INTRODUCTION OF DSM PROGRAMS

Ankara, November 2007

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World State-Of-The-Art and the need for Energy Efficiency

Rio Convention framework for Climatic changes (1992)

Energy: Responsible for the 57% of CO2 emitted every year in the atmosphere

Expected energy increase = 50%, Expected CO2 increase = 57% until 2030, due to China and India

"Energy crises" due to the high price of oil (near to 100$ /barel recently)

Great potentials:

-**Potential for energy saving = 20% until 2020 (saving of 100b euros/year and 780M of tons CO2 until 2012) in Europe**
- **Potential for a 27% in the residential sector**
- **Potential for a 30% in the commercial buildings sector**
- **Potential for a 25% in manufacturing industry**
- **Potential for a 26% in transports**

A big potential for Turkey

A big potential in Turkey (II)

- **A population of nearly 72M people**

- **An energy cross-road**

- **An installed capacity of 35,6 GW in 2004 [36% increase since 2000], an electricity production of 151 TWh and an electricity consumption of 121 TWh in 2004 [CO2 emissions of 209,45Mt/year]**

- **Imports (GWh): 436 (2000) → 575 (2006) / Exports (GWh): 1.144 (2000) → 2.236(2006)**

- **Energy Mix:**
  Solid fuels → 69%
  Hydro → 31%

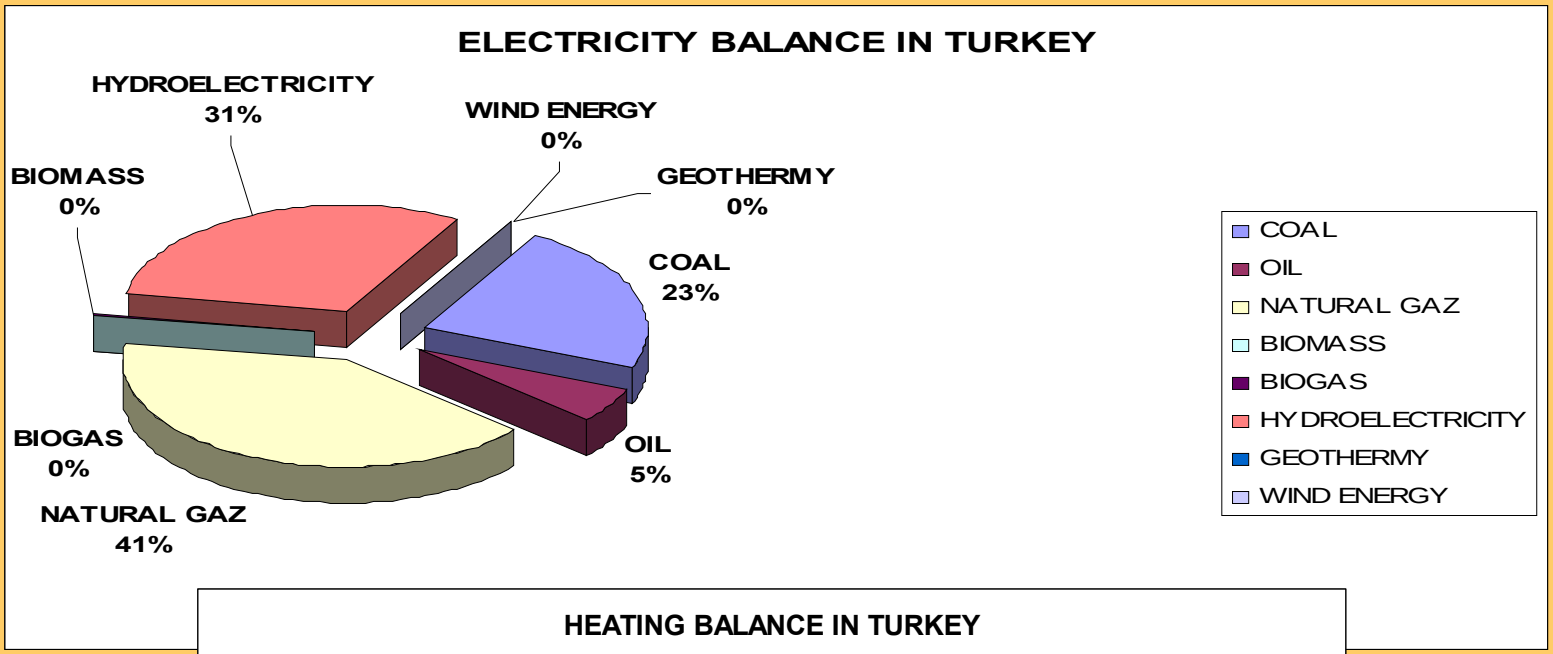
- **Relative maturity over market's liberalization (Regulator from 2001, 39% of market's opening in 2007, regulated tariffs and third party access, 288 private generation licences) / Flexibility – Creation of a level-playing field in the market)**

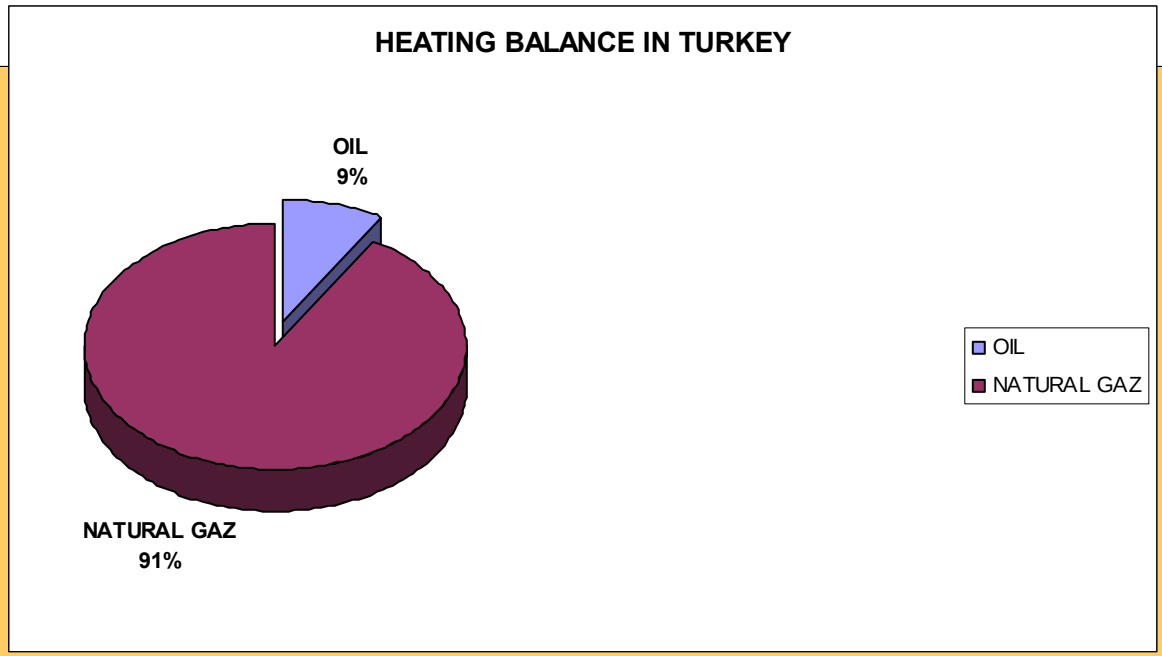
- **Development of oil and gas infrastructures and estimations for the arrival of large investments in the country**

- **United Nations Framework Convention of Climate Change, ratified (on May 2004) → Progress on renewable energy projects.**

- **Considerable efforts to address energy efficiency issues.**

Electricity and Heating Mix in Turkey





Energy Efficiency in Turkey

For the aim of 25-30%:

- **Energy Efficiency Strategy** (2004)
- **Energy Efficiency Law under preparation** (initial Draft in 2004, at the Parliament on 2006)
  - Sectors: Industry, power generation, transmission and distribution systems, buildings, and transport.
  - Measures:
    - increasing energy efficiency awareness
    - establishing administrative structure for efficiency Policy
    - promoting energy services to consumers
    - energy audits to improve efficiency across market sectors
    - voluntary agreements with industry involving concrete
    - production efficiency targets

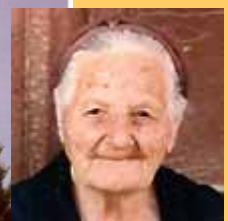
Stronger policies though are still needed *[IEA Report on Turkey, 2006]*

Important notes for an Energy Efficiency strategy

→ **Integrated approach: Need for changing MENTALITY and energy STANDARDS for both producers and consumers**

→ **Social capital may be regarded as one of the most influential sociological concepts" *[Portes 1988]***

→ **"Social capital is a useful explanatory factor for the management of natural resources" *[Pretty 2003]***



Important notes for an Energy Efficiency strategy

→ **Three important sectors:**

- **Buildings**
- **Transports**
- **Industry**

→ **Taking into consideration the European potentials and the European Energy Efficiency Action Plan of 2006, setting priorities is necessary**

→ **"Savings potential and the likely impacts of some measures are larger or more evident than for others" *[EC, 2006]* – Important to start from the most evident ones**

→ **"Three main social groups:**

- **Decision making actors**
- **Market actors**
- **Public**

Directives and Instruments

Directives: **Eco-Design Directive, Energy Star Regulation, Labeling Directive, Directive on Energy End-Use Efficiency and Energy Services, Energy Performance of Buildings Directive**

Instruments:

- **energy performance requirements ;**
- **price signals ;**
- **improved financing tools and economic incentives ;**
- **increased awareness and behavioural change ;**
- **use of international partnerships**
- **innovation and technology**
- **measures in energy transformation sector (uses about 1/3 of all primary energy / Transformation efficiency = 40% / new generation capacity efficiency = 60% / Saving in losses during transmission- distribution = 10%)**

DSM Programs

Concept:

Programs offered from Utilities and Electric Suppliers in order to reduce energy final use of residential and industrial customers at a broad-scale deployment.

A DSM – Program:

Shapes the tools, suggest the policies and reviews demand-side measures → A first priority at a Government's strategy.

Example: *A black-out:*

If met by new transmission and generation capacity →
New problems in term of land-use, waste and emssions

If the problem is the gap between capacity and load,
why not consider the solution of load's
restriction instead of capacity's broadening?

Benefits of DSM-programs

1. **Meet urgency situations when gap between capacity and load is very narrow**

2. **Lead to Energy Efficiency and CO_2 emissions' restriction**

3. **Improve living standards of a society's living**

4. **Lead to Industry's improvement**

5. **In a trading environment, flexible, responsive and low cost demand side participation processes, based on accurate customer consumption data, are very attractive options for reducing imbalance risk and improving system security**

Examples of DSM programs

1. DSM programs of Interruptible Load Management (through technologically advanced equipment)

2. DSM Programs of Load Management (shift peak load from on-peak to off-peak time periods through relevant technologies or promotion of time-of-use rates)

3. Interruption from the System Operator of industrial or commercial consumer during peak loads after relevant contractual agreement

4. More efficient manufacturing processes and highly efficient co-generation

5. Agreements with customers for interruption during peak loads, decrease of electricity's use during specific hours in a day, feedback on their energy use, etc.

Examples of DSM - Pograms (II)

6. Energy efficiency improvement measures (heating & cooling, etc.)

7. Detachment of a residential market with an increasing sector on energy-efficiency homes (network with builders, real estate professionals, etc.)

8. Development of cross – sectorial measures (intelligent metering systems, training and education)

9. Horizontal measures (regulations, taxes, information campaigns)

Key-Areas for the use of DSM Programs

IMPORTANT ISSUES:

1) Incentives for Customers who participate in DSM Programs

2) Sponsoring of DSM Programs from Utilities

DSM Programs Evaluation

Process Evaluation

Existence (and potential of) effectiveness, Customers satisfaction, market barriers

Market Evaluation

Assessments for new programs and products, assessment of market transformation

Impact Evaluation

Comparison between initial aim and output & “technical” and natural conservation

Cost Benefit Evaluation

Assessment of the cost-effectiveness of the program

Best Available Practices

The IEA Demand-Side Management Program is an international collaboration of 18 countries working together to develop and promote opportunities for demand-side management

Details on:

http://dsm.iea.org

European support through TAIEX Seminars

Thank you…

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