

# OVERVIEW OF ELECTRICAL ENERGY

**November 2009**

The purpose of this document is to provide information on the results of operation of the French public transmission network and power system during the past month. Information sources : electricity generators, ERDF, METEOFRANCE, RTE. The data published are interim figures dated **8 december 2009**, unless indicated otherwise.

## NATIONAL ELECTRICITY CONSUMPTION - perimeter France

### Results at end of past month

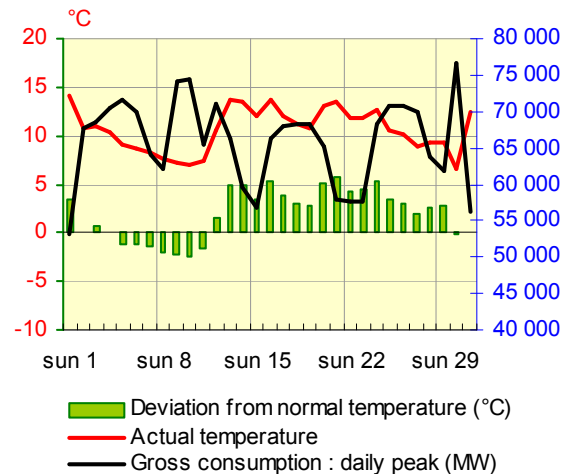
	November 2009		Trend compared with nov 2008	Cumulative trend since 1 <sup>st</sup> january	Cumulative trend over last 12 months
Gross consumption	41,8	TWh	-5,4%	-1,7%	-1,5%
Adjusted consumption *	44,1	TWh	2,1%	-2,1%	-2,0%

\* adjusted for winter and summer climate contingencies and the inclusion of 29 February 2008

### Temperature

Monthly average	10,5 °C
Deviation from normal temperature	+ 1,9 °C/normale
Deviation from november 2008	+ 2,3 °C

RTE-in house reference drawn up on basis of METEOFRANCE data



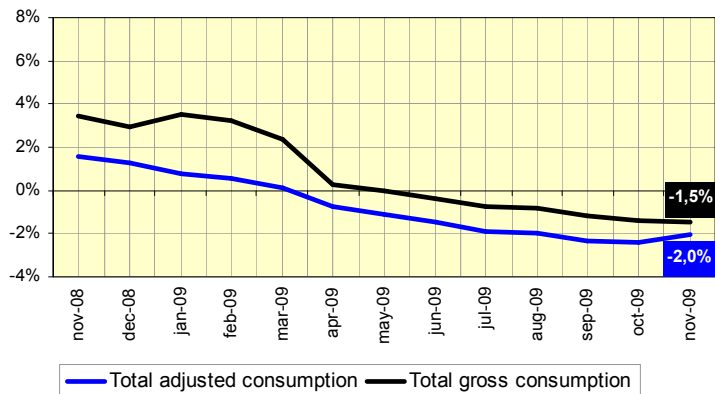
In november 2009, despite a favourable calendar effect and with an average temperature 2,3°C higher, gross consumption was down by 5,4% compared with November 2008. Adjusted for climatic contingencies, monthly consumption rose for the first time since September 2008 (+2,1%).

### Cumulative trend over last 12 months

In cumulative figures over a sliding 12 month period, the rate of growth in gross consumption shrank compared with the previous month, from -1,4% at the end of October 2009, to -1,5% at the end of november 2009.

In cumulative figures over 12 months, the falling trend in adjusted consumption\* slowed; the growth rate rose from -2,3% at the end of October, to -2,0% at the end of november 2009.

Evolution of National consumption in sliding year



\* adjusted for winter and summer climate contingencies and the inclusion of 29 February 2008.

## BALANCE OF ELECTRICAL ENERGY IN FRANCE

### Results at end of past month

	November 2009 (GWh)	Deviation from Nov 2008 (GWh)	Deviation from Nov 2008	Cumulative trend since 1st January	Cumulative trend over last 12 months
<b>NET GENERATION</b>					
Nuclear	31 459	-4 654	-12,9%	-6,6%	-5,6%
Fossil-fuel thermal generation	6 596	522	8,6%	2,2%	0,1%
Hydro-electric	3 777	-1 324	-26,0%	-9,5%	-7,3%
Wind	1 295	687	113,0%	35,5%	32,8%
Other renewable sources *	393	17	4,6%	5,4%	5,2%
<b>Total net generation</b>	<b>43 520</b>	<b>-4 752</b>	<b>-9,8%</b>	<b>-5,6%</b>	<b>-4,8%</b>
<b>GROSS NATIONAL CONSUMPTION</b>					
End customers connected to the RTE network **	5 973	-65	-1,1%	-9,3%	-10,0%
Other customers and losses on all networks ***	35 862	-2 325	-6,1%	-0,1%	0,3%
<b>Total gross national consumption</b>	<b>41 835</b>	<b>-2 390</b>	<b>-5,4%</b>	<b>-1,7%</b>	<b>-1,5%</b>
<b>Energy extracted for pumping</b>	<b>577</b>	<b>-41</b>	<b>-6,6%</b>	<b>3,5%</b>	<b>1,6%</b>
<b>Balance of physical exchanges (export)</b>	<b>1 108</b>	<b>-2 321</b>	<b>-67,7%</b>	<b>-45,0%</b>	<b>-40,9%</b>

\* mainly : household waste, paper waste, biogas

\*\* extractions by these consumers on the RTE network

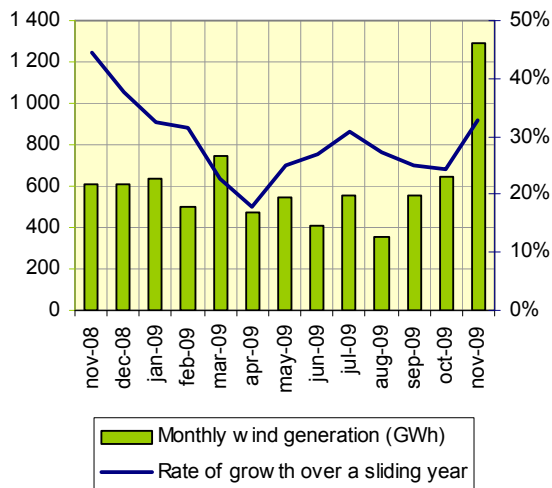
\*\*\* SME, SMI, business and private consumers supplied by the distribution networks + generation auto-consumed by industrials at their sites + losses on the transmission and distribution networks

This month, the balance of physical exchanges was negative (importing) in energy terms on 8 days, and in power terms over several time intervals on 10 other days.

### Development of wind generation in France

With installed capacity up by 1 200 MW at the end of November 2009 compared with the same time the previous year, monthly wind generation reached an absolute maximum value with 1 295 GWh. In cumulative terms over 12 months, the rate of growth in wind generation accelerated from a value of +23,2% at the end of October, to 32,8% at the end of November.

Wind generation

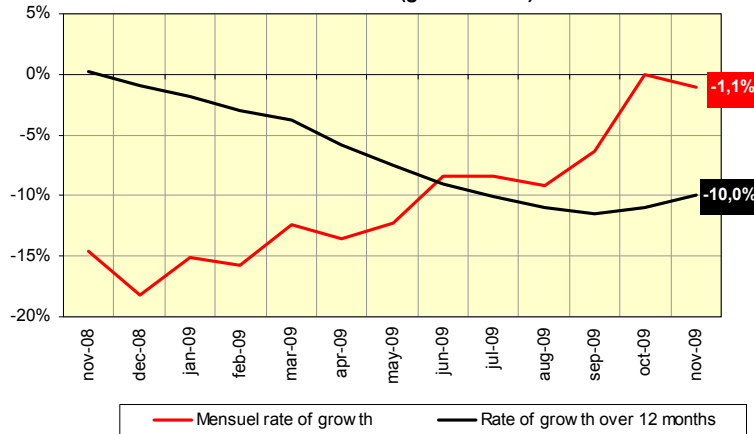


### Development of extractions by large-scale industry

In monthly figures, the fall in extractions by consumers connected directly to the RTE network reached its lowest value in december 2008 (-18,2%). Between january and may 2009, monthly extractions remained 12% to 15% below those of the previous year; over the months june-july-august, they were down by approximately 9% on the same period the previous year, and by 6,4% in september; the downward trend then slowed, with extractions remaining stable in october, then falling by 1,1% in november 2009. However, it should be noted that the months of october and november 2008 marked the start of the crisis, with extractions down by 6,7% and 14,6% respectively compared with 2007.

Over a sliding year, the rate of growth in extractions by consumers connected directly to the RTE network went from -11,0% at the end of october 2009, to -10,0% at the end of november 2009. Adjusted for the impact of 29/02/2008, this rate is -9,7%.

Evolution of extractions by end customers connected to the RTE network (gross values)



### EXTREME values for consumption, exchanges – perimeter France\*

		November		Last 12 months		Absolute **	
<b>Gross national consumption</b>	Maximum	1 574 GWh	Tuesday 10	2 035 GWh	07/01/2009	2 035 GWh	07/01/2009
		76 521 MW	Monday 30	92 400 MW	07/01/2009	92 400 MW	07/01/2009
	Minimum	1 121 GWh	Sunday 1	903 GWh	09/08/2009	856 GWh	06/08/2006
		40 261 MW	Sunday 1	31 456 MW	09/08/2009	29 816 MW	06/08/2006
<b>Balance of physical exchanges ***</b>	Maximum	154 GWh	Sunday 22	239 GWh	08/05/2009	298 GWh	08/05/2008
		9 754 MW	Sunday 22	12 114 MW	29/03/2009	13 746 MW	11/11/2008
	Minimum	-68 GWh	Monday 9	-123 GWh	19/10/2009	-123 GWh	19/10/2009
		-5 560 MW	Tuesday 3	-7 711 MW	19/10/2009	-7 711 MW	19/10/2009

\* Excluding Corsica . \*\* The minimum values concern the last 30 years for the balance of physical exchanges, and the last 5 years for consumption.

\*\*\* A positive value indicates a net export balance, a negative value indicates a net import balance.

### ELECTRICITY MARKET MECHANISMS

#### CONTRACTUAL CROSS-BORDER ELECTRICITY EXCHANGES

	EXPORTS			IMPORTS			CUMULATIVE TOTAL			EXPORT BALANCE *		
	November 2009 (GWh)	Trend / nov 2008	Cumulative trend since 1st Jan	November 2009 (GWh)	Trend / nov 2008	Cumulative trend since 1st Jan	November 2009 (GWh)	Trend / nov 2008	Cumulative trend since 1st Jan	November 2009 (GWh)	Trend / nov 2008	Cumulative trend since 1st Jan
Belgium	132	-70%	-73%	521	82%	n.s.**	653	-10%	-34%	-389	n.s.**	-126%
Germany	441	13%	9%	2 022	53%	-1%	2 463	44%	1%	-1 581	71%	-7%
Switzerland	2 129	1%	-1%	339	-18%	20%	2 468	-2%	4%	1 790	6%	-10%
Italy	1 657	-7%	0%	159	42%	-43%	1 816	-4%	-4%	1 498	-10%	4%
Spain	390	-17%	-6%	424	50%	22%	814	8%	4%	-34	-119%	-36%
Great Britain	462	-42%	-41%	760	189%	n.s.**	1 222	16%	-19%	-298	-156%	-67%
<b>TOTAL</b>	<b>5 211</b>	<b>-13%</b>	<b>-17%</b>	<b>4 225</b>	<b>58%</b>	<b>+23%</b>	<b>9 436</b>	<b>9%</b>	<b>-5%</b>	<b>986</b>	<b>-70%</b>	<b>-45%</b>

\* A negative value indicates a net import balance. \*\* Since the beginning of 2009, the volume of imports from Belgium totals 5 173 GWh, compared with 1 518 GWh in 2008 ; imports from Great Britain totalled 3 525 GWh compared with 1 036 GWh in 2008 ; in november 2008, the balance of exports to Belgium was +154 GWh.

#### BALANCING MECHANISM - BALANCE RESPONSIBLE ENTITIES

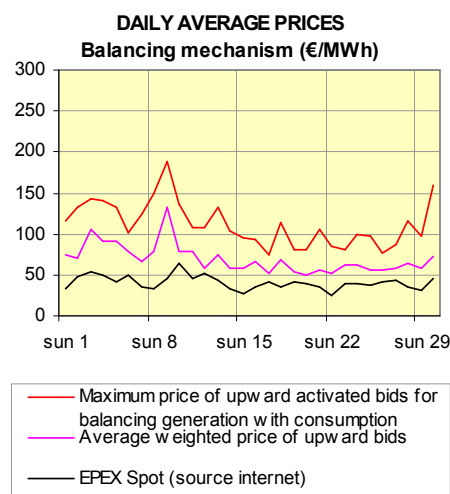
	November 2009	Deviation compared with nov 2008	Trend compared with nov 2008	Cumul. trend since 1 <sup>st</sup> January
<b>Balancing Mechanism</b>				

Total energy activated upward	380 GWh	12 GWh	3%	40%
Total energy activated downward	241 GWh	44 GWh	22%	-3%
Number of actors	36	-2		

#### Exchanges between Balance Responsible entities\* (BR) via block exchange notifications (NEB)

Energy exchanged between BR via NEB	28 995 GWh	+6 110 GWh	+27%	+1%
Number of BR	146	+4		

\* Balance Responsible Entity : any legal entity who is committed to RTE, under a Balance Responsible contract, to settling the costs of the imbalances calculated a posteriori, on behalf of one or more network users attached to its scope. These imbalances result from the difference between all of the supplies and consumption for which it is



### TRANSMISSION NETWORK DEVELOPMENT

In november, the following new installations entered service on the 400 kV and 225 kV networks: a new 400/225 kV (600 MVA) autotransformer at the Grosne substation in Saône-et-Loire, to replace the previous facility which was destroyed by fire during a storm; the 225 kV Avelin-Hellemmes n°2 overhead line, to strengthen the power supply to the east of the city of Lille ; a phase-shifter transformer at the 225 kV Boute substation, on the Coudon feeder, to improve the security of supply to the Alpes-Maritimes and eastern Var region ; a second 225/63 kV, 170 MVA transformer at the Lesquive substation, to guarantee the supply to the 63 kV power network supplying the north of Toulouse; a 225/90 kV, 100 MVA transformer at the Claire-Fontaine substation, to guarantee the supply to the Le Mans area ; a 225/63 kV, 170 MVA transformer at the Bergé substation, following the commissioning of the Bergé substation, to strengthen the supply to the Dax area.