger cars on highways gives a total NO_x reduction of 11% and reduces the NO₂ concentration with 7µg/m³. This measure doesn't apply for trucks because the speed limit for trucks is in any case 90 km/h. - An improved traffic flow reduces the NO_x-emissions with 25 to 30% (peak) and with 15% (on the average) on motorways. This measure has the biggest impact of all measures in 2015. - Mobility measures (such as an improved traffic flow and speed reductions) have a greater effect in 2015 than the technology measures (such as moving towards a greening fleet through the adjustment of the tax on car registration, a switch to petrol, the introduction of Euro 6 and VI): <ul style="list-style-type: none"> o Mobility measures reduce the NO_x emissions in 2015 with 17% for passenger cars and with 10% for trucks. Technology measures only reduce the NO_x emissions with 1% for passenger cars. On trucks they have a slightly greater effect than mobility measures (reduction of 13%) but their share in vehicle kilometers is of course much smaller than the share of passenger cars. o The technology measures however reach full effect in 2020: a reduction of the NO_x emissions with 9% for passenger cars and with 26% for trucks. - Sound screens have a local impact of 5 µg/m³ NO₂ at a distance of 25 m and an impact of 2 µg/m³ at a distance of 100 m. - On local inner city roads the impact is as follows: reducing the traffic intensity has more impact than introducing a low-emission zone for freight and passenger cars, which in turn has a greater effect than optimizing the traffic light system, which in turn had a greater effect than a sustainable urban distribution <ul style="list-style-type: none"> o a decline in the traffic intensity by 30% has an impact of 5 µg/m³ on the local NO₂ concentration o introducing a LEZ for freight and passenger cars has an impact of 2 µg/m³ on the local NO₂ concentration o Optimizing the traffic light system can reduce the local NO₂ concentration with 1 µg/m³ o and sustainable urban distribution has an impact of 0,2 µg/m³ on the local NO₂ concentration. o A adjusted urban green structure has a very local impact and can reduce the NO₂ concentration with 3 µg/m³. 	

The finally adopted measures in the air quality plan are based on these findings.

The measures contained in the final package who have the greatest effect in 2015 in both zones are "speed reduction and improved flow (AA01)" and very locally "reducing the direct exposure along the motorway (AA10)". Specific for the zone BEF02A (agglomeration Antwerp) the measure "Sustainable urban mobility planning (EE1)" has the greatest effect. However, all measures are needed to achieve the limit value in 2015.

The total impact of all adopted measures is given in annex to form 5b, line e, in particular a reduction of 4,7 µg/m³ in the BEF01S zone and a reduction of 7 µg/m³ in the BEF02A zone.

Third condition: The air quality plan demonstrates how compliance will be achieved by the expiry of the postponement period and is consistent with the requirements of Part A of Annex XV of Directive 2008/50/EC

/: no extra information required for the zones BEF01S;BEF02A

Fourth condition The information in Section B of Annex XV to Directive 2008/50/EC on the status of implementation of community air pollution legislation and on the consideration of the listed pollution abatement measures has been provided.

Zone	Description of information required
BEF01S;BEF02A	From Form 8 of the notification for BEF02A, it follows that non-compliance is projected for the national emission ceiling for emissions of NOx. Please rate the importance of this non-compliance related to attaining NO2 limit values in the various zones/agglomerations. Please justify this rating. The Annex to Form 8 or alternatively a free text format can be used to provide the required information.
BE response	
The national emission ceiling is divided in 4 ceilings for Belgium: 1 for each region for stationary sources and 1 for Belgium as a whole for non stationary sources (transport). The Flemish Ceiling will be reached (see added info in form 8). The Belgian ceiling however will not be reached due to the higher emissions from transport. As mentioned in H7.3, based on the RAINS-modeling of the European Commission, on which the Belgian authorities relied, it was concluded that the NEC ceiling for transport would be achievable with European policy (Euro standards) without additional Belgian measures needed. As mentioned as well in H7.3 the Belgian authorities however, did take measures to reduce emission from transport. As explained in H6 of "Uitstelaanvraag" the Euro standards have not reached the expected NOX reduction in real world conditions. This results in higher NOX emissions from transport and also higher NO ₂ concentrations. So the Flemish Region took the necessary measures to attain the Flemish Emission ceiling for stationary sources, adopted the necessary guidelines on Euro standard to attain the Belgian Transport ceiling, and took extra measures regarding traffic (see form 7-2010, the plans under form 9 and chapter H7.3 of the derogation request). Since these Euro standards did not provide the expected emission reduction, only the Flemish Ceiling will be reached, not the Belgian ceiling. This information is also added in annex to form 8.	

Zone	Description of information required
BEF01S;BEF02A	In Form 9, the air quality plan of 2008 is referenced. Please confirm whether this is the first plan or programme that includes measures for NO ₂ or whether another plan/programme was adopted earlier.
BE response	
No, this was not the first plan or programm, but the most recent one that is specific for the zones in exceedance. Extra information is added on the different plans (see line b in form 9). We also added	

information on short time action plans in form 9.