

Denmark Air Quality Catalogue

This document is based on research that UNEP conducted in 2015, in response to Resolution 7 of the UNEA 1. It describes country-level policies that impact air quality. Triple question marks (???) indicate that information for the section couldn't be found.

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Goals	Status	Current Policies & Programmes
GENERAL OVERVIEW	<p>Overall situation with respect to air quality in the country, including key air quality challenges:</p> <ul style="list-style-type: none"> • Denmark is a member state of the European Union and as such it adheres to the EU air quality policy. • Since the early 1970s, the EU has been working to improve air quality by controlling emissions of harmful substances into the atmosphere, improving fuel quality, and by integrating environmental protection requirements into the transport and energy sectors • Consequently, much progress has been made in tackling air pollutants such as SO₂, Pb, NO_x, CO and benzene. • Air pollution is the number one environmental cause of premature death in the EU. • Denmark meets the limit values for almost all substances, however extra effort is required with regard to NO₂ • Current air pollution problems in Denmark include ultrafine particles in major cities, and nitrogen fallout in parts of the countryside 	<p>National Ambient air quality standards: yes</p> <ul style="list-style-type: none"> • The current standards are contained in the Clean Air for Europe (CAFE) Directive (EP & CEU, 2008) and the Fourth Daughter Directive (EP & CEU, 2004). These Directives also include rules on how Member States should monitor, assess and manage ambient air quality. <p>National Air Quality Policy</p> <ul style="list-style-type: none"> • The EU air quality policy has a long term goal of achieving levels of air quality that do not result in unacceptable impacts on, and risks to, human health and the environment. In 2015 an air quality plan on NO₂ was adopted (in Danish with English summary): http://www2.mst.dk/Udgiv/publikationer/2015/03/978-87-93283-93-0.pdf • European Union air quality policy aims to; <ul style="list-style-type: none"> - Develop and implement appropriate instruments to improve air quality. - Control of emissions from mobile sources, through fuel quality improvement, - Promoting and integrating environmental protection requirements into the transport and energy sector are part of these aims. <p>Air Quality legislation / programmes:</p> <ul style="list-style-type: none"> • Danish regulations on air quality are all based on provisions adopted by

	<p>and marine areas.</p> <ul style="list-style-type: none"> ● Farming activities can also be a major source of air pollutants and precursor to PM formation ● The Environmental Approval Act for Livestock Holdings provides a national minimum requirement for the environmental protection against odour, ammonia, nitrates and phosphorus surpluses ● WHO estimates that outdoor air pollution causes 3000 premature deaths annually¹ <p>Air quality monitoring system:</p> <ul style="list-style-type: none"> ● Air quality is measured by a sophisticated national air quality monitoring network 	<p>the EU. As new provisions are made, Danish legislation will be adapted accordingly.</p> <ul style="list-style-type: none"> ● The latest version of Danish regulations is the Statutory Order on target and limit values for the level of certain air pollutants. <p>Other:</p> <ul style="list-style-type: none"> ● A review of the EU air quality policy was conducted in 2011-2013 ● This review led to the adoption of a Clean Air Policy Package in December 2013, this package consists of : <ul style="list-style-type: none"> - A new Clean Air Programme for Europe with new air quality objectives for the period up to 2030, - A revised National Emission Ceilings Directive with stricter national emission ceilings for the six main pollutants, and - A proposal for a new Directive to reduce pollution from medium-sized combustion installations
<p>REDUCE EMISSIONS FROM INDUSTRIES</p>	<p>Industries that have the potential to impact air quality:</p> <p>Air pollution from industrial installations emanates from the following: chemicals, food processing, machinery and transportation equipment, electronics, construction, furniture and other wood products, shipbuilding and refurbishment, windmills, pharmaceuticals, medical equipment among others</p> <p>GDP of country: USD 324.3 billion in 2013</p> <p>Industries' share of GDP: 21.7%</p> <p>● Electricity sources:</p> <ul style="list-style-type: none"> ● 63% of the installed electricity generating capacity (13.71 million KW in 2010) is 	<p>Emission regulations for industries:</p> <ul style="list-style-type: none"> ● Industrial emissions within the European Union are regulated under the Industrial Emissions Directive (IED), which was issued on 21 December 2007 ● The directive's aim was to achieve significant benefits to the environment and human health by reducing harmful industrial emissions across the EU, in particular through better application of Best Available Techniques. ● The IED entered into force on 6 January 2011 and has to be transposed into national legislation by Member States by 7 January 2013. ● European legislation establishes air quality objectives (limit and target values) for the different pollutants. Limit values are concentrations that must not be exceeded in a given period of time. <p>Small installation's emissions regulated: (Yes/No) yes</p>

¹ WHO, 'WHO | Country Profiles of Environmental Burden of Disease', WHO, 2008
http://www.who.int/quantifying_ehimpacts/national/countryprofile/en/#T.

	<p>generated from fossil fuel, 0.1% from hydropower and the rest 36.9% from renewable sources.</p> <ul style="list-style-type: none"> • Energy efficiency has improved significantly in Denmark compared to 1990 levels, with a 26.3% decrease being recorded as of 2010, and overall final-consumer efficiency having been improved by 20.2%². 	<p>Renewable energy investment promoted:</p> <ul style="list-style-type: none"> • In 2008, the government approved the Renewable Energy Strategy for 2007-2020. The policy targets the increase of RES production to 15% by 2020. The strategy will favour decentralized energy production, the cogeneration of heat and power and the establishment of small power stations utilizing renewable sources locally. <p>Incentives for clean production and installation of pollution prevention technologies:</p> <ul style="list-style-type: none"> • Danish companies are obliged to use the best available technology (BAT). <p>Actions to ensure compliance with regulations: (<i>monitoring, enforcement, fines etc</i>)</p> <ul style="list-style-type: none"> • Companies emitting significant levels of air pollutants are regulated by means of environmental approvals or injunctions • Industrial installations that emit substantial air pollutants must be granted an environmental permit. <p>Other actions at national, sub-national and / or local level to reduce industrial emissions: (<i>can include incentives to move industries to less populated areas here</i>)</p> <ul style="list-style-type: none"> • The municipalities are responsible for granting emissions permits and for companies • A company's environmental permit determines the pollutant emission limit values • The most polluting industries are governed by the Environmental Protection Agency's decentralized units with regard to approvals and inspection. • Emission limit values as stipulated in permits are based on Statutory Orders issued by the Environmental Protection Agency, BAT reference documents (best available techniques), as well as air pollution and B-value guidelines.
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² 'Reegle - Clean Energy Information Gateway', *Reegle - Clean Energy Information Gateway* <<http://www.reegle.info>> [accessed 22 September 2015].

		<ul style="list-style-type: none"> • The municipalities of Denmark and the Environmental Protection Agency must conduct environmental inspections. These inspections investigate compliance with the legislation and rules established pursuant to the Danish Environmental Protection Act or the Danish Livestock Farming Environmental Approval Act.
<p>REDUCE EMISSIONS FROM TRANSPORT</p>	<p>Key transport-related air quality challenges: (<i>ex: vehicle growth, old fleet, dirty fuel, poor public transport etc</i>)</p> <ul style="list-style-type: none"> • Since the early 1990s, the EURO emission standards for passenger cars and other vehicles have initiated a significant reduction in air pollution per driven kilometre. • Nevertheless, the overall traffic growth and the lax standards for diesel engines have limited the environmental success of the EURO standards. • EURO 5 standard aimed at changing this by mandating the reduction of particulate matter emissions from diesel cars from 25mg/km to 5mg/km. • This will make the introduction of particle filters for diesel cars mandatory • EURO 6 standard that came to effect in 2015, extends the regulated emissions to NOx, it is aimed at reducing the emissions of nitrogen oxide from diesel cars further, from 180mg/km to 80mg/km • Road transport is the most dominant mode of transport in Denmark, with use of private cars being the most dominant mode of transport. • Public transport is well developed and it is composed of busses, trams and metros • Use of non-motorized transport is also 	<p>Vehicle emission limit: (<i>Euro rating</i>)</p> <ul style="list-style-type: none"> • Emissions standards for vehicles correspond to Euro 6 for LDV vi HDV standards. • European Union emission regulations for new light duty vehicles (passenger cars and light commercial vehicles) are specified in Regulation 715/2007 (Euro 5/6) [2899]. • Emission standards for light-duty vehicles are applicable to all vehicles not exceeding 2610 kg (Euro 5/6). • EU regulations introduce different emission limits for <i>compression ignition</i> (diesel) and <i>positive ignition</i> (gasoline, NG, LPG, ethanol,...) vehicles. Diesels have more stringent CO standards but are allowed higher NOx. Positive ignition vehicles were exempted from PM standards through the Euro 4 stage. Euro 5/6 regulations introduce PM mass emission standards, equal to those for diesels, for positive ignition vehicles with direct injection engines. <p>Fuel Sulphur content: (<i>in ppm</i>)</p> <ul style="list-style-type: none"> • The 2000/2005 emission standards were accompanied by an introduction of more stringent fuel regulations that require “Sulphur-free” diesel and gasoline fuels (≤ 10 ppm S) must be mandatory from 2009. • Maximum allowable sulphur level in petrol and diesel fuels is 10ppm <p>Fuel Lead content: All vehicles use lead free gasoline</p> <p>Restriction on used car importation:</p> <ul style="list-style-type: none"> • None from EU member states <p>Actions to expand, improve and promote public transport and mass transit:</p> <ul style="list-style-type: none"> • The major projects currently are app. 3 billion \$ to expand the national railway network, and another 3 billion to expand the metro system in

	<p>supported by the infrastructure</p> <ul style="list-style-type: none"> • Private car ownership is high with 480 cars per 1000 individuals in 2010³ 	<p>Copenhagen.</p> <p>Actions to promote non-motorized transport: (<i>ex: include sidewalks and bike lanes in new road projects, car-free areas etc</i>)</p> <ul style="list-style-type: none"> • Bicycling is promoted heavily having separate bike lanes in all urban areas <p>• Other transport-related actions:</p>
<p>REDUCE EMISSIONS FROM OPEN BURNING: OUTDOOR</p>	<p>Outdoor, open burning: (<i>ex: is it commonly done? burning what kinds of wastes? etc</i>)</p>	<p>Legal framework: (<i>ex: is burning banned?</i>)</p> <p>Open burning is regulated by the municipalities. In urban areas its banned almost uniformly and in rural areas its heavily restricted.</p> <p>Actions to prevent open burning of municipal waste and / or agricultural waste:</p> <p>It's illegal.</p>
<p>REDUCE EMISSIONS FROM OPEN BURNING: INDOOR</p>	<p>Dominant fuels used for cooking and space heating:</p> <ul style="list-style-type: none"> • In Denmark, the number of wood burning stoves and boilers are about 750.000. Although the efficiency of these stoves has significantly improved, wood burning represents the highest polluting form of heating in Denmark. • Air pollution from stoves is affected by the complex interplay of several factors including the type of stove or boiler, chimney design, fuel and patterns of operation <p>Impact:</p> <ul style="list-style-type: none"> • wood combustion in small facilities contributes 70% of the national PM emissions 	<p>Indoor air pollution regulated: (<i>Yes / No</i>) No</p> <ul style="list-style-type: none"> • A new statutory order on air pollution from wood stoves and boilers entered into force in 2015 January. <p>Promotion of non-grid / grid electrification:</p> <p>Promotion of cleaner cooking fuels and clean cook stoves:</p> <ul style="list-style-type: none"> • Wood stoves are not used for cooking, only for heating. Cooking is 100% done with electricity or gas. <p>Other actions to reduce indoor biomass burning, or to reduce its emissions:</p> <ul style="list-style-type: none"> • Information campaigns on correct handling of stoves are performed regularly.

³ World Bank, 'Motor Vehicles (per 1,000 People) | Data | Table', 2014

<<http://web.archive.org/web/20140209114811/http://data.worldbank.org/indicator/IS.VEH.NVEH.P3>> [accessed 25 September 2015].

