Bulletin No. 186 1912 to July 1, 2017

The Handy-Whitman Index® of Public Utility Construction Costs™

Trends of Construction Costs

COMPILED & PUBLISHED BY

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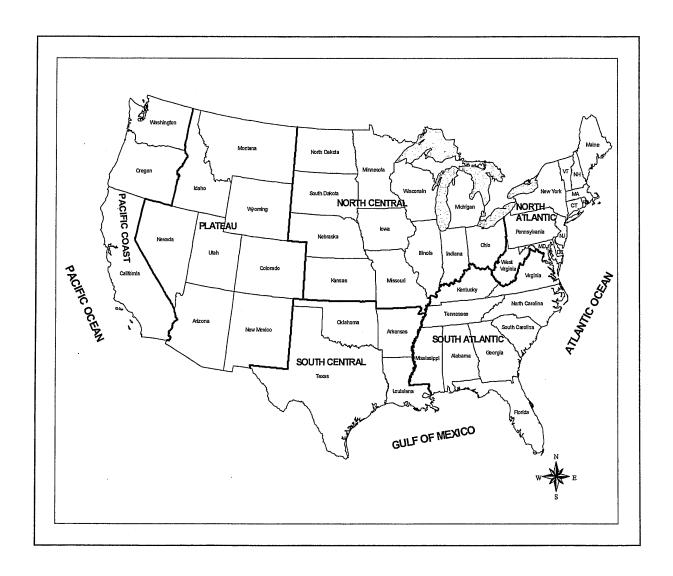
Water Industry Cost Indices 1-1-2018

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TRENDS OF PUBLIC UTILITY CONSTRUCTION COSTS

GEOGRAPHIC REGIONS



Tradition of Quality

The Handy-Whitman Index of Public Utility Construction Costs has been published continuously since 1924. Formerly the Handy Index, Bulletin Nos. 1 through 15 were developed by William W. Handy of Baltimore who had wide valuation experience in public utilities. He believed that valuation studies should not be confined to rate cases but should be kept alive to the benefit of the utility industry. He began publishing index numbers for electric and gas construction cost trends. Carrying on with the tradition of quality, after Mr. Handy's death, we continued publication for his estate beginning with Bulletin 16. Then, January 1, 1950, Whitman, Requardt and Associates, LLP purchased rights to the publication and have since been the sole publishers.

The name Handy-Whitman Index was adopted for Bulletin No. 53 and succeeding issues to combine the names of Mr. Handy and Ezra B. Whitman, a well-known valuation engineer. In 1957 an index of water utility construction costs was added. Mr. Whitman was a consultant on the publication of the Index until his death in 1963.

Whitman, Requardt and Associates, LLP

Ezra B. Whitman, a well-known valuation engineer was one of the founders of our firm. Major Whitman, as he was known from his World War I service, had already made a name for himself. Prior to the founding of the firm in 1915, Major Whitman had been President and Chief Engineer of the Water Board of the City of Baltimore. He designed the first rapid sand filtration plant serving a major city while he was the Baltimore Water Engineer. He was also president of the American Society of Civil Engineers and of the American Institute of Consulting Engineers and a chairman of the Public Service Commission of Maryland.

The Handy-Whitman Index is prepared especially for electric, gas and water utilities and is the only known publication of its kind available to the public. The list of subscribers is international and includes operating utilities, regulatory bodies, valuation engineers, equipment industries, insurance companies and reference libraries.

Tradition of Quality Continued

Since 1915, Whitman, Requardt and Associates, LLP, has been an independent consulting engineering firm organized to serve government, industry and private enterprise.

The firm has steadily expanded its engineering capabilities, providing complete services for civil, sanitary, structural, mechanical and electrical engineering and architectural projects from job

inception through construction management. Construction cost data from utility projects of all types are available from design and valuation assignments. The staff is composed of specialists in these and related disciplines who bring a diverse professional and academic expertise to each assignment. A full-time staff is maintained specifically for preparing the Handy-Whitman Index.

Methods of Preparation of Indexes

An index number is a percentage ratio between the cost of an item at any stated time and its cost at a base period, or:

Index Number = $\frac{\text{cost at stated time}}{\text{cost at base period}} \times 100$

Index numbers have been prepared for many items, including wage rates, cost-of-living, material and equipment costs, and financial transactions. In the Handy-Whitman Index, index numbers have been developed for Building Construction, Electric Utility Construction, Gas Utility Construction and Water Utility Construction. Prices of basic materials such as cement, sand, gravel, cast iron pipe, wire, etc., are obtained from publications such as Engineering News-Record and checked against prices actually being paid for such materials. Labor cost trends are computed from labor rates obtained from sources such as the Construction Labor Research Council. Prices and cost trends of equipment are obtained from nationally recognized manufacturers, and operating utilities.

Handy-Whitman Index numbers are developed from wage rates and prices prevailing on January 1 and July 1 each year. The index numbers are generally based on 1973 = 100, although those items of recent origin are based on a later year.

The proportions of basic materials, labor, equipment and other cost components used in the Handy-Whitman Index are based on analyses developed during valuation and design assignments and on data furnished by utilities and industrial sources willing to assist with the Index. These data are reviewed continuously, and weightings and components are revised as required. This review assures that the indexes published reflect current construction practice.

Geographic Regions

To reflect differing cost trends throughout the 48 contiguous states, the index has been divided into six geographical regions of similar characteristics. They are shown on the accompanying map.

Use of Index Numbers

Handy-Whitman Index numbers have been widely used to trend earlier valuations and original cost records to estimate reproduction cost at prices prevailing at a certain date. The use of indexes for an appropriate property item or group will provide a reliable guide to changes in cost. Cost trends are given for all the important items of property. The electric and gas groups are arranged by the Federal Energy Regulatory Commission Uniform System of Accounts. The water property accounts are arranged to follow the classification of the National Association of Regulatory Utility Commissioners and the American Water Works Association.

The Handy-Whitman Index will furnish a yardstick for the fluctuations in value of property which will be satisfactory for many purposes. In rate cases, when a more exact determination of value is desired, however, the Index must be used carefully. Average prices and cost trends are used to develop the Index, and any direct application of cost trends without checking with actual local experience may not be accepted without controversy. When local experience is compared with the index and the correlation between the two trends is determined, the result is satisfactory. Costs trended by such a method are used to assist in establishing a rate base.

Indexes in these bulletins are used to trend earlier valuations or original cost records for insurance purposes.

The Handy-Whitman Index has a general application in valuations of all types of property. The building construction cost trends may be used wherever similar items of property are to be compared. Many of the other trends may be used for related items in other industries because of their similarity.

State-of-the-art changes often affect costs independently of inflation. New regulatory and environmental requirements, changes in work rules and improved design standards, for instance, increase construction costs even though the price of wages, materials and equipment may be static. Trended construction costs will not reflect such changes. However, trended costs are a reasonably accurate measure of the cost of reproducing actual plant.

Although every effort is made to maintain accuracy, Whitman, Requardt and Associates, LLP disclaim any responsibility for the use of these indexes, because local conditions may vary.

No guarantee or warranty of any kind is made in the sale of the Handy-Whitman Index. Published numbers are occasionally subject to change based upon receipt of new or different information. These numbers will be bolded.

Further inquiries on electric, gas and water indexes should be addressed to Whitman, Requardt and Associates, LLP.

Total Electric Plant and Function

Three indexes are provided for total plant. The first is for all steam generation and the other two for weighted combinations of steam and nuclear, and steam and hydro generation. Indexes are also provided for each function.

Indexes are not maintained for plant accounts 323,324,325,341,345 and 346. We believe that indexes for comparable accounts in other functions are sufficiently accurate for these accounts.

The indexes for total nuclear production and total other production incorporate comparable indexes from the steam production function for the accounts not listed.

Value of Index Numbers

We believe that present-day reproduction cost of any property can be calculated more accurately using index numbers than by repricing a complete inventory.

Trending the controlling items of property in any utility by the index method saves time and effort in arriving at a valuation. Analyzing and determining cost trends for all of the great numbers of articles of plant that represent only a very small proportion of the value of the utility is not necessary. They may be assumed to follow in general the trend of the controlling items, and the fluctuations in value above or below the trends of the controlling items will tend to offset each other and have a very slight effect on the total value.

Comments on Bulletin No. 186

During the twelve month period ending July 1, 2017, the average index of all geographical regions for Total Gas Plant increased 7%. and the comparable index for Electric Plant-All Steam Generation increased 1.2%.

November 2017 Whitman, Requardt and Associates, LLP

Cost Trends Of

Water Utility Construction

COST TREND TABLES 1912 to July 1, 2017

							C	OST I	NDE	X NU	MBE	RS				
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1 2 3 4 5	Source of Supply Plant Collecting & Impounding Res.	305	7	7	7		9	13	15	15	17	16	16	16		B 100
6 7 8 9 10 11 12	Pumping Plant Structures & Improvements Electric Pumping Equipment	304 311	8	8 -	8 15	9 15	11 17	16 20	17 -22	18 24	20 24	18 23	18 21	18 22	19 23	18 23
12 13 14 15 16 17 18 19	Water Treatment Plant Structures & Improvements Large Treatment Plant Equip. Small Treatment Plant Equip.	304 320 320	8 9 10	8 9 10	.8 9 10	9 9 10	11 11 13	16 14 17	17 16 19	18 17 19	20 20 22	18 19 20	18 18 20	18 18 20	19 20 21	20
20 21 22 23 24 25 26 27 28 29 30	Transmission Plant Steel Reservoirs Elevated Steel Tanks Concrete Reservoirs Cast Iron Mains Steel Mains Concrete Cylinder Mains	330 330 330 331 331 331	.4 .4 	4 4 •	4 4 : : : : : : : : : : : : : : : : : :	12 11 - - -	15 14 - - -	17 16	19 18 - - -	20 19 - -	15 16 - - -	13 13 - -	12 11 - - - -	13 12 - - -	13 11 - - -	13 10 - -
31 32 33 34 35 36 37 38 39 40 41 42 43	Distribution Plant Mains-Average All Types Cast Iron Mains Cement-Asbestos Mains Steel Mains PVC Mains Services Installed Meters Meter Installations Hydrants Installed	331 331 331 331 333 334 334 334 335	9 9 6 6 23	10 10 - 7 - 6 23 -	8.9 - 6 - 5 23 1	9 - 7 - 6 23 -	111 12 - 8 - 6 26 -	16 18 - 11 - 9 29 -	19 20 - 13 - 10 35 - -	20 22 - 13 - 11 37 -	22 25 - 14 - 12 37 -	22 24 - 15 - 13 37 -	20 22 - 14 - 12 37 -	21 23 14 12 37 -	22 24 - 14 - 13 37 -	- 15 - 13
43 44 45 46 47 48 49 50 51 52 53 54	Miscellaneous Items Flocculating Equipment-Installed Clarifier Equipment-Installed Filter Gallery Piping-Installed		14 - 8	16 - 8	13 - 8	14 - - 8	26 - 10	38 - 14	.31 - 16	29 18	29 - 20	24 - 18	25 17	26 - 18	24 19	-

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1 2 3 4 5	Source of Supply Plant Collecting & Impounding Res.	305	17	17	17	17	17	16	14	14	15	15	15	17	17	17
6 7 8 9 10 11 12	Pumping Plant Structures & Improvements Electric Pumping Equipment	304 311	19 23	18 23	18 23	18 22	17 22	16 22	15 22	15 23	16 24	16 24	16 25	18 26	18 26	18 26
13 14 15 16 17 18 19	Water Treatment Plant Structures & Improvements Large Treatment Plant Equip. Small Treatment Plant Equip.	304 320 320	19 20 20	18 20 20	18 20 20	18 20 20	17 20 20	16 19 19	15 17 17	15 17 17	16 18 19	16 18 19	16 18 19	18 20 21	18 20 21	18 20 21
20 21 22 23 24 5 26	Transmission Plant Steel Reservoirs Elevated Steel Tanks Concrete Reservoirs	330 330 330	12 11	12 10 -	12 10 -	12 10 -	11 10 -	10 9 -	9 8	9 8	12 10 -	11 10 -	12 11 -	14 12 -	14 13 -	14 13
27 28 29 30 31	Cast Iron Mains Steel Mains Concrete Cylinder Mains	331 331 331	-	-	-	-	-	-	-	- - -,	- - -	-	-	- - -	-	-
32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48	Distribution Plant Mains-Average All Types Cast Iron Mains Cement-Asbestos Mains Steel Mains PVC Mains Services Installed Meters Meter Installations Hydrants Installed Miscellaneous Items Flocculating Equipment-Installed Clarifier Equipment-Installed Filter Gallery Piping-Installed	331 331 331 331 333 334 334 335	21 23 - 15 - 13 37 - -	21 21 - 15 - 13 37 - -	20 20 - 15 - 13 37 - -	20 21 - 16 - 14 37 - -	20 21 - 16 - 14 37 - -	20 20 - 16 - 14 37 - -	18 18 - 14 - 13 37 - - 20 - 15	18 18 - 13 - 11 35 - - -	19 20 - 14 - 12 26 - -	19 20 - 14 - 13 26 - - -	20 21 31 14 - 13 26 - -	21 23 32 16 - 14 31 - - 26 17 19	22 24 32 16 - 14 32 - - - 25 23 20	22 24 33 16 - 14 32 - - - 25 24 20
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1 Source of Supply Plant 2 Collecting & Impounding Res. 3 4 5	305	17	18	20	20	20	21	23	27	31	32	33	35	36	38
6 7 Pumping Plant 8 Structures & Improvements 9 Electric Pumping Equipment 0 1	304 311	18 26	19 27	20 27	21 27	21 27	22 27	24 31	28 39	32 43	35 45	36 49	38 55	38 55	39 55
2 3 4 Water Treatment Plant 5 Structures & Improvements Large Treatment Plant Equip. 7 Small Treatment Plant Equip. 8 9	304 320 320	18 21 21	19 22 22	20 23 24	21 24 24	21 24 24	22 25 25	24 28 28	28 32 33	32 35 37	35 36 39	36 38 41	38 40 43	38 41 43	39 42 44
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7 Cast Iron Mains 8 Steel Mains 9 Concrete Cylinder Mains 0 1	331 331 331	- - -	- - - - -		-	1.4.4	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		-	1 1	1.1.1	1 1 1	42 40 44	43 40 45	45 43 47
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1	Source of Supply Plant	-	-	-	$\overset{\circ}{-}$		-	-	- 		-				-	\dashv
2 3 4 5 6	Collecting & Impounding Res.	305	39	41		47	49	51	52	53	55	56	57	59	61	64
7 8 9 10 11 12	Pumping Plant Structures & Improvements Electric Pumping Equipment	304 311	41 55	43 56	46 63	49 69	50 73	52 74	53 74	53 71	54 71	55 71	56 73	57 74	59 78	61 81
13 14 15 16 17 18 19 20	Water Treatment Plant Structures & Improvements Large Treatment Plant Equip. Small Treatment Plant Equip.	304 320 320	41 44 46	43 45 47	46 48 50	49 50 53	50 52 54	52 54 56	53 55 58	53 56 58	54 58 60	55 59 60	56 60 62	57 62 63	59 64 66	61 67 68
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27 28 29 30 31 32	Cast Iron Mains Steel Mains Concrete Cylinder Mains	331 331 331	47 44 48	50 46 50	52 49 52	56 52 54	57 55 56	61 57 59	62 57 60	63 58 60	64 59 61	65 60 62	66 61 62	67 63 64	69 65 66	71 67 70
33 34 35 36 37 38 39 40 41 42 43	Distribution Plant Mains-Average All Types Cast Iron Mains Cement-Asbestos Mains Steel Mains PVC Mains Services Installed Meters Meter Installations Hydrants Installed	331 331 331 331 331 333 334 334 335	51 56 68 38 - 35 67 38 44	53 59 70 40 - 36 70 40 44	57 62 75 43 - 39 77 44 48	60 66 78 46 - 41 78 45 50	63 68 81 48 - 44 78 46 51	65 72 84 51 - 46 78 48 53	68 73 86 53 - 48 78 51 54	69 75 86 55 - 50 78 52 55	71 77 87 56 - 51 84 54 56	72 79 89 58 - 53 87 55 57	73 79 88 60 - 55 87 57 58	74 80 81 63 - 58 93 59 58	75 80 82 65 - 60 101 62 61	76 81 82 66 - 63 101 65 64
44 45 46 47 48 49 50 51 52 53 54 55 56	Miscellaneous Items Flocculating Equipment-Installed Clarifier Equipment-Installed Filter Gallery Piping-Installed		52 50 44	53 49 46	57 53 48	58 55 50	58 57 53	59 58 54	60 58 56	61 59 57	61 60 58	62 60 59	65 63 60	66 65 61	67 66 63	68 67 65

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305	67	72	78	86	94	100	115	127	133	139	148	164	179	
304 311	64 81	69 84	75 89	84 93	92 96	100 100	117 122	127 155	130 174	137 184	148 192	163 205	181 222	
304 320 320	64 69 70	69 73 74	75 79 80	84 89 90	92 96 96	100 100 100	117 118 120	127 134 139	130 144 150	137 152 160	148 162 172	163 175 186	181 191 204	
330 330 330	49 48 -	.53 .55	75 71 -	82 80 -	85 86 -	100 100 -	140 152	159 183 -	171 182 -	172 183	173 195	178 206 -	191 228 -	
331 331 331	74 69 72	78 74 78	84 80 80	91 88 88	96 96 95	100 100 100	129 113 113	137 125 134	142 133 138	150 141 140	158 152 148	166 166 162	180 180 176	
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1 2 3 4 5 6	Source of Supply Plant Collecting & Impounding Res.	305	197	206	217	227	234	238	248	255	258	262	270	282	295	302
7 8 9 10 11 12	Pumping Plant Structures & Improvements Electric Pumping Equipment	304 311	198 260	206 271	218 277	225 282	233 284	239 299	251 311	265 330	271 349	274 355	281 368	294 386	308 428	316 442
13 14 15 16 17 18 19 20	Water Treatment Plant Structures & Improvements Large Treatment Plant Equip. Small Treatment Plant Equip.	304 320 320	198 227 243	206 242 259	218 251 268	225 262 279	233 269 286	239 276 293	251 286 303	265 301 317	271 313 328	274 322 334	281 332 343	294 342 354	308 348 360	316 357 366
21 22 23 24 5 26	Transmission Plant Steel Reservoirs Elevated Steel Tanks Concrete Reservoirs	330 330 330	210 244 -	182 197 -	184 200 -	181 198 -	184 207 -	196 219 -	220 260 -	216 268 -	229 278 -	253 285 -	261 277 -	248 249 -	246 242 -	250 252 -
27 28 29 30 31	Cast Iron Mains Steel Mains Concrete Cylinder Mains	331 331 331	208 215 203	222 223 213	225 230 218	236 234 232	235 232 239	242 241 243	253 255 258	266 272 269	273 279 277	279 287 288	284 293 295	295 302 303	305 316 311	305 324 317
32 33 34 35 36 37 38 39 40 41 42 43	Distribution Plant Mains-Average All Types Cast Iron Mains Cement-Asbestos Mains Steel Mains PVC Mains Services Installed Meters Meter Installations Hydrants Installed	331 331 331 331 333 334 334 334 335	231 223 253 233 137 198 128 207 245	239 245 244 228 151 207 141 230 264	244 253 249 231 149 215 148 239 270	254 264 255 237 151 221 135 247 285	255 263 259 242 150 226 135 255 296	263 269 275 248 160 230 137 259 307	280 282 315 265 197 245 140 269 320	295 296 340 277 217 258 150 282 343	301 304 338 281 211 262 159 294 363	307 313 332 288 200 272 162 310 372	311 320 319 295 183 283 196 320 378	195 337	327 339 338 304 191 300 175 347 391	332 341 354 311 204 307 200 358 398
44 45 46 47 48 49 50 51 52 53 54 55 56	Miscellaneous Items Flocculating Equipment-Installed Clarifier Equipment-Installed Filter Gallery Piping-Installed		458 356 201	496 389 217	506 398 223	540 431 234	560 442 237	575 446 243	579 451 251	580 455 266	565 442 279	528 416 289	435	555 458 309	562 492 319	

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CONSTRUCTION AND EQUIPMENT	N A R U C	1 9 9	_1 9 9	1 9 9	1 9 9	2 0 0	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
Source of Supply Plant Collecting & Impounding Res.	305	309	317	318	318	.326	328	338	338	346	344	345	364	37
Pumping Plant Structures & Improvements Electric Pumping Equipment	304 311	321 450	331 473	337 489	343 505	362 530	370 531	380 531	382 516	390 533	393 534	388 546	405 547	41 56
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	L i n e	CONSTRUCTION AND EQUIPMENT	N A R U C	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1
	1 2 3 4 5	Source of Supply Plant Collecting & Impounding Res.	305	388	394	400	405	413	439	457	466	470	465	475	478
1	6 7 8 9 10	Pumping Plant Structures & Improvements Electric Pumping Equipment	304 311	442 604	447 611	456 620	464 619	481 639	494 628	516 640	543 666	551 679	536 688	552 707	558 701
	12 13 14 15 16 17 18 19	Water Treatment Plant Structures & Improvements Large Treatment Plant Equip. Small Treatment Plant Equip.	304 320 320	442 480 498	447 482 502	456 499 520	464 500 518	481 516 539	494 533 559	516 566 602	543 582 624	551 614 666	536 616 669	552 631 686	558 638 693
	11 12 13 14 5	Transmission Plant Steel Reservoirs Elevated Steel Tanks Concrete Reservoirs	330 330 330	329 524 -	338 524 -	348 524 -	375 596 -	494 657 -	537 657 -	537 680 -	722 866 -	722 866 -	722 866 -	722 866 -	722 867 -
2 2 3	7 8 9 10	Cast Iron Mains Steel Mains Concrete Cylinder Mains	331 331 331	411 509 436	415 508 440	442 530 454	451 539 459	480 528 460	484 527 462	510 543 468	534 606 475	578 605 502	576 585 502	601 593 494	
3 3 3 3 3 4 4 4 4	2 3 4 5 6 7 8 9 0 1 2 3	Distribution Plant Mains-Average All Types Cast Iron Mains Cement-Asbestos Mains Steel Mains PVC Mains Services Installed Meters Meter Installations Hydrants Installed	331 331 331 331 333 334 334 335	462 457 480 459 277 404 207 466 597	207 467	483 538 467 321 421 235 482	494 492 546 477 321 459 248 530 647	524 525 599 494 365 478 260 549 663	523 528 597 487 361 481 262 552 669	550 556 621 514 372 501 373 572 693	588 579 632 582 374 511 373 573 699	624 625 691 595 419 534 373 597 732	608 624 678 559 408 534 373 598 731	617 647 638 565 353 545 374 612 740	623
4 4 4 4 5 5 5 5 5 5	4 5 6 7 8 9 0 1 2 3 4 5 6	Miscellaneous Items Flocculating Equipment-Installed Clarifier Equipment-Installed Filter Gallery Piping-Installed			801 709 438	852 729 468	852 729 470	869 760 500	983 892 501	1187 920 530	1373 944 543	1645 997 589	997	991	1744 1001 614

							COST	INDE	X NUI	MBER	S			7	
		20	11	20	12	20	13	20	14	20	15	20	16	20	17
CONSTRUCTION AND EQUIPMENT	N A R U C	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. 1	Jul. 1	Jan. Ì	Jul. 1	Jan. 1	Jul. Î	Jan. 1	Jul 1
Source of Supply Plant Collecting & Impounding Res.	305	492	495	501	502	507	505	515	517	526	521	526	532	543	5
Pumping Plant Structures & Improvements Electric Pumping Equipment	304 311	571 708	583 760	597 780	600 785	618 800	608 844	621 856	630 900	642 928	646 931	655 990	659 1013	672 1052	6 11
Water Treatment Plant Structures & Improvements Large Treatment Plant Equip, Small Treatment Plant Equip.	304 320 320	571 642 706	583 653 712	597 669 740	600 680 754	618 689 764	608 697 779	621 713 800	630 725 813	642 736 832	646 737 840	655 755 861	659 758 864	672 774 881	6 7 8
Transmission Plant Steel Reservoirs Elevated Steel Tanks Concrete Reservoirs	330 330 330	771 1079 -	771 1079 -	795 1059 -	810 1082 -	778 1089 -	780 1099 -	715 1131	742 1131 -	742 1131 -	742 1131 -	742 1131 -	774 1143 -	784 1161 -	1
Cast Iron Mains Steel Mains Concrete Cylinder Mains	331 331 331	602 644 510	610 659 517	634 711 523	669 708 526	691 724 547	684 704 534	712 694 535	743 708 547	733 712 562	744 713 575	754 697 591	759 705 592	793 723 601	
Distribution Plant Mains-Average All Types Cast Iron Mains Cement-Asbestos Mains Steel Mains PVC Mains Services Installed Meters Meter Installations Hydrants Installed	331 331 331 331 331 333 334 334 335	633 654 658 593 369 568 379 635 730	644 660 683 606 389 574 379 635 731	669 681 716 633 412 589 379 646 757	690 716 721 637 412 600 379 673 758	698 733 712 638 391 602 380 677 774	381 677	603 381 688	605 381 688	617 400 702	738 785 731 670 387 616 400 702 930	622 403 709	750 797 743 681 388 617 403 709 972	774 832 751 697 387 638 404 722 980	
Miscellaneous Items Flocculating Equipment-Installed Clarifier Equipment-Installed Filter Gallery Piping-Installed		1823 1056 620			1102	1105	1136	2041 1154 713	1162		1188	1229	2192 1272 738	1311	1

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i	GONGERN GENOVA AND TOXARDA GOVERN	A	Jan.	Jul.	Jan.	Jul.	Jan.	Jul.	Jan.	Jul.	Jan.	Jul.	Jan.	Jul.	Jan.	Jul.
n	CONSTRUCTION AND EQUIPMENT	R U	1	1	1	1	1	1	1	1	1	1	1	1	1	1
e		C														
1	Source of Supply Plant															
2	Collecting & Impounding Res.	305														
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6 7	Pumping Plant														1.	
8	Structures & Improvements	304						· .								
9	Electric Pumping Equipment	311										,				
10 11	·									İ						
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14	Water Treatment Plant Structures & Improvements	304														
16	Large Treatment Plant Equip.	320						ŀ							A.	
17	Small Treatment Plant Equip.	320														
18 19																7.6
20																
21 22	 Transmission Plant									<u> </u>						
23	Steel Reservoirs	330														
24	Elevated Steel Tanks	330	:													
5 6	Concrete Reservoirs	330														
27	Cast Iron Mains	331												}		
28	Steel Mains	331												}		
29 30	Concrete Cylinder Mains	331														
31																
32	Distribution Plant															
34	Mains-Average All Types	331											i	ŀ		
35	Cast Iron Mains	331														
36	Cement-Asbestos Mains Steel Mains	331 331													:	
38	PVC Mains	331														
39	Services Installed	333												ļ ·		
40 41	Meters Meter Installations	334 334														
42	Hydrants Installed	335														
43																
44 45	Miscellaneous Items															
46	Flocculating Equipment-Installed														**	
47	Clarifier Equipment-Installed													1		
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BULLETIN No. 187 1912 to January 1, 2018

THE

HANDY-WHITMAN INDEX Of Public Utility Construction Costs ©

TRENDS OF CONSTRUCTION COSTS

Preliminaries

Compiled and Published by

Whitman, Requardt and Associates, LLP 801 South Caroline Street Baltimore, Maryland 21231 (410) 235-3450

HANDY-WHITMAN INDEX OF PUBLIC UTILITY CONSTRUCTION COSTS

PRELIMINARY NUMBERS

WATER INDEXES

BULLETIN 187

1/1/18

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LINE	REGION 1	REGION 2	REGION 3	REGION 4	REGION 5	REGION 6
2	559	467	537	456	495	534
8	687	. 570	655	.558.	634	. 684
9	1146	1146	1146	1146	1146	1146
15	687	570	655	558	634	684
16	797	701	759	705	717	810
17	911	832	882	841	851	930
23	801	801	801	801	801	801
24	1181	1181	1181	1181	1181	1181
27 .	810	763 .	789	773	783	827
28	733	658	699	681	673	732
29	620	554	594	557	567	621
34	79.0	719	752	696	714	777
35	855	821	846	798	814	854
36	7.63	612	668	590	621	649
37	704	597	653	590	605	701
38	397	343	376	342	348	384
39	661	504	596	513	519	636
40	434	434	434	434	434	434
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AUS Telephone Plant Index



AUS Telephone Plant Index

Cost Trend Tables from 1946 to January 1, 2018

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Bulletin No. 57

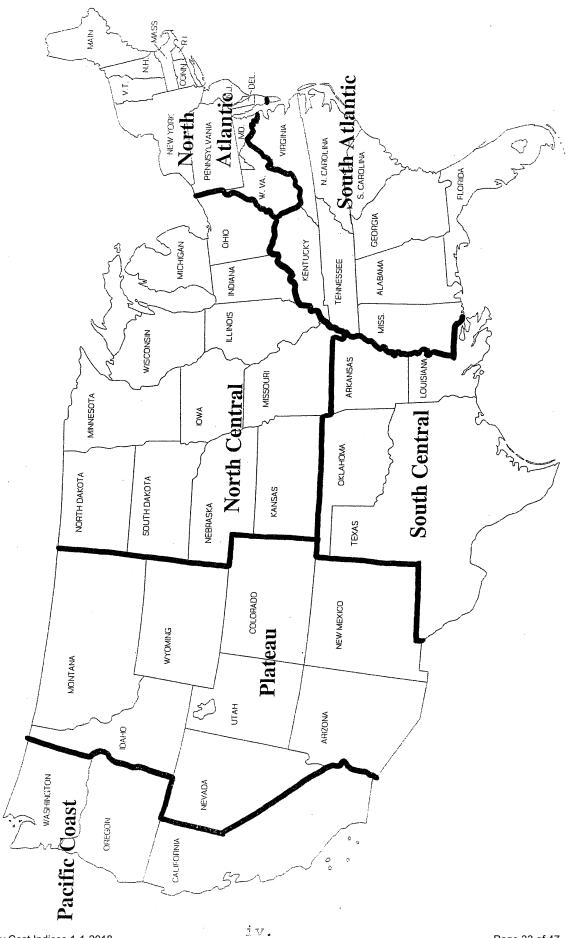
To January 1, 2018

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FOREWORD

The AUS Telephone Plant Index, which follows this foreword was first introduced in 1977 by Associated Utility Services, Inc., and published as part of the Handy-Whitman Index of Public Utility Construction Costs through 1989. In 1990 AUS Consultants, the successor company to Associated Utility Services, Inc., decided to publish the Telephone Plant Index under the name C.A. Turner Utility Reports publication division. In 2005 the index changed its name from C.A. Turner Telephone Plant Index to AUS Telephone Plant Index.

The 1990 AUS Telephone Plant Index (TPI) was the first nationally available TPI based on the Federal Communication Commission (FCC) Uniform System of Accounts (USOA) Part 32. The prior published TPI, also prepared by AUS staff, was based on the earlier USOA Part 31 Standards.

Telephone Plant Index Description

The TPI consists of a separate cost index series for each of six geographic regions shown on the map at page iv. These regions are designated: North Atlantic, South Atlantic, North Central, South Central, Plateau, and Pacific Coast. The regional designation are the same as those used in the prior issues of the cost index and are based on similarity of characteristics among the contiguous 48 states.

Each cost index series within a region consists of one index labeled "Total Plant Account" and up to 31 individual cost index series for the individual plant account identified in the left hand columns.

The Base Year for each cost index is 1973=100. Some plant accounts will not show an index number of 100 at year 1973 due to a subsequent adjustment for FCC Part 31 to Part 32, changes explained later in this foreword. In a few accounts the item described in the account was not included in the index series until after 1973 and the base year is considered the first year of entry.

The index for most plant accounts begins with a single entry in year 1946 and continues with a single number for each year through 1973. Beginning in 1974 there are two index numbers for each year; one for January 1 and one for July 1. These numbers represent the prevailing wages and material prices and weightings at that point in time.

Index History

An index is a tool for identifying the relative price change of an item, or group of items over an identified period of time. Price indexes have been in use for many years for a variety of reasons. One example is an index developed in the eighteenth century by an Italian named Carli to determine the effect of the discovery of America upon the level of prices in Italy of three commodities between the years 1500 and 1750. In the current century, numerous organizations, including the United States Bureau of Statistic, have developed a variety of indexes ranging from the cost of basic commodities to manufactured goods and building construction cost.



Interest in telephone utility cost indexes has varied over time depending on the need to develop reproduction cost values for utility properties. Previous uses of cost indexes included such things as the determination trended original cost in fair value rate jurisdictions and current cost pricing for FASB-33 financial accounting disclosures. Due to changes in rate regulation proceedings and financial disclosure requirements, the need in these two specific areas has declined. Other areas in which reproduction cost indexes were utilized included insurance valuations, property tax valuations, retirement accounting and cost forecasting, etc.

Most recently, interest in cost indexes for the telecommunication industry has increased due to the possible implementation of price cap regulation. This form of regulation incorporates the use of changes in price levels by regulators to set rates. Under one proposal, customer tariff prices are adjusted to give consideration to productivity improvements, therefore, the development of the construction cost indexes will have an indirect bearing on the level of the company revenue requirements.

Index Design

The telephone plant index was designed as a product which could be utilized by any of the various telephone operating companies to develop the reproduction cost of the company's property at the selected test year date. Due to the variation of many design construction specifics from one company to another, it is impossible to produce an index which will exactly mirror the construction cost changes for each company. In circumstances where companies desire a more specific reproduction cost of their property, a custom index should be prepared or, alternately, the company's property should be inventoried and unit priced. Such unit cost work efforts, of course, will be significantly more expensive and time consuming to complete.

As indicated, the telephone plant index is a standard index which is published on a semi-annual basis. The yearly average index is calculated via a 1-2-1 weighting process which is the sum of 25% of the January index, 50 of the July index, and 25% of the succeeding year's January index.

In general terms, the telephone plant index was constructed around the FCC Part 32 system of accounts to aid companies in ease of application of the published index. Each embedded property account was reviewed to determine the components which comprise the large segment of the property investment in each account. In this manner, the resulting telephone plant index was a reasonable proxy for determining the reproduction cost of the embedded investment of the independent telephone industry.

With the exception of the General Support Asset Group, the FCC Part 32 based indexes were adjusted for all index years 1987 and prior to compensate for the change in overhead capitalization policies effective with the new regulations. That is, under FCC Part 31 regulation, a greater level of overheads were previously incorporated in the plant in service investments contained on the company's books and records. The adjusted indexes for the years 1946 through 1987, when applied to the company's original costs, will produce the applicable reproduction cost under FCC Part 32 accounting treatment. The index adjustment for Part 31 to Part 32 accounting results in the plant accounts not having an index number of 100 at the 1973 base year.

The AUS Telephone Plant Index was designed around thirty-six component indexes representing the basic components of material and labor which make up the construction of the various telephone plant accounts. The components include such items as Buildings, Switching Equipment, Circuit Equipment, Poles, Cable, Wire Vehicles, Tools, Furniture, Installer Labor and Lineman Labor, etc. The components were composited together into account level indexes based upon material and labor weights derived from a study of independent telephone construction cost experience.

Introduction of new technologies into a reproduction cost index required the review of composite weight included in development of the account level index to reflex the new mix of property.

The goal of the telephone plant index was to produce a product which when utilized together with each companies' books and records would produce a reproduction cost value.

The AUS Telephone Plant Index does not reflect replacement cost inasmuch as it was designed to produce the reproduction cost (the cost in today's dollars to reproduce the company's <u>embedded</u> plant in service).

Index Functions

The AUS Telephone Plant Index series was initially prepared to address a very specific function. That is, it was designed to enable companies to produce trended original cost values to the historical original cost of plant in service on the companies' books and records. This trended original cost is a general representation of the cost to reconstruct the property in question at the price level of the selected period. If a company desires a more specific estimate of reconstruction, the property specific indexes can be developed giving consideration to the actual history of the company's wages and material cost in comparison to the labor and material costs. For an even more specific cost estimated to rebuild the plant in serve, engineering estimated can be completed based upon the property inventory and the current unit costs for constructing the various plant categories.

In summary, the index was designed to be applied on a vintage and account level basis to determine the reproduction cost of local distribution companies' plant in service, as of the selected price level.

A tool can be utilized correctly only within the boundaries for which the product was originally designed. Uses above and beyond the scope of the original design may or may not produce reliable results. That is, the use of a generalized index to prepare a reproduction cost will provide general results within the range of reasonableness. If more specific or exact results are required, alternative methods or procedures (i.e., custom indexes or specific detail pricing) should be employed.

An effort has been made to carefully construct an index which produces a reasonable proxy of reproduction cost for the telephone plant or local distribution companies giving consideration to the fact that there are variances in material and labor costs, as well as, construction methods and practices from one company to another. Nevertheless, we believe that there is sufficient similarity in the cost trends to make the AUS Telephone Plant Index a useful tool when carefully applied to a company's historical cost base.

Atlantic North

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1	Total Plant		85	89	91	91	92	95	96	96	94	94	97	97	96	96	97	96	1
2 3	•		ľ																2
4	Motor Vehicles	2112	57	57	63	67	67	70	74	74	74	77	81	84	87	89	88	87	4
5	Aircraft	2112	56	56	62	66	66	69	73	73	73	75	80	83	86	88	86	86	5
6	Special Purpose Vehicles	2114	30	34	38	41	42	46	47	48	49	51	56	60	62	65	66	67	6
7	Garage Work Equipment	2115	36	38	42	44	46	51	51	52	53	56	61	65	67	69	70	70	7
8	Other Work Equipment	2116	50	50	52	54	55	59	59	61	62	64	67	70	71	74	75	77	8
9	• •																		9
10															1				10
11	Buildings	2121	24	28	32	34	35	37	38	39	41	42	46	49	50	52	53	52	11
12	Furniture	2122	43	43	46	47	50	56	56	57	57	60	64	68	70	70	71	71	12
13	Office Equipment	2123	67	67	69	69	70	75	74	76	77	79	82	85	87	88	88	89	13
14	General Purpose Computer	2124	67	67	69	69	70	75	74	76	77	79	82	85	87	88	88	89	14
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16		1					i												16
17	Analog Electronic Switching	2211	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
18	Digital Electronic Switching	2212	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
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21 22	Electro Mechanical Switching	2215	36	48	49	57	62	64	67	66	64	65	68	70	69	72	70	72	21
23	Operator Systems	2220	37	50	51	59	64	67	69	68	66	67	70	72	71	73	71	74	22 23
24	Operator Systems	2220	37	30	21	59	04	07	09	00	00	67	/"	12	/1	′°	/1	/4	23
25		1	1											1	ĺ				25
26	Radio System—Analog													l					26
27	Radio Systems—Digital	22311	51	57	62	63	63	66	64	60	58	58	49	49	46	47	36	36	27
28	Circuit Equipment—Analog	22312	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
29	Circuit Equipment—Digital	22321	347	392	417	411	410	423	410	401	348	311	319	317	303	299	312	297	29
30		22322	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
31		1														l			31
32	Public Telephone Term Eq	2351	148	151	145	145	148	154	143	144	146	158	159	164	164	164	165	165	32
33																			33
34																			34
35	Poles	2411	33	37	39	41	42	45	47	49	51	50	54	58	59	59	60	61	35
36 37	Aerial Cable—Metallic	24211	44	47	49	49	51	58	61	64	64	68	74	72	70	71	72	70	36
37	Aerial Cable—Fiber Underground Cable—Metallic	24212	0 48	0 52	0 54	53	0 55	0 64	0 67	71	60	75	0	78	75	76	78	75	37
39	Underground Cable—Fiber	24221 24222	48	0	54	53	55	04	0	71	69	75 0	82 0	78	75 0	76	78 0	75 0	38 39
40	Buried Cable—Metallic	24222	50	54	56	55	57	66	70	74	72	78	85	81	77	78	80	76	39 40
41	Buried Cable—Fiber	24232	0	0	0	0	0	00	0	0	0	0	0	0	0	0	0	0	41
42	Submarine Cable—Metallic	24241	43	45	48	48	50	56	59	62	61	65	71	69	68	69	71	70	42
43	Submarine Cable—Fiber	24242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
44	Intra Building Cable—Metallic	24261	43	47	49	48	50	58	61	64	63	68	74	71	69	70	72	70	44
45	Intra Building Cable—Fiber	24262	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
46	Aerial Wire	2431	33	36	38	38	40	45	47	50	50	55	58	57	57	59	61	62	46
47	Conduit Systems	2441	54	55	57	59	60	63	64	64	65	65	67	69	71	72	73	74	47
48		1																	48
49	Aerial Cable-FTTP (Distribution)	24213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
50	Underground Cable-FTTP (Dist.)	24223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
51	Buried Cable-FTTP (Distribution)	24233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
52	Submarine Cable-FTTP (Dist.)	24243	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	. 0	52
53	Intra Building Cable-FTTP (Dist.)	24263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
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AUS TELEPHONE PLANT INDEX NORTH ATLANTIC REGION 1973=100

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6	67	68	70	72	74	77	81	85	89	93	96	100	103	114	130	141	147	151	.158	162	171	177	187	195	6
7 8	71 78	71 79	72 79	73 79	76 81	79 85	82 88	85 93	90 98	94 100	96 100	100	114	118	134 118	139 122	143 119	147	153 124	159 130	165 131	172 137	180 141	189 147	7 8
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13	89	90	90	90	91	92	93	93	96	97	99	100	101	105	109	111	110	112	111	113	114	118	119	123	13
14	89	90	90	90	91	92	93	93	96	97	99	100	100	100	102	103	100	100	98	90	90	90	90	90	14
15 16																									15 16
17	0	0	0	0	0	0	0	0	0	0	0	104	103	106	110	111	111	113	113	113	115	119	122	125	17
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	105	105	100	95	95	95	96	96	18
19 20																									19 20
21	71	76	78	75	72	71	75	81	84	88	98	104	106	110	115	120	124	127	132	136	140	145	151	156	21
22 23	73	77	79	76	72	71	76	81	85	89	98	104	106	100	111	114	117	119	121	122	125	128	132	136	22 23
24	/3	''	19	/0	/2	/1	70	01	65	09	90	104	100	108	111	114	117	119	121	122	123	120	132	130	24
25																									25
26 27	46	49	52	60	58	63	62	66	78	97	102	104	102	102	102	102	97	98	103	104	106	106	103	103	26 27
28	0	0	0	0	0	. 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
29	273	234	228	214	224	210	173	159	163	128	108	104	105	108	111	112	111	111	115	118	118	119	120	122	29
30 31	0	0	0	0	0	0	0	0	0	0	0	104	104	104	105	105	110	116	121	126	126	127	123	120	30 31
32	165	165	166	130	122	123	120	118	108	107	108	107	106	107	110	109	109	111	112	114	116	119	123	127	32
33																									33
34 35	62	63	65	66	68	71	76	79	83	88	97	107	119	131	144	157	158	160	164	169	176	183	196	208	34 35
. 36	70	70	70	73	77	81	84	88	96	97	100	107	114	125	129	126	130	135	140	144	148	152	158	170	36
37	0	73	72	0 75			0 87	0		0	100	107	114		130	105		134	138	143	1	140	155	168	37
38 39	74	73 0	72 0	75 0	80 0	84 0	87 0	91 0	100	99 0	100	107 0	114 0	127 0	130 0	125	129 0	134 0	138	143 0	145 0	149	155 0	168 0	38 39
40	76	74	73	77	81	85	88	91	101	99	100	107	114		131	124	128	133	138	142		147	153	167	40
41 42	0 70	0 70	0 71	0 73	0 77	0 81	0 84	0 88	0 95	0 96	0 101	0 107	0 113	0 123	0 128	0 126	0 131	0 136	0 141	0 145	0 150	0 154	0 160	0 171	41 42
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
44	70	70	70	73	77	81	84	88	96	96	100	107	114	125	129	126	130	136	140	145	148	152	158	170	44
45 46	63	0 65	0 66	70	73	0 75	0 78	0 84	0 91	93	0 100	0 107	0 114	0 125	0 130	0 131	134	139	0 142	0 146	0 145	0 150	0 158	0 172	45 46
47	74	77	78	79	82	84	84	87	89	94	102	107	111	117	127	130	135	139	144	150	159	163	169	180	47
48																					_				48
49 50	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49 50
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
53 54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53 54
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AUS TELEPHONE INDEX BULLETIN NO. 57

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N	PLANT IN SERVICE	С	J	J	J	T J	J	T	J		J		J		 				N
E	DECORPORA	A	a	u	a	u	a	J	a	J	a	J u	a	J u	J a	J u	J a	J	Е
1	DESCRIPTION	c	n	1	n	1	n	I	n	1	n	1	n	1	n	1	n	1	
N O		c	1	у	l	у		у		у		у	l	у		у		у	N O
		t	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1]
1	Total Plant		140	146	146	149	150	152	156	159	156	154	156	158	156	154	154	155	1
2		1			ļ]	ļ							1					2
3					ĺ				ĺ							İ			3
4 5	Motor Vehicles	2112	162	167	178	186	195	195	201	199	203	204	206	210	215	215	227	220	4
6	Special Purpose Vehicles	2113 2114	170 206	180 220	195	205 245	215 254	217 263	224 266	223 270	227 271	228 274	230 274	234	238 278	237 281	233	231 287	5 6
7	Garage Work Equipment	2115	200	213	223	234	241	248	1	251	253	257	260	263	264	267	268	270	7
8	Other Work Equipment	2116	153	165	170	181	183	189	189	189	189	190	192	197	199	202	204	205	8
9							Ì												9
10	D. T.	1						ĺ				ŀ					l		10
11	Buildings Furniture	2121 2122	176 174	183	188	193	192	198	200	206	210	218	223	224	228	234	234	239	11
13	Office Equipment	2122	125	182 130	187 132	199 136	210 137	213 140	215 140	222 143	224 142	229 142	232 140	238 142	242 143	245 143	248 143	252 146	12 13
14	General Purpose Computer	2124	90	90	90	90	87	83	76	69	59	48	48	48	48	47	47	47	14
15																		1	15
16		1	1	Ì			l												16
17 18	Analog Electronic Switching	2211	130	140	149	163	168	175	183	188	193	199	202	204	205	208	210	210	17
19	Digital Electronic Switching	2212	96	96	97	97	94	90	84	77	67	57	57	57	57	56	56	56	18
20		1	l																19 20
21	Electro Mechanical Switching	2215	167	188	199	213	219	226	232	248	268	277	282	281	283	286	287	287	21
22	_																		22
23	Operator Systems	2220	146	157	166	176	180	185	191	197	204	211	213	215	216	218	219	219	23
24								1						İ					24
25 26	,							ļ											25
27	Radio System—Analog	22311	100	100	101	102	90	91	94	94	79	80	80	81	77	78	82	82	26 27
28	Radio Systems—Digital	22312	0	0	0	0	0	0	115	115	115	117	119	121	122	124	126	124	28
29	Circuit Equipment—Analog	22321	125	130	129	128	130	132	121	154	153	152	153	152	147	144	145	146	29
30	Circuit Equipment—Digital	22322	114	107	100	93	93	94	95	96	89	82	80	78	68	59	49	39	30
31 32	Public Telephone Term Eq	2351	132	141	145	150	158	1677	190	100	201	200	210	210	010	0.17		010	31
33	rubite retephone remi Eq	2351	132	141	145	150	130	167	190	196	201	206	210	212	213	217	219	218	32 33
34																			34
35	Poles	2411	220	232	240	249	254	259	263	268	272	273	280	283	287	292	295	297	35
36	Aerial Cable—Metallic	24211	182	193	191	197	202	204	208	213	211	·209	219	231	227	223	225	228	36
37	Aerial Cable—Fiber	24212	0	0	0	0	0	0	136	138	132	127	119	111	108	105	108	110	37
38	Underground Cable—Metallic Underground Cable—Fiber	24221 24222	181 0	192 0	187 0	191 0	195 0	196 0	199 130	203 131	197 125	193 119	204 110	217 101	212 98	205 94	206 97	209 100	38
40	Buried Cable—Metallic	24231	180	192	186	189	192	193	195	199	192	187	198	212	205	198		201	39 40
41	Buried Cable—Fiber	24232	0	0	0	0	0	0	129	131	124	118	109	100	97	93	96	98	41
42	Submarine Cable—Metallic	24241	181	192	193	199	205	209	214	219	219	218	227	238	237	235		240	42
43	Submarine Cable—Fiber	24242	0	0	0	0	0	0	147	149	145	141	134	128	126	124	127	130	43
44 45	Intra Building Cable—Metallic Intra Building Cable—Fiber	24261	182	193	191	197	202	205	209	214	211	210	220	231	228	224	226	230	44
46	Aerial Wire	24262 2431	0 182	0 191	0 198	206	0 210	0 214	136 219	138 225	132 232	127 239	119 243	111 248	108 250	105 252	108	111 253	45
47	Conduit Systems	2431	188	196	203	211	219	214	228	240	246	253	257	262	267	252		253	46 47
48																- ' -	-, 5		48
49	Aerial Cable-FTTP (Distribution)	24213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
50	Underground Cable-FTTP (Dist.)	24223	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
51 52	Buried Cable-FTTP (Distribution). Submarine Cable-FTTP (Dist.)	24233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
53	Intra Building Cable-FTTP (Dist.)	24243 24263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
54		2,200	"	٥	١	٦	١	٧	١	U	۷	U		"	١	U	ال	"	53 54
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	Т										COST	INDI	EX NU	IMBE	R										Γ
L	19	988	19	989	19	90	19	991	19	92		993		94		95	19	96	19	97	19	98	19	99	L I
N	J	J	J	J	J	J	j	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	N
E	a	u	a	u	a	u	a	u ,	a	u ,	a	u ,	a	u	a	u	a	u ,	а	u	a	u	a	u	E
N	n	l y	n	1 y	n	l y	n	1 y	n	l y	n	l y	N												
0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
1	150	153	158	165	164	165	167	165	165	165	167	168	169	170	174	178	182	182	184	185	186	184	184	181	1
2					İ																				2
4	221	222	231	229	236	232	244	241	254	251	258	261	267	271	275	270	279	276	277	271	270	263	273	266	3 4
5	234	234	234		246			271	274	284	1	•	297	300	i	312	•	322	Į.	328	327	328	l	330	5
6 7	289	293 279			312 298	319 305	325 309	328 316	333	337	343 324	348	348 332	351 336	353	360 345	362 349	368 354	370 356	374 359	377	382 364	383 366	388 368	6 7
8	206	210	1	218	221	228	230	234	235	240	240	243	244	250	250	254	254	258	258	260	260	262	263	265	8
9 10																									9
11	242	254	257	268	268	272	272	274	270	279	283	290	295	306	310	310	311	312	323	329	331	338	341	343	10 11
12	255	263	1	274	278	284		290	291	294	296	299	302	309	309	315	320	322	326	328	330	330	. 330	333	12
13 14	147 45	149 43	151 37	153 31	154 30	154 29	152 26	153 24	153 23	156 21	154 21	155 21	155 21	155 21	154 21	156 20	155 17	156 15	155 14	157 14	156 14	157 14	156 13	157 13	13
15		"	"	0,					20	-1		21	21		41	20	''	13	14	14	14	14	13	13	14 15
16	004	007				١																			16
17 18	204 52	207 50	45	212 40	214 39	211 38	212 36	214 33	213 32	213	213	216	215 32	216 32	213	212 31	211 28	204 27	204 26	200 26	196 26	194 26	193 25	192 25	17 18
19	ľ								"	"				0.2	02		"		20	20		10		20	19
20 21	278	284	289	291	291	292	296	302	202	204	200	217	216	204	200	207	224	222	200	220	۵۵.	200	200	240	20
22	2,0	204	209	291	291	292	290	302	303	304	309	317	316	324	329	327	334	333	336	339	331	336	338	342	21 22
23	213	216	217	218	218	218	220	223	224	224	227	231	231	236	238	236	239	240	239	239	234	237	237	239	23
24 25																									24 25
26	1 .		ĺ																						26
27	80 117	80	81	81	81	82	81	82	84	85	86	87	87	87	89	89	91	91	91	93	94	95	95	96	27
28 29	140	117 141	117 142	118 144	118 145	118 144	116 145	116 146	117 147	118 147	119 147	120 149	119 150	120 150	120 152	121 149	121 149	122 146	123 146	125 145	125 143	123 143	123 142	124 143	28 29
30	36	35	35	35	35	34	34	34	37	38	39	39	39	39	37	37	37	38	35	36	36	36	36	35	30
31	205	209	212	214	216	213	213	215	214	214	213	216	215	216	213	212	211	204	204	200	196	195	194	192	31
33									~ .	2			210	210	210	212	211	201	201	200	1 30	155	154	1,72	33
34	070	00=	001	005	200	204	210	215	0.10	2077		200	0.50	0.5	250	252	277								34
35 36	278 226	285 237	291 257	295 275	300 273	304 277	310 282	315 277	319 279	327 275	331 281	338 282	352 283	365 282	368 294	369 310	379 319	385 323	400 325	402 328	406 333	413 324	418 322	421 314	35 36
37	94	87	85	89	89	89	90	90	89	90	89	89	88	87	88	89	90	91	91	92	93	94	94	95	37
38 39	210 84	221 75	244 73	265 77	261 76	265 76	270 77	261 77	263 76	256 76	262 75	260 74	260 73	257 72	270 72	289 73	299 74	304 75	305 75	308 76	312 76	299 77	297 77	285 77	38 39
40	204	215	240	262	257	261	265	256	257	249	256	253	252	249	262	283	293	298	298	301	306	291	288	275	40
41	82	73	71	75	74	74	75	75	74	74	73	72	71	69	70	71	72	73	73	73	74	74	75	75	41
42 43	235 114	244 107	260 106	274 111	274 111	277 111	283 113	278 113	282 113	279 114	285 113	286 114	287 113	288 113	298 114	310 115	319 118	323 119	324 119	327 120	332 121	325 122	325 123	319 123	42 43
44	227	238	257	275	273	277	282	277	279	275	281	282	282	282	293	309	318	323	324	328		324	322	314	44
45 46	95 249	87 261	85 270	90 278	89 279	89 283	90 290	91 291	90 293	90 298	89 302	89 305	88 307	87 312	88 320	89 324	91 329	92 332	92	93	94	94	95	95	45 46
47	269	277	301	309	311	309	316	308	307	310	314	320	325	331	336	340	345	347	334 350	337 353	341 355	344 358	342 362	342 366	46 47
48			_						ا ِ																48
49 50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.0	0	49 50
51	0	0	0	0	0	0	0	0	ő	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
52 53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0	0	0	. 0	0	0	52
53 54	ľ	Ĭ	٦	١		٦	U	١	١	١	U		U	U	U	U	U	١	0	0	U	0	0	0	53 54
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AUS TELEPHONE INDEX BULLETIN NO. 57



AUS TELEPHONE PLANT INDEX NORTH ATLANTIC REGION 1973=100

		COST INDEX NUMBER 2000 2001 2002 2003 2004 2005 2006 2007																	
L			20	100	1 20	001	1 20		,					05	200	06	20	07	1
I N	PLANT IN SERVICE	С			···· •					T									I N
E		A	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	E
	DESCRIPTION	, a	a n	u I	a n	1	a n	u 1	a n	u 1	a n	u 1	a n	u 1	a n	u I	a n	u 1	
N		c	"	y	"	у	"	y	"	у	"	y ,	"	y	11	y	"	y	N
0		t	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	Total Plant		182	185	188	190	191	193	194	197	201	206	210	213	227	244	244	249	
2	Total Flant		102	700	100	190	191	193	194	197	201	200	210	213	221	244	244	249	1 2
3			1										1						3
4	Motor Vehicles	2112	275	269	276	266	270	263	264	257	268	266	272	261	262	258	264	257	4
5	Aircraft	2113	334	343	351	359	362	364	369	377	387	393	408	417	424	438	447	450	5
6	Special Purpose Vehicles	2114	388	392	392	392	392	398	400	404	404	413	428	445	449	462	465	472	6
7	Garage Work Equipment	2115	369	372	373	377	376	376	377	378	379	387	393	403	408	416	422	430	7
8 9	Other Work Equipment	2116	266	267	268	273	271	272	271	273	273	275	276	278	278	275	278	279	
10																			9
11	Buildings	2121	353	359	364	374	377	384	385	385	407	412	425	431	441	443	457	472	11
12	Furniture	2122	335	337	338	341	341	341	344	346	346	350	360	368	372	376	380	386	12
13	Office Equipment	2123	156	157	157	158	159	158	158	157	159	160	158	162	161	161	160	161	13
14	General Purpose Computer	2124	12	11	9	9	7	7	6	4.8	3.4	3.4	3.3	3.3	3.0	2.8	2.6	2.7	14
15													}						15
16		1		l											İ				16
17	Analog Electronic Switching	2211	193	193	193	190	189	190	189	190	189	190	190	189	187	193	196	186	17
18 19	Digital Electronic Switching	2212	25	24	22	23	23	23	21	22	22	22	22	22	22	23	23	23	18
20																			19 20
21	Electro Mechanical Switching	2215	344	348	350	358	366	376	379	386	391	395	403	405	414	421	430	432	21
22				0.0		000	000	0,0	0.5		051	0,0	.00	.00	1	121	1.00	102	22
23	Operator Systems	2220	241	242	243	247	251	257	258	261	264	266	271	272	276	282	287	287	23
24			i																24
25										 									25
26																	. 1		26
27	Radio System—Analog	22311	96	96	96	95	95	95	95	95	95	96	95	95	94	97	98	94	27
28 29	Radio Systems—Digital	22312	125	125	126	127	128	127	125	125	125	126	127	127	128	129	130	130	28
30	Circuit Equipment—Analog Circuit Equipment—Digital	22321	143 36	144 36	144 36	142 37	143 37	143 38	143 38	144 39	143 38	145 38	145 39	145 39	144 39	148 40	150 40	144 41	29 30
31	Circuit Equipment—Digital	22322	30	30	30	37	31	30	30	39	30	36	39	39	39	40	40	41	31
32	Public Telephone Term Eq	2351	193	193	193	191	190	190	190	191	190	191	190	189	187	193	195	186	32
33																			33
34																			34
35	Poles	2411	421	429	434	446	451	459	463	472	477	490	495	503	502	521	526	529	35
36	Aerial Cable—Metallic	24211	313	322	328	333	335	338	340	349	357	371	379	386	430	486	477	492	36
37	Aerial Cable—Fiber	24212	96	98	100	102	104	105	105	108	110	112	114	116	118	119	121	122	37
38	Underground Cable—Metallic Underground Cable—Fiber	24221 24222	281 78	289 80	295 82	299 83	298 84	299 86	299 85	307 87	314 89	326 91	334 92	340 94	394 95	461 96	448 98	466 98	38 39
40	Buried Cable—Metallic	24222	78 271	278	284	287	285	289	286	293	300	312	320	326	383	456	98 441	460	39 40
41	Buried Cable—Fiber	24232	76	77	79	80	81	83	82	84	85	87	89	90	91	92	93	94	41
42	Submarine Cable—Metallic	24241	320	327	334	338	341	343	346	353	362	372	379	384	417	459	454	466	
43	Submarine Cable—Fiber	24242	125	127	130	132	134	136	136	138	141	144	146	148		150	153	154	43
44	Intra Building Cable—Metallic	24261	313	322	328	333	335	338	340	349	357	370	378	385	429	483	474	489	44
45	Intra Building Cable—Fiber	24262	97	99	101	103	104	106	106	108	110	113	115	117	118	120	121	122	45
46	Aerial Wire	2431	348	355	362	368	372	377	381	391	399	412	419	427	446	466	465	472	46
47	Conduit Systems	2441	375	380	391	395	403	412	418	422	432	442.	453	458	474	478	495	493	47
48 49	Aerial Cable-FTTP (Distribution)	24213	0	0	0	0	0	0	0	0	0	100	97	95	92	89	0.0	97	48
50	Underground Cable-FTTP (Dist.)	24213	0	0	0		0	0	0	0	0	100 100	97	98	92	97	88 96	87 96	49 50
51	Buried Cable-FTTP (Distribution)	24233	0	0	0	ő	0	o	0	0	0	100	102	105	104	103	103	102	51
	Submarine Cable-FTTP (Dist.)	24243	0	0	ő	ő					1			98		97	96	96	52
52	Submarine Cable-ri ir (Dist.)	24243	U 1	0 1	U I	O I	0	0	0	0	0	100	99	901	98	91	901	901	02 1
53	Intra Building Cable-FTTP (Dist.)	24243	0	0	0	0	0	0	0	0	0	100	100	100	100	100	101	103	53

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I I	20	008	20	009	20	10	20)11	20	12	20)13	20	14	20	15	20	16	20	17	20	18			L I
N	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J	N
E	а	u	а	u ,	a	u	a	u	а	u	a	u	a	u	a	u	a	u	а	u	а	u	a	u	Е
N	n	l y	n	l y	n	l y	n	l y	N																
0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
1	251	256	245	248	258	260	279	282	282	282	285	283	284	285	289	287	283	282	288	290	297				1
2																'									2
3 4	263	257	272	273	274	269	272	273	280	279	006	000	201	287	291	295	299	298	305	301	307				3
5	461	471	495	480	485	1	497	502	514	520	286 523	282 528	291 532	537	ı	543	543	547	548		557				4 5
6	476	485	499	504	503	503	507	518	529	541	548	555	557	564	566	570	572	576	1		583				б
7 8	435 281	445 286	457 290	457 286	456 286	458 288	462	474 290	479 291	485	489	494	497	503		509 315	510 318	513 322	514 322		522 327				7
9	201	200	290	200	200	200	200	290	291	294	295	296	304	307	309	313	310	322	322	324	027				8 9
10	1			İ .		l																			10
11 12	492 389	497 402	506 417	494 415	506 418		1	518	530	532		539	550	552		580 454	586 454	589 455	604 457	l i	608 464				11
13	162	171	184	i	169	420 169	1	429 171	433 173	437 173	433 164	437 165	439 166	450 166		172	172	455 172	1		171				12 13
14	2.7	2.6	2.6	2.1	2.01		I.		0.82			0.50	0.57	0.60		0.63	0.64	0.65	0.73		0.67				14
15		l																							15
16 17	180	179	178	178	177	177	174	175	174	174	174	175	176	176	176	176	177	177	177	179	177				16 17
18	24	24	25	25	25	25	25	25	26	26	26	27	27	27	27	28	28	28	28		29				18
19																									19
20 21	439	445	456	458	460	469	474	481	486	478	484	491	497	495	499	499	496	496	502	502	510				20 21
22				100		.05	'' '	.01	100	4,70	101	121	.57	150	,,,,			.,,							22
23	288	292	297	299	300	305	307	311	313	309	312	317	320	319	322	322	320	321	324	325	329				23
24 25	1																								24 25
26																									26
27	91	90	90	90	. 89	89	88	89	88	88	88	88	89	89	89	89	89	89	89		90				27
28 29	131 140	132 139	134	134 139	135 138	137 138	138 137	138 138	137 137	138 137	138 137	138 138	138 139	138 139	139 140	140 140	140 141	140 141	140 141		141 142				28 29
30	41	41	41	41	40	40	40	41	41	42	42	42	43	43	44	44	44	45	45		46				30
31																									31
32 33	180	179	177	178	177	177	174	175	173	174	173	174	175	175	176	176	177	176	177	179	177				32
34																									33 34
35	537	547	554	563	570	578	576	587	594	600	603	607	605	616	620	621	629	633			657				35
36 37	494 123	507 124	461 126	473 127	506 128	509 130	573 131	582	577	576	582	572	573	573	578	570 144	555 146	· 551 148	566 149	568 151	591 153				36
38	465		421					133 562	135 554	136 552	137 556	138 544	140 542	142 540	143 544	533									37 38
39	100	100	102	103	103	105	106	108	109	110	111	112	113	114	116	116	118	119	120		123				39
40 41	459 95	475 96	410	425	467	467	553	560	550	547	552	538	536	533	537	524	501	493	511	511	537				40
41 42	95 468	96 479	97 447	98 458	99 484	100 486	101 535	103 541	104 539	105 540	106 545	107 539	108 541	109 542	111 547	111 544	113 534	114 532	115 546		118 566				41 42
43	155	157	159	161	163	164	166	168	170	172	173	174	177	179	181	183	185	187	189		194				43
44 45	491	504	459	471	504	507	570	578	573	573	578	569	569	570	575	567	553	549	564	566	588 154				44
45 46	124 475	125 488	127 469	128 478	129 496	131 501	132 519	134 528	135 525	137 527	138 531	139 530	141 533	142 538	144 543	145 543	147 540	148 541	150 551	152 556	154 569				45 46
47	502	507	525	530	516	521	526	532	545	550	549	552	559	565	571	577	581	586	591	596	604				47
48																40			40						48
49 50	82 94	77 92	75 89	73 87	65 83	58 80	55 75	53 70	52 66	50 62	50 58	50 54	50 54	50 54	50 53	49 53	50 54	49 54	49 54		50 52				49 50
51	92	82	78	74	71	68	66	63	61	59	57	54	54	55	54	54	54	53	53		54				51
52	94	92	89	87	83	80	75	70	66	62	58	54	54	54	53	53	54	54	54	53	52				52
53 54	104	105	90	75	68	61	54	47	43	39	39	39	39	39	38	38	39	44	43	43	43				53 54
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Index	Table	Region	Year	Begin	End	CPI	1	2 Communic	3 Technical
		rtogion	1001	Date	Date	01 1		Equipment	
				Buto	Bato				ecu111221
								•	linked
					*				CIU20154
Earliest `	Year						1913	/1986	1985
Index	Table	Region					1	/ 2	3
BLS	BLS	All	199	1 1/1/1991	12/31/1991		136	√ 109	84
BLS	BLS	All	199	2 1/1/1992	12/31/1992		140	110	88
BLS	BLS	All	199	3 1/1/1993	12/31/1993		145	112	92
BLS	BLS	All	199	4 1/1/1994	12/31/1994		148	113	95
BLS	BLS	All	199	5 1/1/1995	12/31/1995		152	114	97
BLS	BLS	All		6 1/1/1996	12/31/1996		157	115	100
BLS	BLS	All		7 1/1/1997	12/31/1997		161	116	102
BLS	BLS	All		8 1/1/1998	12/31/1998		163	/ 115	106
BLS	BLS	All		9 1/1/1999	12/31/1999		167	√ 113	109
BLS	BLS	All		0 1/1/2000	12/31/2000		172	110	114
BLS	BLS	All		1 1/1/2001	12/31/2001		177	109	119
BLS	BLS	All		2 1/1/2002	12/31/2002		180	105	123
BLS	BLS	All		3 1/1/2003	12/31/2003		184	102	127
BLS	BLS	All		4 1/1/2004	12/31/2004		189	98	132
BLS	BLS	All		5 1/1/2005	12/31/2005		195	97	135
BLS	BLS	All		6 1/1/2006	12/31/2006		202	97	139
BLS	BLS	All		7 1/1/2007	12/31/2007		207	96	146
BLS	BLS	All		8 1/1/2008	12/31/2008		215	97	152
BLS	BLS	All		9 1/1/2009	12/31/2009		215	97	155
BLS	BLS	All		0 1/1/2010	12/31/2010		218	97	157
BLS	BLS	All		1 1/1/2011	12/31/2011		225	96	161
BLS	BLS	All		2 1/1/2012	12/31/2012		230	96	164
BLS	BLS	All		3 1/1/2013	12/31/2013		233	95	167
BLS	BLS	All		4 1/1/2014	12/31/2014		237	96	170
BLS	BLS	All		5 1/1/2015	12/31/2015		237	96	173
BLS	BLS	All		3 1/1/2016	12/31/2016		240	96	176
BLS	BLS	All		7 1/1/2017	12/31/2017		245	94	(179)
BLS	BLS	All	2018	3 1/1/2018	12/31/2018		247) (94	/ (180/

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AUS Consultants Bureau of Labor Statistics Indexes

Index	Table	Region	Year	Begin Date	End Date	CPI		•	
									CIU20154
Earliest	Year						1913	1986	1985
Index	Table	Region					1	2	3
BLS	BLS	All		3 1/1/1913	12/31/1913		10	7	6
BLS	BLS	All		4 1/1/1914	12/31/1914		10	7	6
BLS	BLS	All		5 1/1/1915	12/31/1915		10	. 7	6
BLS	BLS	All		6 1/1/1916	12/31/1916		11	8	7
BLS	BLS	All		7 1/1/1917	12/31/1917		13	10	8
BLS	BLS	All		8 1/1/1918	12/31/1918		15	11	9
BLS BLS	BLS BLS	All All		9 1/1/1919	12/31/1919 12/31/1920		17	12 14	10
BLS	BLS	All		0 1/1/1920 1 1/1/1921	12/31/1920		20 18	13	12 11
BLS	BLS	All		2 1/1/1921	12/31/1921		17	12	10
BLS	BLS	All		3 1/1/1923	12/31/1922		17	12	10
BLS	BLS	All		4 1/1/1924	12/31/1923		17	12	10
BLS	BLS	All		5 1/1/1925	12/31/1925		18	13	11
BLS	BLS	All		6 1/1/1926	12/31/1926		18	13	11
BLS	BLS	All		7 1/1/1927	12/31/1927		17	12	10
BLS	BLS	All		8 1/1/1928	12/31/1928		17	12	10
BLS	BLS	All		9 1/1/1929	12/31/1929		17	12	10
BLS	BLS	All	193	0 1/1/1930	12/31/1930		17	12	10
BLS	BLS	All	193	1 1/1/1931	12/31/1931		15	11	9
BLS	BLS	All	193	2 1/1/1932	12/31/1932		14	10	8
BLS	BLS	All	193	3 1/1/1933	12/31/1933		13	9	7
BLS	BLS	All		4 1/1/1934	12/31/1934		13	9	7
BLS	BLS	All		5 1/1/1935	12/31/1935		14	10	7
BLS	BLS	All		6 1/1/1936	12/31/1936		14	10	7
BLS	BLS	All		7 1/1/1937	12/31/1937		14	10	7
BLS	BLS	All		8 1/1/1938	12/31/1938		14	.10	7
BLS	BLS	All		9 1/1/1939	12/31/1939		14	10	7
BLS	BLS	All		0 1/1/1940	12/31/1940		14	10	7
BLS BLS	BLS BLS	All All		1 1/1/1941 2 1/1/1942	12/31/1941 12/31/1942		15 16	11 12	8 9
BLS	BLS	All		3 1/1/1943	12/31/1942		17	13	10
BLS	BLS	All		4 1/1/1944	12/31/1943		18	14	11
BLS	BLS	All	,	5 1/1/1945	12/31/1945		18	14	11
BLS	BLS	All		6 1/1/1946	12/31/1946		20	16	12
BLS	BLS	All		7 1/1/1947	12/31/1947		22	18	13
BLS	BLS	All		8 1/1/1948	12/31/1948		24	20	14
BLS	BLS	All		9 1/1/1949	12/31/1949		24	20	14
BLS	BLS	All		0 1/1/1950	12/31/1950		24	20	14
BLS	BLS	All	195	1 1/1/1951	12/31/1951		26	22	15

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Index	Table	Region	Year	Begin Date	End Date	CPI	1	2 Communic Equipment pcu3342	
									CIU20154
Earliest							1913	1986	1985
Index	Table	Region					1	2	3
BLS	BLS	All		2 1/1/1952	12/31/1952		27	23	16
BLS	BLS	All		3 1/1/1953	12/31/1953		27	23	16
BLS	BLS	All		4 1/1/1954	12/31/1954		27	23	16
BLS	BLS	All		5 1/1/1955	12/31/1955		27	23	16
BLS	BLS	All		6 1/1/1956	12/31/1956		27	23	16
BLS	BLS	All		7 1/1/1957	12/31/1957		28	24	17
BLS	BLS	All		8 1/1/1958	12/31/1958		29	25	18
BLS	BLS	All		9 1/1/1959	12/31/1959		29	25	18
BLS BLS	BLS	All		0 1/1/1960	12/31/1960		30	26	19
BLS	BLS BLS	All		1 1/1/1961	12/31/1961		30	26	19
BLS	BLS	All All		2 1/1/1962 3 1/1/1963	12/31/1962		30	26	19
BLS	BLS	All		4 1/1/1963	12/31/1963		31	27	20
BLS	BLS	All		5 1/1/196 4 5 1/1/1965	12/31/1964		31	27	20
BLS	BLS	All		6 1/1/1966	12/31/1965 12/31/1966		32 32	28 28	21 21
BLS	BLS	All		7 1/1/1967	12/31/1960		33	29	
BLS	BLS	All		8 1/1/1968	12/31/1968		35	31	22 23
BLS	BLS	Ail		9 1/1/1969	12/31/1969		37	33	23 24
BLS	BLS	All		0 1/1/1970	12/31/1909		39	35	2 4 25
BLS	BLS	All		1 1/1/1971	12/31/1971		41	37	26
BLS	BLS	All		2 1/1/1972	12/31/1972		42	38	27
BLS	BLS	All		3 1/1/1973	12/31/1973		44	40	28
BLS	BLS	All		4 1/1/1974	12/31/1974		49	44	31
BLS	BLS	All		5 1/1/1975	12/31/1975		54	49	34
BLS	BLS	All		6 1/1/1976	12/31/1976		57	52	36
BLS .	BLS	All		7 1/1/1977	12/31/1977		61	56	38
BLS	BLS	All	197	8 1/1/1978	12/31/1978		65	60	40
BLS	BLS	All	197	9 1/1/1979	12/31/1979		73	67	45
BLS	BLS	All	198	0 1/1/1980	12/31/1980		82	75	50
BLS	BLS	All	198	1 1/1/1981	12/31/1981		91	83	55
BLS	BLS	All	198	2 1/1/1982	12/31/1982		97	89	59
BLS	BLS	All	198	3 1/1/1983	12/31/1983		100	92	61
BLS	BLS	All		4 1/1/1984	12/31/1984		104	96	63
BLS	BLS	All		5 1/1/1985	12/31/1985		108	100	65
BLS	BLS	All		5 1/1/1986	12/31/1986		110	102	66
BLS	BLS	All		7 1/1/1987	12/31/1987		114	104	69
BLS	BLS	All .		3 1/1/1988	12/31/1988		118	104	72
BLS	BLS	All		9 1/1/1989	12/31/1989		124	106	76
BLS	BLS	All	1990	0 1/1/1990	12/31/1990		131	108	80

							1	2	3	4	5	6	. 7
	Index	Table	Region	Year	Begin	End	Switch Gear	Relays	Battery Systems	Power Systems	Alarm Systems	Motors & Generators	Emergency Generators
							PCU3353	PCU3353	PCU3359		PCU33429	PCU33531	Means Ref 26 32 13.13
					Date	Date	13335313	14335314	12335912	Calculation	03342901	2335312	2600
							30%	30%	40%	Composite			
E	arliest Ye	ear					1987	1987	1987	1987	1987	1987	1987
In	dex	Table	Region				1	2	3	4	5	6	7
P	ow	POW	All	1987	1/1/1987	12/31/1987	103.6	103.9	125.0	112.3	100.1	110.8	83.4
P	ow	POW	All	1988	1/1/1988	12/31/1988	106.7	106.6	126.7	114.7	101.6	116.4	83.7
P	OW	POW	All	1989	1/1/1989	12/31/1989	113.5	110.9	133.5	120.7	104.3	123.3	83.9
P	OW	POW	All	1990	1/1/1990	12/31/1990	118.5	115.4	137.6	125.2	103.4	127.5	84.1
	OW	POW	All	1991	1/1/1991	12/31/1991	121.8	120,5	142.7	129.8	101.9	129.7	84.3
P	WC	POW	Ail	1992	1/1/1992	12/31/1992	123.6	123.3	146.1	132.5	102.2	131.5	84.8
P	WC	POW	All	1993	1/1/1993	12/31/1993	125.9	126.9	149.3	135.6	103.2	133.5	85.0
P	WC	POW	All	1994	1/1/1994	12/31/1994	128.7	128.3	151.2	137.6	104.2	134.2	90.6
P	WC	POW	All	1995	1/1/1995	12/31/1995	132.4	130.7	154.5	140.7	106.5	137.5	95.1
P	WC	POW	All	1996	1/1/1996	12/31/1996	133.6	133.6	157.5	143.2	108.3	139.1	95.3
P	WC	POW	All	1997	1/1/1997	12/31/1997	135.0	137.8	158.3	145.2	109.4	138.6	99.1
P	WC	POW	All	1998	1/1/1998	12/31/1998	138.2	140.4	164.2	149.3	111.3	139.8	99.6
P	WC	POW	IIA	1999	1/1/1999	12/31/1999	141.0	142.8	165.5	151.3	109.4	139.9	99.8
P	WC	POW	All	2000	1/1/2000	12/31/2000	143.3	144.4	169.9	154.3	108.4	140.4	100.0
P	OW.	POW	All	2001	1/1/2001	12/31/2001	147.6	148.2	178.2	160.0	109.0	141.6	102.9
P	OW	POW	All	2002	1/1/2002	12/31/2002	149.8	150.0	179.4	161 <i>.</i> 7	110.4	142.0	103.4
PC	OW	POW	All	2003	1/1/2003	12/31/2003	151.1	152.3	165.1	157.1	110.8	142.4	103.8
PO	OW	POW	All	2004	1/1/2004	12/31/2004	153.7	155.2	165.1	158.7	109.8	145.8	104.3
PC	OW	POW	All	2005	1/1/2005	12/31/2005	160.4	160.0	166.9	162.9	110.6	154.4	104.7
PC	DW C	POW	All	2006	1/1/2006	12/31/2006	167.5	167.6	175.6	170.8	113.1	161.8	104.9
PC	DW C	POW	All	2007	1/1/2007	12/31/2007	179.4	173.0	182.5	178.7	113.8	169.6	111.0
PC	DW C	POW	All	2008	1/1/2008	12/31/2008	187.5	179.3	189.4	185.8	116.0	177.7	123.0
PC	DW .	POW	All	2009	1/1/2009	12/31/2009	193.1	184.7	193.4	190.7	116.8	181.8	126.4
PC	DW .	POW	All	2010	1/1/2010	12/31/2010	195.1	190.3	191.8	192.3	117.8	185.4	130.9
	DW .	POW	All	2011	1/1/2011	12/31/2011	192.2	194.5	192.8	193.1	118.4	196.5	130.9
PC	DW .	POW	All	2012	1/1/2012	12/31/2012	199.0	196.4	197.1	197.5	119.9	201.2	139.8
PC	DW .	POW	All	2013	1/1/2013	12/31/2013	201.5	200.1	195.5	198.7	121.5	203.2	121.9
PC	DW .	POW	All	2014	1/1/2014	12/31/2014	200.4	202.7	196.9	199.7	122.2	206.1	1.06.5
)W	POW	All	2015	1/1/2015	12/31/2015	199.3	205.7	195.1	199.5	122.4	206.4	111.9
PC	DW .	POW	All	2016	1/1/2016	12/31/2016	199.5	206.8	192.4	198.9	122.4	204.6	111.9
)W	POW	All	2017	1/1/2017	12/31/2017	200.4	209.9	191.4	199.7	122.6	206.5	111.9
PC	w	POW	Aii	2018	1/1/2018	12/31/2018	201.9	211.0	194.2	201.6	122.6	204.9	119.7