

TAIEX WORKSHOP 25625 ON DEMAND SIDE MANAGEMENT IN ENERGY EFFICIENCY

ENERGY EFFICIENCY IN TURKEY

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22 – 23 November 2007



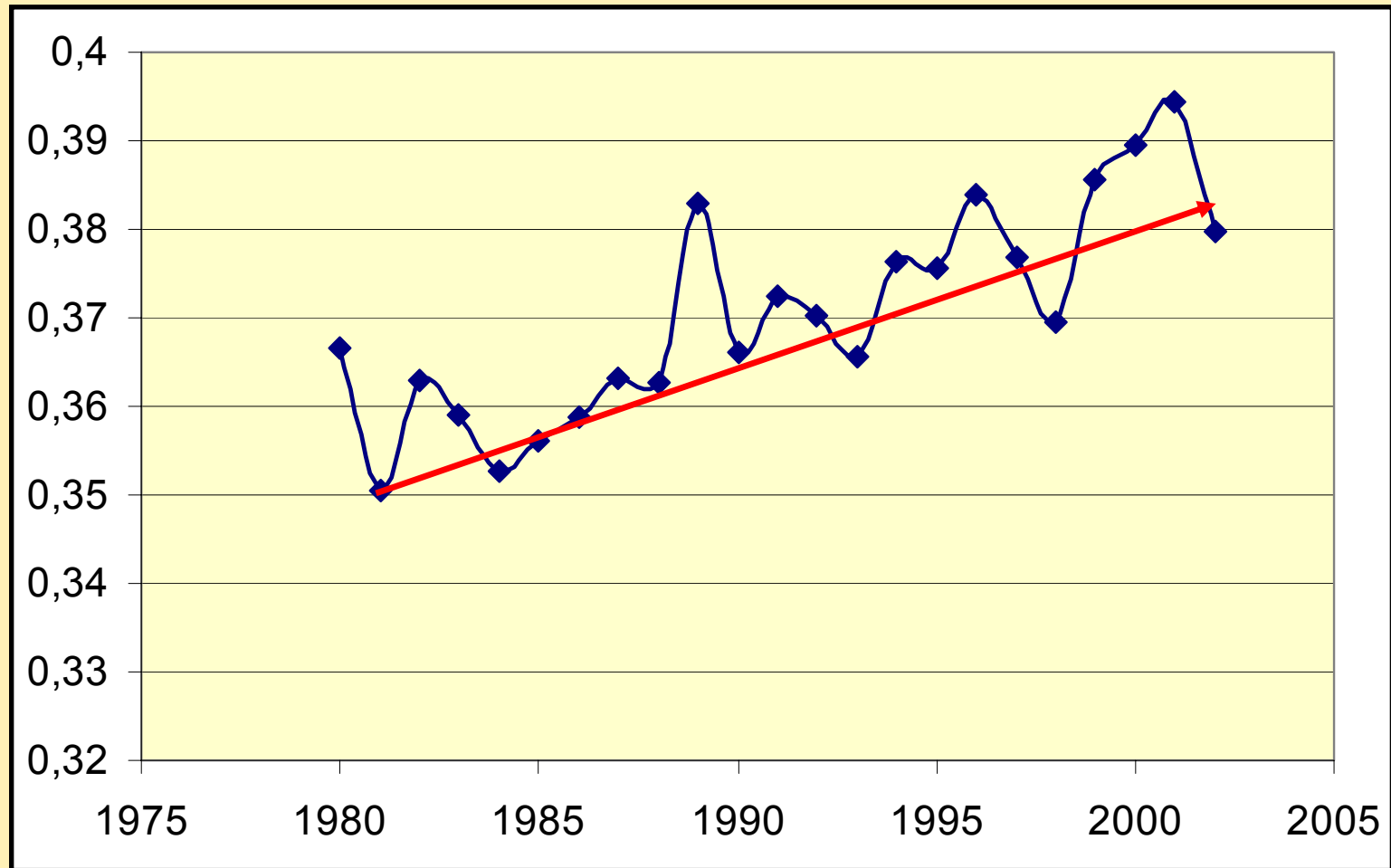
Renewable Energies & Energy Efficiency

General Directorate of Electrical Power Resources, Survey
and Development Administration

Importance of Energy Efficiency



Energy Intensity in Turkey



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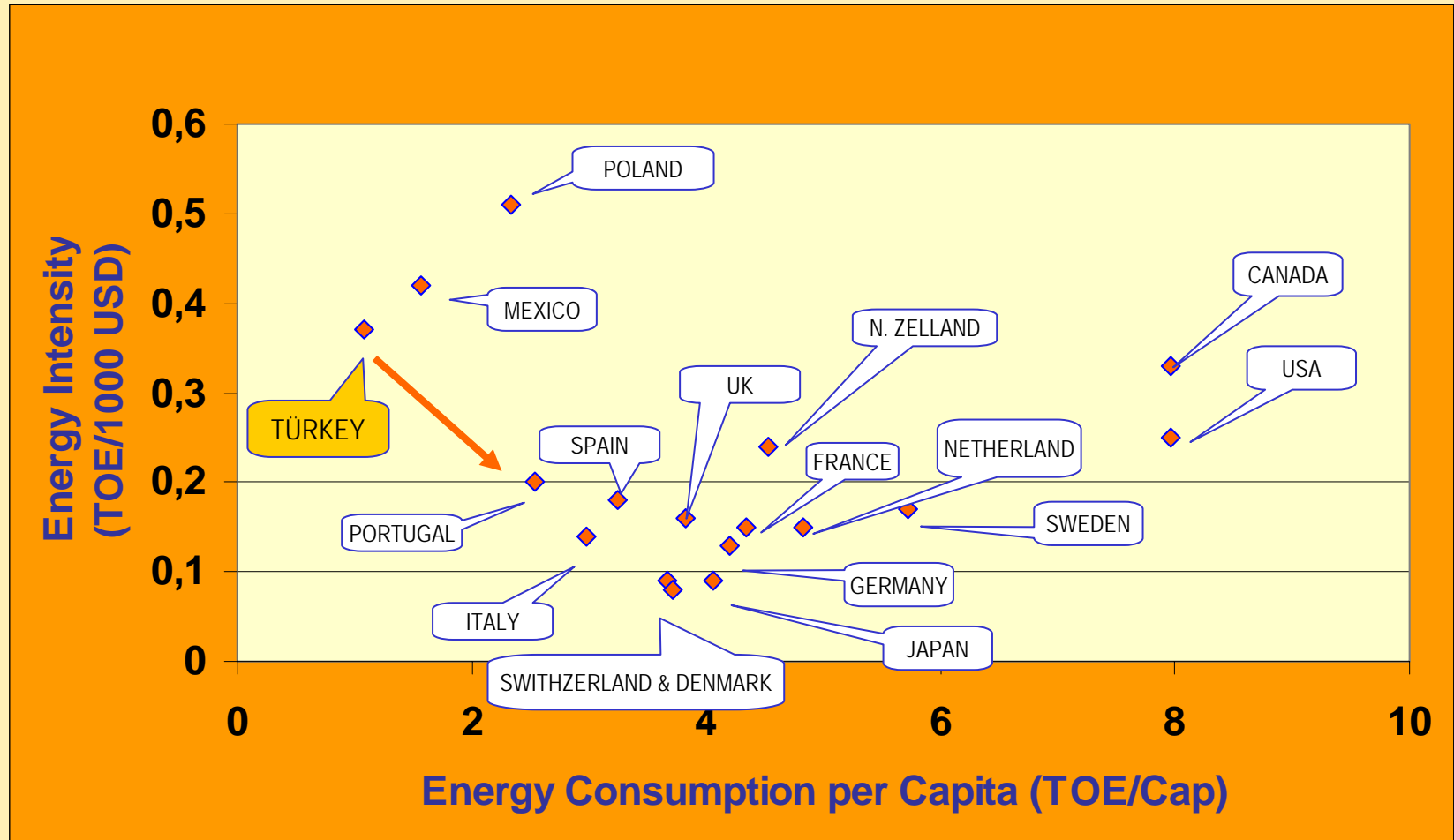
Energy Intensity in Turkey

Country	Energy Intensity	Consumption per person
	Consumption / GDP	TOE / Population
Japan	0.09	4.09
OECD	<u>0.19</u>	4.68
Greece	0.20	2.62
USA	0.25	7.98
World	<u>0.29</u>	1.64
Turkey	<u>0.38</u>	<u>1.22</u>

Turkey is over both OECD and World averages in terms of energy Intensity



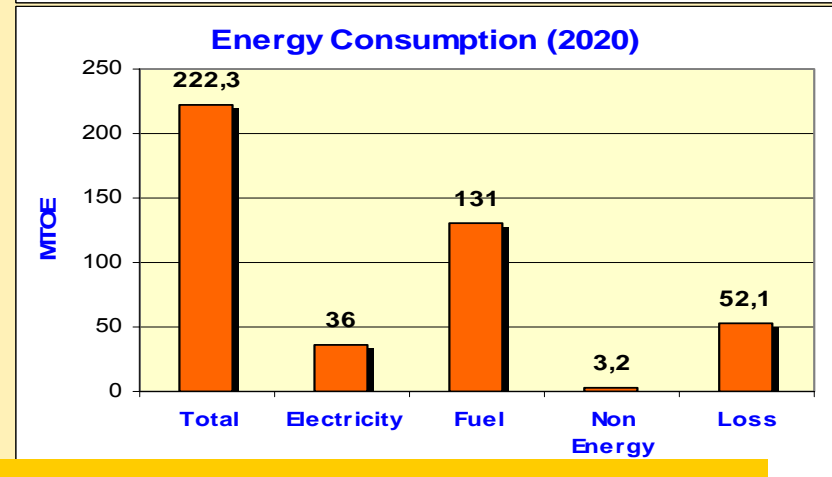
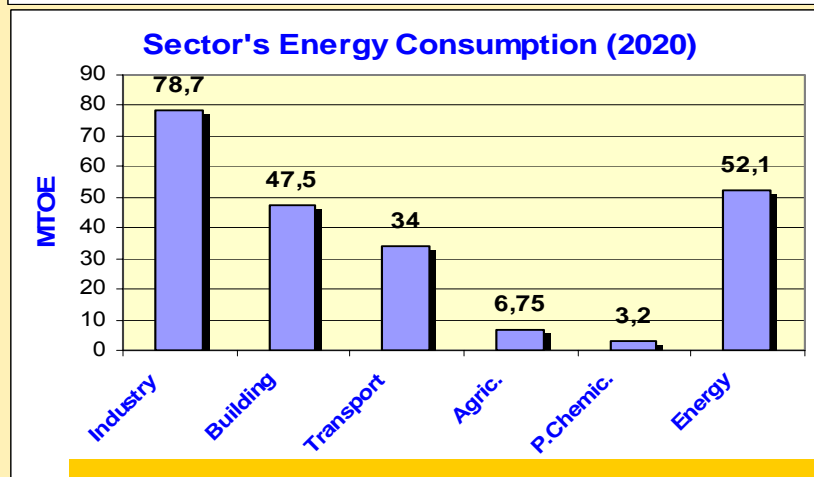
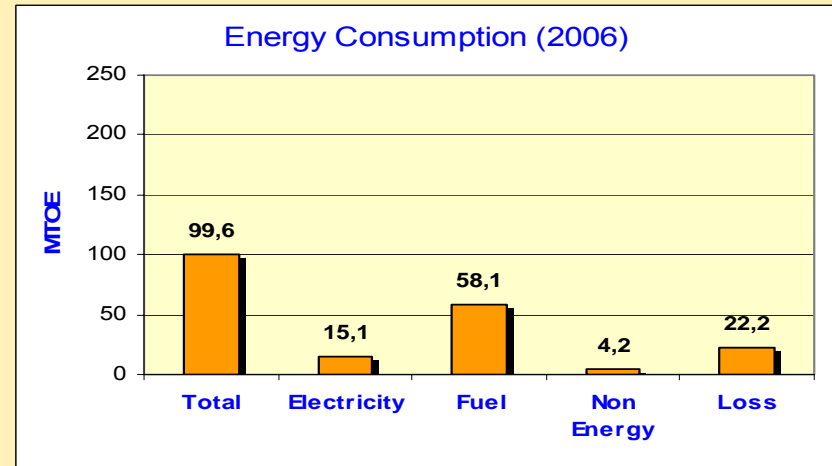
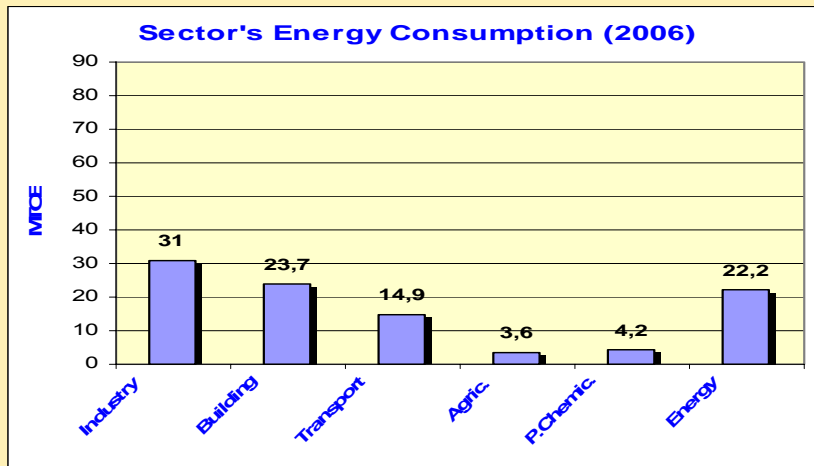
Energy Consumption & Energy Intensity



Energy Demand & Supply in Turkey

	Demand	Domestic Production		Import	
	MTOE	MTOE	%	MTOE	%
1995	63.1	26.3	42	38.6	58
2000	81.2	27.6	34	53.6	66
2001	75.8	26.2	34	49.7	66
2002	78.3	24.6	31	54.0	69
2003	83.8	25.3	30	58.5	70
<u>2004</u>	86.8	24.5	28	62.3	72
<u>2005</u>	90,3	23,8	26	66,5	74
<u>2006</u>	99,8	26,8	<u>27</u>	73,1	<u>73</u>
<u>2007 (*)</u>	99,7	25,6	<u>26</u>	74,1	<u>74</u>
<u>(*) Projection</u>					

Primary Energy Consumption in Turkey

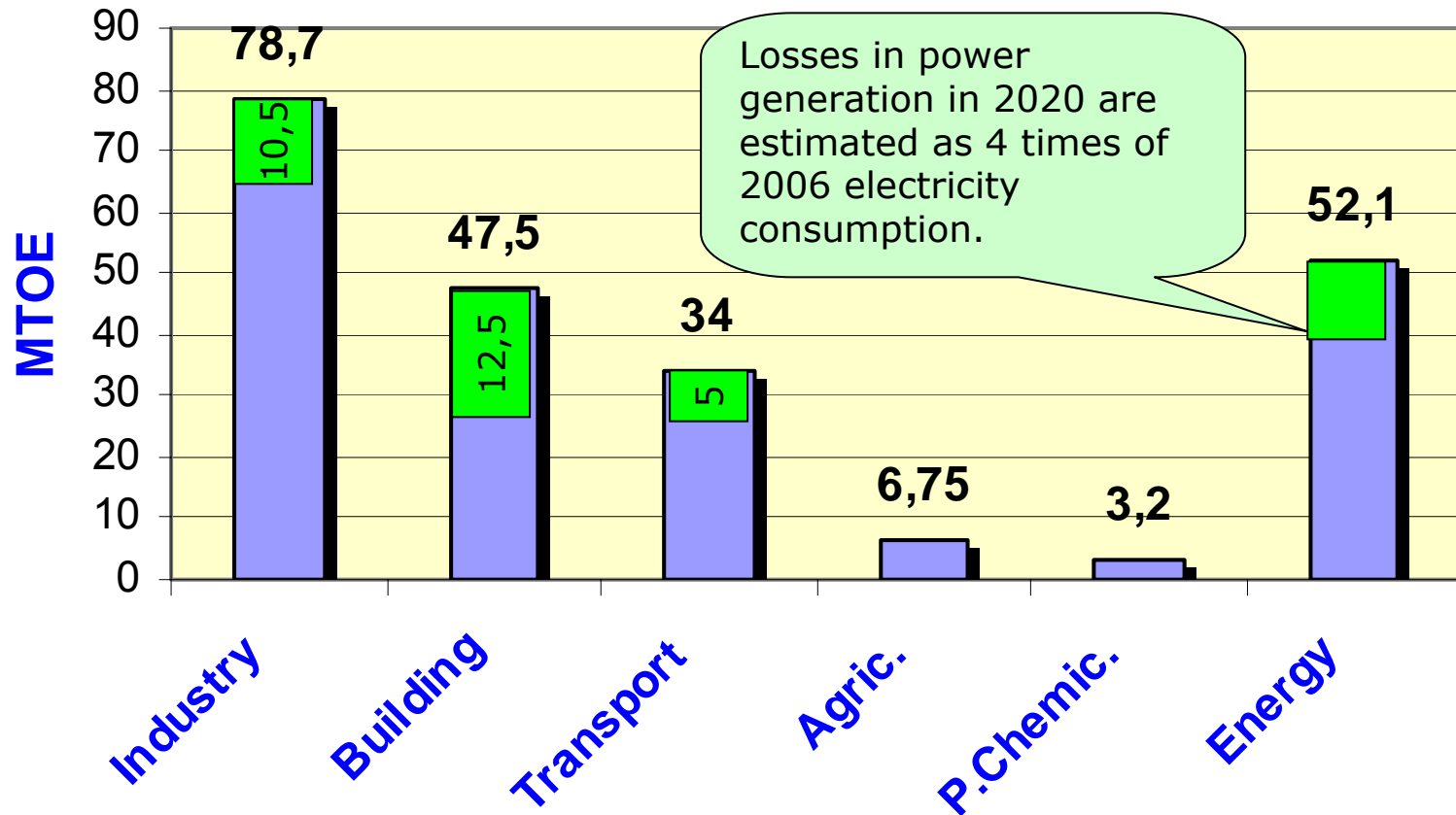


Energy consumption will be in Turkey in 2020, for industry 2,5; for building and service 2 and for transport 2,3 times more than in 2006.



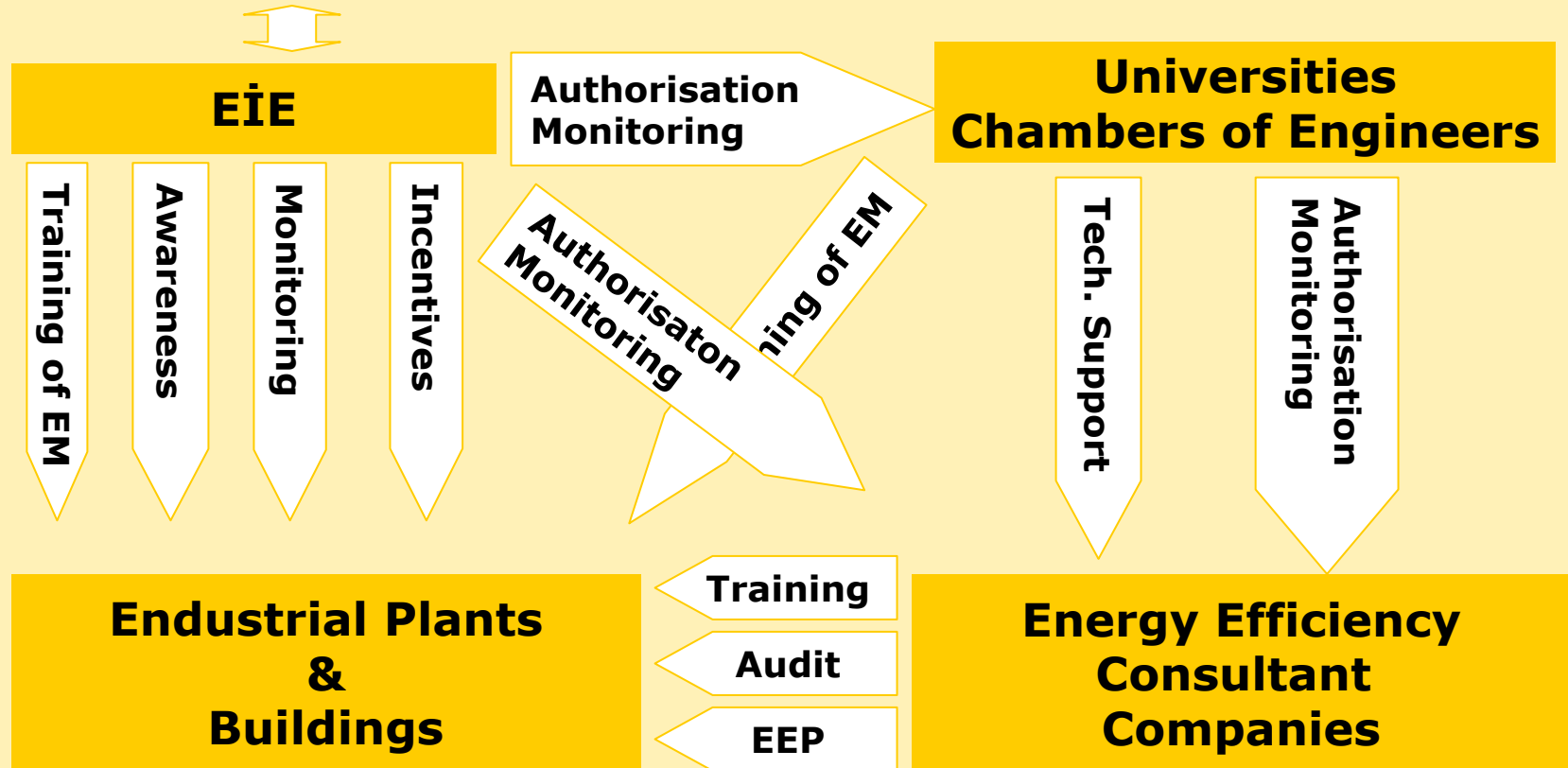
Energy Saving Potential in Turkey

Energy Saving Potential in Sectors (2020)



Administrative Structure of Energy Efficiency in Turkey

ENERGY EFFICIENCY COORDINATION BOARD (EECB)



Energy Efficiency Measures in Industry and Trade



- η Energy Management
- η Incentives for EE Projects
- η Voluntary Agreements
- η Incentives for SME's



Energy Efficiency Measures In Building and Service



- η Energy Management
- η Energy Performans / Building Codes
- η Enerji Performans Certificate
- η Control and Individual Metering for Central Heating Systems



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Energy Efficiency Measures in Power Generation



- η Demand Side Management
- η Improvement of Energy Efficiency in Power Generation, Transmission, Distribution and Public Lighting
- η Utilisation of Waste Heat of Thermal Power Plants
- η Utilisation of Alternative Fuels in Power Generation



Energy Efficiency Measures in Transport



- η Reducing of Specific Fuel Consumption for Domestic Vehicles
- η Improvement of Energy Efficiency Standards for Vehicles
- η Promoting of Public Transport
- η Utilisation of Traffic Control Systems



Other Measures

- η Utilisation of Small Scale Renewable Energy Sources
- η Incentives and Supports for Co-Generation
- η R&D
- η Training and Awareness
 - ↪ Energy Efficiency in Primary and Secondary Schools
 - ↪ Undertakings for TV Channels
 - ↪ Information for Consumers by Energy Companies
 - ↪ Information in user's guide of equipments
 - ↪ Energy Efficiency Week



Energy Management

Appointment of energy managers or establishment of energy management unit in industrial plants since 2007

	Energy Management Unit	Energy Manager
Industrial Plants	$\geq 50,000$ TOE	$\geq 1,000$ TOE
Organised Industrial Zones	X	
Buildings Public Commercial Service		≥ 500 TOE or $\geq 20,000$ m ²



Energy Efficiency Studies of EIE

- Training
 - National and international courses for certification of energy managers (EM) in industry
- Audit
- Awareness
- Others (Statistics, Legislation e.t.c.)



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Energy Management

Implementation of energy management in Turkey

Industry

Number of Plants	$\geq 1,000$ Plants
Appointed energy managers	≥ 500 plants ($\cong 200$ certificated)
Certificated energy managers	≥ 700

Building & Service

Number of Building	≥ 500 Building
Appointed energy managers	-
Certificated energy managers	-



Energy Management

Steam Boilers

Compressed Air

Furnace

Pump

Fan

Lighting

Compansation

Refrigerating

Others



Saving
%7



ENERJİ TASARRUFU UYGULAMA TESİSİ

EIE IDARE SI GENEL MÜDÜRLÜĞÜ
ULUSAL ENERJİ TASARRUFU MERKEZİ
NATIONAL ENERGY CONSERVATION CENTER



Energy Efficiency Training Plant

The following training units are present, as well:

- Combustion Furnace
- Steam Boiler
- Steam Traps
- Fan and Pump Systems
- Compressed Air System
- Combustion Burners
- Refrigerating
- Lighting
- Compansation
- Demostration Units



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International Training Programmes

- June 2002: 21 participants from Azerbaijan, Georgia, Iran, Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan and Turkmenistan,
- October 2003: 16 participants from Azerbaijan, Georgia, Iran, Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan, Turkmenistan, Bulgaria and Romania
- November 2004: 15 participants from Albania, Azerbaijan, Bosnia-Herzegovina, Bulgaria, Georgia, Hungary, Iran, Kazakhstan, Kyrgyzstan, Macedonia, Pakistan, Romania, Slovenia, Syria, Tajikistan, Turkmenistan and Uzbekistan



International Training Programmes

- June 2005: 22 participants from Afghanistan, Albania, Azerbaijan, Bosnia-Herzegovina, Bulgaria, Georgia, Iran, Kyrgyzstan, Macedonia, Moldova, Pakistan, Poland, Romania, Syria, Tajikistan and Ukraine
- June 2006: 24 participants from Afghanistan, Albania, Azerbaijan, Bosnia-Herzegovina, Bulgaria, Georgia, Hungary, Iran, Israel, Kazakhstan, Kyrgyzstan, Macedonia, Romania, Syria, Tajikistan, Ukraine and Uzbekistan
- November 2007: 25 participants from Afghanistan, Albania, Armenia, Azerbaijan, Bosnia-Herzegovina, Bulgaria, Georgia, Greece, Hungary, Iran, Israel, Kazakhstan, Kyrgyz Republic, Macedonia, Moldova, Mongolia, Pakistan, Romania, Russia, Serbia, Syria, Tajikistan, Turkmenistan, Ukraine and Uzbekistan

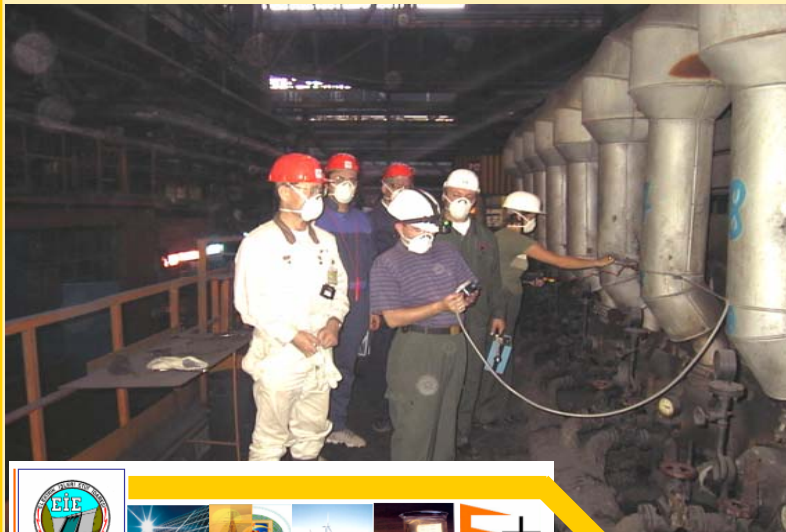


Energy Audits

- Purpose
 - * To determine the energy sector potential,
 - * To assign the measures related to energy efficiency,
- Steps:
 - * Pre-visit to the plant
 - * Confirmation of the study
 - * Data collection and measurements
 - * Data analysis and energy conservation projects identification
 - * Reporting



Energy Audits



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Energy Audits

- Iron and Steel Industry
 - Integrated
 - Electric Arc Furnace,
- Cement
- Ceramic
- Brick
- Food
- Textile
- Pulp and Paper
- Chemical
- Machinery and Household Appliances
- Defence



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Demand Side Measures

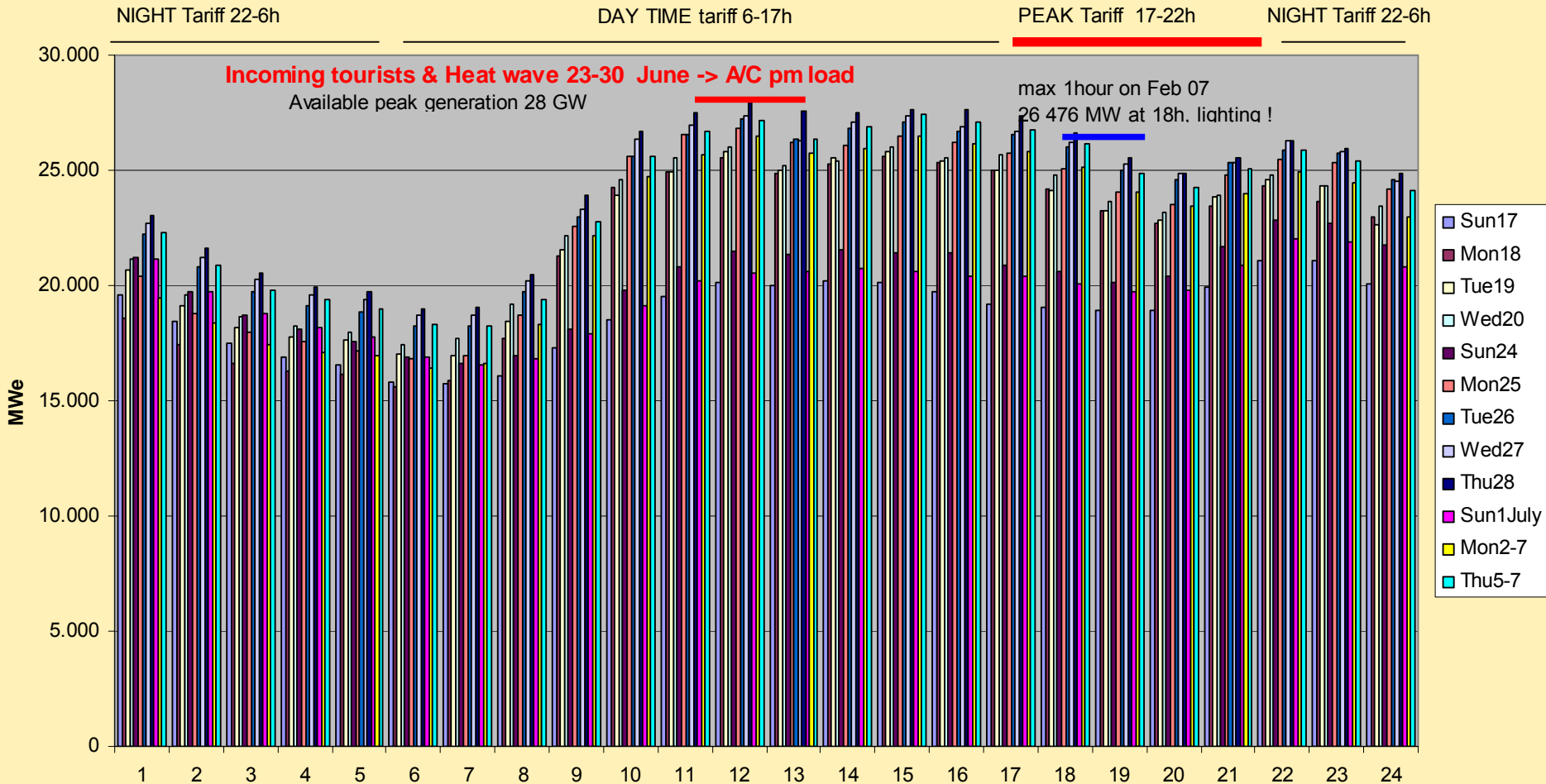
Draft Secondary Legislation

- η Monitoring of Energy Efficient Equipments in the Market
- η Promoting of Energy Efficient Equipment in Market
- η Promoting of Co-Generation, Heat Pump and Solar Systems
- η Insulating of Schools
- η Utilisation of Solar Energy in Public Sector
- η Tariff Mechanisms for Buildings
- η Power and Consumption Control by Voluntary Agreements
- η Measures to Reduce Demand in Public Sector



Peak Demand !

TURKEY' LOAD CURVES June 17 to 28 (hot) and 1-2 July (cooler)...



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THANK YOU FOR YOUR ATTENTION

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