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T.C.

ENERJİ PİYASASI DÜZENLEME KURUMU

(ENERGY MARKET REGULATORY AUTHORITY)

DEMAND SIDE MANAGEMENT IN THE ELECTRICITY MARKET

(From the regulatory perspective)

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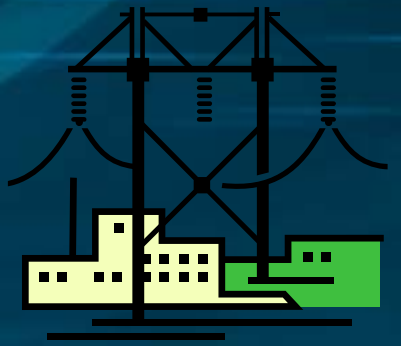


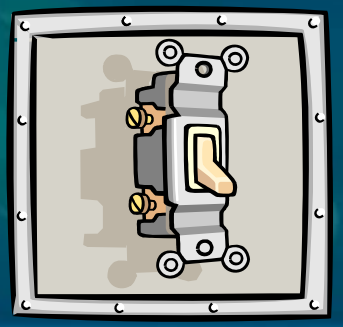
DEMAND SIDE MANAGEMENT (DSM)?

- To control and regulate the consumption pattern…
- To use system resources optimally…

- Designed under the regulation systematic…

- Applied by system operators…

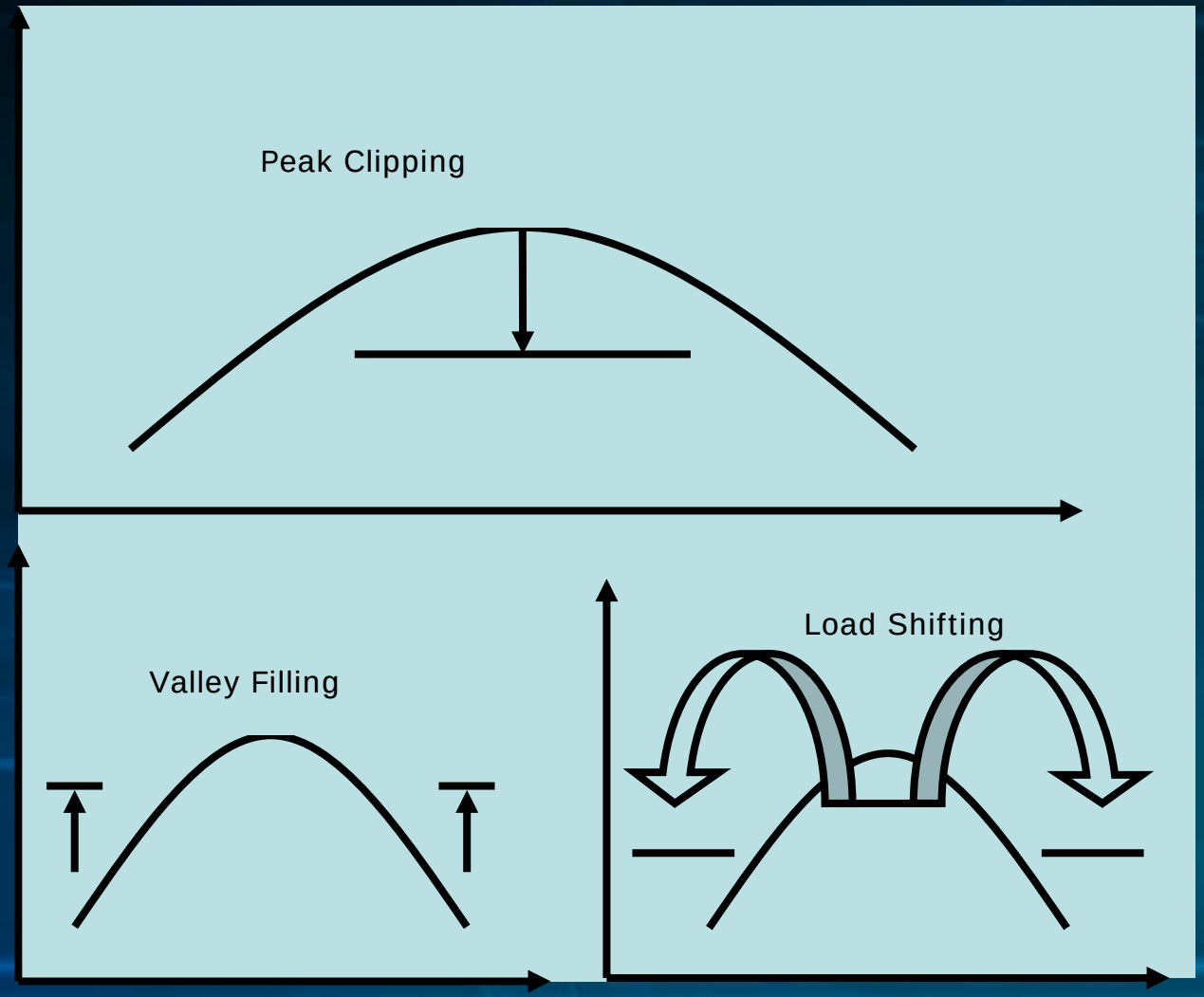
- Includes all measures managing the timing and amount of energy demand.



- Application Methods;
  - *Direct load control*
  - *Indirect load control*

  [IEEE–LMWG; 1982]

DSM ON DAILY LOAD CURVES



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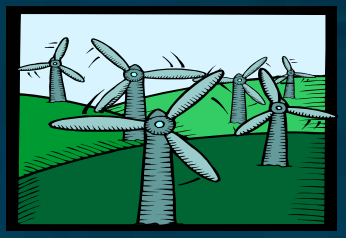
IMPORTANCE OF DSM

- Progress in technology and economy in the world;
  - Rapid growth in demand for electrical energy +
    - Difficulty in meeting the increasing demand by the supply side. ☹



- An easy way to solve;
  - More generation investment…
  - The more redundant generation units, the more cost to the consumers in the market... ☹

- In this case, the best solution;
  - By DSM, to use existing generation capacity, more efficiently... ☺ [Paracha, Z.J.; 1996]

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BENEFITS FOR THE MARKET

- Some benefits of DSM for the electricity market: [McKinsey & Company; 2001; s.2]
  - *System reliability*,
  - *Cost avoidance*,
  - *System efficiency*,
  - *Risk management*,
  - *Environmental issues*,
  - *Customer service* and
  - *Market power*.

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APPLICATIONS OF DSM

- Time of Use Tariffs:
  - To associate consumption time with the cost of energy…
- Interruptable Load Tariffs:
  - Applied to the customer shedding the load voluntearly …
  - The encouragements for the sake of shedding.

- Loss Reduction in the System:
  - Losses are removed by some preventive measures…
  - Savings,
    - Not only by reducing the losses…
    - But also, by some reductions in the investments…
    - And by increasing the system utility lifetime…

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DSM IN TURKEY

- DSM is to be a part of the energy politics…
- To be programmed in the energy investment…
- Increasing demand is met by the new generation investments…
- Neglecting the efficiency in consumption and the value obtained by consumption managements…
- To be able to meet the needs and the imperfections, in the market the policy should be carried on by;
  - Ministry,
  - Regulator,
  - Institutes and universities…
- Cooperation with the foreign foundations...

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DSM FROM SUPPLY SIDE

- In Turkey, in 2007;
  - A trouble with the matching the demand with the production capacity…
  - Urgent solution, National Demand Side Management…
  - To gain time for the new big investment…

- Otherwise; unfortunately,
  - The shortage of electrical energy supply…
  - Negative effect on restructuring the electricity market…
- For Turkey, DSM is getting more importancy in today's electricity market…

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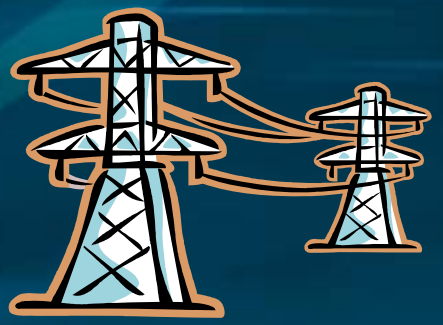
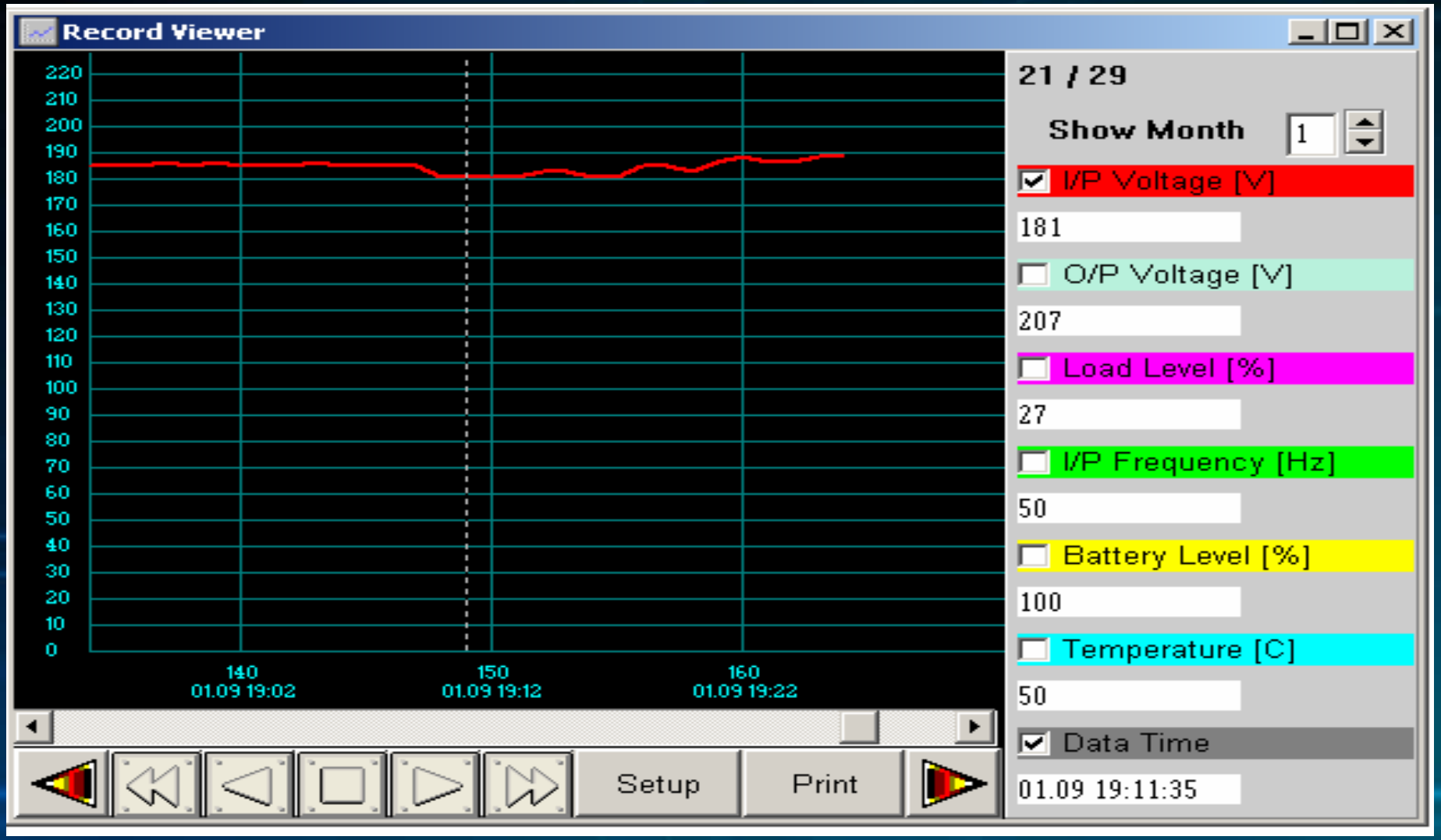
DSM FROM NETWORK

- The Necessity of DSM from the network point of view;
  - 220 V voltage level…
  - From February, 2005…
  - Until January 2006…
  - 1 year duration…



- Result;
  - Voltage decrease up to 20 %... ☹
  - In the short run, the need for the renewal of all distribution network within the country! ☹
  - Or, to overcome shortages by a central program on DSM.☺

DISTRIBUTION NETWORK VOLTAGE (KEÇİÖREN–GAZİNO, 09/01/2006)



A TARIFF APPLICATION IN TURKEY

T E D A Ş
T Ü R K İ Y E E L E K T R İ K D A Ğ I T I M A.Ş.
E L E K T R İ K E N E R J İ S İ S A T I Ş T A R İ F E L E R İ

(01 OCAK 2003 TARİHİNDEN GEÇERLİDİR)

TARİFE KATEGORİLERİ ABONE GRUPLARI		AKTİF ENERJİ (TL/kWh)	PUANT TARİFESİ (TL/kWh)			GÜÇ (TL/kW)	GÜÇ AŞIMI (TL/kW)	REAKTİF ENERJİ (TL/kVARh)
			17/22	22/06	06/17			
MESKEN	Kalkınmada 150 kWh kadar (150 kWh dahil)	121.350	183.750	62.650	109.200			
	Öncelikli İller * 150 kWh ve üzeri	182.025	------	------	------			
	Diğer İller 150 kWh kadar (150 kWh dahil)	129.750	203.650	62.650	116.800			
	* 150 kWh ve üzeri	194.625	------	------	------			

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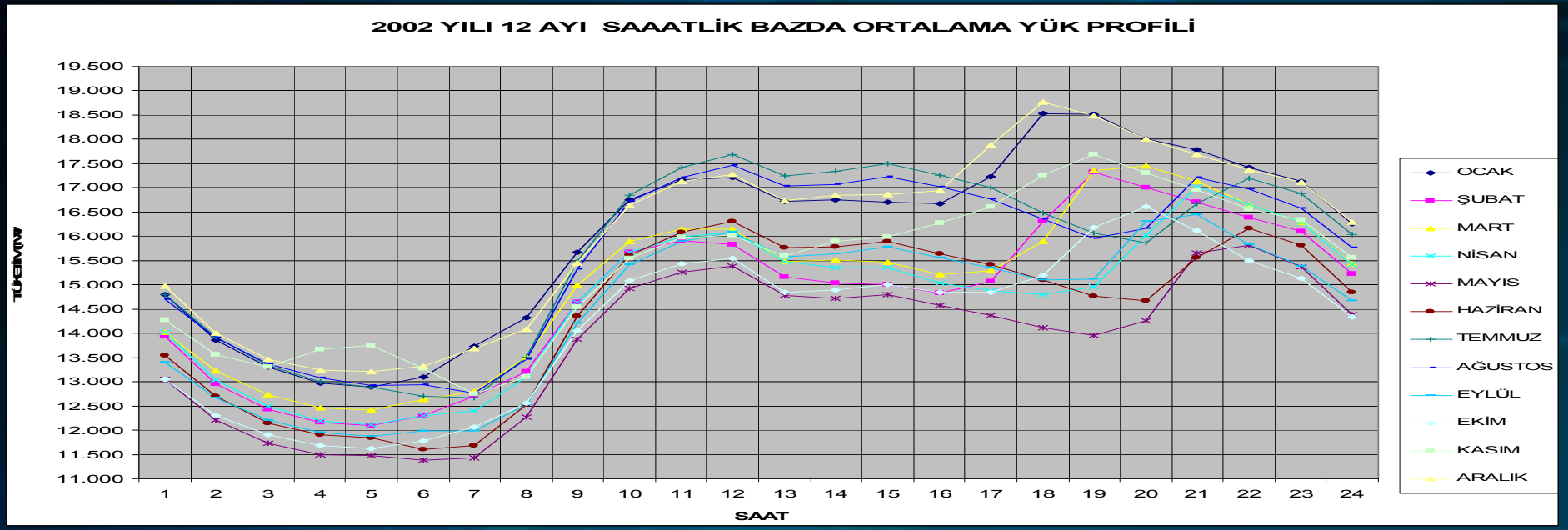
			17/22	22/06	06/17			
MESKEN	Kalkınmada 150 kWh kadar (150 kWh dahil)	119.500	181.550	61.300	107.550			
	Öncelikli İller * 150 kWh ve üzeri	179.250	------	------	------			
	Diğer İller 150 kWh kadar (150 kWh dahil)	127.800	201.350	61.300	115.000			
	* 150 kWh ve üzeri	191.700	------	------	------			

2002–2003–2004, JAN–FEB–MAR, NATIONAL LOAD STATISTICS



2002 Ocak				**2002 Şubat**				**2002 Mart**			
MİN SAATLİK PUANT :	01,01,02	08:00	10676 MW	MİN SAATLİK PUANT :	23,02,02	05:00	9398 MW	MİN SAATLİK PUANT :	11,03,02	05:00	11298 MW
MAX SAATLİK PUANT:	10,01,02	18:00	19831 MW	MAX SAATLİK PUANT:	18,02,02	19:00	18600 MW	MAX SAATLİK PUANT:	28,03,02	20:00	18851 MW
ANİ PUANT:	10,01,02	17:30	20071,9 MW	ANİ PUANT:	18,02,02	18:30	18790,4 MW	ANİ PUANT:	28,03,02	18:50	19093,1 MW
GÜNLÜK TÜKETİM:	09,01,02	GÜNÜ	404411 MWh	GÜNLÜK TÜKETİM:	20,02,02	GÜNÜ	380799 MWh	GÜNLÜK TÜKETİM:	28,03,02	GÜNÜ	389732 MWh
2003 Ocak				**2003 Şubat**				**2003 Mart**			
MİN SAATLİK PUANT :	01,01,03	08:00	11396 MW	MİN SAATLİK PUANT :	12,02,03	04:00	10392 MW	MİN SAATLİK PUANT :	31,03,03	04:00	12620 MW
MAX SAATLİK PUANT:	27,01,03	19:00	20186 MW	MAX SAATLİK PUANT:	25,02,03	19:00	20232 MW	MAX SAATLİK PUANT:	04,03,03	19:00	20056 MW
ANİ PUANT:	27,01,03	17:40	20617,9 MW	ANİ PUANT:	03,02,03	18:00	20418,5 MW	ANİ PUANT:	04,03,03	18:10	20307,4 MW
GÜNLÜK TÜKETİM:	22,01,03	GÜNÜ	415400 MWh	GÜNLÜK TÜKETİM:	26,02,03	GÜNÜ	423987 MWh	GÜNLÜK TÜKETİM:	05,03,03	GÜNÜ	415226 MWh
2004 Ocak				**2004 Şubat**				**2004 Mart**			
MİN SAATLİK PUANT :	23,01,04	05:00	10971 MW	MİN SAATLİK PUANT :	02,02,04	06:00	10380 MW	MİN SAATLİK PUANT :	28,03,04	09:00	11851 MW
MAX SAATLİK PUANT:	09,01,04	18:00	21799 MW	MAX SAATLİK PUANT:	23,02,04	19:00	21053 MW	MAX SAATLİK PUANT:	11,03,04	19:00	20547 MW
ANİ PUANT:	09,01,04	17:30	21956,7 MW	ANİ PUANT:	23,02,04	18:00	21256,6 MW	ANİ PUANT:	09,03,04	18:40	20806,7 MW
GÜNLÜK TÜKETİM:	09,01,04	GÜNÜ	444039 MWh	GÜNLÜK TÜKETİM:	17,02,04	GÜNÜ	437814 MWh	GÜNLÜK TÜKETİM:	11,03,04	GÜNÜ	428242 MWh

BASIC PRINCIPALS OF DSM

- Awareness and participation of the consumers,
- Be fair within the participants,
- Strong and stable market,
- Negotiable metering contract,
- Right timing in the contract,
- Evenly distributed value added.

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QUESTIONS

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