



KINGDOM OF MOROCCO

**Ministry of Energy, Mining,  
Water and Environment**



## MOROCCAN ENERGY SECTOR KEY STATISTICS

2009

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## I – GENERAL DATA:

### I-1 Energy sector Contribution to Moroccan economy

	2002	2003	2004	2005	2006	2007	2008	2009
<b>GDP</b>	7%	7%	7%	7%	7%	<b>7%</b>	<b>7%</b>	<b>7%</b>
<b>Tax revenues</b> (Billions dirhams)	12	12	12,5	12,5	12,5	<b>15</b>	<b>16</b>	17,3
<b>Energy bill</b> (Billions dirhams)	19,1	21,4	26,6	37,6	44,4	<b>51,8</b>	<b>69,7</b>	<b>50,6</b>
<b>Energy consumption</b> (Mtoe)	10,5	10,9	11,5	12,2	12,9	<b>13,7</b>	<b>14,8</b>	<b>15,1</b>
<b>Investments</b> (Millions dirhams)	4 675	5 085	7 281	6 192	6 774	13 878	21 544	10 018
<b>Consumption</b> (toe per capita)	0,36	0,37	0,39	0,40	0,42	<b>0,45</b>	<b>0,47</b>	<b>0,48</b>
<b>Consumption</b> (kwh per capita)	483	515	545	584	631	<b>666</b>	<b>694</b>	<b>710</b>

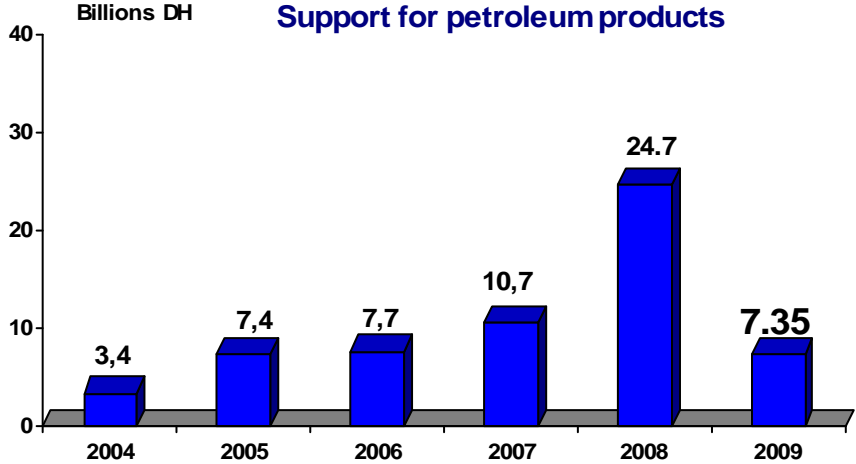
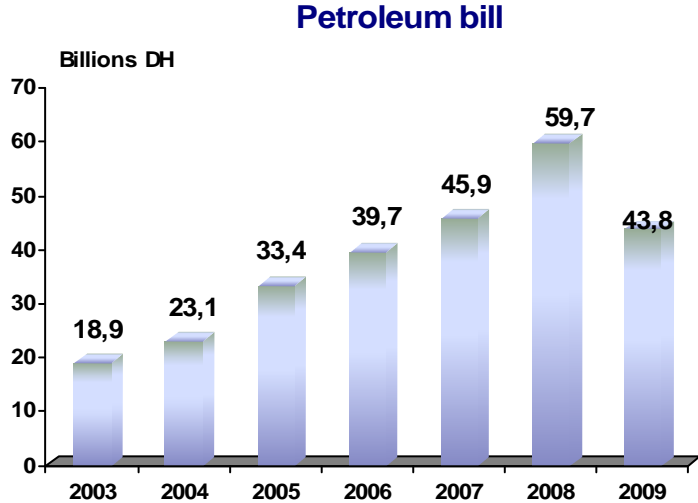
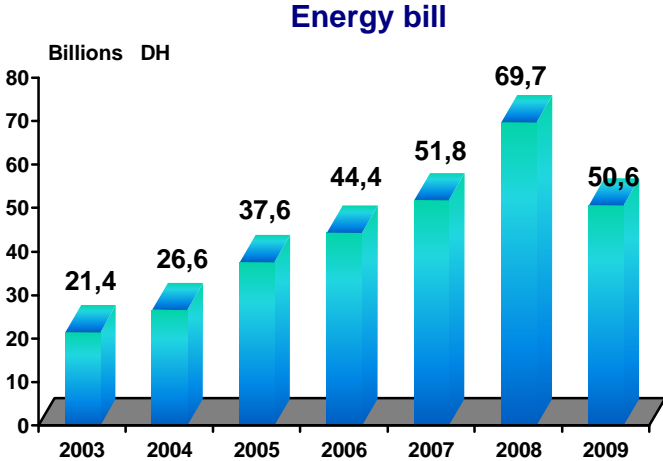
### I-2 Energy bill

	Billions DH							
	2002	2003	2004	2005	2006	2007	2008	2009
<b>Crude oil and petroleum products</b>	16,2	18,9	23,1	33,4	39,7	<b>45,9</b>	<b>59,7</b>	<b>43,8</b>
<b>Coal</b>	2,5	2,0	3,0	3,7	3,6	<b>4,3</b>	<b>6,7</b>	<b>4,5</b>
<b>Electricity</b>	0,4	0,5	0,5	0,5	1,1	<b>1,6</b>	<b>3,3</b>	<b>2,3</b>
<b>Total</b>	<b>19,1</b>	<b>21,4</b>	<b>26,6</b>	<b>37,6</b>	<b>44,4</b>	<b>51,8</b>	<b>69,7</b>	<b>50,6</b>

### Natural Gas: Transit royalties from Maghreb Europe pipeline (GME)

	2002	2003	2004	2005	2006	2007	2008	2009
<b>Millions Nm<sup>3</sup></b>	613	611	692	897	785	<b>757</b>	<b>813</b>	<b>658,4</b>

**GENERAL DATA:**



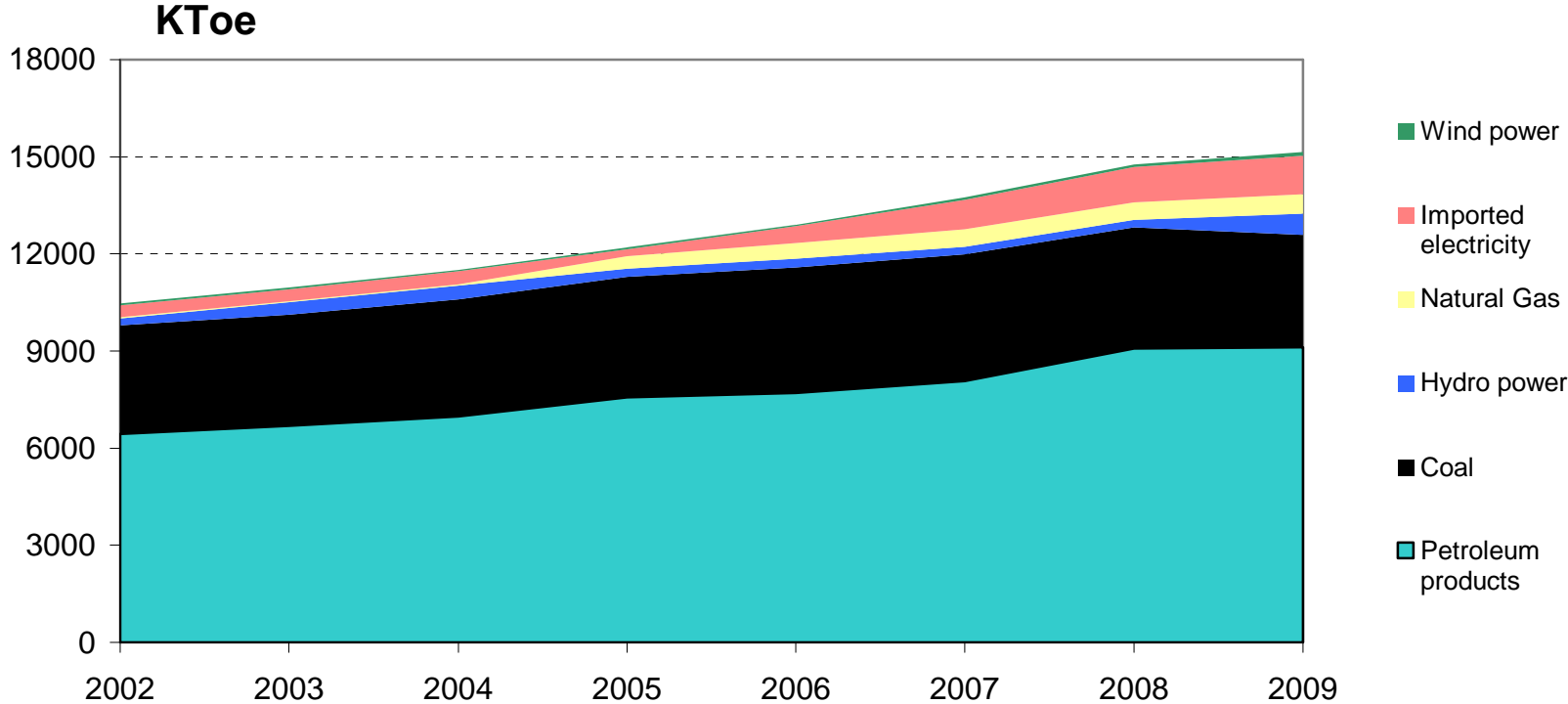
## GENERAL DATA

### I-3 Energy balance evolution

ktoe

	2002	2003	2004	2005	2006	2007	2008	2009
<b>Production</b>	<b>330</b>	<b>478</b>	<b>528</b>	<b>346</b>	<b>370</b>	<b>365</b>	374	819
Oil and Natural gas	61	57	64	45	66	60	59	49
Hydro power	219	375	414	251	256	235	238	668
Wind power	50	46	50	50	48	70	77	102
<b>Consumption</b>	<b>10 461</b>	<b>10 961</b>	<b>11 511</b>	<b>12 190</b>	<b>12 901</b>	<b>13 734</b>	14 764	15139
Petroleum products	6445	6681	6982	7582	7713	8069	9068	9106
Coal	3337	3439	3620	3716	3878	3910	3740	3475
Hydro power	219	375	414	251	256	235	238	668
Natural Gas	48	46	45	379	479	540	533	586
Imported electricity	362	374	400	212	527	910	1108	1202
Wind power	50	46	50	50	48	70	77	102
<b>Petroleum products share (%)</b>	<b>61,6</b>	<b>61</b>	<b>60,6</b>	<b>62,2</b>	<b>59,8</b>	<b>58,8</b>	61,4	60,1
<b>Dependency (%)</b>	<b>96,8</b>	<b>95,6</b>	<b>95,4</b>	<b>97,2</b>	<b>97,1</b>	<b>97,3</b>	97,5	94,6

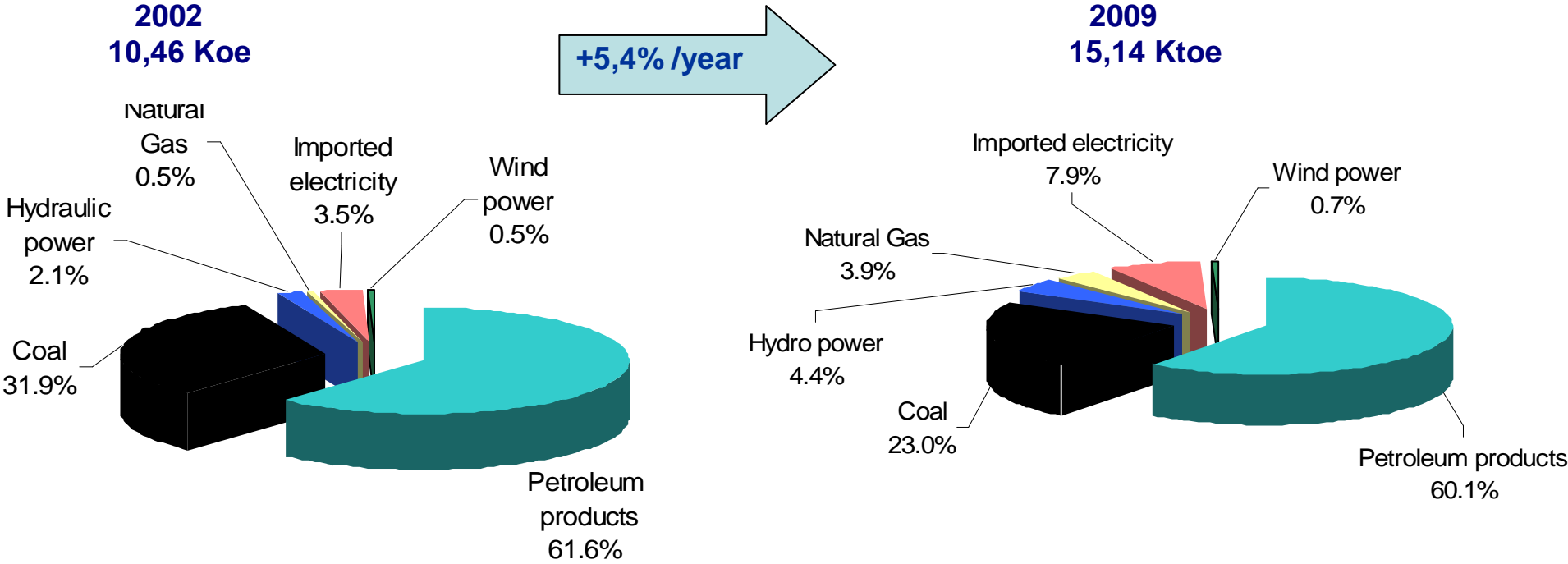
Energy balance evolution



Ktoe: 1000 Tons Oil Equivalent

**GENERAL DATA**

**Energy consumption distribution**



## II – PETROLEUM PRODUCTS

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### II-1 2009 characteristics

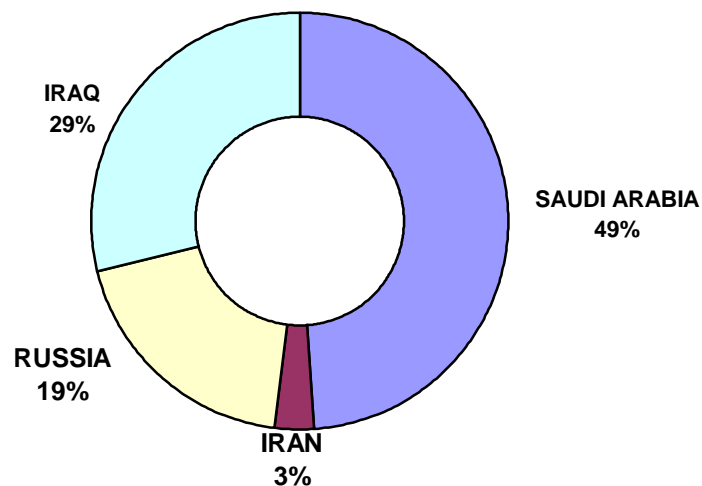
- **Petroleum products consumption : 9,1 Millions tons**
- **Production :**
  - Oil : **7 823 T**
  - Naturel Gas : **41 MNm<sup>3</sup>**
- **Petroleum bill : 43,8 Billiards of DH**
- **Maghreb Europe pipeline: capacity 12,5 Mrds m<sup>3</sup>/year- 11,25 Mrds in 2008**
- **Refining capacity: 6,5 MT/year**
- **Number of distribution companies:**
  - Liquid petroleum products : **15**
  - Liquefied Petroleum Gas: **16**
- **Number of service stations : 2253**
- **Number of LPG filling centres: 35**
- **LPG filling capacity: 1,9 MT/year (1 shift of 8 hours per day)**
- **Storage capacity (distribution companies) :**
  - Liquid petroleum products : **851 700 T**
  - Butane : **166 000 T**
  - Propane : **12 800 T**

## PETROLEUM PRODUCTS

### II-2 imports of crude oil and petroleum products (kT) 1000 tons

	2002	2003	2004	2005	2006	2007	2008	2009
CRUDE Oil	6 182	4 614	6 134	6 910	6 402	6 268	5 535	4 786
PROPANE	77	117	120	110	115	130	129	139
BUTANE	923	1 098	1 168	1 186	1 246	1 474	1465	1 674
GASOIL	381	1 585	978	997	1 312	1 813	2078	3 147
JET	144	187	100	100	95	150	120	167
FUEL OIL		28					524	493
WAX&OILS	11	86	53	8	7	6	6	31
BITUMEN		120	24		22	35	19	88
GASOLINES		242	112			58	44	223

### Crude oil imports in 2009:4786 kT



## PETROLEUM PRODUCTS

### II-3 Petroleum products exports (kTons)

	2002	2003	2004	2005	2006	2007	2008	2009
NAPHTA	596,6	522,2	612,8	689,5	493,6	602,7	462,8	328,4
Lub OIL	46,3		27,6	32,6	21,6	4,1	27,8	23,8
FUEL OIL	744,2	298,1	784,5	623,7	595,8	624,5	190,5	222,5
BITUMEN				9,0	20,1	17,0		
GASOIL					20,0	5,2	31,4	236,5

### II-4 SAMIR's refinery output (1000 Tons)

	2002	2003	2004	2005	2006	2007	2008	2009
BUTANE	190,4	63,8	91,1	161,0	150,3	134,8	124,4	71,8
REGULAR GASOLINE	76,5	58,1	49,1	12,8	any more marketed			
GREAT GASOLINE	300,0	74,0	207,8	358,9	373,2	365,2	404,3	313,2
PROPANE	41,7	3,5	13,3	42,7	41,6	35,5	46	30,6
KEROSENE	80,1	52,1	11,6	1,8	2,8	any more marketed		
JET A1	137,2	107,5	174,1	264,0	235,7	292,4	262,2	256,8
GASOIL	2323,4	1535,7	2254,2	2295,0	2032,9	1996,1	1818,8	1385,4
FUEL OIL	1999,5	1747,5	2263,9	2545,1	2264,7	2269,1	1879,9	1492,2
NAPHTA	527,2	558,8	625,2	650,5	529,6	596,3	454,5	334,6

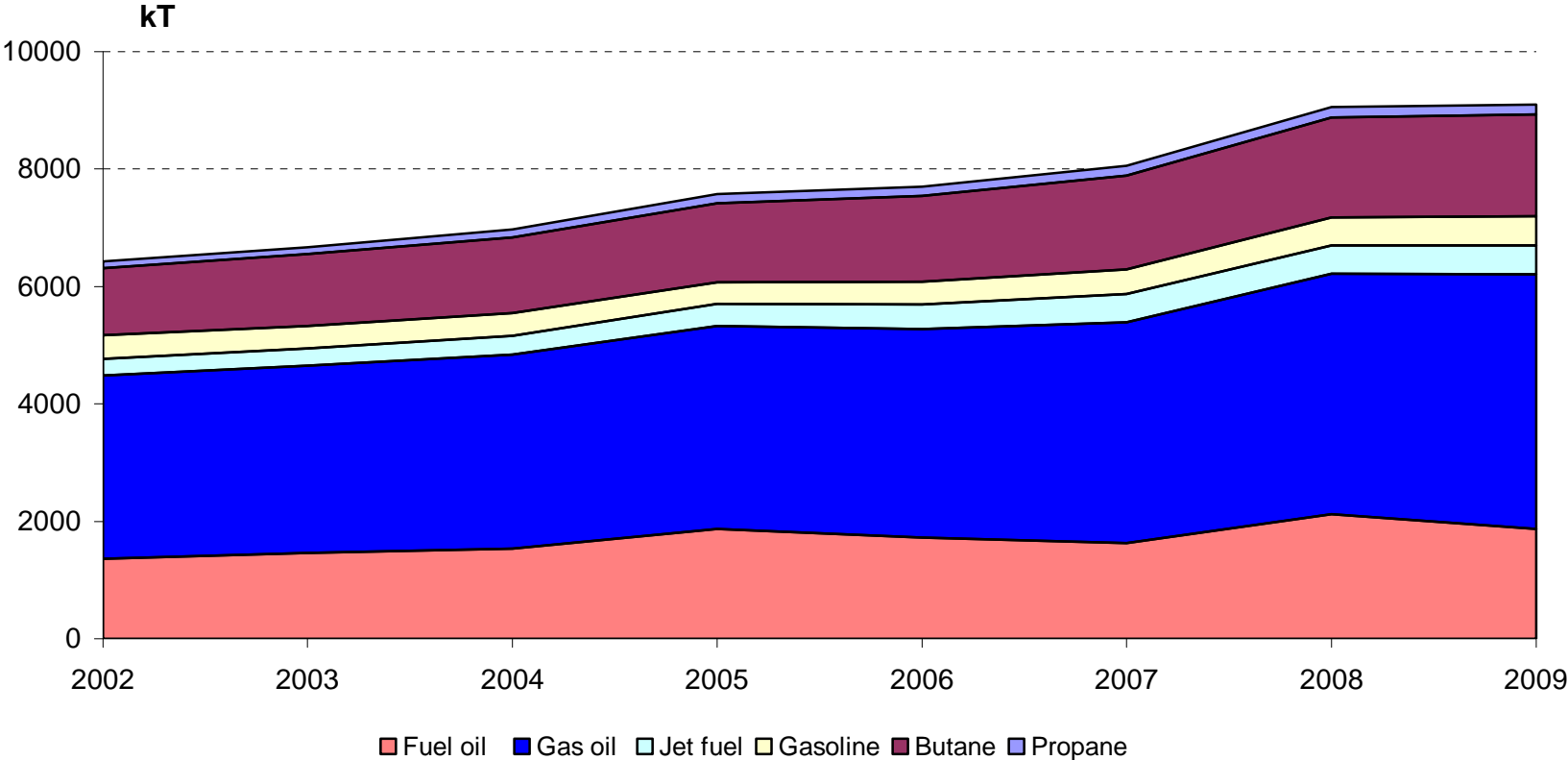
## PETROLEUM PRODUCTS

### II-5 Evolution of petroleum products consumption (1000 Tons)

Products	2002	2003	2004	2005	2006	2007	2008	2009	Variation 2009/2008 (%)
Propane	116,1	113,5	136,3	151,6	162,7	170,8	180,2	165,3	-8,3
Butane	1 144,1	1 226,0	1 287,5	1 346,5	1 453,6	1 595,6	1 698,5	1 729,4	+1,8
Gasoline	399,4	384,8	379,6	375,7	387,8	417,3	478,3	506,4	+5,9
Jet fuel	282,2	291,7	321,3	367,9	416,6	483,9	483,5	487,6	+0,8
Gas oil	3 132,5	3 184,6	3 303	3 458,2	3 554,8	3 763,3	4 101,9	4 339,1	+5,8
Fuel oil	1 354,4	1 464,3	1 539,917	1 874,018	1 727,031	1 628,32	2 116,1	1 868,5	-11,7
<b>TOTAL</b>	<b>6 428,7</b>	<b>6 664,9</b>	<b>6 967,6</b>	<b>7 573,9</b>	<b>7 702,5</b>	<b>8 059,2</b>	<b>9 058,5</b>	<b>9 096,3</b>	<b>+0,4</b>

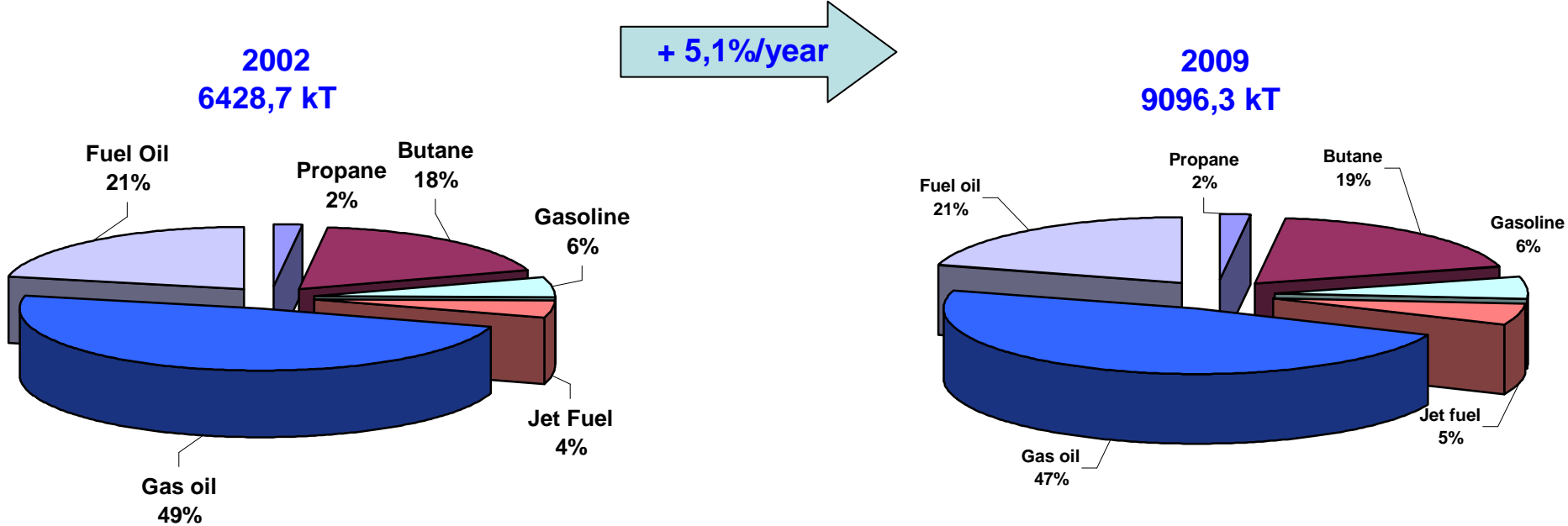
**PETROLEUM PRODUCTS**

**Petroleum products consumption evolution**



# PETROLEUM PRODUCTS

## Petroleum products consumption



### III- ELECTRICAL ENERGY

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#### III-1 2009 characteristics

- Installed power : **6 135 MW**
- Net electrical energy called: **25 TWh**
- Consumption growth : **4,2% /08**
- Maximum daily energy called : **83 576 MWh**
- Maximum power called at peak times : **4 375 MW**
- Energy exchanges (Imports -Exports) : **4 622,6 GWh**
- Electrified villages: **35 670**
- Rural electrification Rate : **96,5%**
- Solar Potential : **5 KWh/m<sup>2</sup>/day**
- Wind Potential: **6 000 MW**

## ELECTRICAL ENERGY

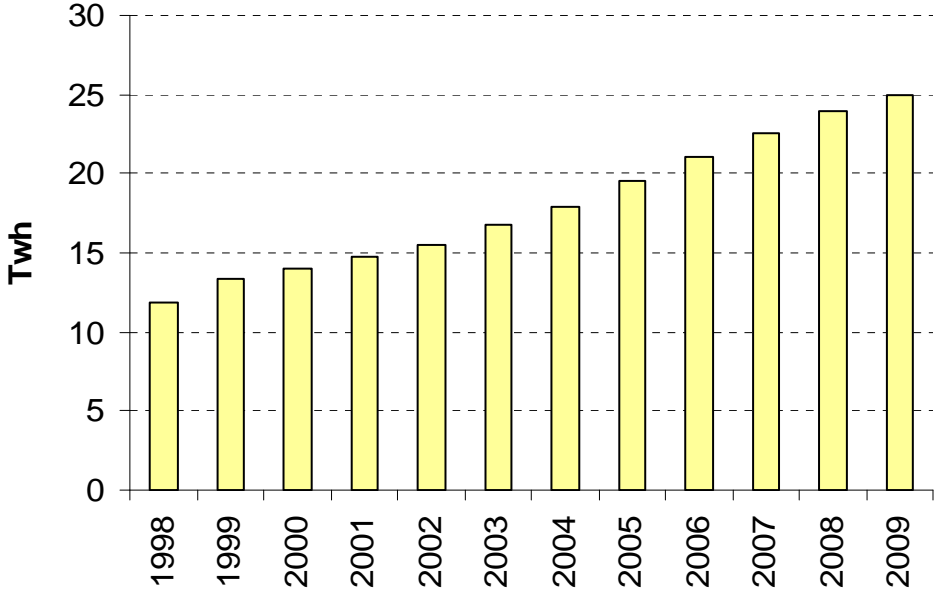
### III-2 Net electrical energy called

in GWh								
PRODUCTION ORIGIN	2002	2003	2004	2005	2006	2007	2008	2009
<b>1- ONE production</b>								
- Hydroelectricity	842,0	1 441,1	1 600,3	1 411,9	1 585,3	1 318,1	1 359,5	2952,3
of which PHS			9,0	447,3	602,5	416,3	443,7	383,8
- PHS consumption			-9,6	-496,1	-728,1	-528,7	-574,5	-504,8
- Thermal	3 680,7	4 320,6	4 648,1	5 508,7	5 068,8	5 201,8	5 758,4	4850,2
- Wind Farms	14,4	14,8	13,1	15,4	9,0	96,7	145,6	233,5
<b>Total</b>	<b>4 537,1</b>	<b>5 776,5</b>	<b>6 251,9</b>	<b>6 439,9</b>	<b>5 935,0</b>	<b>6 087,9</b>	<b>6 689,0</b>	<b>7531.2</b>
<b>2-Concessional electrical production</b>	<b>9566,4</b>	<b>9563,2</b>	<b>10122,1</b>	<b>12222,1</b>	<b>13159,2</b>	<b>13021,6</b>	<b>13042,1</b>	<b>12773,1</b>
- JLEC* (coal)	9 386,9	9 375,2	9 936,3	10 027,9	10 472,7	10 016,4	10 022,1	9771,6
- CED* (wind)	179,5	188,0	185,8	190,9	174,2	182,2	152,6	157,9
- TEE* (CCGT)				2 003,3	2 512,3	2 823,0	2 867,4	2843,6
<b>3- Energy exchanges (Imports -Exports)</b>	<b>1 392,4</b>	<b>1 437,9</b>	<b>1 534,9</b>	<b>813,7</b>	<b>2 026,8</b>	<b>3 506,5</b>	<b>4 261,4</b>	<b>4 622,6</b>
<b>4- Domestic national third parties contribution</b>	<b>84,2</b>	<b>44,9</b>	<b>76,3</b>	<b>85,5</b>	<b>39,5</b>	<b>32,5</b>	<b>40,0</b>	<b>126,1</b>
<b>5- Auxiliaries Consumption</b>	<b>-40,5</b>	<b>-43,4</b>	<b>-39,9</b>	<b>-42,8</b>	<b>-55,9</b>	<b>-40,4</b>	<b>-29,7</b>	<b>-36,7</b>
<b>Net electrical energy called</b>	<b>15 539,6</b>	<b>16 779,1</b>	<b>17 945,3</b>	<b>19 518,4</b>	<b>21 104,6</b>	<b>22 608,1</b>	<b>24 002,8</b>	<b>25 016,3</b>
<b>Evolution rate</b>		<b>8,0%</b>	<b>7,0%</b>	<b>8,8%</b>	<b>8,1%</b>	<b>7,1%</b>	<b>6,2%</b>	<b>4,2%</b>

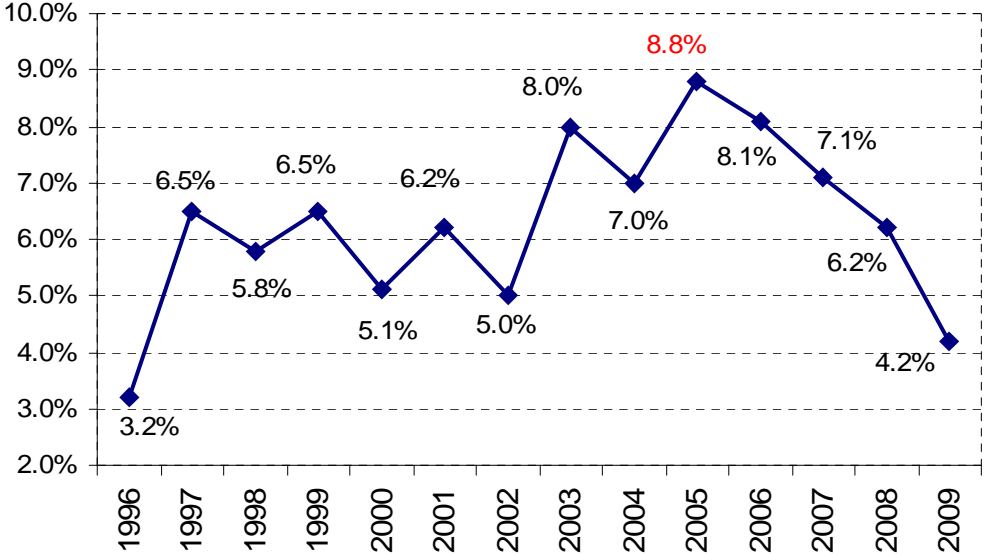
JLEC : Jorf Lasfar power plant  
 CED: Abdelhak Tores wind Farm  
 TEE : Tahadart Electrical Energy

# ELECTRICAL ENERGY

### Net electrical energy called evolution

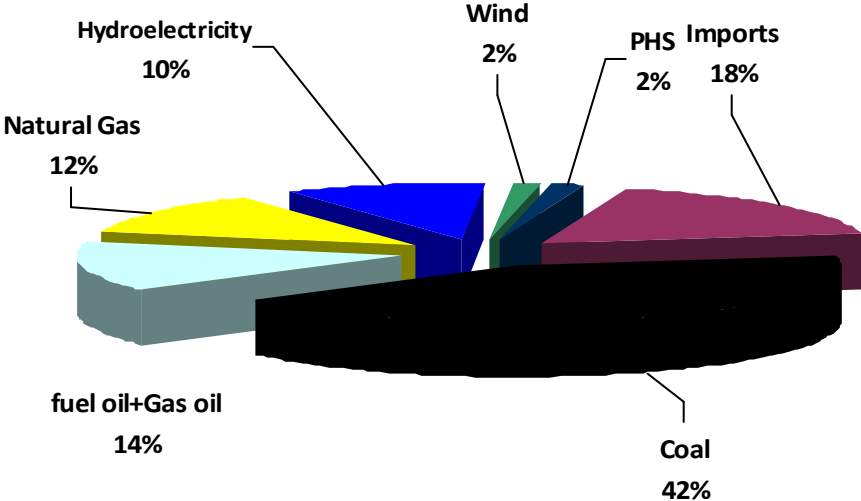


### Net electrical energy called evolution rate

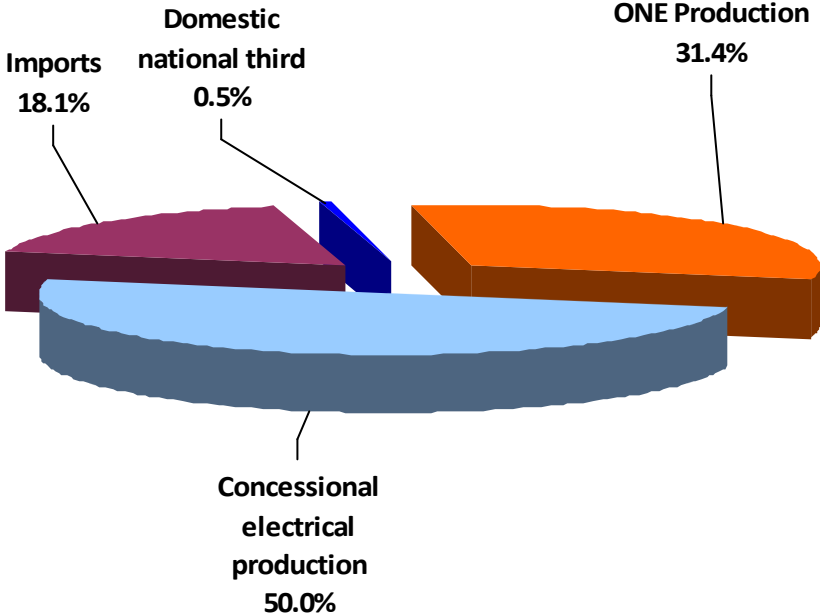


# ELECTRICAL ENERGY

Energy injected by fuel nature: year 2009



Energy injected by source: year 2009

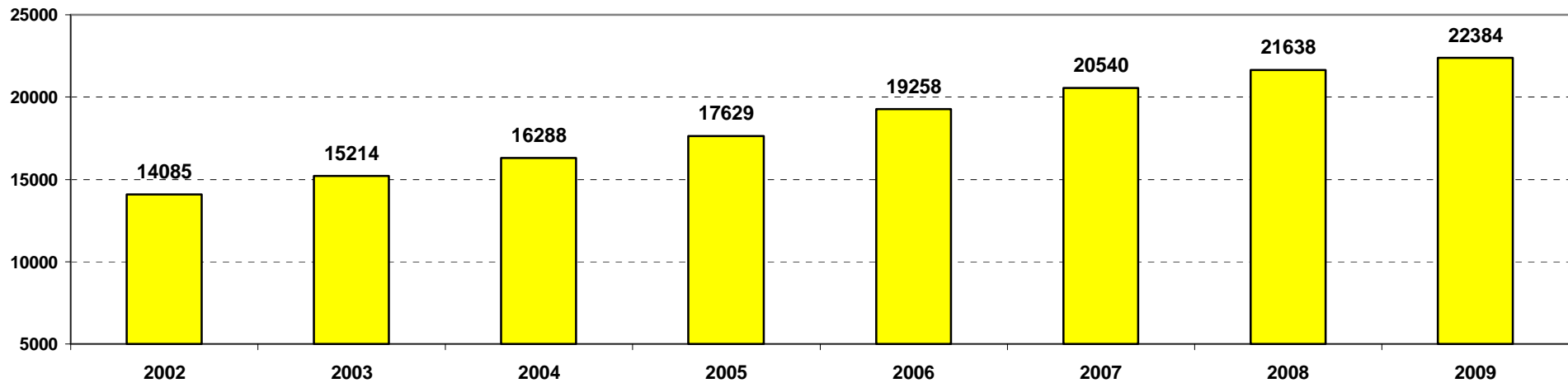


## ELECTRICAL ENERGY

### III-3 Electrical sales

(GWh)	2008	2009	2009/2008 (%)
<b>Direct customers</b>	3 502	3 384	-3.4
<b>ONE distribution</b>	8 434	8 932	+5.9
<b>Distributors</b>	9 702	10 068	+3.8
<b>Total</b>	<b>21 638</b>	<b>22 384</b>	<b>+3.4</b>

Electrical sales evolution (Gwh)



## ELECTRICAL ENERGY

### III-4 Rural Electrification

Year	NETWORK TOTAL		SOLAR TOTAL		GENERAL TOTAL		Rural Electrification Rate
	Villages	Homes	Villages	Homes	Villages	Homes	
1996	557	72 133			557	72 133	22%
1997	1 044	108 293			1 044	108 293	27%
1998	1 043	106 473	87	1 500	1 130	107 973	32%
1999	1 650	153 600	48	385	1 698	153 985	39%
2000	1 715	151 583	102	976	1 817	152 559	45%
2001	1 760	111 230	80	1 308	1 840	112 538	50%
2002	1 956	120 198	48	1 218	2 004	121 416	55%
2003	2 564	155 979	581	5 070	3 145	161 049	62%
2004	3 610	178 686	363	8 322	3 973	187 008	72%
2005	4 839	233 668	585	9 533	5 424	243 201	81%
2006	4 095	169 109	646	9 177	4 741	178 286	88%
2007	3643	161 289	623	7 230	4 266	168 519	93%
2008	2290	92802	490	6790	2780	99562	<b>95,4%</b>
2009	1 241	91 396	10	50	1 251	91 476	<b>96,5%</b>
<b>Total</b>	<b>32 007</b>	<b>1 906 439</b>	<b>3 663</b>	<b>51 559</b>	<b>35 670</b>	<b>1 957 998</b>	-

## ELECTRICAL ENERGY

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### Rural electrification rate

