Bills Committee on
Air Pollution Control (Amendment) Bill 2008

List of Follow-up Actions Arising from
the Discussion at the Meeting on 6 May 2008

Administration's Response

I. To seriously re-consider including carbon dioxide ("CO_2") in item (a) of the long title of the Bill and in the definition of "specified pollutant" under clause 2 of the Bill. To also relay to the Secretary for the Environment members' request for his attendance at a forthcoming Bills Committee meeting to discuss the proposed inclusion.

1. The objective of the Bill is to ensure a smooth, timely and transparent implementation of the emission caps for the power sector with a view to meeting the 2010 emission reduction targets agreed with the Guangdong Provincial Government for improving the air quality of Hong Kong and its neighbouring regions. We remain of the view that it is not appropriate to include CO_2 in the Bill for the reasons set out in LC Paper No. CB(1)1442/07-08(01).

2. The Government is very concerned about the issue of climate change and has launched an 18-month consultancy study in March 2008 to formulate a long term strategy to reduce greenhouse gas ("GHG") emissions. The study will look into, amongst other things, the feasibility of reducing CO_2 emissions from the power sector.

3. The Secretary for the Environment will attend the Bills Committee meeting scheduled for 29 May 2008.

II. To collect information on the changes in fuel mix and total emissions per unit of electricity generated in other countries, particularly Germany, Spain and Denmark, over the past and next decade and how these compare with that of Hong Kong.

1. The fuel mix and emissions per unit of electricity generated of USA, Denmark, Germany, Spain and UK for 2001-2007 are tabled below together with the

corresponding figures of Hong Kong:

(a) USA

		2001	2002	2003	2004	2005	2006	2007
Electricity generation (thousand GWh)		3,736.6	3,858.5	3,883.2	3,970.6	4,055.4	4,053.0	--
	Fossil fuel	72%	71%	71%	71%	72%	71%	--
	Nuclear	20%	20%	19%	20%	19%	19%	--
	Hydro	6%	7%	7%	7%	7%	7%	--
	Other renewable	2%	2%	2%	2%	2%	2%	--
Emission per GWh electricity (tonnes)								
	SO_2	2.63	2.45	2.53	2.40	2.34	2.15	--
	NOx	1.19	1.11	1.03	0.91	0.86	0.80	--
	RSP	0.06	0.05	0.05	0.05	0.05	0.05	--
Emission per GWh electricity (from fossil fuel only) (tonnes)								
	SO_2	3.68	3.47	3.57	3.37	3.26	3.03	--
	NOx	1.67	1.56	1.44	1.27	1.19	1.13	--
	RSP	0.09	0.07	0.07	0.07	0.07	0.07	--

Note: "--" denotes "not available".

Source: National Emissions Inventory, US Environmental Protection Agency (http://www.epa.gov/ttn/chief/trends/index.html) and Energy Information Administration, US Department of Energy (http://www.eia.doe.gov/emeu/aer/elect.html).

(b) Denmark

		2001	2002	2003	2004	2005	2006	2007
Electricity generation (thousand GWh)		36.0	37.2	43.8	38.4	33.8	42.9	37.0
	Fossil fuel	88%	87%	87%	74%	80%	87%	81%
	Nuclear	0%	0%	0%	0%	0%	0%	0%
	Hydro	0%	0%	0%	0%	0%	0%	0%
	Other renewable	12%	13%	13%	26%	20%	13%	19%
Emission per GWh electricity (tonnes)								
	SO_2	0.29	0.27	0.39	0.25	0.23	--	--
	NOx	1.20	1.20	1.27	1.15	1.16	--	--
	RSP	0.02	0.03	0.02	0.02	0.02	--	--
Emission per GWh electricity (from fossil fuel only) (tonnes)								
	SO_2	0.33	0.31	0.44	0.34	0.28	--	--
	NOx	1.36	1.39	1.46	1.56	1.45	--	--
	RSP	0.03	0.03	0.03	0.03	0.02	--	--

Note: "--" denotes "not available".

Source: The Union of the Electricity Industry (http://www.eurelectric.org) and European Environment Agency (http://dataservice.eea.europa.eu/dataservice/metadetails.asp?id=1013).

(c) Germany

		2001	2002	2003	2004	2005	2006	2007
Electricity generation (thousand GWh)		544.3	544.8	560.1	577.8	581.2	596.1	--
	Fossil fuel	63%	63%	63%	61%	62%	60%	--
	Nuclear	30%	29%	28%	27%	27%	27%	--
	Hydro	5%	5%	4%	5%	5%	5%	--
	Other renewable	3%	4%	4%	7%	7%	9%	--
Emission per GWh electricity (tonnes)								
	SO_2	0.47	0.45	0.44	0.40	0.38	--	--
	NOx	0.43	0.43	0.45	0.43	0.42	--	--
	RSP	0.02	0.02	0.02	0.02	0.02	--	--
Emission per GWh electricity (from fossil fuel only) (tonnes)								
	SO_2	0.75	0.71	0.70	0.66	0.61	--	--
	NOx	0.68	0.68	0.71	0.70	0.67	--	--
	RSP	0.03	0.03	0.03	0.03	0.03	--	--

Note: "--" denotes "not available".

Source: The Union of the Electricity Industry (http://www.eurelectric.org) and European Environment Agency (http://dataservice.eea.europa.eu/dataservice/metadetails.asp?id=1013).

(d) Spain

		2001	2002	2003	2004	2005	2006	2007
Electricity generation (thousand GWh)		227.3	233.7	251.4	268.7	279.5	289.6	300.2
	Fossil fuel	50%	58%	53%	57%	63%	61%	61%
	Nuclear	27%	26%	24%	23%	20%	20%	18%
	Hydro	19%	11%	17%	13%	8%	10%	10%
	Other renewable	4%	5%	6%	7%	9%	9%	11%
Emission per GWh electricity (tonnes)								
	SO_2	4.11	4.58	3.55	3.53	3.32	--	--
	NOx	1.24	1.39	1.20	1.20	1.17	--	--
	RSP	0.10	0.11	0.09	0.08	0.08	--	--

Emission per GWh electricity (from fossil fuel only) (tonnes)								
	SO_2	8.27	7.94	6.67	6.17	5.25	--	--
	NOx	2.49	2.41	2.25	2.11	1.86	--	--
	RSP	0.20	0.19	0.17	0.15	0.12	--	--

Note: "--" denotes "not available".

Source: The Union of the Electricity Industry (http://www.eurelectric.org) and European Environment Agency (http://dataservice.eea.europa.eu/dataservice/metadetails.asp?id=1013).

(e) UK

		2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Electricity generation (thousand GWh)		368.5	369.5	375	370.5	379.6	380	376.3
	Fossil fuel	74%	74%	75%	76%	75%	77%	79%
	Nuclear	23%	22%	22%	20%	20%	18%	15%
	Hydro	2%	2%	1%	2%	2%	2%	2%
	Other renewable	2%	2%	2%	3%	3%	3%	4%
Emission per GWh electricity (tonnes)								
	SO_2	2.02	1.84	1.81	1.37	1.01	--	--
	NOx	0.99	0.93	1.01	0.97	0.98	--	--
	RSP	0.05	0.02	0.02	0.02	0.03	--	--
Emission per GWh electricity (from fossil fuel only) (tonnes)								
	SO_2	2.73	2.48	2.40	1.82	1.34	--	--
	NOx	1.33	1.25	1.34	1.28	1.30	--	--
	RSP	0.06	0.03	0.03	0.03	0.03	--	--

Note: "--" denotes "not available".

Source: The Union of the Electricity Industry (http://www.eurelectric.org) and European Environment Agency (http://dataservice.eea.europa.eu/dataservice/metadetails.asp?id=1013).

(f) Hong Kong

		2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Electricity generation (thousand GWh)		40.38	41.98	43.12	43.99	46.27	46.5	46.7
	Fossil fuel	75%	77%	77%	79%	78%	78%	78%
	Nuclear	25%	23%	23%	21%	22%	22%	22%
	Hydro	0%	0%	0%	0%	0%	0%	0%
	Other renewable	0%	0%	0%	0%	0%	0%	0%

Emission per GWh electricity (tonnes)								
	SO_2	1.47	1.43	1.95	1.99	1.67	1.42	1.29
	NOx	0.95	0.95	1.27	1.02	1.00	0.90	0.96
	RSP	0.04	0.04	0.05	0.06	0.05	0.04	0.03
Emission per GWh electricity (from fossil fuel only) (tonnes)								
	SO_2	1.95	1.87	2.53	2.51	2.14	1.82	1.65
	NOx	1.26	1.24	1.65	1.29	1.29	1.15	1.23
	RSP	0.05	0.06	0.07	0.08	0.06	0.05	0.04

2. The 2010 emission caps proposed for the electricity sector of Hong Kong will reduce the emissions per GWh electricity to:

	From all energy sources (tonnes)	**From fossil fuel only (tonnes)**
SO_2	0.51	0.65
NOx	0.87	1.10
RSP	0.03	0.03

III. To advise the changes in emission of the three specified pollutants from 1997 to 2010.

1. The yearly emissions of the three specified pollutants from power sector in Hong Kong for 1997 to 2007 are tabled below:

		1997	**1998**	**1999**	**2000**	**2001**	**2002**
SO_2	tonnes	54,400	61,000	47,800	56,800	59,200	60,100
	% change [1]	--	+12%	-12%	+4%	+9%	+11%
NOx	tonnes	56,100	55,200	41,700	43,600	38,300	40,000
	% change [1]	--	-2%	-26%	-22%	-32%	-29%
RSP	tonnes	2,610	2,670	1,970	2,450	1,630	1,810
	% change [1]	--	+2%	-25%	-6%	-38%	-31%

		2003	**2004**	**2005**	**2006**	**2007**
SO_2	tonnes	83,900	87,500	77,100	66,000	60,400
	% change [1]	+54%	+61%	+42%	+21%	+11%
NOx	tonnes	54,800	44,900	46,400	41,800	44,800
	% change [1]	-2%	-20%	-17%	-26%	-20%
RSP	tonnes	2,280	2,760	2,320	1,860	1,600

	% change [1]	-13%	+6%	-11%	-29%	-39%

[1] Compare to 1997.

2. The emission caps for 2008 to 2010 are as follows:

		2008	**2009**	**2010**
SO_2	tonnes	70,100	65,100	25,120
	% change [1]	+29%	+20%	-54%
NOx	tonnes	47,200	46,000	42,600
	% change [1]	-16%	-18%	-24%
RSP	tonnes	2,040	1,940	1,260
	% change [1]	-22%	-26%	-52%

[1] Compare to 1997.

Environment Bureau/Environmental Protection Department
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