Government of Gibraltar

Air Quality Action Plan

Version I

Document Control

Record of Changes

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0	Jul 2010	Peter Soiza	First Edition
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Contents:

1. Introduction

There are eleven pollutants that the EC Air Quality Directives require us to monitor, nine of them are within the limit values set by the Directives and are at concentrations that do not affect human health. However, the levels of Particulate Matter (PM_{10}) and Nitrogen Dioxide (NO_2) have exceeded European limit values and are therefore of concern in Gibraltar. Monitoring in Gibraltar demonstrated that air quality exceeded the PM_{10} daily limit value during 2007 and 2008. The NO_2 annual mean limit value was also exceeded in 2008.

This air quality Action Plan has been produced to accompany a formal application to the European Commission for time extensions to comply with the PM_{10} (daily) and NO_2 (annual) limit values and to establish a bold, coherent strategy to reduce measured levels of PM_{10}, NO_2 (and other pollutants). This document provides some context to this air quality strategy, illustrates the respective importance of sources contributing to the concentrations of the critical pollutants (PM_{10} and NO_2) and, most importantly, details the broad range of abatement measures being implemented to reduce pollution to acceptable levels by the extended deadline.

1.1 Gibraltar Air Quality

The Government of Gibraltar is committed to taking affirmative action to improve air quality and considers the measures included in this Plan to be practicable and cost effective. The assessment undertaken on the Government's behalf, projects that both PM_{10} and NO_2 concentrations will be below the limit values by mid-2011 (for PM_{10}) and end of 2014 (for NO_2) respectively as a result of measures presented in this Action Plan. The concentrations of PM_{10} and NO_2 in particular could be lowered further, but for this to occur there would have to be even further action at a European level. This is because:-

- A significant amount of the pollution that contributes to PM_{10} and NO_2 concentrations in Gibraltar is transboundary in nature (i.e. it is not produced within Gibraltar but is transported in via the prevailing winds).
- Government has limited powers over the policies and incentives that control the manufacture and design of vehicles on Gibraltar roads. All vehicles imported into and operated within Gibraltar are compliant with EC manufacturing and design specifications. Thus the promotion of stricter controls and the production of cleaner vehicles by the European Commission would be welcomed.

1.2 Supporting evidence

The preparation for the formal application for time extensions to the PM_{10} daily limit value and NO_2 annual limit value has involved a comprehensive programme of data gathering, dispersion modelling and air quality analysis which has resulted in a robust technical evidence base to support the applications. The technical reports and other evidence presented in the application, both in the Forms themselves and in the accompanying notes to those forms and in this Action Plan have all been allocated a code and are publicly available. The tables below provide a catalogue to these documents and appropriate web links for easily accessible reference.

PM_{10} evidence base

Reference code (forms)	Filename/weblink	Title	Synopsis
REF_PM10_1	http://www.gibraltar.gov.gi/images/stories/PDF/environment/PM10%20Evidence%20base%20documents/REF_PM10_1.pdf	Gibraltar Air Quality Action Plan	Summarising measures and policies initiated by authorities in Gibraltar to achieve compliance for PM_{10} and NO_2 with European air quality Directives.
REF_PM10_2	http://www.gibraltar.gov.gi/images/stories/PDF/environment/PM10%20Evidence%20base%20documents/REF_PM10_2.pdf	Measured PM_{10} concentrations in Gibraltar in 2006 – removal of the natural component	Using accepted African dust quantification technique, this report summarises contribution from African dust to measured PM_{10} concentrations in 2006 in Gibraltar and corrects annual mean and number of daily exceedences.
REF_PM10_3	http://www.gibraltar.gov.gi/images/stories/PDF/environment/PM10%20Evidence%20base%20documents/REF_PM10_3.pdf	Measured PM_{10} concentrations in Gibraltar in 2007 – removal of the natural component	Using accepted African dust quantification technique, this report summarises contribution from African dust to measured PM_{10} concentrations in 2007 in Gibraltar and corrects annual mean and number of daily exceedences.
REF_PM10_4	http://www.gibraltar.gov.gi/images/stories/PDF/environment/PM10%20Evidence%20base%20documents/REF_PM10_4.pdf	Measured PM_{10} concentrations in Gibraltar in 2008 – removal of the natural component	Using accepted African dust quantification technique, this report summarises contribution from African dust to measured PM_{10} concentrations in 2008 in Gibraltar and corrects annual mean and number of daily exceedences.
REF_PM10_5	http://www.gibraltar.gov.gi/images/stories/PDF/environment/PM1	Dispersion modelling of MOD and OESCO power station PM_{10} discharges	Summarising the estimated contribution from OESCO and MOD power stations to annual mean PM_{10} concentrations

Reference code (forms)	Filename/weblink	Title	Synopsis
	0%20Evidence%20base%20documents/REF_PM10_5.pdf		
REF_PM10_6	http://www.gibraltar.gov.gi/images/stories/PDF/environment/PM10%20Evidence%20base%20documents/REF_PM10_6.pdf	Transboundary particulate matter pollution on Gibraltar	Summarising the estimated transboundary contribution (primary and secondary) to annual mean PM_{10} concentrations
REF_PM10_7	http://www.gibraltar.gov.gi/images/stories/PDF/environment/PM10%20Evidence%20base%20documents/REF_PM10_7.pdf	Contribution from shipping emissions to PM_{10} and nickel contents on Gibraltar	Summarising the estimated contribution from shipping to annual mean PM_{10} and nickel concentrations (from Port of Gibraltar, Port of Algeciras and traffic through the Strait of Gibraltar)
REF_PM10_8	http://www.gibraltar.gov.gi/images/stories/PDF/environment/PM10%20Evidence%20base%20documents/REF_PM10_8.pdf	Gibraltar PM_{10}: source attribution analysis	Summarising individual modelling studies, discussion of meteorological factors, demonstrating annual mean equivalent of daily exceedences, additional analysis for road traffic contributions and split out by vehicle class, resuspended road dust, contributions from unmade land – summary apportionment table of all quantified sources.
REF_PM10_9	http://www.gibraltar.gov.gi/images/stories/PDF/environment/PM10%20Evidence%20base%20documents/REF_PM10_9.pdf	Proposed new power station, Lathbury Barracks, Gibraltar – Environmental Statement(Volume 2, Technical Reports)	Environmental Statement for proposed new power station – Chapter 1 Air Quality

NO_2 evidence base

Reference code (forms)	Filename/weblink	Title	Synopsis
REF_NO2_1	http://www.gibraltar.gov.gi/images/stories/PDF/environment/NO2%20Evidence%20base%20documents/REF_NO2_1.pdf	Gibraltar Air Quality Action Plan (Version I)	Updated version of the Air Quality Action Plan submitted with the PM_{10} TEN application
REF_NO2_2	http://www.gibraltar.gov.gi/images/stories/PDF/environment/NO2%20Evidence%20base%20documents/REF_NO2_2.pdf	Dispersion modelling of MOD and OESCO power station discharges	Summarises modelled contribution from the power stations to measured NO_X concentrations and discusses complexities of modelling due to extreme topography and influence of built environment.
REF_NO2_3	http://www.gibraltar.gov.gi/images/stories/PDF/environment/NO2%20Evidence%20base%20documents/REF_NO2_3.pdf	Gibraltar NO_2: source attribution analysis	Summarising modelling study of power station, discussion of meteorological factors, additional analysis for road traffic contributions, apportionment of NO_X concentrations by source and discussion relating NO_X to NO_2 concentrations for comparison against Air Quality Directive.
REF_NO2_4	http://www.gibraltar.gov.gi/images/stories/PDF/environment/NO2%20Evidence%20base%20documents/REF_NO2_4.pdf	Proposed new power station, Lathbury Barracks, Gibraltar – Environmental Statement(Volume 2, Technical Reports)	Environmental Statement for proposed new power station – Chapter 1 Air Quality

2 Influence of the AQ Directive in the development of this plan

2.1 What is air pollution?

Air pollution refers to substances in the air which directly affect human health, welfare, plant and animal life. Air quality is measured in terms of the concentrations – the amount of a pollutant that is present in the air that we breathe – and how these relate to thresholds designed to reduce the impacts on humans and the natural environment. By reducing polluting emissions from local sources, the contribution of these sources to concentrations will also fall. Pollution can also be carried great distances by the prevailing winds. The effective control of emissions throughout Europe and beyond is therefore vital to improving air quality not only in Gibraltar but around the world.

In Europe, and consequently in Gibraltar, the air quality legislation is derived from health-based and other impact-based guidelines. The scientific evidence on which these guidelines are based is provided by the World Health Organisation (WHO). The WHO has published various guidelines for both global and European air quality based on the latest research from around the world. These guidelines are neither standards nor legally binding criteria; they are designed to offer guidance on reducing the health impacts of air pollution based on expert evaluation of current scientific evidence.

The EC Directive on ambient air quality and cleaner air for Europe (CAFE) (2008/50/EC) has due regard to the evidence and guidelines to set standards for a variety of pollutants that are considered harmful to human health and the environment. These standards include limit values, which are legally binding and must not be exceeded. These limit values comprise a concentration value for the pollutant, an averaging period over which it is measured, the date by which the limit values are to be achieved and in some cases an allowable number of exceedences of the value per year. The Directive also includes target values, which are set out in the same manner as limit values, but which are to be attained where possible by taking all measures that do not entail disproportionate costs and therefore are not legally binding.

Gibraltar will be transposing, by mid July 2010, CAFE through its own Environment (Air Quality Standards) Regulations 2010. Regulations 26 and 27 will require that the Minister for the Environment draw up Action Plans, where the limit values stipulated within the proposed Regulations are exceeded, to bring about the reduction of emissions of the offending pollutant/s thereby ensuring that the limit values are met within the shortest possible timeframe. The pollutants covered by the proposed Regulations are:-

- Arsenic
- Benzene
- Cadmium
- Carbon Monoxide
- Lead
- Nickel

- Nitrogen Dioxide (NO_2)
- Ozone
- Particulate Matter (PM_{10} and $PM_{2.5}$)
- Polycyclic Aromatic Hydrocarbons (PAH)
- Sulphur Dioxide

Of these eleven pollutants, nine of them achieve the limit values set by the Regulations. However, the levels of PM_{10} and NO_2 exceed the national air quality objectives. Measured concentrations of fine particles ($PM_{2.5}$) do not exceed the European limit values and Gibraltar currently meets the most stringent 2020 limit value. Ozone needs to be closely monitored due to Gibraltar's climate because it is generated through natural reactions associated with intensity of sunlight. Because ozone is a regional scale pollutant with significant transboundary influence, this is expected to be tackled at international level with agreements and cooperation to reduce ozone precursors such as volatile organic compounds (VOCs).

Therefore this Action Plan focuses on interventions that will reduce concentrations of PM_{10} and NO_2 in particular, although in most cases these interventions will also result in reduced concentrations of one or more of the other pollutants. Since the sources of PM_{10} and $PM_{2.5}$ (indeed, $PM_{2.5}$ is a subset of PM_{10}) are often the same, (such as road transport) measures targeting PM_{10} are likely to impact on a broader range of particle size fractions (e.g. $PM_{2.5}$)

Pollutants of concern

Particulate matter (PM_{10}): Particulate matter (PM) is a complex assemblage of non-gaseous material of varied chemical composition. It is categorised by the size of the particle (e.g. particles with a diameter of less than 10 microns (µm) or PM_{10} and particles with a diameter of less than 2.5 microns (µm) or $PM_{2.5}$). Most PM measured in Gibraltar comes from unmade land, road traffic, construction sites from anthropogenic sources outside Gibraltar and from natural sources such as African dust and sea salt. Small particles tend to be long-lived in the atmosphere and can be transported great distances.

Nitrogen dioxide (NO_2): All combustion processes produce oxides of nitrogen (NO_x). In Gibraltar power generation, road transport and shipping are the main sources of these emissions. NO_x is composed of two pollutants – nitric oxide (NO) and nitrogen dioxide (NO_2). NO_2 is of most concern due to its impact on health. However NO easily converts to NO_2 in the air – so to reduce concentrations of NO_2 it is essential to control emissions of NO_x.

2.2 Objectives of this Action Plan

The first priority of the strategy presented in this Action Plan is to achieve compliance with national and the European Commission limit values thereby reducing the impact of air pollution in Gibraltar. The limit values for PM_{10} and NO_2 exceeded locally are shown in Table 1. The obligation refers to the actual levels of concentrations set in the European

Directive. The time period is the period over which the concentrations are averaged and the permitted exceedences is the number of days that the set level of concentrations can be exceeded in a calendar year.

Table 1: EC Limit values for PM_{10} and NO_2

Pollutant	Obligation	Time Period	Compliance Date	Permitted exceedences each year
PM_{10}	Limit value of 50 µg m^{-3}	24 hours	1 January 2005	No more than 35
	Limit value of 40 µg m^{-3}	1 year	1 January 2005	n/a
Nitrogen dioxide (NO_2)	Limit value of 200 µg m^{-3}	1 hour	1 January 2010	No more than 18
	Limit value of 40 µg m^{-3}	1 year	1 January 2010	n/a

The date for compliance with the limit values of PM_{10} has already passed and the date for compliance with the NO_2 limit values is 2010. The CAFE Directive (2008/50/EC) provides for Member States to apply to extend the date for compliance with the limit values for a maximum extension period until mid-2011 for PM_{10} and until the end of 2015 for NO_2, provided certain conditions are met. The most important condition is that a viable action plan that delivers compliance with the limit values by extended dates is in place. The Government of Gibraltar is submitting an application to the European Commission to obtain an extension for compliance with:

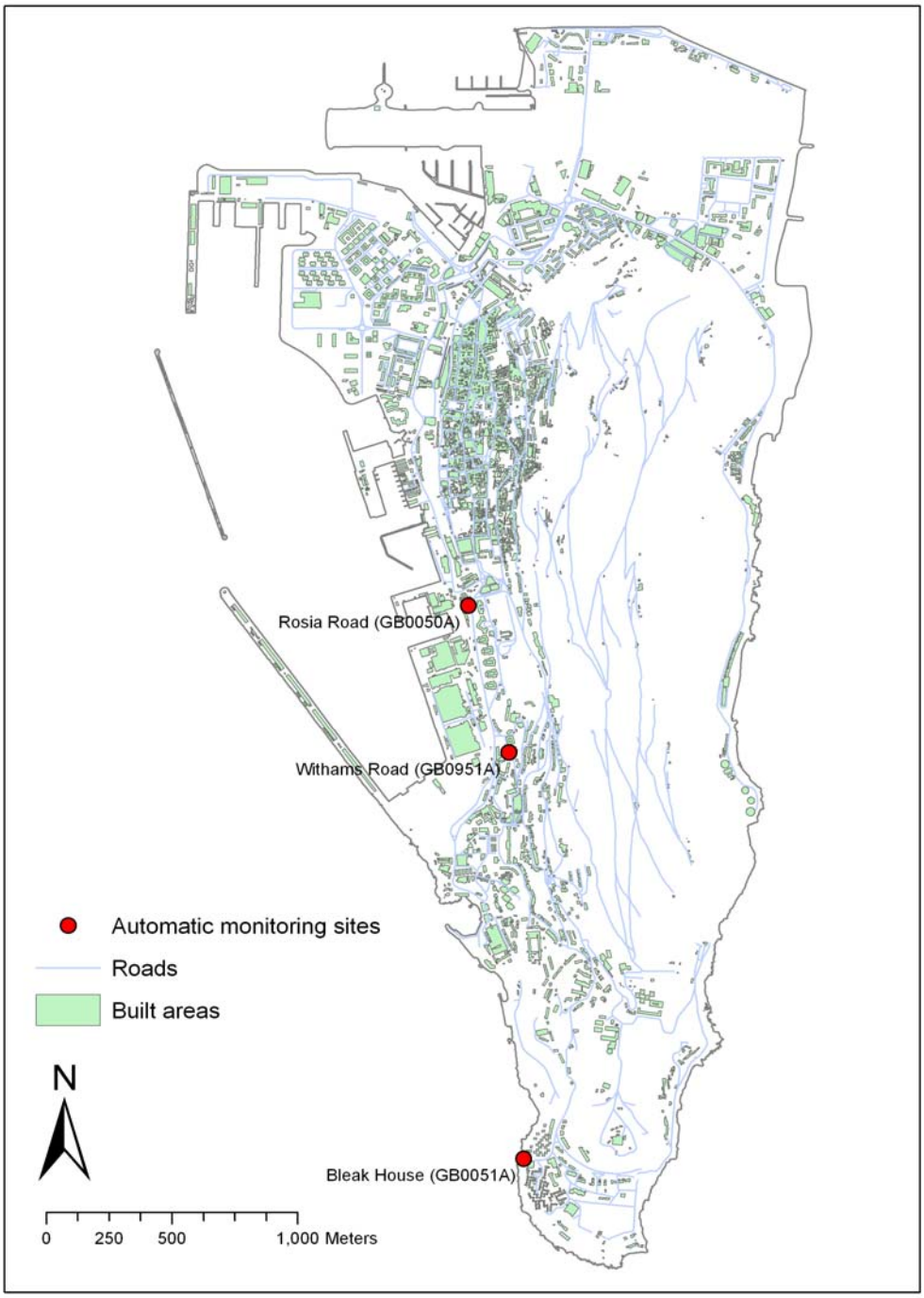
1. the daily PM_{10} limit value (based on exceedences first reported in the reference year 2007) until mid-2011 (the maximum allowable extension period) and;
2. the annual NO_2 limit value (based on exceedences first reported for the reference year 2008) until the end of 2014 (earlier than the maximum allowable extension period).

The Government's assessment shows that the limit values will be met by the end of the extension periods applied for based on the implementation of the programmes and policies contained within this Action Plan. However, the programmes and policies aim to deliver benefits earlier where possible.

3 The air pollution issues and their management in Gibraltar

3.1. Localisation and general information

Figure 1: Map of Gibraltar zone



Gibraltar is comprised of a narrow peninsula (part of the Iberian Peninsular) running outwards from the south-west coast of Spain but attached to Spain by a low sandy isthmus. Physiographically, Gibraltar can be divided into three parts, the isthmus, the main ridge and the southern plateau. The eastside of Gibraltar comprises of a steep cliff which slopes very abruptly down to the sea. The western side consists of a more gradual slope.

Gibraltar is a small city with a population of 28,000 covering an area of 6.5sq km. The bulk of the population resides on the western slope of Gibraltar. Although it is relatively small as far as the population and area is concerned, Gibraltar is considered to be one agglomeration zone. It has three air monitoring stations, Bleak House, a sub-urban station and Rosia Road and Witham's Road roadside stations..

Gibraltar although governed by the general Mediterranean climate of warm dry summers and cool wet winters has its own distinct microclimate. This microclimate is the result of the huge topographical variations within Gibraltar as well as the surrounding Bay area. The mean annual temperature for Gibraltar is approximately 18.2 ^{o}C, the mean minimum is 14 ^{o}C and mean maximum is 27 ^{o}C. Mean annual rainfall is around 768mm. The prevailing winds are easterly and westerly followed by the less prevalent south-westerly and occasional northerly.

3.2 Responsible authorities and their contact info

The Minister for the Environment of the Government of Gibraltar will be directly responsible for facilitating or delivering the measures included in this Action Plan but this would be effected through the following responsible authorities:

- The Department of the Environment
  Duke of Kent House,
  Line Wall Road
  Gibraltar
- The Department of Transport.
  Motor Vehicle Test Centre
  Eastern Beach Road
- Gibraltar The Environmental Agency
  37 Town Range
- Gibraltar Office of the Chief Technical Officer.
  No.6 Convent Place
  Gibraltar
- Technical Services Department
  Joshua Hassan House
  Secretary's Lane
  Gibraltar
- The Town Planning and Building Control Departments.
  631 Europort
  Gibraltar

3.3 Monitoring, assessment results and their conclusions with respect to the AQ Directive limit values

The EC Air Quality Directives establish annual limits or target values regulating specific ambient air pollutants. The Gibraltar Air Monitoring Programme's objective is to monitor air pollutants to check that the target levels are being kept and taking action when they are exceeded. In May 2008 a third station, Witham's Road, was added, specifically to monitor nitrogen dioxide in the south district.

The primary objectives of the monitoring network are:

- To provide the public with rapid and reliable information on urban air quality.
- To monitor compliance with European Directives and local statutory instruments.
- To assist in developing new policies.

Table 2: The Gibraltar Air Monitoring Programme		
Location	**Pollutants Measured**	**Equipment Type**
Electricity Offices, Rosia Road	Sulphur Dioxide	API M100E (Ultraviolet flourescence)
	Oxides of nitrogen	API M200E (Chemiluminescence)
	Carbon monoxide	API M300E (Infrared Absorption)
	Particulate Matter	A TEOM FDMS near real-time PM10 analyser
	Metals / PM_{10} Gravimetry	R&P Partisol 2025
	$PM_{2.5}$ Gravimetry	R&P Partisol 2025
	Volatile Organic Compounds	Environment VOC71M Gas Chromatograph
	Poly Aromatic Hydrocarbons	High Volume sampler
	Wind speed & direction	Gill Windsonic
	Ambient temperature	Met One 592
Bleak House, Europa Point	Oxides of nitrogen	API M200E (Chemiluminescence)
	Ozone	API M400E (Ultraviolet absorption)
	PM_{10} Gravimetry	R&P Partisol 2025
	Wind speed & direction	Gill Windsonic
	Ambient temperature	Met One 592
Witham's Road	Oxides of nitrogen	API M200E (Chemiluminescence)
	Wind speed & direction	Gill Windsonic
	Ambient temperature	Met One 592
Passive Network, Various locations	Nitrogen Dioxide	Diffusive Samplers - Palmes Tubes at 27 sites
	Volatile Organic Compounds	Diffusive Samplers – SorbentTubes at 15 sites

The instrumentation deployed was selected to meet the data quality objectives within the European Air Quality Directives and national legislation.

The monitoring equipment itself forms only one aspect of the overall Gibraltar Air Monitoring Programme. Appropriate maintenance and support, coupled with a well designed and managed quality control regime ensures that the raw monitoring data obtained are successfully processed, analysed and interpreted in order to provide

information and ensure compliance requirements under the Air Quality Framework and Air Quality Daughter Directives.

Gibraltar air pollutant measurements are underpinned by a rigorous quality assurance and control programme.

The non-automatic network consists of a diffusion tube programme for Nitrogen Dioxide and Benzene, Toluene and Xylenes (BTX) as well as three partisol filter (Gravimetric) units which are used to monitor particulate matter (PM_{10} & $PM_{2.5}$), Lead, Arsenic, Cadmium, Nickel and Poly Aromatic Hydrocarbons (measured as Benzo(a)pyrene). In addition to meeting the Gibraltar Government's monitoring obligations the data itself is disseminated in near real-time on the www.gibraltarairquality.gi web site. This web-based dissemination and reporting forms an important tool for delivery of air quality data and provides descriptive statistics to a broad range of end users.

The Government of Gibraltar also provides an annual report on air quality within the Ministry for the Environment annual reports. These reports are published and disseminated through its website. (See Annual reports within www.gibraltar.gov.gi/environment/environment)

The Gibraltar Air Quality Monitoring Programme covers:-

- Arsenic
- Benzene
- Cadmium
- Carbon Monoxide
- Lead
- Nickel
- Nitrogen Dioxide (NO_2)
- Ozone
- Particulate Matter (PM_{10} and $PM_{2.5}$)
- Polycyclic Aromatic Hydrocarbons (PAH)
- Sulphur Dioxide

Of these eleven pollutants, nine of them are within the EC and National limit values. Nitrogen dioxide exceeded the annual mean objective of 40µg/m3 which should be met by 2010. Particulate matter (PM_{10}) daily mean exceeded national and European Limit Values. Gibraltar currently meets the 2020 $PM_{2.5}$ standard.

Measured concentrations in Gibraltar reported to the European Commission have exceeded the daily limit value for PM_{10} (2007 and 2008) and the annual limit value for NO_2 (2008). These limit values are summarized in Table 1. Estimates of the area of exceedence are presented in Figure 2 (PM_{10}) and Figure 3 (NO_2)

The PM_{10} exceedence area has been estimated based on the proximity around the exceeding monitoring station (Rosia Road) to the major contributing source (unmade land to the west of Rosia Road[1]). The NO_2 exceedence area has been presented based on modeled concentrations assocated with the OESCO and MOD power stations[2].

Figure 2: estimated exceedence area (PM_{10} daily limit value)

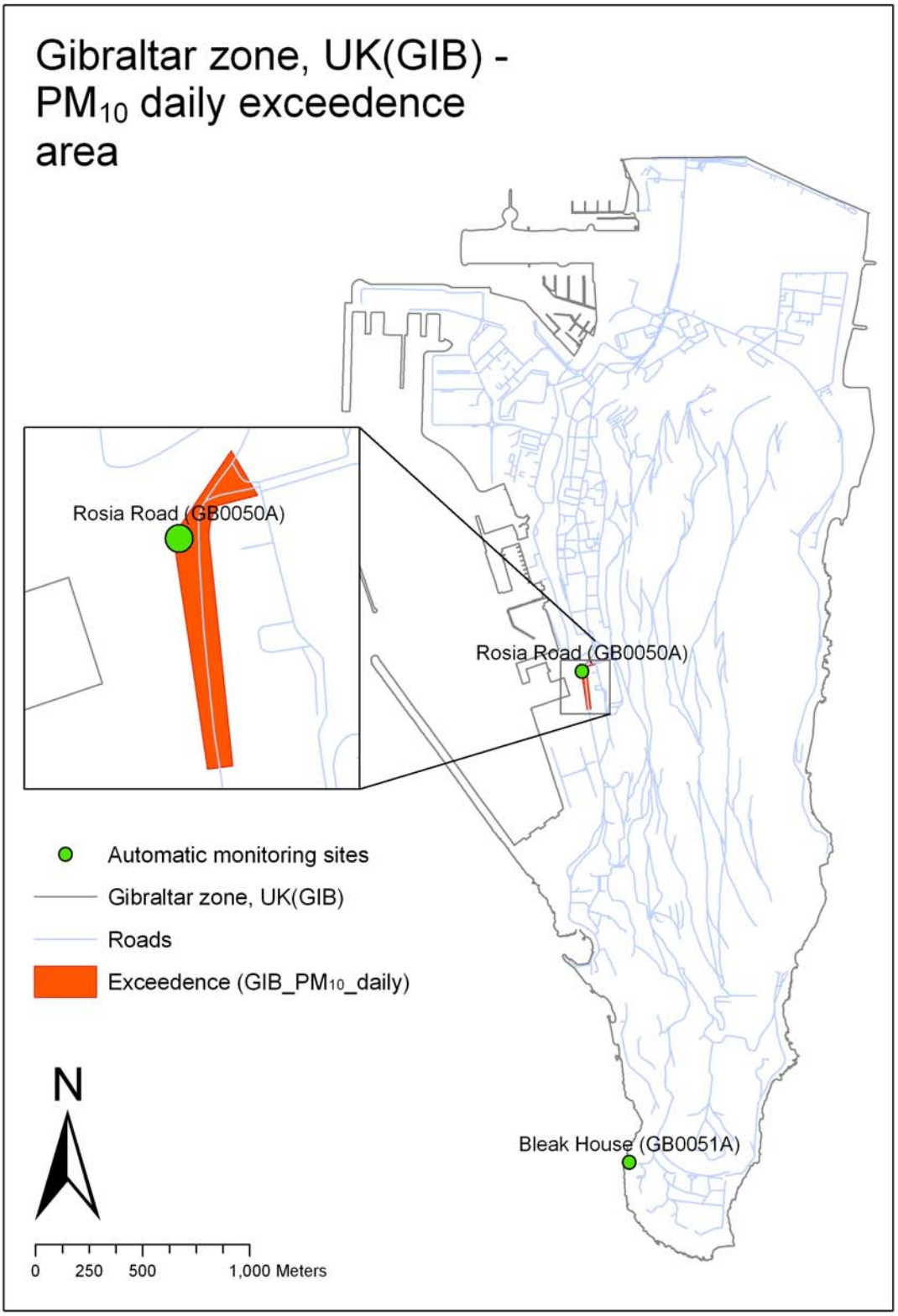
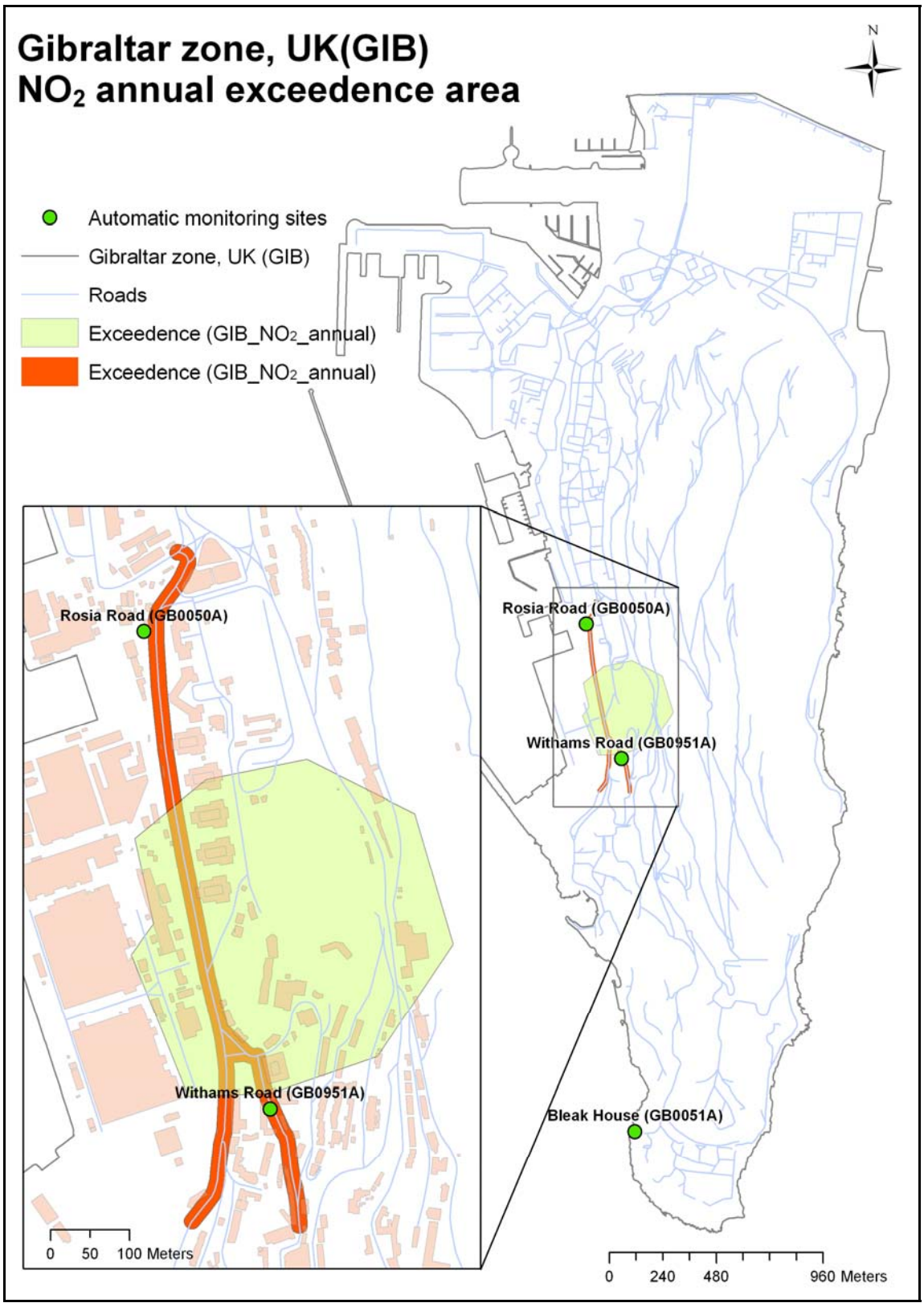


Figure 3: estimated exceedence area (NO_2 annual mean limit value)



The map (Fig.3) demonstrates the estimated area of annual mean NO_2 exceedance. The orange shaded section represents the estimated road length exceeding because for the purpose of the formal TEN application, this has been officially classed as a roadside exceedance as it was established by monitoring data at roadside locations only. However, it is obvious that the dominant sources are the nearby OESCO and MOD power stations and therefore, it has been considered prudent to represent the estimated impact of the power station across the local area, not just at the roadside. As a result, an additional shaded area (coloured yellow) has been added to the map to show the estimated area of exceedance related to the power stations.

It is stressed that the power station influence is an estimation guided by model results which are subject to a degree of uncertainty resulting from the extreme topography of the Rock of Gibraltar which affected the performance of the dispersion model. The orange shading shows the estimated exceeding road length – the buffer around the exceeding road length has been used to make the affected road more apparent – it is not meant to represent an *area* of exceedance surrounding the road.

The power station measure described in this Action Plan is anticipated to result in compliance at both the roadside and across the background area shown in the map

3.4 Source apportionment and conclusions

Air pollution not only harms the environment but also health and well-being. Poor air quality can cause serious health problems and reduces the quality of life for all of us. There are eleven pollutants that the EC Air Quality Directives require us to monitor, nine of them are within the limit values set by the Directives and are at concentrations that do not affect human health. However, the levels of Particulate Matter (PM_{10}) and Nitrogen Dioxide (NO_2) exceed the national air quality objectives and are therefore of concern in Gibraltar.

Gibraltar exceeded the PM_{10} annual mean limit value during 2007 and 2008. The NO_2 annual mean limit value was also exceeded in 2008.

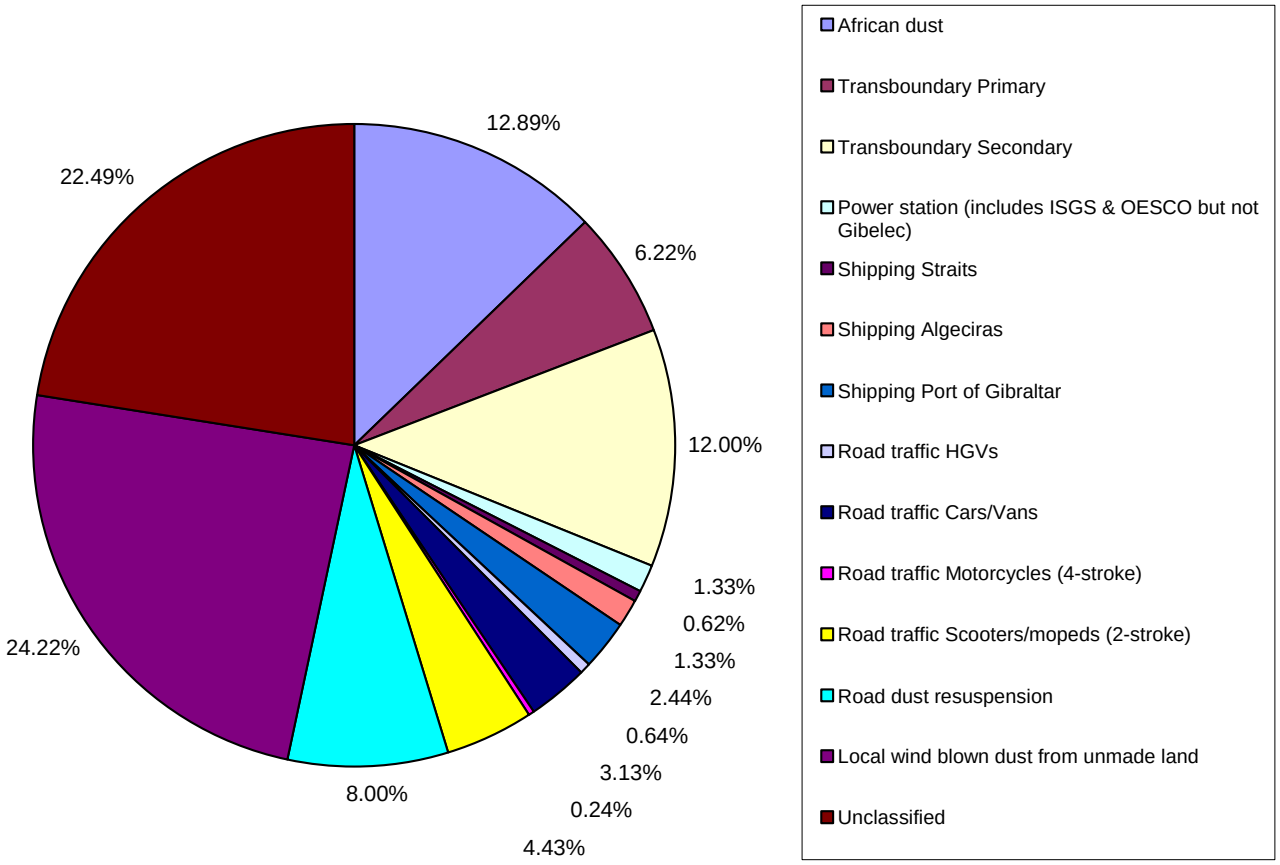
There are a number of pollution sources that contribute to these exceedences, some of these sources are transboundary and some are within Gibraltar. For example dust from Africa, classified as a natural component, affects PM_{10} levels throughout much of Europe.

The Government of Gibraltar commissioned the Environmental Agency and AEA to carry out a source attribution analysis[1,2] to identify and quantify what each source contributed to the overall PM_{10} and NO_2 levels recorded. Following these analysis we now have a better understanding on these and are able to target those areas which will have the greatest impact in reducing the overall PM_{10} and NO_2 levels.

Particulate Matter

The results of the PM_{10} source attribution analysis[1] are displayed on the chart below. More detailed information can be obtained from the technical report.

Figure 4: source apportionment of PM_{10}



Over 34% of the recorded levels of PM_{10} are attributable to transboundary sources.

24.2%, the main contribution to Gibraltar's PM_{10} levels is afforded by "Unmade Land" (10.9 µg m^{-3}). Unmade lands, refers to the old Gunwharf Slipway which had been used by several Government contractors to store aggregates etc.

22.5 %, the "Unclassified" portion (10.1µgm^{-3}) of Figure 4 includes dust from construction and demolition sites and the sea salt fraction among others. Analysis by Spanish researchers[3] suggests that the sea salt fraction (a natural source) could be contributing around 11.13% (5 µgm^{-3}) to the overall PM_{10} recorded.

The "Transboundary Primary and Secondary" portion 18.2% (6.2%-2.8 μgm^{-3} and 12%-5.4 μgm^{-3}) relates to PM_{10} attributed to industries around the Bay of Gibraltar in Spain. This portion is projected to diminish as the provisions of the Integrated Pollution Prevention and Control Directive begin to have an impact to reduce industrial emissions in this region.

Emissions from Traffic, contributes a total of 8.4% (3.81 μgm^{-3}) to Gibraltar's overall PM_{10} of which more than half is attributable to two stroke scooters and mopeds (4.4%-2.0μgm^{-3}).

"Road dust resuspension" refers to dust which has deposited on the road and which becomes airborne due to the turbulence caused by traffic. This accounts for approximately 8% (3.6 μgm^{-3}) of Gibraltar's total PM_{10} levels recorded.

"Shipping" contributes a total of 4.3% (1.98 μgm^{-3}) to Gibraltar's overall measured PM_{10} which covers shipping through the Straits of Gibraltar (0.6%), shipping calling at Algeciras (1.3%) and shipping calling at Gibraltar (2.4%).

"Power stations" (specifically from OESCO and MOD power generation processes) contribute a total of 1.3% (0.6 μgm^{-3}) to the overall PM_{10} measured in Gibraltar.

Nitrogen Dioxide

The results of the NO_2 source attribution analysis are displayed on the charts below. More detailed information can be obtained from the technical report

Figure 5: source apportionment of NO_X

Table 3: source apportionment for annual NO_x at Rosia Road and Withams Road, 2008

Contribution	Concentration (µg m^{-3})	
	Rosia Road	Withams Road
Measured concentration	89.0	149.0
Regional background	5.3	5.3
Urban background	33.7	33.7
Power Station	15.0	108.5
Road Traffic	35.0	1.5

The source attribution analysis[2] shows that the NO_x contribution from the two power stations that lie nearest to both Rosia Road and Withams Road monitoring stations (OESCO and the MOD stations) and from road traffic are the most significant sources of NO_x in Gibraltar. Of these though, the power stations are by far the largest contributor at Withams Road.

4 Measures to manage pollution prior to 2008

4.1 Status of the List of EC Directives in Annex XV of EC Directive on ambient air quality and cleaner air for Europe (2008/50/EC)

The EC list of Directives in Annex XV (B) consists of fifteen air quality Directives, ten of which have been transposed and five of which have not. Gibraltar has already transposed the following:-

- Council Directive 1994/63/EC on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations. – Petroleum Act (Amendment) Act 1997 and Petroleum Rules (Amendment) Rules 2001

- Council Directive 1996/61/EC concerning integrated pollution prevention and control (IPPC). - Pollution Prevention and Control Act 2001

- Council Directive 1996/62/EC on ambient air quality assessment and management. Public Health (Air Quality Limit Values) Rules 2002.

- Council Directive 1999/13/EC on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations. Solvent Emissions Act 2002.

- Council Directive 1999/30/EC relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air. Public Health (Air Quality Limit Values) Rules 2002.

- Council Directive 1999/32/EC relating to a reduction in the sulphur content of certain liquid fuels. Motor Fuel (Composition and Content) Act 2001.

- Council Directive 2000/69/EC relating to limit values for benzene and carbon monoxide in ambient air. - Public Health (Air Quality Limit Values) Rules 2002.

- Council Directive 2000/76/EC on the incineration of waste. - Waste (Incineration) Act 2003.

- Council Directive 2001/80/EC on the limitation of emissions of certain pollutants into the air from large combustion plants - Large Combustion Plants Act 2003.

- Council Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants. Public Health (National Emission Ceilings) Rules 2003.

- Council Directive 2002/3/EC relating to limit values for ozone in ambient air.- Public Health (Air Quality) (Ozone) Rules 2004.

- Council Directive 2005/33/EC as regards the sulphur content of marine fuels. - Motor Fuel (Composition and Content) Act 2001.

- Council Directive 2006/32/EC on energy end-use efficiency and energy services. - Environmental Protection (Energy End-Use Efficiency) Act 2009

Since Gibraltar is excluded from the customs territory of the European Community neither the Treaty rules on free movement of goods nor the rules of secondary Community legislation intended, as regards free circulation of goods, to ensure approximation of the laws, regulations and administrative provisions of the Member States pursuant to Articles 94 EC and 95 EC are applicable to it. As a consequence the following Directives that have been established under Articles 95 or 100(a) of the EC Treaty have not been transposed:-

- ❖ Council Directive 1970/220/EEC on the approximation of the laws of the Member States relating to measures to be taken against air pollution by gases from positive-ignition engines of motor vehicles.

- ❖ Council Directive 1997/68/EC on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery.

- ❖ Council Directive 1998/70/EC relating to the quality of petrol and diesel fuels.

- ❖ Council Directive 2004/42/EC on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products.

- ❖ Council Directive 2005/55/EC on the approximation of the laws of the Member States relating to the measures to be taken against the emission of gaseous and particulate pollutants from compression-ignition engines for use in vehicles, and the emission of gaseous pollutants from positive-ignition engines fuelled with natural gas or liquefied petroleum gas for use in vehicles.

Unfortunately even the application of all the existing Directives above have not had a significant positive impact on measured NO_2 concentrations in Gibraltar. The main reason for this is that measured NO_2 exceedances in Gibraltar were due in the main to emissions from electricity power generating stations. Only one of three power stations is covered under Directive 1996/61/EC, and this only as a consequence of increasing demand for electricity in recent years. This increase in electricity production has resulted in increasing NO_X emissions (reflected in increased measured NO_2 concentrations). Any improvement in air quality resulting from existing legislative measures has been more than offset by the increasing impact of the power station operation. This increase in NO_X emissions coupled with the declining margin of tolerance as the Limit Value neared the 2010 deadline is the reason for the exceedance recorded in 2008 (the first year of exceedance of the Limit Value plus Margin of Tolerance) and for the introduction of additional measures detailed in this Action Plan. The most significant measure in this Action Plan is the construction of a new, modern, IPPC compliant power station and the closure of three aging power stations.

5. Gibraltar Air Quality Action Plan measures

This Action Plan sets out the actions that Government will be taking to reduce air pollution. It sets out how Government will encourage other organisations and the business community to take action to improve air quality. The priority is to achieve the national and EC limit values for PM_{10} and NO_2 in the short to medium term.

Gibraltar Air Quality Action Plan consists of the following:-

- Control of Dust from Unmade Lands.
    - Unmade land was revealed in the modelling exercise to have caused the greatest impact on measured PM_{10} in Gibraltar. Control of the unmade land will be exercised by the introduction of dust mitigation measures, or alternatively planting, landscaping or covering the land with hard standing dependant on its future use. Land is at a premium in Gibraltar and there are very few plots of unmade land.

- Control of re-suspended particulate matter from roads.
    - Increase the frequency of road sweeping
    - Increase the frequency of road flushing
    - Stop using salt water for flushing purposes and use potable water

- Control of Dust Emissions from Demolition and Construction.
    - Introduction of new designated legislative instrument
    - Introduction of a dust code of practice

- Expansion of monitoring programme to include analysis for sea salt

- Traffic Management Plan
    - Improve traffic fluidity
    - Park-and-ride facilities to be built close to border
    - Provide bicycle 'Take, Ride and Leave' facility
    - Provision of free bus service on most bus routes

- New Power Station.
    - The new power station will reduce the quantity of NO_x emissions to the atmosphere and correspondingly NO_2 concentrations in the air. Three old power stations are being replaced with a single, fully IPPC compliant station. Two of the stations earmarked for closure are just over 500 metres from the Rosia Road Monitoring Station. The construction of the new power station and the closure of three existing power stations are considered by themselves to be sufficient to reduce the concentrations of NO_2 to ensure that we comfortably meet the NO_2 limit values. It will also afford a reduction of PM_{10}.

The combination of measures listed above are anticipated to reduce PM_{10} and NO_2 to ensure that the levels will be well below the EC limit values at the end of the extension i.e. 2011 and 2015 respectively. Once the limit values have been achieved the measures will continue in place to ensure that the improvements in air quality achieved are maintained.

5.1 Policy Development

The measures considered in this Action Plan were based on emissions model data[1]. The most effective potential measures were then examined taking into account their feasibility and the extent to which they would contribute to meeting other Government objectives such as reducing carbon dioxide emissions, transport or promoting economic growth. The Government of Gibraltar, through the Minister for the Environment has a legal responsibility in preparing and revising the Air Quality Action Plan to have regard to the effect the Action Plan would have on the health of the people in Gibraltar, climate change and the consequences of climate change and sustainable development.

The Government of Gibraltar has a number of policy measures under its Energy Efficiency Action Plan (EEAP) and its Environmental Action and Management Plan (EAMP) that will reduce the impact of PM_{10} and NO_2. For example, by making use of the planning system and energy performance in building legislation, Government will be ensuring that new developments have the least negative impact on Gibraltar's air quality as these buildings will be more energy efficient. The EEAP and EAMP measures have

not been included in the development of this Action Plan and the effects of these measures will therefore be additional to the effects of this Action Plan.

5.2 Control of Dust from Unmade Lands.

Unmade land (illustrated in Figure 6), the Old Gunwharf Slipway, an area approximately 80 x 50 m of land situated towards the west/south west of the Rosia Road monitoring station has been shown through source attribution analysis[1] to have been a major contributor to the PM_{10} level recorded. This land is directly upwind of the monitoring site during prevailing westerly winds. Note, even during a strong easterly wind, due to the diffraction caused by the shape of the Rock, the wind at this location registers as if a south westerly wind was blowing.

This unmade land is classified as a ground level PM_{10} source. Source attribution analysis[1] showed that a total PM_{10} of 10.9 µg m^{-3} was attributed to this source. Coarse fractions of PM_{10} are not carried far by the air and analysis of monitoring data suggests that high wind speeds from the west/south west direction coincide with the highest measured concentrations – i.e. high wind speeds stirring up coarse particles.

In this particular case the solution is already under implementation and is scheduled to be completed by the end of December 2010, this site is being converted into a car park and the whole of this area will be asphalted thus reducing substantially the amount of PM_{10} that could be attributed to this site.

Figure 6: aerial image of significant area of unmade land in Gibraltar

Unmade land was revealed in the modelling exercise to have caused the greatest impact on measured PM_{10}. Gibraltar, though, does not have many sections of unmade lands and is not likely to have. Land such as this is more likely to exist after the demolition of building/s or due to the reclamation of land from the sea. Nevertheless Government has developed a policy which will control dust from other unmade lands which may exist both now and in the future in Gibraltar.

Policy 1 – reducing dust from unmade land
Vision Responsibly managed unmade lands that pose no health risk to people working or living nearby.
Policy Government will instruct its Departments and Agencies, it will also encourage land owners to apply the best solution to unmade lands on a case by case basis to ensure that its vision is met. To that end:-
Proposals • introduction of dust mitigation measures • provision of ground cover/landscaping • covering the land with hard standing • creation of a public amenity site such as a park or car park
Outputs Work has already started on the unmade land in question to convert it into a car park and is expected to finish before the end of December 2010. There are some additional ancillary works which will be carried out simultaneously. The total cost of the project is estimated at £500,000.

Policy 2 – reducing particulate matter emissions from uncontrolled fires
Vision Ban uncontrolled fires so as to reduce particulate matter emissions so that the health risk to people working or living nearby are minimised.
Policy Government has instructed the Environmental Agency not to allow uncontrolled fires. To that end:-
Proposals • The Environmental Agency requires that all requests for burning be made through its waste licensing regime. • All licences issued are subject to strict controls. The burning of garden waste, for example is not permitted.
Outputs It is difficult to assess accurately the potential contribution to the reduction of the overall particulate matter level as a consequence of the banning of uncontrolled fires. There will be an increase in garden waste material being transhipped to Spain for treatment which would be met from existing financial provision, no extra costs are envisaged.

5.3 Control of re-suspended particulate matter from roads

"Road dust re-suspension" accounted for 8% of Gibraltar's total PM_{10} levels recorded. This is dust from traffic and other sources which settles on the road and which becomes airborne due to the turbulence caused by traffic movement. This 8% translates to a 3.6 μgm^{-3} contribution to the annual mean concentrations.

Policy 3 – reducing re-suspended particulate matter from roads
Vision Responsibly managed roads so that the health risk from re-suspended dust to people working or living nearby is minimised or eliminated.
Policy Government will, through a combination of street cleaning and flushing, control and minimise the amount of particulate matter available for re-suspension. To that end:-
Proposals • increase in the frequency of cleaning of trafficked thoroughfares i.e. Within the town area street sweeping will be done on a daily basis and scrubbing, flushing, pressure jetting or rotawashing weekly; other areas, street sweeping three times a week and scrubbing, flushing, pressure jetting or rotawashing at least once a month or quarter. • proper use and maintenance of mechanical road sweepers, especially their dust mitigation measures • Increase in street flushing during the dry months (June to September), and changing from flushing with salt water to flushing with potable water
Outputs This element of the action plan has already been put in place and has been achieved through a re-negotiation of Government's existing £2,300,000 Street Cleaning Contract.

5.4 Control of dust emissions from demolition and construction.

Dust from construction and demolition sites were not characterised or quantified as there was no data available. These multiple sources have been accounted within the 'Unclassified' 22.5%. Sea salt is believed to be contributing in the order of 11% ($5\mu gm^{-3}$) of the overall PM_{10} being recorded. Construction and demolition sites are considered to be the main contributors of the remaining 11.4% ($5.1\mu gm^{-3}$) of the 'Unclassified' portion.

Given Gibraltar's small geographical area, and the concentration of urban development, construction and demolition projects are capable of influencing air quality across a relatively large urban area.

Policy 4 – reducing emissions from construction and demolition sites
Vision Responsibly managed construction and demolition sites that pose no health risk to people working or living nearby.

Policy
Government will introduce new dedicated dust control legislation to ensure that dust control guidance is applied throughout the construction and demolition sites across Gibraltar. To that end:-

Proposals

- Government will introduce Dust Regulations and implement abatement strategies to control emissions from these projects.
- Environmental Agency will be charged with policing compliance of these Regulations. Any contravention of the regulations on summary conviction may render the offender liable to a £10,000 fine and to six months imprisonment and a further daily fine of £500 for each day the offence continues.
- Government will review and keep updated the 'Dust - Best Practice Guide' for construction and demolition sites.
- Government, through its Town Planning and Building Control Department, will advise all planning and building control applicants of the existence and the requirement to comply with the Dust Regulations.
- Government will instruct all its Departments and Agencies that the 'Dust - Best Practice Guide' must be fully implemented and applied.

Outputs
It is difficult to assess accurately the potential impact of measures to reduce emissions from construction and demolition sites, as the number of sites fluctuate, as do their size and nature. However, reducing emissions from these sites could reduce the concentration of PM_{10} significantly at those locations.

5.5 Expansion of monitoring programme to include analysis for sea salt

Sea salt is another of the natural contributors to the overall measured PM_{10} for which the European Commission allows corrections to be made to reported concentrations each year. Evidence from Spanish research[3] suggests that sea salt could be contributing as much as 5 $\mu g\ m^{-3}$ (11%) to Gibraltar's overall PM_{10} levels. Accounting for sea salt could be a significant step towards achieving compliance with the Directives and importantly, it would provide essential evidence on the proportion of natural particles outside the Government's control compared with the anthropogenic sources that the Government's measures are designed to address. Therefore, quantifying this outstanding source of natural PM_{10} is a necessary step towards demonstrating that the measures implemented are achieving their purpose

According to draft Commission guidance a daily correction based on daily speciated analysis is desirable. It is hoped that a robust relationship between wind speed and sea salt concentration using met data from the monitoring stations can be established. This would allow the daily quantification (as is currently undertaken for African dust) of sea salt from existing met parameters. The method would require a robust relationship and verification against existing monthly denuder instruments (established as an alternative

back-up method). If the method were successfully demonstrated it could be applied to historic data to further the case for past compliance by compounding amendments already made to the measured data to account for African dust (i.e. all natural sources would then be fully accounted for in the reporting).

If we cannot successfully demonstrate such a relationship, it is the intention not to expand the Air Monitoring Programme to include daily speciated monitoring for sea salt. The cost to include such analysis would be prohibitively expensive (£120,000 1st year, and ~ £90,000 subsequent years) considering the considerable sum of resources that is already spent on the existing monitoring networks. In such a case, existing denuder instruments capable of providing monthly sea salt data would be used to provide an annual sea salt correction (rather than the recommended daily correction).

5.6 Traffic Management Plan

The Gibraltar Government announced its Traffic Management Plan in October 2009. The Traffic Management Plan sets out the details of the Government's integrated and comprehensive traffic, parking and transport plan. All the elements of the Traffic Management Plan are envisaged to be completed by 2012.

Traffic fluidity and the environment will both benefit from measures that discourage the unnecessary use, or promote reduced use, of cars in Gibraltar. The measures being proposed will directly or indirectly help reduce emissions of PM_{10} and NO_2.

Policy 5 – reducing emissions from road transport.
Vision Responsibly controlled and managed road transport which will then give rise to reduction in pollutant concentrations so that they pose no health risk to people working or living nearby.
Policy Government through its Traffic Management Plan will control and manage emissions from road transport. The measures which will have the greatest impact, and which are already proposed or underway include:-
Proposals • Measures and facilities to encourage the greater use of pedal cycles (including the introduction of a 'take, ride and leave' facility. This is a scheme whereby the Government creates pods around Gibraltar from which bicycles provided by Government can be taken and deposited, and ridden around Gibraltar on a 'point to point' basis). • Improvements and expansion of the bus service, including: ▪ Shortening of bus routes ▪ Free bus service on most routes ▪ Increased frequency of services ▪ New buses for the upper town route • Bus emissions programme – The bus fleet is currently composed of 21 buses which have Euro 3 type engines. 4 buses are going to be replaced shortly with ones having Euro 5 engines. All new buses or replacement buses coming into the

fleet will be required to have the latest approved Euro type engine.

- Improving road maintenance to reduce the contribution of particulate matter to emissions from road surface wear.
- Creation of 'park and ride' facilities in the vicinity of the border. Visitors to Gibraltar will be advised and encouraged to leave their vehicles at these facilities due to the general unavailability of street parking.
- Measures to incentivise, such as applying no import duty on pedal cycles and electric vehicles and import duty for dealers has been halved on hybrid vehicles ranging from 6.5-8.5%. Dis-incentivising the sale of 2-stroke motorcycles by increasing import duty rate from 6% to 30%.
- Facilitating the use of electric by the provision of metered electricity feed points at the Devil's Tower Road Park and Ride facility and at strategic locations within Gibraltar.
- Smoothing traffic through better traffic management and improving fluidity by creating additional, alternative routes and circulation space expanding the capacity of existing roads in order to minimise or eliminate where possible traffic congestion.
- Introduction of CCTV and other calming measures to ensure that Gibraltar's national speed limit of 50 kmph on major roads, 30 kmph in built up areas and 20 kmph in special circumstances is adhered to.
- Creation of a City Centre Low Emission Zone – deliveries to commercial premises to be made by electric vehicles.
- New or replacement vehicles coming into the Government of Gibraltar's own fleet will be either electric, hybrids or low emission vehicles.
- Emphasis on promoting public transport and low emission vehicle use is anticipated to reduce public dependence on high pollution vehicles such as two-stroke engined scooters/mopeds (estimated to contribute 2 μgm^{-3} to measured annual mean concentrations – about 50% of all PM_{10} exhaust emission).

Outputs

Elements of the above proposals are works in progress and other elements will be put in place shortly. It is the intention to complete all the proposals contained in the 2009 Integrated Traffic, Parking and Transport Plan by 2012. The proposals will cost an estimated £66,200,000.

5.7 New Power Station

The new power station will reduce the quantity of oxides of nitrogen ($NO_{x)}$ emissions to the atmosphere and consequently there should be a drop in the NO_2 concentration in the air. The construction of the new power station by 2014 and the associated closure of three existing power stations are considered by themselves to be sufficient to reduce the concentrations of NO_2 to ensure that we comfortably meet the NO_2 limit values[2]. It will also afford a small reduction of $PM_{10.}$ The following three old power stations are being replaced with a fully IPPC compliant station:-

- InterServices Generating Station (ISGS) – HM Dockyard.

- OESCO Power Station- Europa Business Centre, Dockyard Main Road.
- Gibelec Power Station – North mole Road

The first two stations, ISGS and OESCO are just over 500 metres from the Rosia Road Monitoring Station.

Policy 6 – reducing emissions from electricity power generating stations.
Vision Responsibly produce electricity in a manner that poses no health risk to people working or living nearby.
Policy Government will close three existing power stations and replace them with a new purpose built electricity power station by no later than 2014. Although the intention is to close down all three existing stations as soon as the new one comes into operation, during the reliability trials for the new station, the old stations would be kept in reserve. The reliability trials are envisaged to last some months. To that end:-
Proposals • Government will ensure that the new power station will be fully IPPC compliant. • The power station will be built in stages. In the first stage the power station will be capable of generating some 64 MW of electrical power. The plant will have the capability of being extended over the years to reach an eventual installed capacity of 88 MW by 2032. All necessary abatement infrastructure will be provided at the first stage.
Outputs This element of the action plan has already been initiated and the necessary design and provision of the new power station have been put out to competitive tendering. It is estimated that the costs of providing this new power station will be in the region of £100,000,000.

6 Governance of the plan

6.1. What the Action Plan will deliver?

The Gibraltar Air Quality Action Plan will achieve significant reductions in the concentration of PM_{10} and NO_2. A number of the measures within the Plan have already been given effect whilst others will be introduced shortly. All the measures were derived from source attribution studies based on several dispersion model assessments and monitoring versus meteorology studies which were conducted. The model assessments used the 2007 data as the baseline for PM_{10} and 2008 data for NO_2 – these are the reference years for each TEN application respectively and are based on the first reported exceedences for each pollutant. This means that the Plan's measures can thus be quantified and that the likely impact of the Action Plan on emissions of PM_{10} and NO_x and their overall impact on reducing concentrations of PM_{10} and NO_2 can be determined.

Particulate Matter

It has been established in the source attribution study[1] that an annual mean concentration of 37.1 μgm^{-3} is estimated to be equivalent to the daily limit value in Gibraltar. Therefore a minimum estimated reduction of 2.07 $\mu g\ m^{-3}$ to annual mean concentrations (from reference year 2007 measured concentrations adjusted for African dust) is required to meet the PM_{10} limit values. The measures within this Plan are expected to deliver a much greater reduction and will thereby provide even greater confidence that EC limit values will be met throughout Gibraltar by 2011 in addition to achieving the maximum possible public health benefit.

The implementation of the policies and proposals in the Plan in respect to 'unmade land' and 'road dust resuspension' are expected to reduce PM_{10} concentrations in Gibraltar by approximately 11.2 μgm^{-3} (10.9 μgm^{-3} from unmade land and 0.3 $\mu gm^{-3}$from road dust resuspension) by 2011[1]. These two measures are anticipated to provide the reduction required to ensure that the EC limit values will be met and provide a comfort zone. Though not specifically quantified, the implementation of mandatory construction dust control protocols will provide an additional improvement in air quality prior to the end of the extension deadline in mid-2011. Beyond mid-2011, after the end of a possible time extension for PM_{10}, the power station measure is anticipated to result in a further 0.3 μgm^{-3} benefit to annual mean concentrations and remaining (though not explicitly quantified) measures such as the Gibraltar Traffic Plan and ban on uncontrolled fires will deliver further air quality improvements to increase the amount of headroom between the limit value and observed concentrations. It is unknown if the contribution from transboundary anthropogenic sources will remain at the modelled levels or increase. The implementation of the remaining measures within the Plan will achieve further reductions thereby providing an increased comfort zone so that Gibraltar will be assured of meeting the EC limit values.

Nitrogen Dioxide

The construction of the new power station by 2014 and the associated closure of the three existing power stations are by themselves alone considered to be sufficient to reduce the concentrations of NO_2 to ensure that Gibraltar comfortably meets the NO_2 limit values. It has been estimated[2] that just by the construction of the proposed new power station the NO_2 level at Rosia Road would drop to 36.8 μgm^{-3} and at Witham's road would drop to 22.1 μgm^{-3}. The estimated NO_X reduction and associated decline in NO_2 concentrations is represented in Table 4, which illustrates compliance with the annual mean NO_2 limit value (40 $\mu g\ m^{-3}$) as a result of the measures.

Table 4: estimated annual NO_x at Rosia Road and Withams Road, 2008

Site	Measured NO_X (2008) ($\mu g\ m^{-3}$)	Modelled NO_X reduction from measures ($\mu g\ m^{-3}$)	Estimated NO_2 from measures ($\mu g\ m^{-3}$)
Rosia Road	89.0	12.5	36.8
Withams Road	149.0	106.0	22.1

Though not specifically quantified, the measures contained within the Traffic Management Plan and detailed in Policy 5 will provide additional reductions in the NO_x emissions and therefore concentrations of NO_2. This will provide further 'headroom' between measured concentrations and the limit values.

Further reductions are anticipated due to natural fleet turnover (EURO standards improvements) and the reduction in regional background concentration due to emission controls and measures applied by Spain. The construction of the proposed new power station on its own will ensure that the EC limit values will be met by 2014. This plus the implementation of the additional policies and proposals in the Plan will provide further reductions in NO_2 and further improvements in the air quality.

6.2. Delivering the Action Plan

The Action Plan includes a number of measures that are aimed at enabling Gibraltar to achieve and improve on the EC limit values for PM_{10} and NO_2. The Minister for the Environment of the Government of Gibraltar, through its functional bodies will be directly responsible for facilitating or delivering the measures included in this plan. For example:

- The Department of the Environment will maintain a coordinating role over all the Action Plan measures.
- The transport policies in this Plan will principally be delivered through the Technical Services Department and the Department of Transport.
- The Environmental Agency will police and enforce the new Dust Regulations and the application of the 'Dust – Best Practice Guide' in construction and demolition sites. The Town Planning and Building Control Departments will promote the 'Dust – Best Practice Guide'.
- The new power station project will be delivered by the Office of the Chief Technical Officer.

Government is aware that some of the objectives and proposals set out in this Action Plan can only be delivered if individuals make a conscious change in their behaviour, for example, leaving their car at home and either walking or using the bus.

Government through the Department of the Environment, its other Departments and agencies will: promote understanding and awareness of air quality issues; provide a framework for action and implementation; fund specific measures; supply information, technical advice and support.

6.3. Monitoring progress and reporting

The Gibraltar Air Quality Action Plan presents a range of initiatives designed to improve air quality in Gibraltar. It is important that the progress made towards meeting the EC limit values is monitored. Real-time information on air quality is available on the internet (www.gibraltarairquality.gi). This will allow people in Gibraltar to track Gibraltar's progress towards meeting the air quality limit values.

It is important to monitor and report on the effectiveness of the measures included in this Action Plan. The Ministry for the Environment will prepare and publish annual reports on the Government's website, which will include information on air quality and a progress report on how the measures have been implemented, showing the progress made towards meeting the limit values.

The Action Plan will be kept under review and if it becomes clear that changes to the approach proposed are required, the Plan will be revised at this time.

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