

THE HYDRO-QUÉBEC
SYSTEM IN 1987



OPERATING DATA

ENERGY FLOWS (1987) (Millions of kilowatthours)

ENERGY GENERATED: 137,730

Gross generation
Hydro-Québec: 137,730

hydraulic: 132,495
thermal: 5,235

ENERGY RECEIVED: 32,540

From Churchill
Falls: 30,366

From other neighboring
systems: 2,174

ENERGY IN: 170,270

System losses and consumption in generating stations: 14,275

ENERGY OUT: 155,995

IN QUÉBEC:
127,238

Firm electricity
sales: 110,413

Deliveries under contract: 3,085

Surplus electricity sales: 13,740

EXPORT: 28,757

United States: 16,402

Ontario: 4,977

New Brunswick: 6,446

Cedars Rapids
Transmission Company Limited: 490

St. Lawrence Power Company: 442

Installed capacity

In 1987, installed capacity on the Hydro-Québec system increased 58.5 megawatts and, at December 31, totaled 24,533 megawatts, with most of the increase coming from turbine replacement. In addition, Hydro-Québec has access under contract to most of the generation of the Churchill Falls power plant, which has a nominal capacity of 5,225 megawatts.

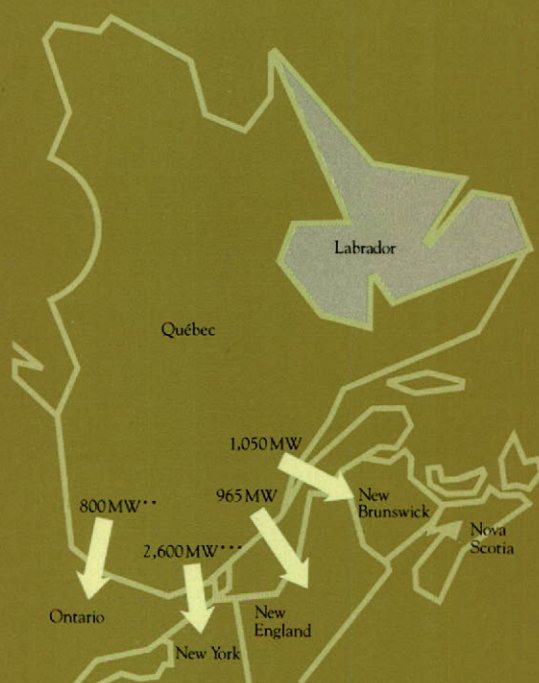
Generation

Gross generation of Hydro-Québec's power stations was 137.7 billion kilowatthours in 1987, some 9.6 billion kilowatthours more than in 1986. This generation was 96.2% hydroelectric. The three generating stations of the La Grande complex, alone, supplied 51.8% of the hydroelectric generation. Gentilly 2 nuclear power station generated 95.0% of the thermal-electric power.

TRANSMISSION AND DISTRIBUTION LINES

	(Kilometres)				
	1983	1984	1985	1986	1987
Transmission					
735 and 765 kV	8,994	9,870	9,899	9,900	10,003
± 450 kV	—	—	—	78	78
315 kV	3,538	3,650	3,651	4,051	3,805
230 kV	3,014	3,015	3,005	3,014	3,023
161 kV	1,485	1,490	1,513	1,513	1,521
120 kV	5,686	5,590	5,694	5,677	5,810
49 and 69 kV	3,738	3,904	3,921	3,836	3,842
	26,455	27,519	27,683	28,069	28,082
Distribution (overhead and underground)					
34 kV	648	446	560	578	578
25 kV	68,992	72,455	76,570	84,047	89,269
4 and 12 kV	19,612	17,610	14,612	11,089	8,870
	89,252	90,511	91,742	95,714	98,717

INTERCONNECTIONS WITH NEIGHBORING SYSTEMS* (at December 31, 1987)



*Total simultaneous export capacity is 5,375 MW in summer and 5,450 MW in winter.

**The interconnection capacity with Ontario is 1,700 MW and can be used to its capacity by reducing exports to New York State by 900 MW.

***Hydro-Québec has an interconnection capacity for deliveries to New York State of 2,600 MW, but receptions by that State are currently limited to 2,175 MW.












Peak demand

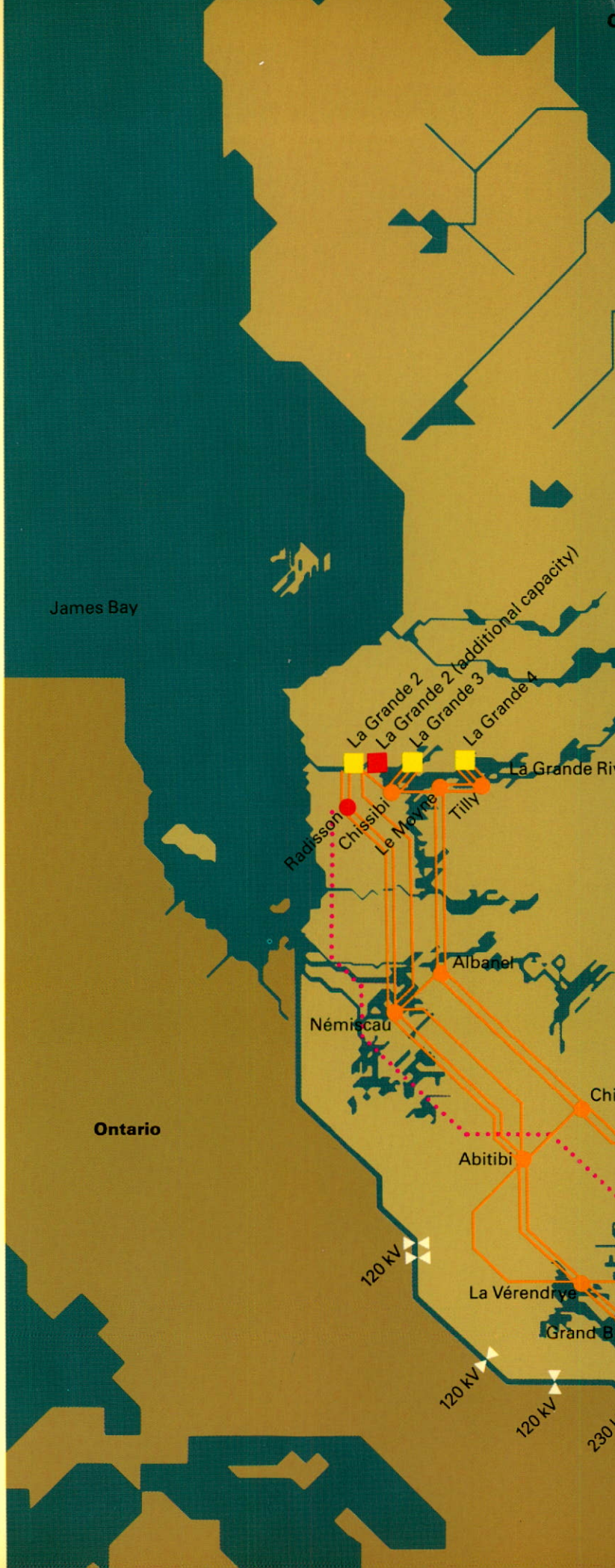
Peak demand for priority requirements on the system during the winter of 1987-1988 occurred on Thursday, January 14, 1988, at 6:00 p.m., when demand reached 26,005 megawatts, compared with the previous winter's peak of 23,219 megawatts, an increase of 12%.

Energy reserve


Runoff in 1987 was markedly below average in the Ottawa, St. Maurice, Bersimis, Outardes and Manicouagan watersheds, but higher than average in the La Grande and St. Lawrence River basins, with the overall runoff index standing at 0.94. The low runoff largely explains the decline of energy reserves in the reservoirs from 82.5 billion kilowatthours at January 1, 1987 to 75.6 billion kilowatthours at January 1, 1988.

Major Installations

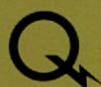
-  Generating station rated 500 MW or more
-  Generating station under construction (500 MW or more)
-  735-kV substation
-  Future 735-kV substation
-  Interconnection
-  735-kV line
-  765-kV line
-  \pm 450-kV direct current line
-  Future \pm 450-kV direct current line



GENERATING STATIONS

Generating Stations in Service	Installed Capacity (Kilowatts)	Installed Capacity (Kilowatts)	(Kilowatts)	
Hydroelectric		Thermal	Total installed capacity*	
La Grande 2	5,328,000	<i>Nuclear</i>	Hydroelectric generating stations (53)	22,793,511
La Grande 4	2,650,500	Gentilly 2	685,000	
La Grande 3	2,304,000	<i>Conventional</i>		
Beauharnois	1,645,810	Tracy	600,000	
Manic 5	1,292,000			
Manic 3	1,183,200			
Manic 2	1,015,200	<i>Gas turbines</i>		
Bersimis 1	924,000	La Citière	200,880	
Outardes 3	756,200	Cadillac	162,000	
Bersimis 2	683,600			
Carillon	654,500	<i>Diesel units</i>		
Outardes 4	632,000	Îles de la Madeleine	50,269	
Outardes 2	453,900	Blanc-Sablon	8,000	
Trenche	297,000	La Tabatière	5,500	
Beaumont	243,000	Saint-Augustin	3,000	
Paugan	236,350	La Romaine	2,800	
La Tuque	220,000	Kuujuuaq	2,400	
Rapide Blanc	189,600	Poste-de-la-Baleine	2,400	
Manic 1	184,410	Natashquan	2,100	
Shawinigan 2	182,300	Port-Menier	2,100	
Shawinigan 3	171,900	Povungnituk	1,800	
Les Cèdres	162,000	Île d'Entrée	1,740	
Grand-Mère	149,575	Inukjuak	1,620	
Rapides des Îles	146,520	Salluit	1,200	
Chelsea	144,000	Kangirsuk	1,050	
La Gabelle	136,580	Kangiqsualujuaq	1,030	
Première Chute	124,200	Ivujivik	975	
Rapides Farmers	98,250	Quaqtaq	930	
Rapides des Quinze	90,000	Kangiqsujuaq	820	
Chute des Chats	89,300	Johan-Beetz	605	
Bryson	61,000	Akulivik	600	
Rapide 7	57,000	Aupaluk	550	
Hart Jaune	48,450	Tasiujaq	440	
Rivière des Prairies	48,300			
Rapide 2	48,000			
Chute Hemmings	28,800			
Hull 2	27,280			
Sept Chutes	18,720			
Saint-Narcisse	15,000			
Drummondville	14,600			
Mitis 1	6,400			
Pont-Arnaud	5,450			
Chute Bell	4,800			
Mitis 2	4,250			
Saint-Alban	3,000			
Saint-Raphaël	2,550			
Sherbrooke	2,256			
Chute Garneau	2,240			
Corbeau	2,000			
Magpie	1,800			
Rawdon	1,720			
Chute Burroughs	1,600			
L'Anse-Saint-Jean	400			
		Generating Stations under Construction	Commissioning Date	Installed Capacity (Kilowatts)
		Hydroelectric		
		Manic 5 (additional capacity)	1989	1,056,000
		La Grande 2 (additional capacity)	1992-1993	1,900,000
		*Hydro-Québec also has access to most of the generation of the Churchill Falls power plant, which has a nominal capacity of 5,225 megawatts.		
				
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