



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

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

Deliveries under contract: 3,085

Surplus electricity sales: 13,740

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

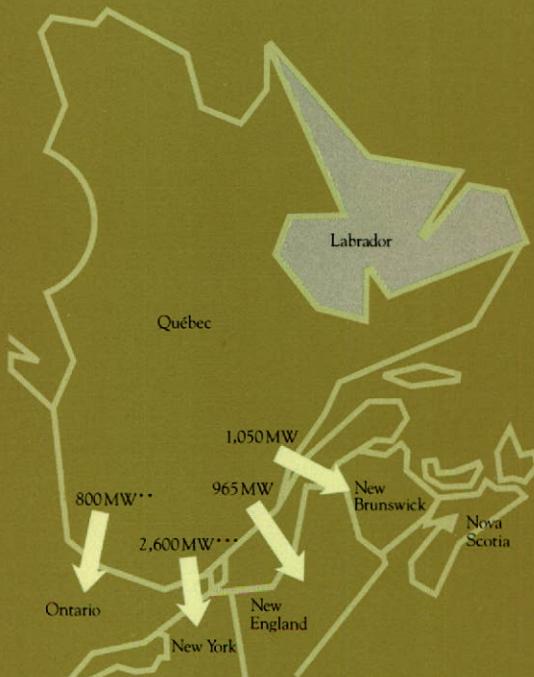
Gross generation of Hydro-Québec's power stations was 137.7 billion kilowatthours in 1987, some 9.6 billion kilowatthours more than in 1986. This generation was 96.2% hydroelectric. The three generating stations of the La Grande complex, alone, supplied 51.8% of the hydroelectric generation. Gentilly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

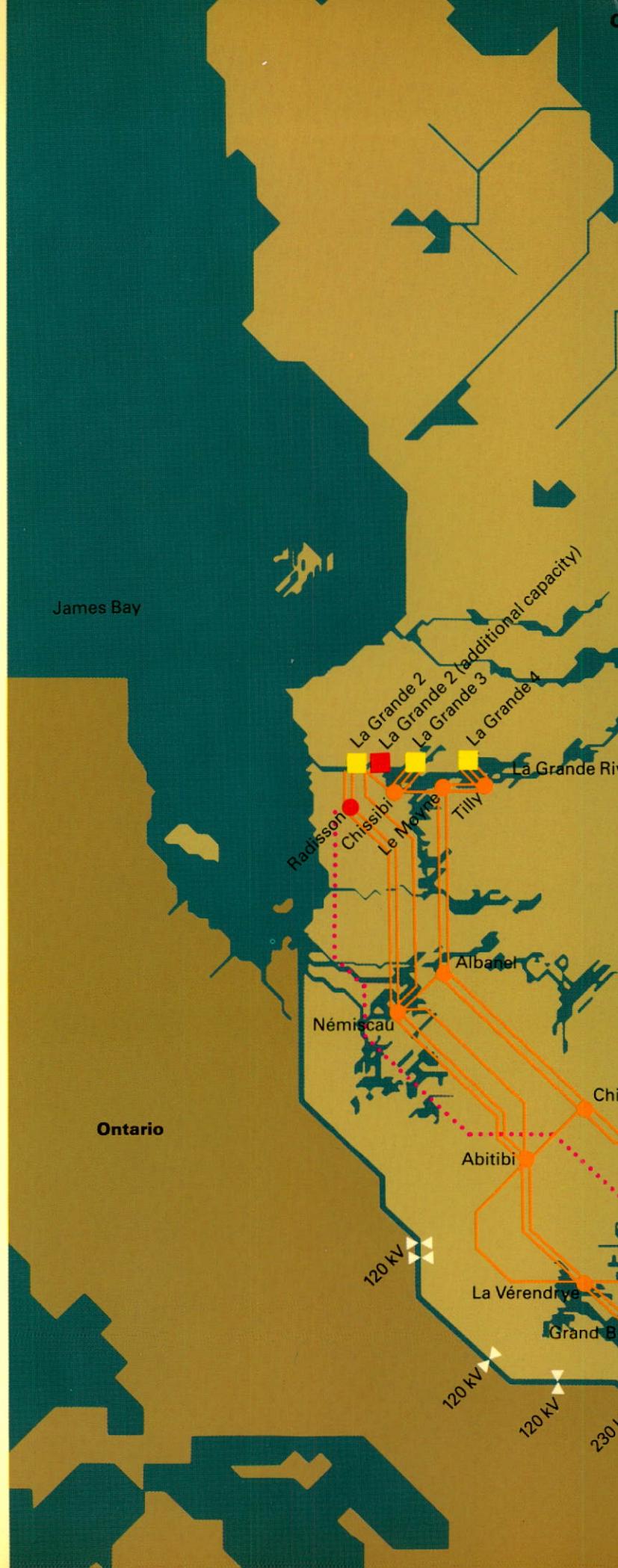
Peak demand for priority requirements on the system during the winter of 1987-1988 occurred on Thursday, January 14, 1988, at 6:00 p.m., when demand reached 26,005 megawatts, compared with the previous winter's peak of 23,219 megawatts, an increase of 12%.

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

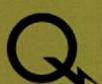
- Generating station rated 500 MW or more
- Generating station under construction (500 MW or more)
- 735-kV substation
- Future 735-kV substation
- △ Interconnection
- 735-kV line
- 765-kV line
- ± 450-kV direct current line
- Future ± 450-kV direct current line



GENERATING STATIONS

Generating Stations in Service	Installed Capacity (Kilowatts)	Installed Capacity (Kilowatts)	(Kilowatts)
Hydroelectric			
La Grande 2	5,328,000		
La Grande 4	2,650,500		
La Grande 3	2,304,000		
Beauharnois	1,645,810		
Manic 5	1,292,000		
Manic 3	1,183,200		
Manic 2	1,015,200		
Bersimis 1	924,000		
Outardes 3	756,200		
Bersimis 2	683,600		
Carillon	654,500		
Outardes 4	632,000		
Outardes 2	453,900		
Trenche	297,000		
Beaumont	243,000		
Paugan	236,350		
La Tuque	220,000		
Rapide Blanc	189,600		
Manic 1	184,410		
Shawinigan 2	182,300		
Shawinigan 3	171,900		
Les Cèdres	162,000		
Grand-Mère	149,575		
Rapides des Îles	146,520		
Chelsea	144,000		
La Gabelle	136,580		
Première Chute	124,200		
Rapides Farmers	98,250		
Rapides des Quinze	90,000		
Chute des Chats	89,300		
Bryson	61,000		
Rapide 7	57,000		
Hart Jaune	48,450		
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		
Thermal			
	<i>Nuclear</i>		
	Gentilly 2	685,000	
	<i>Conventional</i>		
	Tracy	600,000	
	<i>Gas turbines</i>		
	La Citière	200,880	
	Cadillac	162,000	
	<i>Diesel units</i>		
	Îles de la Madeleine	50,269	
	Blanc-Sablon	8,000	
	La Tabatière	5,500	
	Saint-Augustin	3,000	
	La Romaine	2,800	
	Kuujuaq	2,400	
	Poste-de-la-Baleine	2,400	
	Natashquan	2,100	
	Port-Menier	2,100	
	Povungnituk	1,800	
	Île d'Entrée	1,740	
	Inukjuak	1,620	
	Salluit	1,200	
	Kangirsuk	1,050	
	Kangiqualujuaq	1,030	
	Ivujivik	975	
	Quaqtaq	930	
	Kangiqualujuaq	820	
	Johan-Beetz	605	
	Akulivik	600	
	Aupaluk	550	
	Tasiujaq	440	
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.



Hydro-Québec
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