

PART III. NATIONAL REPORTING GUIDELINES FOR CSD-14/15 THEMATIC AREAS

B. ENERGY

Government focal point: *Budak DILLI, General Director
General Directorate of Energy Affairs*
Responding ministry: *Ministry of Energy and Natural
Resources*

Decision-Making: Strategies, policies, programmes and plans, legislation, policy instruments and the regulatory framework; involvement of Major Groups

- **Access to electricity and other energy services, through either grid extension or decentralized energy technologies, in both urban and rural areas, including main programme objectives, impacts and progress;**

The new Electricity Market Law allows for the non-discriminatory access to electricity transmission and connection services for all users. The same is valid for natural gas and oil, as defined with in the framework of Natural Gas Market Law and Petroleum Market Law.

- **Efficient use of energy in the household and commercial sectors through, e.g., introduction of improved cook stoves or liquefied petroleum gas (LPG) for cooking, minimum energy performance standards for appliances and lighting, energy efficient building codes, and metering.**

Draft Energy Efficiency Law deals with efficient use of energy, addressing the end-use efficiency potential and the ways to exploit it.

Improved efficiency in energy supply (e.g. energy generation, transmission and distribution).

Draft Energy Efficiency Law deals with efficient use of energy, addressing the efficiency potential and the ways to exploit it. The laws governing the electricity, gas, oil and coal sectors and their secondary legislation includes provisions for efficient supplies in energy.

The new capacity additions on the electricity generation is based on more efficient technologies. Cogeneration applications are also getting a wider use. It is envisaged to benefit from the non-utilized potential from the existing plants through rehabilitation studies. The losses in the transmission are at the level of world average, though distribution losses are rather high. This issue is being addressed within the electricity market reform strategy as one of the highest priorities.

- **Policies to facilitate the transfer of modern energy technologies, such as export promotion policies or establishment of an enabling environment for investments, including their objectives, the types of financing available and other incentives provided to facilitate technology transfer.**

Regarding the renewables, there exists various kinds of incentives in the Law on the Utilization of Renewable Energy Sources for the Purpose of Generating Electricity. (Law No: 5346) The Law mainly includes support mechanisms and further incentives to encourage investments, through feed in tariff mechanism,

investment allowances, tax-free applications. Indirectly transfer of modern energy technologies are also being promoted. Free of charge delivery of land and investment allowance are supplied by Ministry of Finance as well.

Cogeneration applications are attached high importance in line with the general strategy of increasing the resource utilization, while decreasing the system losses and environmental hazards.

Turkey attaches due regard in transferring energy technologies, in a way to ensure their deployment in a cost-effective manner. The Scientific and Technical Research Council of Turkey-Marmara Research Center (TÜBİTAK-MAM) coordinates the activities regarding energy technologies related R&D.

The International Centre for Hydrogen Energy Technologies (ICHET) was established in Istanbul to act as a center of excellence with regard to the hydrogen energy technologies related R&D. The Center is envisaged to play a vital role to introduce hydrogen into the energy mix as a reliable energy carrier in cost-effective manner. Several Turkish Universities are also conducting research in this area.

- **Reform or restructuring of the energy sector within the last ten years to improve the functioning of energy markets.**

Turkey attaches great importance to more efficient and rational functioning of the energy sector for promoting the competitiveness of the national economy. In this regard, important progress has been achieved in restructuring and liberalizing the electricity and gas markets. In 1993, TEK was split into two separate state-owned companies: Turkish Electricity Generation-Transmission Corporation (TEAS) and Turkish Electricity Distribution Company (TEDAS). With the Electricity Market Law issued in 2001, a profound structural reform was initiated in the electricity sector. TEAS was unbundled into three companies responsible for different sub-sectors, namely EUAS (generation), TEIAS (transmission) and TETAS (wholesale). TEIAS is and will be the sole transmission and market operator but direct participation of the private sector is allowed in all other segments of the industry.

The efforts of liberalizing the Turkish energy sector have gained pace in 2001 with the enactment of the Electricity and Natural Gas Market Laws. (Law No: 4628 & Law No: 4646). The Petroleum Market Law (Law No: 5015) was enacted in 2003, so as to support the efforts of restructuring and liberalization of the Turkish energy sector.

A major institutional change has occurred with the establishment of the Energy Market Regulatory Authority (EMRA) in 2001, with administrative and financial autonomy, as envisaged in the Electricity Market Law. Together with the Natural Gas Market Law and Petroleum Market Law, EMRA assumed responsibilities pertaining to the natural gas petroleum markets as well. The new legal framework abolishes the vertically integrated state monopolies and allows private sector participation in the energy industry in Turkey, under the supervision of Energy Market Regulatory Authority (EMRA), while the policy related issues are within the responsibility of Ministry of Energy and Natural Resources.

Electricity and natural gas markets have been in operation since 2002, and substantial progress has been achieved in creating well-functioning competitive electricity and natural

gas markets. Most of the relevant secondary legislation has been issued by EMRA. The tariff structures have significantly been improved in a manner to ensure that costs not directly related to market operations shall not be included therein, and regulated tariffs should be cost-reflective, eliminating cross subsidies. Important steps have been taken towards the establishment of cost-reflective tariff structures.

The opening of the Turkish electricity and gas markets are perceived to be an integral part of a competitive energy market creation process. At present the market opening rates of 29% for the electricity market and 80% for the gas market have been achieved in this respect and 100% market opening rates for both sectors are targeted through gradual decreases in eligibility thresholds.

The government issued the Strategy Paper Concerning Electricity Market Reform and Privatisation in March 2004. It outlines the major steps to be taken during the period up to 2012 and addresses various issues such as the privatisation of distribution assets and power plants, transitional contracts and security of supply. The government has launched the market liberalisation and privatisation process in the anticipation of the following benefits:

- Reducing costs by efficient operation of electricity generation and distribution systems.
- Increasing supply quality and reliability and ensuring security of supply.
- Reducing the technical and non-technical losses in the distribution sub-sector to the level in OECD member countries.
- Ensuring that rehabilitation and expansion investments are performed by the private sector without creating liabilities on the public institutions.
- Transferring to consumers the benefits obtained through increased competition, cost reductions and regulation of service quality.

According to the Strategy Paper, privatisation of the sector will be implemented along the following principles:

- The privatisation activities will be performed by the Privatisation Administration.
- The privatisation process will not be solely aimed at the maximisation of privatisation income.
- There will be utmost efforts to ensure that privatisation does not lead to permanent increases in electricity prices.
- The participation of financially strong companies able to achieve the objectives and principles of the program will be encouraged.
- Some priority investments for the rehabilitation of power plants and upgrading of transmission facilities as well as operational and maintenance activities will be performed independently from the privatisation process.
- Legislation will be modified - if required by the Privatisation Administration - to accelerate and facilitate privatisation of generation and distribution.
- Privatisation will start from the distribution sector in 2005 and it will be completed in 2006. The government's reason to start liberalisation from the distribution sector is that the distribution companies, holding retail licenses and operating in a liberal market, have to create confidence with investors in generation activities.
- Generation will be privatised by the end of 2006 after the privatisation of distribution has been completed. Generation assets will be grouped into several groups composed of

different types of assets for privatisation to enhance competition. Seventeen hydropower plants, which total capacity of 7055 MW will remain in government ownership.

- *The privatisation approach will take into account existing public liabilities and will not lead to additional state guarantees. The transmission system and market operator, TEIAS, will remain in state ownership.*

- **Legal and regulatory frameworks related to overall energy policies that have been adopted.**

Electricity Market Law

Natural Gas Market Law

Petroleum Market Law

Related Secondary Legislation

(available at the EMRA web site : www.epdk.org.tr/english)

Renewables Law

Draft Energy Efficiency Law

- **The use of economic instruments, including pricing and tariff reform.**

Enhancing the overall economic efficiency of the energy sector has been one of the biggest challenges of Turkey for decades. Within the context of the reform activities in the energy sector, Electricity, Natural Gas and Petroleum Market Laws were enacted. The new market models are based on cost-reflective pricing so as to achieve competition in all segments.

Cost-reflective pricing and well-established tariffs structures are the main tools towards the realization of a well-functioning energy market.

- **Participation of private companies in the electricity sector, their impact on electricity services and their involvement (e.g. generation; transmission; distribution).**

As per the provisions of the Electricity Market Law, main objective is to create a competitive electricity market where the private sector is the main investor.

The new market model envisages gradual reduction of the share of state in generation and distribution segments through encouragement of private sector participation in a sound investment environment.

Private sector participation in well-defined sub-sectors in the electricity market has evolving since the enactment of new Market Laws. Private companies take part in the market activities based on licensing under the supervision of EMRA.

“The Strategy Paper concerning Electricity Market Reform and Privatization” defines the steps to be taken to enable smooth transition towards a fully competitive electricity market.

One of the main pillars in this strategy is the privatization in distribution and generation segments. The privatization will start by the distribution sector, and will be followed by the privatization of state owned generation.

On the other hand, private power producers have been in operation based on the previously implemented BOO, BOT, TOOR models and autoproducers.

According to the recent figures planned by the end of 2005; BOO, BOT, TOOR and Autoproducer Plants will have capacities of 6100, 2450, 650, 4900 MW in respect. The private generators based on the new market model will have a total capacity of around 1000 MW. At total, the share of the private sector in the total installed capacity will reach to around 40 %.

At present, one distribution region, Kayseri, is being operated by a private company.

- **Major Groups¹ participation in energy decision-making, whether at the national or community level**

Public consultation is made on a periodical basis in order to enhance transparency regarding the policies in the energy sector.

- **Women's participation in needs assessments or planning and policy formulation related to energy at the local and/or national levels; other means.**

Women participate in all areas at all levels.

- **Programmes designed to increase the share of renewable energy in the national energy supply mix, including information on their goals and targets.**

The Renewable Energy Project of USD 200 million has been launched by World Bank. This loan is available to the investors who are interested to construct power plants using hydro (excluding hydro power plant which has installed capacity of greater than 50 MW), wind and geothermal energy resources, through Turkish Industrial Development Bank and Turkish Development Bank.

It is possible to finance up to 40-50 % of the capital cost investment needs of the projects by means of this loan. The remaining portion will be covered by the investors themselves through their own resources and/or other credits.

The Law on the Utilization of Renewable Energy Sources for the Purpose of Generating Electricity includes several kinds of incentives to promote renewables based electricity generation.

The Draft Law on Geothermal Resources and Spring Waters, (includes regulations on the efficient usage of geothermal resources for both direct use to promote renewables based and electricity generation.) includes provisions to encourage the utilization of geothermal resources.

At present renewable energy sources contribute to the 12 % of Total Primary Energy Supply. In terms of direct use in Total Final Consumption (TFC), the share of renewables is around 30 %.

¹ Major Group consists of: Women; Business and industry; Local authorities; NGOs; Children & Youth; Indigenous People; Workers & Trade Unions; Scientific & Technical Communities; and Farmers.

Renewables, mostly hydro, contribute in 29 % of electricity generation. Since nearly 20 % of the TFC is constituted by electricity, nearly 36% of the end-use energy is coming from renewables.

Renewable Energy Projections in Turkey

	2003	2005	2010	2015	2020
Primary energy supply					
Hydro (ktoe)	3038	4067	4903	7060	9419
Geothermal, Solar, Wind (ktoe)	1215	1683	2896	4242	6397
Biomass and Waste (ktoe)	5748	5325	4416	4001	3925
Renewable Energy Production (ktoe)	10 002	11 074	12 215	15 303	19 741
Share of total domestic production (%)	42	48	33	29	30
Share of TPES (%)	12	12	10	9	9
Generation					
Hydro (GWh)	35 330	47 287	57 009	82 095	109 524
Geothermal, Solar, Wind	150	490	5 274	7 020	8 766
Renewable Energy Generation (GWh)	35 480	47 777	62 283	89 115	118 290
Share of total generation (%)	25	29	26	25	25

- **Measures and programmes adopted to improve fuel efficiency for transport vehicles. Such as vehicle fuel efficiency standards; vehicle inspection and maintenance programmes; introduction of cleaner fuels; any other.**

Draft Energy Efficiency Law deals with issues to improve energy efficiency in the transport sector.

- **Existence of nuclear energy programme and information on nuclear materials transported within or across national boundaries; national programmes that ensure nuclear safety; arrangements in place for public review and hearings.**

There is no nuclear power plants in operation, or under construction. The government announced a new comprehensive program to introduce nuclear energy option in the electricity supply mix over the following decade.

There is an ongoing project to enlighten the public with bare facts of nuclear technology to develop an unbiased understanding in nuclear field in Turkey.

Revision of current regulation on nuclear safety is continuing.

An intense control of nuclear and radioactive materials in undertaken at the national boundaries to prevent illicit trafficking.

Capacity-Building, Information and Research & Technologies

- **Efforts to establish new, or strengthen or reform existing national and local institutions responsible for national programmes on energy for sustainable development.**

Turkey gives utmost importance to enhance the institutional capabilities where necessary, in order to achieve the policy targets within the framework of sustainable development.

- **Training or other capacity-building activities undertaken to strengthen energy planning, management of energy efficiency or development of new and renewable sources of energy.**

Training and other types of capacity building activities are undertaken by the institutions continuously. Energy manager courses and “training bus program, conducted by EIE/NECC (the General Directorate of Electrical Power Survey and Development Administration (EIE)/the National Energy Efficiency Center (NECC) are few of the training activities. Furthermore, energy efficiency audits to industry are undertaken on a periodical basis.

- **Launching of public information campaigns and educational programmes to raise awareness of energy efficiency and environmentally sound energy systems.**

In order to increase the effectiveness of energy efficiency studies and extend them all over the Country, EIE/NECC has carried out energy efficiency awareness activities.

EIE/NECC has been conducting various kind of promotional studies. In this context, several publications and media are being published and distributed by EIE/NECC. Successful Industrial Energy Conservation Project Awards is presented to the winners.

The Energy Conservation Coordination Board (ECCB) primarily coordinates to government’s energy efficiency awareness campaigns that include an annual energy Week (the second week of January), publicity material, contests for school children, TV spot films etc.

- **Networking between centers of excellence on energy for sustainable development that has enhanced information sharing, capacity-building and technology transfer.**

Studies are underway to establish a centre to act as a data bank to enhance share of information and experience.

- **Internet websites related specifically to the issues contained in these Energy Guide lines, provide homepage addresses (URL).**

several websites exist :

*www.enerji.gov.tr, www.eiei.gov.tr, www.teias.gov.tr, www.euas.gov.tr,
www.tedas.gov.tr, www.tetas.gov.tr, www.tki.gov.tr, www.epdk.org.tr,
www.taek.gov.tr, www.botas.gov.tr, www.tpao.gov.tr*

- **Efforts to promote increased research and development of various energy technologies: renewable energy; energy efficiency; advanced energy technologies, including cleaner fossil fuel technologies; any other.**

Priority R&D areas are determined in a way to address the needs in the energy sector. TÜBİTAK/MAM coordinates activities pertaining to energy technologies related R&D.

Financing

- **Specific measures taken to establish an appropriate enabling environment conducive to attracting investments in the energy sector: pricing/subsidy reform; fiscal and financial incentives; power purchase agreements; other arrangements.**

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Cost-reflective pricing and well-established tariffs structures are the main tools towards the realization of a well-functioning energy market.

Cooperation

- **Cooperation with neighbouring countries in energy trade and/or interconnection of electricity or gas networks, including through transnational pipelines; nature of such cooperation.**

Turkey has actively been cooperating on the energy trade and interconnection related activities with the neighboring countries. The Energy Community process together with the South East European Countries and the EU is one of the recent initiatives at which Turkey has actively been participating. Turkey supports transnational gas and oil pipeline projects in cooperation with the Caspian and Middle East Countries and the Western Countries, taking advantage of country's unique geographical location based on the "East West Energy Corridor" concept.

"The Energy Policies of IEA Countries, Turkey In Depth Review – 2005"