Indicators on energy efficiency

Grenoble, January 30 th- February 2st

Week 1

1. Macro economic indicators

1.1. Constant prices

Calculate the GDP from national currency in constant Euro (€2000) and at ppp (€2000p).
Compare the evolutions (2003 compared to 2000).

1.2. Energy intensity

Calculate the primary and final intensity for 2000 and 2003 (koe/€2000). Comments on the average variations of each intensity.

2. Industry

2.1. Energy intensity and unit consumption

2.1.1. Calculate the energy intensity of the manufacturing branches
2.1.2. Calculate the energy intensity at constant structure (2000 base)
2.1.3. Calculate the energy intensity adjusted to the EU economic structure
2.1.4. Calculate the unit consumption of steel, paper industry

2.2. Evaluation of the energy efficiency and potentials

Calculate an aggregate energy efficiency indicators (ODEX) for the manufacturing branches.
Calculate the energy savings between 2000 and 2003. Compare the 2 methods.

3. Transport

3.1. Unit consumption

Calculate the unit consumption for cars.
Calculate the unit consumption for road transport in general *(we suppose that a truck is equivalent to 3 cars, 1 light vehicles to 1.5 cars, 1 motorbikes to 0.25 cars, 1 bus to 7 cars).*

3.2. Energy efficiency evaluation

Calculate an aggregate energy efficiency indicators (ODEX) on the transport sector (incl road, rail, water).

4. CO2 emissions and indicators

Calculate the CO2 of the industrial sector

coefficients (tco2/toe)	
gazole	3,101
Coal	4,114
LPG	2,640
Gasoline	2,901
Domestic fuel	3,101
Naturalgas	2,349
Heavy fuel	3,239

Try to explain the variations of CO2 emissions.

5. Households

5.1. Unit consumption

Calculate the unit consumption per dwellings : real and corrected from climate

5.2. Energy efficiency evaluation

We suppose one end use (space heating) and one electrical appliances (refrigerators).

Calculate an aggregate energy efficiency indicators (ODEX) for the households sector.

5.3. CO2 energy efficiency index and CO2 savings

Calculate an aggregate CO2 efficiency indicators (same than ODEX but in CO2).

6. Services

Calculate the unit consumption per employee, per m2.