**M-4**

# Model Manual
# of
# Environmental Impact Analysis Model

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# M-4

# Environmental Impact Analysis Model

## 1) Preparing Work before Estimating GHGs Emissions

*(1) Open the Folder named Original or Case study folder*

This Folder includes following 7 Files;
These Files are linking each other automatically.

| | |
|---|---|
| Model-T | = Demand Forecasting Model |
| LPSupply-T | = LP Supply Model |
| Eg_OEP_DBAL_uf_FMT.xls | = Result of Demand Forecasting Model Calculation (ktoe) |
| Eg_OEP_DBAL_vf_FMT.xls | = Result of Demand Forecasting Model Calculation (kton,GWh) |
| Eg_OEP_DBAL_uf_LPT.xls | = Result of LP Supply Model (ktoe) |
| Eg_OEP_DBAL_vf_LPT.xls | = Result of LP Supply Model (kton,GWh) |
| Env-Model-FM | = Environmental Model Using Eg_OEP_DBAL_uf_FMT.xls |
| Env-Model-LP | = Environmental Model Using Eg_OEP_DBAL_uf_LPT.xls |

*(2) The Structures of Env-Model-FM and Env-Model-LP*

| | |
|---|---|
| 1) SummaryTable | Summary of GHGs Emission on the Annual Base |
| 2) 1-2 TE | Total Energy Supply |
| 3) 2-2 TE | $CO_2$ emissions from Total Energy Supply |
| 4) 1-4 IndSec | Industry Sector energy consumption and $CO_2$ emissions |
| 5) 2-4 TranSec | Transport Sector energy consumption and $CO_2$ emissions |
| 6) 3-4 OtheSec | Other Sector energy consumption and $CO_2$ emissions |
| 7) 1-2 Electricity | the Electricity Sector energy consumption and $CO_2$ emissions |
| 8) 2-2 EnSec | Energy Sector energy consumption and $CO_2$ emissions |
| 9) 4-4 TotalCom | Total Sector energy consumption and CO2 emissions (IPCC,EF) |
| 10) 1-5 CH4 | Energy consumption and $CH_4$ emissions by Sector (IPCC,EF) |
| 11) 2-5 N2O | Energy consumption and $N_2O$ emissions by Sector (IPCC,EF) |
| 12) 3-5 NOx | Energy consumption and NOx emissions by Sector (IPCC,EF) |
| 13) 4-5 CO | Energy consumption and CO emissions by Sector (IPCC,EF) |
| 14) 5-5 NMVOC | Energy consumption and NMVOC emissions by Sector (IPCC,EF) |
| 15) 1-1NonCO2 | CO2 equivalent of $CH_4$ and $N_2O$ (IPCC,EF) |
| 16) SO2Emission | Energy consumption and $SO_2$ emissions by Sector (Egyptian EF) |
| 17) NOxEmission JP | Energy consumption and NOx emissions by Sector (the Other EF) |
| 18) | |
| 19) CO2 Intensity per GDP | |
| 20) NonCO2 Intensity per GDP | |
| 21) SO2NOx Intensity per GDP | |
| 22) GDP Intensity per CO2 | |
| 23) GDP Intensity per NonCO2 | |
| 24) GDP Intensity per SO2NOx | |
| 25) GHG Intensity per Capita | |
| 26) GDP&POP | |

| | | |
|---|---|---|
| 27) | TotalEneCon&CO2bySec | Total energy consumption and $CO_2$ Emission by sector |
| 28) | TotalEneCon&NonCO2bySec | Total energy consumption and Non-$CO_2$ Emission by sector |
| 29) | TotalEneCon&SO2NOxbySec | Total energy consumption and $SO_2$ /NOx Emission by sector |
| 30) | Conect | Linkage sheet of this file and "Fuels" in the File of Eg_OEP_DBAL_uf_FMT.xls |
| 31) | TotalEneConsum | Total energy consumption |
| 32) | TotalCO2Emi | Total $CO_2$ emissions |
| 33) | IndEneConsum | Industry energy consumption |
| 34) | IndCO2Emi | Industry $CO_2$ emissions |
| 35) | TranEneConsum | Transport energy consumption |
| 36) | TranCO2Emi | Transport $CO_2$ emissions |
| 37) | OtheEneConsum | Other Sector energy consumption |
| 38) | OtheCO2Emi | Other Sector $CO_2$ emissions |
| 39) | ElecEneConsum | Electricity energy consumption |
| 40) | ElecCO2Emi | Electricity $CO_2$ emissions |
| 41) | EnSecEneConsum | Energy Sector energy consumption |
| 42) | EnSecCO2Emi | Energy Sector $CO_2$ emissions |
| 43) | | |
| 44) | EFCO2EgyOri | $CO_2$ emissions factors in Egyptian original number |
| 45) | C-Oxidized | Oxidized Rate of Carbon by IPCC |
| 46) | EFSO2EgyOri | $SO_2$ emission factors partly in Egyptian original number |
| 47) | EFofNOxEgyOri | NOx emission factors from Japanese study |
| 48) | EFofCH4 | $CH_4$ emission factors by IPCC |
| 49) | EFofN2O | $N_2O$ emission factors by IPCC |
| 50) | EFofNOx | NOx emission factors by IPCC |
| 51) | EFofCO | CO emission factors by IPCC |
| 52) | EFofNMVOC | NMVOC emission factors by IPCC |
| 53) | CarbonStored | The amount of stored carbon in ash and so on |
| 54) | EFCO2EgyOri(1) | $CO_2$ Emission factor calculated by its C, H, S and Ash components |

**2) Check and Operation**

*(1) Checking the GHGs emissions on the Annual Base*

1-1 In case of checking the GHGs ($CO_2$) emissions from the supply side

Refer "1-2 TE" and "2-2 TE"

You can see the $CO_2$ emissions from the energy supply side

1-2 In case of checking the GHGs ($CO_2$) emissions from the Consumption side

Refer "1-4IndSec", "2-4TranSec", "3-4OtheSec", "1-2Electricity", "2-2EnSec" and "4-4TotalCom"

You can see the GHGs emissions by energy consumption sector and total emissions

1-3 In case of checking the GHGs (Non-$CO_2$) emissions

Refer "1-5CH4", "2-5N2O", "3-5NOx", "4-5CO", "5-5NMVOC"

You can see the GHGs emissions using IPCC Emission Factors

Refer "1-1NonCO2"

You can see $CO_2$ equivalent emissions of $CH_4$ and $N^2O$

Refer “EFSO2EgyOri”, “EfofNOxEgyOri”
You can see $SO_2$ and NOx emissions using Egyptian and Japanese-studied Emission Factors (These numbers are used).

*(2) Checking the GHGs emissions on the Time Series Base*

2-1 In case of checking the GHGs intensities per GDP
Refer “CO2 Intensity per GDP”, “NonCO2 Intensity per GDP”, “SO2NOx Intensity per GDP”.
You can see the GHGs intensities per GDP from 1981 to 2005

2-2 In case of checking the GDP intensities per the GHGs
Refer GDP Intensity per “GDP Intensity per CO2”, “GDP Intensity per NonCO2”, “GDP Intensity per SO2NOx”.
You can see GDP intensities per the GHGs from 1981 to 2005

2-3 In case of checking the GHGs intensities per Capita
Refer “GHG Intensity per Capita”
You can see the GHGs intensities per Capita from 1981 to 2005

2-4 In case of energy consumption and the GHGs emissions by sector
Refer “TotalEneCon&CO2bySec”, “TotalEneCon&NonCO2bySec”, “TotalEneCon&SO2NOxbySec”.
You can see energy consumption and the GHGs emissions by sector from 1981 to 2005

2-5 In case of total energy consumption and total $CO_2$ emission
Refer “TotalEneConsum” and “TotalCO2Emi”
You can see total energy consumption and $CO_2$ emissions from 1981 to 2005

2-6 In case of energy consumption and CO2 emissions by sector
Refer “IndEneConsum”, “IndCO2Emi”, “TranEneConsum”, “TranCO2Emi”, “OtheEneConsum”, “OtheCO2Emi”, “ElecEneConsum”, “ElecCO2Emi”,“EnSecEneConsum”, “EnSecCO2Emi”.
You can see energy consumption and $CO_2$ emissions by sector from 1981 to 2005

*(2) Checking of Emission Factors*
Refer from “EFCO2EgyOri” to “CarbonStored”
You can see the GHGs emission factors estimated by Egyptian and Japanese government organs and IPCC

**3) Definition and Methodology of Each Item (Each Sheet and Each Item)**

**1) SummaryTable**

Energy Consumption and CO2 Emission in Egypt

| 1995 | Energy Consumption (TJ) | $CO_2$ Emission ($MTCO_2$) | from Fuel ($MTCO_2$) | from Non-CO2 ($MTCO_2$) |
|---|---|---|---|---|
| Industry | 333,315 | 24.16 | 24.08 | 0.08 |
| Transportation | 307,526 | 21.70 | 21.57 | 0.12 |
| OtherSector | 134,237 | 8.87 | 8.82 | 0.05 |
| Electricity | 407,994 | 25.05 | 25.01 | 0.04 |
| Energy Sector | 52,844 | 3.79 | 3.78 | 0.01 |
| Total | 1,235,918 | 83.57 | 83.26 | 0.31 |

Energy Consumption is linked with Sheets of "1-4 IndSec", "2-4 TranSec", "3-4 OtheSec", "1-2 Electricity", "2-2 EnSec"

Where, in case of Industry, Energy Consumption =Total energy consumption -Bitumen, because Bitumen is not burned.

$CO_2$ emission from fuel is linked with Sheets of "1-4 IndSec", "2-4 TranSec", "3-4 OtheSec", "1-2 Electricity", "2-2 EnSec"

$CO_2$ emission from Non-$CO_2$ is linked with Sheets of "1-1NonCO2"

Where, Non-$CO_2$ means $CO_2$ equivalent of $CH_4$ from Industrial wastewater and solid disposal place and $CO_2$ from CaCO3 used in Cement industry

$CO_2$ emission is total of "from Fuel" and "from Non-$CO_2$". Total means summation from Industry to Energy Sector

Where, Energy Sector means Oil Refineries use.

Energy Consumption and Non-CO2 Emission in Egypt

| 1995 | SOx Emission ($KTSO_2$) | NOx Emission (KTNOx) | $CH_4$ Emission ($KTCH_4$) | $N_2O$ Emission ($KTN_2O$) | CO Emission (KTCO) | NMVOC Emission (KTNMVOC) |
|---|---|---|---|---|---|---|
| Industry | 124.11 | 47.20 | 1.04 | 0.18 | 7.68 | 0.77 |
| Transportation | 36.61 | 183.91 | 3.16 | 0.18 | 1,064.61 | 202.11 |
| OtherSector | 4.56 | 4.81 | 1.31 | 0.08 | 2.89 | 0.67 |
| Electricity | 74.41 | 61.85 | 0.64 | 0.10 | 7.59 | 1.47 |
| Energy Sector | 20.93 | 18.14 | 0.14 | 0.03 | 0.83 | 0.04 |
| Total | 260.63 | 315.92 | 6.29 | 0.57 | 1,083.60 | 205.05 |

Each Emission is linked with Sheet of "SO2Emission","NOxEmission JP","1-5 CH4","2-5 N20","4-5 CO","5-5 NMVOC"

Total means summation from Industry to Energy Sector

Where, Energy Sector means Oil Refineries use

## 1-2 TE

| Year | | | TOTAL ENERGY | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 | | | $CO_2$ FROM ENERGY SOURCES (REFERENCE APPROACH) | | | | | | | | |
| | | | 1-1 | | | | | | | | |
| | | | 1 of 2 | | | | | | | | |
| | | | STEP 1 | | | | | | | | |
| | | | A Production | B1 Imports | B2 fromPartner | C1 Exports | C2 PartnerShare | D International Bunkers | E Stock Change | F1 Energy Conversion | F2 Apparent Consumption |
| FUEL TYPES | | EGYPT | KTO | KTO | KTO | KTO | KTO | KTO | KTO | KTO | KTO (A+..F1) |
| Liquid Fossil | Primary Fuels | Crude Oil | 43,774.0 | 0.0 | 5,291.4 | -7,824.7 | -15,524.0 | 0.0 | 49.0 | -25,765.8 | 0.0 |
| | | Natural Gas Liquids | 1,449.3 | 0.0 | 64.0 | 0.0 | -313.3 | 0.0 | 0.0 | -1,200.1 | 0.0 |
| | Secondary Fuels | Gasoline | 2,175.1 | 1.3 | 0.0 | 0.0 | 0.0 | -0.1 | -8.8 | | 2,167.5 |
| | | Jet Kerosene | 919.8 | 0.0 | 0.0 | -77.1 | 0.0 | -272.6 | 0.0 | | 570.2 |
| | | Kerosene | 1,378.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 36.9 | | 1,415.1 |
| | | Gas/Diesel Oil | 6,193.1 | 405.1 | 0.0 | 0.0 | 0.0 | -326.2 | 33.0 | -592.7 | 5,712.4 |
| | | Residual Fuel Oil | 12,205.0 | 0.0 | 0.0 | -2,391.1 | 0.0 | -2,431.0 | 36.9 | -3,201.8 | 4,218.1 |
| | | LPG | 1,550.3 | 180.0 | 0.0 | 0.0 | 0.0 | 0.0 | -7.9 | | 1,722.4 |
| | | Naphtha | 2,980.3 | 0.0 | 0.0 | -2,870.0 | 0.0 | 0.0 | -48.5 | | 61.8 |
| | | Bitumen | 706.6 | 0.0 | 0.0 | -0.2 | 0.0 | 0.0 | 0.0 | | 706.5 |
| | | Lubricants | 222.6 | 24.3 | 0.0 | 0.0 | 0.0 | -0.0 | 0.0 | -16.5 | 230.4 |
| | | Petroleum Coke | 116.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 116.9 |
| | | Non-Specified PP | 169.8 | 27.2 | 0.0 | -49.3 | 0.0 | 0.0 | 0.0 | | 147.7 |
| **Liquid Fossil Totals** | | | **73,841.1** | **637.9** | **5,355.4** | **-13,212.4** | **-15,837.2** | **-3,029.8** | **90.7** | **-30,776.8** | **17,068.8** |
| Solid Fossil | Primary Fuels | Hard Coal | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 |
| | | Coking Coal | 0.0 | 1,331.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -1,331.3 | 0.0 |
| | | Coke Oven/Gas Coke | 1,027.6 | 0.7 | 0.0 | -326.2 | 0.0 | 0.0 | 0.0 | | 702.1 |
| **Solid Fossil Totals** | | | **1,027.6** | **1,332.0** | **0.0** | **-326.2** | **0.0** | **0.0** | **0.0** | **-1,331.3** | **702.1** |
| **Gaseous Fossil** | | **Natural Gas (Dry)** | **11,296.6** | **0.0** | **2,084.2** | **0.0** | **-2,083.1** | **0.0** | **0.0** | **-7,885.9** | **3,411.9** |
| **Total** | | | **86,165.4** | **1,969.9** | **7,439.6** | **-13,538.6** | **-17,920.4** | **-3,029.8** | **90.7** | **-39,994.0** | **21,182.8** |
| | | | | | | | | | | | |
| Electricity | | | | | | | | | | | 9,744.8 |
| Energy Sector | | | | | | | | | | | 1,262.2 |
| ***TOTAL*** | | | | | | | | | | | ***32,189.8*** |

This table is linked with Sheet "EB" in the File "Eg_OEP_DBAL_uf_FMT.xls"
Apparent Consumption means Summation from "Production" to "Energy Conversion"

**2-2 TE**

| Year | | | TOTAL ENERGY | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 | | | $CO_2$ FROM ENERGY SOURCES (REFERENCE APPROACH) | | | | | | | | | |
| | | | 1-1 | | | | | | | | | |
| | | | 2 of 2 | | | | | | | | | |
| | | | STEP 1 | STEP 2 | | STEP 3 | | STEP 4 | | STEP 5 | | STEP 6 |
| | | | A | G[a] | H | I | J | K | L | M | N | O |
| | | | Production | Conversion Factor | Apparent Consumption | Carbon Emmission Factor | Carbon Content | Carbon Stored | Net Carbon Emissions | Fraction of Carbon Oxidised | Actual Carbon Emissions | Actual $CO_2$ Emissions |
| FUEL TYPES | | EGYPT | KTO | (TJ/unit) | (TJ) | (tC/TJ) | (MtC) | (MtC) | (MtC) | | (MtC) | (MtCO2) |
| | | | | | H = (F × G) | | J = (H × I) | | L = (J -K) | | N = (L × M) | O = (N × (44/12)) |
| Liquid Fossil | Primary Fuels | Crude Oil | 0.0 | 41.868 | 0 | 19.7 | 0.00 | | 0.00 | 0.99 | 0.00 | 0.00 |
| | | Natural Gas Liquids | 0.0 | 41.868 | 0 | 17.2 | 0.00 | | 0.00 | 0.99 | 0.00 | 0.00 |
| | Secondary Fuels | Gasoline | 2,167.5 | 41.868 | 90,750 | 18.3 | 1.66 | | 1.66 | 0.99 | 1.65 | 6.04 |
| | | Jet Kerosene | 570.2 | 41.868 | 23,871 | 19.1 | 0.46 | | 0.46 | 0.99 | 0.45 | 1.66 |
| | | Kerosene | 1,415.1 | 41.868 | 59,246 | 19.3 | 1.14 | | 1.14 | 0.99 | 1.13 | 4.15 |
| | | Gas/Diesel Oil | 5,712.4 | 41.868 | 239,166 | 19.6 | 4.69 | 0.00 | 4.69 | 0.99 | 4.64 | 17.03 |
| | | Residual Fuel Oil | 4,218.1 | 41.868 | 176,603 | 20.8 | 3.68 | | 3.68 | 0.99 | 3.64 | 13.36 |
| | | LPG | 1,722.4 | 41.868 | 72,112 | 17.3 | 1.25 | 0.00 | 1.25 | 0.99 | 1.23 | 4.52 |
| | | Naphtha | 61.8 | 41.868 | 2,586 | 19.5 | 0.05 | 0.00 | 0.05 | 0.99 | 0.05 | 0.18 |
| | | Bitumen | 706.5 | 41.868 | 29,578 | 16.6 | 0.49 | 0.49 | 0.00 | 0.99 | 0.00 | 0.00 |
| | | Lubricants | 230.4 | 41.868 | 9,645 | 19.8 | 0.19 | 0.00 | 0.19 | 0.99 | 0.19 | 0.69 |
| | | Petroleum Coke | 116.9 | 41.868 | 4,895 | 27.5 | 0.13 | | 0.13 | 0.99 | 0.13 | 0.49 |
| | | Non-Specified PP | 147.7 | 41.868 | 6,186 | 19.8 | 0.12 | | 0.12 | 0.99 | 0.12 | 0.44 |
| **Liquid Fossil Totals** | | | **17,068.8** | | **714,638.6** | | **13.87** | | **13.38** | | **13.24** | **48.56** |
| Solid Fossil | Primary Fuels | Hard Coal | 0.0 | 41.868 | 0 | 21.0 | 0.00 | | 0.00 | 0.98 | 0.00 | 0.00 |
| | | Coking Coal | 0.0 | 41.868 | 0 | 22.4 | 0.00 | | 0.00 | 0.98 | 0.00 | 0.00 |
| | | Coke Oven/Gas Coke | 702.1 | 41.868 | 29,396 | 29.5 | 0.87 | | 0.87 | 0.98 | 0.85 | 3.12 |
| **Solid Fossil Totals** | | | **702.1** | | **29,396** | | **0.87** | | **0.87** | | **0.85** | **3.12** |
| **Gaseous Fossil** | | **Natural Gas (Dry)** | **3,411.9** | **41.868** | **142,849** | **15.3** | **2.19** | **1.01** | **1.17** | **0.995** | **1.17** | **4.28** |
| **Total** | | | **21,182.8** | | **886,883** | | **16.92** | | **15.42** | | **15.26** | **55.96** |
| | | | | | | | | | | | | |
| Electricity | | | 9,744.8 | 41.868 | 407,994 | 16.8 | 6.87 | | 6.87 | 0.993 | 6.82 | 25.01 |
| Energy Sector | | | 1,262.2 | 41.868 | 52,844 | 19.7 | 1.04 | | 1.04 | 0.991 | 1.03 | 3.78 |
| ***TOTAL*** | | | ***32,189.8*** | | ***1,347,721*** | | ***24.83*** | | ***23.33*** | | ***23.11*** | ***84.74*** |

Production is linked with Sheet of "1-2 TE". Conversion factor is Constant value, Carbon emission factor is linked with Sheet of "EFCO2EgyOri". Carbon Stored is linked with Sheet of "CarbonStored" and Fraction of Carbon Oxidized is Constant value.
Actual Carbon Emissions and Actual $CO_2$ emissions mean result of calculation.

## 1-4 IndSec

| Year | | | Industry Sector Use | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 | | | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | | | |
| | | | 1-1 | | | | | | | | | |
| | | | 1 of 4 | | | | | | | | | |
| | | | STEP 1 | STEP 2 | | STEP 3 | | STEP 4 | | STEP 5 | | STEP 6 |
| | | | A | G[b] | H | I | J | K | L | M | N | O |
| | | | Apparent Consumption | Conversion Factor | Apparent Consumption | Carbon Emmission Factor | Carbon Content | Carbon Stored | Net Carbon Emissions | Fraction of Carbon Oxidised | Actual Carbon Emissions | Actual $CO_2$ Emissions |
| FUEL TYPES | | EGYPT | KTO | (TJ/unit) | (TJ) | (tC/TJ) | (MtC) | (MtC) | (MtC) | | (MtC) | (MtCO2) |
| | | | | | H = (F × G) | | J = (H × I) | | L = (J -K) | | N = (L × M) | O= (N × (44/12)) |
| Liquid Fossil | Primary Fuels | Crude Oil | | | | | | | | | | |
| | | Natural Gas Liquids | | | | | | | | | | |
| | Secondary Fuels | Gasoline | 0.0 | 41.868 | 0 | 18.3 | | | | 0.99 | | |
| | | Jet Kerosene | 0.0 | 41.868 | 0 | 19.1 | | | | 0.99 | | |
| | | Kerosene | 4.3 | 41.868 | 182 | 19.3 | 0.00 | | 0.00 | 0.99 | 0.00 | 0.01 |
| | | Gas /Diesel Oil | 1,904.9 | 41.868 | 79,756 | 19.6 | 1.56 | 0.00 | 1.56 | 0.99 | 1.55 | 5.68 |
| | | Residual Fuel Oil | 3,533.2 | 41.868 | 147,929 | 20.8 | 3.08 | | 3.08 | 0.99 | 3.05 | 11.19 |
| | | LPG | 60.8 | 41.868 | 2,543 | 17.3 | 0.04 | 0.00 | 0.04 | 0.99 | 0.04 | 0.16 |
| | | Naphtha | 0.0 | | 0 | 19.5 | | | | | | |
| | | Bitumen | 685.3 | 41.868 | 28,690 | 16.6 | 0.48 | 0.48 | 0.00 | 0.99 | 0.00 | 0.00 |
| | | Lubricants | 80.7 | 41.868 | 3,378 | 19.8 | 0.07 | 0.00 | 0.07 | 0.99 | 0.07 | 0.24 |
| | | Petroleum Coke | 0.0 | | 0 | 27.5 | | | | | | |
| | | Non-Specified PP | 248.8 | 41.868 | 10,418 | 19.8 | 0.21 | | 0.21 | 0.99 | 0.20 | 0.75 |
| **Liquid Fossil Totals** | | | **6,518.0** | | **272,896.6** | | **5.44** | | **4.97** | | **4.92** | **18.03** |
| Solid Fossil | Primary Fuels | HardCoal | | | | | | | | | | |
| | | CokingCoal | | | | | | | | | | |
| | | Coke Oven/Gas Coke | 510.7 | 41.868 | 21,383 | 29.5 | 0.63 | | 0.63 | 0.98 | 0.62 | 2.27 |
| **Solid Fossil Totals** | | | **510.7** | | **21,383** | | **0.63** | | **0.63** | | **0.62** | **2.27** |
| **Gaseous Fossil** | | **Natural Gas(Dry)** | **1,617.6** | **41.868** | **67,726** | **15.3** | **1.04** | **0.00** | **1.04** | **0.995** | **1.03** | **3.78** |
| **Total** | | | **8,646.4** | | **362,006** | | **7.11** | | **6.63** | | **6.57** | **24.08** |
| | | | | | | | | | | | | |
| Electricity (Input Base) | | | 4,224.2 | 41.868 | 176,861 | 16.8 | 2.98 | | 2.98 | 0.993 | 2.96 | 10.84 |
| Energy Sector (Ref) | | | 570.9 | 41.868 | 23,902 | 19.7 | 0.47 | | 0.47 | 0.991 | 0.47 | 1.71 |
| ***TOTAL*** | | | ***13,441.5*** | | ***562,769*** | | ***10.56*** | | ***10.08*** | | ***9.99*** | ***36.63*** |

Apparent Consumption is linked with Sheet of "EB" in the File of "Eg_OEP_DBAL_uf_FMT.xls". Conversion factor is Constant value, Carbon emission factor is linked with Sheet of "EFCO2EgyOri". Carbon Stored is linked with Sheet of "CarbonStored" and Fraction of Carbon Oxidized is Constant value. Actual Carbon Emissions and Actual $CO_2$ emissions mean result of calculation.

Electricity (Input Base); Apparent Consumption is the part of Industrial sector in total consumption in Electricity sector (total fuel consumption in electricity *electricity consumption in Industry sector/total electricity consumption). This item is linked with Sheet of "1-2 Electricity" and "EB" in the File of "Eg_OEP_DBAL_uf_FMT.xls". Fraction of Carbon Oxidized is linked with Sheet of "1-2 Electricity"

EnergySector (Ref); Apparent Consumption is the part of Industrial sector in total consumption in Energy Sector ((total non-electricity fuel consumption in EnergySector *non-electricity consumption in Industry sector/total non-electricity consumption). This Item is linked with Sheet of "2-2 EnSec" and "EB" in the File of "Eg_OEP_DBAL_uf_FMT.xls". Fraction of Carbon Oxidized is linked with Sheet of "2-2 EnSec"

## 2-4 TranSec

| Year | | Tranportation Sector Use | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 | | $CO_2$ FROM ENERGY SOURCES (REFERENCE APPROACH) | | | | | | | | | |
| | | 1-1 | | | | | | | | | |
| | | 2 of 4 | | | | | | | | | |
| | | STEP 1 | STEP 2 | | STEP 3 | | STEP 4 | | STEP 5 | | STEP 6 |
| | | A | G[a] | H | I | J | K | L | M | N | O |
| | | Apparent Consumption | Conversion Factor | Apparent Consumption | Carbon Emmission Factor | Carbon Content | Carbon Stored | Net Carbon Emissions | Fraction of Carbon Oxidised | Actual Carbon Emissions | Actual $CO_2$ Emissions |
| FUEL TYPES | EGYPT | KTO | (TJ/unit) | (TJ) | (tC/TJ) | (MtC) | (MtC) | (MtC) | | (MtC) | (MtCO2) |
| | | | | H = (F × G) | | J = (I × I) | | L = (J -K) | | N = (L × M) | O = (N × (44/12)) |
| Liquid Fossil | Primary Fuels | Crude Oil | | | | | | | | | |
| | | Natural Gas Liquids | | | | | | | | | |
| | Secondary Fuels | Gasoline | 2, 175.1 | 41.868 | 91,068 | 18.3 | 1.67 | | 1.67 | 0.99 | 1.65 | 6.06 |
| | | Jet Kerosene | 483.3 | 41.868 | 20,234 | 19.1 | 0.39 | | 0.39 | 0.99 | 0.38 | 1.40 |
| | | Kerosene | 0.0 | 41.868 | 0 | 19.3 | | | | 0.99 | | |
| | | Gas/Diesel Oil | 3, 734.2 | 41.868 | 156,343 | 19.6 | 3.07 | 0.00 | 3.07 | 0.99 | 3.04 | 11.13 |
| | | Residual Fuel Oil | 719.3 | 41.868 | 30,115 | 20.8 | 0.63 | | 0.63 | 0.99 | 0.62 | 2.28 |
| | | LPG | 0.0 | 41.868 | 0 | 17.3 | | 0.00 | | 0.99 | | |
| | | Naphtha | 0.0 | 41.868 | 0 | 19.5 | | 0.00 | | 0.99 | | |
| | | Bitumen | 0.0 | 41.868 | 0 | 16.6 | | 0.00 | | 0.99 | | |
| | | Lubricants | 155.5 | 41.868 | 6,511 | 19.8 | 0.13 | 0.00 | 0.13 | 0.99 | 0.13 | 0.47 |
| | | Petroleum Coke | 0.0 | 41.868 | 0 | 27.5 | | | | 0.99 | | |
| | | Non-Specified PP | 77.8 | 41.868 | 3,256 | 19.8 | 0.06 | | 0.06 | 0.99 | 0.06 | 0.23 |
| **Liquid Fossil Totals** | | **7, 345.1** | | **307,526.5** | | **5.94** | | **5.94** | | **5.88** | **21.57** |
| Solid Fossil | Primary Fuels | Hard Coal | | | | | | | | | |
| | | Coking Coal | | | | | | | | | |
| | | Coke Oven/Gas Coke | 0.0 | 41.868 | 0 | 29.5 | 0.00 | | 0.00 | 0.98 | 0.00 | 0.00 |
| **Solid Fossil Totals** | | **0.0** | | **0** | | **0.00** | | **0.00** | | **0.00** | **0.00** |
| **Gaseous Fossil** | **Natural Gas (Dry)** | 0.0 | **41.868** | **0** | **15.3** | **0.00** | **0.00** | **0.00** | **0.995** | **0.00** | **0.00** |
| **Total** | | **7, 345.1** | | **307,526** | | **5.94** | | **5.94** | | **5.88** | **21.57** |
| | | | | | | | | | | | |
| Electricity (Input Base) | | 0.0 | 41.868 | 0 | 16.8 | 0.00 | | 0.00 | 0.993 | 0.00 | 0.00 |
| Energy Sector (Ref) | | 480.5 | 41.868 | 20,119 | 19.7 | 0.40 | | 0.40 | 0.991 | 0.39 | 1.44 |
| ***TOTAL*** | | ***7,825.7*** | | ***327,645*** | | ***6.34*** | | ***6.34*** | | ***6.28*** | ***23.01*** |

Apparent Consumption is linked with Sheet of "EB" in the File of "Eg_OEP_DBAL_uf_FMT.xls". Conversion factor is Constant value, Carbon emission factor is linked with Sheet of "EFCO2EgyOri". Carbon Stored is linked with Sheet of "CarbonStored" and Fraction of Carbon Oxidized is Constant value. Actual Carbon Emissions and Actual $CO_2$ emissions mean result of calculation.

EnergySector (Ref); Apparent Consumption is the part of Transport sector in total consumption in Energy Sector ((total non-electricity fuel consumption in EnergySector *non-electricity consumption in Transport sector/total non-electricity consumption). This Item is linked with Sheet of "2-2 EnSec" and "EB" in the File of "Eg_OEP_DBAL_uf_FMT.xls". Fraction of Carbon Oxidized is linked with Sheet of "2-2 EnSec".

### 3-4 OtheSec

| Year | | | Other Sector Use | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 | | | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | | | |
| | | | 1-1 | | | | | | | | | |
| | | | 3 of 4 | | | | | | | | | |
| | | | STEP 1 | STEP 2 | | STEP 3 | | STEP 4 | | STEP 5 | | STEP 6 |
| | | | A | G[W] | H | I | J | K | L | M | N | O |
| | | | Apparent Consumption | Conversion Factor | Apparent Consumption | Carbon Emmission Factor | Carbon Content | Carbon Stored | Net Carbon Emissions | Fraction of Carbon Oxidised | Actual Carbon Emissions | Actual $CO_2$ Emissions |
| FUEL TYPES | | | KTO | (TJ/unit) | (TJ) | (tC/TJ) | (MtC) | (MtC) | (MtC) | | (MtC) | (MtCO2) |
| EGYPT | | | | | H = (F × G) | | J = (H × I) | | L = (J-K) | | N = (L × M) | O = (N × 44/12) |
| Liquid Fossil | Primary Fuels | Crude Oil | | | | | | | | | | |
| | | Natural Gas Liquids | | | | | | | | | | |
| | Secondary Fuels | Gasoline | 0.0 | 41.868 | 0 | 18.3 | | | | 0.99 | | |
| | | Jet Kerosene | 0.0 | 41.868 | 0 | 19.1 | | | | 0.99 | | |
| | | Kerosene | 1,405.3 | 41.868 | 58,836 | 19.3 | 1.13 | | 1.13 | 0.99 | 1.12 | 4.12 |
| | | Gas/Diesel Oil | 4.3 | 41.868 | 179 | 19.6 | 0.00 | 0.00 | 0.00 | 0.99 | 0.00 | 0.01 |
| | | Residual Fuel Oil | 0.0 | 41.868 | 0 | 20.8 | | | | 0.99 | | |
| | | LPG | 1,598.6 | 41.868 | 66,931 | 17.3 | 1.16 | 0.00 | 1.16 | 0.99 | 1.14 | 4.20 |
| | | Naphtha | 0.0 | 41.868 | 0 | 19.5 | | 0.00 | | 0.99 | | |
| | | Bitumen | 0.0 | 41.868 | 0 | 16.6 | | 0.00 | | 0.99 | | |
| | | Lubricants | 36.9 | 41.868 | 1,546 | 19.8 | 0.03 | 0.00 | 0.03 | 0.99 | 0.03 | 0.11 |
| | | Petroleum Coke | 0.0 | 41.868 | 0 | 27.5 | | | | 0.99 | | |
| | | Non-Specified PP | 0.0 | 41.868 | 0 | 19.8 | | | | 0.99 | | |
| **Liquid Fossil Totals** | | | **3,045.1** | | **127,492.6** | | **2.33** | | **2.33** | | **2.30** | **8.44** |
| Solid Fossil | Primary Fuels | Hard Coal | | 41.868 | | | | | | 0.98 | | |
| | | Coking Coal | | 41.868 | | | | | | 0.98 | | |
| | | Coke Oven/Gas Coke | 0.0 | 41.868 | 0 | 29.5 | 0.00 | | 0.00 | 0.98 | 0.00 | 0.00 |
| **Solid Fossil Totals** | | | **0.0** | | **0** | | **0.00** | | **0.00** | | **0.00** | **0.00** |
| **Gaseous Fossil** | | **Natural Gas(Dry)** | **161.1** | **41.868** | **6,745** | **15.3** | **0.10** | **0.00** | **0.10** | **0.995** | **0.10** | **0.38** |
| **Total** | | | **3,206.2** | | **134,237** | | **2.43** | | **2.43** | | **2.40** | **8.82** |
| | | | | | | | | | | | | |
| Electricity (Input Base) | | | 5,520.5 | 41.868 | 231,133 | 16.8 | 3.89 | | 3.89 | 0.993 | 3.86 | 14.17 |
| Energy Sector (Ref) | | | 210.7 | 41.868 | 8,823 | 19.7 | 0.17 | | 0.17 | 0.991 | 0.17 | 0.63 |
| ***TOTAL*** | | | ***8,937.5*** | | ***374,194*** | | ***6.49*** | | ***6.49*** | | ***6.44*** | ***23.62*** |

Apparent Consumption is linked with Sheet of "EB" in the File of "Eg_OEP_DBAL_uf_FMT.xls". Conversion factor is Constant value, Carbon emission factor is linked with Sheet of "EFCO2EgyOri". Carbon Stored is linked with Sheet of "CarbonStored" and Fraction of Carbon Oxidized is Constant value. Actual Carbon Emissions and Actual $CO_2$ emissions mean result of calculation.

Electricity (Input Base); Apparent Consumption is the part of Other sector in total consumption in Electricity sector (total fuel consumption in electricity *electricity consumption in Other sector/total electricity consumption). This Item is linked with Sheet of "1-2 Electricity" and "EB" in the File of "Eg_OEP_DBAL_uf_FMT.xls". Fraction of Carbon Oxidized is linked with Sheet of "E-2 Electricity"

EnergySector (Ref); Apparent Consumption is the part of Other sector in total consumption in Energy Sector ((total non-electricity fuel consumption in EnergySector *non-electricity consumption in Other sector/total non-electricity consumption). This Item is linked with Sheet of "2-2 EnSec" and "EB" in the File of "Eg_OEP_DBAL_uf_FMT.xls". Fraction of Carbon Oxidized is linked with Sheet of "2-2 EnSec".

## 1-2 Electricity

| Year | | Electricity Generation | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 | | $CO_2$ FROM ENERGY SOURCES (REFERENCE APPROACH) | | | | | | | | | |
| | | 1-1 | | | | | | | | | |
| | | 1 of 2 | | | | | | | | | |
| | | STEP 1 | STEP 2 | | STEP 3 | | STEP 4 | | STEP 5 | | STEP 6 |
| | | A | G[a] | H | I | J | K | L | M | N | O |
| | | Apparent Consumption | Conversion Factor | Apparent Consumption | Carbon Emmission Factor | Carbon Content | Carbon Stored | Net Carbon Emissions | Fraction of Carbon Oxidised | Actual Carbon Emissions | Actual $CO_2$ Emissions |
| FUEL TYPES | EGYPT | KTO | (TJ/unit) | (TJ) | (tC/TJ) | (MtC) | (MtC) | (MtC) | | (MtC) | (MtCO2) |
| | | | | H = (F × G) | | J = (I × I) | | L = (J -K) | | N = (L × M) | O = (N × (44/12)) |
| Liquid Fossil | Primary Fuels | Crude Oil | | | | | | | | | |
| | | Natural Gas Liquids | | | | | | | | | |
| | Secondary Fuels | Gasoline | 0.0 | | 0 | 18.3 | | | | | |
| | | Jet Kerosene | 0.0 | | 0 | 19.1 | | | | | |
| | | Kerosene | 0.0 | | 0 | 19.3 | | | | | |
| | | Gas/Diesel Oil | 191.9 | 41.868 | 8,034 | 19.6 | 0.16 | 0.00 | 0.16 | 0.99 | 0.16 | 0.57 |
| | | Residual Fuel Oil | 2, 518.5 | 41.868 | 105,443 | 20.8 | 2.20 | | 2.20 | 0.99 | 2.18 | 7.98 |
| | | LPG | 0.0 | | 0 | 17.3 | | | | | | |
| | | Naphtha | 0.0 | | 0 | 19.5 | | | | | | |
| | | Bitumen | 0.0 | | 0 | 16.6 | | | | | | |
| | | Lubricants | 10.7 | 41.868 | 448 | 19.8 | 0.01 | 0.00 | 0.01 | 0.99 | 0.01 | 0.03 |
| | | Petroleum Coke | 0.0 | | 0 | 27.5 | | | | | | |
| | | Non-Specified PP | 0.0 | | 0 | 19.8 | | | | | | |
| **Liquid Fossil Totals** | | **2, 721.0** | | **113,923.8** | | **2.36** | | **2.36** | | **2.34** | **8.58** |
| Solid Fossil | Primary Fuels | Hard Coal | | | | | | | | | |
| | | Coking Coal | | | | | | | | | |
| | | Coke Oven/Gas Coke | 0.0 | | 0 | 29.5 | | | | | | |
| **Solid Fossil Totals** | | **0.0** | | **0** | | **0.00** | | **0.00** | | **0.00** | **0.00** |
| **Gaseous Fossil** | **Natural Gas (Dry)** | **7, 023.7** | **41.868** | **294,070** | **15.3** | **4.50** | **0.00** | **4.50** | **0.995** | **4.48** | **16.43** |
| **Total** | | **9, 744.8** | | **407,994** | **16.8** | **6.87** | | **6.87** | **0.993** | **6.82** | **25.01** |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| ***TOTAL*** | | | | | | | | | | | |

Apparent Consumption is linked with Sheet of "EB" in the File of "Eg_OEP_DBAL_uf_FMT.xls" (The numbers in "EB" sheet are negative value. So we changed positive value by multiplying minus 1). Conversion factor is Constant value, Carbon emission factor is linked with Sheet of "EFCO2EgyOri". Carbon Stored is linked with Sheet of "CarbonStored" and Fraction of Carbon Oxidized is Constant value.
Actual Carbon Emissions and Actual $CO_2$ emissions mean result of calculation.

## 2-2 EnSec

| Year | | | Energy Sector Use | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 | | | $CO_2$ FROM ENERGY SOURCES (REFERENCE APPROACH) | | | | | | | | | |
| | | | 1-1 | | | | | | | | | |
| | | | 2 of 2 | | | | | | | | | |
| | | | STEP 1 | STEP 2 | | STEP 3 | | STEP 4 | | STEP 5 | | STEP 6 |
| | | | A | G[a] | H | I | J | K | L | M | N | O |
| | | | Apparent Consumption | Conversion Factor | Apparent Consumption | Carbon Emmission Factor | Carbon Content | Carbon Stored | Net Carbon Emissions | Fraction of Carbon Oxidised | Actual Carbon Emissions | Actual $CO_2$ Emissions |
| FUEL TYPES | | EGYPT | KTO | (TJ/unit) | (TJ) | (tC/TJ) | (MtC) | (MtC) | (MtC) | | (MtC) | (MtCO2) |
| | | | | | H = (F × G) | J = (I × I) | | | L = (J -K) | | N = (L × M) | O = (N × (44/12)) |
| Liquid Fossil | Primary Fuels | Crude Oil | | | | | | | | | | |
| | | Natural Gas Liquids | | | | | | | | | | |
| | Secondary Fuels | Gasoline | 0.0 | | 0 | 18.3 | | | | | | |
| | | Jet Kerosene | 0.0 | | 0 | 19.1 | | | | | | |
| | | Kerosene | 0.0 | | 0 | 19.3 | | | | | | |
| | | Gas/Diesel Oil | 400.8 | 41.868 | 16,781 | 19.6 | 0.33 | 0.00 | 0.33 | 0.99 | 0.33 | 1.19 |
| | | Residual Fuel Oil | 683.3 | 41.868 | 28,609 | 20.8 | 0.60 | | 0.60 | 0.99 | 0.59 | 2.16 |
| | | LPG | 0.0 | | 0 | 17.3 | | | | | | |
| | | Naphtha | 0.0 | | 0 | 19.5 | | | | | | |
| | | Bitumen | 0.0 | | 0 | 16.6 | | | | | | |
| | | Lubricants | 5.8 | 41.868 | 244 | 19.8 | 0.00 | 0.00 | 0.00 | 0.99 | 0.00 | 0.02 |
| | | Petroleum Coke | 0.0 | | 0 | 27.5 | | | | | | |
| | | Non-Specified PP | 0.0 | | 0 | 19.8 | | | | | | |
| **Liquid Fossil Totals** | | | **1,090.0** | | **45,634.6** | | **0.93** | | **0.93** | | **0.92** | **3.38** |
| Solid Fossil | Primary Fuels | Hard Coal | | | | | | | | | | |
| | | Coking Coal | | | | | | | | | | |
| | | Coke Oven/Gas Coke | 0.0 | | 0 | 29.5 | | | | | | |
| **Solid Fossil Totals** | | | **0.0** | | **0** | | **0.00** | | **0.00** | | **0.00** | **0.00** |
| **Gaseous Fossil** | | **Natural Gas (Dry)** | **172.2** | **41.868** | **7,210** | **15.3** | **0.11** | **0.00** | **0.11** | **0.995** | **0.11** | **0.40** |
| **Total** | | | **1,262.2** | | **52,844** | **19.7** | **1.04** | | **1.04** | **0.99** | **1.03** | **3.78** |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| *TOTAL* | | | | | | | | | | | | |

Apparent Consumption is linked with Sheet of "EB" in the File of "Eg_OEP_DBAL_uf_FMT.xls" (The numbers in "EB" sheet are negative value. So we changed positive value multiplying by minus 1). Conversion factor is Constant value, Carbon emission factor is linked with Sheet of "EFCO2EgyOri". Carbon Stored is linked with Sheet of "CarbonStored" and Fraction of Carbon Oxidized is Constant value.
Actual Carbon Emissions and Actual $CO_2$ emissions mean result of calculation.

## 4-4 TotalCom

| Year | | | TOTAL CONSUMPTION | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1995 | | | $CO_2$ FROM ENERGY SOURCES (REFERENCE APPROACH) | | | | | | | | | |
| | | | 1-1 | | | | | | | | | |
| | | | 4 of 4 | | | | | | | | | |
| | | | STEP 1 | STEP 2 | | STEP 3 | | STEP 4 | | STEP 5 | | STEP 6 |
| | | | A | G[a] | H | I | J | K | L | M | N | O |
| | | | Apparent Consumption | Conversion Factor | Apparent Consumption | Carbon Emmission Factor | Carbon Content | Carbon Stored | Net Carbon Emissions | Fraction of Carbon Oxidised | Actual Carbon Emissions | Actual $CO_2$ Emissions |
| FUEL TYPES | | EGYPT | KTO | (TJ/unit) | (TJ) | (tC/TJ) | (MtC) | (MtC) | (MtC) | | (MtC) | (MtCO2) |
| | | | | | H = (F × G) | J = (I × I) | | | L = (J -K) | | N = (L × M) | O = (N × (44/12)) |
| Liquid Fossil | Primary Fuels | Crude Oil | | | | | | | | | | |
| | | Natural Gas Liquids | | | | | | | | | | |
| | Secondary Fuels | Gasoline | 2,175.1 | 41.868 | 91,068 | 18.3 | 1.67 | | 1.67 | 0.99 | 1.65 | 6.06 |
| | | Jet Kerosene | 483.3 | 41.868 | 20,234 | 19.1 | 0.39 | | 0.39 | 0.99 | 0.38 | 1.40 |
| | | Kerosene | 1,409.6 | 41.868 | 59,018 | 19.3 | 1.14 | | 1.14 | 0.99 | 1.13 | 4.13 |
| | | Gas/Diesel Oil | 5,643.4 | 41.868 | 236,278 | 19.6 | 4.63 | 0.00 | 4.63 | 0.99 | 4.59 | 16.82 |
| | | Residual Fuel Oil | 4,252.5 | 41.868 | 178,044 | 20.8 | 3.71 | | 3.71 | 0.99 | 3.67 | 13.47 |
| | | LPG | 1,659.4 | 41.868 | 69,475 | 17.3 | 1.20 | 0.00 | 1.20 | 0.99 | 1.19 | 4.36 |
| | | Naphtha | | | | 19.5 | | | | | | |
| | | Bitumen | 685.3 | 41.868 | 28,690 | 16.6 | 0.48 | 0.48 | 0.00 | 0.99 | 0.00 | 0.00 |
| | | Lubricants | 273.1 | 41.868 | 11,435 | 19.8 | 0.23 | 0.00 | 0.23 | 0.99 | 0.22 | 0.82 |
| | | Petroleum Coke | | | | 27.5 | | | | | | |
| | | Non-Specified P P | 326.6 | 41.868 | 13,674 | 19.8 | 0.27 | | 0.27 | 0.99 | 0.27 | 0.98 |
| **Liquid Fossil Totals** | | | **16,908.3** | | **707,915.7** | | | | | | | |
| Solid Fossil | Primary Fuels | Hard Coal | | | | | | | | | | |
| | | Coking Coal | | | | | | | | | | |
| | | Coke Oven/Gas Coke | 510.7 | 41.868 | 21,383 | 29.5 | 0.63 | | 0.63 | 0.98 | 0.62 | 2.27 |
| **Solid Fossil Totals** | | | **510.7** | | **21,383** | | | | | | | |
| **Gaseous Fossil** | | **Natural Gas (Dry)** | **1,778.7** | **41.868** | **74,471** | **15.3** | **1.14** | **0.00** | **1.14** | **0.995** | **1.13** | **4.16** |
| **Total** | | | **19,197.7** | | **803,770** | | **15.48** | | **15.01** | | **14.86** | **54.47** |
| | | | | | | | | | | | | |
| Electricity | | | 9,744.8 | 41.868 | 407,994 | 16.8 | 6.87 | | 6.87 | 0.993 | 6.82 | 25.01 |
| Energy Sector (Ref) | | | 1,262.2 | 41.868 | 52,844 | 19.7 | 1.04 | | 1.04 | 0.991 | 1.03 | 3.78 |
| ***TOTAL*** | | | ***30,204.6*** | | ***1,264,608*** | | ***23.39*** | | | | ***22.71*** | ***83.26*** |

Apparent Consumption is summation of Industry, Transport and Other sector. Conversion factor is Constant value, Carbon emission factor is linked with Sheet of "EFCO2EgyOri". Carbon Stored is linked with Sheet of "CarbonStored" and Fraction of Carbon Oxidized is Constant value.
Actual Carbon Emissions and Actual $CO_2$ emissions mean result of calculation.

**1-5 $CH_4$**

| | ENERGY | | | |
|---|---|---|---|---|
| 1995 | Non-CO2 from Fuel Combustion by Source Categ | | | |
| | 1-3 | | | |
| | 1 of 3 | | | |
| | STEP 1 | | | |
| | (A) Fuel Consumption (TJ) | | | |
| | Coal | Natural Gas | Oil | Total |
| Manufacturing Industries and Constructio | 21,383 | 67,726 | 244,206 | 333,315 |
| Transport | 0 | 0 | 307,526 | 307,526 |
| Other Sector | 0 | 6,745 | 127,493 | 134,237 |
| Electricity | 0 | 294,070 | 113,924 | 407,994 |
| Energy sector | 0 | 7,210 | 45,635 | 52,844 |
| Total(a) | 21,383 | 375,751 | 838,784 | 1,235,918 |
| | STEP 2 | | | |
| | (B) Emission factors (Kg/TJ) | | | |
| | Coal | Natural Gas | Oil | Total |
| Manufacturing Industries and Constructio | 10.0 | 5.0 | 2.0 | |
| Transport | 10.0 | 50.0 | 10.3 | |
| Other Sector | 300.0 | 5.0 | 10.0 | |
| Electricity | 1.0 | 1.0 | 3.0 | |
| Energy sector | 1.0 | 1.0 | 3.0 | |
| | | | | |
| | STEP 3 | | | |
| | (c) Emission by Fuel | | | |
| | Coal | Natural Gas | Oil | Total (KT) |
| Manufacturing Industries and Constructio | 213,828 | 338,632 | 488,412 | 1.04 |
| Transport | 0 | 0 | 3,159,962 | 3.16 |
| Other Sector | 0 | 33,724 | 1,274,926 | 1.31 |
| Electricity | 0 | 294,070 | 341,771 | 0.64 |
| Energy sector | 0 | 7,210 | 136,904 | 0.14 |
| Total(a) | 213,828 | 673,635 | 5,401,975 | 6.29 |

(A) Fuel Consumption is linked with Sheet of "1-4 IndSec", "2-4 TranSec", "3-4 OtheSec", "1-2 Electricity", "2-2 EnSec"

Where, in case of Oil in Industry, Oil =Total Oil -Bitumen, because Bitumen is not burned.

(B) Emission factors are linked with Sheet of "EFofCH4". In case of Oil's Emission factor in Transport, it is weighted average number using Gasoline and Diesel consumption in 1996.

(C) Emissions by Fuel is result of calculating. Total (KT) means converted number from Kg to KT.

**2-5 $N_20$**

| | ENERGY | | | |
|---|---|---|---|---|
| 1995 | Non-CO2 from Fuel Combustion by Source Categ | | | |
| | 1-3 | | | |
| | 1 of 3 | | | |
| | STEP 1 | | | |
| | (A) Fuel Consumption (TJ) | | | |
| | Coal | Natural Gas | Oil | Total |
| Manufacturing Industries and Constructio | 21,383 | 67,726 | 244,206 | 333,315 |
| Transport | 0 | 0 | 307,526 | 307,526 |
| Other Sector | 0 | 6,745 | 127,493 | 134,237 |
| Electricity | 0 | 294,070 | 113,924 | 407,994 |
| Energy sector | 0 | 7,210 | 45,635 | 52,844 |
| Total(a) | 21,383 | 375,751 | 838,784 | 1,235,918 |
| | STEP 2 | | | |
| | (B) Emission factors (Kg/TJ) | | | |
| | Coal | Natural Gas | Oil | Total |
| Manufacturing Industries and Constructio | 1.4 | 0.1 | 0.6 | |
| Transport | 1.4 | 0.1 | 0.6 | |
| Other Sector | 1.4 | 0.1 | 0.6 | |
| Electricity | 1.4 | 0.1 | 0.6 | |
| Energy sector | 1.4 | 0.1 | 0.6 | |
| | | | | |
| | STEP 3 | | | |
| | (c) Emission by Fuel | | | |
| | Coal | Natural Gas | Oil | Total (KT) |
| Manufacturing Industries and Constructio | 29,936 | 6,773 | 146,524 | 0.18 |
| Transport | 0 | 0 | 184,516 | 0.18 |
| Other Sector | 0 | 674 | 76,496 | 0.08 |
| Electricity | 0 | 29,407 | 68,354 | 0.10 |
| Energy sector | 0 | 721 | 27,381 | 0.03 |
| Total(a) | 29,936 | 37,575 | 503,270 | 0.57 |

(A) Fuel Consumption is linked with Sheet of “1-4 IndSec”, “2-4 TranSec”, “3-4 OtheSec”, “1-2 Electricity”, “2-2 EnSec”

Where, in case of Oil in Industry, Oil =Total Oil -Bitumen, because Bitumen is not burned.

(B) Emission factors are linked with Sheet of “EFofN2O”. In case of Oil’s Emission factor in Transport, it is weighted average number using Gasoline and Diesel consumption in 1996.

(C) Emissions by Fuel is result of calculating. Total (KT) means converted number from Kg to KT.

**3-5 NOx**

| | ENERGY | | | |
|---|---|---|---|---|
| 1995 | Non-CO2 from Fuel Combustion by Source Categori | | | |
| | 1-3 | | | |
| | 1 of 3 | | | |
| | STEP 1 | | | |
| | (A) Fuel Consumption (TJ) | | | |
| | Coal | Natural Gas | Oil | Total |
| Manufacturing Industries and Constructio | 21,383 | 67,726 | 244,206 | 333,315 |
| Transport | 0 | 0 | 307,526 | 307,526 |
| Other Sector | 0 | 6,745 | 127,493 | 134,237 |
| Electricity | 0 | 294,070 | 113,924 | 407,994 |
| Energy sector | 0 | 7,210 | 45,635 | 52,844 |
| Total(a) | 21,383 | 375,751 | 838,784 | 1,235,918 |
| | STEP 2 | | | |
| | (B) Emission factors (Kg/TJ) | | | |
| | Coal | Natural Gas | Oil | Total |
| Manufacturing Industries and Constructio | 300.0 | 150.0 | 200.0 | |
| Transport | 300.0 | 600.0 | 729.7 | |
| Other Sector | 100.0 | 50.0 | 100.0 | |
| Electricity | 300.0 | 150.0 | 200.0 | |
| Energy sector | 300.0 | 150.0 | 200.0 | |
| | | | | |
| | STEP 3 | | | |
| | (c) Emission by Fuel | | | |
| | Coal | Natural Gas | Oil | Total (KT) |
| Manufacturing Industries and Constructio | 6,414,847 | 10,158,952 | 48,841,233 | 65.42 |
| Transport | 0 | 0 | 224,390,136 | 224.39 |
| Other Sector | 0 | 337,236 | 12,749,262 | 13.09 |
| Electricity | 0 | 44,110,505 | 22,784,767 | 66.90 |
| Energy sector | 0 | 1,081,482 | 9,126,923 | 10.21 |
| Total(a) | 6,414,847 | 55,688,175 | 317,892,320 | 380.00 |

(A) Fuel Consumption is linked with Sheet of "1-4 IndSec", "2-4 TranSec", "3-4 OtheSec", "1-2 Electricity", "2-2 EnSec"

Where, in case of Oil in Industry, Oil =Total Oil -Bitumen, because Bitumen is not burned.

(B) Emission factors are linked with Sheet of "EfofNOx". In case of Oil's Emission factor in Transport, it is weighted average number using Gasoline and Diesel consumption in 1996.

(C) Emissions by Fuel is result of calculating. Total (KT) means converted number from Kg to KT.

**4-5 CO**

| | ENERGY | | | |
|---|---|---|---|---|
| 1995 | Non-CO2 from Fuel Combustion by Source Categorie | | | |
| | 1-3 | | | |
| | 1 of 3 | | | |
| | STEP 1 | | | |
| | (A) Fuel Consumption (TJ) | | | |
| | Coal | Natural Gas | Oil | Total |
| Manufacturing Industries and Constructio | 21,383 | 67,726 | 244,206 | 333,315 |
| Transport | 0 | 0 | 307,526 | 307,526 |
| Other Sector | 0 | 6,745 | 127,493 | 134,237 |
| Electricity | 0 | 294,070 | 113,924 | 407,994 |
| Energy sector | 0 | 7,210 | 45,635 | 52,844 |
| Total(a) | 21,383 | 375,751 | 838,784 | 1,235,918 |
| | STEP 2 | | | |
| | (B) Emission factors (Kg/TJ) | | | |
| | Coal | Natural Gas | Oil | Total |
| Manufacturing Industries and Constructio | 150.0 | 30.0 | 10.0 | |
| Transport | 150.0 | 400.0 | 3,461.9 | |
| Other Sector | 2,000.0 | 50.0 | 20.0 | |
| Electricity | 20.0 | 20.0 | 15.0 | |
| Energy sector | 20.0 | 20.0 | 15.0 | |
| | | | | |
| | STEP 3 | | | |
| | (c) Emission by Fuel | | | |
| | Coal | Natural Gas | Oil | Total (KT) |
| Manufacturing Industries and Constructio | 3,207,424 | 2,031,790 | 2,442,062 | 7.68 |
| Transport | 0 | 0 | 1,064,613,421 | 1,064.61 |
| Other Sector | 0 | 337,236 | 2,549,852 | 2.89 |
| Electricity | 0 | 5,881,401 | 1,708,857 | 7.59 |
| Energy sector | 0 | 144,198 | 684,519 | 0.83 |
| Total(a) | 3,207,424 | 8,394,625 | 1,071,998,712 | 1,083.60 |

(A) Fuel Consumption is linked with Sheet of "1-4 IndSec", "2-4 TranSec", "3-4 OtheSec", "1-2 Electricity", "2-2 EnSec"

Where, in case of Oil in Industry, Oil =Total Oil -Bitumen, because Bitumen is not burned.

(B) Emission factors are linked with Sheet of "EfofCO". In case of Oil's Emission factor in Transport, it is weighted average number using Gasoline and Diesel consumption in 1996.

(C) Emissions by Fuel is result of calculating. Total (KT) means converted number from Kg to KT.

**5-5 NMVOC**

| | ENERGY | | | |
|---|---|---|---|---|
| 1995 | Non-CO2 from Fuel Combustion by Sour ce Categor | | | |
| | 1-3 | | | |
| | 1 of 3 | | | |
| | STEP 1 | | | |
| | (A) Fuel Consumption (TJ) | | | |
| | Coal | Natural Gas | Oil | Total |
| Manufacturing Industries and Constructio | 21,383 | 67,726 | 244,206 | 333,315 |
| Transport | 0 | 0 | 307,526 | 307,526 |
| Other Sector | 0 | 6,745 | 127,493 | 134,237 |
| Electricity | 0 | 294,070 | 113,924 | 407,994 |
| Energy sector | 0 | 7,210 | 45,635 | 52,844 |
| Total(a) | 21,383 | 375,751 | 838,784 | 1,235,918 |
| | STEP 2 | | | |
| | (B) Emission factors (Kg/TJ) | | | |
| | Coal | Natural Gas | Oil | Total |
| Manufacturing Industries and Constructio | 20.0 | 5.0 | 0.0 | |
| Transport | 20.0 | 5.0 | 657.2 | |
| Other Sector | 200.0 | 5.0 | 5.0 | |
| Electricity | 5.0 | 5.0 | 0.0 | |
| Energy sector | 5.0 | 5.0 | 0.0 | |
| | | | | |
| | STEP 3 | | | |
| | (c) Emission by Fuel | | | |
| | Coal | Natural Gas | Oil | Total (KT) |
| Manufacturing Industries and Constructio | 427,656 | 338,632 | 0 | 0.77 |
| Transport | 0 | 0 | 202,107,157 | 202.11 |
| Other Sector | 0 | 33,724 | 637,463 | 0.67 |
| Electricity | 0 | 1,470,350 | 0 | 1.47 |
| Energy sector | 0 | 36,049 | 0 | 0.04 |
| Total(a) | 427,656 | 1,878,755 | 202,744,620 | 205.05 |

(A) Fuel Consumption is linked with Sheet of "1-4 IndSec", "2-4 TranSec", "3-4 OtheSec", "1-2 Electricity", "2-2 EnSec"

Where, in case of Oil in Industry, Oil =Total Oil -Bitumen, because Bitumen is not burned.

(B) Emission factors are linked with Sheet of "EFofNMVOC". In case of Oil's Emission factor in Transport, it is weighted average number using Gasoline and Diesel consumption in 1996.

(C) Emissions by Fuel is result of calculating. Total (KT) means converted number from Kg to KT.

**1-1 NonCO2**

| | ENERGY | | | |
|---|---|---|---|---|
| 1995 | Non-CO2 from Fuel Combustion by Source Categories | | | |
| | 1-3 | | | |
| | 1 of 3 | | | |
| | STEP 1 | | | |
| | CH4 (21 Times of CO2) (CO2 Equivalent) | | | |
| | Coal | Natural Gas | Oil | Total (KT) |
| Manufacturing Industries and Constructio | 4,490,393 | 7,111,266 | 10,256,659 | 22 |
| Transport | 0 | 0 | 66,359,193 | 66 |
| Other Sector | 0 | 708,196 | 26,773,451 | 27 |
| Electricity | 0 | 6,175,471 | 7,177,201 | 13 |
| Energy sector | 0 | 151,407 | 2,874,981 | 3 |
| Total(a) | 4,490,393 | 14,146,341 | 113,441,485 | 132 |
| | STEP 2 | | | |
| | N2O (310Times of CO2) (CO2 Equivalent) | | | |
| | Coal | Natural Gas | Oil | Total (KT) |
| Manufacturing Industries and Constructio | 9,280,146 | 2,099,517 | 45,422,346 | 57 |
| Transport | 0 | 0 | 57,199,927 | 57 |
| Other Sector | 0 | 209,086 | 23,713,628 | 24 |
| Electricity | 0 | 9,116,171 | 21,189,833 | 30 |
| Energy sector | 0 | 223,506 | 8,488,038 | 9 |
| | | | | 177 |
| | STEP 3 | | | |
| | Total Non-CO2 Emission (CO2 Equivalent) | | | |
| | Coal | Natural Gas | Oil | Total (KT) |
| Manufacturing Industries and Constructio | 13,770,539 | 9,210,783 | 55,679,005 | 79 |
| Transport | 0 | 0 | 123,559,120 | 124 |
| Other Sector | 0 | 917,283 | 50,487,079 | 51 |
| Electricity | 0 | 15,291,642 | 28,367,034 | 44 |
| Energy sector | 0 | 374,914 | 11,363,019 | 12 |
| Total(a) | 13,770,539 | 25,794,621 | 269,455,257 | 309 |

Step 1; Global Warming Potential of $CH_4$ ($CO_2$ Equivalent) is estimated 21 times of $CO_2$ according to IPCC report. So these numbers are $CH_4$ emission multiplied by 21 and then it means $CO_2$ equivalent of $CH_4$.
Step 2; Global Warming Potential of $N_2O$ ($CO_2$ Equivalent) is estimated 310 times of $CO_2$ according to IPCC report. So these numbers are $N_2O$ emission multiplied by 310 and then it means $CO_2$ equivalent of $N_2O$.
Step 3; These numbers are summation of Step 1 and Step 2. Total (KT) means converted number from Kg to KT.

**SO2Emission**

| ST A, Japan | Egypt | COC | NG | LPG | Gasoline | Jet | kerosene | diesel | HF0il | lub | OtherOil P-non | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | |
| | Industry | 0.54593 | 0.00430 | 0.05095 | | | 0.01759 | 0.07170 | 0.68803 | 0.04915 | 0.41773 | |
| | Transportation | | | | 0.01732 | 0.07038 | 0.01759 | 0.07170 | 0.68803 | 0.04915 | 0.41773 | |
| | other sector | | 0.00430 | 0.05095 | | | 0.01759 | 0.07170 | 0.68803 | 0.04915 | | |
| | Electricity | | 0.00430 | | | | | 0.07170 | 0.68803 | 0.04915 | | |
| | Energy Sector | | 0.00430 | | | | | 0.07170 | 0.68803 | 0.04915 | | |

| ST A, Japan | Egypt | COC | NG | LPG | Gasoline | Jet | kerosene | diesel | HF0il | lub | OtherOil P-non | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TJ | TJ | TJ | TJ | TJ | TJ | TJ | TJ | TJ | TJ | |
| | Industry | 21,382.8 | 67,726.3 | 2,543.5 | | | 181.9 | 79,756.1 | 147,928.9 | 3,377.7 | 10,418.1 | 333,315.3 |
| | Transportation | | | | 91,067.8 | 20,233.5 | 0.0 | ####### | 30,114.8 | 6,511.3 | 3,255.7 | 307,526.5 |
| | other sector | | 6,744.7 | 66,931.2 | | | 58,836.4 | 178.5 | 0.0 | 1,546.4 | | 134,237.3 |
| | Electricity | | 294,070.0 | | | | | 8,033.6 | 105,442.5 | 447.7 | | 407,993.9 |
| | Energy Sector | | 7,209.9 | | | | | 16,781.4 | 28,609.1 | 244.2 | | 52,844.5 |
| | TOTAL | 21,382.8 | 375,751.0 | 69,474.7 | 91,067.8 | 20,233.5 | 59,018.3 | ####### | 312,095.3 | 12,127.3 | 13,673.8 | ######## |

| ST A, Japan | Egypt | COC | NG | LPG | Gasoline | Jet | kerosene | diesel | HF0il | lub | OtherOil P-non | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | T(SO2) | T(SO2) | T(SO2) | T(SO2) | T(SO2) | T(SO2) | T(SO2) | T(SO2) | T(SO2) | T(SO2) | T(SO2) |
| | Industry | 11,673.6 | 291.2 | 129.6 | | | 3.2 | 5,718.4 | 101,780.0 | 166.0 | 4,352.0 | 124,114.1 |
| | Transportation | | | | 1,577.6 | 1,424.0 | 0.0 | 11,209.6 | 20,720.0 | 320.0 | 1,360.0 | 36,611.2 |
| | other sector | | 29.0 | 3,410.4 | | | 1,035.2 | 12.8 | 0.0 | 76.0 | | 4,563.4 |
| | Electricity | | 1,264.4 | | | | | 576.0 | 72,548.0 | 22.0 | | 74,410.4 |
| | Energy Sector | | 31.0 | | | | | 1,203.2 | 19,684.0 | 12.0 | | 20,930.2 |
| | TOTAL | 11,673.6 | 1,615.6 | 3,540.0 | 1,577.6 | 1,424.0 | 1,038.4 | 18,720.0 | 214,732.1 | 596.0 | 5,712.0 | 260,629.3 |

The first table is linked with Sheet of “EFSO2EgyOri”. It means each fuel’s Sulfur emission factor.
The second table is linked with Sheet of “1-4 IndSec”, “2-4 TranSec”, “3-4 OtheSec”, “1-2 Electricity”, “2-2 EnSec”. It is energy consumption by sector and by fuel.
The last table is result of calculating of the first table and the second table. It means total amount of SO2 emission.

**NOxEmission JP**

| STA,Japan | Egypt | COC | NG | LPG | Gasoline | Jet | kerosene | diesel | HF0il | lub | OtherOil P-non | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | Kg/GJ T/TJ | |
| | Industry | 0.141 | 0.054 | 0.056 | | | 0.164 | 0.216 | 0.144 | 0.144 | 0.144 | |
| | Transportation | | | | 0.686 | 0.231 | 0.603 | 0.614 | 0.673 | | 0.144 | |
| | other sector | | 0.037 | 0.019 | | | 0.055 | 0.072 | 0.048 | 0.048 | | |
| | Electricity | | 0.105 | | | | | 0.613 | 0.246 | 0.246 | | |
| | Energy Secto | | 0.105 | | | | | 0.613 | 0.246 | 0.246 | | |

| STA,Japan | Egypt | COC | NG | LPG | Gasoline | Jet | kerosene | diesel | HF0il | lub | OtherOil P-non | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | TJ | TJ | TJ | TJ | TJ | TJ | TJ | TJ | TJ | TJ | |
| | Industry | 21,382.8 | 67,726.3 | 2,543.5 | | | 181.9 | 79,756.1 | 147,928.9 | 3,377.7 | 10,418.1 | 333,315.3 |
| | Transportation | | | | 91,067.8 | 20,233.5 | 0.0 | 156,343.4 | 30,114.8 | 6,511.3 | 3,255.7 | 307,526.5 |
| | other sector | | 6,744.7 | 66,931.2 | | | 58,836.4 | 178.5 | | 1,546.4 | | 134,237.3 |
| | Electricity | | 294,070.0 | | | | | 8,033.6 | 105,442.5 | 447.7 | | 407,993.9 |
| | Energy Sector | | 7,209.9 | | | | | 16,781.4 | 28,609.1 | 244.2 | | 52,844.5 |
| | TOTAL | 21,382.8 | 375,751.0 | 69,474.7 | 91,067.8 | 20,233.5 | 59,018.3 | 261,093.0 | 312,095.3 | 12,127.3 | 13,673.8 | 1,235,917.5 |

| STA,Japan | Egypt | COC | NG | LPG | Gasoline | Jet | kerosene | diesel | HF0il | lub | OtherOil P-non | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | T(NO2) | T(NO2) | T(NO2) | T(NO2) | T(NO2) | T(NO2) | T(NO2) | T(NO2) | T(NO2) | T(NO2) | T(NO2) |
| | Industry | 3,008.1 | 3,623.5 | 142.0 | | | 29.8 | 17,190.9 | 21,228.4 | 484.7 | 1,495.0 | 47,202.6 |
| | Transportation | | | | 62,512.4 | 4,672.5 | 0.0 | 95,982.2 | 20,276.0 | | 467.2 | 183,910.3 |
| | other sector | | 252.9 | 1,250.5 | | | 3,222.1 | 12.8 | | 74.1 | | 4,812.4 |
| | Electricity | | 30,904.5 | | | | | 4,926.6 | 25,910.0 | 110.0 | | 61,851.1 |
| | Energy Sector | | 757.7 | | | | | 10,291.1 | 7,030.0 | 60.0 | | 18,138.8 |
| | TOTAL | 3,008.1 | 35,538.5 | 1,392.5 | 62,512.4 | 4,672.5 | 3,251.9 | 128,403.7 | 74,444.4 | 728.8 | 1,962.2 | 315,915.1 |

The first table is linked with Sheet of “EfofNOxEgyOri”. It means each fuel’s Nitrogen emission factor.
The second table is linked with Sheet of “1-4 IndSec”, “2-4 TranSec”, “3-4 OtheSec”, “1-2 Electricity”, “2-2 EnSec”. It is energy consumption by sector and by fuel.
The last table is result of calculating of the first table and the second table. It means total amount of NOx emission.

**CO2 Intensity per GDP**

| MODULE | CO2 Intensity of GDP by Sector | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 1-1 | | | | | | | |
| SHEET | 1 of 1 | | | | | | | |
| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| Real GDP in Egypt (Million LE) | | | | | | | | |
| Industry | 24,685 | 48,368 | 51,772 | 56,133 | 60,869 | 66,885 | 72,617 | 78,676 |
| Transport Sector | 8,959 | 14,072 | 14,945 | 16,200 | 17,302 | 18,357 | 19,144 | 19,989 |
| Other Sector | 72,082 | 133,723 | 140,076 | 147,093 | 153,565 | 162,210 | 170,244 | 178,287 |
| Electricy Sector | 1,254 | 3,763 | 3,962 | 4,220 | 4,469 | 4,822 | 5,156 | 5,503 |
| Energy Sector | 10,779 | 16,688 | 16,688 | 15,854 | 16,948 | 16,067 | 16,321 | 16,510 |
| Total | 117,759 | 216,614 | 227,443 | 239,500 | 253,153 | 268,341 | 283,483 | 298,965 |
| C Emission (KTC) / GDP (ML) | | | | | | | | |
| Industry | 0.158 | 0.129 | 0.127 | 0.122 | 0.120 | 0.093 | 0.100 | 0.097 |
| Transport Sector | 0.355 | 0.384 | 0.394 | 0.375 | 0.382 | 0.398 | 0.398 | 0.394 |
| Other Sector | 0.026 | 0.017 | 0.017 | 0.017 | 0.017 | 0.017 | 0.017 | 0.017 |
| Electricy Sector | 2.472 | 1.695 | 1.721 | 1.728 | 1.845 | 1.793 | 1.769 | 1.773 |
| Energy Sector | 0.055 | 0.060 | 0.062 | 0.065 | 0.062 | 0.067 | 0.068 | 0.069 |
| Total | 0.107 | 0.098 | 0.100 | 0.099 | 0.102 | 0.097 | 0.099 | 0.098 |
| CO2 Emission (KTC) / GDP (ML) | | | | | | | | |
| Industry | 0.580 | 0.472 | 0.465 | 0.447 | 0.439 | 0.342 | 0.368 | 0.356 |
| Transport Sector | 1.301 | 1.406 | 1.444 | 1.373 | 1.399 | 1.460 | 1.460 | 1.446 |
| Other Sector | 0.096 | 0.063 | 0.063 | 0.062 | 0.063 | 0.063 | 0.062 | 0.061 |
| Electricy Sector | 9.065 | 6.216 | 6.312 | 6.335 | 6.763 | 6.574 | 6.485 | 6.501 |
| Energy Sector | 0.200 | 0.220 | 0.226 | 0.238 | 0.228 | 0.246 | 0.250 | 0.253 |
| Total | 0.394 | 0.361 | 0.366 | 0.363 | 0.374 | 0.356 | 0.362 | 0.360 |
| Including Transformation Sector | | | | | | | | |
| C Emission (KTC) / GDP (ML) | | | | | | | | |
| Industry | 0.238 | 0.195 | 0.192 | 0.185 | 0.183 | 0.152 | 0.156 | 0.151 |
| Transport Sector | 0.383 | 0.417 | 0.427 | 0.405 | 0.411 | 0.429 | 0.429 | 0.424 |
| Other Sector | 0.047 | 0.046 | 0.046 | 0 | 0.050 | 0.050 | 0.050 | 0.051 |
| | 0.120 | 0.109 | 0.110 | 0.109 | 0.112 | 0.106 | 0.107 | 0.106 |
| Including Transformation Sector | | | | | | | | |
| CO2 Emission (KTC) / GDP (ML) | | | | | | | | |
| Industry | 0.874 | 0.717 | 0.705 | 0.679 | 0.672 | 0.556 | 0.573 | 0.554 |
| Transport Sector | 1.403 | 1.530 | 1.564 | 1.486 | 1.507 | 1.572 | 1.571 | 1.555 |
| Other Sector | 0.173 | 0.167 | 0.169 | 0.171 | 0.183 | 0.184 | 0.185 | 0.187 |
| | 0.441 | 0.400 | 0.404 | 0.398 | 0.410 | 0.388 | 0.394 | 0.390 |

Real GDP in Egypt is linked with Sheet of "GDP&POP".
C Emission / GDP means Carbon Emission in Sheet of "TotalEneCon&CO2bySec" divided by Real GDP by Sector.
$CO_2$ Emission / GDP means $CO_2$ Emission in Sheet of "TotalEneCon&CO2bySec" divided by Real GDP by Sector.
Including Transformation Sector means that each sector includes C and $CO_2$ emissions of Electricity and Energy Sector.

**NonCO2 Intensity per GDP**

| MODULE | Non-CO2 Intensity of GDP by Sector | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 1-1 | | | | | | | |
| SHEET | 1 of 1 | | | | | | | |
| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| Real GDP in Egypt (Million LE) | | | | | | | | |
| Industry Sector | 24,685 | 48,368 | 51,772 | 56,133 | 60,869 | 66,885 | 72,617 | 78,676 |
| Transport Sector | 8,959 | 14,072 | 14,945 | 16,200 | 17,302 | 18,357 | 19,144 | 19,989 |
| Other Sector | 72,082 | 133,723 | 140,076 | 147,093 | 153,565 | 162,210 | 170,244 | 178,287 |
| Electricy Sector | 1,254 | 3,763 | 3,962 | 4,220 | 4,469 | 4,822 | 5,156 | 5,503 |
| Energy Sector | 10,779 | 16,688 | 16,688 | 15,854 | 16,948 | 16,067 | 16,321 | 16,510 |
| Total | 117,759 | 216,614 | 227,443 | 239,500 | 253,153 | 268,341 | 283,483 | 298,965 |
| CH4 Emission (Kg) / GDP (Million LE) | | | | | | | | |
| Industry Sector | 23.668 | 21.457 | 20.105 | 20.398 | 19.541 | 13.902 | 17.287 | 16.868 |
| Transport Sector | 234.197 | 250.959 | 257.215 | 244.752 | 249.123 | 259.813 | 259.885 | 257.328 |
| Other Sector | 14.006 | 9.408 | 9.342 | 9.254 | 9.406 | 9.365 | 9.215 | 9.048 |
| Electricy Sector | 331.797 | 153.519 | 160.485 | 163.380 | 186.311 | 179.932 | 170.485 | 170.185 |
| Energy Sector | 8.050 | 8.318 | 8.636 | 8.994 | 8.449 | 8.976 | 8.978 | 8.960 |
| Total | 35.622 | 30.210 | 30.661 | 30.494 | 31.285 | 30.671 | 31.131 | 30.668 |
| N2O Emission (Kg) / GDP (Million LE) | | | | | | | | |
| Industry Sector | 4.774 | 3.636 | 3.539 | 3.470 | 3.312 | 2.312 | 2.730 | 2.618 |
| Transport Sector | 11.241 | 12.046 | 12.346 | 11.748 | 11.958 | 12.471 | 12.474 | 12.352 |
| Other Sector | 0.840 | 0.557 | 0.551 | 0.544 | 0.551 | 0.545 | 0.535 | 0.524 |
| Electricy Sector | 63.737 | 23.022 | 24.675 | 25.419 | 30.490 | 29.323 | 26.946 | 26.812 |
| Energy Sector | 1.610 | 1.616 | 1.684 | 1.746 | 1.623 | 1.713 | 1.701 | 1.685 |
| Total | 3.196 | 2.462 | 2.510 | 2.506 | 2.595 | 2.389 | 2.451 | 2.414 |
| NOx Emission (T) / GDP (Million LE) | | | | | | | | |
| Industry Sector | 1.566 | 1.284 | 1.264 | 1.217 | 1.194 | 0.926 | 1.003 | 0.969 |
| Transport Sector | 13.115 | 14.054 | 14.404 | 13.706 | 13.951 | 14.550 | 14.554 | 14.410 |
| Other Sector | 0 | 0.094 | 0.093 | 0.093 | 0.094 | 0.094 | 0.092 | 0.090 |
| Electricy Sector | 24.305 | 16.636 | 16.884 | 16.940 | 18.064 | 17.549 | 17.325 | 17.367 |
| Energy Sector | 0.537 | 0.594 | 0.612 | 0.643 | 0.619 | 0.667 | 0.678 | 0.686 |
| Total | 1.720 | 1.593 | 1.631 | 1.610 | 1.658 | 1.638 | 1.649 | 1.630 |
| CO Emission (T) / GDP (Million LE) | | | | | | | | |
| Industry Sector | 0.196 | 0.168 | 0.148 | 0.162 | 0.145 | 0.076 | 0.130 | 0.127 |
| Transport Sector | 84.311 | 90.345 | 92.597 | 88.111 | 89.684 | 93.533 | 93.559 | 92.638 |
| Other Sector | 0.028 | 0.020 | 0.021 | 0.021 | 0.022 | 0.022 | 0.022 | 0.022 |
| Electricy Sector | 2.052 | 1.920 | 1.916 | 1.905 | 1.947 | 1.899 | 1.925 | 1.935 |
| Energy Sector | 0.040 | 0.049 | 0.050 | 0.053 | 0.052 | 0.057 | 0.059 | 0.061 |
| Total | 6.498 | 5.956 | 6.168 | 6.048 | 6.215 | 6.468 | 6.403 | 6.279 |
| NMVOC Emission (T) / GDP (Million LE) | | | | | | | | |
| Industry Sector | 0.019 | 0.018 | 0.015 | 0.017 | 0.015 | 0.007 | 0.014 | 0.014 |
| Transport Sector | 15.925 | 17.065 | 17.491 | 16.643 | 16.940 | 17.667 | 17.672 | 17.498 |
| Other Sector | 0.007 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 |
| Electricy Sector | 0.131 | 0.384 | 0.371 | 0.363 | 0.339 | 0.333 | 0.358 | 0.361 |
| Energy Sector | 0.000 | 0.002 | 0.002 | 0.003 | 0.003 | 0.004 | 0.005 | 0.005 |
| Total | 1.221 | 1.122 | 1.162 | 1.139 | 1.171 | 1.219 | 1.207 | 1.183 |

Real GDP in Egypt is linked with Sheet of "GDP&POP".
$CH_4$ Emission / GDP means $CH_4$ Emission in Sheet of "TotalEneCon&NonCO2bySec" divided by Real GDP by Sector.
$N_2O$ Emission / GDP means $N_2O$ Emission in Sheet of "TotalEneCon&NonCO2bySec" divided by Real GDP by Sector.
NOx Emission / GDP means NOx Emission in Sheet of "TotalEneCon&NonCO2bySec" divided by Real GDP by Sector. (This data is not used).
CO Emission / GDP means CO Emission in Sheet of "TotalEneCon&NonCO2bySec" divided by Real GDP by Sector.
NMVOC Emission / GDP means NMVOC Emission in Sheet of "TotalEneCon&NonCO2bySec" divided by Real GDP by Sector.

**SO2NOxIntensity per GDP**

| MODULE | SO2 and Nox Intensity of GDP by Sector | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | $SO_2$ and Nox FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 1-1 | | | | | | | |
| SHEET | 1 of 1 | | | | | | | |
| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| Real GDP in Egypt (Million LE) | | | | | | | | |
| Industry | 24,685 | 48,368 | 51,772 | 56,133 | 60,869 | 66,885 | 72,617 | 78,676 |
| Transport Sector | 8,959 | 14,072 | 14,945 | 16,200 | 17,302 | 18,357 | 19,144 | 19,989 |
| Other Sector | 72,082 | 133,723 | 140,076 | 147,093 | 153,565 | 162,210 | 170,244 | 178,287 |
| Electricy Sector | 1,254 | 3,763 | 3,962 | 4,220 | 4,469 | 4,822 | 5,156 | 5,503 |
| Energy Sector | 10,779 | 16,688 | 16,688 | 15,854 | 16,948 | 16,067 | 16,321 | 16,510 |
| Total | 117,759 | 216,614 | 227,443 | 239,500 | 253,153 | 268,341 | 283,483 | 298,965 |
| SO2 Emission (TSO2) / GDP(Ml) | | | | | | | | |
| Industry | 3.81 | 2.39 | 2.40 | 2.22 | 2.16 | 1.68 | 1.77 | 1.65 |
| Transport Sector | 1.42 | 2.32 | 2.45 | 2.23 | 2.40 | 2.25 | 2.23 | 2.20 |
| Other Sector | 0.04 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 |
| Electricy Sector | 55.64 | 16.63 | 18.78 | 19.87 | 26.14 | 25.51 | 22.34 | 22.18 |
| Energy Sector | 1.47 | 1.17 | 1.25 | 1.24 | 1.07 | 1.07 | 1.03 | 0.98 |
| Total | 1.656 | 1.082 | 1.146 | 1.124 | 1.236 | 1.116 | 1.090 | 1.067 |
| NOx Emission (TNOx) / GDP(Ml) | | | | | | | | |
| Industry | 1.10 | 0.91 | 0.91 | 0.87 | 0.86 | 0.67 | 0.69 | 0.67 |
| Transport Sector | 10.88 | 12.04 | 12.31 | 11.76 | 12.02 | 12.52 | 12.53 | 12.40 |
| Other Sector | 0.07 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| Electricy Sector | 36.39 | 15.09 | 15.61 | 15.78 | 17.59 | 16.69 | 15.98 | 15.93 |
| Energy Sector | 0.88 | 1.06 | 1.09 | 1.16 | 1.13 | 1.23 | 1.24 | 1.25 |
| Total | 1.567 | 1.352 | 1.389 | 1.374 | 1.433 | 1.415 | 1.404 | 1.384 |

Real GDP in Egypt is linked with Sheet of "GDP&POP".
$SO_2$ Emission / GDP means $SO_2$ Emission in Sheet of "TotalEneCon&SO2NOxbySec" divided by Real GDP by Sector.
NOx Emission / GDP means NOx Emission in Sheet of "TotalEneCon&SO2NOxbySec" divided by Real GDP by Sector.

**GDP Intensity per CO2**

| MODULE | GDP Intensity of CO2 Emissions by Sector | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 1-1 | | | | | | | |
| SHEET | 1 of 1 | | | | | | | |
| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| Real GDP in Egypt (Million LE) | | | | | | | | |
| Industry | 24,685 | 48,368 | 51,772 | 56,133 | 60,869 | 66,885 | 72,617 | 78,676 |
| Transport Sector | 8,959 | 14,072 | 14,945 | 16,200 | 17,302 | 18,357 | 19,144 | 19,989 |
| Other Sector | 72,082 | 133,723 | 140,076 | 147,093 | 153,565 | 162,210 | 170,244 | 178,287 |
| Electricy Sector | 1,254 | 3,763 | 3,962 | 4,220 | 4,469 | 4,822 | 5,156 | 5,503 |
| Energy Sector | 10,779 | 16,688 | 16,688 | 15,854 | 16,948 | 16,067 | 16,321 | 16,510 |
| Total | 117,759 | 216,614 | 227,443 | 239,500 | 253,153 | 268,341 | 283,483 | 298,965 |
| GDP (ML) / C Emission (MTC) | | | | | | | | |
| Industry | 6,323 | 7,767 | 7,884 | 8,208 | 8,354 | 10,722 | 9,952 | 10,306 |
| Transport Sector | 2,818 | 2,607 | 2,540 | 2,670 | 2,620 | 2,512 | 2,512 | 2,536 |
| Other Sector | 38,202 | 57,749 | 58,248 | 58,909 | 57,972 | 58,148 | 59,196 | 60,349 |
| Electricy Sector | 405 | 590 | 581 | 579 | 542 | 558 | 565 | 564 |
| Energy Sector | 18,306 | 16,676 | 16,192 | 15,420 | 16,063 | 14,916 | 14,692 | 14,512 |
| Total | 9,302 | 10,160 | 10,017 | 10,096 | 9,798 | 10,298 | 10,115 | 10,181 |
| GDP (ML) / CO2 Emission (MTCO2) | | | | | | | | |
| Industry | 1,724 | 2,118 | 2,150 | 2,239 | 2,278 | 2,924 | 2,714 | 2,811 |
| Transport Sector | 769 | 711 | 693 | 728 | 715 | 685 | 685 | 692 |
| Other Sector | 10,419 | 15,750 | 15,886 | 16,066 | 15,811 | 15,859 | 16,144 | 16,459 |
| Electricy Sector | 110 | 161 | 158 | 158 | 148 | 152 | 154 | 154 |
| Energy Sector | 4,993 | 4,548 | 4,416 | 4,206 | 4,381 | 4,068 | 4,007 | 3,958 |
| Total | 2,537 | 2,771 | 2,732 | 2,754 | 2,672 | 2,808 | 2,759 | 2,777 |
| Including Transformation Sector | | | | | | | | |
| GDP (ML) / C Emission (MTC) | | | | | | | | |
| Industry | 4,195 | 5,115 | 5,198 | 5,403 | 5,456 | 6,591 | 6,400 | 6,613 |
| Transport Sector | 2,613 | 2,396 | 2,344 | 2,468 | 2,434 | 2,333 | 2,333 | 2,357 |
| Other Sector | 21,202 | 21,948 | 21,641 | 21,413 | 20,045 | 19,901 | 19,827 | 19,585 |
| | 8,317 | 9,157 | 9,066 | 9,210 | 8,938 | 9,456 | 9,311 | 9,394 |
| Including Transformation Sector | | | | | | | | |
| GDP (ML) / CO2 Emission (MTCO2) | | | | | | | | |
| Industry | 1,144 | 1,395 | 1,418 | 1,474 | 1,488 | 1,797 | 1,745 | 1,803 |
| Transport Sector | 713 | 653 | 639 | 673 | 664 | 636 | 636 | 643 |
| Other Sector | 5,782 | 5,986 | 5,902 | 5,840 | 5,467 | 5,428 | 5,407 | 5,341 |
| | 2,268 | 2,497 | 2,473 | 2,512 | 2,438 | 2,579 | 2,539 | 2,562 |

Real GDP in Egypt is linked with Sheet of "GDP&POP".
GDP / C Emission means Real GDP divided by Carbon Emission in Sheet of "TotalEneCon&CO2bySec" by Sector.
GDP / $CO_2$ Emission means Real GDP divided by $CO_2$ Emission in Sheet of "TotalEneCon&CO2bySec" by Sector.
Including Transformation Sector means that each sector includes C and $CO_2$ emissions of Electricity and Energy Sector.

**GDP Intensity per NonCO2**

| MODULE | GDP Intensity of Non-CO2 Emissions by Sector | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 1-1 | | | | | | | |
| SHEET | 1 of 1 | | | | | | | |
| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| Real GDP in Egypt (Million LE) | | | | | | | | |
| Industry | 24,685 | 48,368 | 51,772 | 56,133 | 60,869 | 66,885 | 72,617 | 78,676 |
| Transport Sector | 8,959 | 14,072 | 14,945 | 16,200 | 17,302 | 18,357 | 19,144 | 19,989 |
| Other Sector | 72,082 | 133,723 | 140,076 | 147,093 | 153,565 | 162,210 | 170,244 | 178,287 |
| Electricy Sector | 1,254 | 3,763 | 3,962 | 4,220 | 4,469 | 4,822 | 5,156 | 5,503 |
| Energy Sector | 10,779 | 16,688 | 16,688 | 15,854 | 16,948 | 16,067 | 16,321 | 16,510 |
| Total | 117,759 | 216,614 | 227,443 | 239,500 | 253,153 | 268,341 | 283,483 | 298,965 |
| GDP (ML) / CH4 Emission (KT) | | | | | | | | |
| Industry | 42,251 | 46,606 | 49,739 | 49,025 | 51,174 | 71,931 | 57,846 | 59,285 |
| Transport Sector | 4,270 | 3,985 | 3,888 | 4,086 | 4,014 | 3,849 | 3,848 | 3,886 |
| Other Sector | 71,398 | 106,297 | 107,039 | 108,061 | 106,317 | 106,776 | 108,518 | 110,518 |
| Electricy Sector | 3,014 | 6,514 | 6,231 | 6,121 | 5,367 | 5,558 | 5,866 | 5,876 |
| Energy Sector | 124,223 | 120,220 | 115,797 | 111,191 | 118,361 | 111,408 | 111,389 | 111,613 |
| Total | 28,072 | 33,102 | 32,615 | 32,794 | 31,964 | 32,604 | 32,123 | 32,608 |
| GDP (ML) / N2O Emission (KT) | | | | | | | | |
| Industry | 209,482 | 275,036 | 282,548 | 288,208 | 301,954 | 432,530 | 366,311 | 382,007 |
| Transport Sector | 88,956 | 83,015 | 80,996 | 85,120 | 83,627 | 80,186 | 80,164 | 80,960 |
| Other Sector | 1,190,340 | 1,796,640 | 1,815,160 | 1,837,011 | 1,815,216 | 1,833,305 | 1,867,506 | 1,906,856 |
| Electricy Sector | 15,690 | 43,436 | 40,527 | 39,341 | 32,797 | 34,103 | 37,111 | 37,297 |
| Energy Sector | 621,116 | 618,938 | 593,842 | 572,676 | 616,123 | 583,878 | 588,048 | 593,473 |
| Total | 312,867 | 406,102 | 398,477 | 399,095 | 385,406 | 418,656 | 407,947 | 414,243 |
| GDP (ML) / NOx Emission (KT) | | | | | | | | |
| Industry | 639 | 779 | 791 | 822 | 838 | 1,080 | 997 | 1,032 |
| Transport Sector | 76 | 71 | 69 | 73 | 72 | 69 | 69 | 69 |
| Other Sector | 7,140 | 10,630 | 10,704 | 10,806 | 10,632 | 10,678 | 10,852 | 11,052 |
| Electricy Sector | 41 | 60 | 59 | 59 | 55 | 57 | 58 | 58 |
| Energy Sector | 1,863 | 1,682 | 1,635 | 1,554 | 1,616 | 1,499 | 1,476 | 1,457 |
| Total | 582 | 628 | 613 | 621 | 603 | 611 | 606 | 613 |
| GDP (ML) / CO Emission (KT) | | | | | | | | |
| Industry | 5,111 | 5,954 | 6,740 | 6,174 | 6,880 | 13,132 | 7,671 | 7,894 |
| Transport Sector | 12 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| Other Sector | 35,634 | 49,050 | 48,518 | 48,347 | 46,509 | 45,408 | 45,630 | 45,890 |
| Electricy Sector | 487 | 521 | 522 | 525 | 514 | 527 | 519 | 517 |
| Energy Sector | 24,845 | 20,499 | 20,137 | 18,923 | 19,140 | 17,465 | 16,911 | 16,438 |
| Total | 154 | 168 | 162 | 165 | 161 | 155 | 156 | 159 |
| GDP (ML) / NMVOC Emission (KT) | | | | | | | | |
| Industry | 53,282 | 56,563 | 67,562 | 58,424 | 66,906 | 150,646 | 70,936 | 72,378 |
| Transport Sector | 63 | 59 | 57 | 60 | 59 | 57 | 57 | 57 |
| Other Sector | 142,731 | 208,244 | 208,699 | 209,952 | 205,296 | 204,564 | 207,239 | 210,303 |
| Electricy Sector | 7,626 | 2,604 | 2,695 | 2,756 | 2,953 | 3,001 | 2,797 | 2,768 |
| Energy Sector | | 417,167 | 462,920 | 380,820 | 299,879 | 242,395 | 210,607 | 187,067 |
| Total | 819 | 891 | 860 | 878 | 854 | 820 | 829 | 845 |

Real GDP in Egypt is linked with Sheet of "TDP&POP".
GDP / $CH_4$ Emission means Real GDP divided by $CH_4$ Emission in Sheet of "TotalEneCon&NonCO2bySec" by Sector.
GDP / $N_2O$ Emission means Real GDP divided by $N_2O$ Emission in Sheet of "TotalEneCon&NonCO2bySec" by Sector.
GDP / NOx Emission means Real GDP divided by NOx Emission in Sheet of "TotalEneCon&NonCO2bySec" by Sector. (This data is not used).
GDP / CO Emission means Real GDP divided by CO Emission in Sheet of "TotalEneCon&NonCO2bySec" by Sector.
GDP / NMVOC Emission means Real GDP divided by NMVOC Emission in Sheet of "TotalEneCon&NonCO2bySec" by Sector.

**GDP Intensity per SO2NOx**

| MODULE | GDP Intensity of SO2 and Nox Emissions by Sector | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | $SO_2$ and Nox FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 1-1 | | | | | | | |
| SHEET | 1 of 1 | | | | | | | |
| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| Real GDP in Egypt (Million LE) | | | | | | | | |
| Industry | 24,685 | 48,368 | 51,772 | 56,133 | 60,869 | 66,885 | 72,617 | 78,676 |
| Transport Sector | 8,959 | 14,072 | 14,945 | 16,200 | 17,302 | 18,357 | 19,144 | 19,989 |
| Other Sector | 72,082 | 133,723 | 140,076 | 147,093 | 153,565 | 162,210 | 170,244 | 178,287 |
| Electricy Sector | 1,254 | 3,763 | 3,962 | 4,220 | 4,469 | 4,822 | 5,156 | 5,503 |
| Energy Sector | 10,779 | 16,688 | 16,688 | 15,854 | 16,948 | 16,067 | 16,321 | 16,510 |
| Total | 117,759 | 216,614 | 227,443 | 239,500 | 253,153 | 268,341 | 283,483 | 298,965 |
| GDP(ML) / SO2 Emission (TSO2) | | | | | | | | |
| Industry | 262 | 419 | 417 | 451 | 464 | 596 | 567 | 605 |
| Transport Sector | 705 | 431 | 408 | 448 | 417 | 444 | 448 | 454 |
| Other Sector | 27,771 | 31,744 | 30,696 | 29,948 | 28,495 | 27,796 | 27,442 | 27,257 |
| Electricy Sector | 18 | 60 | 53 | 50 | 38 | 39 | 45 | 45 |
| Energy Sector | 678 | 855 | 797 | 806 | 937 | 934 | 970 | 1,018 |
| Total | 604 | 924 | 873 | 890 | 809 | 896 | 917 | 938 |
| GDP(ML) / NOx Emission (TNOx) | | | | | | | | |
| Industry | 905 | 1,098 | 1,097 | 1,152 | 1,165 | 1,499 | 1,442 | 1,494 |
| Transport Sector | 92 | 83 | 81 | 85 | 83 | 80 | 80 | 81 |
| Other Sector | 15,083 | 27,806 | 29,107 | 30,425 | 31,038 | 32,199 | 33,932 | 35,715 |
| Electricy Sector | 27 | 66 | 64 | 63 | 57 | 60 | 63 | 63 |
| Energy Sector | 1,142 | 941 | 920 | 860 | 885 | 816 | 804 | 797 |
| Total | 638 | 740 | 720 | 728 | 698 | 707 | 712 | 722 |

Real GDP in Egypt is linked with Sheet of "GDP&POP"
GDP / $SO_2$ Emission means Real GDP divided by $SO_2$ Emission in Sheet of "TotalEneCon&SO2NOxbySec" by Sector.
GDP / NOx Emission means Real GDP divided by NOx Emission in Sheet of "TotalEneCon&SO2NOxbySec" by Sector.

**GHG Intensity per Capita**

| MODULE | GHG Intensity par Capita | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 1-1 | | | | | | | |
| SHEET | 1 of 1 | | | | | | | |
| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| Population in Egypt (1000) | | | | | | | | |
| Total | 42,024 | 60,138 | 61,520 | 62,886 | 64,263 | 65,637 | 67,015 | 68,422 |
| C Emission (TC) / Capita | | | | | | | | |
| Total | 0.301 | 0.355 | 0.369 | 0.377 | 0.402 | 0.397 | 0.418 | 0.429 |
| CO2 Emission (TC) / Capita | | | | | | | | |
| Total | 1.105 | 1.300 | 1.353 | 1.383 | 1.474 | 1.456 | 1.533 | 1.574 |
| CH4 Emission (Kg) / Capita | | | | | | | | |
| Total | 0.100 | 0.109 | 0.113 | 0.116 | 0.123 | 0.125 | 0.132 | 0.134 |
| N20 Emission (Kg) / Capita | | | | | | | | |
| Total | 0.009 | 0.009 | 0.009 | 0.010 | 0.010 | 0.010 | 0.010 | 0.011 |
| NOx Emission (Kg) / Capita | | | | | | | | |
| Total | 4.819 | 5.736 | 6.029 | 6.132 | 6.531 | 6.696 | 6.976 | 7.122 |
| CO Emission (Kg) / Capita | | | | | | | | |
| Total | 18.209 | 21.454 | 22.803 | 23.032 | 24.485 | 26.444 | 27.086 | 27.437 |
| NMVOC Emission (Kg) / Capita | | | | | | | | |
| Total | 3.422 | 4.043 | 4.297 | 4.339 | 4.611 | 4.985 | 5.105 | 5.171 |
| S02 Emission (KgS02) / Capita | | | | | | | | |
| Total | 4.642 | 3.898 | 4.236 | 4.280 | 4.871 | 4.564 | 4.612 | 4.660 |
| NOx Emission (KgNOx) / Capita | | | | | | | | |
| Total | 4.392 | 4.870 | 5.135 | 5.233 | 5.646 | 5.783 | 5.938 | 6.049 |

Population is linked with Sheet of "GDP&POP".
C Emission is divided by Population.
$CO_2$ Emission is divided by Population.
$CH_4$ Emission is divided by Population.
$N_2O$ Emission is divided by Population.
NOx Emission is divided by Population (This data is not used).
CO Emission is divided by Population.
NMVOC Emission is divided by Population.
$SO_2$ Emission is divided by Population.
NOx Emission is divided by Population (This data is used).

**GDP&POP**

unit: Million LE

| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|
| Agriculture | 28,669 | 39,702 | 40,933 | 42,325 | 43,891 | 45,515 | 47,096 | 48,857 |
| Industry (manufacturing) | 18,093 | 37,229 | 40,021 | 43,383 | 46,767 | 51,303 | 55,572 | 60,026 |
| Petroleum | 10,779 | 16,688 | 16,688 | 15,854 | 16,948 | 16,067 | 16,321 | 16,510 |
| Electricity | 1,254 | 3,763 | 3,962 | 4,220 | 4,469 | 4,822 | 5,156 | 5,503 |
| Construction | 6,592 | 11,139 | 11,751 | 12,750 | 14,102 | 15,582 | 17,046 | 18,649 |
| Transportation | 8,959 | 14,072 | 14,945 | 16,200 | 17,302 | 18,357 | 19,144 | 19,989 |
| Commercial | 24,927 | 47,937 | 51,021 | 54,857 | 57,440 | 62,150 | 66,052 | 69,959 |
| Government/Public | 9,661 | 18,064 | 18,905 | 19,980 | 21,023 | 22,164 | 23,336 | 24,624 |
| Others | 8,825 | 28,020 | 29,217 | 29,931 | 31,211 | 32,381 | 33,760 | 34,847 |
| Total GDP | 117,759 | 216,614 | 227,443 | 239,500 | 253,153 | 268,341 | 283,483 | 298,965 |

| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|
| Industry | 24,685 | 48,368 | 51,772 | 56,133 | 60,869 | 66,885 | 72,617 | 78,676 |
| Tranport Sector | 8,959 | 14,072 | 14,945 | 16,200 | 17,302 | 18,357 | 19,144 | 19,989 |
| Other Sector | 72,082 | 133,723 | 140,076 | 147,093 | 153,565 | 162,210 | 170,244 | 178,287 |
| Generation Sector | 1,254 | 3,763 | 3,962 | 4,220 | 4,469 | 4,822 | 5,156 | 5,503 |
| Energy Sector (Ref) | 10,779 | 16,688 | 16,688 | 15,854 | 16,948 | 16,067 | 16,321 | 16,510 |
| Total GDP | 117,759 | 216,614 | 227,443 | 239,500 | 253,153 | 268,341 | 283,483 | 298,965 |

(note) Industry = Industry (manufacturing) + Construction
Other Sector = Agriculture + Commercial + Government/Public + Others

| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|
| Population(1000) | 42,024 | 60,138 | 61,520 | 62,886 | 64,263 | 65,637 | 67,015 | 68,422 |

The first table is linked with Sheet of “IND” in the File of “Eg_OEP_DBAL_uf_FMT.xls”.
The second table is classified into five sectors.
The last table is linked with Sheet of “IND” in the File of “Eg_OEP_DBAL_uf_FMT.xls”.

**TotalEneCon&CO2bySec**

| MODULE | Total energy consumption and CO2 Emissions by Sector | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 1-1 | | | | | | | |
| SHEET | 1 of 1 | | | | | | | |
| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| Appearent Consumption (TJ) | | | | | | | | |
| Industry Sector | 189,281 | 314,348 | 333,315 | 344,402 | 371,539 | 331,726 | 374,702 | 393,534 |
| Transport Sector | 167,854 | 282,520 | 307,526 | 317,198 | 344,826 | 381,551 | 398,025 | 411,506 |
| Other Sector | 101,004 | 128,429 | 134,237 | 140,120 | 149,603 | 158,591 | 164,298 | 169,553 |
| Electricy Sector | 160,615 | 385,261 | 407,994 | 433,992 | 479,294 | 503,429 | 538,786 | 577,221 |
| Energy Sector | 28,924 | 51,604 | 52,844 | 53,079 | 55,265 | 56,910 | 59,174 | 61,074 |
| Total | 647,677 | 1,162,162 | 1,235,918 | 1,288,791 | 1,400,527 | 1,432,207 | 1,534,984 | 1,612,887 |
| Excluding Transformation Sector C Emission (MTC) | | | | | | | | |
| Industry Sector | 3.90 | 6.23 | 6.57 | 6.84 | 7.29 | 6.24 | 7.30 | 7.63 |
| Transport Sector | 3.18 | 5.40 | 5.88 | 6.07 | 6.60 | 7.31 | 7.62 | 7.88 |
| Other Sector | 1.89 | 2.32 | 2.40 | 2.50 | 2.65 | 2.79 | 2.88 | 2.95 |
| Electricy Sector | 3.10 | 6.38 | 6.82 | 7.29 | 8.24 | 8.64 | 9.12 | 9.76 |
| Energy Sector | 0.59 | 1.00 | 1.03 | 1.03 | 1.06 | 1.08 | 1.11 | 1.14 |
| Total | 12.66 | 21.32 | 22.71 | 23.72 | 25.84 | 26.06 | 28.02 | 29.36 |
| Excluding Transformation Sector CO2 Emission (MTCO2) | | | | | | | | |
| Industry Sector | 14.32 | 22.83 | 24.08 | 25.08 | 26.72 | 22.87 | 26.75 | 27.99 |
| Transport Sector | 11.66 | 19.79 | 21.57 | 22.25 | 24.21 | 26.80 | 27.95 | 28.90 |
| Other Sector | 6.92 | 8.49 | 8.82 | 9.16 | 9.71 | 10.23 | 10.55 | 10.83 |
| Electricy Sector | 11.37 | 23.39 | 25.01 | 26.73 | 30.23 | 31.70 | 33.44 | 35.77 |
| Energy Sector | 2.16 | 3.67 | 3.78 | 3.77 | 3.87 | 3.95 | 4.07 | 4.17 |
| Total | 46.42 | 78.17 | 83.26 | 86.98 | 94.74 | 95.55 | 102.76 | 107.67 |
| Including Transformation Sector C Emission (MTC) | | | | | | | | |
| Industry Sector | 5.88 | 9.46 | 9.96 | 10.39 | 11.16 | 10.15 | 11.35 | 11.90 |
| Transport Sector | 3.43 | 5.87 | 6.38 | 6.57 | 7.11 | 7.87 | 8.20 | 8.48 |
| Other Sector | 3.40 | 6.09 | 6.47 | 6.87 | 7.66 | 8.15 | 8.59 | 9.10 |
| | 12.71 | 21.42 | 22.81 | 23.82 | 25.93 | 26.17 | 28.14 | 29.48 |
| Including Transformation Sector CO2 Emission (MTCO2) | | | | | | | | |
| Industry Sector | 21.57 | 34.67 | 36.52 | 38.09 | 40.91 | 37.21 | 41.61 | 43.62 |
| Transport Sector | 12.57 | 21.54 | 23.38 | 24.07 | 26.07 | 28.86 | 30.08 | 31.09 |
| Other Sector | 12.47 | 22.34 | 23.73 | 25.19 | 28.09 | 29.89 | 31.48 | 33.38 |
| | 46.61 | 78.55 | 83.63 | 87.35 | 95.06 | 95.95 | 103.17 | 108.09 |

Apparent Consumption is linked with Sheet of "IndEneConsum", "TranEneConsum", "OtheEneConsum". "ElecEneConsum", "EnSecEneConsum"

C Emission is linked with Sheet of "IndCO2Emi", "TranCO2Emi", "OtheCO2Emi", "ElecCO2Emi","EnSecCO2Emi".

$CO_2$ Emission is the number of C emission multiplied by 44/12, which is conversion factor from carbon to carbon dioxide.

Including Transformation Sector means that each sector includes C and $CO_2$ emissions of Electricity and Energy Sector.

**TotalEneCon&NonCO2bySec**

| MODULE | Total energy consumption and Non-CO2 Emission by Sector | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | Non-$CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 1-1 | | | | | | | |
| SHEET | 1 of 1 | | | | | | | |
| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| Appearent Consumption (TJ) | | | | | | | | |
| Industry Sector | 189,281 | 314,348 | 333,315 | 344,402 | 371,539 | 331,726 | 374,702 | 393,534 |
| Transport Sector | 167,854 | 282,520 | 307,526 | 317,198 | 344,826 | 381,551 | 398,025 | 411,506 |
| Other Sector | 101,004 | 128,429 | 134,237 | 140,120 | 149,603 | 158,591 | 164,298 | 169,553 |
| Electricy Sector | 160,615 | 385,261 | 407,994 | 433,992 | 479,294 | 503,429 | 538,786 | 577,221 |
| Energy Sector | 28,924 | 51,604 | 52,844 | 53,079 | 55,265 | 56,910 | 59,174 | 61,074 |
| Total | 647,677 | 1,162,162 | 1,235,918 | 1,288,791 | 1,400,527 | 1,432,207 | 1,534,984 | 1,612,887 |
| CH4 Emission (KT) | | | | | | | | |
| Industry Sector | 0.58 | 1.04 | 1.04 | 1.14 | 1.19 | 0.93 | 1.26 | 1.33 |
| Transport Sector | 2.10 | 3.53 | 3.84 | 3.96 | 4.31 | 4.77 | 4.98 | 5.14 |
| Other Sector | 1.01 | 1.26 | 1.31 | 1.36 | 1.44 | 1.52 | 1.57 | 1.61 |
| Electricy Sector | 0.42 | 0.58 | 0.64 | 0.69 | 0.83 | 0.87 | 0.88 | 0.94 |
| Energy Sector | 0.09 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.15 | 0.15 |
| Total | 4.19 | 6.54 | 6.97 | 7.30 | 7.92 | 8.23 | 8.82 | 9.17 |
| N20 Emission (KT) | | | | | | | | |
| Industry Sector | 0.12 | 0.18 | 0.18 | 0.19 | 0.20 | 0.15 | 0.20 | 0.21 |
| Transport Sector | 0.10 | 0.17 | 0.18 | 0.19 | 0.21 | 0.23 | 0.24 | 0.25 |
| Other Sector | 0.06 | 0.07 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 |
| Electricy Sector | 0.08 | 0.09 | 0.10 | 0.11 | 0.14 | 0.14 | 0.14 | 0.15 |
| Energy Sector | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| Total | 0.38 | 0.53 | 0.57 | 0.60 | 0.66 | 0.64 | 0.69 | 0.72 |
| NOx Emission (KT) | | | | | | | | |
| Industry Sector | 38.64 | 62.11 | 65.42 | 68.29 | 72.67 | 61.91 | 72.82 | 76.25 |
| Transport Sector | 117.50 | 197.76 | 215.27 | 222.04 | 241.38 | 267.09 | 278.62 | 288.05 |
| Other Sector | 10.10 | 12.58 | 13.09 | 13.61 | 14.44 | 15.19 | 15.69 | 16.13 |
| Electricy Sector | 30.48 | 62.60 | 66.90 | 71.49 | 80.73 | 84.62 | 89.32 | 95.56 |
| Energy Sector | 5.78 | 9.92 | 10.21 | 10.20 | 10.49 | 10.72 | 11.06 | 11.33 |
| Total | 202.50 | 344.98 | 370.87 | 385.63 | 419.71 | 439.52 | 467.51 | 487.33 |
| CO Emission (KT) | | | | | | | | |
| Industry Sector | 4.83 | 8.12 | 7.68 | 9.09 | 8.85 | 5.09 | 9.47 | 9.97 |
| Transport Sector | 755.34 | 1,271.34 | 1,383.87 | 1,427.39 | 1,551.72 | 1,716.98 | 1,791.11 | 1,851.78 |
| Other Sector | 2.02 | 2.73 | 2.89 | 3.04 | 3.30 | 3.57 | 3.73 | 3.89 |
| Electricy Sector | 2.57 | 7.22 | 7.59 | 8.04 | 8.70 | 9.16 | 9.93 | 10.65 |
| Energy Sector | 0.43 | 0.81 | 0.83 | 0.84 | 0.89 | 0.92 | 0.97 | 1.00 |
| Total | 765.20 | 1,290.23 | 1,402.86 | 1,448.40 | 1,573.45 | 1,735.72 | 1,815.20 | 1,877.28 |
| NMVOC Emission (KT) | | | | | | | | |
| Industry Sector | 0.46 | 0.86 | 0.77 | 0.96 | 0.91 | 0.44 | 1.02 | 1.09 |
| Transport Sector | 142.68 | 240.14 | 261.40 | 269.62 | 293.10 | 324.32 | 338.32 | 349.78 |
| Other Sector | 0.51 | 0.64 | 0.67 | 0.70 | 0.75 | 0.79 | 0.82 | 0.85 |
| Electricy Sector | 0.16 | 1.45 | 1.47 | 1.53 | 1.51 | 1.61 | 1.84 | 1.99 |
| Energy Sector | 0.00 | 0.04 | 0.04 | 0.04 | 0.06 | 0.07 | 0.08 | 0.09 |
| Total | 143.81 | 243.12 | 264.34 | 272.85 | 296.33 | 327.23 | 342.09 | 353.79 |

Apparent Consumption is linked with Sheet of “IndEneConsum”, “TranEneConsum”, “OtheEneConsum”, “ElecEneConsum”, “EnSecEneConsum”.
Emission of each Gas is calculated following formula.
Each energy consumption in each sector is composed of three fuel type; Solid, Gas and Liquid.
Each fuel has each Emission factor.
Emission factor is linked with Sheet of “EFofCH4”, “EFofN2O”, “EFofNOx”, “EfofCO”, ”EFofNMVOC” (Emission of NOx is not used).
The amount of each gas emissions comes from three types of fuel combustion multiplied by Emission factor of three fuel types in each sector and in each emission gas.

**TotalEneCon&SO2NOxbySec**

| MODULE | Total energy consumption and SO2 and Nox Emissions by Sector | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | $SO_2$ and Nox FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 1-1 | | | | | | | |
| SHEET | 1 of 1 | | | | | | | |
| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| Appearent Consumption (TJ) | | | | | | | | |
| Industry Sector | 189,281 | 314,348 | 333,315 | 344,402 | 371,539 | 331,726 | 374,702 | 393,534 |
| Transport Sector | 167,854 | 282,520 | 307,526 | 317,198 | 344,826 | 381,551 | 398,025 | 411,506 |
| Other Sector | 101,004 | 128,429 | 134,237 | 140,120 | 149,603 | 158,591 | 164,298 | 169,553 |
| Electricy Sector | 160,615 | 385,261 | 407,994 | 433,992 | 479,294 | 503,429 | 538,786 | 577,221 |
| Energy Sector | 28,924 | 51,604 | 52,844 | 53,079 | 55,265 | 56,910 | 59,174 | 61,074 |
| Total | 647,677 | 1,162,162 | 1,235,918 | 1,288,791 | 1,400,527 | 1,432,207 | 1,534,984 | 1,612,887 |
| SO2 Emission (KTSO2) | | | | | | | | |
| Industry Sector | 94.11 | 115.49 | 124.11 | 124.53 | 131.25 | 112.17 | 128.18 | 130.01 |
| Transport Sector | 12.70 | 32.66 | 36.61 | 36.18 | 41.47 | 41.39 | 42.73 | 44.03 |
| Other Sector | 2.60 | 4.21 | 4.56 | 4.91 | 5.39 | 5.84 | 6.20 | 6.54 |
| Electricy Sector | 69.77 | 62.56 | 74.41 | 83.86 | 116.82 | 123.01 | 115.18 | 122.06 |
| Energy Sector | 15.89 | 19.51 | 20.93 | 19.67 | 18.09 | 17.20 | 16.82 | 16.21 |
| Total | 195.07 | 234.44 | 260.63 | 269.15 | 313.01 | 299.60 | 309.11 | 318.86 |
| NOx Emission (KTNOx) | | | | | | | | |
| Industry Sector | 27.27 | 44.04 | 47.20 | 48.74 | 52.23 | 44.61 | 50.36 | 52.67 |
| Transport Sector | 97.45 | 169.48 | 183.91 | 190.50 | 207.89 | 229.75 | 239.86 | 247.86 |
| Other Sector | 4.78 | 4.81 | 4.81 | 4.83 | 4.95 | 5.04 | 5.02 | 4.99 |
| Electricy Sector | 45.64 | 56.77 | 61.85 | 66.59 | 78.63 | 80.50 | 82.39 | 87.65 |
| Energy Sector | 9.44 | 17.74 | 18.14 | 18.43 | 19.16 | 19.70 | 20.29 | 20.72 |
| Total | 184.57 | 292.85 | 315.92 | 329.10 | 362.85 | 379.60 | 397.92 | 413.88 |

Apparent Consumption is linked with Sheet of “IndEneConsum”, “TranEneConsum”, “OtheEneConsum”, ElecEneConsum”, “EnSecEneConsum”. Each energy consumption in each sector is composed of about ten kinds of fuels; Solid, Gas and some kinds of Liquid.
Each fuel has each Emission factor.
Emission factor is linked with Sheet of “EFSO2EgyOri” for SO2 and “EFofNOxEgyOri” for NOx.
The amount of each gas emissions comes from fuel combustion multiplied by Emission factor of same fuel in each sector and in each emission gas.

## Conect

This sheet is a part of Sheet of “Conect” and it is only connecting sheet of “Fuels” in the File of “Eg_OEP_DBAL_uf_FMT.xls” in order to calculate easily.

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
|---|---|---|---|---|---|---|
| Indigenous Production | | | | | | |
| Hard_C | 21 | 15 | 11 | 12 | 19 | 16 |
| Coke_C | 0 | 0 | 0 | 0 | 0 | 0 |
| COC | 0 | 0 | 0 | 0 | 0 | 0 |
| GWG | 0 | 0 | 0 | 0 | 0 | 0 |
| COG | 0 | 0 | 0 | 0 | 0 | 0 |
| BFG | 0 | 0 | 0 | 0 | 0 | 0 |
| OxG | 0 | 0 | 0 | 0 | 0 | 0 |
| Renew | 0 | 0 | 0 | 0 | 1 | 1 |
| Bio | 11 | 12 | 11 | 14 | 13 | 12 |
| NG | 2,139 | 2,415 | 3,032 | 3,532 | 4,718 | 4,990 |
| Crude | 32,351 | 34,323 | 38,925 | 43,527 | 42,476 | 43,736 |
| Crude_Oil | 31,958 | 33,933 | 38,464 | 43,025 | 41,763 | 42,962 |
| NGL | 393 | 389 | 461 | 502 | 713 | 774 |
| Ref_Gas | 0 | 0 | 0 | 0 | 0 | 0 |
| LPG | 0 | 0 | 0 | 0 | 0 | 0 |
| Gasoline | 0 | 0 | 0 | 0 | 0 | 0 |
| Jet | 0 | 0 | 0 | 0 | 0 | 0 |
| Kero | 0 | 0 | 0 | 0 | 0 | 0 |
| Diesel | 0 | 0 | 0 | 0 | 0 | 0 |
| Res_FO | 0 | 0 | 0 | 0 | 0 | 0 |
| Naphtha | 0 | 0 | 0 | 0 | 0 | 0 |
| Lub | 0 | 0 | 0 | 0 | 0 | 0 |
| Bitu | 0 | 0 | 0 | 0 | 0 | 0 |
| P_Coke | 0 | 0 | 0 | 0 | 0 | 0 |
| P_Non | 0 | 0 | 0 | 0 | 0 | 0 |
| Hydro | 901 | 883 | 829 | 774 | 778 | 783 |
| Wind | 0 | 0 | 0 | 0 | 0 | 0 |
| Solar | 0 | 0 | 0 | 0 | 0 | 0 |
| Elec | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 35,423 | 37,648 | 42,808 | 47,860 | 48,005 | 49,538 |

**TotalEneConsum**

| MODULE | | Total Energy Consumption | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SUBMODULE | | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | | 1-1 | | | | | | | |
| SHEET | | 1 of 2 | | | | | | | |
| | | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| | | A Apparent Consumption | | | | | | | |
| FUEL TYPES | | TJ | | | | | | | |
| | | EGYPT | | | | | | | |
| Liquid Fossil | Primary Fuels | Crude Oil | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Natural Gas Liquids | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Secondary F | Gasoline | 62,297 | 89,313 | 91,068 | 93,469 | 99,519 | 101,828 | 107,038 | 108,592 |
| | | Jet Kerosene | 15,323 | 17,187 | 20,234 | 18,915 | 18,551 | 19,006 | 19,456 | 19,891 |
| | | Kerosene | 77,570 | 62,747 | 59,018 | 55,835 | 52,698 | 48,833 | 44,448 | 40,086 |
| | | Gas/Diesel Oil | 107,249 | 212,847 | 236,278 | 251,676 | 274,795 | 295,102 | 310,897 | 328,139 |
| | | Residual Fuel Oil | 122,331 | 159,039 | 178,044 | 170,352 | 188,625 | 177,026 | 178,589 | 180,125 |
| | | LPG | 21,808 | 61,185 | 69,475 | 77,482 | 87,986 | 99,478 | 108,927 | 117,885 |
| | | Naphtha | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Bitumen | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Lubricants | 6,715 | 11,110 | 11,435 | 11,720 | 12,778 | 13,348 | 13,857 | 14,371 |
| | | Petroleum Coke | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Non-Specified PP | 6,308 | 13,552 | 13,674 | 12,331 | 13,348 | 15,098 | 15,439 | 15,777 |
| **Liquid Fossil Totals** | | | **419,601** | **626,979** | **679,225** | **691,781** | **748,300** | **769,720** | **798,651** | **824,866** |
| Solid Fossil | Primary Fuels | HardCoal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | CokingCoal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Coke Oven/Gas Coke | 18,071 | 25,987 | 21,383 | 30,073 | 24,870 | 0 | 27,068 | 28,048 |
| **Solid Fossil Totals** | | | **18,071** | **25,987** | **21,383** | **30,073** | **24,870** | **0** | **27,068** | **28,048** |
| **Gaseous Fossil** | | **Natural Gas(Dry)** | **20,467** | **72,331** | **74,471** | **79,867** | **92,798** | **102,148** | **111,305** | **121,678** |
| **Total** | | | **458,138** | **725,297** | **775,079** | **801,720** | **865,968** | **871,868** | **937,024** | **974,593** |
| | | | | | | | | | | |
| Electricity (Input Base) | | | 160,615 | 385,261 | 407,994 | 433,992 | 479,294 | 503,429 | 538,786 | 577,221 |
| Energy Sector | | | 28,924 | 51,604 | 52,844 | 53,079 | 55,265 | 56,910 | 59,174 | 61,074 |
| ***TOTAL*** | | | ***647,677*** | ***1,162,162*** | ***1,235,918*** | ***1,288,791*** | ***1,400,527*** | ***1,432,207*** | ***1,534,984*** | ***1,612,887*** |

This table is a apparent consumption in total and linked with Sheet of “IndEneConsum”, “TranEneConsum”, “OtheEneConsum”, “ElecEneConsum”, “EnSecEneConsum”.
Liquid, Solid and Gaseous fuel are total energy consumption of Industry, Transport and Other sector.
Electricity and Energy Sector mean total energy consumption in two sectors.

**TotalCO2Emi**

| MODULE | Total CO2 Emission | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 1 - 1 | | | | | | | |
| SHEET | 2 of 2 | | | | | | | |
| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| | B Carbon Emission MTC | | | | | | | |
| FUEL TYPES | EGYPT | | | | | | | |
| Liquid Fossil Primary Fuels | Crude Oil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Natural Gas Liquids | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Secondary Fuels | Gasoline | 1.13 | 1.62 | 1.65 | 1.70 | 1.81 | 1.85 | 1.94 | 1.97 |
| | Jet Kerosene | 0.29 | 0.33 | 0.38 | 0.36 | 0.35 | 0.36 | 0.37 | 0.38 |
| | Kerosene | 1.48 | 1.20 | 1.13 | 1.07 | 1.01 | 0.93 | 0.85 | 0.77 |
| | Gas/Diesel Oil | 2.08 | 4.13 | 4.59 | 4.89 | 5.34 | 5.73 | 6.04 | 6.37 |
| | Residual Fuel Oil | 2.52 | 3.28 | 3.67 | 3.51 | 3.89 | 3.65 | 3.68 | 3.72 |
| | LPG | 0.37 | 1.05 | 1.19 | 1.33 | 1.50 | 1.70 | 1.86 | 2.02 |
| | Naphtha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Bitumen | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Lubricants | 0.13 | 0.22 | 0.22 | 0.23 | 0.25 | 0.26 | 0.27 | 0.28 |
| | Petroleum Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Non-Specified PP | 0.12 | 0.26 | 0.27 | 0.24 | 0.26 | 0.30 | 0.30 | 0.31 |
| **Liquid Fossil Totals** | | **8.14** | **12.09** | **13.10** | **13.32** | **14.41** | **14.78** | **15.32** | **15.81** |
| Solid Fossil Primary Fuels | HardCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | CokingCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Coke Oven/Gas Coke | 0.52 | 0.75 | 0.62 | 0.87 | 0.72 | 0.00 | 0.78 | 0.81 |
| **Solid Fossil Totals** | | **0.52** | **0.75** | **0.62** | **0.87** | **0.72** | **0.00** | **0.78** | **0.81** |
| **Gaseous Fossil** | **Natural Gas (Dry)** | **0.31** | **1.10** | **1.13** | **1.22** | **1.41** | **1.56** | **1.70** | **1.85** |
| **Total** | | **8.97** | **13.94** | **14.86** | **15.40** | **16.54** | **16.34** | **17.79** | **18.47** |
| | | | | | | | | | |
| Electricity (Input Base) | | 3.10 | 6.38 | 6.82 | 7.29 | 8.24 | 8.64 | 9.12 | 9.76 |
| Energy Sector | | 0.59 | 1.00 | 1.03 | 1.03 | 1.06 | 1.08 | 1.11 | 1.14 |
| ***TOTAL*** | | ***12.66*** | ***21.32*** | ***22.71*** | ***23.72*** | ***25.84*** | ***26.06*** | ***28.02*** | ***29.36*** |

| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|
| | B CO2 Emission MTCO2 | | | | | | | |
| FUEL TYPES | EGYPT | | | | | | | |
| Liquid Fossil Primary Fuels | Crude Oil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Natural Gas Liquids | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Secondary Fuels | Gasoline | 4.15 | 5.94 | 6.06 | 6.22 | 6.62 | 6.78 | 7.12 | 7.23 |
| | Jet Kerosene | 1.06 | 1.19 | 1.40 | 1.31 | 1.29 | 1.32 | 1.35 | 1.38 |
| | Kerosene | 5.43 | 4.39 | 4.13 | 3.91 | 3.69 | 3.42 | 3.11 | 2.81 |
| | Gas/Diesel Oil | 7.63 | 15.15 | 16.82 | 17.92 | 19.56 | 21.01 | 22.13 | 23.36 |
| | Residual Fuel Oil | 9.25 | 12.03 | 13.47 | 12.89 | 14.27 | 13.39 | 13.51 | 13.62 |
| | LPG | 1.37 | 3.84 | 4.36 | 4.86 | 5.52 | 6.24 | 6.83 | 7.39 |
| | Naphtha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Bitumen | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Lubricants | 0.48 | 0.80 | 0.82 | 0.84 | 0.92 | 0.96 | 0.99 | 1.03 |
| | Petroleum Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Non-Specified PP | 0.45 | 0.97 | 0.98 | 0.88 | 0.96 | 1.08 | 1.11 | 1.13 |
| **Liquid Fossil Totals** | | **29.83** | **44.32** | **48.04** | **48.83** | **52.82** | **54.19** | **56.16** | **57.95** |
| Solid Fossil Primary Fuels | HardCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | CokingCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Coke Oven/Gas Coke | 1.92 | 2.75 | 2.27 | 3.19 | 2.64 | 0.00 | 2.87 | 2.97 |
| **Solid Fossil Totals** | | **1.92** | **2.75** | **2.27** | **3.19** | **2.64** | **0.00** | **2.87** | **2.97** |
| **Gaseous Fossil** | **Natural Gas (Dry)** | **1.14** | **4.04** | **4.16** | **4.46** | **5.18** | **5.71** | **6.22** | **6.80** |
| **Total** | | **32.89** | **51.11** | **54.47** | **56.48** | **60.64** | **59.90** | **65.25** | **67.72** |
| | | | | | | | | | |
| Electricity (Input Base) | | 11.37 | 23.39 | 25.01 | 26.73 | 30.23 | 31.70 | 33.44 | 35.77 |
| Energy Sector | | 2.16 | 3.67 | 3.78 | 3.77 | 3.87 | 3.95 | 4.07 | 4.17 |
| ***TOTAL*** | | ***46.42*** | ***78.17*** | ***83.26*** | ***86.98*** | ***94.74*** | ***95.55*** | ***102.76*** | ***107.67*** |

This table is $CO_2$ Emission in total and linked with Sheet of “IndCO2Emi”, “TranCO2Emi”, “OtheCO2Emi”, “ElecCO2Emi”, “EnSecCO2Emi”.
Carbon emission is calculated by Energy consumption * Emission Factor * Carbon Oxidized ratio.
Carbon dioxide emission is obtained from Carbon emission by multiplying 44/12.
Liquid, Solid and Gaseous fuel are total $CO_2$ Emission of Industry, Transport and Other sector.
Electricity and Energy Sector mean total $CO_2$ Emission in two sectors.

**IndEneConsum**

| MODULE | | | Industry Energy Consumption | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SUBMODULE | | | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | | | 1-2 | | | | | | | |
| SHEET | | | 1 of 5 | | | | | | | |
| | | | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| | | | A Appearent Consumption | | | | | | | |
| FUEL TYPES | | EGYPT | TJ | | | | | | | |
| Liquid Fossil | Primary Fuels | Crude Oil | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Natural Gas Liquids | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Secondary Fu | Gasoline | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Jet Kerosene | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Kerosene | 364 | 182 | 182 | 182 | 136 | 136 | 132 | 128 |
| | | Gas/Diesel Oil | 28,118 | 72,704 | 79,756 | 84,933 | 92,744 | 75,382 | 81,437 | 88,233 |
| | | Residual Fuel Oil | 118,140 | 132,587 | 147,929 | 141,662 | 154,155 | 146,993 | 147,918 | 148,849 |
| | | LPG | 471 | 2,261 | 2,543 | 2,826 | 3,203 | 4,993 | 5,928 | 6,995 |
| | | Naphtha | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Bitumen | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Lubricants | 1,994 | 3,256 | 3,378 | 3,459 | 3,785 | 3,947 | 4,090 | 4,238 |
| | | Petroleum Coke | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Non-Specified PP | 1,750 | 10,296 | 10,418 | 9,401 | 10,174 | 11,476 | 11,659 | 11,832 |
| **Liquid Fossil Totals** | | | **150,836** | **221,285** | **244,206** | **242,463** | **264,197** | **242,928** | **251,164** | **260,275** |
| Solid Fossil | Primary Fuels | HardCoal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | CokingCoal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Coke Oven/Gas Coke | 18,071 | 25,987 | 21,383 | 30,073 | 24,870 | 0 | 27,068 | 28,048 |
| **Solid Fossil Totals** | | | **18,071** | **25,987** | **21,383** | **30,073** | **24,870** | **0** | **27,068** | **28,048** |
| **Gaseous Fossil Totals** | | **Natural Gas(Dry)** | **20,374** | **67,075** | **67,726** | **71,866** | **82,472** | **88,798** | **96,471** | **105,211** |
| **Total** | | | **189,281** | **314,348** | **333,315** | **344,402** | **371,539** | **331,726** | **374,702** | **393,534** |
| | | | | | | | | | | |
| Electricity (Input Base) | | | 90,015 | 169,673 | 176,861 | 186,050 | 199,753 | 203,684 | 214,324 | 226,591 |
| Energy Sector | | | 12,373 | 23,536 | 23,902 | 23,925 | 24,914 | 23,193 | 25,135 | 26,187 |
| ***TOTAL*** | | | ***291,668*** | ***507,557*** | ***534,079*** | ***554,376*** | ***596,206*** | ***558,603*** | ***614,161*** | ***646,312*** |

This table is an apparent consumption in Industry sector and linked with Sheet of "Conect".
Electricity (Input Base) is the part of Industrial sector in total energy consumption in Electricity sector (total fuel consumption in electricity *electricity consumption in Industry sector/total electricity consumption).
EnergySector (Ref) is the part of Industrial sector in total energy consumption in Energy Sector ((total non-electricity fuel consumption in EnergySector *non-electricity consumption in Industry sector/total non-electricity consumption).

**IndCO2Emi**

| MODULE | Industry CO2 Emission | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 2-2 | | | | | | | |
| SHEET | 1 of 5 | | | | | | | |
| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| | B Cabon Emission MTC | | | | | | | |
| FUEL TYPES | EGYPT | | | | | | | |
| Liquid Fossil | Primary Fuels | Crude Oil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Natural Gas Liquids | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Secondary Fuels | Gasoline | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Jet Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Kerosene | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Gas/Diesel Oil | 0.55 | 1.41 | 1.55 | 1.65 | 1.80 | 1.46 | 1.58 | 1.71 |
| | | Residual Fuel Oil | 2.44 | 2.74 | 3.05 | 2.92 | 3.18 | 3.03 | 3.05 | 3.07 |
| | | LPG | 0.01 | 0.04 | 0.04 | 0.05 | 0.05 | 0.09 | 0.10 | 0.12 |
| | | Naphtha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Bitumen | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Lubricants | 0.04 | 0.06 | 0.07 | 0.07 | 0.07 | 0.08 | 0.08 | 0.08 |
| | | Petroleum Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Non-Specified PP | 0.03 | 0.20 | 0.20 | 0.18 | 0.20 | 0.22 | 0.23 | 0.23 |
| **Liquid Fossil Totals** | | | **3.07** | **4.45** | **4.92** | **4.87** | **5.31** | **4.89** | **5.04** | **5.22** |
| Solid Fossil | Primary Fuels | HardCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | CokingCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Coke Oven/Gas Coke | 0.52 | 0.75 | 0.62 | 0.87 | 0.72 | 0.00 | 0.78 | 0.81 |
| **Solid Fossil Totals** | | | **0.52** | **0.75** | **0.62** | **0.87** | **0.72** | **0.00** | **0.78** | **0.81** |
| **Gaseous Fossil** | **Natural Gas(Dry)** | | **0.31** | **1.02** | **1.03** | **1.09** | **1.26** | **1.35** | **1.47** | **1.60** |
| **Total** | | | **3.90** | **6.23** | **6.57** | **6.84** | **7.29** | **6.24** | **7.30** | **7.63** |
| | | | | | | | | | | |
| Electricity (Input Base) | | | 1.74 | 2.81 | 2.96 | 3.13 | 3.44 | 3.50 | 3.63 | 3.83 |
| Energy Sector | | | 0.25 | 0.46 | 0.47 | 0.46 | 0.48 | 0.44 | 0.47 | 0.49 |
| ***TOTAL*** | | | ***5.89*** | ***9.49*** | ***9.99*** | ***10.43*** | ***11.20*** | ***10.18*** | ***11.40*** | ***11.95*** |

| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|
| | B C02 Emission MTCO2 | | | | | | | |
| FUEL TYPES | EGYPT | | | | | | | |
| Liquid Fossil | Primary Fuels | Crude Oil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Natural Gas Liquids | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Secondary Fuels | Gasoline | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Jet Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Kerosene | 0.03 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | | Gas/Diesel Oil | 2.00 | 5.18 | 5.68 | 6.05 | 6.60 | 5.37 | 5.80 | 6.28 |
| | | Residual Fuel Oil | 8.94 | 10.03 | 11.19 | 10.72 | 11.66 | 11.12 | 11.19 | 11.26 |
| | | LPG | 0.03 | 0.14 | 0.16 | 0.18 | 0.20 | 0.31 | 0.37 | 0.44 |
| | | Naphtha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Bitumen | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Lubricants | 0.14 | 0.23 | 0.24 | 0.25 | 0.27 | 0.28 | 0.29 | 0.30 |
| | | Petroleum Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Non-Specified PP | 0.13 | 0.74 | 0.75 | 0.67 | 0.73 | 0.82 | 0.84 | 0.85 |
| **Liquid Fossil Totals** | | | **11.26** | **16.33** | **18.03** | **17.87** | **19.47** | **17.91** | **18.50** | **19.14** |
| Solid Fossil | Primary Fuels | HardCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | CokingCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Coke Oven/Gas Coke | 1.92 | 2.75 | 2.27 | 3.19 | 2.64 | 0.00 | 2.87 | 2.97 |
| **Solid Fossil Totals** | | | **1.92** | **2.75** | **2.27** | **3.19** | **2.64** | **0.00** | **2.87** | **2.97** |
| **Gaseous Fossil** | **Natural Gas(Dry)** | | **1.14** | **3.75** | **3.78** | **4.01** | **4.61** | **4.96** | **5.39** | **5.88** |
| **Total** | | | **14.32** | **22.83** | **24.08** | **25.08** | **26.72** | **22.87** | **26.75** | **27.99** |
| | | | | | | | | | | |
| Electricity (Input Base) | | | 6.37 | 10.30 | 10.84 | 11.46 | 12.60 | 12.82 | 13.30 | 14.04 |
| Energy Sector | | | 0.92 | 1.67 | 1.71 | 1.70 | 1.74 | 1.61 | 1.73 | 1.79 |
| ***TOTAL*** | | | ***21.61*** | ***34.81*** | ***36.63*** | ***38.24*** | ***41.06*** | ***37.31*** | ***41.79*** | ***43.82*** |

This table is linked with Sheet of "IndEneConsum", "EFCO2EgyOri", "C-Oxidized".
Carbon emission is calculated by Energy consumption * Emission Factor * Carbon Oxidized ratio.
Carbon dioxide emission is obtained from Carbon emission by multiplying 44/12.

**TranEneConsum**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **MODULE** | **Tranport Energy Consumption** | | | | | | |
| | | **SUBMODULE** | **$CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH)** | | | | | | |
| | | **WORKSHEET** | **1-2** | | | | | | |
| | | **SHEET** | **2 of 5** | | | | | | |
| | | | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| | | | A Appearent Consumption | | | | | | | |
| **FUEL TYPES** | | EGYPT | TJ | | | | | | | |
| Liquid Fossil | Primary Fuels | Crude Oil | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Natural Gas Liquids | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Secondary F | Gasoline | 62,297 | 89,313 | 91,068 | 93,469 | 99,519 | 101,828 | 107,038 | 108,592 |
| | | Jet Kerosene | 15,323 | 17,187 | 20,234 | 18,915 | 18,551 | 19,006 | 19,456 | 19,891 |
| | | Kerosene | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Gas/Diesel Oil | 77,658 | 139,964 | 156,343 | 166,519 | 181,828 | 219,452 | 229,175 | 239,603 |
| | | Residual Fuel Oil | 4,192 | 26,452 | 30,115 | 28,690 | 34,469 | 30,033 | 30,671 | 31,276 |
| | | LPG | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Naphtha | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Bitumen | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Lubricants | 3,825 | 6,349 | 6,511 | 6,674 | 7,285 | 7,610 | 7,905 | 8,199 |
| | | Petroleum Coke | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Non-Specified PP | 4,558 | 3,256 | 3,256 | 2,930 | 3,174 | 3,622 | 3,780 | 3,945 |
| **Liquid Fossil Totals** | | | **167,854** | **282,520** | **307,526** | **317,198** | **344,826** | **381,551** | **398,025** | **411,506** |
| Solid Fossil | Primary Fuels | HardCoal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | CokingCoal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Coke Oven/Gas Coke | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Solid Fossil Totals** | | | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Gaseous Fossil** | | **Natural Gas(Dry)** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Total** | | | **167,854** | **282,520** | **307,526** | **317,198** | **344,826** | **381,551** | **398,025** | **411,506** |
| | | | | | | | | | | |
| Electricity (Input Base) | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Energy Sector | | | 10,315 | 19,265 | 52,844 | 20,193 | 21,138 | 23,787 | 24,057 | 24,668 |
| ***TOTAL*** | | | ***178,169*** | ***301,785*** | ***360,371*** | ***337,391*** | ***365,964*** | ***405,338*** | ***422,082*** | ***436,174*** |

This table is a apparent consumption in Transport sector and linked with Sheet of "Conect".
EnergySector (Ref) is the part of Transport sector in total energy consumption in Energy Sector ((total non-electricity fuel consumption in EnergySector *non-electricity consumption in Transport sector/total non-electricity consumption).

**TranCO2Emi**

| MODULE | Transport CO2 Emission | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 2-2 | | | | | | | |
| SHEET | 2 of 5 | | | | | | | |

| | | | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | B Carbon Emission | | | | | | | |
| FUEL TYPES | | EGYPT | MTC | | | | | | | |
| Liquid Fossil | Primary Fuels | Crude Oil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Natural Gas Liquids | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Secondary Fuels | Gasoline | 1.13 | 1.62 | 1.65 | 1.70 | 1.81 | 1.85 | 1.94 | 1.97 |
| | | Jet Kerosene | 0.29 | 0.33 | 0.38 | 0.36 | 0.35 | 0.36 | 0.37 | 0.38 |
| | | Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Gas/Diesel Oil | 1.51 | 2.72 | 3.04 | 3.23 | 3.53 | 4.26 | 4.45 | 4.65 |
| | | Residual Fuel Oil | 0.09 | 0.55 | 0.62 | 0.59 | 0.71 | 0.62 | 0.63 | 0.65 |
| | | LPG | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Naphtha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Bitumen | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Lubricants | 0.07 | 0.12 | 0.13 | 0.13 | 0.14 | 0.15 | 0.15 | 0.16 |
| | | Petroleum Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Non-Specified PP | 0.09 | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 | 0.07 | 0.08 |
| **Liquid Fossil Totals** | | | **3.18** | **5.40** | **5.88** | **6.07** | **6.60** | **7.31** | **7.62** | **7.88** |
| Solid Fossil | Primary Fuels | HardCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | CokingCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Coke Oven/Gas Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Solid Fossil Totals** | | | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| **Gaseous Fossil** | | **Natural Gas(Dry)** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| **Total** | | | **3.18** | **5.40** | **5.88** | **6.07** | **6.60** | **7.31** | **7.62** | **7.88** |
| | | | | | | | | | | |
| Electricity (Input Base) | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Energy Sector | | | 0.21 | 0.37 | 0.39 | 0.39 | 0.40 | 0.45 | 0.45 | 0.46 |
| ***TOTAL*** | | | ***3.39*** | ***5.77*** | ***6.28*** | ***6.46*** | ***7.01*** | ***7.76*** | ***8.07*** | ***8.34*** |

| | | | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | B CO2 Emission | | | | | | | |
| FUEL TYPES | | EGYPT | MTCO2 | | | | | | | |
| Liquid Fossil | Primary Fuels | Crude Oil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Natural Gas Liquids | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Secondary Fuels | Gasoline | 4.15 | 5.94 | 6.06 | 6.22 | 6.62 | 6.78 | 7.12 | 7.23 |
| | | Jet Kerosene | 1.06 | 1.19 | 1.40 | 1.31 | 1.29 | 1.32 | 1.35 | 1.38 |
| | | Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Gas/Diesel Oil | 5.53 | 9.96 | 11.13 | 11.85 | 12.94 | 15.62 | 16.31 | 17.06 |
| | | Residual Fuel Oil | 0.32 | 2.00 | 2.28 | 2.17 | 2.61 | 2.27 | 2.32 | 2.37 |
| | | LPG | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Naphtha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Bitumen | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Lubricants | 0.27 | 0.46 | 0.47 | 0.48 | 0.52 | 0.55 | 0.57 | 0.59 |
| | | Petroleum Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Non-Specified PP | 0.33 | 0.23 | 0.23 | 0.21 | 0.23 | 0.26 | 0.27 | 0.28 |
| **Liquid Fossil Totals** | | | **11.66** | **19.79** | **21.57** | **22.25** | **24.21** | **26.80** | **27.95** | **28.90** |
| Solid Fossil | Primary Fuels | HardCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | CokingCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Coke Oven/Gas Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Solid Fossil Totals** | | | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| **Gaseous Fossil** | | **Natural Gas(Dry)** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| **Total** | | | **11.66** | **19.79** | **21.57** | **22.25** | **24.21** | **26.80** | **27.95** | **28.90** |
| | | | | | | | | | | |
| Electricity (Input Base) | | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Energy Sector | | | 0.77 | 1.37 | 1.44 | 1.43 | 1.48 | 1.65 | 1.66 | 1.68 |
| ***TOTAL*** | | | ***12.43*** | ***21.16*** | ***23.01*** | ***23.68*** | ***25.69*** | ***28.45*** | ***29.60*** | ***30.59*** |

This table is linked with Sheet of "TranEneConsum", "EFCO2EgyOri", "C-Oxidized".
Carbon emission is calculated by Energy consumption * Emission Factor * Carbon Oxidized ratio.
Carbon dioxide emission is obtained from Carbon emission by multiplying 44/12.

**OtheEneConsum**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | MODULE | Other Sector Energy Consumption | | | | | | | |
| | | SUBMODULE | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| | | WORKSHEET | 1-2 | | | | | | | |
| | | SHEET | 3 of 5 | | | | | | | |
| | | | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| | | | A Appearent Consumption | | | | | | | |
| | | FUEL TYPES EGYPT | TJ | | | | | | | |
| Liquid Fossil | Primary Fuels | Crude Oil | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Natural Gas Liquids | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Secondary Fu | Gasoline | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Jet Kerosene | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Kerosene | 77,206 | 62,565 | 58,836 | 55,654 | 52,562 | 48,697 | 44,316 | 39,958 |
| | | Gas/Diesel Oil | 1,473 | 179 | 179 | 223 | 223 | 268 | 285 | 303 |
| | | Residual Fuel Oil | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | LPG | 21,337 | 58,924 | 66,931 | 74,656 | 84,783 | 94,486 | 103,000 | 110,890 |
| | | Naphtha | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Bitumen | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Lubricants | 895 | 1,506 | 1,546 | 1,587 | 1,709 | 1,791 | 1,863 | 1,934 |
| | | Petroleum Coke | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Non-Specified PP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Liquid Fossil Totals** | | | **100,911** | **123,173** | **127,493** | **132,120** | **139,277** | **145,241** | **149,463** | **153,085** |
| Solid Fossil | Primary Fuels | HardCoal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | CokingCoal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Coke Oven/Gas Coke | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Solid Fossil Totals** | | | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Gaseous Fossil** | | **Natural Gas(Dry)** | **93** | **5,256** | **6,745** | **8,001** | **10,326** | **13,350** | **14,835** | **16,467** |
| **Total** | | | **101,004** | **128,429** | **134,237** | **140,120** | **149,603** | **158,591** | **164,298** | **169,553** |
| | | | | | | | | | | |
| Electricity (Input Base) | | | 70,600 | 215,588 | 231,133 | 247,943 | 279,540 | 299,745 | 324,462 | 350,630 |
| Energy Sector | | | 6,236 | 8,803 | 8,823 | 8,961 | 9,214 | 9,931 | 9,982 | 10,219 |
| ***TOTAL*** | | | ***177,840*** | ***352,820*** | ***374,194*** | ***397,024*** | ***438,357*** | ***468,267*** | ***498,742*** | ***530,401*** |

This table is an apparent consumption in Other sector and linked with Sheet of "Conect".
Electricity (Input Base) is the part of Other sector in total energy consumption in Electricity sector (total fuel consumption in electricity *electricity consumption in Other sector/total electricity consumption).
EnergySector (Ref) is the part of Other sector in total energy consumption in Energy Sector ((total non-electricity fuel consumption in EnergySector *non-electricity consumption in Other sector/total non-electricity consumption).

**OtheCO2Emi**

| MODULE | Other Sector CO2 Emission |
|---|---|
| SUBMODULE | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) |
| WORKSHEET | 2-2 |
| SHEET | 3 of 5 |

| | | | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | B Carbon Emission MTC | | | | | | | |
| FUEL TYPES | | EGYPT | | | | | | | | |
| Liquid Fossil | Primary Fuels | Crude Oil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Natural Gas Liquids | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Secondary Fuels | Gasoline | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Jet Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Kerosene | 1.47 | 1.19 | 1.12 | 1.06 | 1.00 | 0.93 | 0.85 | 0.76 |
| | | Gas/Diesel Oil | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 |
| | | Residual Fuel Oil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | LPG | 0.36 | 1.01 | 1.14 | 1.28 | 1.45 | 1.62 | 1.76 | 1.90 |
| | | Naphtha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Bitumen | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Lubricants | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 |
| | | Petroleum Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Non-Specified PP | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Liquid Fossil Totals** | | | **1.89** | **2.24** | **2.30** | **2.38** | **2.49** | **2.59** | **2.65** | **2.70** |
| Solid Fossil | Primary Fuels | HardCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | CokingCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Coke Oven/Gas Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Solid Fossil Totals** | | | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| **Gaseous Fossil** | | **Natural Gas(Dry)** | **0.00** | **0.08** | **0.10** | **0.12** | **0.16** | **0.20** | **0.23** | **0.25** |
| **Total** | | | **1.89** | **2.32** | **2.40** | **2.50** | **2.65** | **2.79** | **2.88** | **2.95** |
| | | | | | | | | | | |
| Electricity (Input Base) | | | 1.36 | 3.57 | 3.86 | 4.17 | 4.81 | 5.15 | 5.49 | 5.93 |
| Energy Sector | | | 0.13 | 0.17 | 0.17 | 0.17 | 0.18 | 0.19 | 0.19 | 0.19 |
| ***TOTAL*** | | | ***3.38*** | ***6.06*** | ***6.44*** | ***6.84*** | ***7.63*** | ***8.12*** | ***8.56*** | ***9.07*** |

| | | | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | B $CO_2$ Emission MTCO2 | | | | | | | |
| FUEL TYPES | | EGYPT | | | | | | | | |
| Liquid Fossil | Primary Fuels | Crude Oil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Natural Gas Liquids | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Secondary Fuels | Gasoline | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Jet Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Kerosene | 5.41 | 4.38 | 4.12 | 3.90 | 3.68 | 3.41 | 3.10 | 2.80 |
| | | Gas/Diesel Oil | 0.10 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| | | Residual Fuel Oil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | LPG | 1.34 | 3.70 | 4.20 | 4.68 | 5.32 | 5.93 | 6.46 | 6.95 |
| | | Naphtha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Bitumen | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Lubricants | 0.06 | 0.11 | 0.11 | 0.11 | 0.12 | 0.13 | 0.13 | 0.14 |
| | | Petroleum Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Non-Specified PP | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Liquid Fossil Totals** | | | **6.91** | **8.20** | **8.44** | **8.71** | **9.14** | **9.48** | **9.72** | **9.91** |
| Solid Fossil | Primary Fuels | HardCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | CokingCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Coke Oven/Gas Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Solid Fossil Totals** | | | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| **Gaseous Fossil** | | **Natural Gas(Dry)** | **0.01** | **0.29** | **0.38** | **0.45** | **0.58** | **0.75** | **0.83** | **0.92** |
| **Total** | | | **6.92** | **8.49** | **8.82** | **9.16** | **9.71** | **10.23** | **10.55** | **10.83** |
| | | | | | | | | | | |
| Electricity (Input Base) | | | 5.00 | 13.09 | 14.17 | 15.27 | 17.63 | 18.87 | 20.14 | 21.73 |
| Energy Sector | | | 0.47 | 0.63 | 0.63 | 0.64 | 0.64 | 0.69 | 0.69 | 0.70 |
| ***TOTAL*** | | | ***12.38*** | ***22.21*** | ***23.62*** | ***25.06*** | ***27.99*** | ***29.79*** | ***31.37*** | ***33.26*** |

This table is linked with Sheet of "OtheEneConsum", "EFCO2EgyOri", "C-Oxidized".
Carbon emission is calculated by Energy consumption * Emission Factor * Carbon Oxidized ratio.
Carbon dioxide emission is obtained from Carbon emission by multiplying 44/12.

**ElecEneConsum**

| MODULE | | Electricity Generation Energy Consumption | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SUBMODULE | | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | | 1-2 | | | | | | | |
| SHEET | | 4 of 5 | | | | | | | |
| | | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| | | A Appearent Consumption | | | | | | | |
| FUEL TYPES | | TJ | | | | | | | |
| | | EGYPT | | | | | | | |
| Liquid Fossil | Primary Fuels | Crude Oil | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Natural Gas Liquids | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Secondary F | Gasoline | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Jet Kerosene | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Kerosene | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Gas/Diesel Oil | 29,367 | 7,498 | 8,034 | 8,212 | 9,283 | 5,400 | 5,028 | 4,687 |
| | | Residual Fuel Oil | 98,117 | 88,310 | 105,443 | 119,076 | 166,893 | 176,172 | 164,537 | 174,393 |
| | | LPG | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Naphtha | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Bitumen | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Lubricants | 244 | 407 | 448 | 448 | 488 | 529 | 541 | 552 |
| | | Petroleum Coke | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Non-Specified PP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Liquid Fossil Totals** | | | **127,729** | **96,215** | **113,924** | **127,735** | **176,665** | **182,101** | **170,105** | **179,633** |
| Solid Fossil | Primary Fuels | HardCoal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | CokingCoal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Coke Oven/Gas Coke | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Solid Fossil Totals** | | | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Gaseous Fossil** | | **Natural Gas(Dry)** | **32,886** | **289,046** | **294,070** | **306,257** | **302,629** | **321,328** | **368,680** | **397,588** |
| **Total** | | | **160,615** | **385,261** | **407,994** | **433,992** | **479,294** | **503,429** | **538,786** | **577,221** |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| ***TOTAL*** | | | ***160,615*** | ***385,261*** | ***407,994*** | ***433,992*** | ***479,294*** | ***503,429*** | ***538,786*** | ***577,221*** |

This table is a apparent consumption in Electricity sector and linked with Sheet of “Conect” (The numbers in “Conect” sheet are negative value. So we changed positive value by multiplying minus 1)

**ElecCO2Emi**

| MODULE | Electricity Generation Sector CO2 Emission | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 2-2 | | | | | | | |
| SHEET | 4 of 5 | | | | | | | |
| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| | B Carbon Emission | | | | | | | |
| FUEL TYPES EGYPT | MTC | | | | | | | |
| Liquid Fossil Primary Fuels Crude Oil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Natural Gas Liquids | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Secondary Fuels Gasoline | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Jet Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Gas/Diesel Oil | 0.57 | 0.15 | 0.16 | 0.16 | 0.18 | 0.10 | 0.10 | 0.09 |
| Residual Fuel Oil | 2.02 | 1.82 | 2.18 | 2.46 | 3.44 | 3.63 | 3.39 | 3.60 |
| LPG | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Naphtha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Bitumen | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lubricants | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Petroleum Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Non-Specified PP | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Liquid Fossil Totals** | **2.60** | **1.98** | **2.34** | **2.62** | **3.63** | **3.75** | **3.50** | **3.70** |
| Solid Fossil Primary Fuels HardCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| CokingCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Coke Oven/Gas Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Solid Fossil Totals** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| **Gaseous Fossil** Natural Gas(Dry) | **0.50** | **4.40** | **4.48** | **4.67** | **4.61** | **4.90** | **5.62** | **6.06** |
| **Total** | **3.10** | **6.38** | **6.82** | **7.29** | **8.24** | **8.64** | **9.12** | **9.76** |
| *TOTAL* | *3.10* | *6.38* | *6.82* | *7.29* | *8.24* | *8.64* | *9.12* | *9.76* |

| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|
| | B CO2 Emission | | | | | | | |
| FUEL TYPES EGYPT | MTCO2 | | | | | | | |
| Liquid Fossil Primary Fuels Crude Oil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Natural Gas Liquids | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Secondary Fuels Gasoline | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Jet Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Gas/Diesel Oil | 2.09 | 0.53 | 0.57 | 0.58 | 0.66 | 0.38 | 0.36 | 0.33 |
| Residual Fuel Oil | 7.42 | 6.68 | 7.98 | 9.01 | 12.62 | 13.33 | 12.45 | 13.19 |
| LPG | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Naphtha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Bitumen | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lubricants | 0.02 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 |
| Petroleum Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Non-Specified PP | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Liquid Fossil Totals** | **9.53** | **7.24** | **8.58** | **9.62** | **13.32** | **13.75** | **12.84** | **13.56** |
| Solid Fossil Primary Fuels HardCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| CokingCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Coke Oven/Gas Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Solid Fossil Totals** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| **Gaseous Fossil** Natural Gas(Dry) | **1.84** | **16.15** | **16.43** | **17.11** | **16.91** | **17.95** | **20.60** | **22.21** |
| **Total** | **11.37** | **23.39** | **25.01** | **26.73** | **30.23** | **31.70** | **33.44** | **35.77** |
| *TOTAL* | | | | | | | | |

This table is linked with Sheet of “ElecEneConsum”, “EFCO2EgyOri”, “C-Oxidized”.
Carbon emission is calculated by Energy consumption * Emission Factor * Carbon Oxidized ratio.

**EnSecEneConsum**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | MODULE | Energy Sector Energy Consumption | | | | | | |
| | | | SUBMODULE | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | |
| | | | WORKSHEET | 1-2 | | | | | | |
| | | | SHEET | 5 of 5 | | | | | | |
| | | | | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| | | | | A Appearent Consumption | | | | | | | |
| | | FUEL TYPES | EGYPT | TJ | | | | | | | |
| Liquid Fossil | Primary Fuel | Crude Oil | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Natural Gas Liquids | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Secondary Fu | Gasoline | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Jet Kerosene | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Kerosene | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Gas/Diesel Oil | | 6,338 | 16,826 | 16,781 | 17,853 | 19,504 | 20,620 | 21,573 | 22,290 |
| | | Residual Fuel Oil | | 22,423 | 26,534 | 28,609 | 26,656 | 24,173 | 22,749 | 22,099 | 21,133 |
| | | LPG | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Naphtha | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Bitumen | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Lubricants | | 163 | 244 | 244 | 244 | 285 | 285 | 3 | 0 |
| | | Petroleum Coke | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Non-Specified PP | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Liquid Fossil Totals** | | | | **28,924** | **43,604** | **45,635** | **44,752** | **43,962** | **43,653** | **43,675** | **43,423** |
| Solid Fossil | Primary Fuel | HardCoal | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | CokingCoal | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Coke Oven/Gas Coke | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Solid Fossil Totals** | | | | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **Gaseous Fossil** | | **Natural Gas(Dry)** | | **0** | **8,001** | **7,210** | **8,326** | **11,303** | **13,257** | **15,499** | **17,651** |
| **Total** | | | | **28,924** | **51,604** | **52,844** | **53,079** | **55,265** | **56,910** | **59,174** | **61,074** |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| ***TOTAL*** | | | | ***28,924*** | ***51,604*** | ***52,844*** | ***53,079*** | ***55,265*** | ***56,910*** | ***59,174*** | ***61,074*** |

This table is an apparent consumption in Energy sector and linked with Sheet of “Conect” (The numbers in “Conect” sheet are negative value. So we changed positive value by multiplying minus 1)

**EnSecCO2Emi**

| MODULE | Energy Sector CO2 Emission | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SUBMODULE | $CO_2$ FROM ENERGY SOURCES(REFERENCE APPROACH) | | | | | | | |
| WORKSHEET | 2-2 | | | | | | | |
| SHEET | 5 of 5 | | | | | | | |
| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
| | B Carbon Emission MTC | | | | | | | |
| FUEL TYPES EGYPT | | | | | | | | |
| Liquid Fossil Primary Fuels | Crude Oil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Natural Gas Liquids | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Secondary Fuels | Gasoline | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Jet Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Gas/Diesel Oil | 0.12 | 0.33 | 0.33 | 0.35 | 0.38 | 0.40 | 0.42 | 0.43 |
| | Residual Fuel Oil | 0.46 | 0.55 | 0.59 | 0.55 | 0.50 | 0.47 | 0.46 | 0.44 |
| | LPG | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Naphtha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Bitumen | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Lubricants | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 |
| | Petroleum Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Non-Specified PP | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Liquid Fossil Totals** | | **0.59** | **0.88** | **0.92** | **0.90** | **0.88** | **0.88** | **0.87** | **0.87** |
| Solid Fossil Primary Fuels | HardCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | CokingCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Coke Oven/Gas Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Solid Fossil Totals** | | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| **Gaseous Fossil** | **Natural Gas(Dry)** | **0.00** | **0.12** | **0.11** | **0.13** | **0.17** | **0.20** | **0.24** | **0.27** |
| **Total** | | **0.59** | **1.00** | **1.03** | **1.03** | **1.06** | **1.08** | **1.11** | **1.14** |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| ***TOTAL*** | | ***0.59*** | ***1.00*** | ***1.03*** | ***1.03*** | ***1.06*** | ***1.08*** | ***1.11*** | ***1.14*** |

| | 1981 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|
| | B C02 Emission MTC02 | | | | | | | |
| FUEL TYPES EGYPT | | | | | | | | |
| Liquid Fossil Primary Fuels | Crude Oil | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Natural Gas Liquids | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Secondary Fuels | Gasoline | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Jet Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Kerosene | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Gas/Diesel Oil | 0.45 | 1.20 | 1.19 | 1.27 | 1.39 | 1.47 | 1.54 | 1.59 |
| | Residual Fuel Oil | 1.70 | 2.01 | 2.16 | 2.02 | 1.83 | 1.72 | 1.67 | 1.60 |
| | LPG | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Naphtha | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Bitumen | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Lubricants | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.00 | 0.00 |
| | Petroleum Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Non-Specified PP | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Liquid Fossil Totals** | | **2.16** | **3.22** | **3.38** | **3.30** | **3.24** | **3.21** | **3.21** | **3.19** |
| Solid Fossil Primary Fuels | HardCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | CokingCoal | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Coke Oven/Gas Coke | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Solid Fossil Totals** | | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |
| **Gaseous Fossil** | **Natural Gas(Dry)** | **0.00** | **0.45** | **0.40** | **0.47** | **0.63** | **0.74** | **0.87** | **0.99** |
| **Total** | | **2.16** | **3.67** | **3.78** | **3.77** | **3.87** | **3.95** | **4.07** | **4.17** |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| ***TOTAL*** | | | | | | | | | |

This table is linked with Sheet of “EnSecEneConsum”, “EFCO2EgyOri”, “C-Oxidized”.
Carbon emission is calculated by Energy consumption * Emission Factor * Carbon Oxidized ratio.

**EFCO2EgyOri**

| | Egypt-Data | IPCC Data | | | Egyptian data | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 10^4kcal/kg | TC/TJ | TJ/T | T-$CO_2$/T | TOE/T | T-$CO_2$/TOE | T-C/TOE | T-C/TJ | S (%) |
| | Input | | | | | | | | Input |
| Hard Coal | 0.6700 | | | | | | | 21.0 | |
| Brown Coal | 0.2000 | | | | | | | 19.9 | |
| Coking Coal | 0.6700 | | | | | | | 22.4 | |
| Other Bituminous Coa | 0.6700 | | | | | | | 22.4 | |
| Sub-Bituminous Coal | 0.2000 | | | | | | | 19.9 | |
| Lignite | 0.2000 | | | | | | | 19.9 | |
| Coke Oven Coke | 0.7000 | 29.50 | 29.31 | 3.1701 | 0.7000 | 4.5287 | 1.2351 | 29.5 | 0.0100 |
| Natural Gas | 1.1110 | 15.30 | 46.55 | 2.6115 | 1.1110 | 2.3506 | 0.6411 | 15.3 | 0.0001 |
| Crude Oil | 0.9950 | 20.00 | 41.09 | 3.0135 | 0.9950 | 3.0286 | 0.8260 | 19.7 | 0.0200 |
| Natural Gas Liquids | 1.1030 | 17.20 | 46.18 | 2.9124 | 1.1030 | 2.6405 | 0.7201 | 17.2 | 0.0012 |
| Refinery Feedstocks | 1.1030 | | | | | | | 18.3 | |
| Additives/Blending Co | 0.0000 | | | | | | | 0.0 | |
| Input of Origin not Cru | 0.0000 | | | | | | | 0.0 | |
| Refinery Gas | 1.1250 | 18.20 | 48.15 | 3.2132 | 1.1250 | 2.8562 | 0.7790 | 18.6 | 0.0000 |
| Ethane | 1.1250 | | | | | | | 17.7 | |
| Liquefied Petroleum G | 1.1250 | 17.20 | 47.31 | 2.9837 | 1.1250 | 2.6522 | 0.7233 | 17.3 | 0.0012 |
| Motor Gasoline | 1.1030 | 18.90 | 44.80 | 3.1046 | 1.1030 | 2.8147 | 0.7677 | 18.3 | 0.0004 |
| Aviation Gasoline | 1.1030 | | | | | | | 0.0 | |
| Gasoline type Jet Fuel | 1.1030 | | | | | | | 18.3 | |
| Kerosene type Jet Fue | 1.0860 | 19.50 | 44.59 | 3.1882 | 1.0860 | 2.9357 | 0.8006 | 19.1 | 0.0016 |
| Kerosene | 1.0860 | 19.60 | 44.75 | 3.2160 | 1.0860 | 2.9614 | 0.8076 | 19.3 | 0.0004 |
| Gas/Diesel Oil | 1.0660 | 20.20 | 43.33 | 3.2093 | 1.0660 | 3.0106 | 0.8211 | 19.6 | 0.0016 |
| Residual Fuel Oil | 0.9720 | 21.10 | 40.19 | 3.1094 | 0.9720 | 3.1989 | 0.8724 | 20.8 | 0.0140 |
| Naphtha | 1.1030 | 20.00 | 45.01 | 3.3007 | 1.1030 | 2.9925 | 0.8161 | 19.5 | 0.0010 |
| White Spirit | 1.0860 | | | | | | | 18.8 | |
| Lubricants | 0.9720 | 20.00 | 40.19 | 2.9473 | 0.9720 | 3.0322 | 0.8270 | 19.8 | 0.0010 |
| Bitumen | 0.9720 | | | | | | | 16.6 | |
| Paraffin Waxes | 0.9720 | | | | | | | 17.0 | |
| Petroleum Coke | 0.7400 | 27.50 | 31.00 | 3.1258 | 0.7400 | 4.2241 | 1.1520 | 27.5 | 0.0200 |
| Non-specified Petroleu | 0.9720 | 20.00 | 40.19 | 2.9473 | 0.9720 | 3.0322 | 0.8270 | 19.8 | 0.0100 |

TC/TJ and TJ/T in IPCC Data are the numbers estimated by IPCC and we can find these data in IPCC guideline. T-CO2/T in IPCC Data is obtained from calculating the following calculation type; (TC/TJ * TJ/T * (44/12)/1000). In order to get the Egyptian original emission factor, we must adjust IPCC numbers by the Egyptian original net calorific value of each energy sources.

TOE/T in Egyptian Data is the net calorific value in Egypt. T-CO2/TOE is calculated from the following calculation type; ((T-CO2/T) / (TOE/T)) and T-C/TOE from (T-CO2/TOE * (12/44)). At last, T-C/TJ is calculated from the following calculation type; (T-C/TOE / 41.868 * 1000), in which 41.868 is the conversion factor from KTOE to TJ.

**C-Oxidized**

This number is rate of oxidized amount in each fuel. Source is the IPCC report.

| FUEL TYPES | | EGYPT | Fraction of Carbon Oxidised |
|---|---|---|---|
| Liquid Fossil | Primary Fuels | Crude Oil | 0.99 |
| | | Natural Gas Liquids | 0.99 |
| | Secondary Fuels | Gasoline | 0.99 |
| | | Jet Kerosene | 0.99 |
| | | Kerosene | 0.99 |
| | | Gas/Diesel Oil | 0.99 |
| | | Residual Fuel Oil | 0.99 |
| | | LPG | 0.99 |
| | | Naphtha | 0.99 |
| | | Bitumen | 0.99 |
| | | Lubricants | 0.99 |
| | | Petroleum Coke | 0.99 |
| | | Non-Specified PP | 0.99 |
| **Liquid Fossil Totals** | | | |
| Solid Fossil | Primary Fuels | HardCoal | 0.98 |
| | | CokingCoal | 0.98 |
| | | Coke Oven/Gas Coke | 0.98 |
| **Solid Fossil Totals** | | | |
| **Gaseous Fossil** | | **Natural Gas(Dry)** | 0.995 |
| **Total** | | | |
| | | | |
| Electricity | | | 0.000 |
| Energy Sector | | | 0.000 |
| ***TOTAL*** | | | |

**EFSO2EgyOri**

| | ENERGY | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | $SO_2$ from Fuel Combustion by Source Categories (Tier 1) | | | | | | | |
| | 1-4 | | | | | | | |
| | 1 of 1 Sector(a) | | | | | | | |
| | STEP 1 | STEP 2 | | | | | STEP 3 | |
| | A Fuel Consumption (TJ) | B Sulphur content of fuel(b) (%) | C Sulphur retention in ash (%) | D Abatement Efficiency (%) | E Calorific Value(b) (TJ/kt) | F SO2 Emission factor(b) (kg/TJ) | G Emissions (t) | H Emission Factor of SO2 |
| Fuel Type | | | | | | F** | G = (A*F)/1000 | |
| Egypt | | | | | | | | |
| Coke Oven Coke | 21,382.8 | 1.0000 | 20 | 0 | 29.3 | 545.9 | 11,673.6 | 0.5459 |
| Natural Gas | 81,681.0 | 0.0100 | 0 | | 46.5 | 4.3 | 351.2 | 0.0043 |
| LPG | 69,474.7 | 0.1200 | 0 | | 47.1 | 51.0 | 3,540.0 | 0.0510 |
| Gasoline | 91,067.8 | 0.0400 | 0 | | 46.2 | 17.3 | 1,577.6 | 0.0173 |
| Jet Kerosene | 20,233.5 | 0.1600 | 0 | | 45.5 | 70.4 | 1,424.0 | 0.0704 |
| Kerosene | 59,018.3 | 0.0400 | 0 | | 45.5 | 17.6 | 1,038.4 | 0.0176 |
| Diesel Oil | 261,093.0 | 0.1600 | 0 | | 44.6 | 71.7 | 18,720.0 | 0.0717 |
| Heavy Fuel Oil | 312,095.3 | 1.4000 | 0 | | 40.7 | 688.0 | 214,732.1 | 0.6880 |
| Lub | 12,127.3 | 0.1000 | 0 | | 40.7 | 49.1 | 596.0 | 0.0491 |
| P-non | 13,673.8 | 1.0000 | 15 | | 40.7 | 417.7 | 5,712.0 | 0.4177 |
| Total | 941,847.5 | | | | | | 259,364.9 | |

F** = 2 *(( B / 100)/E)*$10^6$*((100-C)/100)*((100-D)/100)

This formula is based on the IPCC report.
Fuel Consumption is total consumption in each fuel and linked with Sheet of “1-4 IndSec”, “2-4 TranSec”, “3-4 OtheSec”, “1-2 Electricity”, “2-2 EnSec”
Sulfur content of fuel is linked with Sheet of “EFCO2EgyOri(1)”.
Calorific value means TJ/kt of each fuel.
We use “H Emission factor of SO2”, which is obtained to divide “G Emission” by “A Fuel Consumption”.

**EfofNOxEgyOri**

| STA,Japan Egypt | COC | NG | LPG | Gasoline | Jet | kerosene | diesel | HF0il | Nphtha Lub | OtherOil Non-Oil |
|---|---|---|---|---|---|---|---|---|---|---|
| | kg/$10^{10}$cal | kg/$10^{10}$cal | Kg/t | Kg/t | Kg/t | Kg/t | Kg/t | Kg/t | Kg/t | Kg/t |
| Electricity | | | 3.74000 | 16.7 | | 21.2 | 27.4 | 10.0 | 10.0 | |
| Energy Sector | | | 3.74000 | 16.7 | | 21.2 | 27.4 | 10.0 | 10.0 | |
| Industry | | | 2.63000 | 16.7 | | 7.5 | 9.6 | 5.8 | 5.8 | 5.8 |
| Transportation | | | 20.30000 | 31.7 | 10.5 | 27.4 | 27.4 | 27.4 | 27.4 | 5.8 |
| other sector | | | 0.88000 | 16.7 | | 2.5 | 3.2 | 2.0 | 2.0 | |

| STA,Japan Egypt | COC | NG | LPG | Gasoline | Jet | kerosene | diesel | HF0il | Nphtha Lub | OtherOil Non-Oil |
|---|---|---|---|---|---|---|---|---|---|---|
| | kg/$10^{10}$cal | kg/$10^{10}$cal | g/kgoe | g/kgoe | g/kgoe | g/kgoe | g/kgoe | g/kgoe | g/kgoe | g/kgoe |
| | kg/toe | kg/toe | kg/toe | kg/toe | kg/toe | kg/toe | kg/toe | kg/toe | kg/toe | kg/toe |
| Electricity | 3.2500 | 4.4000 | 3.3244 | 15.1496 | | 19.5488 | 25.6754 | 10.2881 | 10.2881 | |
| Energy Sector | 3.2500 | 4.4000 | 3.3244 | 15.1496 | | 19.5488 | 25.6754 | 10.2881 | 10.2881 | |
| Industry | 5.8900 | 2.2400 | 2.3378 | 15.1496 | | 6.8692 | 9.0244 | 6.0082 | 6.0082 | 6.0082 |
| Transportation | | | 18.0444 | 28.7398 | 9.6685 | 25.2302 | 25.7036 | 28.1893 | | 6.0082 |
| other sector | 1.6000 | 1.5700 | 0.7822 | 15.1496 | | 2.2928 | 3.0113 | 2.0062 | 2.0062 | |
| | | | 11,250 | 11,030 | 10,860 | 10,860 | 10,660 | 9,720 | 9,720 | 9,720 |

| STA,Japan Egypt | COC | NG | LPG | Gasoline | Jet | kerosene | diesel | HF0il | Nphtha Lub | OtherOil Non-Oil |
|---|---|---|---|---|---|---|---|---|---|---|
| | Kg/GJ | Kg/GJ | Kg/GJ | Kg/GJ | Kg/GJ | Kg/GJ | Kg/GJ | Kg/GJ | Kg/GJ | Kg/GJ |
| | T/TJ | T/TJ | T/TJ | T/TJ | T/TJ | T/TJ | T/TJ | T/TJ | T/TJ | T/TJ |
| Electricity | | 0.10509 | | | | | 0.61325 | 0.24573 | 0.24573 | |
| Energy Sector | | 0.10509 | | | | | 0.61325 | 0.24573 | 0.24573 | |
| Industry | 0.14068 | 0.05350 | 0.05584 | | | 0.16407 | 0.21554 | 0.14350 | 0.14350 | 0.14350 |
| Transportation | | | | 0.68644 | 0.23093 | 0.60261 | 0.61392 | 0.67329 | | 0.14350 |
| other sector | | 0.03750 | 0.01868 | | | 0.05476 | 0.07192 | 0.04793 | 0.04792 | |

Original data comes from Japanese study “NISTEP REPORT No.21”. These data are expressed by many different unit. The first table gives us Kg/t and the second table gives us kg/toe (ton oil equivalent). We need the last table where unit is T/TJ.

**EFofCH4**

IPCC Data

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MODULE | | | ENERGY | | | | | | |
| SUBMODULE | | | Non-CO2 from Fuel Combustion by Source Categories (Tier 1) | | | | | | |
| WORKSHEET | | | 1-3 | | | | | | |
| SHEET | | | 2-3-1 CH4 | | | | | | |
| | | | STEP 2 | | | | | | |
| | | | (B) Emission Factors (kg/TJ) | | | | | | |
| | | | B1 | B2 | B3 | | B4 | B5 | B6 |
| | | | Coal | Natural Gas | Oil | | Wood/Wood waste | Charcoal | Other Biomass and Wastes |
| | | | Total Solid Fossil | TotalGaseous Fossil | Total Liquid Fossil | | | | Total Other Fuels |
| Power Industries | | | 1 | 1 | 3 | | 30 | 200 | 30 |
| Manufacturing Industries and Construction | | | 10 | 5 | 2 | | 30 | 200 | 30 |
| Transport | Domestic Aviation(b) | | | | 0.5 | | | | |
| | Road | | | | Gasoline | Diesel | | | |
| | | | | 50 | 20 | 5 | | | |
| | Railways | | 10 | | 5 | | | | |
| | National Navigation(b) | | 10 | | 5 | | | | |
| Other Sector | Commercial/Institutional | | 10 | 5 | 10 | | 300 | 200 | 300 |
| | Residential | | 300 | 5 | 10 | | 300 | 200 | 300 |
| | Agriculture/Forestry/ | Stationary | 300 | 5 | 10 | | 300 | 200 | 300 |
| | Fishing | Mobile | | 5 | 5 | | | | |
| Other(not elsewhere specified) | | | | | | | | | |
| Total(a) | | | | | | | | | |
| Memo:International Marine Bunkers | | | | | | | | | |
| Memo:International Aviation Bunkers | | | | | | | | | |

This table comes from the IPCC report. We use blue colored column.
In case of “Road” in low and “Oil” in column in transport, we have two energy sources, Gasoline and Diesel. We calculate the weighted average number by using the fuel consumption of Gasoline and Diesel in 1996.
Gasoline consumption; 2024 Metric ton (0.35%)
Diesel consumption ; 3731 Metric ton (0.65%)
So we get 10.25 (20 * 0.35 + 5 * 0.65) as Emission factor in Transport Oil instead of 20 for gasoline and 5 for Diesel.

**EFofN2O**

IPCC Data

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| MODULE | | | ENERGY | | | | | | | |
| SUBMODULE | | | Non-CO2 from Fuel Combustion by Source Categories (Tier 1) | | | | | | | |
| WORKSHEET | | | 1-3 | | | | | | | |
| SHEET | | | 2-3-2 N2O | | | | | | | |
| | | | STEP 2 | | | | | | | |
| | | | (B) Emission Factors (kg/TJ) | | | | | | | |
| | | | B1 | B2 | B3 | | B4 | B5 | B6 | |
| | | | Coal | Natural Gas | Oil | | Wood/Wood waste | Charcoal | Other Biomass and Wastes | |
| | | | Total Solid Fossil | TotalGaseous Fossil | Total Liquid Fossil | | | | Total Other Fuels | |
| Power Industries | | | 1.4 | 0.1 | 0.6 | | 4 | 4 | 4 | |
| Manufacturing Industries and Construction | | | 1.4 | 0.1 | 0.6 | | | | | |
| Transport | Domestic Aviation(b) | | | | 2 | | | | | |
| | Road | | | | Gasoline | Diesel | | | | |
| | | | | 0.1 | 0.6 | 0.6 | | | | |
| | Railways | | 1.4 | | 0.6 | | | | | |
| | National Navigation(b) | | 1.4 | | 0.6 | | | | | |
| Other Sector | Commercial/Institutional | | 1.4 | 0.1 | 0.6 | | 4 | 1 | 4 | |
| | Residential | | 1.4 | 0.1 | 0.6 | | 4 | 1 | 4 | |
| | Agriculture/Forestry/ | Stationary | 1.4 | 0.1 | 0.6 | | 4 | 1 | 4 | |
| | Fishing | Mobile | | 0.1 | 0.6 | | | | | |
| Other(not elsewhere specified) | | | | | | | | | | |
| Total(a) | | | | | | | | | | |
| Memo:International Marine Bunkers | | | | | | | | | | |
| Memo:International Aviation Bunkers | | | | | | | | | | |

This table comes from the IPCC report. We use blue colored column.
In case of “Road” in low and “Oil” in column in transport, we have two energy sources, Gasoline and Diesel. We calculate the weighted average number by using the fuel consumption of Gasoline and Diesel in 1996.
Gasoline consumption; 2024 Metric ton (0.35%)
Diesel consumption ; 3731 Metric ton (0.65%)
So we get 10.25 (20 * 0.35 + 5 * 0.65) as Emission factor in Transport Oil instead of 20 for gasoline and 5 for Diesel.

**EfofNOx**

IPCC Data

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MODULE | | | ENERGY | | | | | | |
| SUBMODULE | | | Non-CO2 from Fuel Combustion by Source Categories (Tier 1) | | | | | | |
| WORKSHEET | | | 1-3 | | | | | | |
| SHEET | | | 2 -3-3 NOx | | | | | | |
| | | | STEP 2 | | | | | | |
| | | | (B) Emission Factors (kg/TJ) | | | | | | |
| | | | B1 | B2 | B3 | | B4 | B5 | B6 |
| | | | Coal | Natural Gas | Oil | | Wood/Wood waste | Charcoal | Other Biomass and Wastes |
| | | | Total Solid Fossil | TotalGaseous Fossil | Total Liquid Fossil | | | | Total Other Fuels |
| Power Industries | | | 300 | 150 | 200 | | 100 | 100 | 100 |
| Manufacturing Industries and Construction | | | 300 | 150 | 200 | | 100 | 100 | 100 |
| Transport | Domestic Aviation(b) | | | | | | | | |
| | Road | | | | Gasoline | Diesel | | | |
| | | | | 600 | 600 | 800 | | | |
| | Railways | | 300 | | 1200 | | | | |
| | National Navigation(b) | | 300 | | 1500 | | | | |
| Other Sector | Commercial/Institutional | | 100 | 50 | 100 | | 100 | 100 | 100 |
| | Residential | | 100 | 50 | 100 | | 100 | 100 | 100 |
| | Agriculture/Forestry/ Fishing | Stationary | 100 | 50 | 100 | | 100 | 100 | 100 |
| | | Mobile | | 1000 | 1200 | | | | |
| Other(not elsewhere specified) | | | | | | | | | |
| Total(a) | | | | | | | | | |
| Memo:International Marine Bunkers | | | | | | | | | |
| Memo:International Aviation Bunkers | | | | | | | | | |

This table comes from the IPCC report. We use blue colored column.
In case of “Road” in low and “Oil” in column in transport, we have two energy sources, Gasoline and Diesel. We calculate the weighted average number by using the fuel consumption of Gasoline and Diesel in 1996.
Gasoline consumption; 2024 Metric ton (0.35%)
Diesel consumption ; 3731 Metric ton (0.65%)
So we get 10.25 (20 * 0.35 + 5 * 0.65) as Emission factor in Transport Oil instead of 20 for gasoline and 5 for Diesel.

**EfofCO**

IPCC Data

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MODULE | | | ENERGY | | | | | | |
| SUBMODULE | | | Non-CO2 from Fuel Combustion by Source Categories (Tier 1) | | | | | | |
| WORKSHEET | | | 1-3 | | | | | | |
| SHEET | | | 2-3-4 CO | | | | | | |
| | | | STEP 2 | | | | | | |
| | | | (B) Emission Factors (kg/TJ) | | | | | | |
| | | | B1 | B2 | B3 | | B4 | B5 | B6 |
| | | | Coal | Natural Gas | Oil | | Wood/Wood waste | Charcoal | Other Biomass and Wastes |
| | | | Total Solid Fossil | TotalGaseous Fossil | Total Liquid Fossil | | | | Total Other Fuels |
| Power Industries | | | 20 | 20 | 15 | | 1000 | 1000 | 1000 |
| Manufacturing Industries and Construction | | | 150 | 30 | 10 | | 2000 | 4000 | 4000 |
| Transport | Domestic Aviation(b) | | | | 100 | | | | |
| | Road | | | | Gasoline | Diesel | | | |
| | | | | 400 | 8000 | 1000 | | | |
| | Railways | | 150 | | 1000 | | | | |
| | National Navigation(b) | | 150 | | 1000 | | | | |
| Other Sector | Commercial/Institutional | | 2000 | 50 | 20 | | 5000 | 7000 | 5000 |
| | Residential | | 2000 | 50 | 20 | | 5000 | 7000 | 5000 |
| | Agriculture/Forestry/ | Stationary | 2000 | 50 | 20 | | 5000 | 7000 | 5000 |
| | Fishing | Mobile | | 400 | 1000 | | | | |
| Other(not elsewhere specified) | | | | | | | | | |
| Total(a) | | | | | | | | | |
| Memo:International Marine Bunkers | | | | | | | | | |
| Memo:International Aviation Bunkers | | | | | | | | | |

This table comes from the IPCC report. We use blue colored column.
In case of "Road" in low and "Oil" in column in transport, we have two energy sources, Gasoline and Diesel. We calculate the weighted average number by using the fuel consumption of Gasoline and Diesel in 1996.
Gasoline consumption; 2024 Metric ton (0.35%)
Diesel consumption ; 3731 Metric ton (0.65%)
So we get 10.25 (20 * 0.35 + 5 * 0.65) as Emission factor in Transport Oil instead of 20 for gasoline and 5 for Diesel.

**EFofNMVOC**

IPCC Data

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MODULE | | | ENERGY | | | | | | |
| SUBMODULE | | | Non-CO2 from Fuel Combustion by Source Categories (Tier 1) | | | | | | |
| WORKSHEET | | | 1-3 | | | | | | |
| SHEET | | | 2-3-5 NMVOC | | | | | | |
| | | | STEP 2 | | | | | | |
| | | | (B) Emission Factors (kg/TJ) | | | | | | |
| | | | B1 | B2 | B3 | | B4 | B5 | B6 |
| | | | Coal | Natural Gas | Oil | | Wood/Wood waste | Charcoal | Other Biomass and Wastes |
| | | | Total Solid Fossil | TotalGaseous Fossil | Total Liquid Fossil | | | | Total Other Fuels |
| Power Industries | | | 5 | 5 | 0 | | 50 | 100 | 50 |
| Manufacturing Industries and Construction | | | 20 | 5 | 0 | | 50 | 100 | 50 |
| Transport | Domestic Aviation(b) | | | | | | | | |
| | Road | | | | Gasoline | Diesel | | | |
| | | | | 5 | 1500 | 200 | | | |
| | Railways | | 20 | | 200 | | | | |
| | National Navigation(b) | | 20 | | 200 | | | | |
| Other Sector | Commercial/Institutional | | 200 | 5 | 5 | | 600 | 100 | 600 |
| | Residential | | 200 | 5 | 5 | | 600 | 100 | 600 |
| | Agriculture/Forestry/ | Stationary | 200 | 5 | 5 | | 600 | 100 | 600 |
| | Fishing | Mobile | | 5 | 200 | | | | |
| Other(not elsewhere specified) | | | | | | | | | |
| Total(a) | | | | | | | | | |
| Memo:International Marine Bunkers | | | | | | | | | |
| Memo:International Aviation Bunkers | | | | | | | | | |

This table comes from the IPCC report. We use blue colored column.
In case of “Road” in low and “Oil” in column in transport, we have two energy source, Gasoline and Diesel. We calculate the weighted average number by using the fuel consumption of Gasoline and Diesel in 1996.
Gasoline consumption; 2024 Metric ton (0.35%)
Diesel consumption ; 3731 Metric ton (0.65%)
So we get 10.25 (20 * 0.35 + 5 * 0.65) as Emission factor in Transport Oil instead of 20 for gasoline and 5 for Diesel.

**CarbonStored**
This table comes from the IPCC report.

| MODULE | ENERGY | | |
|---|---|---|---|
| SUBMODULE | $CO_2$ FROM ENERGY | | |
| WORKSHEET | XI | | |
| SHEET | AUXILIARY WORKSHEET 1-1 : ESTIMATIN( | | |
| | | | |
| | A<br>Fraction of<br>Carbon Stored | H<br>Carbon Stored<br>(GgC) | |
| **FUEL TYPES** | | H = (F × G) | IPCC |
| Naphtha[a] | 0.00 | | 0.80 |
| Lubricants | 0.00 | | 0.50 |
| Bitumen | 1.00 | | 1.00 |
| Coal Oils and Tars | 0.00 | | 0.75 |
| (from Coking Coal ) | | | |
| Natural Gas[a] | 0.00 | | 0.33 |
| Gas/Diesel Oil[a] | 0.00 | | 0.50 |
| LPG[a] | 0.00 | | 0.80 |
| Ethane[a] | 0.00 | | 0.80 |
| Other fuels[b] | | | |

## EFCO2EgyOri(1)

Estimation of Emission Factor of CO2 With Egyptian Original Data

Preposition

| FuelCompo. | C | H | S |
|---|---|---|---|
| | 12.01 | 1.008 | 32.06 |
| | $CO_2$ | $H_2O$ | $SO_2$ |
| GCV | 7,831.76 | 33,892.23 | 2,212.91 kcal/kg |
| NCV | 7,831.76 | 28,661.51 | 2,212.91 kcal/kg |

| | Egypt-Data | Estimation | | | | | Culcuration | | EF | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10^4kcal/kg | C | H | S | ash | total | C-kg/kcal | T-C/KTOE | T-C/TJ | S |
| | Input | *1 | *2 | Input | Input | | | | | Input |
| Hard Coal | 0.6700 | 0.5886 | 0.0714 | 0.0200 | 0.3200 | 1.0000 | 0.8785 | 878.5 | 21.0 | 0.0200 |
| Brown Coal | 0.2000 | 0.1665 | 0.0235 | 0.0100 | 0.8000 | 1.0000 | 0.8324 | 832.4 | 19.9 | 0.0100 |
| Coking Coal | 0.6700 | 0.6288 | 0.0612 | 0.0100 | 0.3000 | 1.0000 | 0.9386 | 938.6 | 22.4 | 0.0100 |
| Other Bituminous Coal and Anthracite | 0.6700 | 0.6288 | 0.0612 | 0.0100 | 0.3000 | 1.0000 | 0.9386 | 938.6 | 22.4 | 0.0100 |
| Sub-Bituminous Coal | 0.2000 | 0.1665 | 0.0235 | 0.0100 | 0.8000 | 1.0000 | 0.8324 | 832.4 | 19.9 | 0.0100 |
| Lignite | 0.2000 | 0.1665 | 0.0235 | 0.0100 | 0.8000 | 1.0000 | 0.8324 | 832.4 | 19.9 | 0.0100 |
| Coke Oven Coke | 0.7000 | 0.7520 | 0.0380 | 0.0100 | 0.2000 | 1.0000 | 1.0743 | 1,074.3 | 25.7 | 0.0100 |
| Natural Gas | 1.1110 | 0.8425 | 0.1574 | 0.0001 | 0.0000 | 1.0000 | 0.7583 | 758.3 | 18.1 | 0.0001 |
| Crude Oil | 0.9950 | 0.8729 | 0.1071 | 0.0200 | 0.0000 | 1.0000 | 0.8773 | 877.3 | 21.0 | 0.0200 |
| Natural Gas Liquids | 1.1030 | 0.8449 | 0.1539 | 0.0012 | 0.0000 | 1.0000 | 0.7660 | 766.0 | 18.3 | 0.0012 |
| Refinery Feedstocks | 1.1030 | 0.8465 | 0.1535 | 0.0000 | 0.0000 | 1.0000 | 0.7674 | 767.4 | 18.3 | 0.0000 |
| Additives/Blending Components | 0.0000 | | | | | | | | | |
| Input of Origin not Crude or NGL | 0.0000 | | | | | | | | | |
| Refinery Gas | 1.1250 | 0.8359 | 0.1641 | 0.0000 | 0.0000 | 1.0000 | 0.7430 | 743.0 | 17.7 | 0.0000 |
| Ethane | 1.1250 | 0.8359 | 0.1641 | 0.0000 | 0.0000 | 1.0000 | 0.7430 | 743.0 | 17.7 | 0.0000 |
| Liquefied Petroleum Gases | 1.1250 | 0.8344 | 0.1644 | 0.0012 | 0.0000 | 1.0000 | 0.7417 | 741.7 | 17.7 | 0.0012 |
| Motor Gasoline | 1.1030 | 0.8460 | 0.1536 | 0.0004 | 0.0000 | 1.0000 | 0.7670 | 767.0 | 18.3 | 0.0004 |
| Aviation Gasoline | 1.1030 | 0.8452 | 0.1538 | 0.0010 | 0.0000 | 1.0000 | 0.7663 | | 0.0 | 0.0010 |
| Gasoline type Jet Fuel | 1.1030 | 0.8452 | 0.1538 | 0.0010 | 0.0000 | 1.0000 | 0.7663 | 766.3 | 18.3 | 0.0010 |
| Kerosene type Jet Fuel | 1.0860 | 0.8526 | 0.1458 | 0.0016 | 0.0000 | 1.0000 | 0.7851 | 785.1 | 18.8 | 0.0016 |
| Kerosene | 1.0860 | 0.8541 | 0.1455 | 0.0004 | 0.0000 | 1.0000 | 0.7865 | 786.5 | 18.8 | 0.0004 |
| Gas/Diesel Oil | 1.0660 | 0.8622 | 0.1362 | 0.0016 | 0.0000 | 1.0000 | 0.8088 | 808.8 | 19.3 | 0.0016 |
| Residual Fuel Oil | 0.9720 | 0.8916 | 0.0944 | 0.0140 | 0.0000 | 1.0000 | 0.9173 | 917.3 | 21.9 | 0.0140 |
| Naphtha | 1.1030 | 0.8452 | 0.1538 | 0.0010 | 0.0000 | 1.0000 | 0.7663 | 766.3 | 18.3 | 0.0010 |
| White Spirit | 1.0860 | 0.8533 | 0.1457 | 0.0010 | 0.0000 | 1.0000 | 0.7858 | 785.8 | 18.8 | 0.0010 |
| Lubricants | 0.9720 | 0.9081 | 0.0909 | 0.0010 | 0.0000 | 1.0000 | 0.9342 | 934.2 | 22.3 | 0.0010 |
| Bitumen | 0.9720 | 0.6776 | 0.1524 | 0.0200 | 0.1500 | 1.0000 | 0.6971 | 697.1 | 16.6 | 0.0200 |
| Paraffin Waxes | 0.9720 | 0.6903 | 0.1497 | 0.0100 | 0.1500 | 1.0000 | 0.7101 | 710.1 | 17.0 | 0.0100 |
| Petroleum Coke | 0.7400 | 0.7889 | 0.0411 | 0.0200 | 0.1500 | 1.0000 | 1.0661 | 1,066.1 | 25.5 | 0.0200 |
| Non-specified Petroleum Products | 0.9720 | 0.6903 | 0.1497 | 0.0100 | 0.1500 | 1.0000 | 0.7101 | 710.1 | 17.0 | 0.0100 |

(Note) *2: Percentage of hydrogen (H) is culculated from the following equations.

1 $C13*10^4$ = $D$8 * D13 + $E$8 * E13 + $F$8 * F13

2 1 = D13 + E13 + F13 + G13

3 $D$8 = $D$8 * D13 + $D$8 * E13 + $D$8 * F13 + $D$8 * G13

1-3 $C13*10^4$ -$D$8 = ( $E$8 - $D$8) * E13 + $F$8 * F13 -$D$8 * (F13 + G13)

4 ( $E$8 - $D$8) * E13 = $C13*10^4$ - $F$8 * F13 - $D$8 * (1 - F13 - G13)

5 E13(H) = ($C13*10^4$ - $F$8 * F13 - $D$8 * (1 - F13 - G13)) / ( $E$8 -$D$8)

6 H = ($C13*10^4$ - $F$8 * F13 - $D$8 * (1 - F13 - G13)) / ( $E$8 -$D$8)

*1: Percentage of Carbon is Culculated from the following equation.

7 D13 = 1 - E13 - F13 - G13