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PRICE INDEXES OF ELECTRICITY UTILITY CONSTRUCTION
TRANSFORMER STATIONS 1969

Introduction

The base-weighted price indexes of the cost of constructing electric utility transformer stations in Canada express prices for materials, labour and equipment in a given year, as a percentage of prices for the same components of cost in the base year, 1961. Annual commodity, group and total indexes are presented herein for transformer stations.

A number of changes in index terminology, treatment of tax and prices samples were made during the year. These changes are outlined in the section following.

Changes in Index Terminology and in Price Samples

Federal Sales Tax

The former Transformer and Switching Stations Index has been retitled the Transformer Stations Index, a change which was precipitated by recent alterations in federal sales tax ruling applicable to this portion of utility capital.

The rates shown in the table following were applied to the index components, and are, for all practical purposes, reflective of rates utilities must pay on purchases of the components of material and equipment required for transformer station construction.

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Federal Sales Tax Rates for Transformer Stations

Tax exempt item	Tax percentage rates for taxable commodities								
	1/1/56	10/4/59	1/1/67	1/1/56	14/6/63	1/4/64	1/1/65	1/4/67	2/6/67
	to 9/4/59	to 31/12/66	to present	to 13/6/63	to 31/3/64	to 31/12/64	to 31/3/67	to 1/6/67	to present
<u>Transformer stations</u>									
Earth excavation and embankment	-								
Gravels	-								
Ready-mix concrete	-								
Steel structures									
Steel				0	4	8	11	11	11
Insulators				0	4	8	11	6	0
Wooden structures									
Poles									
Crossarms	10	11	12						
Insulators				0	4	8	11	6	0
Hardware	10	11	12						
Buswork and conductors				0	4	8	11	6	0
Power transformers				0	4	8	11	6	0
Circuit breakers				0	4	8	11	6	0
Disconnect switches				0	4	8	11	6	0
Metalclad switchgear				0	4	8	11	6	0

The above rates are not relevant to those concerned with revaluing switching stations capital. Because that portion of utility capital is believed to be relatively small, an appropriately tax-adjusted index has not been calculated. To assist any utility wishing to tabulate a switching index, any of the component indexes can be provided in an ex-federal-sales-tax condition.

These changes were accommodated without changing the weighting pattern or the list of commodities included in the index.

Price Sample Changes

Power Circuit Breakers

Since 1964 off-shore producers have been winning a number of orders for power circuit breakers. As a result it is appropriate for an index relating to purchases by electric utilities to reflect price changes of imported goods. Accordingly price data has been collected from off-shore producers. The index as presently published thus reflects price movement of purchases from domestic producers for the period 1956 to 1964. Price movement from 1969 in relation to 1964 relates to new orders won by both domestic and off-shore producers. As data are not yet on hand relating to the years 1965 to 1968, index levels were interpolated and an appropriate federal sales tax change adjustment was then made to the interpolations.

Switchgear and Other Protective Equipment

Revised publishing agreements with manufacturers now permit a reversion to the original format of this portion of the index: metalclad switchgear and disconnect switches.

Industry Selling Price Indexes, 1961-100

Some commodity indexes included in transformer stations utilize prices collected for the Industry Selling Price Indexes. These latter indexes were recently revised both as to content and time-reference base. The movement of these new indexes has been incorporated wherever relevant and in some instances price movement between 1961 and 1968 has been revised. All of the index revisions were fractional in nature. Additional information about these revisions can be found in the publication Industry Selling Price Indexes 1956-1968 DBS Catalogue No. 62-528, Occasional.

Characteristics of Recent Price Movement

To place recent index movements in their larger context, a brief review of changes in the supply and demand characteristics relating to electric utility construction is provided:

Related economic indicators*	1966 1965	1967 1966	1968 1967	1969 1968
	per cent change			
Capital expenditures in Canada(1)	+ 17.3	+ 1.5 ^r	+ 2.3 ^r	+ 10.7
Capital expenditures in electric utilities(1)	+ 21.6	+ 10.9 ^r	+ 10.0 ^r	+ 9.7
Expenditures in electric utilities as a proportion of capital expenditures in Canada	7.6	8.3 ^r	8.9 ^r	8.8
Indexes of employment in construction(2)	+ 10.4	- 7.3 ^r	- 2.5 ^r	- 0.1
Index of real domestic product for electric power(3)	+ 11.4	+ 8.8	+ 8.6 ^r	+ 9.7
Net generating capability(4)	+ 3.9	+ 8.4	+ 14.5 ^r	+ 6.9
Average bond yield for 10 public utilities(5)	+ 13.2	+ 8.6	+ 12.0	+ 10.9
Indexes of employment by industry for electrical industrial equipment(6)	+ 9.0	- 3.4	- 5.4	+ 5.2
Index of real domestic product by manufacturers of electrical industrial equipment(7)	+ 13.3	- 8.1	- 4.8 ^r	+ 5.5
Value index of selected imported electrical equipment(8)	+ 11.6	+ 25.2	- 16.4 ^r	+ 23.6

(1) Public and Private Investment in Canada, DBS Catalogue 61-205 Annual.

(2) Canadian Statistical Review, DBS Catalogue 11-003, Monthly.

(3) Indexes of Real Domestic Product, by Industry, DBS Catalogue 61-506.

(4) Annual Electric Power Survey of Capability and Load, DBS Catalogue 57-204, Annual.

(5) McLeod, Young, Weir and Company, 50 King Street West, Toronto.

(6) Employment and Average Weekly Wages and Salaries, DBS Catalogue 72-002.

(7) Table I of Indexes of Real Domestic Product by Industry, DBS Catalogue 61-506, Annual, and Table II of Index of Industrial Production, without seasonal adjustment, DBS Catalogue 61-005, Monthly.

(8) Imports of Commodities, DBS Catalogue 65-007, Monthly.

* In some instances 1969 data include estimates made by Prices Division staff relating to the concluding months of the year. Ratios published relating to earlier years have been revised to incorporate final figures published by the relevant divisions.

^r Revised figures.

Capital expenditures in Canada underwent a more pronounced increase of about 11 per cent in 1969 following modest gains in 1968 and 1967 of 2.3 and 1.5 per cent respectively. The 1969 increase falls short of the 17 per cent rise which occurred in 1966.

Capital expenditures by electric utilities in 1969 continued to expand at a rate consistent with the 10 per cent experienced in the previous two years. The electric utilities 1969 share of the capital expenditures dollar remained relatively unchanged at nearly 9 per cent. Gains in net generating capability, though less pronounced than the previous year, continued to accompany increased capital expenditures and gains in real output by electric utilities.

On the supply side, employment in construction stood virtually unchanged, unlike the previous two years in which declines in employment occurred.

For the heavy electrical equipment manufacturing industry, real output exhibited increases in direct contrast to the declines shown in the previous two years. The value of imports of a selected list of important elements of electrical industrial equipment increased substantially in 1969 attributable to increases in imports of components of switchgear, power transformers and turbo-generators.

Average bond yields for utilities underwent a 10.9 per cent increase consistent with sharp rises exhibited over the past four years.

During 1969 the transformer stations index rose by 1.3 per cent. Materials and labour prices mainly increased during the year. For materials and construction-in-place the average five per cent rise marked a reversal from the decreases in price levels which occurred in the two earlier years. Wage rates rose 8.5 per cent during the year, the second largest increase during the four years under review.

Equipment prices continued to decline in 1969 although the decline of 2.7 per cent was the smallest observed since 1967. Declines in the earlier years included changes in federal sales tax. Of the three major items of equipment, power circuit breakers show the greatest price decline since 1964: 23 per cent. Power transformers declined 7.5 per cent during the same period. Metalclad switchgear rose 14 per cent.

Price indexes of electric utility construction	<u>1966</u> 1965	<u>1967</u> 1966	<u>1968</u> 1967	<u>1969</u> 1968
per cent change				
<u>Recent price index percentage changes</u>				
Transformer stations	+ 3.6 ^r	- 1.1 ^r	- 3.4	+ 1.3
Structures and improvements	+ 5.6	- 2.9 ^r	- 2.9	+ 5.2
Materials	+ 4.3	- 2.9 ^r	- 1.1	+ 6.3
Buswork and conductors	+ 8.0	- 2.8	- 4.1	+ 4.0
In-place prices	+ 10.0	- 3.3	- 7.8	+ 1.5
Earth excavation	+ 11.6	- 3.5	- 9.8	+ 4.4
Crushed gravels	+ 6.8	- 2.8	- 3.7	- 4.1
Labour	+ 5.2	+ 12.7	+ 7.5	+ 8.5
Station equipment	+ 2.6 ^r	- 4.4 ^r	- 7.3	- 2.7
Power transformers	+ 1.2	- 1.3	- 9.6	- 2.4
Power circuit breakers	- 3.6 ^r	- 9.3 ^r	- 7.4	- 4.0
Metalclad switchgear	+ 9.1	- 6.7	- 3.6	+ 4.6
Disconnect switches	+ 11.3	+ 2.5	- 2.7	- 5.8

Wage Rates

The wage rate index exhibited the second largest gain seen since index inception in 1956 and are second only to the sharp 1967 increases. Rates of change in 1969 were mainly similar for all trades and among provinces:

Wage rates	<u>1966</u> 1965	<u>1967</u> 1966	<u>1968</u> 1967	<u>Preliminary</u> <u>1969</u> 1968
per cent change				
<u>Transformer stations</u>				
Electricians	+ 4.5	+ 13.5	+ 7.2	+ 8.5
Labourers	+ 6.1	+ 11.1	+ 8.1	+ 8.4

TABLE II. Wage Rate Indexes for Transformer Stations Construction(1)
Canada and Nine Provinces, 1956-69,
(1961=100)

	Indexes													Pre- limi- nary 1969
	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	
<u>Common labourer(2)</u>														
Nova Scotia	81.0	86.4	90.5	92.5	96.6	100.0	106.1	110.9	115.6	126.7	135.1	146.2	161.9	174.8
New Brunswick	82.9	91.0	94.6	96.4	96.4	100.0	103.6	103.6	106.3	111.1	117.3	125.5	134.4	144.0
Quebec	73.9	75.0	81.8	86.9	93.7	100.0	109.7	113.6	118.7	125.5	132.3	148.3	155.7	165.6
Ontario	66.8	72.8	78.2	85.1	93.1	100.0	105.0	108.6	114.6	119.5	125.5	138.2	152.2 ^r	167.1
Manitoba	67.3	74.5	80.0	89.7	95.2	100.0	100.0	100.0	100.0	104.4	108.1	116.9	128.8 ^r	140.9
Saskatchewan	77.6	80.8	88.5	94.2	97.4	100.0	100.0	105.1	110.9	114.1	117.8	124.1	131.7	141.4
Alberta	71.8	73.9	79.8	85.6	91.0	100.0	103.2	107.4	109.0	113.1	123.4	129.0	137.3	158.7
British Columbia	73.1	78.1	83.6	89.5	95.0	100.0	102.3	107.3	111.9	111.9	128.2	153.0	169.6	182.7
Canada	71.2	75.4	81.3	87.3	93.9	100.0	105.6	109.3	114.2	119.2	126.5	140.6	152.0 ^r	164.8
<u>Electrician(2)</u>														
Nova Scotia	78.3	81.7	85.2	88.3	92.6	100.0	102.2	104.3	108.7	114.4	119.1	126.7	142.2	152.2
New Brunswick	79.0	82.0	86.0	89.5	96.0	100.0	100.0	106.5	110.0	122.0	129.8	143.4	153.3	163.7
Quebec	80.0	80.0	83.2	90.0	95.2	100.0	106.0	108.8	112.0	117.4	122.1	151.4	159.0	170.3
Ontario	71.6	75.6	79.5	85.7	93.5	100.0	102.5	105.3	108.1	112.2	116.7	127.0	137.8	150.7
Manitoba	73.6	80.4	85.0	91.1	96.8	100.0	101.4	103.5	106.1	111.0	115.9	128.0	140.9 ^r	151.5
Saskatchewan	88.0	89.3	92.7	96.6	98.7	100.0	106.8	111.1	114.5	117.7	122.2	133.6	141.7	151.4
Alberta	77.4	82.2	86.3	91.1	94.5	100.0	102.4	104.1	108.2	112.9	122.9	130.8	140.0 ^r	154.0
British Columbia	74.2	78.2	87.7	95.4	98.2	100.0	101.8	107.4	112.3	119.6	126.9	136.6	147.5 ^r	164.8
Canada	76.0	78.8	83.1	89.3	95.1	100.0	103.6	106.8	110.0	115.1	120.3	136.6	146.5 ^r	159.0

- (1) For the period 1956 to 1964, wage rate indexes were derived for eight major cities from data supplied by the Labour Standards Branch of the Department of Labour. In January 1965, union wage rate data for the basic wage rates reported by major utilities and some contractors were incorporated in the index. The sample selected provides an estimate of wage rate change for each province - and represents urban own-account and contract electric utility construction. Wage rate data for Newfoundland have been collected and are available on request.
- (2) Expenditures for Newfoundland during the base-weight period were small and for this reason wage rates for Newfoundland are not included in the published indexes. Rates have been collected from Newfoundland utilities since 1964 and indexes are available upon request.

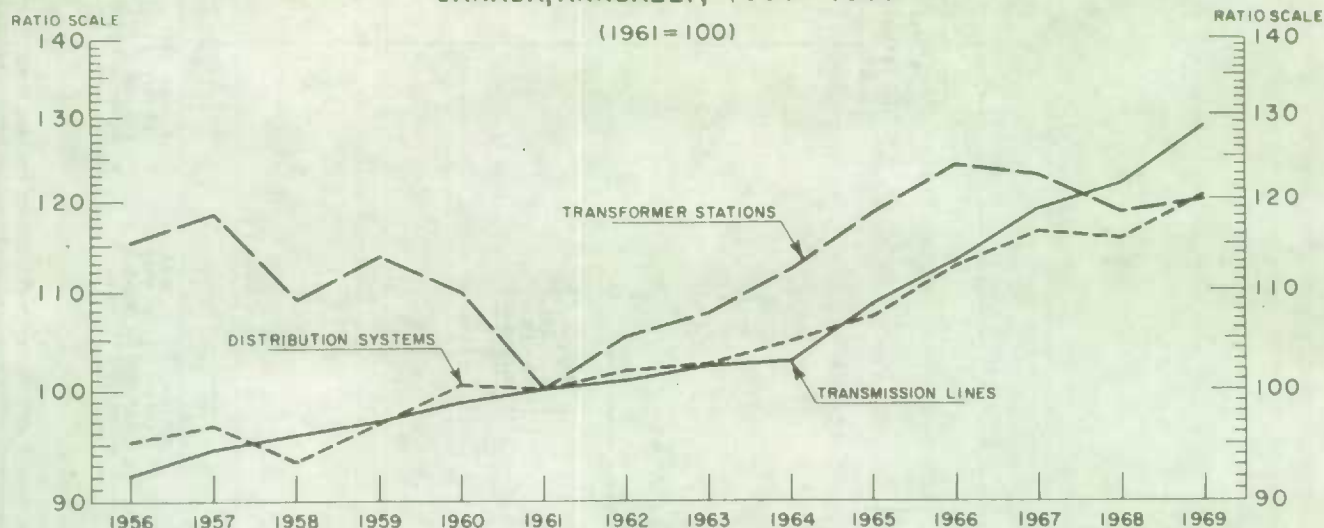
TABLE I. Price Indexes of Electric Utility Transformer Stations, Major Components and Items, Canada, Annually, 1956-69
(1961=100)

Total, major components and items	Indexes													Pre-liminary 1969
	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	
Transformer stations	115.2	118.1	109.0	113.5	109.8	100.0	105.1 ^F	107.6 ^F	112.0 ^F	118.3 ^F	122.5 ^F	121.2 ^F	117.1 ^F	119.9
Structures and improvements	110.1	105.6	101.3	102.6	103.3	100.0	102.6	108.9 ^F	112.9 ^F	124.0 ^F	131.0 ^F	127.2 ^F	123.5 ^F	129.9
Materials	100.0	99.8	98.9 ^F	99.6	100.5	100.0	100.4	103.4 ^F	108.8 ^F	117.1 ^F	122.1 ^F	118.6 ^F	117.3 ^F	124.7
Ready-mix concrete	99.8	100.0	100.0	100.0	100.0	100.0	100.3	104.2	107.3	112.0	118.3	121.7	123.2 ^F	126.9
Steel structures	92.3	97.4	99.0	99.8	100.6	100.0	100.1	102.4	107.1	114.7	115.7	109.8 ^F	110.2 ^F	119.8
Wooden structures	101.7 ^F	96.7 ^F	96.7 ^F	103.8 ^F	102.5	100.0	104.3 ^F	107.6 ^F	112.2 ^F	118.1 ^F	123.6 ^F	124.0 ^F	124.7 ^F	136.4
Buswork and conductors	109.6	103.5	99.0	98.3	100.2	100.0	100.0	103.5	110.8	121.8	131.6	127.9	122.7	127.6
In-place prices	149.9	128.5	110.6	114.3	114.1	100.0	111.2	130.4	129.0	151.0	166.1	160.6	148.1 ^F	150.3
Earth excavation	161.4	132.4	113.6	116.7	121.9	100.0	118.8	145.0	139.1	161.7	180.4	174.0	157.0 ^F	163.9
Crushed gravels	131.0	122.1	105.6	110.3	101.4	100.0	98.8	106.7	112.5	133.7	142.8	138.8	133.6 ^F	128.1
Labour (1)	74.3	77.6	82.5	88.6	94.7	100.0	104.3	107.6	111.5	116.5	122.5	138.0	148.4 ^F	161.0
Common labourer	71.2	75.4	81.3	87.3	93.9	100.0	105.6	109.3	114.2	119.2	126.5	140.6	152.0 ^F	164.8
Electrician	76.0	78.8	83.1	89.3	95.1	100.0	103.6	106.8	110.0	115.1	120.3	136.6	146.5 ^F	159.0
Station equipment	127.9	132.6	118.4	123.2	115.7	100.0	105.9 ^F	107.3 ^F	111.9 ^F	117.4 ^F	120.4 ^F	115.1 ^F	106.7 ^F	105.9
Power transformers	142.5	154.3	130.6	136.3	121.5	100.0	108.3	105.8	109.8	115.2	116.6	115.1	104.1 ^F	101.6
Power circuit breakers (2) .	95.2	97.3	96.7	101.1	104.4	100.0	104.8 ^F	109.3 ^F	114.9 ^F	(113.9) ^F (2)	(109.8) ^F (2)	(99.6) ^F (2)	(92.2) ^F (2)	88.5
Metalclad switchgear	132.1 ^F	125.1 ^F	115.9 ^F	119.9 ^F	116.0 ^F	100.0	103.0 ^F	109.0 ^F	113.9 ^F	125.2 ^F	136.6 ^F	127.4 ^F	122.8 ^F	128.4
Disconnect switches	96.5 ^F	100.7 ^F	98.8 ^F	97.2 ^F	99.9 ^F	100.0	100.1 ^F	102.4 ^F	107.1 ^F	114.6 ^F	127.6 ^F	130.8 ^F	127.3 ^F	119.9

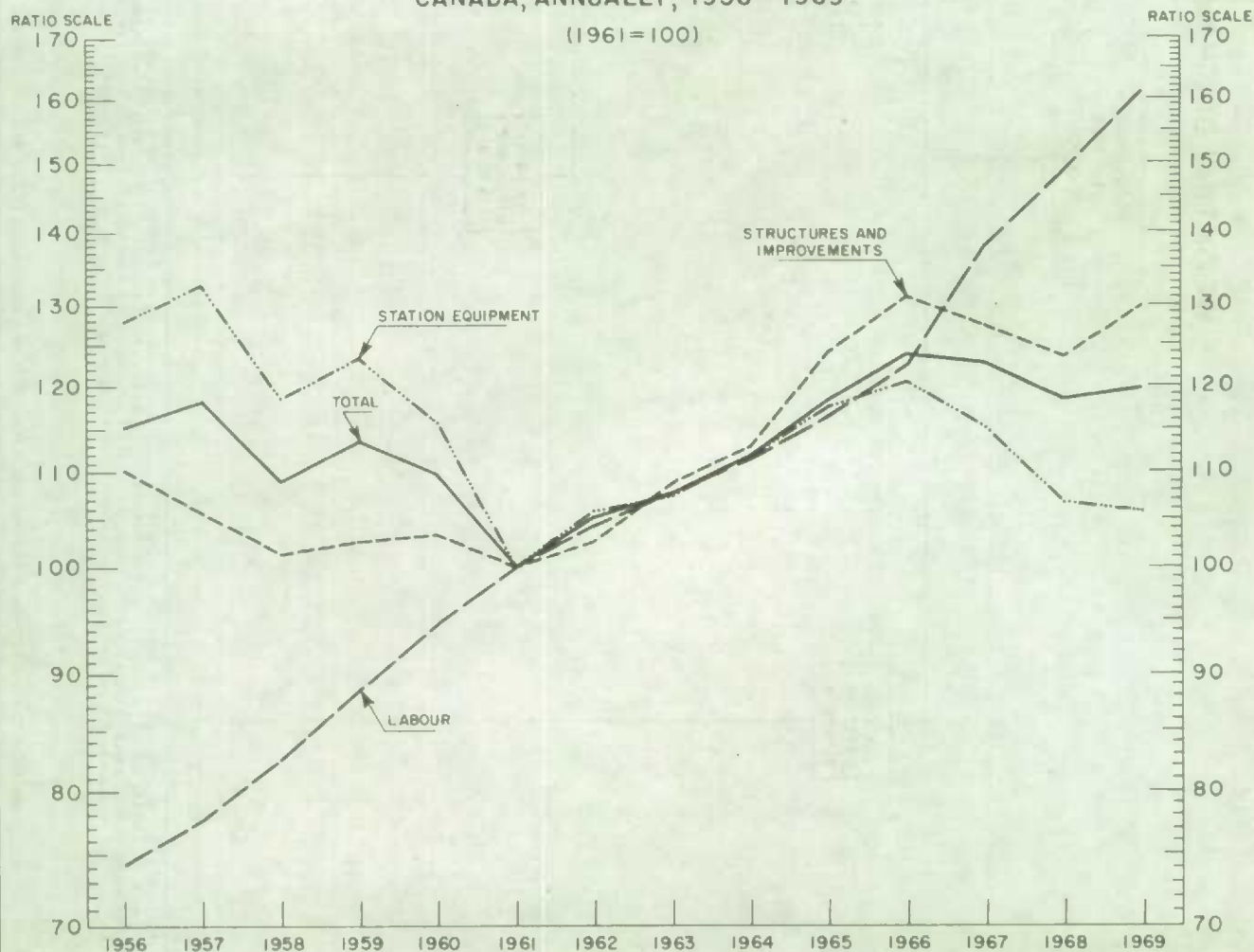
(1) See footnote (1), Table II.

(2) Indexes presented in brackets resulted from an interpolation between the 1964 and 1969 index levels, to which an adjustment was then made for changes in Federal Sales Tax. The indexes reflect the movement of purchase prices for new orders from Canadian electric utilities. For the period 1956 to 1964 such orders were usually won by domestic producers and only domestic producers were included in the price sample. Price movement for the period 1969 in relation to 1964 was derived from a sample of off-shore and domestic producers.

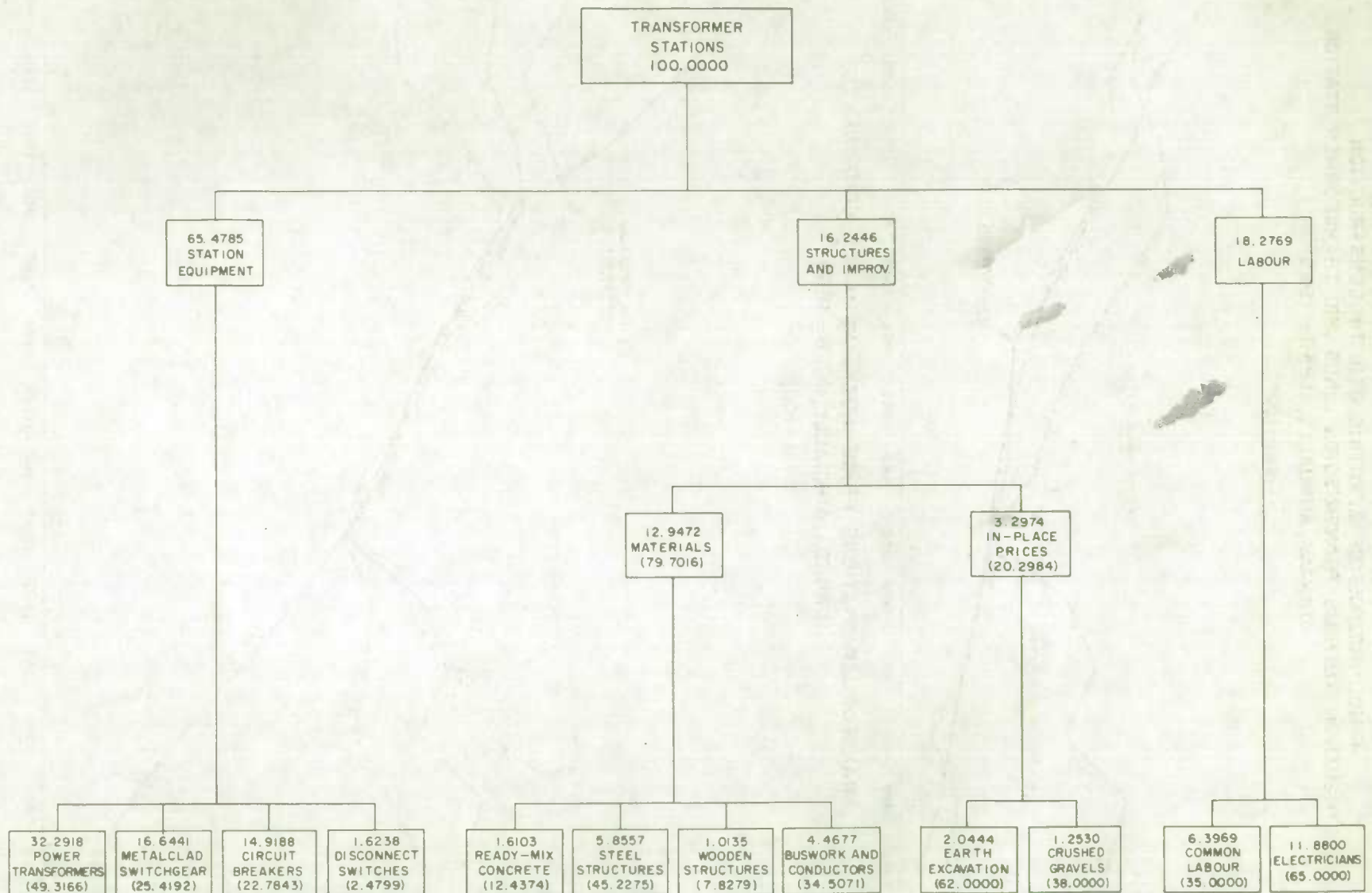
PRICE INDEXES OF ELECTRIC UTILITY CONSTRUCTION:
DISTRIBUTION SYSTEMS, TRANSMISSION LINES AND TRANSFORMER STATIONS,
CANADA, ANNUALLY, 1956-1969



TRANSFORMER STATIONS PRICE INDEX AND MAJOR COMPONENTS,
CANADA, ANNUALLY, 1956-1969



WEIGHTING DIAGRAM



NOTE: WEIGHTS TO FOUR DECIMALS ARE PROVIDED TO ASSIST IN INDEX CALCULATIONS BUT THEY SHOULD NOT BE REGARDED AS SIGNIFICANT BEYOND ONE DECIMAL PLACE.

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