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PROPOSED SUBSIDIZATION OF ELECTRIC ENERGY COSTS IN THE NORTHWEST TERRITORIES

In November, 1964, Council discussed the possibility of subsidizing electric energy costs throughout the Northwest Territories so that domestic and commercial users of electricity could buy power at five cents per Kilowatt - hour. Council recommended that the Administration conduct a survey of the cost of such a subsidy.

The Present Situation

At most northern settlements electric power is supplied by the Department of Northen Affairs and National Resources. The Treasury Board, in August 1961 granted authority to the Northen Administration Branch to sell electric power and provide services in respect thereof, to private consumers in remote locations in Northern Canada where alternative local sources are not available, under the following terms and conditions:

(a) That power will only be provided to private consumers where in a given community the federal government has at least 50% of the total power requirement in that community:

(b) That the size of plant in any single community will not exceed 100 Kilowatts output (not including standby) without specific Treasury Board approval:

(c) That the private consumer will, in each case, bear the cost of extensions to the distribution system which may be required to service his property, such extensions to become the property of the Crown upon completion:

(d) That in order to eliminate differences in power rates between adjacent communities, regional rates will be established, which will in no case be less than the highest average rate charged by Northern Canada Power Commission in the region concerned:

(e) That pending establishment of regional rates (to be computed subject to paragraph (d) on an average of the cost to the consumer in the Communities within a region) an interim rate of 12 cents per Kilowatt - hour will be charged in all communities:

(f) That the cost to the consumer will be based on:

(i) cost of operating and maintaining powerhouse, generating plant, distribution system and associated facilities, such cost to include operator's wages, accommodation and other benefits, materials and supplies; repairs and improvements:

(ii) amortization of capital facilities at 6% interest over 15 years:

(iii) overhead at 5% of (i) and (ii) to cover meter reading, billing, etc., until actual costs can be established.

At a few settlements the Department of Northern Affairs and National Resources buys bulk power from other government departments for use by the department and for resale to private consumers, e.g. Baker Lake, Cambridge Bay, Coppermine, etc. At these locations the department retails power under the same terms that exist at locations where the department operates its own generating stations.

At some settlements, where the load exceeds 100 KW, the Northern Canada Power Commission is the government agency responsible for electric power generation

and distribution. At these locations rates recommended by the General Manager and approved by the Treasury Board are charged. N.C.P.C. provides power at Fort Smith, Fort Simpson, Fort Resolution, ~~Fort~~ Inuvik, Frobisher Bay.

At Enterprise, Fort Providence, Hay River and Yellowknife, private utility companies operate under electric energy franchises granted by the Commissioner in Council.

Survey of Private Consumers

Appendix 1 has been prepared from existing records of actual consumption at various locations where electric energy is available. Estimated figures have been added based on a conservative forecast of the annual increase in domestic and commercial consumption at each community which might result from the reduced cost of power if a subsidy were provided.

From this Appendix it can be seen that the cost of subsidizing power down to 5 cents KWH is estimated at $183,756 for the first year's operation.

It is anticipated that the annual subsidy cost will increase as annual consumption goes up. During the first few years this growth would probably be from 5% to 10% but would eventually taper off due to lower production costs brought about by greater consumption.

Other Factors Requiring Consideration

Before new consumers can be connected to an electric power supply source, it will be necessary for many to have their premises wired for electric power. The cost of wiring a small house to acceptable minimum standards is from $250 and up.

From experience the Department has had with private consumers, at Aklavik for instance, it appears doubtful whether many of the prospective customers can afford to pay the costs involved.

Under existing policy prospective customers are required to pay the cost of powerline extensions to their property; such costs are approximately $1.50 per foot. Premises as close as 100 feet from an existing powerline, for instance, would be required to pay $1.50 for a service line. The minimum costs for wiring and connection to a powerline 100 feet from a small house would therefore be $400.

The extra administrative load brought about by applying a subsidy would have to be considered. It would appear that the subsidy would start off at approximately the figure named and might require a staff increase to ensure the efficient administation of such extensive collections.

It should be borne in mind when considering the subsidization of electric power in the Territories that electricity is only one of several services. It might be incongrous to subsidize electric power without considering also heat, water, and sewer.

The "average rate" for power can be misleading. Altnough the private Utility Companies and N.C.P.C. show an average rate much lower than the 12 cents charged by D.N.A. & N. R. the various rate structures used by these companies start off by charging up to 35 cents a KWH for the first few units used, after which the cost per KWH drops very rapidly. Special consideration should be given to rate structures. The price of the first few KWH used is of paramount importance.

APPENDIX 1

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TABLE OF CONSUMPTION AND COSTS OF ELECTRIC ENERGY

ALL SETTLEMENTS N.W.T.

LOCATION	Arctic Red River	Cambridge Bay	Carlsons Landing	Coppermine
KW Capacity of Plant	20	D.O.T.	10	D.O.T.
Total Units Generated	38,000		15,000	350,000 (Estimated)
Unit Cost (Resale)	12¢	12¢	12¢	12¢
Federal Load (KWH)	35,000	120,000 (Estimated)	15,000	300,000 (Estimated)
Federal Costs	$4,200	$14,400 (Estimated)	$18,000	$36,000
Other Consumers Load	3,000	18,300	0	50,000
Other Consumers Cost	$360	$2,196	0	$6,000
Cost Of Subsidy For Others	$210	$1,281	0	$3,500
Anticipated In-Crease of Others Load	18,000	60,000	0	5,000
Cost Of Subsidy For Increased Load	$1,260	$4,200	0	$350
Total Cost of Subsidy	$1,470	$5,481	0	$3,850
Remarks				

Location	Fort Franklin	Fort Good Hope	Fort Liard	Fort Norman	Fort Providence
KW Capacity of Plant	25	D.O.T.	120	100	150
Total Units Generated	48,000		33,900	300,000	187,000
Unit Cost (Resale)	12¢	12¢	12¢	12¢	12¢
Federal Load (KWH)	28,000	100,000 (Estimated)	31,900	291,000	147,000
Federal Costs	$3,360	$12,000	$3,828	$25,920	$17,640
Other Consumers Load	20,000	6,000	2,000	9,000	40,000
Other Consumers Cost	$2,400	$720	$240	$1,080	$4,800
Cost Of Subsidy For Others	$1,400	$420	$140	$630	$2,800
Anticipated Increase Of Others Load	30,000	30,000	4,500	30,000	60,000
Cost Of Subsidy For Increased Load	$2,100	$2,100	$315	$2,100	$4,200
Total Cost of Subsidy	$3,500	$2,520	$455	$2,730	$7,000
Remarks					

Location	Wrigley	Gjoa Haven	Hay Camp	Jean Marie River	Lac La Martre
KW Capacity of Plant	10	30	130	15	10
Total Units Generated	18,000	140,000	98,000	28,000	33,000
Unit Cost (Resale)	12¢	12¢	12¢	12¢	12¢
Federal Load (KWH)	12,000	100,000	98,000	28,000	33,000
Federal Costs	$1,440	$12,000	$10,760	$3,360	$3,960
Other Consumers Load	6,000	40,000	0	0	0
Other Consumers Cost	$760	$4,800	0	0	0
Cost of Subsidy For Others	$420	$2,800	0	0	0
Anticipated Increase of Others Load	6,000	12,000	0	6,000	6,000
Cost of Subsidy For Increased Load	$420	$840	0	$420	$420
Total Cost of Subsidy	$840	$3,640	0	$420	$420

Remarks

Location	Little Buffalo R.	Nahanni Butte	Peace Point	Pelly Bay	Pine Lake
KW Capacity of Plant	10	25	10	30	8
Total Units Generated	8,000	28,000	8,000	131,000	9,000
Unit Cost (Resale)	12¢	12¢	12¢	12¢	12¢
Federal Load (KWH)	8,000	25,000	8,000	128,000	9,000
Federal Costs	$960	$3,000	$960	$15,360	$1,080
Other Consumers Load	0	3,000	0	3,000	0
Other Consumers Cost	0	$360	0	$360	0
Cost Of Subsidy For Others	0	$210	0	$210	0
Anticipated Increase of Others Load	0	12,000	0	12,000	6,000
Cost of Subsidy For Increased Load	0	$840	0	$840	$420
Total Cost of Subsidy	0	$1,050	0	$1,050	$420

Remarks

Location	Rae	Snowdrift	Spence Bay	Stagg River	Sweetgrass
KW Capacity of Plant	120	20	30	30	40
Total Units Generated	109,000	35,000	119,000	48,000	70,000
Unit Cost (Resale)	12¢	12¢	12¢	12¢	12¢
Federal Load (KWH)	94,000	26,000	107,000	48,000	70,000
Federal Costs	$11,280	$3,120	$12,840	$5,760	$8,400
Other Consumers Load	15,000	9,000	12,000	0	0
Other Consumers Cost	$1,800	$1,080	$1,440	0	0
Cost of Subsidy For Others	$1,050	$630	$840	0	0
Anticipated Increase of Others Load	45,000	6,000	18,000	0	0
Cost of Subsidy For Increased Load	$3,150	$420	$1,260	0	0
Total Cost of Subsidy	$4,200	$1,050	$2,100	0	0
Remarks					

Location	Tuktoyaktuk	Arctic Bay	Broughton Island	Cape Dorset	Clyde River
KW Capacity of Plant	100	20	50	100	20
Total Units Generated	144,000	36,000	88,000	160,000	50,000
Unit Cost (Resale)	12¢	12¢	12¢	12¢	12¢
Federal Load (KWH)	133,000	27,000	86,000	100,000	47,000
Federal Costs	$15,960	$3,240	$10,320	$12,000	$5,640
Other Consumers Load	11,000	9,000	2,000	60,000	3,000
Other Consumers Cost	$1,320	$1,080	$240	$7,200	$360
Cost of Subsidy For Others	$770	$630	$140	$4,200	$210
Anticipated Increase of Others Load	60,000	15,000	18,000	60,000	12,000
Cost of Subsidy For Increased Load	$4,200	$1,050	$1,260	$4,200	$840
Total Cost of Subsidy	$4,970	$1,680	$1,400	$8,400	$1,050
Remarks					

Location	Grise Fiord	Hall Lake	Igloolik	Lake Harbour	Pangnirtung
KW Capacity of Plant	30	50	70		70
Total Units Generated	70,000	70,000	136,000		110,000
Unit Cost (Resale)	12¢	12¢	12¢		12¢
Federal Load (KWH)	67,000	67,000	127,000		89,000
Federal Costs	$8,040	$8,040	$15,240		$10,680
Other Consumers Load	3,000	3,000	9,000		21,000
Other Consumers Cost	$360	$360	$1,080		$2,520
Cost of Subsidy For Others	$210	$210	$630		$1,470
Anticipated Increase of Others Load	33,000	15,000	30,000		30,000
Cost of Subsidy For Increased Load	$2,310	$1,050	$2,100		$2,100
Total Cost of Subsidy	$2,520	$1,260	$2,730		$3,570
Remarks					

Location	Pond Inlet	Resolute Bay	Baker Lake	Coral Harbour	Eskimo Point
KW Capacity of Plant	120	D.O.T.	D.O.T.	70	100
Total Units Generated	98,000	88,000	350,000 (Estimate-)	120,000	174,000
Unit Cost (Resale)	12¢	12¢	12¢	12¢	12¢
Federal Load (KWH)	81,000	86,000	30,000 (Estimated)	84,000	153,000
Federal Costs	$9,720	$10,320	$36,000	$10,080	$19,560
Other Consumers Load	17,000	2,000	50,000	36,000	21,000
Other Consumers Cost	$2,040	$240	$6,000	$4,320	$2,520
Cost of Subsidy For Others	$1,260	$140	$3,500	$2,520	$1,470
Anticipate. Increase of Others Load	30,000	18,000	5,000	24,000	30,000
Cost of Subsidy For Increased Load	$2,100	$1,260	$350	$1,680	$2,100
Total Cost of Subsidy	$3,360	$1,400	$3,850	$4,200	$3,570
Remarks					

Location	Rankin Inlet	Whale Cove	Inuvik	Frobisher Bay	Fort Smith
KW Capacity of Plant	500	100	N.C.P.C.	N.C.P.C.	N.C.P.C.
Total Units Generated	860,000	160,000	7,070,000	8,200,000	5,440,000
Unit Cost (Resale)	12¢	12¢	* Average 5.8¢	* Average 7¢	* Average 5.4¢
Federal Load (KWH)	843,000	157,000	6,250,000	7,300,000	4,000,000
Federal Costs	$101,160	$18,840	$339,000	$438,000	$194,000
Other Consumers Load	17,000	3,000	820,000	900,000	1,440,000
Other Consumers Cost	$2,040	$360	$47,500	$63,000	$77,000
Cost of Subsidy For Others	$1,190	$210	$6,560	$18,000	$5,600
Anticipated Increase of Others Load	45,000	21,000	82,000	90,000	144,000
Cost of Subsidy For Increased Load	$3,150	$1,470	$656	$1,800	$560
Total Cost of Subsidy	$4,340	$1,680	$7,216	$19,800	$6,160
Remarks					

Location	Fort Simpson	Fort McPherson	Aklavik	Hay River	Enterprise
KW Capacity of Plant	N.C.P.C.	275	90	Northland Utilities	Northland Utilities
Total Units Generated	1,980,000	700,000	400,000	2,917,000	170,000
Unit Cost (Resale)	* Average 9¢	* Average 12¢	* Average 15¢	* Average 6.01¢	* Average 8.89¢
Federal Load (KWH)	1,700,000	650,000	325,000	112,000	74,000
Federal Costs	$136,000	$78,000	$48,000	$8,825	$6,890
Other Consumers Load	280,000	50,000	75,000	2,805,000	96,000
Other Consumers Cost	$25,200	$6,000	$11,250	$166,700	$8,200
Cost of Subsidy For Others	$11,200	$3,500	$7,500	$28,330	$3,840
Anticipated Increase of Others Load	28,000	5,000	7,500	100,000	9,600
Cost of Subsidy For Increased Load	$1,120	$350	$750	$1,010	$384
Total Cost of Subsidy	$12,320	$3,850	$8,250	$29,340	$4,224
Remarks					

* Average cents/Kwh shown above is sales divided by Kwhs producing an "average rate" but actual rates range from 4.5¢ to 35¢/Kwh depending on locality, class of service (viz domestic, commercial power, etc) and magnitude of Consumption.

Location	Payne Bay	Chesterfield Inlet	Yellow-knife	Norman Wells	Total All Settlements
KW Capacity of Plant	100	R.C. Mission	Plains Western Ltd.	Imperial Oil Ltd	
Total Units Generated	107,000	No figures available	11,000,000		
Unit Cost (Resale)	12¢		* Average 5¢	7¢	
Federal Load (KWH)	104,000		94,300	10,000	24,928,200
Federal Costs	$12,480		$4,843	$700	1,732,890
Other Consumers Load	3,000		N.A.	NIL	6,720,300
Other Consumers Cost	$360		N.A.	N.A.	465,646
Cost of Subsidy For Others	$210		N.A.	N.A.	120,041
Anticipated Increase of Others Load	3,000		N.A.	N.A.	1,281,600
Cost of Subsidy For Increased Load	$210		N.A.	N.A.	63,715
Total Cost of Subsidy	$420		NIL	NIL	183,756

Remarks