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Demand Side Management

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Introduction

Demand Side Management (DSM) is the implementation of policies and measures which serve to control, influence and generally reduce electricity demand.

DSM aims to improve

- ◆ Final electricity-using systems,
- ◆ Reduce consumption, while preserving the same level of service and comfort,
- ◆ Peak load reduction (usage at peak times),
- ◆ Demand response (load reduction which can be called upon in times of need.)

DSM Benefits

Benefits of the DSM initiatives are diverse as:

❖ Customer benefits

- ◆ Satisfy electricity demands
- ◆ Reduce / stabilize costs
- ◆ Maintain / improve lifestyle and productivity

❖ Societal benefits

- ◆ Reduce environmental degradation
- ◆ Conserve resources
- ◆ Protect global environment
- ◆ Maximize customer welfare

❖ Utility benefits

- ◆ Lower cost of service
- ◆ Improve operating efficiency
- ◆ Improve customer service

Education

To promote awareness and to give useful tips for energy saving such as published leaflets, media (TV, Radio and Newspapers) for:

- ❖ Energy conservation within industry
- ❖ Energy conservation in commercial buildings by management
- ❖ Energy conservation in residential and commercial buildings by developers, building engineers and architects

DSM Initiatives

- ❖ Energy Enterprise – KEK has implemented a number of initiatives to increase awareness of efficient electricity usage among the local community

Measures to achieve objectives

Measures needed to:

- ❖ Achieve greater awareness of energy conservation and environmental improvement needs
- ❖ Provide readily available, pre-purchase information on energy consumption and efficiency to allow customers to choose more efficient products such as:
 - ◆ Fluorescent lamps
 - ◆ Washing machines
 - ◆ Electric water heaters
 - ◆ Room coolers
 - ◆ LCD monitors, etc.
- ❖ Save energy and improve the environment

Services needed for operation

Ancillary services are defined according to the UCTE Operation Handbook recommendations. The following services are listed in the Grid Code:

- | | |
|--|------------------------------|
| <input type="checkbox"/> Primary control | mandatory for all generators |
| <input type="checkbox"/> Secondary control | bought from EPS |
| <input type="checkbox"/> Tertiary control | none (load shedding) |
| <input type="checkbox"/> Voltage control | within secondary control |
| <input type="checkbox"/> Black start | none (from interconnectors) |

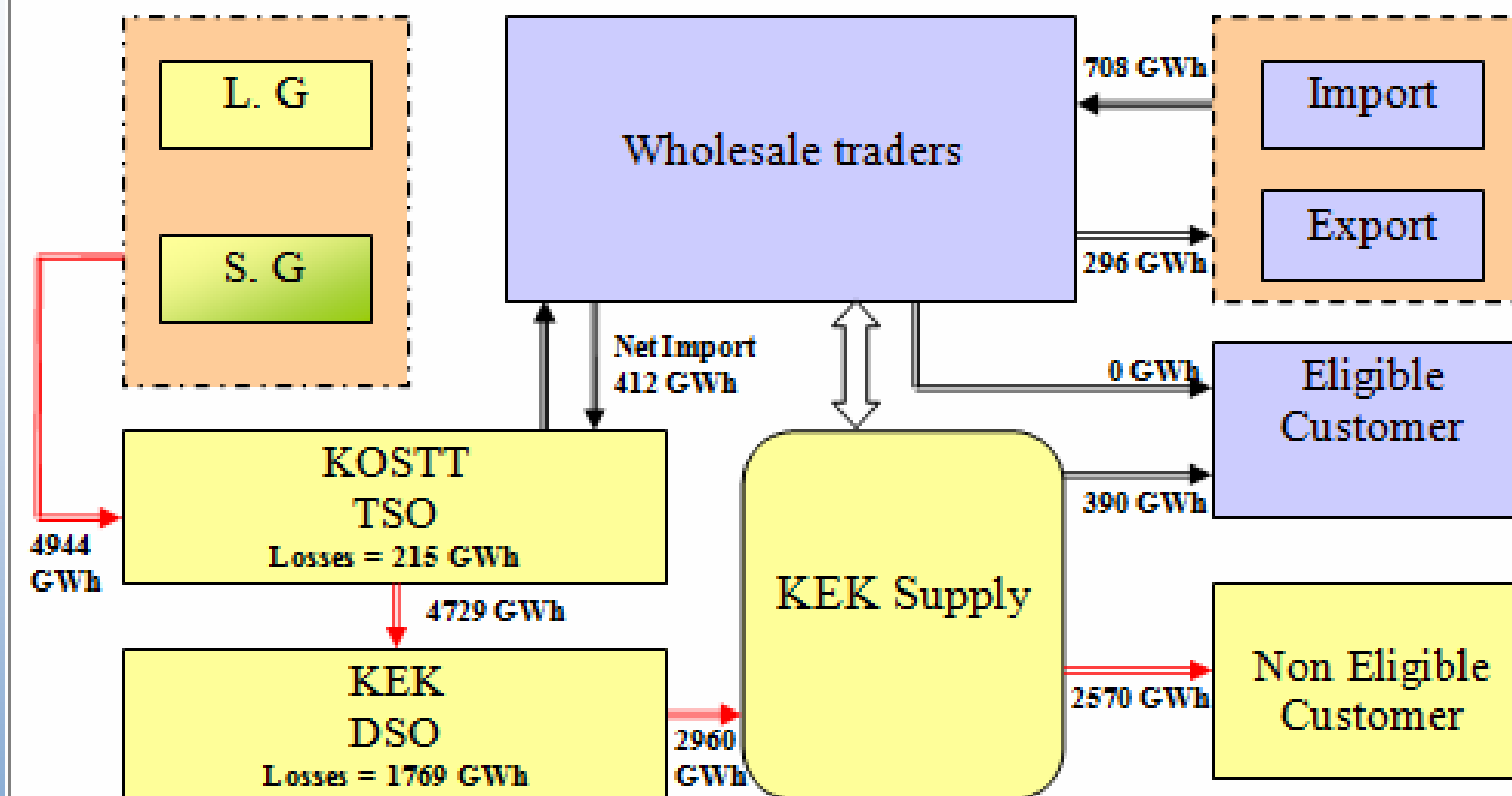
Metering

- | | |
|--|-----------------------|
| <input type="checkbox"/> Active number of customers | 383 975 |
| <input type="checkbox"/> Customers without meters | 10 720 |
| <input type="checkbox"/> Customers with smart meters | 1 700 (pilot project) |



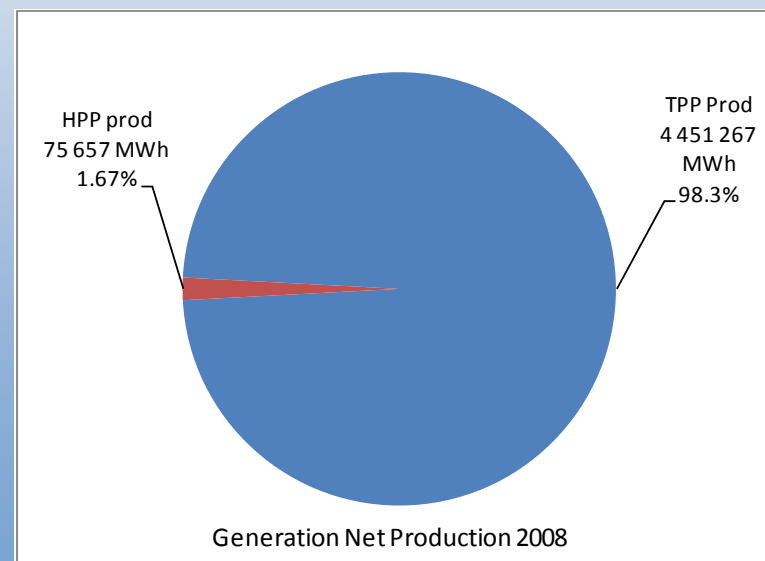
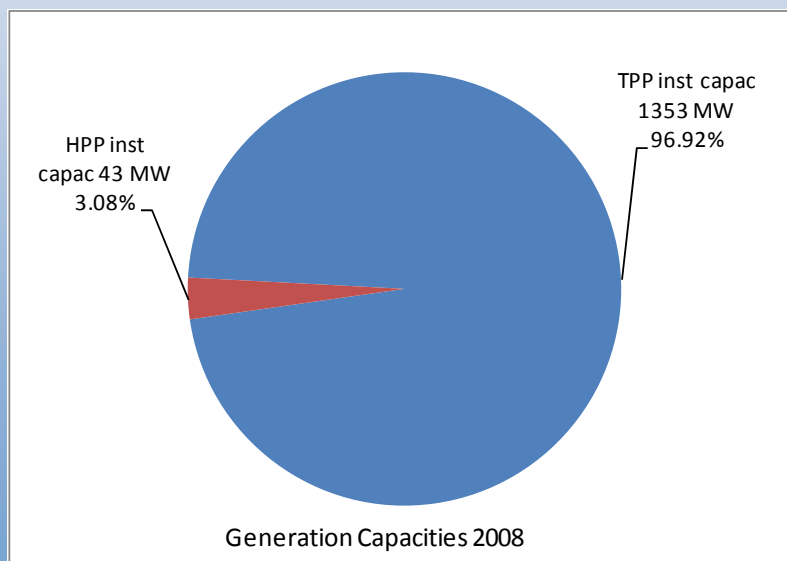
Market Structure

Kosova electricity market 2008



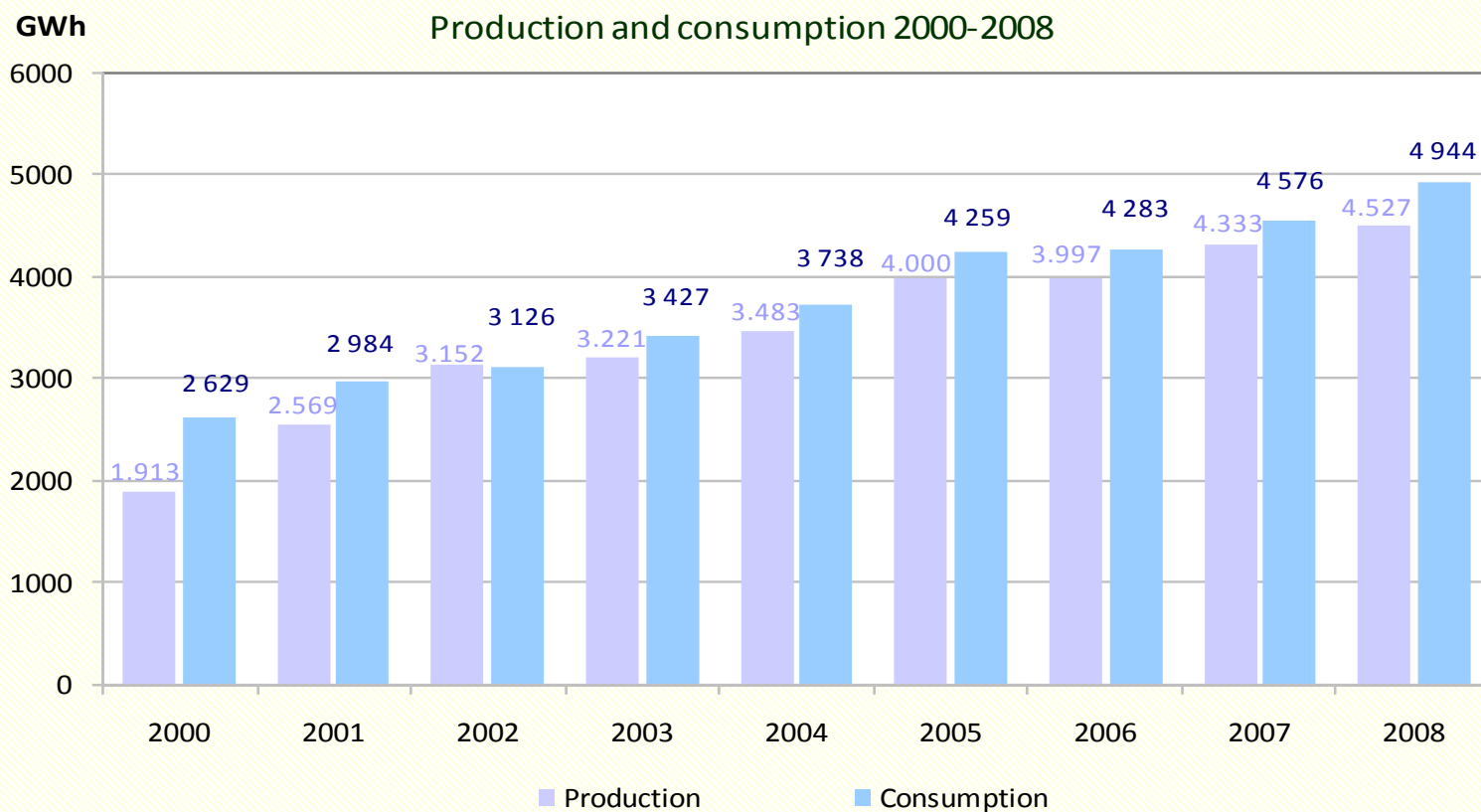
Capacities and Generation

- Thermo capacities 96.92 %,
- Thermo production 98.33 %
- Hydro capacities 3.08 %,
- Hydro production 1.67 %

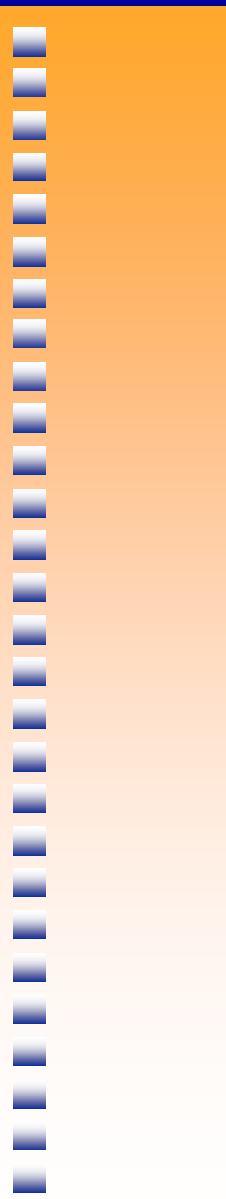




Production and consumption 2000-2008



Production and consumption 2008



➤ Production of electricity	4,526.7 GWh
➤ Net Import	413 GWh
➤ Imp. vs Net Prod.	9.12 %
➤ Consumption	4 944 GWh
➤ Load shedding	787 GWh
➤ L.Shed. Vs Cons.	15.53 %
➤ Peak demand	967 MW
➤ Min demand	143 MW
➤ Av. Max / Av. Min Demand	1.77

Tariff types

Different categories of regulated prices:

- Seasonal tariff
 - High season
 - Low season
- Tariff
 - High tariff
 - Low tariff
- Categories (voltage level, industrial, commercial and domestic)
- Blocks
 - < 200 kW/month
 - 201 – 600 kW/month
 - > 600 kW/month

Consumption by categories

Category	MWh	No. custom.
220 kV	390.083	1
110 kV and 220 kV	84.311	2
35 kV	41.593	26
10 kV	174.246	226
Domestic 200 kWh/month and hospitals	503.755	315.572
Domestic from (201kWh to 600kWh)/month	594.346	
Domestic above 600 kWh/month	479.798	
0.4 kV I	140.983	994
0.4 kV II	326.122	55.927
Public lightening	7.926	507
Domestic without meters	77.348	10.720
Total	2.820.511	383.974

Household consumption 59 %

Industrial and commercial 41 %



Tariff Group	Supplying Voltage level	Tariff elements	Unit	Day-time (a)	Approved 2008	
					High season	Low season
					1 October- 31 March	1 April - 30 September
0	110kV	Fixed customer's tariff	€/customer/year		981.00	
		Engaged power	€/kW		545.00	545.00
		Active energy (P), of which:	€/kWh	High tariff	6.33	1.87
			€/kWh	Low tariff	2.63	1.54
		Reactive Energy (Q); b)	€/kVArh		0.00	0.00
1	35kV	Fixed customer's tariff	€/customer/year		130.00	
		Engaged power	€/kW		567.00	567.00
		Active Energy (P), of which:	€/kWh	High tariff	6.62	2.87
			€/kWh	Low tariff	3.50	2.59
		Reactive Energy (Q); b)	€/kVArh		0.64	0.64
2	10kV	Fixed customer's tariff	€/customer/year		54.00	
		Engaged power	€/kW		489.00	489.00
		Active Energy (P), of which:	€/kWh	High tariff	7.42	3.31
			€/kWh	Low tariff	4.00	3.01
		Reactive Energy (Q); b)	€/kVArh		0.64	0.64
3	0.4kV Category I (big customers of reactive energy)	Fixed customer's tariff	€/customer/year		30.00	
		Engaged power	€/kW		284.00	284.00
		Active Energy (P), of which:	€/kWh	High tariff	8.24	4.58
			€/kWh	Low tariff	5.20	4.32
		Reactive Energy (Q); b)	€/kVArh		0.64	0.64
4	0.4kV Category II	Fixed customer's tariff	€/customer/year		34.00	
		Engaged power	€/kW		0.00	0.00
		Active Energy (P)	€/kWh	Tarifa e vetme	10.16	6.57
		Active Energy (P), of which:	€/kWh	High tariff	12.22	8.01
			€/kWh	Low tariff	6.11	4.00
5	0.4kV Household Meter (double Value)	Fixed customer's tariff	€/customer/year		24.00	
		Active Energy (P), for consumption:				
		<200kWh/month (1st Block) of which:	€/kWh	High tariff	4.53	3.25
			€/kWh	Low tariff	2.27	1.62
		200-600 kWh/month (2nd Block) of which:	€/kWh	High tariff	6.27	4.49
			€/kWh	Low tariff	3.14	2.25
		>600 kWh/month (3rd Block) of which:	€/kWh	High tariff	9.10	6.52
6	0.4kV Household Single Tariff meter	Fixed customer's tariff	€/customer/year		24.00	
		Active Energy (P), for consumption:				
		<200kWh/month (1st Block)	€/kWh	Single Tariff	4.04	2.89
		200-600 kWh/month (2nd Block)	€/kWh	Single Tariff	5.59	4.00
		>600 kWh/month (3rd Block)	€/kWh	Single Tariff	8.11	5.81
7	0.4kV (un-metered household)	Consumption evaluated <200kWh/month	€/customer/month		21.00	
		Consumption evaluated 200-600kWh/m.	€/customer/month		38.00	
		Consumption evaluated >600kWh/month	€/customer/month		64.00	
8	Public lighting	Fixed customer's tariff	€/customer/year		34.00	
		Active Energy (P), for consumption:	€/kWh	Single Tariff	8.21	8.21

a) High tariff is applied from 07:00 - 22:00 during the high season and from 08:00-23:00 during the low season
b) The customer is charged with reactive energy above the allowed limit, cos ? =0.95



Thank you