

Table 4.2.2.5-2(4): Districtwide HC Emission Quantity in GTA (1994)

Emission Source	(ton/year)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
1 Gasoline	11.2	0.4	22.9	149.6	124.8	69.8	29.2	22.4	149.2	6.7	39.8	72.6	58.7	10.9	45.4	33.7	23.7	177.0	46.4	178.3	1,778.4
Industrial Non-High Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Industrial High Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial/Residential	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy Conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(Sub-total)	11.2	0.4	22.9	149.6	124.8	69.8	29.2	22.4	149.2	6.7	39.8	72.6	58.7	10.9	45.4	33.7	23.7	177.0	46.4	178.3	1,778.4
2 Marine	2.0	0.0	4.5	9.0	9.9	7.0	3.4	2.7	19.4	1.0	4.4	5.2	4.3	1.4	4.2	4.9	1.9	19.4	3.6	18.0	111.5
Industrial Non-High Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Industrial High Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial/Residential	26.4	31.4	20.8	45.0	30.4	24.3	27.4	31.7	19.3	27.1	25.4	29.1	18.6	33.5	43.8	29.8	20.7	24.0	17.2	23.5	345.0
Energy Conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(Sub-total)	28.3	32.3	25.4	53.7	40.3	31.3	28.8	34.5	30.1	28.1	27.7	34.3	21.2	35.0	48.0	30.3	28.4	40.4	20.8	41.5	687.2
3 Gas Oil	12.6	5.0	22.2	64.4	91.8	34.1	6.2	13.3	69.9	4.6	17.3	22.9	20.7	5.4	20.6	22.7	10.7	64.4	20.9	67.9	624.9
Industrial Non-High Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Industrial High Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial/Residential	9.5	7.7	5.8	11.3	7.4	6.4	7.6	7.9	4.9	6.4	6.9	6.4	6.5	6.4	11.2	9.8	5.8	6.2	4.4	6.8	190.5
Energy Conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(Sub-total)	19.1	12.9	27.4	68.5	89.2	42.5	15.2	21.2	78.2	11.6	23.6	32.4	31.0	14.8	36.7	39.8	17.5	109.3	27.4	206.6	687.0
4 Heavy Oil	5.7	6.2	8.7	24.1	49.4	21.0	7.4	9.3	38.4	3.6	9.0	19.5	13.6	4.3	39.5	34.1	7.8	132.2	69.6	291.4	730.0
Industrial Non-High Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Industrial High Unit	1.1	1.4	1.4	3.5	1.4	3.4	3.1	2.2	1.6	2.4	4.1	12.3	1.5	2.7	4.6	2.9	2.8	2.8	1.8	2.3	58.6
Commercial/Residential	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy Conversion	0.6	0.6	10.1	27.7	50.6	24.4	10.4	11.7	49.9	0.0	14.4	28.9	15.1	7.1	45.8	172.0	10.3	138.3	62.4	573.5	1,286.7
5 LPG	0.1	0.0	0.2	0.8	0.7	0.4	0.1	0.1	0.9	0.0	0.2	0.3	0.3	0.1	0.3	0.2	0.1	1.1	0.2	0.0	7.0
Industrial Non-High Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Industrial High Unit	1.9	2.6	1.7	3.6	2.5	2.1	2.3	2.7	1.6	2.3	2.0	2.4	1.4	2.8	3.7	2.2	2.2	2.0	1.5	2.1	49.2
Commercial/Residential	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy Conversion	1.9	2.6	1.9	4.8	3.2	2.4	2.4	2.8	2.3	2.3	2.2	3.0	1.8	2.9	4.0	2.4	2.4	2.4	1.7	3.1	53.3
6 Natural Gas	0.0	0.3	3.9	14.7	14.1	6.7	1.2	1.0	18.1	0.4	2.0	4.1	6.4	0.5	5.3	2.6	3.3	20.8	6.2	22.9	144.3
Industrial Non-High Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Industrial High Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial/Residential	18.0	28.5	17.8	34.5	28.9	21.5	22.8	27.1	19.6	23.2	21.1	29.5	14.6	26.6	36.9	22.3	23.0	21.0	19.0	22.0	274.7
Energy Conversion	0.0	48.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	640.2
(Sub-total)	19.4	75.6	21.4	53.4	59.7	28.2	25.1	26.0	38.0	23.8	23.1	33.6	22.0	29.9	45.7	170.2	29.5	46.1	21.7	684.7	1,490.1
7 Solid Fuel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Industrial Non-High Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Industrial High Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial/Residential	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy Conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(Sub-total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8 Total	34.2	20.9	69.0	282.6	286.7	131.7	44.5	54.0	285.2	18.3	77.9	173.3	119.0	23.8	118.8	101.9	19.7	492.0	140.4	549.7	2,903.9
Industrial Non-High Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Industrial High Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commercial/Residential	49.6	68.6	47.1	102.1	67.3	57.2	65.4	71.9	43.8	60.0	58.9	63.2	34.7	28.3	101.2	59.4	81.2	56.3	39.9	54.3	1,294.7
Energy Conversion	0.0	48.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,077.2
(Sub-total)	63.6	139.3	110.1	335.6	378.0	188.4	107.9	128.7	343.8	80.4	131.3	208.2	148.7	100.6	229.5	450.8	110.9	519.3	180.4	1,684.5	5,339.4

Table 4.5.2.5-2(5): Districtwide SPM Emission Quantity in OTA (1994)

Sector	Sub-sector	Year																			Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1	Genitive	1.6	3.3	3.3	20.6	17.2	0.3	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Industrial Nonhazardous Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Industrial Pig Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Commercial/Household	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Energy Conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	(Sub-total)	1.6	3.3	3.3	20.6	17.2	0.3	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	2	Genitive	21.0	6.2	31.4	92.3	70.4	49.7	8.1	19.5	78.7	7.2	31.0	34.8	39.8	19.2	20.5	12.6	110.4	29.8	113.9
		Industrial Nonhazardous Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Industrial Pig Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Commercial/Household	44.7	92.0	41.9	69.0	60.7	49.6	54.5	34.9	65.5	34.9	54.8	59.3	33.6	97.0	97.9	51.6	53.5	48.0	59.8
Energy Conversion		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(Sub-total)		65.7	89.7	73.3	132.2	131.2	99.3	84.3	84.5	165.0	113.3	63.4	77.7	94.0	77.3	117.1	63.9	164.4	60.0	164.0	
3		Genitive	86.1	38.3	169.0	393.0	448.1	390.5	54.8	64.6	483.1	33.2	129.9	199.3	192.9	46.0	199.6	163.8	77.1	713.4	196.0
		Industrial Nonhazardous Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Industrial Pig Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Commercial/Household	79.3	105.6	71.6	155.4	182.1	88.4	99.0	106.9	99.0	94.5	87.5	130.1	99.0	116.2	154.4	99.3	69.3	69.7	99.9
	Energy Conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	(Sub-total)	175.4	147.7	211.6	548.4	630.2	348.9	154.8	205.9	592.1	328.7	214.4	329.5	291.9	162.1	354.0	263.1	170.4	830.1	227.0	
	4	Genitive	49.2	34.3	66.3	178.7	367.7	199.2	64.7	71.0	248.9	28.5	87.2	173.1	180.8	32.4	203.8	244.0	54.4	891.7	459.4
		Industrial Nonhazardous Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Industrial Pig Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Commercial/Household	19.0	29.2	24.5	82.8	24.7	89.8	94.8	99.1	77.9	43.1	72.8	219.6	72.0	49.5	79.5	44.3	49.7	32.8	49.7
Energy Conversion		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(Sub-total)		68.2	63.5	89.6	261.5	392.4	214.7	164.5	170.1	326.8	89.7	149.7	392.7	182.8	81.9	263.3	288.3	104.3	1,024.3	483.2	
5		Genitive	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Industrial Nonhazardous Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Industrial Pig Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Commercial/Household	4.9	6.0	4.7	10.1	8.7	5.6	8.2	7.1	4.3	6.1	5.4	7.3	3.6	7.5	9.9	5.6	6.0	5.4	3.9
	Energy Conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	(Sub-total)	4.9	6.0	4.7	10.1	8.7	5.6	8.2	7.1	4.3	6.1	5.4	7.3	3.6	7.5	9.9	5.6	6.0	5.4	3.9	
	6	Genitive	3.5	2.9	21.6	66.1	84.6	40.2	7.6	5.7	109.6	2.4	17.3	26.4	50.4	2.9	33.3	15.8	70.8	356.0	48.4
		Industrial Nonhazardous Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Industrial Pig Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Commercial/Household	44.0	91.6	43.6	89.9	99.7	59.7	55.4	65.2	36.7	54.5	49.1	88.6	34.0	87.1	86.2	92.1	33.7	49.0	34.9
Energy Conversion		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(Sub-total)		47.4	94.5	65.2	176.0	184.3	90.4	63.0	65.9	107.4	37.0	61.4	93.2	64.4	74.1	139.5	177.9	74.6	211.4	75.4	
7		Genitive	13.9	41.4	59.0	751.2	402.7	188.3	64.0	172.2	446.5	57.4	149.2	210.2	179.2	31.6	147.4	110.1	179.1	189.9	798.9
		Industrial Nonhazardous Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Industrial Pig Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Commercial/Household	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Energy Conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	(Sub-total)	13.9	41.4	59.0	751.2	402.7	188.3	64.0	172.2	446.5	57.4	149.2	210.2	179.2	31.6	147.4	110.1	179.1	189.9	798.9	
	8	Genitive	189.5	128.0	342.0	1,498.0	1,392.4	704.7	199.2	339.0	1,424.6	132.2	301.4	971.5	969.0	172.1	877.4	671.4	301.3	2,157.0	979.8
		Industrial Nonhazardous Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Industrial Pig Unit	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Commercial/Household	168.0	202.4	184.3	409.2	254.0	253.3	287.6	281.8	178.3	265.3	281.6	493.5	197.7	300.3	490.1	244.4	299.7	237.8	198.9
Energy Conversion		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
(Sub-total)		357.5	404.2	526.3	1,907.2	1,646.4	988.0	486.8	620.8	1,624.6	132.2	301.4	971.5	969.0	172.1	877.4	671.4	301.3	2,157.0	979.8	

5 Table 4.6.2.5-3 : Emission Quantity of Pollutants by combustion from Energy Conversion Sector in GTA (1994)

6
7 1 Tehran Refinery

Code	Sector	District	Production (10 ⁶ b/y)	Fuel Consumption				Emission Volume						Chimney Height (m)
				Gas Oil (10 ⁴ kcal)	HFO (10 ⁴ kcal)	NG (10 ⁴ kcal)	Total Fuel (10 ⁴ kcal)	SOx (t/y)	NOx (t/y)	CO (t/y)	HC (t/y)	SPM (t/y)	(Total) (t/y)	
	Refinery	200B	79.2	21	495	517	1,033	34,243	12,058	497	692	1,639	49,129	
(Note) (Flare Stack)				40				0 122 12 2 10 148						

15 (Note) Chimney dimensions of Refinery

18 No 1 Refinery

Heater	Height above grade (Feet)	ID (Feet)
1 H-101	25	10
2 H-102	100	5
3 H-151	140	5
4 H-201	100	4
5 H-251,252,255	200	
6 H-254	100	1
7 H-301	250	6
8 H-430	200	4
9 H-801		
10 Boiler	250	10
11 H-1101	106-9"	4-3"
12 H-1102	118-6"	4-11 1/2"
13 H-1202	151-11"	8
14 H-1301	120-8"	4-2"
15 H-1302		4-4"
16 H-1401	74	4-4"

18 No 2 Refinery

Heater	Height above grade (Feet)	ID (Feet)
1 2H-101	250	12
2 2H-102	118	5-9"
3 2H-151	173	9
4 2H-131	150	5-3"
5 2H-201	100	4-6"
6 2H-202	100	4-6"
7 2H-251,252,253	200	13-6"
8 2H-254	100	4-6"
9 2H-301	250	9
10 2H-401,402	100	5-9"
11 2H-403	150-10 1/2"	6-6"
12 2H-404	150-10 1/2"	6-8"
13 2H-405	105	3-6"
14 2H-601	100	4
15 2H-801	138	12
16 2H-1001	250	3-5-9"

(Source) Interview

38 2 Thermal Power Plant

Code	Sector	Capacity	District	Production (Gwh)	Fuel Consumption				Emission Volume						Chimney Height (m)
					Gas Oil (10 ⁴ kcal)	HFO (10 ⁴ kcal)	NG (10 ⁴ kcal)	Total Fuel (10 ⁴ kcal)	SOx (t/y)	NOx (t/y)	CO (t/y)	HC (t/y)	SPM (t/y)	(Total) (t/y)	
	Besat	391MW	16	1,497	11	204	215	430	14,172	5,022	207	288	684	20,373	30
	Firouzi	75MW	2	174	0	0	73	73	6	713	21	49	19	608	
	Rei	1243MW	200B	1,329	136	0	449	585	1,928	6,013	223	366	488	8,038	
		1325MW		3,000	147	204	737	1,088	16,106	11,749	451	723	1,190	30,219	

(Source) AAC/PS

49 3 Total

Code	Sector	Fuel Consumption				Emission Volume						
		Gas Oil (10 ⁴ kcal)	HFO (10 ⁴ kcal)	ROG (10 ⁴ kcal)	NG (10 ⁴ kcal)	Total Fuel (10 ⁴ kcal)	SOx (t/y)	NOx (t/y)	CO (t/y)	HC (t/y)	SPM (t/y)	(Total) (t/y)
	Tehran Refinery	21	495		517	1,033	34,243	12,058	497	692	1,639	49,129
	Thermal Power Plant	147	204		737	1,088	16,106	11,749	451	723	1,190	30,219
	(Total)	168	699	0	1,254	2,121	50,349	23,807	948	1,415	2,829	79,348

3 Table 4.5.2.5-4 : Evaporation of HC in GTA (1994)

4 Table 4.5.2.5-4(1) : Commercial Shops

District	Number of shops										Evaporation						Total (t/y)
	Printing Shops	Petrol Stations	Dry Cleaning	Metal Plate	Painting	Others	Printing (t/y)	Petrol (t/y)	Cleaning (t/y)	Metal (t/y)	Painting (t/y)	Others (t/y)					
1	11	10	48				30	450	45				525				
2	11	6	65				30	270	61				361				
3	19	8	43				52	360	40				453				
4	40	1	100				110	45	94				249				
5	29	6	63				80	270	59				409				
6	203	10	67				558	450	63				1,071				
7	156	8	89				429	360	84				873				
8	24	4	82				66	180	77				323				
9	21	13	51				58	595	48				691				
10	13	8	75				36	360	71				466				
11	157	8	85				432	360	80				872				
12	708	15	196				1,947	675	184				2,806				
13	26	6	65				72	270	61				403				
14	56	5	98				154	225	92				471				
15	170	8	116				468	360	109				937				
16	19	1	97				52	45	91				188				
17	12	3	53				33	135	50				218				
18	25	15	120				69	675	113				857				
19	8	2	69				22	90	65				177				
20	29	10	213				80	450	200				730				
(Total)	1,737	147	1,795				4,777	6,616	1,687				13,080				
Emission Factor (t/y-shop)		(kg/kl)	(t/y-shop)	(t/y-shop)	(t/y-shop)	(t/y-shop)											
(Average)	2.75	2.52	0.94	2.26	0.50	0.63											

(Note) (1) Unit sales amount of petro-station
 = (2205*10^10/8400 liter)/147 = 2625/147*10^3 kl = 17.86*10^3 kl

(2) Number of workshops for electric metal plate, painting & others are not available.

Table 4.5.2.5-4(2) : Depot facilities

Fuel	Tank Capacity (kilo liter)	Number of Tanks	Total Capacity (kilo liter)	Tank Type	Emission Factor for Breathing	Emission Factor for Delivering (wet-wet-berry)	Emission Factor for Receiving	Fuel Handling Quantity (1,000kV)	Emission Quantity (t/y)
1. Rey (District 2008)									
1.1 Gasoline	11,000	5	55,000	Floating 0	0	0.8910kg/d (wet-berry)	0	1,157	1,032
	8,000	3	24,000	Floating 0	0	0.8910kg/d (wet-berry)	0	595	450
1.2 Kerosene	11,000	2	22,000	Normal 0.63kg/day/tank	0	0.0024kg/d	0	197	1
	20,000	5	100,000	Normal 1.70kg/day/tank	0	0.0024kg/d	0	865	5
1.3 Gas Oil	11,000	1	11,000	Normal 0.70kg/day/tank	0	0.0021kg/d	0	115	0
	20,000	3	60,000	Normal 1.40kg/day/tank	0	0.0021kg/d	0	628	3
	40,000	2	80,000	Normal 2.80kg/day/tank	0	0.0021kg/d	0	838	4
1.4 Heavy Oil	20,000	4	80,000	Normal 0.30kg/day/tank	0	0.00045kg/d	0	791	1
	40,000	4	160,000	Normal 0.60kg/day/tank	0	0.00045kg/d	0	1,501	2
1.5 ATK	11,000	3	33,000	Floating n.a.	0	0	0		
1.6 GP4	11,000	3	33,000	Floating n.a.	0	0	0		
(Sub total)	203,000	35	658,000						1,486
2. Kar (District 5)									
2.1 Gasoline	20,000	2	40,000	Floating 0	0	0.89107kg/d (wet-berry)	0	578	515
2.2 Kerosene	20,000	1	20,000	Normal 1.70kg/day/tank	0	0.0024kg/d	0	59	1
	19,000	2	38,000	Floating 0	0	0.00107kg/d (wet)	0	111	0
2.3 Gas Oil	19,000	4	76,000	Normal 1.40kg/day/tank	0	0.0021kg/d	0	766	4
(Sub total)		9	174,000						520
3. Ghoosbak (District 408)									
3.1 Gasoline	13,000	3	39,000	Floating 0	0	0.8913kg/d (wet-berry)	0	504	476
3.2 Kerosene	17,000	2	35,000	Normal 1.70kg/day/tank	0	0.0024kg/d	0	288	2
3.3 Gas Oil	14,000	2	28,000	Normal 1.05kg/day/tank	0	0.0021kg/d	0	433	2
	13,000	1	13,000	Normal 1.00kg/day/tank	0	0.0021kg/d	0	201	1
(Sub total)		8	115,000						480
4. Naq Abad (District 1908)									
4.1 Kerosene	5,000	2	10,000	Floating 0	0	0.00214kg/d (wet)	0	69	0
	5,000	1	5,000	Normal 0.42kg/day/tank	0	0.0024kg/d	0	45	0
4.2 Gas Oil	10,000	3	30,000	Normal 0.70kg/day/tank	0	0.0021kg/d	0	315	1
(Sub total)		6	45,000						2
(Total)									2,489

Table 4.5.2.5-4(3) : Tehran Refinery (District 2008)

Crude Oil Input (t/y)	Emission Factor (%)	Emission Volume (t/y)
13,499,472	0.1	13,499

38 C D E F G H

39 Table : 4.5.2.5-4(4) : Total Evaporation of HC in GTA (1994)

40 (838.H62)

(ton/year)

41	District	Commercial Shops	Depots & Refinery	(Total)
42	1	525		525
43	2	361		361
44	3	453		453
45	4	249	480	729
46	5	409	520	929
47	6	1,071		1,071
48	7	873		873
49	8	323		323
50	9	691		691
51	10	466		466
52	11	872		872
53	12	2,806		2,806
54	13	403		403
55	14	471		471
56	15	937		937
57	16	188		188
58	17	218		218
59	18	857	2	859
60	19	177		177
61	20	730	14,988	15,718
62	(Total)	13,080	15,990	29,070

Table 4.5.2.5-6(1) : Districtwise Stationary Emission Quantity of Pollutants in GTA (1994)

Emission District	(ton/year)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
1 Combustion																					
SOx	2,405.9	2,697.2	3,072.2	14,199.2	13,991.7	7,750.3	3,294.9	4,944.9	13,028.0	2,640.7	5,412.6	9,972.4	5,383.7	3,670.3	10,799.7	32,838.5	4,177.8	30,570.4	12,077.8	61,495.9	254,331.8
NOx	1,087.5	1,214.3	1,091.1	6,463.3	5,534.8	3,056.1	1,490.7	1,872.2	5,944.9	1,067.1	1,999.1	2,962.4	2,876.1	1,379.7	3,630.5	7,651.6	1,409.4	10,000.4	3,302.0	30,079.4	95,449.0
CO	472.6	534.2	440.4	6,042.7	4,564.9	2,280.0	1,009.0	1,202.6	5,502.6	490.1	1,570.8	2,272.7	2,049.7	965.9	1,924.1	3,901.9	1,199.3	9,970.1	1,990.2	7,855.6	51,499.2
HC	63.6	139.3	110.1	322.9	329.0	166.4	102.9	126.7	343.6	80.4	131.3	206.7	146.7	100.6	220.5	459.8	119.9	519.3	190.4	1,094.5	5,970.4
SPM	288.5	488.2	520.3	1,812.0	1,546.9	848.0	448.7	615.0	1,001.1	366.2	603.0	1,025.0	712.9	325.5	1,142.0	1,229.1	351.9	2,013.2	1,048.7	5,972.2	20,007.8
(Subtotal)	4,481.2	5,056.3	4,934.0	29,071.0	26,069.2	14,240.7	6,867.4	8,400.0	28,499.4	4,654.4	9,748.8	19,860.2	10,879.7	5,444.8	17,755.7	54,109.1	7,898.3	50,070.3	18,564.9	177,022.8	631,888.3
2 Compression/Refinement																					
SOx															371						371
NOx																					172
CO																					12
HC																					17
SPM																					10
(Subtotal)																					177
3 Total Emission																					
SOx	2,409	2,697	3,070	14,199	13,992	7,750	3,294	4,945	13,028	2,641	5,413	9,972	5,384	3,670	10,799	32,839	4,178	30,570	12,078	61,496	254,332
NOx	1,087.5	1,214.3	1,091.1	6,463.3	5,534.8	3,056.1	1,490.7	1,872.2	5,944.9	1,067.1	1,999.1	2,962.4	2,876.1	1,379.7	3,630.5	7,651.6	1,409.4	10,000.4	3,302.0	30,079.4	95,449.0
CO	472.6	534.2	440.4	6,042.7	4,564.9	2,280.0	1,009.0	1,202.6	5,502.6	490.1	1,570.8	2,272.7	2,049.7	965.9	1,924.1	3,901.9	1,199.3	9,970.1	1,990.2	7,855.6	51,499.2
HC	69.2	140.7	110.1	322.9	329.0	166.4	102.9	126.7	343.6	80.4	131.3	206.7	146.7	100.6	220.5	459.8	119.9	519.3	190.4	1,094.5	5,970.4
SPM	288.5	488.2	520.3	1,812.0	1,546.9	848.0	448.7	615.0	1,001.1	366.2	603.0	1,025.0	712.9	325.5	1,142.0	1,229.1	351.9	2,013.2	1,048.7	5,972.2	20,007.8
(Total)	5,009.7	5,916.7	7,367.7	29,750.0	27,029.2	14,240.7	7,560.1	8,614.0	27,193.5	5,120.7	10,618.6	20,886.4	11,779.4	5,915.6	19,346.1	54,728.5	8,074.1	51,878.9	18,663.7	147,864.0	440,788.0

(Note) Adjustments are made for Cement Factories, Flare Stack of Refinery

Table 4.5.2.5-6(2) : Total Stationary & Mobile Emission in GTA (1994)

Emission District	Stationary				Mobile				Total		SPM	%	
	SOx	NOx	CO	HC	SOx	NOx	CO	HC	(Total)	(Total)		(Total)	(%)
1 Stationary	263,360.8	96,571.0	51,421.2	34,700.5	25,112.9	460,786.4	28.8						
2 Mobile	8,340.0	39,610.0	828,806.0	81,690.0	182,717.0	1,139,163.0	71.2						
(Total)	262,320.8	135,181.0	878,227.2	116,390.5	207,829.9	1,569,949.4	100.0						

6.Countermeasure for air pollution in the GTA

6.3 Countermeasure for stationary source

6.3.1 Long term target for air pollution control in GTA

1. Base case(1994)
2. Do-Nothing case(2005)
3. Do-Nothing case(2010)
4. Common case(2005)
5. Common case(2010)
6. Best case(2005)
7. Best case(2010)
8. Annex

(1994)

(10^10 kcal)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD AE AF AG AH AI AJ AK AL AM AN AO AP AQ AR AS AT AU AV AW AX AY AZ BA BB BC BD BE BF BG BH BI BJ BK BL BM BN BO BP BQ BR BS BT BU BV BW BX BY BZ CA CB CC CD CE CF CG CH CI CJ CK CL CM CN CO CP CQ CR CS CT CU CV CW CX CY CZ DA DB DC DD DE DF DG DH DI DJ DK DL DM DN DO DP DQ DR DS DT DU DV DW DX DY DZ EA EB EC ED EE EF EG EH EI EJ EK EL EM EN EO EP EQ ER ES ET EU EV EW EX EY EZ FA FB FC FD FE FF FG FH FI FJ FK FL FM FN FO FP FQ FR FS FT FU FV FW FX FY FZ GA GB GC GD GE GF GG GH GI GJ GK GL GM GN GO GP GQ GR GS GT GU GV GW GX GY GZ HA HB HC HD HE HF HG HH HI HJ HK HL HM HN HO HP HQ HR HS HT HU HV HW HX HY HZ IA IB IC ID IE IF IG IH II IJ IK IL IM IN IO IP IQ IR IS IT IU IV IW IX IY IZ JA JB JC JD JE JF JG JH JI JJ JK JL JM JN JO JP JQ JR JS JT JU JV JW JX JY JZ KA KB KC KD KE KF KG KH KI KJ KK KL KM KN KO KP KQ KR KS KT KU KV KW KX KY KZ LA LB LC LD LE LF LG LH LI LJ LK LL LM LN LO LP LQ LR LS LT LU LV LW LX LY LZ MA MB MC MD ME MF MG MH MI MJ MK ML MN MO MP MQ MR MS MT MU MV MW MX MY MZ NA NB NC ND NE NF NG NH NI NJ NK NL NO NP NQ NR NS NT NU NV NW NX NY NZ OA OB OC OD OE OF OG OH OI OJ OK OL OM ON OO OP OQ OR OS OT OU OV OW OX OY OZ PA PB PC PD PE PF PG PH PI PJ PK PL PM PN PO PP PQ PR PS PT PU PV PW PX PY PZ QA QB QC QD QE QF QG QH QI QJ QK QL QM QN QO QP QQ QR QS QT QU QV QW QX QY QZ RA RB RC RD RE RF RG RH RI RJ RK RL RM RN RO RP RQ RR RS RT RU RV RW RX RY RZ SA SB SC SD SE SF SG SH SI SJ SK SL SM SN SO SP SQ SR SS ST SU SV SW SX SY SZ TA TB TC TD TE TF TG TH TI TJ TK TL TM TN TO TP TQ TR TS TT TU TV TW TX TY TZ UA UB UC UD UE UF UG UH UI UJ UK UL UM UN UO UP UQ UR US UT UU UV UW UX UY UZ VA VB VC VD VE VF VG VH VI VJ VK VL VM VN VO VP VQ VR VS VT VU VW VX VY VZ WA WB WC WD WE WF WG WH WI WJ WK WL WM WN WO WP WQ WR WS WT WU WV WW WX WY WZ XA XB XC XD XE XF XG XH XI XJ XK XL XM XN XO XP XQ XR XS XT XU XV XW XX XY XZ YA YB YC YD YE YF YG YH YI YJ YK YL YM YN YO YP YQ YR YS YT YU YV YW YX YY YZ ZA ZB ZC ZD ZE ZF ZG ZH ZI ZJ ZK ZL ZM ZN ZO ZP ZQ ZR ZS ZT ZU ZV ZW ZX ZY ZZ

Sector	Total Energy Consumed		Fuel Oil				Crude Petroleum			LPG			Other Petroleum		Gas		Electric Power		
	Total	Electr.	Consumption		Products		Gasoline	Naptha Jet Fuel	Kerosene	Gas Oil	Heavy Oil	Other	LPG	Refrigerant	Coke	LNG	City Gas	Total Electric Power	Domestic Power
			Ind.	Electric	Coal	Gas													
1	19 850	19 850	19 060	728	128	332	0	8 889	7 336	103	1 461	2 734	3 017	0	0	1 081	453	8 743	1 890
2	10 480	10 480	9 398	126	337	0	5 260	4 094	103	206	1 727	1 999	0	0	1 081	89	3 690	1 082	0
3	10 460	10 460	9 398	126	337	0	5 260	4 094	103	206	1 727	1 999	0	0	1 081	89	3 690	1 082	0
4	10 460	10 460	9 398	126	337	0	5 260	4 094	103	206	1 727	1 999	0	0	1 081	89	3 690	1 082	0
5	1 387	1 387	1 304	0	0	0	1 123	1 199	9	169	735	193	0	0	0	17	181	83	0
6	721	721	548	0	0	0	311	263	19	39	133	109	0	0	11	7	237	173	0
7	95	95	44	0	0	0	42	42	3	4	20	12	0	0	0	0	2	21	0
8	267	267	228	6	0	0	132	74	4	3	40	27	0	0	57	1	88	39	0
9	1 109	1 109	1 031	7	3	3	539	293	16	7	211	59	0	0	241	5	462	74	0
10	2 145	2 145	1 644	54	6	6	1 656	1 644	12	30	204	1 388	0	0	207	4	230	104	0
11	3 339	3 339	2 946	60	313	10	386	269	10	3	176	110	0	0	86	19	2 191	394	0
12	915	915	602	1	5	5	348	327	33	36	199	59	0	0	31	288	164	0	0
13	531	531	521	0	4	4	514	16	3	6	6	1	0	0	497	1	2	10	0
14	7 329	7 329	6 521	0	0	0	2 742	2 374	0	1 185	836	360	0	0	368	3 779	868	0	0
15	6 057	6 057	5 456	0	0	0	2 156	1 824	0	1 199	715	0	0	0	331	3 340	592	0	0
16	1 272	1 272	1 026	0	0	0	567	560	0	76	124	350	0	0	37	439	246	0	0
17	2 121	2 121	2 121	0	0	0	867	867	0	168	689	0	0	0	1 254	0	0	0	0
18	1 088	1 088	1 088	0	0	0	351	351	0	147	204	0	0	0	737	0	0	0	0
19	1 033	1 033	1 033	0	0	0	515	516	0	21	499	0	0	0	517	0	0	0	0
20	495 000	495 000	2 000 000	17 000	17 000	17 000	495 000	17 000	17 000	17 000	17 000	17 000	17 000	17 000	17 000	17 000	17 000	17 000	17 000

495000 17000 17000 495000 17000 17000 17000 17000 17000 17000 17000 17000 17000 17000 17000 17000 17000 17000 17000 17000 17000

Table 3.3: Districtwise CO Emission Quantity in GTA (Base, 1994)

Dist	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	Total
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 4.0 : Districtwise Stationary Emission Quantity of Pollutants in GTA (Base: 1994)

Emission	District																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Combustion																			
SO _x	2,468.9	2,062.3	3,073.2	14,106.2	13,697.7	7,790.3	3,700.0	4,944.0	13,020.3	2,940.7	5,412.0	9,952.4	5,385.7	3,026.3	10,789.7	72,898.5	4,171.8	30,539.4	12,072.8	81,485.0
NO _x	1,062.5	1,074.3	1,691.1	6,593.3	5,534.6	3,990.3	1,400.7	1,872.2	6,944.0	1,097.1	1,990.1	2,982.4	2,526.1	1,320.7	3,039.5	7,655.6	1,699.4	10,090.4	3,302.0	30,079.4
CO	472.8	594.2	940.4	6,062.7	4,594.9	2,990.9	1,000.0	1,202.9	5,502.6	493.1	1,570.9	2,723.7	2,099.7	565.9	1,026.1	1,901.8	1,159.3	6,620.1	1,900.2	7,695.0
HC	83.6	190.3	310.1	396.0	328.0	194.4	107.9	125.7	340.8	80.4	131.3	204.7	148.7	100.2	229.5	450.8	110.9	516.3	180.4	1,694.5
SDM	308.5	400.2	520.1	3,912.9	3,068.0	858.0	488.7	615.5	1,051.1	398.2	603.0	1,055.0	717.4	485.5	1,430.0	1,555.1	551.8	3,033.2	1,048.7	5,922.2
(Subtotal)	4,611.2	5,258.1	7,593.0	29,221.2	26,992.2	14,709.7	6,687.4	8,480.0	39,688.5	4,854.4	9,748.6	19,880.2	10,878.7	5,644.0	17,753.7	84,100.1	7,800.3	50,870.3	16,308.0	127,022.6
2	Evaporation/Leakage																			
SO _x															351					351
NO _x																				122
CO																				12
HC																				171
SDM																				29,070
(Subtotal)																				477
3	Total Emission																			
SO _x	2,468.9	2,062.3	3,073.2	14,106.2	13,697.7	7,790.3	3,700.0	4,944.0	13,020.3	2,940.7	5,412.0	9,952.4	5,385.7	3,026.3	10,449	72,898.5	4,171.8	30,539.4	12,072.8	81,485.0
NO _x	1,062.5	1,074.3	1,691.1	6,593.3	5,534.6	3,990.3	1,400.7	1,872.2	5,944.0	1,097.1	1,990.1	2,982.4	2,526.1	1,320.7	3,039.5	7,655.6	1,699.4	10,090.4	3,302.0	30,079.4
CO	472.8	594.2	940.4	6,062.7	4,594.9	2,990.9	1,000.0	1,202.2	5,502.6	493.1	1,570.9	2,723.7	2,099.7	565.9	1,026.1	1,901.8	1,159.3	6,620.1	1,900.2	7,695.0
HC	83.6	190.3	310.1	396.0	328.0	194.4	107.9	125.7	340.8	80.4	131.3	204.7	148.7	100.2	229.5	450.8	110.9	516.3	180.4	1,694.5
SDM	308.5	400.2	520.1	3,912.9	3,068.0	858.0	488.7	615.5	1,051.1	398.2	603.0	1,055.0	717.4	485.5	1,430.0	1,555.1	551.8	3,033.2	1,048.7	5,922.2
(Total)	5,000.7	4,019.7	7,386.7	29,750.0	27,072.2	15,317.9	7,590.1	8,818.0	37,591.5	5,100.7	10,610.5	19,868.0	11,279.4	5,815.5	19,398.3	84,268.5	6,024.1	51,828.0	16,433.7	142,844.8

Table 2.1 : SOx emission of big factories (Base: 1994)

No	Industrial Code	District	Location Longitude (D/M/S)	Location Latitude (D/M/S)	Natural Gas (ton/year)	Heavy Oil (ton/year)	Emission amount by Factor Gas Oil (ton/year)	Kerosene (ton/year)	Gasoline (ton/year)	LPG (ton/year)	Total emission (ton/year)
1											
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70											
71											
72											
73											
(Total)											
(Grand Total)											

Table 2.1 : SOx emission of big factories (Base: 1994)

No	Name	District	Location Longitude (D/M/S)	Location Latitude (D/M/S)	Natural Gas (ton/year)	Heavy Oil (ton/year)	Emission amount by Factor Gas Oil (ton/year)	Kerosene (ton/year)	Gasoline (ton/year)	LPG (ton/year)	Total emission (ton/year)
1	Tehran Refinery	2006	51°25'40"	35°22'40"	21.7	30,921.8	299.5				31,242.7
2	Power Plant				30.8	14,009.7	2,058.1				16,108.6
2.1	- Besak	16	51°25'40"	35°28'40"	9.0	14,009.7	1,561.1				15,171.8
2.2	- Forouzi	2	51°21'10"	35°43'24"	3.0		2.6				5.6
2.3	- Pay	2006	51°24'30"	35°31'20"	18.8		1,494.4				1,513.2
(Total)					52.5	44,931.5	2,567.5				47,489.5

Table 1.0 : Sector wise energy demand in GTA (Do-Nothing, 2006)

Sector	Total Energy Consumed including Electricity	Total Fuel Consumption	Coal	Coke etc.	Crude Petroleum Oil Products	Fuel Oil	Gasoline			Kerosene	Jet Fuel	LPG	Natural Gas	LNG	City Gas	Total Electric Power	Commercial Power	Domestic Power
							Gasoline	Kerosene	Jet Fuel									
16 Total Energy Consumed	31,650	20,426	737	874	0	14,346	11,705	194	2,127	4,626	4,890	0	0	2,031	648	13,179	3,104	
17 1 Industry	19,669	17,659	227	974		9,862	7,691	194	599	3,245	3,697			2,031	169	6,913	2,033	
18 2 Agri/Forestry	0																	
19 3 Mining																		
20 4 Construction																		
21 5 Total Manufacturing	19,669	17,656	227	974		9,862	7,691	194	599	3,245	3,697			2,031	169	6,913	2,033	
22 4.1 31 Food Products	2,806	2,450	0	0	2,110	2,076	17		317	1,361	363			0	32	340	159	
23 4.2 32 Textiles	1,366	1,030	1	0	545	560	24		71	250	205			21	13	445	325	
24 4.3 33 Wood Products	123	63	0	0	79	79	6		6	49	20			0	0	5	39	
25 4.4 34 Paper & Pulp	502	429	15	0	246	139	6		6	76	51			107	2	166	73	
26 4.5 35 Inorganic Chemicals	2,075	1,906	14	6	1,072	359	30		19	306	111			492	9	652	139	
27 4.6 36 Inorganic Products	4,225	4,029	102	11	3,485	3,088	20		56	363	2,624			396	6	431	106	
28 4.7 37 Iron & Steel	6,274	5,534	104	669	725	562	19		6	331	207			127	36	4,116	740	
29 4.8 38 Machinery	1,533	1,197	2	10	673	614	62		69	374	111			0	58	503	345	
30 4.9 39 Other Industries	987	976	0	6	966	30	6		11	11	2			934	2	3	19	
31 7 General Services and House	9,720	9,648			3,036	3,146			1,571	1,113	464			468	5,012	1,072		
32 1 Households	6,032	7,266			2,656	2,419			1,470	949				438	4,392	746		
33 2 Commercial & General	3,688	2,382			779	729			101	164	464			49	562	330		
34 8 Transport																		
35 1 Passenger																		
36 2 Cargo																		
37 6 Energy Conversion	2,121	2,121			667	667			166	666					1,724			
38 1 Power Plant	1,066	1,066			351	351			147	204					737			
39 2 Refinery	1,055	1,055			516	516			21	462					917			
40 High Voltage Transmission																		

Table 3.3 : District wise CO emission quantity (Tonnes/Day) (2008)

District	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 3.A : District wise HC emission quantity (De-Noxing 2005)

Sl. No.	Category	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total	
1	Gasoline	21.2	17.8	44.8	281.5	204.6	133.8	48.2	51.5	282.2	19.2	74.7	149.1	108.6	70.5	87.1	59.2	49.4	332.0	87.1	399.8	2,401.9	
	Industrial Nonchkl Unit																						
	Industrial Bag Unit																						
	Commercial/Institutional																						
	Energy Generation (Sub-station)																						
2	Motorcycle	0.5	1.7	8.2	38.6	18.8	32.1	2.8	6.2	20.3	1.9	8.2	9.7	8.1	2.7	7.8	3.2	39.8	8.8	30.1	209.5		
	Industrial Nonchkl Unit																						
	Industrial Bag Unit																						
	Commercial/Institutional																						
	Energy Generation (Sub-station)																						
3	Coal Oil	29.6	8.4	41.0	102.2	118.0	67.8	16.2	24.8	124.7	8.8	32.8	43.0	59.1	12.0	53.1	42.8	20.1	193.8	53.2	183.9	1,162.8	
	Industrial Nonchkl Unit																						
	Industrial Bag Unit																						
	Commercial/Institutional																						
	Energy Generation (Sub-station)																						
4	Heavy Oil	10.7	8.7	19.4	46.2	87.8	28.4	13.8	12.8	72.1	0.7	17.0	31.1	28.3	8.2	74.2	71.7	14.7	290.2	112.7	400.4	1,271.9	
	Industrial Nonchkl Unit																						
	Industrial Bag Unit																						
	Commercial/Institutional																						
	Energy Generation (Sub-station)																						
5	LPG	0.2	0.1	0.4	1.6	1.2	0.7	0.2	0.2	1.8	0.1	0.2	0.3	0.6	0.1	0.6	0.2	0.2	0.3	0.9	0.9	1.7	13.1
	Industrial Nonchkl Unit																						
	Industrial Bag Unit																						
	Commercial/Institutional																						
	Energy Generation (Sub-station)																						
6	Natural Gas	1.1	0.8	8.6	27.0	20.2	12.0	2.4	1.8	34.0	0.8	3.8	7.8	19.8	0.8	10.4	6.0	8.5	48.7	12.7	44.9	220.7	
	Industrial Nonchkl Unit																						
	Industrial Bag Unit																						
	Commercial/Institutional																						
	Energy Generation (Sub-station)																						
7	Solid Fuel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Industrial Nonchkl Unit																						
	Industrial Bag Unit																						
	Commercial/Institutional																						
	Energy Generation (Sub-station)																						
8	Total	64.2	38.2	118.3	576.5	498.7	247.4	93.5	103.5	534.0	24.4	138.9	222.0	209.6	44.4	223.1	191.4	97.3	648.7	289.8	1,021.9	6,458.3	
	Industrial Nonchkl Unit																						
	Industrial Bag Unit																						
	Commercial/Institutional																						
	Energy Generation (Sub-station)																						

Table 3.6 : District wise TOTAL emission quantity (Do-Nothing,2005)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					

Table A.6 : District wise TOTAL emission quantity by combustion & evaporation (Do-Nothing 2006)

Emission	District																				Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1 Combustion	4,079.6	4,278.0	6,294.3	25,112.3	25,532.2	13,244.0	5,849.7	7,800.4	20,871.9	4,099.7	9,927.2	15,894.3	9,859.3	4,833.9	18,740.2	20,707.2	9,851.4	59,424.5	22,007.9	170,453.7	
SOx	1,720.8	2,521.8	2,821.6	11,899.1	9,898.0	5,744.9	2,213.7	3,892.5	10,818.3	1,937.0	3,317.2	4,872.8	4,929.9	1,890.2	9,173.2	9,672.3	2,898.9	18,417.8	3,941.1	40,299.8	
NOx	930.9	698.9	1,066.2	11,293.0	8,549.3	4,711.2	1,897.7	2,278.5	10,243.1	824.1	2,817.4	5,001.9	3,872.9	840.4	3,884.8	2,734.8	2,099.3	12,929.9	3,519.4	16,071.0	
CO	120.0	340.3	180.8	911.7	978.1	324.0	372.7	180.0	971.2	119.9	210.2	342.5	297.9	146.9	399.5	561.0	174.5	899.0	319.9	2,274.3	
HC	560.4	502.3	890.9	3,268.2	2,853.7	1,959.8	729.0	1,001.3	3,073.3	548.9	1,101.1	1,719.0	1,201.0	644.9	1,815.4	2,183.9	899.0	5,328.4	1,874.2	8,154.8	
SPM	7,344.1	8,430.3	11,895.7	52,046.2	47,480.4	25,097.0	10,898.8	14,777.7	46,716.9	7,189.2	19,538.2	27,892.4	19,486.1	9,373.1	30,688.8	44,784.2	13,118.9	84,344.3	33,779.4	188,073.8	
2 Combustion/evaport																					
SOx																					
NOx																					
CO																					
HC																					
SPM																					
3 Total Emission	4,079.6	4,278.0	6,294.3	25,112.3	25,532.2	13,244.0	5,849.7	7,800.4	20,871.9	4,099.7	9,927.2	15,894.3	9,859.3	4,833.9	18,087.2	20,707.2	9,851.4	59,424.5	22,007.9	170,453.7	
SOx	1,720.8	2,521.8	2,821.6	11,899.1	9,898.0	5,396.0	2,213.7	3,892.5	10,818.3	1,937.0	3,317.2	4,872.8	4,929.9	1,890.2	9,173.2	9,672.3	2,898.9	18,417.8	5,941.1	40,371.8	
NOx	930.9	698.9	1,066.2	11,293.0	8,549.3	4,211.2	1,897.7	2,278.5	10,243.1	824.1	2,817.4	5,001.9	3,872.9	840.4	3,494.8	2,734.8	2,099.3	12,829.0	3,519.4	16,033.0	
CO	120.0	340.3	180.8	911.7	978.1	324.0	372.7	180.0	971.2	119.9	210.2	342.5	297.9	146.9	399.5	561.0	174.5	899.0	319.9	2,274.3	
HC	560.4	502.3	890.9	3,268.2	2,853.7	1,959.8	729.0	1,001.3	3,073.3	548.9	1,101.1	1,719.0	1,201.0	644.9	1,815.4	2,183.9	899.0	5,328.4	1,874.2	8,154.8	
SPM	8,004.1	9,009.1	12,990.1	53,098.0	48,017.4	29,517.8	12,028.2	16,708.1	49,716.9	7,814.6	21,843.3	31,692.2	20,990.1	8,897.8	31,401.7	45,034.1	13,407.6	90,343.1	33,954.0	192,897.3	

Table 2.4 : HC emission of big factories (Do-Nothing, 2005)

No	Industrial Code	District	Location	Natural Gas (Tonnes/yr)	Heavy Oil (Tonnes/yr)	Gas Oil (Tonnes/yr)	Kerosene (Tonnes/yr)	Gasoline (Tonnes/yr)	LPG (Tonnes/yr)	Total emission (Tonnes/yr)
1	3120	4	512747	354531	0.1	0.0	0.0	0.0	0.0	0.0
2	3130	4	512954	354435	0.0	0.0	0.0	0.0	0.0	0.0
3	3112	9	511847	354285	0.2	0.0	0.0	0.0	0.0	0.0
4	3130	9	511852	354295	0.2	0.0	0.0	0.0	0.0	0.0
5	3130	10	512246	354295	0.2	0.0	0.0	0.0	0.0	0.0
6	3119	10	512310	354295	0.0	0.0	0.1	0.0	0.0	0.1
7	3142	11	512510	354295	0.0	0.0	0.1	0.0	0.0	0.1
8	3128	16	512510	354248	1.8	0.0	1.0	0.0	0.0	2.8
9	3128	18	512920	354900	0.0	0.0	0.0	0.0	0.0	0.0
10	3130	18	511754	354524	0.0	0.0	2.3	0.0	0.0	2.3
11	3118	18	512458	354937	0.0	0.0	0.0	0.0	0.0	0.0
12	3112	18	511810	354228	1.0	0.0	0.0	0.0	0.0	1.0
(Total)					3.3	0.0	3.1	0.0	0.0	6.4
13	3240	4	513300	354324	0.0	0.0	0.0	0.0	0.0	0.0
14	3211	9	511808	354274	0.0	0.0	0.8	0.0	0.0	0.8
15	3242	9	511854	354240	0.3	0.0	0.1	0.0	0.0	0.4
16	3211	9	510856	354347	0.0	0.0	0.8	0.0	0.0	0.8
17	3211	18	510818	354258	0.1	0.1	0.1	0.0	0.0	0.3
18	3211	20	512610	354254	0.3	0.0	1.4	0.0	0.0	1.7
(Total)					1.0	0.1	2.6	0.0	0.0	3.7
19	3313	2	512040	354211	0.0	0.0	0.1	0.0	0.0	0.1
20	3320	9	510320	354240	0.0	0.0	0.0	0.0	0.0	0.0
21	3313	18	511720	354224	0.0	0.0	0.2	0.0	0.0	0.2
(Total)					0.0	0.0	0.3	0.0	0.0	0.3
22	3413	18	511720	354224	0.0	1.0	0.0	0.0	0.0	1.0
(Total)					0.0	1.0	0.0	0.0	0.0	1.0
23	3522	4	511628	354320	0.1	0.0	0.0	0.0	0.0	0.1
24	3522	9	511810	354274	0.1	0.0	0.0	0.0	0.0	0.1
25	3521	9	511826	354304	0.1	0.0	0.0	0.0	0.0	0.1
26	3528	9	511854	354248	0.1	0.0	0.0	0.0	0.0	0.1
27	3522	9	511850	354236	0.0	0.0	0.0	0.0	0.0	0.0
28	3521	9	511854	354272	0.0	0.0	0.0	0.0	0.0	0.0
29	3522	9	510740	354458	0.0	0.0	0.0	0.0	0.0	0.0
30	3522	9	510720	354245	0.3	0.0	1.8	0.0	0.0	2.1
31	3522	9	510720	354245	0.4	0.0	0.1	0.0	0.0	0.5
32	3521	9	510844	354224	0.8	0.0	0.0	0.0	0.0	0.8
33	3523	18	511728	354920	0.0	0.0	0.0	0.0	0.0	0.0
34	3523	18	511804	354242	0.1	0.0	0.0	0.0	0.0	0.1
35	3522	18	511824	354220	0.0	0.0	0.0	0.0	0.0	0.0
36	3541	18	511018	354300	0.0	0.0	0.0	0.0	0.0	0.0
37	3522	18	511728	354224	0.0	0.0	0.0	0.0	0.0	0.0
38	3530	18	510910	354419	0.0	0.0	1.2	0.0	0.0	1.2
39	3520	18	511030	354216	0.0	0.0	2.4	0.0	0.0	2.4
40	3530	20	512520	354211	0.0	0.0	2.4	0.0	0.0	2.4
(Total)	Other Industrial Region				1.9	0.0	5.4	0.0	0.0	7.3
41	3610	9	511814	354273	0.0	0.0	0.0	0.0	0.0	0.0
42	3620	9	511814	354273	1.8	0.1	0.1	0.0	0.0	2.0
43	3632	15	512008	354348	1.4	0.0	0.0	0.0	0.0	1.4
44	3692	15	512008	354348	2.3	0.1	0.0	0.0	0.0	2.4
45	3629	20	512520	354225	1.2	0.0	1.2	0.0	0.0	2.4
(Total)					4.7	0.1	1.3	0.0	0.0	6.1
46	3710	8	511854	354236	0.0	0.0	0.1	0.0	0.0	0.1
47	3710	9	510658	354424	0.1	0.0	0.3	0.0	0.0	0.4
48	3710	18	512050	354334	0.1	0.0	0.0	0.0	0.0	0.1
49	3710	18	511818	354237	0.3	0.0	0.1	0.0	0.0	0.4
50	3710	18	511824	354237	0.3	0.0	0.1	0.0	0.0	0.4
51	3710	19	511848	354256	0.0	0.0	0.0	0.0	0.0	0.0
(Total)					0.4	0.0	0.5	0.0	0.0	0.9
52	3813	4	512424	354314	0.0	0.0	0.0	0.0	0.0	0.0
53	3819	4	512540	354400	0.0	0.0	0.2	0.0	0.0	0.2
54	3827	4	512428	354274	0.1	0.0	0.0	0.0	0.0	0.1
55	3819	5	511818	354211	0.1	0.0	0.1	0.0	0.0	0.2
56	3845	9	511310	354314	0.0	0.0	0.1	0.0	0.0	0.1
57	3851	9	511720	354242	0.0	0.0	0.0	0.0	0.0	0.0
58	3843	9	511116	354328	0.2	0.0	0.0	0.0	0.0	0.2
59	3828	9	511256	354245	0.1	0.0	0.1	0.0	0.0	0.2
60	3827	9	511500	354229	0.3	0.0	0.2	0.0	0.0	0.5
61	3843	9	511020	354326	0.5	0.0	0.5	0.0	0.0	1.0
62	3843	9	510232	354244	0.3	0.0	0.0	0.0	0.0	0.3
63	3827	14	512640	354161	0.0	0.0	0.0	0.0	0.0	0.0
64	3819	15	512820	354345	0.0	0.0	0.4	0.0	0.0	0.4
65	3838	15	512820	354228	0.0	0.0	4.2	0.0	0.0	4.2
66	3838	18	510018	354422	0.0	0.0	0.0	0.0	0.0	0.0
67	3843	18	511820	354211	0.0	0.0	0.1	0.0	0.0	0.1
68	3843	18	511746	354268	0.0	0.0	0.0	0.0	0.0	0.0
69	3836	18	511328	354213	0.0	0.0	0.0	0.0	0.0	0.0
70	3819	18	511046	354268	0.0	0.0	1.2	0.0	0.0	1.2
71	3827	18	511852	354214	0.0	0.0	0.0	0.0	0.0	0.0
72	3843	18	510500	354248	0.2	0.0	0.1	0.0	0.0	0.3
73	3843	18	511828	354228	0.2	0.0	0.6	0.0	0.0	0.8
(Total)					3.7	0.0	6.9	0.0	0.0	10.6
Grand Total					18.7	0.1	26.9	0.0	0.0	45.7

Table 2.4 : HC emission of big factories (Do-Nothing, 2005)

No	Name	District	Location	Natural Gas (Tonnes/yr)	Heavy Oil (Tonnes/yr)	Gas Oil (Tonnes/yr)	Kerosene (Tonnes/yr)	Gasoline (Tonnes/yr)	LPG (Tonnes/yr)	Total emission (Tonnes/yr)
1	Tehran Refinery	2008	512540	354240	548.7	331.5	11.4	0.0	0.0	891.6
2	Power Plant				489.9	138.9	92.4	0.0	0.0	721.2
2.1	- Rosal	16	512540	354240	144.2	138.9	0.0	0.0	0.0	283.1
2.2	- Faraman	7	512110	354924	48.6	0.0	0.0	0.0	0.0	48.6
2.3	- Ray	2005	512430	354120	300.9	0.0	92.4	0.0	0.0	393.3
(Total)					1049.5	470.4	103.8	0.0	0.0	1623.7

Table 1.0: Sector wise energy demand in GTA (Do-Noching, 2010)

Sector	Total Energy Consuming Including Electricity	Total Fuel Consuming	Coal	Gaseous Products etc.	Crude Oil	Petroleum Products	Fuel Oil	Gaseous Products			Lube Oil	Other Petroleum Products	Refined Gasoline	LPG	Natural Gas	City Gas	Total Electric Power	Commercial Power	Domestic Power		
								Gasoline	Jet Fuel	Kerosene										Gas Oil	Heavy Oil
								10 ⁶ m ³	10 ⁶ m ³	10 ⁶ m ³										10 ⁶ m ³	10 ⁶ m ³
16	Total Energy Consuming	39,246	36,670	318	531	0	18,183	14,880	258	2,827	6,786	6,161	0	2,796	748	18,183	3,924				
17	Industry	26,224	23,917	316	631	0	13,182	10,244	239	741	4,321	4,924	0	2,706	213	9,209	2,707				
17.1	Agri Forestry	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
17.2	Minerq	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
17.3	Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
17.4	Total Manufacturing	26,224	23,917	316	631	0	13,182	10,244	239	741	4,321	4,924	0	2,706	213	9,209	2,707				
17.4.1	Food Products	3,671	3,283	0	0	0	2,810	2,768	23	423	1,039	483	0	0	43	453	269				
17.4.2	Textile	1,695	1,272	1	0	0	779	733	33	95	333	273	0	0	18	593	433				
17.4.3	Wood Products	164	111	0	0	0	105	105	0	10	58	30	0	0	6	33	0				
17.4.4	Paper & Products	669	571	20	0	0	330	189	10	6	101	68	0	0	3	270	88				
17.4.5	Industrial Chemical	2,764	2,679	16	0	0	1,348	733	40	18	379	140	0	0	13	1,306	185				
17.4.6	Non-metal Products	9,927	9,597	135	19	0	4,645	4,114	30	75	510	3,488	0	0	10	3,741	200				
17.4.7	Iron & Steel	8,356	7,970	139	764	0	963	748	25	6	440	276	0	0	46	5,482	998				
17.4.8	Machinery	2,042	1,881	3	12	0	866	818	83	90	498	148	0	0	78	670	482				
17.4.9	Other Industries	1,328	1,300	0	11	0	1,287	40	0	15	15	3	0	0	3,244	3	26				
17.5	General Service and House	11,021	9,632				4,134	3,579		1,786	1,268	520			663	5,088	1,218				
17.5.1	Household	9,133	8,299				3,290	2,751		1,872	1,079				460	5,030	647				
17.5.2	Commercial & General	1,887	1,333				844	828		115	189	328			56	692	371				
17.6	Transport																				
17.6.1	Passenger																				
17.6.2	Cargo																				
17.7	Energy Conversion	2,121	2,121				667	667		166	666					1,254					
17.7.1	Power Plant	1,084	1,084				351	351		147	351					732					
17.7.2	Refinery	1,037	1,037				316	316		21	496					517					
17.8	Losses in Conversion																				
17.8.1	Heat Loss in Conversion																				
17.8.2	Other																				

