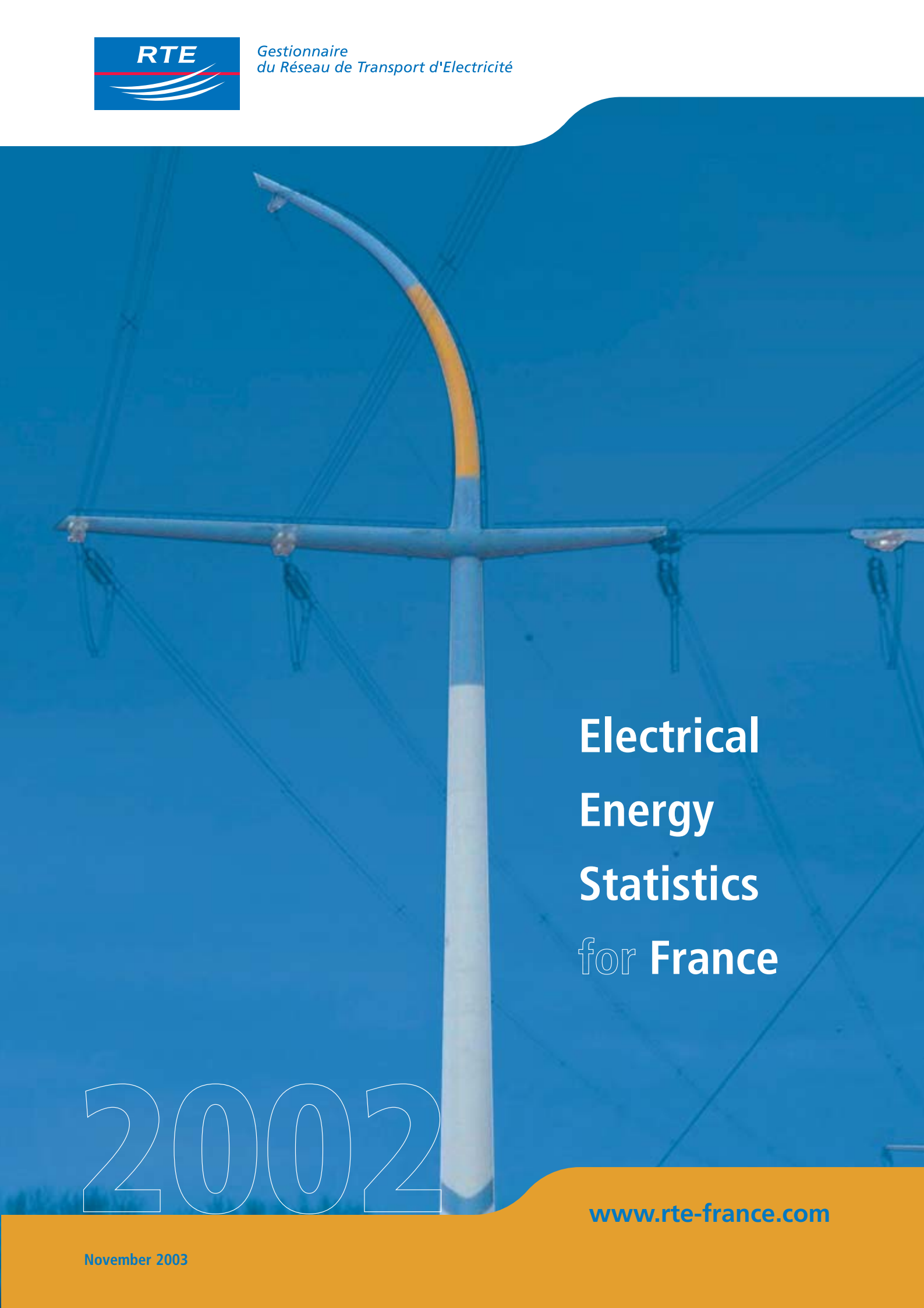




Gestionnaire
du Réseau de Transport d'Électricité

The background of the cover is a photograph of a high-voltage power line tower, viewed from a low angle looking up. The tower is a light grey color with a prominent yellow band around its upper section. It is surrounded by a network of power lines stretching across the sky. The entire image is overlaid with a semi-transparent blue filter. The text 'Electrical Energy Statistics for France' is printed in white, bold, sans-serif font on the right side of the image.

**Electrical
Energy
Statistics
for France**

2002

www.rte-france.com

November 2003

Electrical energy statistics for France

Main aspects

In 2002, **NATIONAL ELECTRICAL CONSUMPTION** reached 449.9 TWh, an increase of 0.3% compared with 2001 (448.6 TWh). Adjusted for winter and summer climate contingencies, its growth rate was 0.9% compared with 2001.

Consumption by customers connected at high or medium voltage levels came to 254.2 TWh, an increase of 0.8% compared with 2001 (252.3 TWh); consumption by customers connected at low voltage levels came to 165 TWh, a decrease of 0.8% compared with 2001 (166.4 TWh).

GENERATION in France reached 534.3 TWh, an increase of 11.5 TWh or 2.2% compared with 2001 (522.8 TWh). This increase broke down between nuclear generation and conventional thermal generation.

Net nuclear generation injected, as measured by RTE, came to 415.5 TWh in 2002, an increase of 4.0% compared with 2001 (399.6 TWh).

Conventional thermal generation came to 51.1 TWh, an increase of 15.4 % compared with 2001 (44.3 TWh).

Hydro-electric generation amounted to 65.5 TWh, a fall of 15.3% compared with 2001 (77.3 TWh).

IN TERMS OF PHYSICAL EXCHANGES WITH FOREIGN COUNTRIES, France exported a net total of 77 TWh, an increase of 12.6% compared with 2001 (68.4 TWh).

CONTRACTUAL EXCHANGES WITH FOREIGN COUNTRIES, recorded by RTE, fell by 9.9 % to reach a cumulative value for exports and imports of 107.8 TWh (compared with 120 TWh in 2001).

NOTE:

The "RTE" figures included in this document reflect the physical flows conveyed on the RTE network; values prior to 2001 are determined by reconstituting records.

Information published for "France" concerns metropolitan France (Continental France and Corsica, excluding the overseas departments and territories).

RTE has been using a new normal reference temperature in its publications since 1st October 2003; this reference incorporates the results of a METEOFRACTANCE study on climate developments in France. It is applied retroactively to results after 1st January 2001.

Information sources:

RTE together with DGEMP, EDF, Local Distribution Companies, INSEE, METEOFRACTANCE, Electricity generators.

Notice to readers

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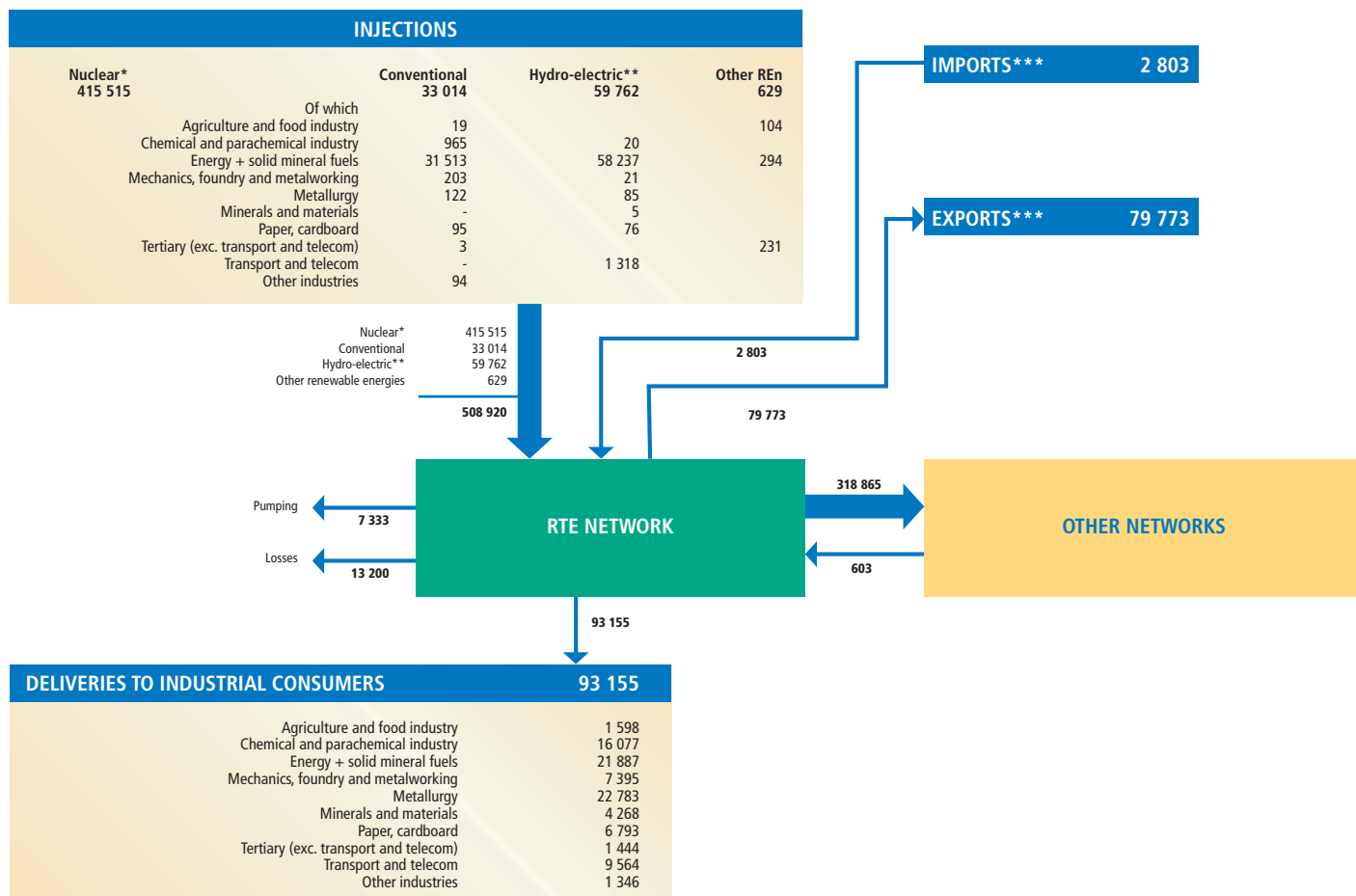
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1. General results

A Energy balance recorded by RTE

	2001	2002	Variation 2002/2001
	GWh	GWh	%
Generation injected into the RTE network	499 438	509 523	2.0
<i>nuclear*</i>	399 585	415 515	4.0
<i>conventional</i>	26 985	33 014	22.3
<i>hydro-electric**</i>	71 565	59 762	-16.5
<i>other renewable energies</i>	587	629	7.2
<i>distributor injections</i>	716	603	-15.8
Physical imports*** (1)	3 629	2 803	-22.8
Total injections	503 067	512 326	1.8
Extractions by industrial consumers	92 722	93 155	0.5
Extractions by distributors	320 303	318 865	-0.4
Physical exports*** (1)	71 864	79 773	11.0
Energy absorbed for pumping	5 694	7 333	28.8
Energy delivered	490 583	499 126	1.7
Losses on the RTE network	12 484	13 200	5.7

(1) In terms of the instantaneous balance of physical exchanges, France remained a net exporter throughout 2002; in 2001, France was a net importer over a few hourly points in December.



* Net injections measured by RTE

** Including energy produced by tidal power stations and pumping turbines

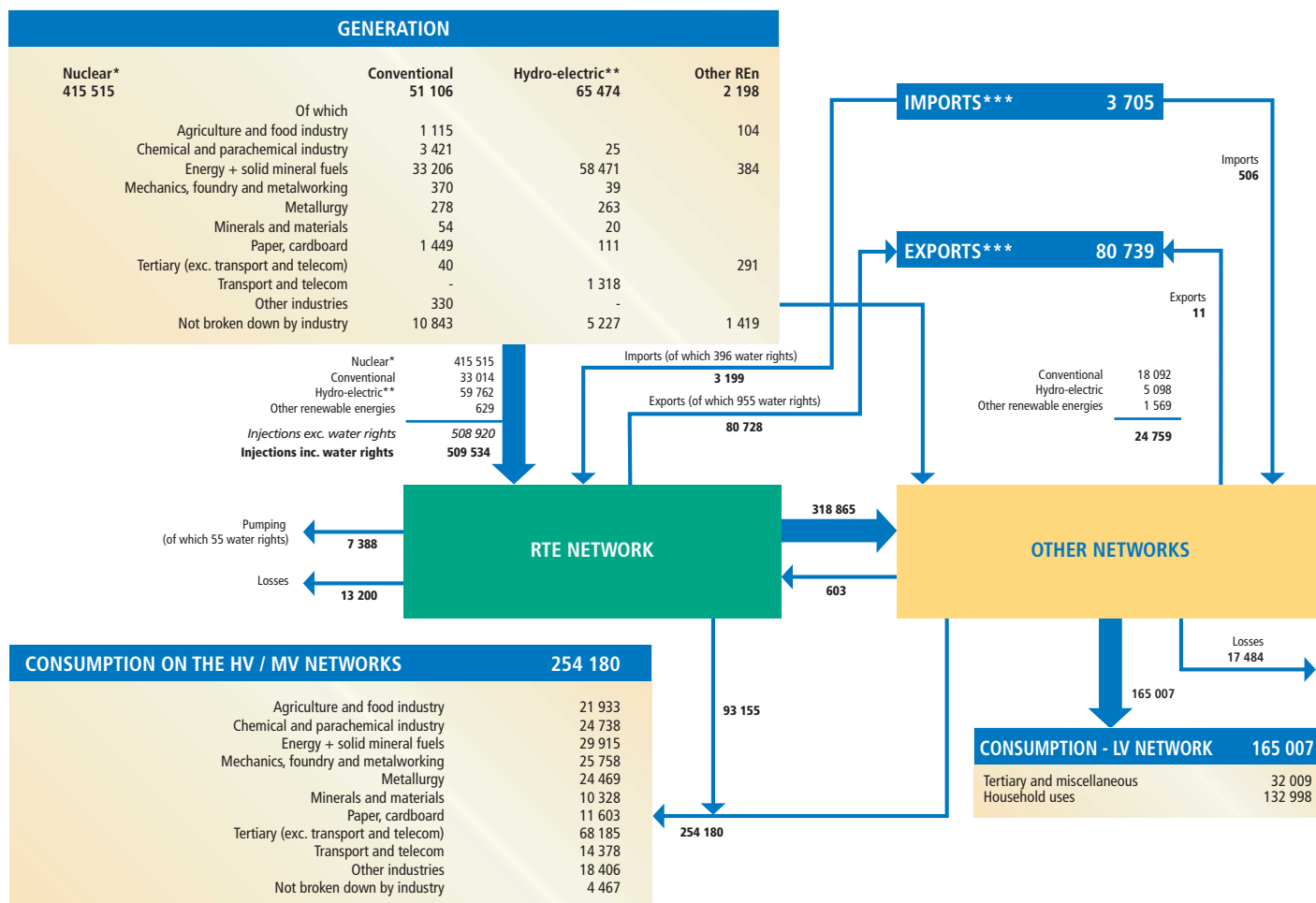
*** Excluding water rights

1. General results

B Energy balance for France

	2001	2002	Variation 2002/2001
	GWh	GWh	%
Nuclear thermal generation*	399 585	415 515	4.0
Conventional thermal generation	44 298	51 106	15.4
Hydro-electric generation**	77 323	65 474	-15.3
Other renewable energies	1 566	2 198	40.4
Total generation	522 772	534 293	2.2
Physical imports*** (1)	4 471	3 705	-17.1
Incoming energy	527 243	537 998	2.0
Energy absorbed for pumping	5 735	7 388	28.8
Physical exports*** (1)	72 861	80 739	10.8
National consumption	448 647	449 871	0.3
Consumption at high and medium voltage	252 268	254 180	0.8
Consumption at low voltage	166 354	165 007	-0.8
Net national consumption	418 622	419 187	0.1
Losses on all networks	30 025	30 684	2.2

(1) In terms of the instantaneous balance of physical exchanges, France remained a net exporter throughout 2002; in 2001, France was a net importer over a few hourly points in December.



* Net injections measured by RTE

** Including energy produced by tidal power stations and pumping turbines

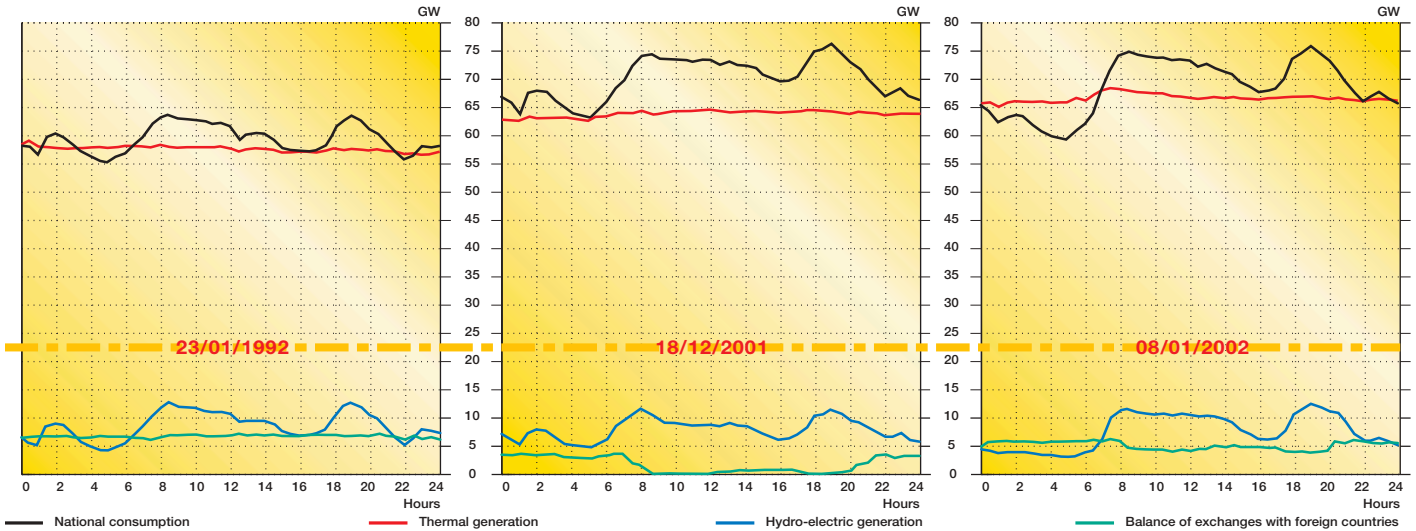
*** Excluding water rights

2 Capacities and Energy

The data included in this chapter reflect all of the flows on the RTE network, as well as the generation autoconsumed by the industrial consumers connected to this network, which accounts for 97% of national consumption.

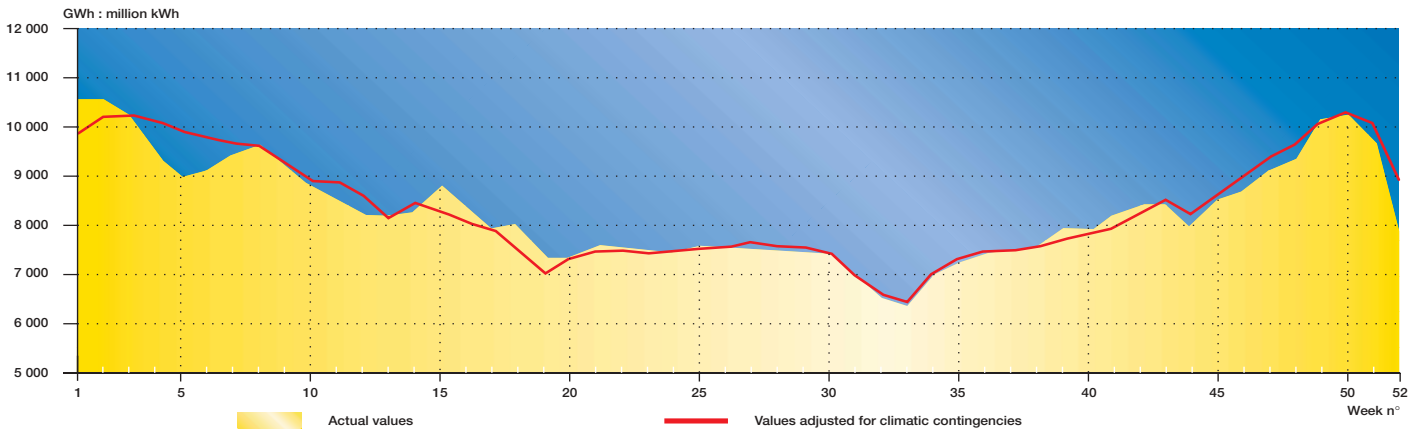
A Load diagram

The following diagrams represent capacity curves from the day on which consumption called in France was highest in energy terms, in 2002, 2001 and 1992.

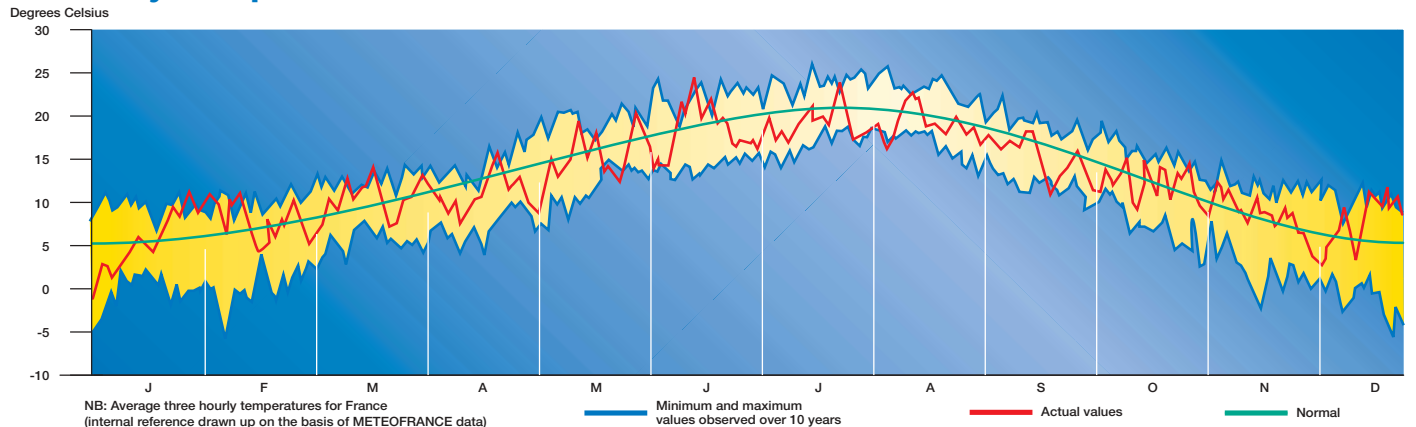


B National consumption and temperature*

B1 Weekly national consumption



B2 Daily temperature variation



* Since 1st October 2003, RTE has been using a new normal reference temperature, applied retroactively to 1st January 2001; the adjusted consumption figures take account of this change in the reference.

2 Capacities and Energy

C Daily high and low energy and capacity figures for 2002 *

C1 Maximum monthly capacity and energy figures

MONTHLY MAXIMUM VALUES	January	February	March	April	May	June	July	August	September	October	November	December
ENERGY - GWh												
Thermal generation	1 614	1 549	1 413	1 417	1 304	1 194	1 219	1 175	1 258	1 329	1 459	1 607
Hydro-electric generation	197	193	236	167	210	240	182	182	178	209	249	280
Exchanges with foreign countries	240	255	264	263	268	259	236	238	252	235	274	290
National consumption	1 649	1 476	1 396	1 327	1 234	1 157	1 166	1 106	1 217	1 305	1 414	1 625
CAPACITY - GW												
Thermal generation	68.7	66.9	60.2	61.3	58.2	52.7	54.0	52.3	54.3	57.8	65.0	69.4
Hydro-electric generation	13.5	12.8	15.1	11.6	14.4	13.6	11.9	11.3	11.5	13.7	15.8	17.0
Exchanges with foreign countries	10.8	11.2	11.7	12.3	12.3	11.6	10.5	10.4	10.9	10.7	12.6	13.3
National consumption	75.9	68.4	64.4	61.6	57.8	55.4	55.8	53.0	56.7	61.8	67.9	76.6

C2 Maximum and minimum annual capacity figures

ANNUAL HIGH AND LOW VALUES CAPACITY	Date	-	Time	GW	Variation 2002/2001 (%)	Temperature in degrees Celsius **	
						observed	deviation from normal
MAXIMUM VALUES							
Thermal generation	10/12	-	19:00	69.4	2.7	3.6	-2.1
Hydro-electric generation	18/12	-	19:00	17.0	-5.0	4.9	-0.3
Exchanges with foreign countries	22/12	-	18:30	13.3	2.3	10.8	+5.8
National consumption	10/12	-	19:00	76.6	-0.6	3.6	-2.1
MINIMUM VALUES							
Thermal generation	11/08	-	7:00	30.6	0.3	16.5	-4.0
Hydro-electric generation	21/01	-	3:30	1.7	-5.6	7.8	+2.5
Exchanges with foreign countries	04/01	-	9:00	2.3	-291.7	2.7	-2.1
National consumption	11/08	-	7:00	28.2	0.7	16.5	-4.0

C3 Maximum and minimum annual energy figures

ANNUAL HIGH AND LOW VALUES ENERGY	Date	GWh	Variation 2002/2001 (%)	Temperature in degrees Celsius **	
				observed	deviation from normal
MAXIMA					
Thermal generation	18/01	1 614	1.4	4.4	-0.8
Hydro-electric generation	18/12	280	-5.7	4.9	-0.3
Exchanges with foreign countries	14/12	290	-2.4	7.1	+1.7
National consumption	08/01	1 649	-2.1	2.4	-2.5
MINIMA					
Thermal generation	11/08	874	7.4	16.5	-4.0
Hydro-electric generation	20/01	59	-10.6	7.1	+1.9
Exchanges with foreign countries	04/01	92	268.0	2.7	-2.1
National consumption	11/08	811	-1.2	16.5	-4.0

C4 Records reached in 2002 and winter 2002/2003

National consumption records	Year 2002		Winter 2002/2003	
Maximum energy called	1 649 GWh	the 2002/01/08	1 736 GWh	the 2003/01/09
Maximum capacity called	76.6 GW	the 2002/12/10	80.2 GW	the 2003/01/08

* Maximum and minimum energy and capacity figures for a given period are not necessarily simultaneous and do not add up.

** Average three-hourly temperature for France (internal reference drawn up on the basis of METEOFRACTANCE data). Since 1st October 2003, RTE has been using a new normal reference temperature, applied retroactively to 1st January 2001; the deviation from the norm takes account of this change in the reference.

A1 National lines and cables

Status as of 31st December 2002

Normalised Voltage kV	Operating voltage range kV	Circuit length (km)			Pylon line length (km)		
		2001	2002	variation 2002/2001	2001	2002	variation 2002/2001
400	Direct Current	20 917	20 904	-13	13 201	13 140	-61
+/-270 CC		117	117	+0			
225	Direct Current	26 299	26 476	+177	21 326	21 382	+56
200 CC		160	158	-2			
150	From 100 to 75 exclusive	1 220	1 149	-71	1 199	1 124	-75
90		17 765	17 811	+46	14 366	14 388	+22
63	From 75 to 57 exclusive	39 366	39 206	-160	32 756	32 562	-194
45	From 57 to 35 exclusive	382	354	-28	280	267	-13
< 45	From 35 to 0.5 inclusive	619 800	623 600	+3 800			
Low voltage		676 600	681 200	+4 600			

Note: Normalised voltages lower than 45 kV: data partially updated since 1999

A2 Lines and cables owned by RTE *

Status as of 31st December 2002

Normalised Voltage kV	Operating voltage range kV	Circuit length (km)					Pylon line length (km)
		2001	2002	variation 2002/2001	Of which underground	Of which overhead	
400		20 877	20 866	-11	2	20 864	13 114
225		26 108	26 289	181	899	25 390	21 256
150	From 100 to 75 exclusive	1 220	1 149	-71	1	1 148	1 124
90		15 357	15 393	36	333	15 060	12 740
63	From 75 to 57 exclusive	35 715	35 642	-73	1 791	33 851	29 309
45	From 57 to 35 exclusive	298	293	-5	14	279	226
< 45	From 35 to 7 exclusive	587	570	-17	146	424	305
Total		100 162	100 202	40	3 186	97 016	78 074

* In addition, RTE owns four 270 kV direct current underground cables with a total length of 117 km (IFA 2000).

B Substations

Status as of 31st December 2002

Substations	400 kV	225 kV	150 kV	90 kV	63 kV	TOTAL
RTE-owned	127	507	24	527	1 255	2 440
All owners*	166	689	39	755	2 168	3 817

* Substations known to RTE

C Transformers owned by RTE

These include network transformers, as well as several mixed network/plant evacuation transformers, owned by RTE.

Status as of 31st December 2002

Primary voltage	Secondary voltage							Total
	225 kV	150 kV	90 kV	63 kV	45 kV	MV		
400 kV	number	208	4	34	17			263
	capacity (MVA)	105 679	2 472	7 170	3 450			118 771
225 kV	number		16	173	576	7	384	1 156
	capacity (MVA)		1 653	18 880	58 257	580	26 340	105 710
150 kV	number				35	8	2	45
	capacity (MVA)				1 331	414	78	1 823
90 kV	number				15		24	39
	capacity (MVA)				845		692	1 537
63 kV	number					11	24	35
	capacity (MVA)					458	484	942
45 kV	nombre						1	1
	capacity (MVA)						10	10

D Cross-border lines observed from the RTE network

Status as of 31st December 2002

Number	270 kV dc	400 kV	225 kV	150 kV	90 kV	63 kV	Total
All of France	4	16	12	4	2	6	44
of which							
Interconnection lines	4	16	12	3			35
Referenced by the UCTE							
Germany		4	2				6
Belgium		2	2				4
Spain		2	2	2			6
Great Britain	4						4
Italy		3	1				4
Switzerland		5	5	1			11
Other cross-border lines				1	2	6	9

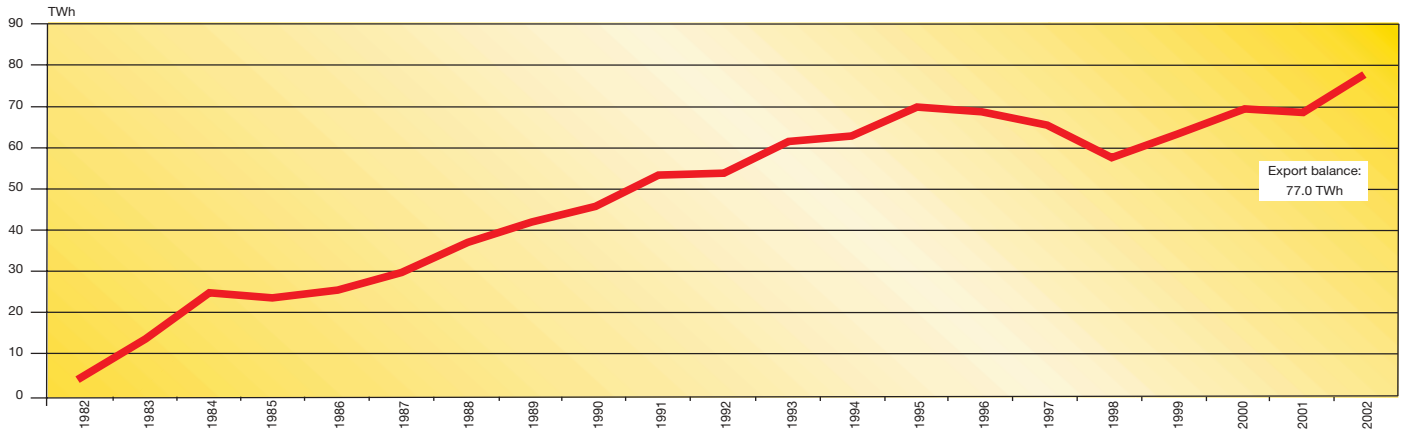
4 Exchange

A Physical exchanges of electricity with foreign countries

The exchange balance is calculated on the basis of the difference between the instantaneous value of exports and the instantaneous value of imports: a positive value corresponds to an export balance.

A1 Trend in the balance of physical exchanges - France

Global evolution



Year 2002

	Balance of exchanges FRANCE GWh	variation* 2002/2001 %	Export balance FRANCE GWh	variation* 2002/2001 %	Import balance FRANCE GWh	variation* 2002/2001 %
Total - France	77 034	12.6	77 034	12.6	0	-100.0
RTE	76 970	12.8	76 970	12.8	0	-100.0

* Reminder of 2001 results recorded by RTE: exchange balance = 68.235 GWh; export balance = 68.246 GWh; import balance = 11GWh

A2 Monthly monitoring of physical exchanges recorded by RTE in energy terms

Year 2002 - GWh

Energy	January	February	March	April	May	June	July	August	September	October	November	December	Year
Export balance France	5 244	5 527	6 961	7 026	7 241	6 177	5 595	5 658	6 272	6 160	7 488	7 621	76 970
Import balance France	0	0	0	0	0	0	0	0	0	0	0	0	0
Balance of exchanges France	5 244	5 527	6 961	7 026	7 241	6 177	5 595	5 658	6 272	6 160	7 488	7 621	76 970

A3 Monthly monitoring of physical exchanges recorded by RTE in capacity terms

Year 2002 - MW

Capacity	January	February	March	April	May	June	July	August	September	October	November	December	Year
Minimum	1 914	4 871	6 439	7 000	6 311	5 648	4 547	4 890	5 853	4 821	6 634	4 988	1 914
Median	7 255	8 229	9 291	9 807	9 771	8 551	7 267	7 544	8 660	8 415	10 402	10 475	9 045
Maximum	10 952	11 383	11 920	12 147	12 423	11 668	10 395	10 407	10 928	10 687	12 698	13 288	13 288

4 Exchange

B Contractual electricity exchanges by border recorded by RTE

BI Trend of contractual electricity exchanges recorded by RTE

GWh

Country	Imports	Variation 2002/2001 (%)	Exports	Variation 2002/2001 (%)	Cumulative total	Variation 2002/2001 (%)
Belgium	4 172	15.8	14 546	-13.2	18 718	-8.1
Germany	6 362	-30.3	10 617	-18.6	16 979	-23.4
Switzerland	4 347	-63.0	25 891	-8.0	30 238	-24.1
Italy	9	4.7	22 092	26.1	22 101	26.1
Spain	116	-89.6	8 813	34.5	8 929	16.4
Great Britain	936	245.8	9 897	-15.9	10 833	-10.0
TOTAL	15 942	-38.4	91 856	-2.0	107 798	-9.9

B2 Monthly monitoring of contractual electricity exchanges recorded by RTE in energy terms

Year 2002 - GWh

COUNTRY		January	February	March	April	May	June	July	August	September	October	November	December	Year
Belgium	Exports	1 390	1 271	1 438	1 343	1 228	1 018	1 051	1 015	1 068	1 077	1 292	1 355	14 546
	Imports	421	358	416	413	417	383	403	353	47	193	380	388	4 172
	Cumulative total	1 811	1 629	1 854	1 756	1 645	1 401	1 454	1 368	1 115	1 270	1 672	1 743	18 718
Germany	Exports	911	832	994	861	1 085	933	863	781	714	718	936	989	10 617
	Imports	1 608	1 148	584	289	349	199	313	247	250	749	336	290	6 362
	Cumulative total	2 519	1 980	1 578	1 150	1 434	1 132	1 176	1 028	964	1 467	1 272	1 279	16 979
Switzerland	Exports	2 529	2 220	2 157	2 283	2 252	2 110	1 998	2 018	2 030	2 047	2 021	2 226	25 891
	Imports	590	479	399	297	415	387	383	192	183	399	344	279	4 347
	Cumulative total	3 119	2 699	2 556	2 580	2 667	2 497	2 381	2 210	2 213	2 446	2 365	2 505	30 238
Italy	Exports	1 812	1 762	1 989	1 900	1 849	1 806	1 874	1 384	1 795	2 010	1 926	1 985	22 092
	Imports	1	0	0	0	0	2	3	1	0	2	0	0	9
	Cumulative total	1 813	1 762	1 989	1 900	1 849	1 808	1 877	1 385	1 795	2 012	1 926	1 985	22 101
Spain	Exports	618	781	869	857	557	402	740	740	745	785	934	785	8 813
	Imports	14	10	15	12	11	0	1	2	12	16	6	17	116
	Cumulative total	632	791	884	869	568	402	741	742	757	801	940	802	8 929
Great Britain	Exports	595	698	854	748	1 332	841	344	519	556	876	1 359	1 175	9 897
	Imports	58	111	8	22	0	11	269	125	230	96	1	5	936
	Cumulative total	653	809	862	770	1 332	852	613	644	786	972	1 360	1 180	10 833
TOTAL	Exports	7 855	7 564	8 301	7 992	8 303	7 110	6 870	6 457	6 908	7 513	8 468	8 515	91 856
	Imports	2 692	2 106	1 422	1 033	1 192	982	1 372	920	722	1 455	1 067	979	15 942
	Cumulative total	10 547	9 670	9 723	9 025	9 495	8 092	8 242	7 377	7 630	8 968	9 535	9 494	107 798

B3 Monthly monitoring of maximum contractual exchanges recorded by RTE in capacity terms

Year 2002 - MW

Maximum power	January	February	March	April	May	June	July	August	September	October	November	December	Year
Exports	12 998	13 262	13 203	13 044	13 364	12 495	11 816	10 777	11 115	11 714	13 313	13 807	13 807
Export balance	10 564	10 857	11 266	11 714	12 114	11 309	10 081	9 961	10 701	10 195	12 256	13 014	13 014

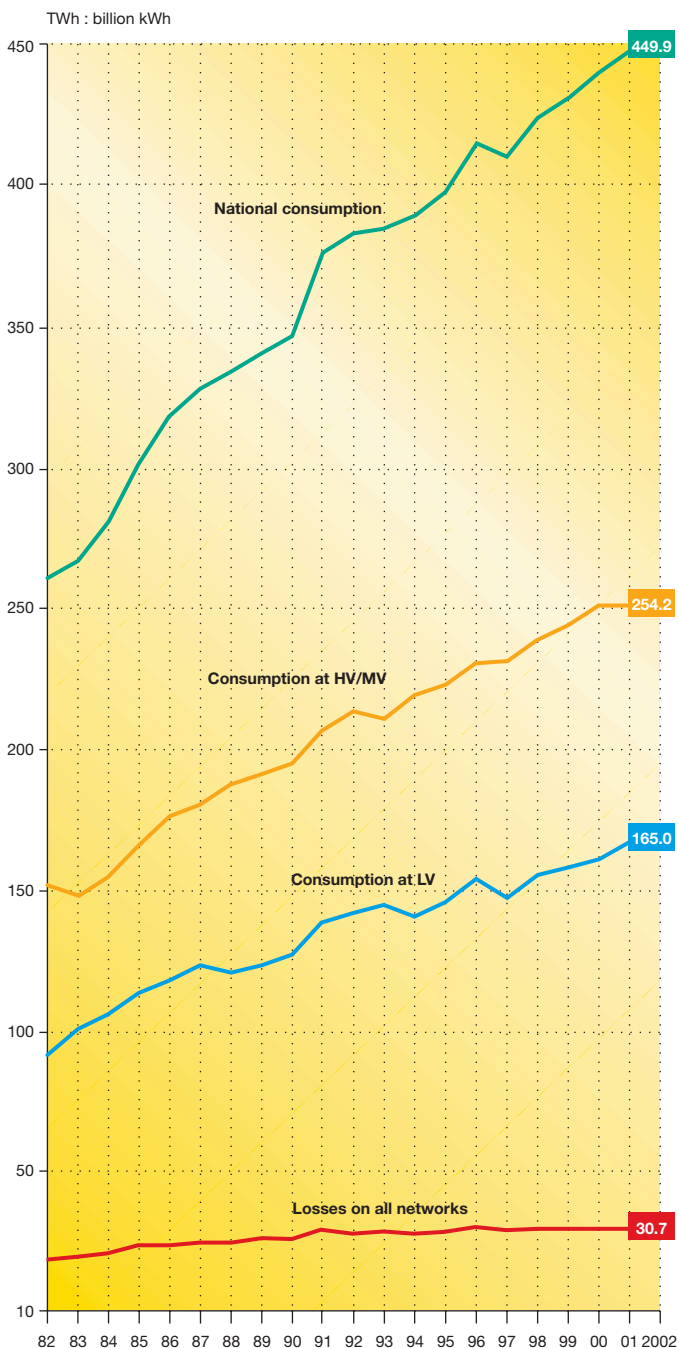
5 Consumption

A Trend of national consumption in France

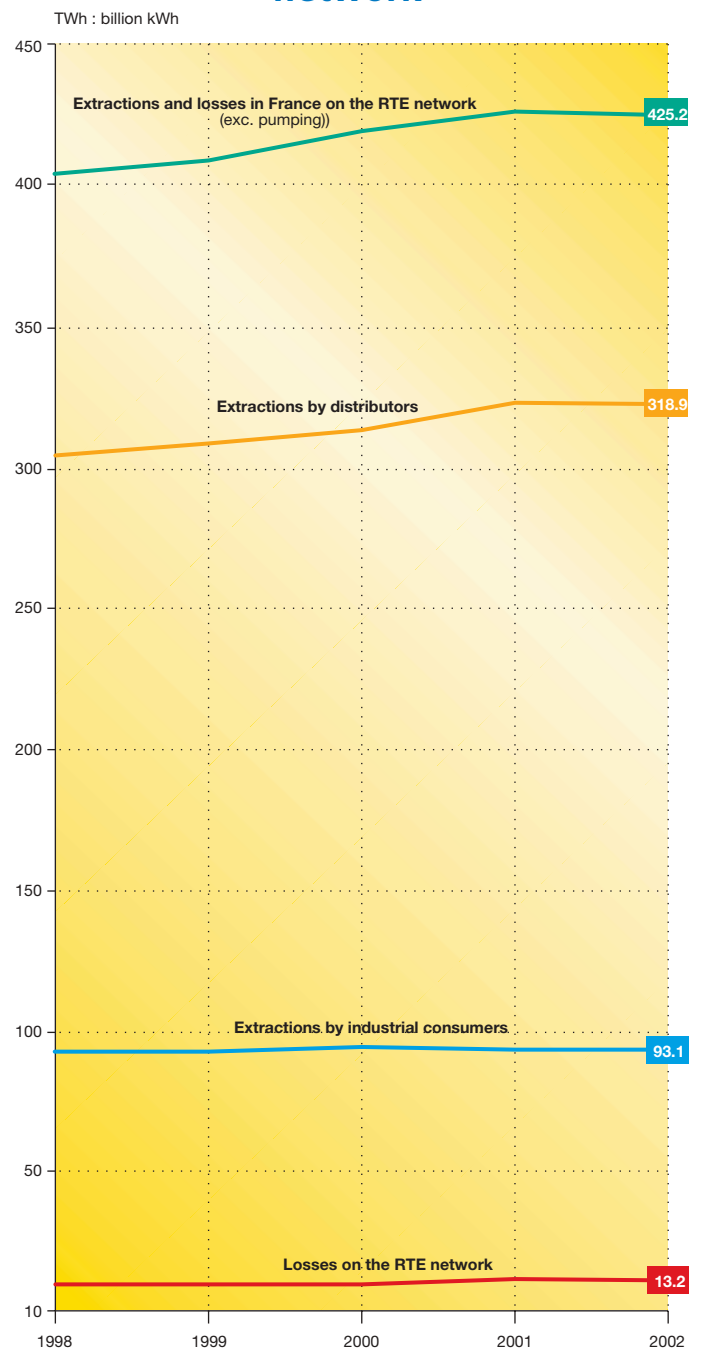
Trends	5 years (1997)		10 years (1992)		20 years (1982)	
	2002/1997	A*	2002/1992	A*	2002/1982	A*
National consumption	1.10	1.9	1.17	1.6	1.72	2.7
Consumption at HV / MV	1.10	1.9	1.19	1.8	1.67	2.6
Consumption at LV	1.12	2.3	1.16	1.5	1.81	3.0

* A: Average annual increase in %

Consumption in France



Deliveries and losses on the RTE network



5 Consumption

B Classification of industrial consumers connected to the RTE network

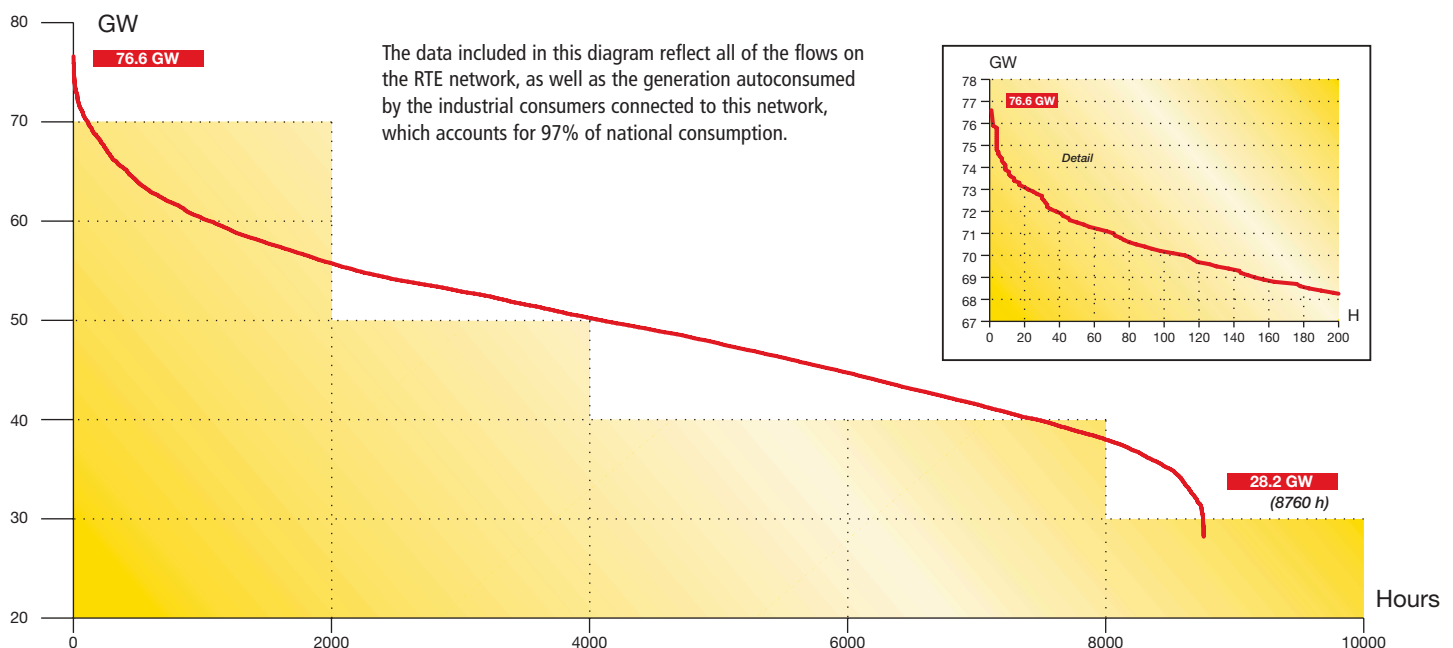
Eligibility threshold	Number	End consumption	Total energy delivered by RTE in 2002
	On 2002/12/31	GWh	GWh
100 GWh and above	188	87 363	80 468
16 GWh and above	450	100 335	92 373
9 GWh and above	485	100 763	92 796
7 GWh and above	504	100 910	92 943
TOTAL	580	101 135	93 155

Connection voltage		Total energy delivered by RTE in 2002
		GWh
HVA	1 kV < U ≤ 50 kV	1 206
HVB 1	50 kV < U ≤ 130 kV	39 714
HVB 2	130 kV < U ≤ 350 kV	51 020
HVB 3	350 kV < U ≤ 500 kV	1 215
TOTAL		93 155

C Consumption in France at HV/MV: annual breakdown per activity

ACTIVITY A.P.E. Nomenclature (NAF) NCE grouping	Energy delivered by RTE		Total consumption	
	2002	Variation 2002/2001	2002	Variation 2002/2001
	GWh	%	GWh	%
Agriculture and food industry	1 598	4.6	21 933	2.9
Chemical and paracheimical industry	16 077	-3.6	24 738	-1.5
Energy and solid mineral fuels	21 887	5.8	29 915	0.6
Mechanics, foundry and metalworking	7 395	0.2	25 758	-0.7
Metallurgy	22 783	-1.1	24 469	-1.7
Minerals and materials	4 268	-2.3	10 328	2.1
Paper Cardboard	6 793	1.5	11 603	2.1
Tertiary (exc. transport and telecom)	1 444	0.5	68 185	0.9
Transport and telecom	9 564	0.1	14 378	2.4
Other industries	1 346	0.0	18 406	-2.6
Total	93 155	0.5	249 713	
Consumption not broken down by activity			4 467	
Total consumption on HV/MV networks	93 155	0.5	254 180	0.8

D Monotone of capacity values called by national consumption in 2002

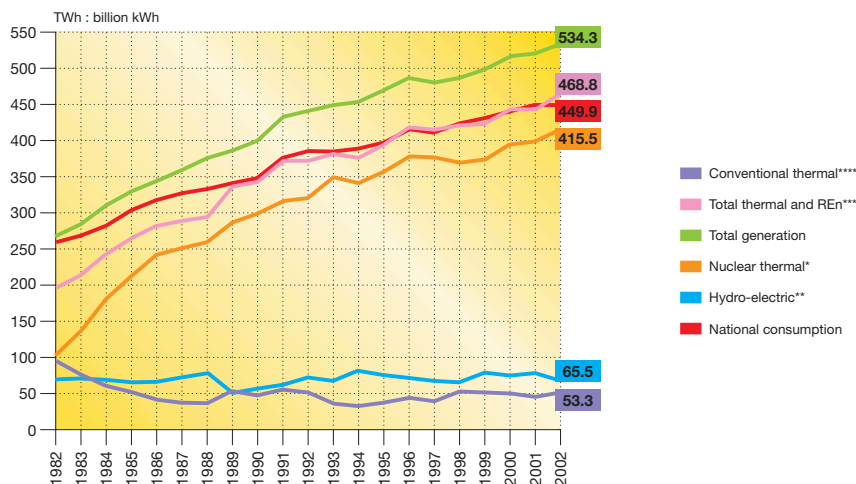


6 Generation

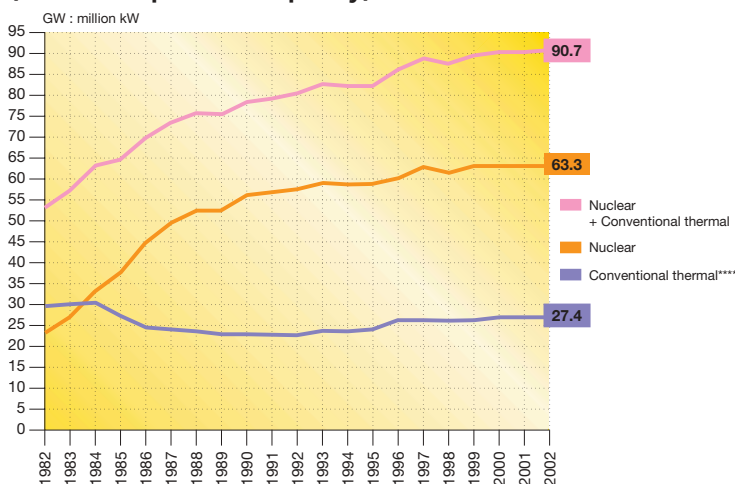
A Developments in generating resources

A1 Overall developments in France

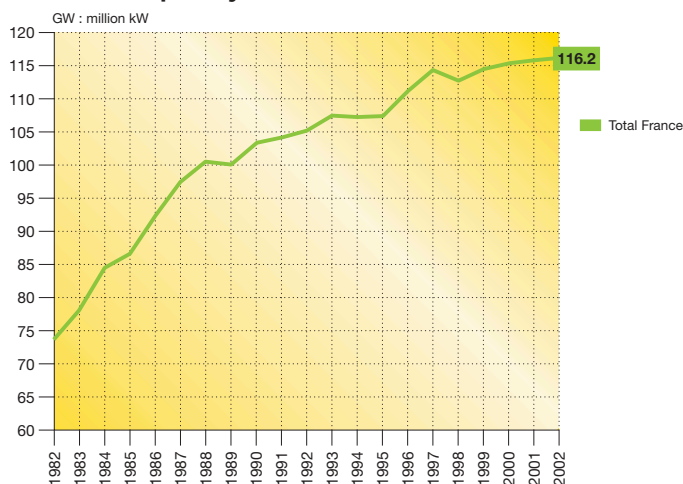
Generation



Thermal facilities (maximum possible capacity)



France facilities (Installed capacity)



A2 Developments in French generating resources in 2002

EQUIPMENT	Maximum installed capacity			GENERATION		
	ON 31 TH DECEMBER 2001 MW	ON 31 TH DECEMBER 2002 MW	Trend MW	2001 GWh	2002 GWh	Trend %
RTE						
NUCLEAR*	63 183	63 273	90	399 585	415 515	4.0
CONVENTIONAL	23 581	23 533	-48	26 985	33 014	22.3
HYDRO-ELECTRIC**	24 094	24 104	10	71 565	59 762	-16.5
Other RE****	177	184	7	587	629	7.2
Total RTE	111 035	111 094	59	498 722	508 920	2.0
France						
NUCLEAR*	63 183	63 273	90	399 585	415 515	4.0
CONVENTIONAL	26 890	26 910	20	44 298	51 106	15.4
HYDRO-ELECTRIC**	25 366	25 475	109	77 323	65 474	-15.3
Other RE****	408	507	99	1 566	2 198	40.4
Total France	115 847	116 165	318	522 772	534 293	2.2

* Net injections measured by RTE

** Including energy produced by tidal power stations and pumping turbines

*** Other Renewable Energies

**** By agreement, other renewable energies are included in figures for conventional thermal generation

B Generation by generator activity

Maximum installed capacity on 2002/12/31 (MW)	NUCLEAR*		CONVENTIONAL		HYDRO-ELECTRIC**		Other REEn***		TOTAL	
	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh
2002 generation (GWh)										
Injections onto the RTE network										
Agriculture and food industry			180	19			33	104	213	123
Chemical and paracheical industry			1 050	965	5	20			1 055	985
Energy and solid mineral fuels	63 273	415 515	21 049	31 513	23 354	58 237	118	294	107 794	505 559
Mechanics, foundry and metalworking			409	203	12	21			421	224
Metallurgy			224	122	65	85			289	207
Minerals and materials			29	0	12	5			41	5
Paper Cardboard			415	95	26	76			441	171
Tertiary (exc. transport and telecom)			44	3			33	231	77	234
Transport and telecom			17	0	629	1 318			646	1 318
Other industries			116	94	1	0			117	94
Total injections onto the RTE network	63 273	415 515	23 533	33 014	24 104	59 762	184	629	111 094	508 920
Injections onto other networks + Autoconsumption + Water rights			3 377	18 092	1 371	5 712	323	1 569	5 071	25 373
TOTAL	63 273	415 515	26 910	51 106	25 475	65 474	507	2 198	116 165	534 293

C Injections onto the RTE network by connection voltage

Maximum installed capacity on 2002/12/31 (MW)	NUCLEAR*		CONVENTIONAL		HYDRO-ELECTRIC		Other REEn***		TOTAL		Weight
	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	%
2002 injections onto the RTE network (GWh)											
HVA 1 kV < U =< 50 kV	-	-	75	-	316	993	-	-	391	993	0.2
HVB 1 50 kV < U =< 130 kV	-	-	4 189	7 263	6 134	24 319	184	629	10 507	32 211	6.3
HVB 2 130 kV < U =< 350 kV	3 893	25 157	12 714	22 648	11 701	23 677	-	-	28 308	71 482	14.1
HVB 3 350 kV < U =< 500 kV	59 380	390 358	6 555	3 103	5 953	10 773	-	-	71 888	404 234	79.4
Total injections onto the RTE network	63 273	415 515	23 533	33 014	24 104	59 762	184	629	111 094	508 920	100.0

D Injections onto the RTE network by installation type

Energy sources	Maximum installed power on 2002/12/31	Injections onto the RTE network
	MW	GWh
Liquid fuels	9 502	2 057
Solid fuels	10 280	22 007
Industrial waste	81	0
Derived gases	1 290	4 167
Natural gas	2 368	4 756
Uranium	63 273	415 515
Miscellaneous	12	27
Renewable energies	184	629
Hydro-electric	24 104	59 762
Total injections onto the RTE network	111 094	508 920

* Net injections measured by RTE

** Including energy generated by tidal power stations and pumping turbines

*** Other renewable energies

7 Energy Balances

A Monthly balance recorded by RTE in 2002

RTE	January	February	March	April	May	June	July	August	September	October	November	December	2002	2001	Variation 2002/2001
															%
Generation injected onto the RTE network	49 575	42 389	44 239	42 192	40 950	38 353	39 096	35 888	38 830	43 295	45 206	49 510	509 523	499 438	2.0
<i>nuclear*</i>	40 003	34 316	35 481	35 513	33 522	31 070	32 890	30 347	32 104	35 087	36 195	38 987	415 515	399 585	4.0
<i>conventional</i>	5 491	4 172	3 425	2 733	1 797	1 455	1 661	1 041	2 200	2 928	2 697	3 414	33 014	26 985	22.3
<i>hydro-electric**</i>	4 002	3 821	5 224	3 844	5 511	5 712	4 428	4 409	4 422	5 196	6 192	7 001	59 762	71 565	-16.5
<i>other renewable energies</i>	51	47	58	56	46	38	67	43	63	43	61	56	629	587	7.2
<i>distributor injections</i>	28	33	51	46	74	78	50	48	41	41	61	52	603	716	-15.8
Physical imports***	568	341	152	150	92	112	557	222	266	150	51	142	2 803	3 629	-22.8
Total injections	50 143	42 730	44 391	42 342	41 042	38 465	39 653	36 110	39 096	43 445	45 257	49 652	512 326	503 067	1.8
Extractions by industrial consumers	6 761	6 361	7 270	7 630	8 369	8 362	8 636	7 798	8 200	8 504	7 815	7 449	93 155	92 722	0.5
Extraction by distributors	35 452	28 713	28 347	25 838	23 671	22 322	23 249	21 029	22 860	26 837	28 057	32 490	318 865	320 303	-0.4
Physical exports ***	5 812	5 868	7 113	7 176	7 333	6 289	6 152	5 879	6 538	6 310	7 539	7 764	79 773	71 864	11.0
Energy absorbed for pumping	682	648	601	625	661	557	594	515	540	699	636	575	7 333	5 694	28.8
Energy delivered	48 707	41 590	43 331	41 269	40 034	37 530	38 631	35 221	38 138	42 350	44 047	48 278	499 126	490 583	1.7
Losses on the RTE network	1 436	1 140	1 060	1 073	1 008	935	1 022	889	958	1 095	1 210	1 374	13 200	12 484	5.7

B Monthly balance for France in 2002

FRANCE	January	February	March	April	May	June	July	August	September	October	November	December	2002	2001	Variation 2002/2001
															%
Nuclear thermal generation*	40 003	34 316	35 481	35 513	33 522	31 070	32 890	30 347	32 104	35 087	36 195	38 987	415 515	399 585	4.0
Conventional thermal generation	8 121	6 576	5 962	3 815	2 670	2 272	2 402	1 691	2 892	3 839	4 970	5 896	51 106	44 298	15.4
Hydro-electric generation**	4 430	4 226	5 741	4 295	6 070	6 230	4 821	4 775	4 765	5 624	6 799	7 698	65 474	77 323	-15.3
Other renewable energies	176	166	192	179	176	148	200	175	184	171	218	213	2 198	1 566	40.4
Total generation	52 730	45 284	47 376	43 802	42 438	39 720	40 313	36 988	39 945	44 721	48 182	52 794	534 293	522 772	2.2
Physical imports ****	640	411	232	223	171	195	640	302	333	215	121	222	3 705	4 471	-17.1
Incoming energy	53 370	45 695	47 608	44 025	42 609	39 915	40 953	37 290	40 278	44 936	48 303	53 016	537 998	527 243	2.0
Energy absorbed for pumping	683	649	603	627	667	570	604	524	544	701	639	577	7 388	5 735	28.8
Physical exports ****	5 914	5 918	7 161	7 243	7 403	6 374	6 257	5 957	6 612	6 409	7 627	7 864	80 739	72 861	10.8
National consumption	46 773	39 128	39 844	36 155	34 539	32 971	34 092	30 809	33 122	37 826	40 037	44 575	449 871	448 647	0.3
Consumption at high and medium voltage	22 049	19 745	21 338	20 659	20 955	21 174	21 941	19 329	20 953	22 470	21 665	21 902	254 180	252 268	0.8
Consumption at low voltage	21 031	16 454	15 732	13 001	11 396	9 880	10 099	9 596	10 161	12 884	15 515	19 258	165 007	166 354	-0.8
Net national consumption	43 080	36 199	37 070	33 660	32 351	31 054	32 040	28 925	31 114	35 354	37 180	41 160	419 187	418 622	0.1
Losses on all networks	3 693	2 929	2 774	2 495	2 188	1 917	2 052	1 884	2 008	2 472	2 857	3 415	30 684	30 025	2.2

* Net injections measured by RTE

** Including energy produced by tidal power stations and pumping turbines

*** Excluding water rights

**** Including water rights

8 Regional data

B Statistics by administrative region, observed from the RTE network

B1 Facilities and injections into the RTE network by administrative region

Regions	Surface area*	Population on 2002/01/01*	FACILITIES on RTE network on 2002/12/31 MW				NET INJECTIONS onto the RTE network GWh			
	km ²	thousands	NUCLEAR	CONVENTIONAL THERMAL + Other REen**	HYDRO-ELECTRIC	Total	NUCLEAR	CONVENTIONAL THERMAL + Other REen**	HYDRO-ELECTRIC	Total
ALSACE	8 280	1 762	1 760	154	1 394	3 308	9 525	7	8 769	18 301
AQUITAINE	41 309	2 942	3 640	1 086	460	5 186	26 182	722	1 396	28 300
AUVERGNE	26 013	1 311	0	73	946	1 019	0	174	1 205	1 379
BASSE-NORMANDIE	17 589	1 432	2 660	45	13	2 718	16 517	0	19	16 536
BOURGOGNE	31 582	1 613	0	278	36	314	0	535	62	597
BRETAGNE	27 209	2 938	0	529	269	798	0	26	588	614
CENTRE	39 151	2 459	11 630	73	87	11 790	79 518	36	104	79 658
CHAMPAGNE-ARDENNE	25 606	1 343	5 530	11	804	6 345	36 405	2	1030	37 437
CORSE	8 680	262	0	0	0	0	0	0	0	0
FRANCHE-COMTE	16 202	1 123	0	319	400	719	0	185	617	802
HAUTE-NORMANDIE	12 318	1 792	7 980	2 639	0	10 619	49 004	4 097	0	53 101
ILE-DE-FRANCE	12 011	11 025	0	5 485	0	5 485	0	5 393	0	5 393
LANGUEDOC-ROUSSILLON	27 376	2 336				2 282				2 065
LIMOUSIN	16 942	711				1 194				1 651
LORRAINE	23 547	2 314	5 200	3 194	24	8 418	36 281	7 390	0	43 671
MIDI-PYRENEES	45 348	2 585	2 620	301	4 427	7 348	19 046	376	8 112	27 534
NORD PAS-DE-CALAIS	12 414	4 014	5 460	1 457	0	6 917	35 335	3 422	0	38 757
PAYS DE LA LOIRE	32 082	3 267	0	3 211	0	3 211	0	6 029	0	6 029
PICARDIE	19 399	1 868	0	157	0	157	0	309	0	309
POITOU-CHARENTES	25 809	1 655	2 990	64	22	3 076	18 897	49	102	19 048
PROVENCE ALPES COTE D'AZUR	31 400	4 569	0	2 199	3 128	5 327	0	3 608	8 791	12 399
RHONE-ALPES	43 698	5 718	13 570	985	10 308	24 863	88 830	1 055	25 454	115 339
Total	543 965	59 039	63 273	23 717	24 104	111 094	415 515	33 643	59 762	508 920

* Source: INSEE

** Other renewable energies

B2 Extractions from the RTE network and physical exchanges recorded by RTE per administrative region

GWh

Regions	EXTRACTIONS			PHYSICAL EXCHANGES		
	Energy + Industry	Tertiary + Telecommunications + Transport	TOTAL	Exports	Imports	Export balance
ALSACE	2 491	138	2 629	10 586	45	10 541
AQUITAINE	3 159	309	3 468	4 365	185	4 180
AUVERGNE	944	25	969	0	0	0
BASSE-NORMANDIE	793	74	867	849	0	849
BOURGOGNE	878	967	1 845	0	0	0
BRETAGNE	866	114	980	0	0	0
CENTRE	623	622	1 245	0	0	0
CHAMPAGNE-ARDENNE	840	184	1 024	5 048	162	4 886
CORSE	0	0	0	0	0	0
FRANCHE-COMTE	1 394	104	1 498	369	369	0
HAUTE-NORMANDIE	3 920	118	4 038	0	0	0
ILE-DE-FRANCE	3 346	3 549	6 895	0	0	0
LANGUEDOC-ROUSSILLON	1 195	306	1 501	3 562	22	3 540
LIMOUSIN	240	77	317	0	0	0
LORRAINE	7 217	358	7 575	12 436	326	12 110
MIDI-PYRENEES	2 244	242	2 486	1 235	20	1 215
NORD PAS-DE-CALAIS	13 411	820	14 231	15 604	796	14 808
PAYS DE LA LOIRE	1 560	264	1 824	0	0	0
PICARDIE	1 953	409	2 362	0	0	0
POITOU-CHARENTES	690	191	881	0	0	0
PROVENCE ALPES COTE D'AZUR	7 433	622	8 055	1 233	85	1 148
RHONE-ALPES	26 950	1 515	28 465	24 486	793	23 693
Total	82 147	11 008	93 155	79 773	2 803	76 970

8 Regional data

C Statistics by administrative region for metropolitan France

C1 Facilities and generation in FRANCE by administrative region

Regions	Surface area*	Population on 2002/01/01*	FACILITIES on RTE network on 2002/12/31 MW				NET INJECTIONS onto the RTE network GWh			
	km ²	thousands	NUCLEAR	CONVENTIONAL THERMAL + Other REen**	HYDRO-ELECTRIC	Total	NUCLEAR	CONVENTIONAL THERMAL + Other REen**	HYDRO-ELECTRIC	Total
ALSACE	8 280	1 762	1 760	224	1 397	3 381	9 525	555	8 804	18 884
AQUITAINE	41 309	2 942	3 640	1 197	554	5 391	26 182	1 639	1 761	29 582
AUVERGNE	26 013	1 311	0	99	1 004	1 103	0	376	1 374	1 750
BASSE-NORMANDIE	17 589	1 432	2 660	112	18	2 790	16 517	146	51	16 714
BOURGOGNE	31 582	1 613	0	383	62	445	0	886	140	1 026
BRETAGNE	27 209	2 938	0	687	274	961	0	405	603	1 008
CENTRE	39 151	2 459	11 630	215	92	11 937	79 518	710	120	80 348
CHAMPAGNE-ARDENNE	25 606	1 343	5 530	164	832	6 526	36 405	608	1 107	38 120
CORSE	8 680	262	0	346	154	500	0	994	278	1 272
FRANCHE-COMTE	16 202	1 123	0	397	435	832	0	846	795	1 641
HAUTE-NORMANDIE	12 318	1 792	7 980	2 804	18	10 802	49 004	6 120	59	55 183
ILE-DE-FRANCE	12 011	11 025	0	6 153	10	6 163	0	7 746	56	7 802
LANGUEDOC-ROUSSILLON	27 376	2 336				2 558				2 748
LIMOUSIN	16 942	711				1 267				2 130
LORRAINE	23 547	2 314	5 200	3 356	93	8 649	36 281	8 894	320	45 495
MIDI-PYRENEES	45 348	2 585	2 620	447	4 656	7 723	19 046	768	9 192	29 006
NORD PAS-DE-CALAIS	12 414	4 014	5 460	1 675	0	7 135	35 335	5 689	1	41 025
PAYS DE LA LOIRE	32 082	3 267	0	3 354	11	3 365	0	6 839	19	6 858
PICARDIE	19 399	1 868	0	256	6	262	0	1 234	15	1 249
POITOU-CHARENTES	25 809	1 655	2 990	136	32	3 158	18 897	361	129	19 387
PROVENCE ALPES COTE D'AZUR	31 400	4 569	0	2 413	3 206	5 619	0	4 796	9 252	14 048
RHONE-ALPES	43 698	5 718	13 570	1 287	10 741	25 598	88 830	2 661	27 526	119 017
TOTAL France	543 965	59 039	63 273	27 417	25 475	116 165	415 515	53 304	65 474	534 293

* Source: INSEE

** Other renewable energies

C2 End consumption in France by administrative region in 2002

GWh

Regions	High Voltage / Medium Voltage Network			Low Voltage Network			Total all networks
	Energy + Industry	Tertiary + Telecommunications + Transport + Agriculture	TOTAL	Tertiary and miscellaneous	Household uses	TOTAL	
ALSACE	7 048	2 277	9 325	832	3 459	4 291	13 616
AQUITAINE	6 810	3 892	10 702	1 705	7 119	8 824	19 526
AUVERGNE	3 055	1 267	4 322	731	2 983	3 714	8 036
BASSE-NORMANDIE	2 700	1 569	4 269	740	3 541	4 281	8 550
BOURGOGNE	3 477	2 575	6 052	882	3 663	4 545	10 597
BRETAGNE	4 838	3 780	8 618	1 450	7 134	8 584	17 202
CENTRE	4 513	3 472	7 985	1 181	5 794	6 975	14 960
CHAMPAGNE-ARDENNE	4 154	1 756	5 910	672	2 860	3 532	9 442
CORSE	89	275	364	269	727	996	1 360
FRANCHE-COMTE	4 059	1 076	5 135	596	2 240	2 836	7 971
HAUTE-NORMANDIE	8 656	2 161	10 817	863	3 798	4 661	15 478
ILE-DE-FRANCE	10 434	23 955	34 389	5 597	21 481	27 078	61 467
LANGUEDOC-ROUSSILLON	2 830	2 793	5 623	1 506	5 844	7 350	12 973
LIMOUSIN	1 340	753	2 093	391	1 632	2 023	4 116
LORRAINE	11 810	2 116	13 926	922	3 947	4 869	18 795
MIDI-PYRENEES	4 811	3 234	8 045	1 487	6 140	7 627	15 672
NORD PAS-DE-CALAIS	20 833	5 102	25 935	1 731	7 092	8 823	34 758
PAYS DE LA LOIRE	6 841	3 918	10 759	1 536	7 828	9 364	20 123
PICARDIE	6 122	2 024	8 146	732	3 354	4 086	12 232
POITOU-CHARENTES	2 672	1 863	4 535	698	3 005	3 703	8 238
PROVENCE ALPES COTE D'AZUR	10 866	6 756	17 622	2 951	11 822	14 773	32 395
RHONE-ALPES	37 561	8 967	46 528	3 385	12 533	15 918	62 446
Total	165 519	85 581	251 100	30 857	127 996	158 853	409 953
Not broken down geographically			3 080			6 154	9 234
Total France			254 180			165 007	419 187

A Trend of consumption in France

A1 Consumption in France

YEAR	NATIONAL CONSUMPTION		NET NATIONAL CONSUMPTION					
			Consumers connected at HV-MV		Consumers connected at LV		Total	
	GWh	Variation* %	GWh	Variation* %	GWh	Variation* %	GWh	Variation* %
1992	383 346	2.1	213 462	3.2	142 412	2.0	355 874	2.7
1993	384 966	0.4	211 048	-1.1	145 140	1.9	356 188	0.1
1994	388 206	0.8	219 233	3.9	140 570	-3.1	359 803	1.0
1995	397 300	2.3	222 360	1.4	145 527	3.5	367 887	2.2
1996	415 192	4.5	230 906	3.8	153 275	5.3	384 181	4.4
1997	410 310	-1.2	234 131	1.4	147 487	-3.8	381 618	-0.7
1998	423 837	3.3	238 475	1.9	154 832	5.0	393 307	3.1
1999	430 865	1.7	243 815	2.2	157 222	1.5	401 037	2.0
2000	440 589	2.3	250 920	2.9	159 747	1.6	410 667	2.4
2001	448 647	1.8	252 268	0.5	166 354	4.1	418 622	1.9
2002	449 871	0.3	254 180	0.8	165 007	-0.8	419 187	0.1

* Compared with previous year

A2 Deliveries to end customers (exc. auto-consumption) by source network

YEAR	RTE end-customers		End-customers of other networks					
			Consumers connected at HV-MV		Consumers connected at LV		TOTAL	
	GWh	Variation* %	GWh	Variation* %	GWh	Variation* %	GWh	Variation* %
1992	83 964	4.7	116 919	2.6	142 412	2.0	259 331	2.2
1993	80 745	-3.8	117 710	0.7	145 140	1.9	262 850	1.4
1994	85 457	5.8	121 474	3.2	140 570	-3.1	262 044	-0.3
1995	85 271	-0.2	125 463	3.3	145 527	3.5	270 990	3.4
1996	88 722	4.0	130 003	3.6	153 275	5.3	283 278	4.5
1997	89 244	0.6	132 116	1.6	147 487	-3.8	279 603	-1.3
1998	88 816	-0.5	137 468	4.1	154 832	5.0	292 300	4.5
1999	89 767	1.1	141 230	2.7	157 222	1.5	298 452	2.1
2000	93 644	4.3	145 365	2.9	159 747	1.6	305 112	2.2
2001	92 722	-1.0	148 560	2.2	166 354	4.1	314 914	3.2
2002	93 155	0.5	150 545	1.3	165 007	-0.8	315 552	0.2

* Compared with previous year

A3 Breakdown of end consumption by sector of activity in metropolitan France

ACTIVITY A.P.E. Nomenclature (N.A.F.) / NCE Grouping	GWh						
	1996	1997	1998	1999	2000	2001	2002
Agriculture and food industry	18 849	19 330	19 389	19 794	20 426	21 322	21 933
Chemical and paracheical industry	24 685	25 679	25 526	25 085	25 735	25 106	24 738
Energy and solid mineral fuels	32 299	30 104	27 591	28 263	29 343	29 723	29 915
Mechanics, foundry and metalworking	22 812	23 422	24 393	25 149	26 401	25 935	25 758
Metallurgy	22 692	23 838	24 349	24 800	25 457	24 886	24 469
Minerals and materials	9 653	9 614	9 648	9 667	9 924	10 111	10 328
Paper Cardboard	11 016	11 659	11 584	11 818	11 849	11 364	11 603
Tertiary (exc. transport and telecom)	57 091	57 524	62 404	64 925	66 632	67 571	68 185
Transport and telecom	12 751	12 962	13 250	13 436	13 956	14 042	14 378
Other industries	16 628	17 114	17 783	18 138	18 683	18 895	18 406
Total	228 476	231 246	235 917	241 075	248 406	248 955	249 713
Consumption not broken down by activity	2 430	2 885	2 558	2 740	2 514	3 313	4 467
Total consumption of HV/MV networks	230 906	234 131	238 475	243 815	250 920	252 268	254 180
Low voltage tertiary and miscellaneous	30 865	28 403	29 521	30 289	31 027	32 467	32 009
Household uses	120 463	119 084	121 454	126 933	128 720	133 887	132 998
Total consumption on Low Voltage networks	153 275	147 487	154 832	157 222	159 747	166 354	165 007

BI Annual energy results observed from the RTE network

GWh

YEAR	INJECTIONS EXC. IMPORTS						EXCHANGES WITH FOREIGN COUNTRIES			ENERGY ABSORBED FOR PUMPING	ENERGY EXTRACTED BY		LOSSES ON THE RTE NETWORK
	THERMAL		HYDRO-ELECTRIC**	DISTRIBUTOR INJECTIONS	OTHER RENEWABLE ENERGIES ***	TOTAL	Imports on lines	Exports on lines	Exchange balance		Distributors (1)	Industrial consumers	
	Nuclear*	Conventional											
1998	368 118	37 274	60 873	-	-	466 265	3 783	61 330	57 547	5 486	304 220	88 816	10 196
1999	374 914	31 945	71 340	-	-	478 199	4 152	67 137	62 985	6 241	308 484	89 767	10 722
2000	395 200	31 757	66 759	-	-	493 716	2 774	72 414	69 640	6 536	312 696	93 644	11 200
2001	399 585	26 985	71 565	716	587	499 438	3 629	71 864	68 235	5 694	320 303	92 722	12 484
2002	415 515	33 014	59 762	603	629	509 523	2 803	79 773	76 970	7 333	318 865	93 155	13 200

B2 Annual energy results for France

GWh

YEAR	GENERATION						EXCHANGES WITH FOREIGN COUNTRIES			ENERGY ABSORBED FOR PUMPING	NATIONAL CONSUMPTION	LOSSES ON ALL NETWORKS
	THERMAL			HYDRO-ELECTRIC**	OTHER RENEWABLE ENERGIES ***	TOTAL	Imports on lines	Exports on lines	Exchange balance			
	Nuclear*	Conventional	Total									
1992	321 780	48 149	369 929	72 218	-	442 147	4 737	58 533	53 796	5 005	383 346	27 472
1993	350 046	32 916	382 962	67 621	-	450 583	3 663	65 093	61 430	4 187	384 966	28 778
1994	341 616	32 254	373 870	80 606	-	454 476	3 718	66 886	63 168	3 102	388 206	28 403
1995	358 779	36 802	395 581	75 790	-	471 371	2 860	72 701	69 841	4 230	397 300	29 413
1996	378 225	41 681	419 906	69 933	-	489 839	3 617	72 428	68 811	5 836	415 192	31 011
1997	375 935	37 781	413 716	67 227	-	480 943	4 238	69 634	65 396	5 237	410 310	28 692
1998	368 500	52 660	421 160	65 795	-	486 955	4 590	62 152	57 562	5 556	423 837	30 530
1999	374 914	48 698	423 612	76 694	-	500 306	4 965	68 108	63 143	6 298	430 865	29 828
2000	395 200	49 879	445 079	71 593	-	516 672	3 695	73 174	69 479	6 604	440 589	29 922
2001	399 585	44 298	443 883	77 323	1 566	522 772	4 471	72 861	68 390	5 735	448 647	30 025
2002	415 515	51 106	466 621	65 474	2 198	534 293	3 705	80 739	77 034	7 388	449 871	30 684

* Net injections measured by RTE

** Including energy produced by tidal power stations and pumping turbines

*** By agreement, other renewable energies are included in figures for conventional thermal generation up to 2000

(1) Extractions by distributors are brought back to the RTE ownership limit.

9 Records

C Trend in maximum daily energy values

The data on this page reflect all of the flows on the RTE network, as well as the generation autoconsumed by the industrial consumers connected to this network, which accounts for 97% of national consumption.

CI Maximum daily energy and capacity values by year *

YEAR	GENERATION						NATIONAL CONSUMPTION				
	Thermal		Hydo-electric		Exchanges with foreign countries		Energy		Capacity		
	Energy	Capacity	Energy	Capacity	Energy	Capacity	GWh	Date	GW	Date - Time	Deviation from normal temperature** Degrees Celsius
	GWh	GW	GWh	GW	GWh	GW					
1992	1 388	59.1	318	17.9	208	9.7	1 428	23-01	64.0	27-01 / 19 h	-1.9
1993	1 384	59.8	291	16.4	211	9.8	1 522	04-01	70.0	04-01 / 19 h	-7.1
1994	1 373	59.2	300	17.2	245	11.5	1 452	19-01	66.9	19-01 / 19 h	-3.7
1995	1 398	59.5	302	16.8	236	11.3	1 461	05-01	66.8	05-01 / 19 h	-4.5
1996	1 444	62.2	306	17.1	227	11.3	1 500	31-12	69.6	20-02 / 19 h	-3.6
1997	1 439	61.5	284	15.7	238	11.2	1 518	10-01	68.9	13-01 / 19 h	-3.0
1998	1 457	62.1	268	17.0	239	10.6	1 502	24-11	69.0	23-11 / 19 h	-8.6
1999	1 458	62.6	302	16.7	210	10.0	1 568	21-12	71.9	21-12 / 19 h	-3.2
2000	1 483	63.1	272	16.5	235	11.5	1 559	12-01	72.4	12-01 / 19 h	-1.6
2001	1 591	67.6	297	17.9	297	13.0	1 685	18-12	77.1	17-12 / 19 h	-6.4
2002	1 614	69.4	280	17.0	290	13.3	1 649	08-01	76.6	10-12 / 19 h	-2.1

C2 Winter day with the heaviest load in terms of capacity called in France

The winter semesters include the months from October to March, and therefore straddle two different years.

WINTER	Date - Time	Maximum capacity called GW	Corresponding energy GWh	Temperature (degrees Celsius) **		
				Observed	Normal	Deviation from normal
1992/1993	1993-01-04 / 19 h	70.0	1 522	-3.4	+3.7	-7.1
1993/1994	1994-01-19 / 19 h	66.9	1 452	+0.3	+4.0	-3.7
1994/1995	1995-01-05 / 19 h	66.8	1 461	-1.7	+3.8	-5.5
1995/1996	1996-02-20 / 19 h	69.6	1 499	-0.1	+5.7	-5.8
1996/1997	1997-01-13 / 19 h	68.9	1 484	+0.9	+3.9	-3.0
1997/1998	1998-01-22 / 19 h	68.1	1 454	+1.2	+4.2	-3.0
1998/1999	1999-01-12 / 19 h	71.0	1 531	+0.7	+3.9	-3.2
1999/2000	2000-01-12 / 19 h	72.4	1 559	+2.3	+3.9	-1.6
2000/2001	2001-01-09 / 19 h	70.6	1 497	+4.2	+4.9	-0.7
2001/2002	2001-12-17 / 19 h	77.1	1 680	-1.2	+5.2	-6.4
2002/2003	2003-01-08 / 19 h	80.2	1 720	-2.6	+4.8	-7.4

* Maximum and minimum energy and capacity figures for a given period are not necessarily simultaneous and do not add up.

** Average three-hourly temperature for France (internal reference drawn up on the basis of METEOFRANCE data). Since 1st October 2003, RTE has been using a new normal reference temperature, applied retroactively to 1st January 2001; the deviation from the norm takes account of this change in the reference.

9 Records

D Developments in facilities

D1 Generating facilities in France as of 31st December

Maximum capacity	Nuclear MW	Conventional thermal MW	Hydro-electric* MW	Other RE ⁿ ** MW	TOTAL MW
1992	57 675	22 477	25 097		105 249
1993	59 020	23 460	25 165		107 645
1994	58 515	23 483	25 231		107 229
1995	58 515	23 869	25 227		107 611
1996	59 970	26 109	25 314		111 393
1997	62 875	26 203	25 329		114 407
1998	61 733	25 857	25 335		112 925
1999	63 183	26 213	25 355		114 751
2000	63 183	26 799	25 356		115 338
2001	63 183	26 890	25 366	408	115 847
2002	63 273	26 910	25 475	507	116 165

* Including energy produced by tidal power stations and pumping turbines

** Other renewable energies: by agreement, included in figures for conventional thermal generation up to 2000

D2 High and extra-high voltage network as of 31st December

France

YEAR	Length of circuits on HV / EHV networks*				
	Operating voltage				
	400 kV km	225 kV km	150 kV km	90 kV km	63 kV km
1992	20 205	25 740	2 063	16 492	37 898
1993	20 295	25 851	1 975	16 775	38 215
1994	20 338	26 021	1 775	16 907	38 541
1995	20 554	26 063	1 585	17 200	38 986
1996	20 782	26 075	1 584	17 178	39 135
1997	20 866	26 206	1 458	17 319	39 289
1998	20 892	26 378	1 377	17 443	39 232
1999	20 892	26 320	1 236	17 545	39 361
2000	20 888	26 325	1 225	17 623	39 355
2001	20 917	26 299	1 220	17 765	39 366
2002	20 904	26 476	1 149	17 811	39 206

* Excluding direct current circuits

RTE

YEAR	Length of circuits on HV / EHV networks*				
	Operating voltage				
	400 kV km	225 kV km	150 kV km	90 kV km	63 kV km
1992	20 171	25 605	2 060	14 147	33 941
1993	20 261	25 709	1 972	14 432	34 330
1994	20 304	25 879	1 772	14 564	34 711
1995	20 514	25 888	1 582	14 858	35 151
1996	20 742	25 902	1 581	14 826	35 311
1997	20 827	26 033	1 455	14 967	35 462
1998	20 851	26 204	1 376	15 095	35 427
1999	20 851	26 155	1 235	15 197	35 576
2000	20 847	26 160	1 224	15 276	35 602
2001	20 877	26 108	1 220	15 357	35 715
2002	20 866	26 289	1 149	15 393	35 642

* Excluding direct current circuits

NATIONAL CONSUMPTION

National consumption is the total of all electrical energy supplied for consumption in France (including Corsica, but excluding French overseas departments and territories): thermal and hydro-electric generation and other renewable energies + imports - exports – pumping, that have been consumed in the transmission and distribution networks, by the end-users, as well as by losses. It is also referred to as **gross national consumption**.

Net national consumption is equal to gross national consumption, minus losses on all networks.

EXCHANGES

CONTRACTUAL EXCHANGES

Contractual exchanges include all contracts managed by RTE (including historical contracts).

PHYSICAL EXCHANGES

Physical exchanges with foreign countries for the whole of France, imports / exports, cover:

- the total of instantaneous exchange balances measured by the metering equipment on each interconnection line, recorded as imports or exports, according to the sign,
- compensation trade corresponding to hydro-electric generation sharing apportioned to each country according to water rights, independently of the physical location of generating facilities.

Trade to compensate water rights relative to power plants located on borders:

In line with an international agreement concerning the sovereign right of countries with regard to water, generation by hydro-electric plants located on a border river must be counted in the generation statistics for the country concerned, for the share apportioned to each country.

Physical exchanges with foreign countries, as viewed by RTE, only take account of physical exchanges measured at borders, and do not include water rights.

INJECTION or ENERGY INJECTED

"Energy injected" or **"injection"** denotes the energy actually delivered by a generation plant onto the network to which it is directly connected; it is measured at the limit of ownership between the generator and, depending on the case, the operator of the transmission or distribution system concerned.

GENERATION FACILITIES

THERMAL

Under **"thermal"** is meant nuclear and conventional thermal power plants.

The **maximum capacity of a thermal power plant (MW)** is the net maximum capacity (*) that can be generated by the plant under conditions of continuous operation, during an

extended period of service, when each of its main and auxiliary installations is fully operational and under optimal fuel and water supply conditions. This capacity value is established, taking into account the average climatic conditions to which the site is subject.

(*) Measured at the plant's output points (with consumption by auxiliaries and losses in transformers deducted).

HYDRO-ELECTRIC

The **maximum electrical capacity of a hydro-electric head installation (MW)** is the maximum capacity, assumed to be solely active power, that could be produced continuously throughout a long period of operation (generally not less than 4 hours), but compatible with its normal operating regime, with all plant running and with flow and head height at their optimum values.

OTHER RENEWABLE ENERGIES (Other REen)

The designation **Other REen** includes all installations that generate electricity from renewable energy sources - Wind, Household Waste Incineration Plants, etc - in the sense of Directive 2001/77/CE of the European Parliament, dated 27th September 2001, with the exception of hydro-electric generation installations which are dealt separately.

GENERATION or ENERGY GENERATED

Net energy generated is measured at the plant's output points. Consequently, it is understood that consumption by auxiliary services and losses in the plants' main transformers have already been deducted from this value. It is also called **generation**.

NETWORK

RTE

French Power Transmission System Operator; by extension, the abbreviation RTE denotes in the present document the power transmission network owned by the entity.

Other networks

All networks not owned by RTE: electricity distribution networks operated by EDF or by Local Distribution Companies; private industrial networks supplying consumers, etc.

Length of network lines or cables (km)

The circuit length of an electrical line is the actual length of any one of its conductors, or the mean of the lengths of the conductors if there is any appreciable difference in their lengths.

UNITS

Power

kW = kilowatt

MW = One thousand kW

GW = One million kW

Energy

kWh = kilowatt-hour

MWh = One thousand kWh

GWh = One million kWh

TWh = One billion kWh

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