

United Nations Economic Commission for Europe

Introductory Presentation on Policy to Promote Energy Efficiency and Renewable Energy Investments

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**Committee on Sustainable Energy
Steering Committee of the Energy Efficiency 21 Project
Ad Hoc Group of experts – 14th session, Geneva (7-9 October 2009) –
Seminar on Policy Reforms for Energy Efficiency**

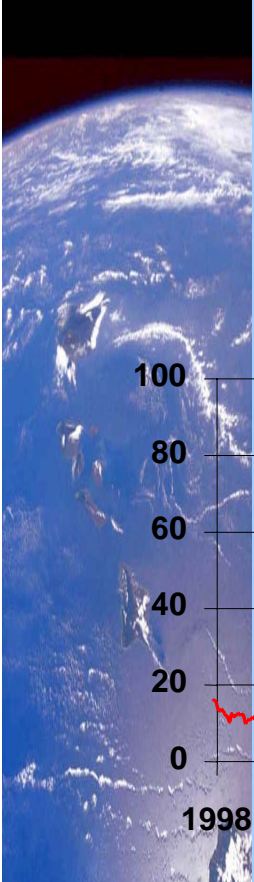
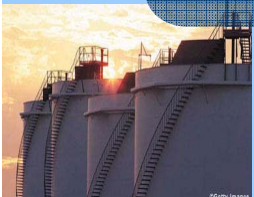




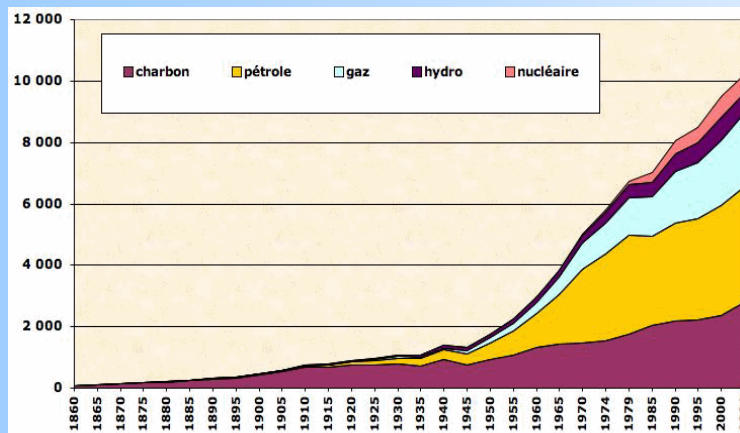
1 – Maximizing EE and promoting RES : good means for tackling climate change !



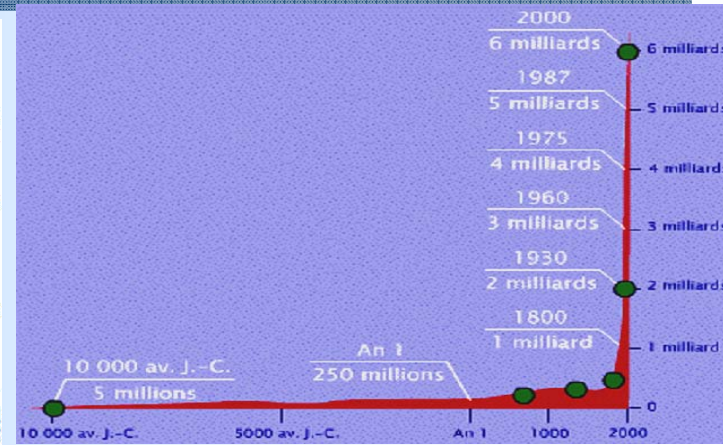
Non sustainable trajectories for energy and environment



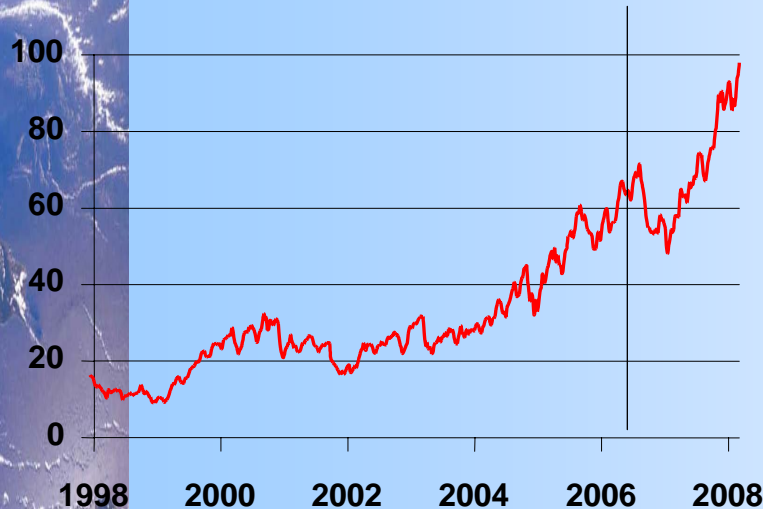
World energy consumption (Mtoe)



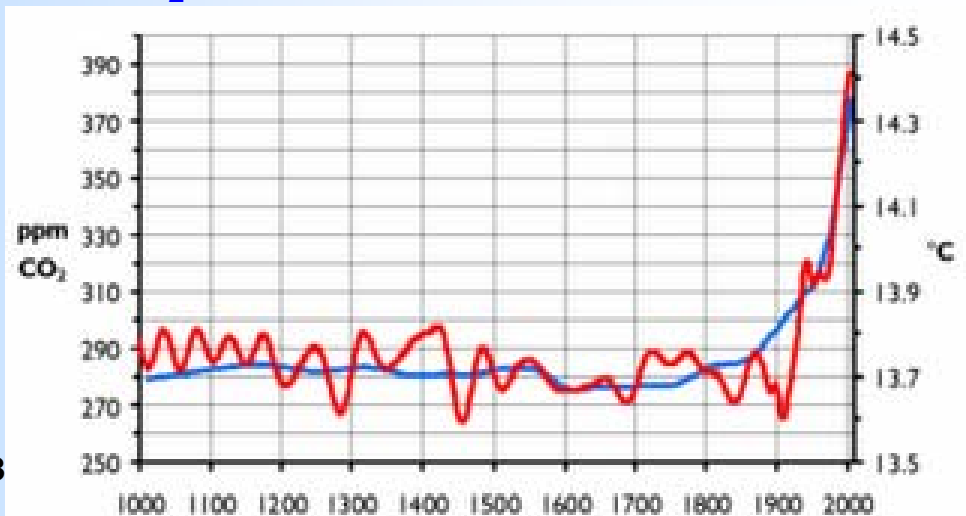
World population (billions inhabitants)



Oil price (US \$/bl)



CO₂ concentration in atmosphere (ppm)





Energy- climate European package

(3 x 20 % to 2020) : a battle against climate change !

(adopted by the EU council in march 2007)

- **A reduction of at least 20 % in GHG and CO₂ emissions by 2020 (based on 1990 levels), up to 30 % in case of international agreement**
- **A 20 % reduction in EU primary energy consumption by 2020 (based on 1990 levels), i.e. 13 % relative to 2005**
- **Renewable energy sources to account for 20 % of end-user energy consumption in EU (currently approximately 9 %), biofuels to account for 10 %**



EU Energy- climate package :

Example of transposition for France



- To reduce energy intensity by 2% per year before 2010, and 2.5% per year between 2010 and 2030
- To stabilise CO₂ emissions in 2010 and to reduce GHG emissions by a factor 4 in 2050 (3% per year), compared to 1990 levels
- To increase the use of renewable energies up to 23% of end-energy use consumption before 2020 (+20 Mtoe / Grenelle 1), mainly by promoting Biomass (biofuels, thermal and electricity productions) and Wind power

Grenelle de l'Environnement : First priorities are climate change, Reduction of GHG emissions in buildings and transport, promotion of RES



Buildings : 1st « Grenelle » priority



- **Stakes : most energy consuming sector**
 - 44 % of total energy consumption (71 Mtoe)
 - 20% of national GHG emissions
- **Grenelle objective : decreasing by 40 % energy consumption by 2020**
 - 50 kWh/m² in new buildings in 2012 (100 kWh/m² in 2005)
 - 15 kWh/m² - energy positive new buildings in 2020
 - Reduction of consumption from 240 to 150 kWh/m²/year in existing buildings in 2020
 - Extension of labelling to all households electrical appliances
 - Suppression of incandescent bulbs
- **Several means of actions :**
 - thermal regulations, energy diagnosis, white certificates, tax credit, zero interest rate loans for buildings refurbishing or new construction labelling, HEQ buildings, energy-info-points



Transport : the other “Grenelle” Priority



- **Stakes : first emitting sector**

 - 31 % of total energy consumption
 - 27% of national GHG emissions

- **Grenelle: reduce CO₂ emissions levels in 2020, to 1990 levels (equivalent to a 20% reduction)**

 - Such emissions have increased by 18% since 1990

 - Road transport represents a major challenge: 80% of total CO₂ emissions

- **Reduce emissions from cars: from 176 g CO₂ to 130 gCO₂/km by 2020 (R & D, bonus → malus system)**

- **Develop biofuels : 10 % in 2015 (EU : 10 % in 2020)**



Focus on a Post « Grenelle » action : Bonus-Malus system for new cars

The purchase price subsidies (bonus) includes :

- A 200 € BONUS for new cars with CO₂ emissions of 121 to 130 g/km
- A 700 € BONUS for new cars - 101 to 120 g/km
- A 1 000 € BONUS for new cars < 100 g/km
- A 5 000 € BONUS for new cars (principally alternative fuel vehicles) < 60 g/km
- An additional bonus of 1 000 € to all new car purchases for replacing vehicles > 10 years

The penalty regime (malus) includes :

- A 200 € LEVY on new cars with CO₂ emissions of 161 to 165 g/km
- A 750 € LEVY on new cars with CO₂ emissions of 166 to 200 g/km
- A 1 600 € LEVY - 201 to 250 g/km
- A 2 600 € LEVY - 201 to 250 g/km

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2 – Policy reforms in the project countries

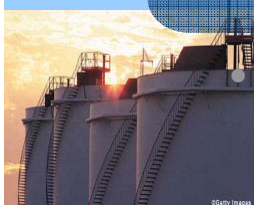


Situation and context : this presentation tries to introduce the current progress of the POYRY ongoing study on the “Regional Analysis” (2nd Status report submitted in July 2009)

- In **November 2008**, Pöyry, as 1 of the 3 major contractors and a result of a tendering process, **received** from UNECE **the mandate to perform a study on the Regional Analysis of Policy Reforms** to promote EE and RES Investments
- In **December 2008**, Pöyry presented its vision for the implementation of the assignment at the 12th Session of the Ad Hoc Group of Experts
- In **February 2009**, UNECE PMU approved the definition of the methodological outline of the work and the preparation of the Project Implementation Plan
- In **March 2009**, Pöyry presented the **Work Plan and the methodology** at the 13th Session of the AHGE, as PMU presented the **main results emerged from assessment mission reports**
- In **June 2009**, Pöyry presented an overview of current project progress at the 20th session of the Steering Committee of the Energy Efficiency 21 Project, and of cooperation with the National Participating Institutions in the 12 Beneficiary Countries (Albania, Belarus, Bosnia Herzegovina, Bulgaria, Croatia, Kazakhstan, Moldova, Romania, Russia, Serbia, Macedonia, Ukraine) – **1st Status report**



For your own memory :



1st Status report (May 2009) – Main outputs presented in June

- inventory of available studies and publications already existing in beneficiary countries,
- main results emerged from assessment mission reports,
- inputs collected through cooperation with NPI

2nd Status report (July 2009) – Main outputs presented at the 14th AHGE session

- overview of the energy situation in the project region,
- 12 country study analyses,
- overview and presentation of the 12 case-studies

Next step :

- last inputs from the country missions,
- last questionnaires provided by the NPI,
- elaboration of the 12 case-studies,
- recommendations for policy reforms



The analysis of energy policies in the project countries was supported by a very intensive and productive cooperation with the National Participating Institutions



Country missions

- Local organization of country missions
- Preparation of meeting schedules according to the requests of Pöyry and UNECE PMU (with national coordinators, government representatives, project developers, project financing institutions)
- Coordination of interviews and meetings with external contact persons
- Active participation to interviews
- Support in elaboration of information collected during interviews

Provision of National Energy Policy Information

- Provision of a questionnaire on energy markets and policy reforms
- Clarifications on data provided and further details when necessary
- Support in data validation and consolidation in country reports
- Provision of follow-up information (on energy markets, energy supply, energy efficiency, renewable energy sources)



Main outputs expected from the cooperation with National Participating Institutions :

Country missions

- Current progress of policy reforms and market formation
- Main barriers and bottlenecks for investments
- Success stories and possible examples for National Case Studies
- Current energy legislation
- Financing schemes for project development
- Credit lines for energy efficiency and renewable energy projects
- Risk management and project evaluation procedures

Provision of National Energy Policy Information

- National information on energy markets (electricity, gas, heat, oil)
- Energy production technologies
- Energy efficiency market (energy saving potential, energy intensities, energy losses, etc.)
- RES market (current development, potential, etc.)
- Energy prices policy, energy tariffs
- Degree of liberalization of energy markets
- Implementation of EU directives, Kyoto Protocol, etc.




Some significant results issued from the POYRY study (2nd status report)



Economic development of beneficiary countries

- Broad differences in terms of economic development
- Russia and Croatia are close to EU 27 in term of GDP per capita
- Half countries have a GDP per capita above the world's average
- All countries know a remarkable growth since 2003 (between 4 and 9 %)



General Energy situation

- 2 countries are large exporters (Kazakhstan, Russia)
- All other countries are net importers (Energy dependency varies from 25 % to 85 %)
- Broad differences in terms of energy consumption (from 0,5 to 3,0 toe) and electricity consumption (from < 1500 kwh to 4800 kwh) per capita
- Russia, Kazakhstan, Ukraine and Belarus are big gas and DH consumers
- Heat losses in district urban heating systems are very high (10-25 %)



Electricity production

- Electricity production can vary from less than 1000 , to more than 7000 kwh/capita
- Main sources for electricity production are coal, gas and hydro, except nuclear for Ukraine, Bulgaria and Russia
- Losses from electricity grid are very high (10-20 %), mainly in Albania (52 %), Moldova (39 %) and Macedonia (29 %)



Legislative and Regulatory Framework in the Project Region

Liberalization of energy market

- Full liberalization of electricity market for Bulgaria, Croatia, Kazakhstan, and Romania
- Partial liberalization in Ukraine
- Early stage liberalization in Albania, B & H, Macedonia, Moldova, Russia, Serbia
- No liberalization in Belarus

Ratification of Kyoto Protocol and Signature of UNFCC

- Annex B countries : Bulgaria, Croatia, Romania, Russia, Ukraine
- Non Annex B countries : Albania, B & H, Moldova, Serbia, Macedonia
- Unclear status : Belarus, Kazakhstan

Energy Community Treaty (ECT)

- Member states : Albania, B & H, Bulgaria, Croatia, Romania, Serbia, Macedonia
- Observer States : Moldova, Ukraine
- Non members : Belarus, Kazakhstan, Russia

Integration Process to EU

- Full members : Bulgaria, Romania
- Candidate states : Croatia, Macedonia
- Application for membership submitted : Albania
- Expressed interest : B & H, Moldova, Serbia, Ukraine
- No negotiation : Belarus, Kazakhstan, Russia



EE and RES Legislation in the Project Region

General aspects

- In most countries, targets are mentioned
- Except for Kazakhstan and Belarus, all beneficiary countries have a governmental agency in place, responsible for the implementation of EE and RES policy
- Beneficiary Countries that are in negotiation for EU accession have a regulatory framework turned towards the implementation of the *acquis communautaire*
- Other countries have a regulatory framework based on the former regulation of the soviet fuel and energy complex

National Legislations on Energy Efficiency

- Dedicated and secondary legislations in Bulgaria and Romania
- Dedicated legislation and partial implementation or lack in secondary legislation in Albania, Belarus, Moldova and Russia
- Regulatory provision in Bosnia & Herzegovina, Croatia, Serbia, Macedonia
- Regulatory under development in Kazakhstan and Ukraine
- EE funds established and operational in Bulgaria, Croatia and Romania

National Legislations on Renewable Energies

- Dedicated legislation in Bulgaria
- Dedicated legislation and partial implementation or lack in Moldova and Russia
- Regulatory provision in Belarus, B & H, Croatia, Romania, Serbia, Macedonia
- Regulatory under development in Albania, Kazakhstan and Ukraine
- Premium tariff system in Belarus, B & H, Bulgaria, Croatia, Romania and Russia



Energy Intensities in the Project Region

- Energy intensities of all BC (except Albania and Croatia) is upper than the EU 27 average :
 - X 3 for Kazakhstan
 - X 2,5 for Serbia, Russia, Ukraine, Moldova and Belarus
 - X 2 for Bulgaria
 - + 30 % for Romania, Macedonia and Bosnia & Herzegovina
- **This means a very important energy saving potential in the Project Region !**
- Energy Intensities have already decreased very significantly since 1997 :
 - - 45 % in Belarus, Ukraine and Moldova
 - - 40 % in Romania
 - - 35 % in Bulgaria and Russia, etc.



Promotion of RES in the Project Region



- **Deployment of RES in the global primary energy consumption can be very different :**
 - 29 % in Albania
 - Between 10-13 % for Croatia, Serbia, Macedonia, Romania and Bosnia & Herzegovina
 - Between 2-6 % for Moldova, Russia, Belarus and Bulgaria
 - < 2 % in Ukraine and Kazakhstan
- **The major contribution comes from hydro and biomass (wood for heating)**
- **GREEN electricity mainly concerns hydro :**
 - 98 % in Albania
 - 50 % in Croatia
 - 44 % in Bosnia & Herzegovina
 - 30 % in Romania, 24 % in Macedonia, 18 % Russia
 - < 10 % in other countries



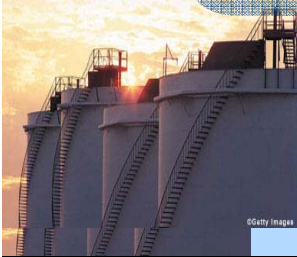
Main Barriers to Implementation of investments in EE & RES Projects

(preliminary conclusions)



- Problem of economic competitiveness
- Problem of financing capacity, lack of experience of commercial banks for environmental projects, etc.
- Lack of experience of decision-makers at local level
- No energy managers with a good experience at financing level
- Problem with energy prices, necessity to eliminate subsidies
- Lack of legislation, lack of awareness
- Political instability

12 case-studies on overcoming barriers to enhance EE and use of RES will be implemented in the next future



Thank you for your attention!

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