

Energy Demand and Supply in Albania

E R E

Current Situation and long-term planning

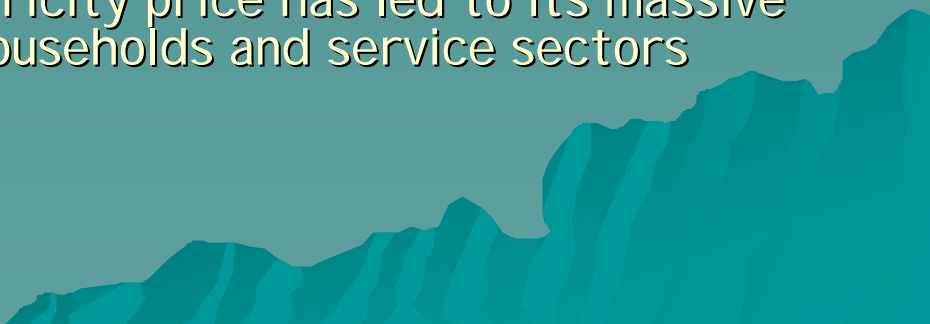
Erideta Basha, Tariff Specialist

17-21 April 2006

Content of presentation

- ◆ Energy demand management -
Current Situation
- ◆ National Energy Policy - challenges
- ◆ Annual Energy Balance
- ◆ Electricity Demand Forecast


Energy demand management - Current Situation

- ◆ Increase of electricity consumption by household consumers during the transition period – high level of non technical losses and reduction of security of supply;
 - ◆ Lack and relatively high prices of other alternative energy resources forced the consumers to focus more on the electricity use;
 - ◆ Electricity Generation is dominated by HPP while the thermal based generation has remained around 100 GWh/year;
 - ◆ Supply structure of primary energy sources is becoming less and less diversified due to the increasing role of oil, hydro and fuel woods energy supplies compared to coal and natural gas;
 - ◆ Slow liberalization process of electricity price has led to its massive use for different services in the households and service sectors (space heating and cooking);
 - ◆ Very low efficiency energy use
- 
- A stylized, layered mountain range graphic in shades of teal and blue, located in the bottom right corner of the slide.

Energy demand management - Current Situation

As a conclusion:

The last year's situation indicates that the electricity balance is very tight and Albania has become a net importer of considerable electricity quantities and in the coming years will continue to import even more to meet the demand growing until construction of new power plants

A stylized, dark teal mountain range graphic is located in the bottom right corner of the slide, extending from the right edge towards the center.

National Energy Policy – Challenges

The scope of National Energy Strategy is to develop an effective energy sector that:

- Guarantees the security of energy supply in general and electricity in particular;
- Promotes an efficient and economic use of energy, with minimal environmental impacts, in order to support the sustainable development of the whole economic sectors;

Primary Objective of the National Energy Strategy is:

Restructuring of the energy sector based on market economy principles and developing a modern energy policy

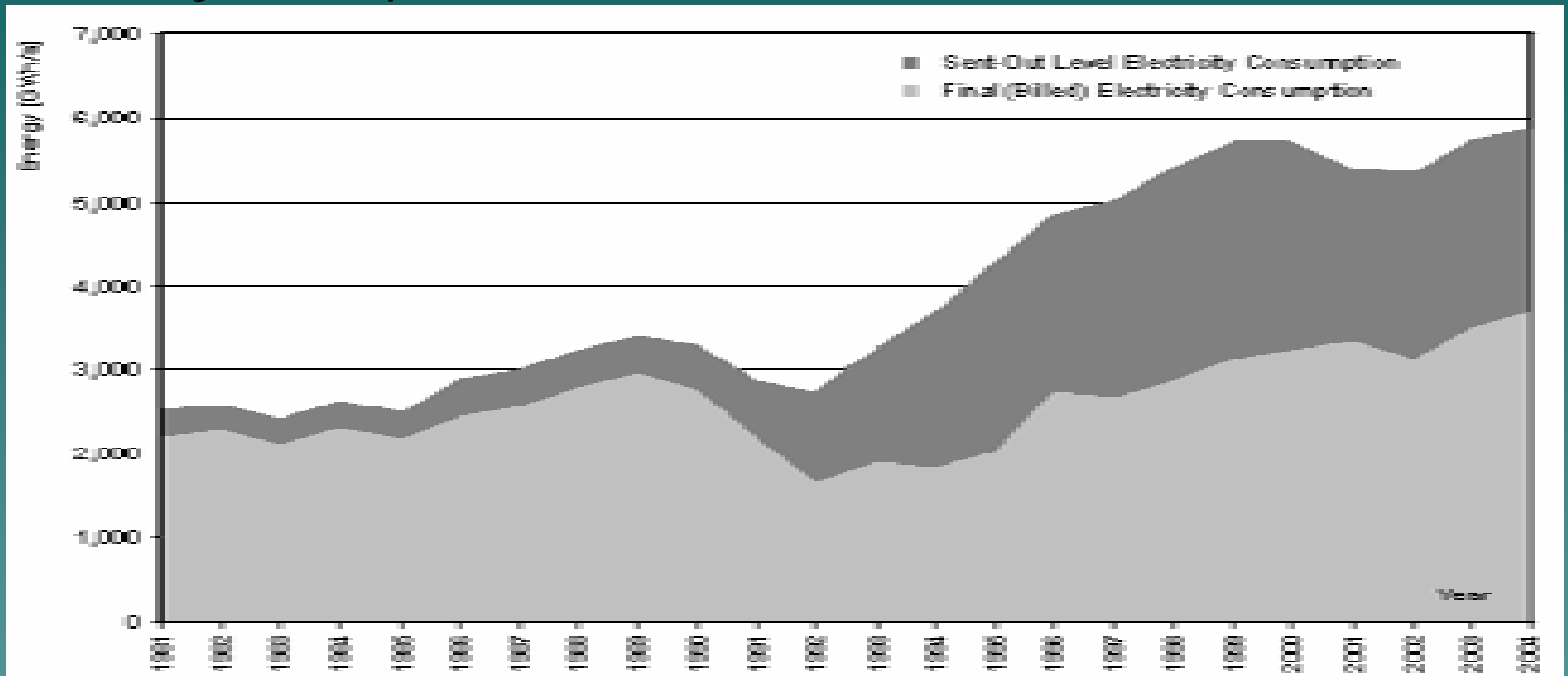
National Energy Policy – Challenges

Specific objectives of National Energy Strategy are:

- ◆ Increase the security and reliability of energy supply in general, and electricity in particular, in national and regional levels;
- ◆ Establish an efficient energy sector from the financial and technical aspects;
- ◆ Establish an effective institutional and regulatory framework and restructuring of energy companies;
- ◆ Increase the energy efficiency in generation/production and final use of energy sources aiming at a minimal environmental pollution;
- ◆ Optimization of the supply system with energy sources based on the least cost planning principle with minimal environmental pollution;
- ◆ Considerably increase investments in the energy sector through capital enhancement by International Financial Institutions as well as private capital; and
- ◆ Establish a competitive electricity market according to EU requirements for the electricity sector reforms.

Annual Energy Balance

Electricity Consumption



The final power consumption rose by an average annual growth rate of 3.8% during the 1980s. After the collapse of the communist system in 1989, a strong decrease was observed. The lowest final consumption was registered in 1992 with some 1,650 GWh/p.a, compared to 2,960 GWh/p.a in the year 1989. Not until 1999 was similar annual electricity consumption experienced as in the late eighties. From 1999 until 2004 the annual growth rate amounted to 3.2% on average.

Annual Energy Balance

Item/Year	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Billed Consumption	2,200	2,289	2,128	2,297	2,178	2,432	2,562	2,787	2,960	2,765	2,169	1,654
Consumption Sent Out	2,536	2,582	2,413	2,626	2,502	2,887	3,003	3,234	3,401	3,298	2,855	2,746

Item/Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Billed Consumption	1,908	1,838	2,024	2,751	2,677	2,855	3,138	3,231	3,348	3,130	3,497	3,677
Consumption Sent Out	3,269	3,681	4,285	4,840	5,028	5,424	5,725	5,711	5,407	5,349	5,752	5,871

All technical losses in the transmission and distribution network as well as the non-technical losses are included. Not included is the suppressed demand. The comparison over the period between 1981 and 2004 provides a significant margin, with a maximum of more than 50% in the year 1995. As illustrated in the "sent out" consumption amounted to 4,285 GWh/p.a in that year, while the billed consumption was only 2,024 GWh/p.a. Today (2005) the sum of all (non-)technical losses amounts to 2,347 GWh/p.a, this means still a high proportion with 39% of the consumption at sent out level (6,155 GWh/p.a)

Electricity Demand Forecast

Projection of Electricity Demand – Sent-Out and Final (2004-2015)

		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Electricity Demand Sent-Out-Level													
Electricity Demand*	GWh/a	6,427	6,640	6,760	7,045	7,363	7,681	8,000	8,441	8,809	9,190	9,584	9,983
T&D Technical Losses	GWh/a	1,405	1,461	1,354	1,298	1,281	1,177	1,069	1,052	1,035	1,018	1,002	986
Transmission Losses**	GWh/a	338	367	360	351	342	333	323	304	287	270	255	240
Distribution Losses	GWh/a	1,067	1,094	994	947	939	844	746	746	746	746	746	746
Non Technical Losses	GWh/a	789	661	601	572	567	510	451	445	444	459	480	499
Suppressed Demand	GWh/a	556	340	460	370	-	-	-	-	-	-	-	-
Final Electricity Demand													
Billed Consumption	GWh/a	3,677	4,178	4,345	4,805	5,515	5,994	6,490	6,944	7,330	7,713	8,102	8,498
Residential Sector	GWh/a	2,234	2,293	2,448	2,625	2,795	2,996	3,204	3,409	3,613	3,819	4,026	4,232
Other Customers	GWh/a	1,443	1,885	1,897	2,180	2,720	2,998	3,276	3,535	3,718	3,894	4,075	4,266

* including suppressed demand

** including self consumption in substations

Source: JESS 03 and Action Plan 04

In 2004 it was registered by KESH with 556 GWh/p.a. In summary, the electricity demand at sent-out level is 6,427 GWh/p.a. According to projection for the following three years an average annual growth rate of 3.1% was considered in the demand forecast (at sent-out level). Between 2008 and 2012 the demand is expected to grow by 4.5% annually and then until 2015 by 4.2%.

Electricity Demand Forecast

Actual consumption figures are provided for the year 2004. The compilation considers consequently *the suppressed demand*.

Other characteristics of electricity demand presented in the table are: load profiles, (non-) technical losses,

Estimation of Suppressed Demand (2001-2003)

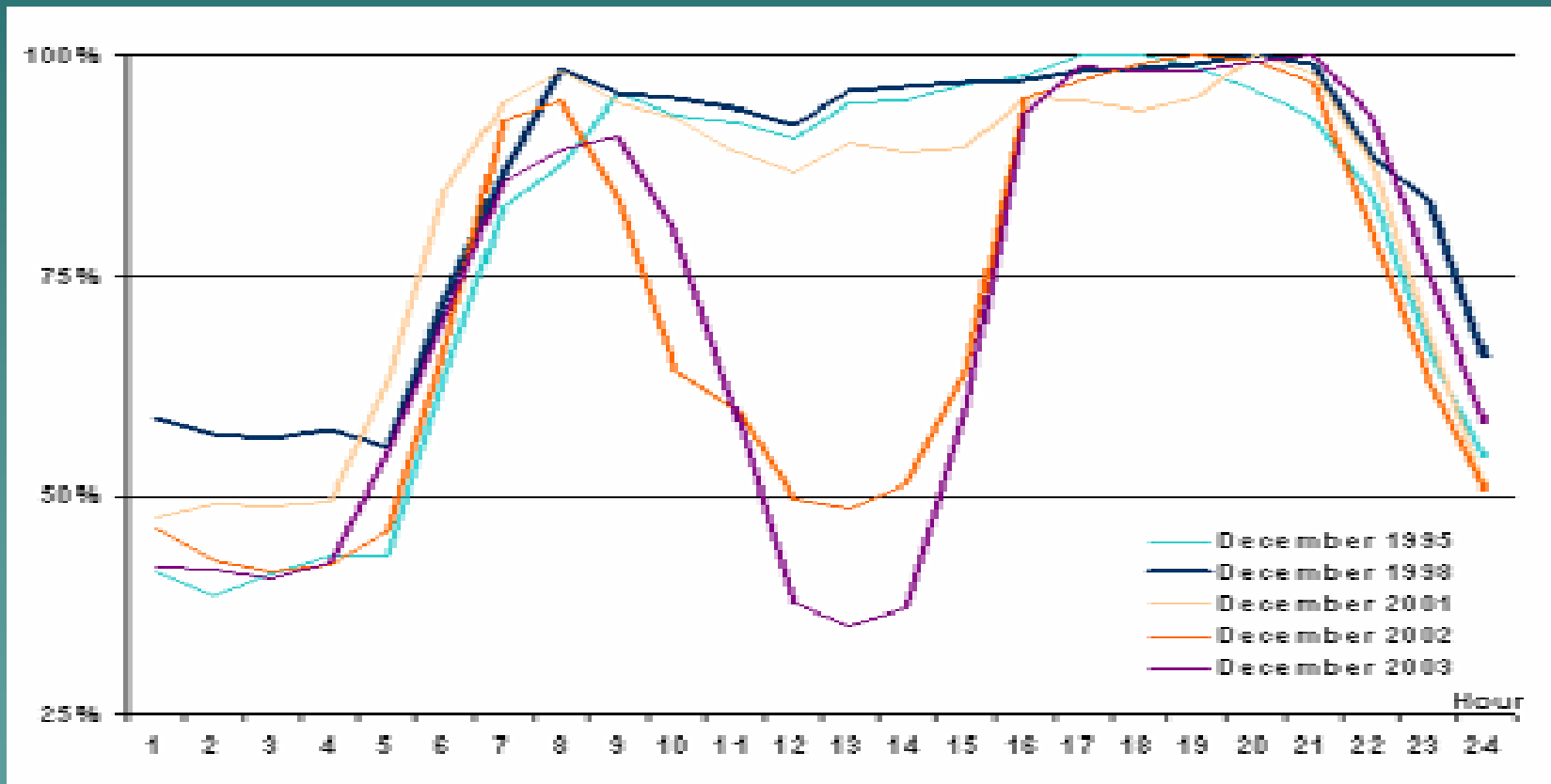
		2001	2002	2003
Actual Electricity Demand	GWh/a	5,413	5,439	5,895
Computed Electricity Demand	GWh/a	6,415	6,339	6,537
Computed Suppressed Demand	GWh/a	1,002	900	643

Load Profiles

The following figures show the daily load curves on an hourly basis. The exemplary load patterns for weekend days and working days during the winter period illustrate the changes in the characteristics of electricity demand that could be covered over the period under consideration. Massive load shedding occurred in 2001, 2002 and 2003.

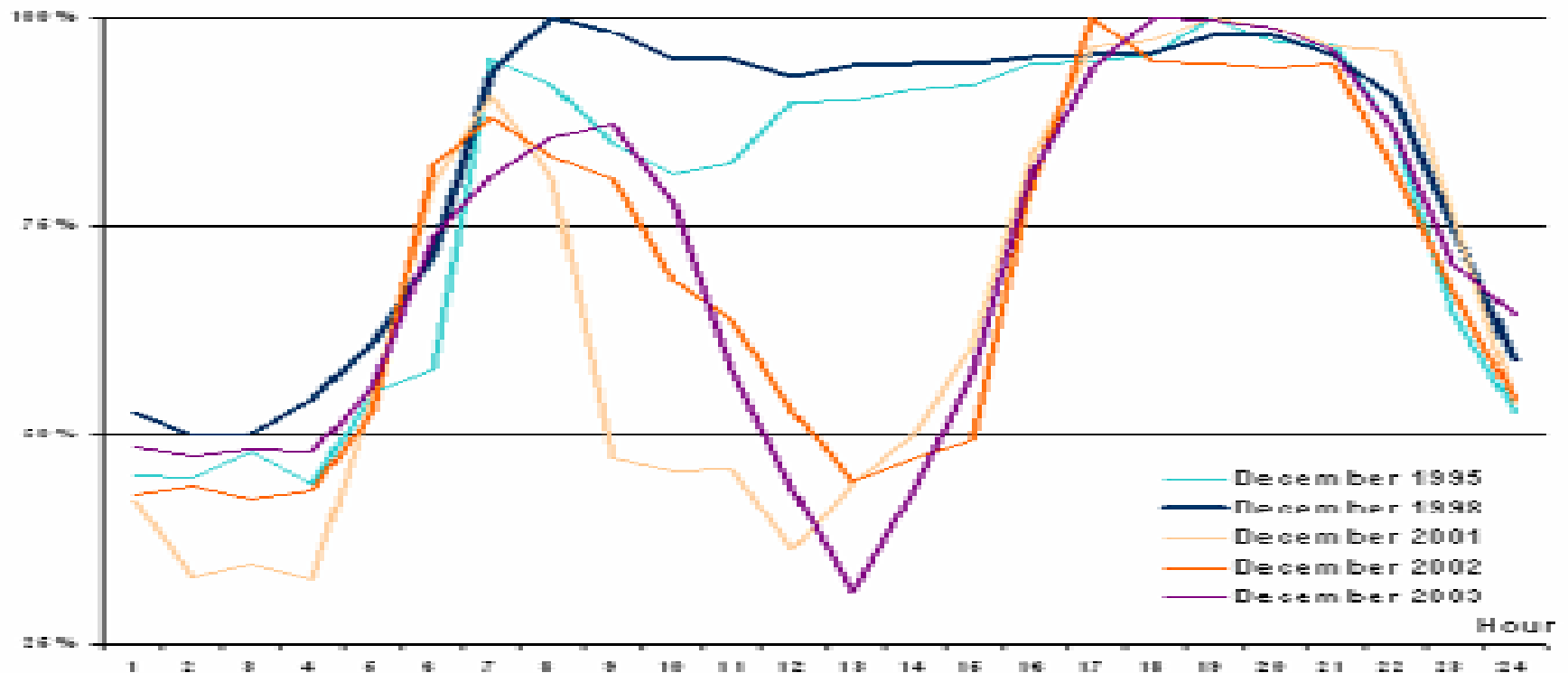
Electricity Demand Forecast

Exemplary Load Patterns (1) Holidays & (2) Working days - Winter Season



Electricity Demand Forecast

(2)



Electricity Demand Forecast

Technical Losses

Losses in distribution networks amount to more than 1,060 GWh/a in 2004 (18% of sent-out-electricity or electricity supplied to the entire network). Losses in transmission networks amounted to nearly 340 GWh/a (6%). Based on the AESS, the Albanian National Strategy of Energy envisages a reduction of transmission losses to 2% by the year 2015 (400 kV and 110 kV level). A reduction of overall technical losses to 10% is envisaged within the energy sector development according to the active scenario.

Non-Technical Losses

The amount of non-technical losses by some 789 GWh/a in 2004 (approximately 13% of sent-out) and expects a decrease to some 450 GWh/a till 2010 (5% of sent-out). Already the AESS acted on the assumption that non-technical losses will be reduced to 5% during the period of projection.