

Attachment 3  
Freeport-McMoRan Chino Mines Company  
Closure/Closeout Plan Cost Estimate  
Net Present Value Calculation  
and  
Supporting Information  
March 20, 2019

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## **Attachment 3A**

### **Summary and Rationale for Net Present Value Calculation**

## Overview

The Net Present Value (NPV) of each component of the Chino Closure/Closeout Cost Estimate has been calculated following the guidance document titled Guidance for Calculating Reclamation Costs in Net Present Value dated May 2016 provided by the New Mexico Energy, Minerals and Natural Resources Department, Mining and Minerals Division (MMD, MMD Guidance) as well as applicable Federal and State regulations. Both primary components of the Chino CCP (earthwork and water management/treatment) have a duration well over five years. The methodology used to estimate future cost inflation for the current permit renewal is consistent with the approach previously used and accepted by the state agencies in prior calculations of the net present value of reclamation costs, and is also consistent with the MMD's published guidelines for these calculations. Freeport-McMoRan New Mexico Operations proposes to use the same methodology and escalation and discount rates for all financial assurance calculations and all New Mexico Operations permits during this renewal cycle (i.e., the same rates would apply to the upcoming Continental and Tyrone Mine financial assurance updates).

The NPV calculation is provided in Attachment 3A followed by the inflation rate calculations/indices in Attachment 3B and the discount rate tables in Attachment 3C. The information required in MMD Guidance is presented below.

The escalation and discount rates utilized in the NPV calculation and a summary of the resulting NPV are presented in the table at the top of the first page of Attachment 3A.

Cash flows consistent with Section 10 and Table 10-1 of the Chino CCP are presented in Attachment 1 (for earthwork capital and O&M) and Attachment 2 (for water management/treatment). The total cash flow for capital and O&M (for earthwork and water treatment) were extracted from Attachments 1 and 2 for the NPV calculation presented in Attachment 3A. For Earthwork, the capital phase of the earthwork occurs over a 20-year period with O&M extending for the full 100-year period. Water Management/Treatment capital is phased in over a 7-year period and O&M extends over the entire 100-year period.

The inflation rate calculation was the subject of much analysis and discussion between the State agencies and Chino in 2001. New Mexico State agencies and Chino agreed that it was appropriate to use long-term periods of record going back 100 years when available and as long as possible when not. In 2004 Chino recommended, and the State agreed, that inflation rates be recalculated every five years at the same time the discharge permits are renewed (this is reflected in current permits). At that time, it was reaffirmed that the maximum number of years for each data set would be 100 years (in keeping with the number of years of future cost estimates). For data sets already at 100 years, the earlier years would drop off as later years are added. For data sets less than 100 years, Chino would continue to use the same data set used to calculate the original escalation rate (modified as necessary for changes in scope of work), but add years for new data available up to a maximum 100 years.

According to the MMD Guidance Step 2 indicates that operators must use acceptable publicly available indices to build the inflation rate(s) based on historical inflation rates over an appropriate timeframe (in Chino's case, 100 years was agreed upon).

Chino applied the same methodology used to develop the original inflation rates (as agreed upon and noted above) to the current inflation rates for this renewal period, which conforms with MMD Guidance. The inflation rates were calculated using actual historical inflation data for the underlying cost components of each category (e.g., labor, fuel, equipment) based on a composite of category indices ranging in duration from 32 to 100 years.

### *Earthwork Inflation Rate*

The first page of Attachment 3B provides a summary of the Earthwork escalation rate (3.41%) derivation (See page titled "Dirt Work Reclamation Escalation Rate"). It is the sum of the percent of project-weighted inflation rates for the three major earthwork categories: 1-labor, 2-fuel, 3-machinery and equipment. The exact source and series utilized and time period over which it was utilized are all summarized/listed below the calculation table.

Chino's engineering and cost estimating team identified the major construction and operations and maintenance task categories involved in the earthwork cost estimate and also assisted in selecting appropriate indices that best represent the categories. The engineering team also calculated the percentage of the reclamation project costs for each category (see "% of Project" column in the top table of the summary page).

The best, readily available indices are cited on the summary page and are provided in Attachment 3B immediately after the summary page in the order they are cited on the summary page. Some indices were discontinued and replaced with similar indices, so a composite index has been created (for labor and construction equipment) from the most closely related indices available that reflect the key components of Earthwork. The indices reflect change in labor wages, fuel cost and equipment costs over the period of record. The second column from the right calculates the percent change from the previous year. The last column converts the percent change to a positive number normalized to 1 so that all the numbers are positive so that a geometric mean can be calculated. The geometric mean for each category is calculated at the bottom of the index series.

The geometric mean is used in the first data column (labeled "Rate") of the table at the top of the summary page. The geometric mean from each series is multiplied by the % of Project weighting factor to yield the % of Escalation Rate in the last column. The "Dirt Work Reclamation Escalation Rate" is calculated by summing the % of Escalation Rate for each category which yields an appropriately weighted inflation rate for the Closure/Closeout Plan Earthwork and that rate is **3.41%**.

### *Water Inflation Rate*

The development of the Water Treatment Escalation Rate followed a similar process and the summary page presenting this calculation is found on Page 7 of the Attachment 3B. The primary cost categories for water treatment are Reagents, Power, Labor, and Maintenance. The water treatment maintenance category is a composite of the following sub-categories and indices: Industrial pumps, domestic water systems, Industrial controls and related parts and accessories, industrial process control instruments, and repair and maintenance services. As stated above, these were selected in consultation with the Chino technical cost estimating team as representative of the primary tasks involved in water management and treatment system maintenance. Each index utilized is presented similarly to the Earthwork indices. The appropriate water treatment escalation rate is **2.99%**.

In summary, an annual inflation rate for earthwork of **3.41%** and an annual inflation rate for water management of **2.99%** are appropriate inflation rates to be applied to the NM Operations CCP cash flows and the methodology used is consistent with the MMD guidance and previous calculations and agreements.

In keeping with historic practice and agreement with New Mexico agencies and the approach to inflation rates described above, Chino has provided the discount rate indices for years 1 through 10 in Attachment 3C - Bloomberg Barclays U.S. Government/Credit Index. These data represent the entire record available for this index (46 years). The geometric mean is calculated in the same way described above for the escalation rates and this yields a discount rate of **7.09%** to be used for years 1 through 10.

The discount rate for years 11 to 100 is derived from Bloomberg Barclays U.S. Aggregate Index as suggested by MMD Guidance. This entire index is also provided in Attachment 3C and the resulting discount rate is **7.27%**

These escalation rates were developed using similar periods of record as the escalation rate development and are fully consistent with MMD guidance and previous calculations and agreements.

The NPV calculation is provided in Attachment 3A in hard copy and in electronic form.

	Escalation	Yr 1-10 Discount Rate	Yr 11-100 Discount Rate
Earthwork	3.41%	7.09%	7.27%
Water Treatment	2.99%	7.09%	7.27%

Component	Current Cost	NPV
Earthwork	\$ 185,445,696	\$ 128,830,456
Water Treatment	\$ 240,689,765	\$ 83,389,211
<b>Total</b>	<b>\$426,135,460</b>	<b>\$ 212,219,667</b>

Year	Earthwork				Water Management and Treatment			
	Current Cost			NPV	Current Cost			NPV
	Capital <sup>1</sup>	O&M <sup>2</sup>	Total		Capital Cost <sup>3</sup>	O&M <sup>4</sup>	Total	
1	1,000,000	48,305	1,048,305	1,048,305	2,481,440	3,397,026	5,878,466	5,878,466
2	4,000,000	48,305	4,048,305	3,909,191	0	3,562,966	3,562,966	3,426,556
3	9,935,279	66,090	10,001,368	9,325,812	0	2,996,020	2,996,020	2,771,003
4	9,935,279	66,090	10,001,368	9,005,343	0	2,432,274	2,432,274	2,163,470
5	9,935,279	66,090	10,001,368	8,695,887	9,860,560	1,871,578	11,732,138	10,036,025
6	9,935,279	126,771	10,062,050	8,448,013	2,213,782	5,289,525	7,503,307	6,172,817
7	9,935,279	140,949	10,076,227	8,169,203	1,254,044	4,164,077	5,418,121	4,286,724
8	9,935,279	140,949	10,076,227	7,888,479	0	4,173,706	4,173,706	3,175,739
9	9,935,279	140,949	10,076,227	7,617,403	0	4,181,626	4,181,626	3,059,950
10	9,935,279	140,949	10,076,227	7,355,641	0	4,189,443	4,189,443	2,948,299
11	9,935,279	140,949	10,076,227	6,984,584	0	4,028,696	4,028,696	2,681,219
12	9,935,279	140,949	10,076,227	6,733,251	0	3,889,699	3,889,699	2,485,424
13	9,935,279	153,204	10,088,483	6,498,856	0	3,547,363	3,547,363	2,176,241
14	9,935,279	165,039	10,100,318	6,272,351	0	3,400,661	3,400,661	2,003,002
15	9,935,279	167,273	10,102,551	6,047,984	0	3,227,482	3,227,482	1,825,151
16	9,935,279	167,273	10,102,551	5,830,354	0	2,623,590	2,623,590	1,424,451
17	9,935,279	167,273	10,102,551	5,620,555	0	2,581,904	2,581,904	1,345,887
18	9,935,279	167,273	10,102,551	5,418,305	0	2,540,069	2,540,069	1,271,249
19	9,935,279	167,273	10,102,551	5,223,333	0	2,498,073	2,498,073	1,200,348
20	3,000,000	167,273	3,167,273	1,578,652	0	2,456,466	2,456,466	1,133,260
21	0	132,680	132,680	63,752	0	2,415,349	2,415,349	1,069,832
22	0	132,680	132,680	61,457	0	2,375,136	2,375,136	1,010,045
23	0	132,680	132,680	59,246	0	2,341,405	2,341,405	955,973
24	0	132,680	132,680	57,114	0	2,307,704	2,307,704	904,620
25	0	132,680	132,680	55,059	0	2,262,913	2,262,913	851,668
26	0	132,680	132,680	53,078	0	2,227,986	2,227,986	805,067
27	0	132,680	132,680	51,168	0	2,190,259	2,190,259	759,857
28	0	132,680	132,680	49,326	0	2,155,974	2,155,974	718,119
29	0	132,680	132,680	47,552	0	2,122,122	2,122,122	678,641
30	0	132,680	132,680	45,840	0	2,088,476	2,088,476	641,233
31	0	132,680	132,680	44,191	0	2,055,259	2,055,259	605,857
32	0	86,973	86,973	27,925	0	2,022,248	2,022,248	572,341
33	0	86,973	86,973	26,920	0	1,973,875	1,973,875	536,360
34	0	86,973	86,973	25,952	0	1,967,399	1,967,399	513,270
35	0	86,973	86,973	25,018	0	1,960,747	1,960,747	491,125
36	0	86,973	86,973	24,118	0	1,954,104	1,954,104	469,932
37	0	86,973	86,973	23,250	0	1,947,468	1,947,468	449,650
38	0	86,973	86,973	22,413	0	1,940,840	1,940,840	430,240
39	0	86,973	86,973	21,607	0	1,934,221	1,934,221	411,665
40	0	86,973	86,973	20,829	0	1,927,610	1,927,610	393,889
41	0	61,908	61,908	14,293	0	1,927,610	1,927,610	378,173
42	0	61,908	61,908	13,779	0	1,927,610	1,927,610	363,084
43	0	61,908	61,908	13,283	0	1,927,610	1,927,610	348,597
44	0	61,908	61,908	12,805	0	1,927,610	1,927,610	334,688
45	0	61,908	61,908	12,344	0	1,927,610	1,927,610	321,335
46	0	61,908	61,908	11,900	0	1,927,610	1,927,610	308,513
47	0	61,908	61,908	11,472	0	1,927,610	1,927,610	296,204
48	0	61,908	61,908	11,059	0	1,927,610	1,927,610	284,386
49	0	61,908	61,908	10,661	0	1,927,610	1,927,610	273,039
50	0	61,908	61,908	10,277	0	1,927,610	1,927,610	262,145
51	0	61,908	61,908	9,907	0	1,927,610	1,927,610	251,685
52	0	61,908	61,908	9,551	0	1,927,610	1,927,610	241,643
53	0	61,908	61,908	9,207	0	1,927,610	1,927,610	232,002
54	0	61,908	61,908	8,876	0	1,927,610	1,927,610	222,745
55	0	61,908	61,908	8,557	0	1,927,610	1,927,610	213,858
56	0	61,908	61,908	8,249	0	1,927,610	1,927,610	205,325
57	0	61,908	61,908	7,952	0	1,927,610	1,927,610	197,133
58	0	61,908	61,908	7,666	0	1,927,610	1,927,610	189,267
59	0	61,908	61,908	7,390	0	1,927,610	1,927,610	181,716
60	0	61,908	61,908	7,124	0	1,927,610	1,927,610	174,465
61	0	61,908	61,908	6,868	0	1,927,610	1,927,610	167,504
62	0	61,908	61,908	6,620	0	1,927,610	1,927,610	160,821
63	0	61,908	61,908	6,382	0	1,927,610	1,927,610	154,404
64	0	61,908	61,908	6,153	0	1,927,610	1,927,610	148,244

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	Escalation	Yr 1-10 Discount Rate	Yr 11-100 Discount Rate
Earthwork	3.41%	7.09%	7.27%
Water Treatment	2.99%	7.09%	7.27%

Component	Current Cost	NPV
Earthwork	\$ 185,445,696	\$ 128,830,456
Water Treatment	\$ 240,689,765	\$ 83,389,211
<b>Total</b>	<b>\$426,135,460</b>	<b>\$ 212,219,667</b>

Year	Earthwork				Water Management and Treatment			
	Current Cost			NPV	Current Cost			NPV
	Capital <sup>1</sup>	O&M <sup>2</sup>	Total		Capital Cost <sup>3</sup>	O&M <sup>4</sup>	Total	
65	0	61,908	61,908	5,931	0	1,927,610	1,927,610	142,329
66	0	61,908	61,908	5,718	0	1,927,610	1,927,610	136,650
67	0	61,908	61,908	5,512	0	1,927,610	1,927,610	131,198
68	0	61,908	61,908	5,314	0	1,927,610	1,927,610	125,963
69	0	61,908	61,908	5,122	0	1,927,610	1,927,610	120,937
70	0	61,908	61,908	4,938	0	1,927,610	1,927,610	116,112
71	0	61,908	61,908	4,760	0	1,927,610	1,927,610	111,479
72	0	61,908	61,908	4,589	0	1,927,610	1,927,610	107,031
73	0	61,908	61,908	4,424	0	1,927,610	1,927,610	102,761
74	0	61,908	61,908	4,265	0	1,927,610	1,927,610	98,661
75	0	61,908	61,908	4,111	0	1,927,610	1,927,610	94,724
76	0	61,908	61,908	3,963	0	1,927,610	1,927,610	90,945
77	0	61,908	61,908	3,821	0	1,927,610	1,927,610	87,316
78	0	61,908	61,908	3,683	0	1,927,610	1,927,610	83,832
79	0	61,908	61,908	3,551	0	1,927,610	1,927,610	80,487
80	0	61,908	61,908	3,423	0	1,927,610	1,927,610	77,276
81	0	61,908	61,908	3,300	0	1,927,610	1,927,610	74,193
82	0	61,908	61,908	3,181	0	1,927,610	1,927,610	71,232
83	0	61,908	61,908	3,067	0	1,927,610	1,927,610	68,390
84	0	61,908	61,908	2,956	0	1,927,610	1,927,610	65,662
85	0	61,908	61,908	2,850	0	1,927,610	1,927,610	63,042
86	0	61,908	61,908	2,747	0	1,927,610	1,927,610	60,526
87	0	61,908	61,908	2,648	0	1,927,610	1,927,610	58,111
88	0	61,908	61,908	2,553	0	1,927,610	1,927,610	55,793
89	0	61,908	61,908	2,461	0	1,927,610	1,927,610	53,567
90	0	61,908	61,908	2,373	0	1,927,610	1,927,610	51,430
91	0	61,908	61,908	2,287	0	1,927,610	1,927,610	49,378
92	0	61,908	61,908	2,205	0	1,927,610	1,927,610	47,407
93	0	61,908	61,908	2,126	0	1,927,610	1,927,610	45,516
94	0	61,908	61,908	2,049	0	1,927,610	1,927,610	43,700
95	0	61,908	61,908	1,975	0	1,927,610	1,927,610	41,956
96	0	61,908	61,908	1,904	0	1,927,610	1,927,610	40,282
97	0	61,908	61,908	1,836	0	1,927,610	1,927,610	38,675
98	0	61,908	61,908	1,770	0	1,927,610	1,927,610	37,132
99	0	61,908	61,908	1,706	0	1,927,610	1,927,610	35,650
100	0	61,908	61,908	1,645	0	1,927,610	1,927,610	34,228
<b>Total</b>	<b>176,899,735</b>	<b>8,545,960</b>	<b>185,445,696</b>	<b>128,830,456</b>	<b>15,809,826</b>	<b>224,879,939</b>	<b>240,689,765</b>	<b>83,389,211</b>

Notes

- 1 Includes all earthwork direct and indirect costs - Refer to Stockpile Spreadsheet Worksheet #17 and Cashflow sheets from the earthwork cost estimate spreadsheets
- 2 Includes all revegetation and all other maintenance costs -refer to O&M Worksheet #3 and Cashflow sheet from the earthwork cost estimate spreadsheets
- 3 Includes capital cost for ETS and Water treatment/management- Refer to Summary Cash Flow in Current Costs sheet from the water treatment cost estimate spreadsheets
- 4 Includes reagents, analytical, power, routine maintenance, and replacement O&M-Refer to Summary Cash Flow in Current Costs sheet from the water treatment cost estimate spreadsheets

# **Attachment 3B**

## **Escalation (Inflation) Rate Data Tables**



## DIRT WORK RECLAMATION ESCALATION RATE -- GEOMETRIC MEAN METHOD

Category	Rate	% of Project	% of Escalation Rate
Labor	3.03%	3.0%	0.09%
#2 Diesel Fuel	5.11%	28.0%	1.43%
Machinery & Equipment	2.74%	69.0%	1.89%

**Dirt Work Reclamation Escalation Rate: 3.41%**

### **Labor Composite**

Current Source Bureau of Labor Statistics (NM)  
 Years 1972 - 2002 Series ID : SAU3500002000014 (n1)  
 31 years Not Seasonally Adjusted  
 State : New Mexico  
 Area : Statewide  
 Industry : Construction  
 Detail : A 1-digit Industry (Industry Division)  
 Data Type : Average Weekly Earnings (In dollars)  
 (n1): NAICS 2002 replaces SIC beginning March 2003.

Current Source Bureau of Labor Statistics (NM)  
 Years 2003 - 2007 Series ID : SMU3500000200000004 (n2)  
 5 years Not Seasonally Adjusted  
 State: New Mexico  
 Area: Statewide  
 Supersector: Construction  
 Industry: Construction  
 Data Type: Average Weekly Earnings, In Dollars  
 (n2) BLS discontinued Series ID. Replaced with the closest data set

Current Source Bureau of Labor Statistics (NM)  
 Years 2008 - 2018 Series ID : SMU35000002000000011  
 11 years Not Seasonally Adjusted  
 State : New Mexico  
 Area : Statewide  
 Supersector : Construction  
 Industry : Construction  
 Data Type : Average Weekly Earnings of All Employees, In Dollars

### **#2 Diesel Composite**

Current Source Producer Price Index-Commodities  
 Years 1973 - 2018 Series ID : WPU057303  
 45 years Not Seasonally Adjusted  
 Group : Fuels and related products and power  
 Item : #2 diesel fuel

### **Machinery & Equipment Composite**

Current Source Producer Price Index-Commodities  
 13 years WPS1129 Series ID : WPU112D  
 19 years WPU112D Not Seasonally Adjusted  
 Group : Machinery and equipment  
 Item : Off-highway equipment ex. Parts

<http://data.bls.gov/cgi-bin/srgate>

## State and Area Employment, Hours, and Earnings

Years: 1972 - 2002  
 Series ID : SAU3500002000014 (n1)  
 Not Seasonally Adjusted  
 State : New Mexico  
 Area : Statewide  
 Industry : Construction  
 Detail : A 1-digit Industry (Industry Division)  
 Data Type : Average Weekly Earnings (In dollars)

Years: 2003 - 2007  
 Series ID : SMU35000020000004 (n2)  
 Not Seasonally Adjusted  
 State: New Mexico  
 Area: Statewide  
 Supersector: Construction  
 Industry: Construction  
 Data Type: Average Weekly Earnings, In Dollars

Years 2008 - 2018  
 Series ID : SMU350000200000011  
 Not Seasonally Adjusted  
 State : New Mexico  
 Area : Statewide  
 Supersector : Construction  
 Industry : Construction  
 Data Type : Average Weekly Earnings of All Employees, In Dollars

### Data:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann	% Change	Convert to Positive
1972	242.50	211.33	216.40	191.07	198.78	199.43	195.22	196.33	180.01	242.76	195.58	206.97	207.23	N/A	N/A
1973	192.39	271.70	201.56	193.29	196.72	205.52	214.70	214.30	211.70	220.17	224.45	232.97	213.94	3.24%	1.03
1974	244.50	266.49	267.86	235.13	215.41	237.23	225.15	229.90	241.20	232.10	243.17	255.06	239.90	12.13%	1.12
1975	240.75	237.62	268.62	310.90	258.05	253.23	257.85	263.48	250.50	275.22	258.91	276.86	262.58	9.45%	1.09
1976	264.04	251.98	344.67	341.70	364.63	308.84	263.53	271.81	264.63	260.37	260.23	259.17	287.66	9.55%	1.10
1977	254.54	267.71	263.52	281.89	285.76	271.20	270.11	278.61	286.51	316.79	316.84	307.09	284.24	-1.19%	0.99
1978	289.67	329.82	335.94	294.89	297.60	290.30	300.58	305.49	304.56	311.92	302.68	305.27	305.11	7.34%	1.07
1979	308.88	288.27	315.58	296.48	294.37	297.54	304.67	304.29	307.08	319.23	304.38	330.28	305.89	0.26%	1.00
1980	328.06	322.94	344.20	369.37	346.30	343.20	350.42	336.88	353.42	339.38	328.94	351.00	342.61	12.00%	1.12
1981	342.02	355.22	341.79	369.63	384.93	378.89	382.88	371.94	357.92	387.72	366.80	399.85	369.94	7.98%	1.08
1982	362.96	368.22	423.05	359.84	426.58	377.05	392.15	406.50	386.64	404.42	358.45	370.29	386.90	4.58%	1.05
1983	388.08	381.99	395.16	358.50	363.60	372.42	367.56	387.02	403.25	383.36	347.22	383.59	376.62	-2.66%	0.97
1984	382.69	389.12	402.50	387.55	379.78	377.03	391.93	387.45	382.60	379.54	371.11	376.92	383.52	1.83%	1.02
1985	377.20	381.98	359.50	380.54	387.19	370.99	374.76	391.62	409.22	373.46	373.82	385.09	380.55	-0.77%	0.99
1986	395.30	382.95	394.13	409.84	399.86	388.05	393.58	406.98	392.35	392.09	444.80	386.63	398.57	4.74%	1.05
1987	392.41	405.91	401.06	397.50	400.16	402.98	400.92	432.72	402.50	426.89	409.26	403.20	405.98	1.86%	1.02
1988	399.67	415.13	416.48	409.88	423.75	427.98	424.46	447.82	436.50	448.77	428.22	445.70	428.12	5.45%	1.05
1989	431.88	412.54	436.80	439.31	435.84	430.10	444.14	452.13	471.22	460.85	426.73	438.66	440.35	2.86%	1.03
1990	441.56	459.93	460.09	445.17	455.31	468.83	444.89	442.38	453.47	430.40	420.33	441.78	446.56	1.41%	1.01
1991	422.07	416.10	428.37	432.61	442.60	433.22	431.20	424.32	435.37	444.16	412.40	419.63	428.61	-4.02%	0.96
1992	419.18	435.86	448.81	438.47	445.74	446.10	453.20	452.80	430.85	466.38	451.92	445.44	444.60	3.73%	1.04
1993	435.75	448.91	453.56	448.92	466.76	469.34	472.93	490.77	493.29	512.25	488.17	500.99	475.91	7.04%	1.07
1994	495.46	483.03	466.83	483.80	474.71	482.51	506.52	504.71	502.25	503.47	469.56	520.40	490.84	3.14%	1.03
1995	524.06	509.44	505.94	466.93	474.79	495.69	492.48	484.40	486.33	503.48	484.67	516.53	494.86	0.82%	1.01
1996	513.38	514.00	497.44	491.88	515.30	515.62	536.18	525.37	514.80	530.88	498.75	503.54	513.48	3.76%	1.04
1997	452.87	509.84	509.56	512.40	530.75	536.01	523.26	542.82	538.67	530.33	498.58	511.43	517.86	0.85%	1.01
1998	512.53	507.28	514.83	524.26	541.63	523.64	527.61	531.98	505.39	514.95	504.44	512.62	518.22	0.07%	1.00
1999	509.97	507.10	519.17	534.50	550.74	556.37	548.66	560.20	544.60	575.30	549.66	557.67	543.91	4.96%	1.05
2000	559.50	556.27	554.68	576.11	574.56	580.55	583.83	589.15	598.04	573.50	592.80	625.60	580.94	6.81%	1.07
2001	617.39	608.36	609.23	565.36	595.89	591.32	558.34	569.97	577.50	592.70	570.51	557.96	583.89	0.51%	1.01
2002	547.88	546.97	533.63	560.47	556.88	563.01	555.99	579.77	560.88	599.54	600.50	628.49(p)	569.50	-2.46%	0.98
2002	Change to new Series per note 1 below														573.39
2003	598.19	586.61	602.65	597.64	591.97	593.60	598.99	596.29	598.99	603.20	601.69	604.40	598.68	4.41%	1.04
2004	604.40	601.38	601.38	600.26	602.57	603.37	604.56	605.36	607.68	607.75	608.94	608.20	604.56	0.98%	1.01

## State and Area Employment, Hours, and Earnings

Years: 1972 - 2002  
 Series ID : SAU3500002000014 (n1)  
 Not Seasonally Adjusted  
 State : New Mexico  
 Area : Statewide  
 Industry : Construction  
 Detail : A 1-digit Industry (Industry Division)  
 Data Type : Average Weekly Earnings (In dollars)

Years: 2003 - 2007  
 Series ID : SMU3500000200000004 (n2)  
 Not Seasonally Adjusted  
 State: New Mexico  
 Area: Statewide  
 Supersector: Construction  
 Industry: Construction  
 Data Type: Average Weekly Earnings, In Dollars

Years 2008 - 2018  
 Series ID : SMU35000002000000011  
 Not Seasonally Adjusted  
 State : New Mexico  
 Area : Statewide  
 Supersector : Construction  
 Industry : Construction  
 Data Type : Average Weekly Earnings of All Employees, In Dollars

### Data:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann	% Change	Convert to Positive
2005	609.40	611.78	612.22	614.99	616.57	618.55	622.50	624.08	627.25	628.44	629.64	629.64	620.91	2.70%	1.03
2006	631.23	634.01	635.61	637.99	641.59	640.78	642.37	645.18	649.62	653.67	658.94	661.78	644.40	3.78%	1.04
2007	660.56	660.14	659.31	662.16	662.96	661.73	660.45	660.40	660.74	665.66	666.00	671.34	662.50	2.81%	1.03
2008	Change to new Series per note 2 below														
2008	738.65	719.16	728.46	740.33	783.78	807.70	824.00	843.90	798.79	814.03	820.12	861.37	788.61	6.45%	1.06
2009	827.13	819.00	806.98	795.26	822.42	810.15	839.27	840.31	778.22	843.58	865.36	838.47	824.85	4.60%	1.05
2010	870.58	816.10	808.79	808.50	807.35	832.91	836.08	863.35	831.87	886.38	855.77	872.53	842.02	2.08%	1.02
2011	851.44	840.80	851.21	874.18	845.86	853.34	851.23	868.79	866.58	871.79	867.41	821.34	856.54	1.72%	1.02
2012	818.29	818.91	836.77	816.00	823.86	818.80	801.19	859.46	811.76	847.99	809.51	799.62	822.89	-3.93%	0.96
2013	785.14	791.62	783.74	814.57	823.37	833.13	798.72	832.14	808.40	837.22	859.81	823.68	817.03	-0.71%	0.99
2014	833.82	815.62	830.55	856.80	859.45	864.06	838.30	849.02	820.29	806.96	810.81	789.81	830.88	1.70%	1.02
2015	752.58	782.18	768.57	781.06	795.34	771.36	784.86	820.85	761.57	789.59	804.71	794.77	783.16	-5.74%	0.94
2016	795.85	801.82	809.24	797.99	777.00	806.19	805.81	829.47	835.75	858.65	860.98	846.72	817.93	4.44%	1.04
2017	849.27	836.83	836.20	816.58	861.62	876.11	867.34	889.13	865.96	876.49	902.33	900.68	866.02	5.88%	1.06
2018	865.26	879.74	882.10	887.49	915.62	919.49	902.27	942.44	911.82	944.86	978.46	1014.74	920.36	6.27%	1.06
<b>Geometric mean:</b>															<b>3.03%</b>

p : Preliminary

Old Series ID : SAU3500002000014 // SAU3500002000014 (n)

(n1): Standard Industrial Classification (SIC) is replaced by North American Industrial Classification System (NAICS) in 2002. The (n) series data stopped at 2002. New series ID uses similar criterias as the old series ID. See <http://www.bls.gov/sae/saenaics.htm> for details.

(n2): Series ID is discontinued in 2008. SMU35000002000000011 is closest to the old data series for New Mexico -Construction Workers

<http://data.bls.gov/cgi-bin/srgate>

**PPI Commodity Data**

Series ID : WPU057303

Not Seasonally Adjusted

Group : Fuels and related products and power

Item : #2 diesel fuel

Base Date: 198200

Years: 1973 - 2018

Data:\*

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann	% Change	Convert to Positive
1973	0.0	12.5	12.7	12.8	13.3	13.8	14.4	14.5	14.7	15.0	15.8	17.2	N/A	N/A	N/A
1974	19.8	23.4	24.9	26.1	27.6	28.9	30.2	30.4	31.0	30.4	29.7	30.0	27.7	N/A	N/A
1975	29.8	29.6	29.5	29.7	29.6	30.6	31.5	31.9	32.4	32.7	33.6	34.0	31.2	0.13	1.13
1976	33.9	34.2	34.0	33.7	33.4	33.5	33.7	34.0	34.5	34.6	34.9	35.3	34.1	0.09	1.09
1977	36.1	37.0	37.8	38.4	38.8	38.8	39.0	39.0	39.1	39.0	39.3	39.4	38.5	0.13	1.13
1978	39.7	39.8	39.5	39.4	39.4	39.3	39.3	39.4	39.5	40.0	40.4	41.3	39.7	0.03	1.03
1979	42.0	42.6	44.4	47.0	49.9	53.8	59.0	63.4	68.1	71.2	71.6	72.2	57.1	0.44	1.44
1980	74.6	80.1	84.5	86.5	87.3	86.5	87.9	88.7	88.5	88.1	88.1	89.2	85.8	0.50	1.50
1981	93.3	99.2	107.0	109.4	108.8	108.3	107.4	106.7	105.3	105.2	104.3	104.9	105.0	0.22	1.22
1982	105.2	105.1	103.2	97.0	92.9	95.4	99.8	99.9	98.4	98.3	101.3	103.4	100.0	-0.05	0.95
1983	99.3	93.6	87.9	81.5	81.9	85.5	85.7	86.4	87.2	89.5	88.8	88.1	87.9	-0.12	0.88
1984	86.7	89.2	92.3	86.8	85.8	86.9	87.7	84.8	82.8	83.6	85.2	84.2	86.3	-0.02	0.98
1985	83.2	81.1	79.9	80.1	82.9	79.9	76.1	74.3	78.7	82.6	86.7	89.1	81.2	-0.06	0.94
1986	81.9	63.7	49.5	49.5	45.6	43.7	36.1	38.1	45.2	42.0	42.6	44.8	48.6	-0.40	0.60
1987	50.3	52.8	49.7	51.8	53.1	54.8	56.1	59.5	57.5	59.8	61.3	58.1	55.4	0.14	1.14
1988	54.6	51.5	50.3	53.5	54.5	51.0	47.2	46.9	46.8	42.6	47.1	50.4	49.7	-0.10	0.90
1989	54.2	55.1	57.7	62.9	58.0	54.0	52.9	53.6	59.5	65.4	64.8	68.5	58.9	0.19	1.19
1990	84.6	59.8	60.7	60.8	58.6	54.0	52.2	72.9	88.4	105.6	100.0	91.0	74.1	0.26	1.26
1991	82.4	75.3	62.0	60.1	60.6	58.4	58.5	62.4	65.8	67.4	70.7	63.3	65.6	-0.11	0.89
1992	55.0	57.0	56.2	58.6	62.1	65.6	65.0	63.7	65.4	68.0	65.2	60.9	61.9	-0.06	0.94
1993	60.6	60.3	63.1	63.2	63.4	61.6	57.7	55.2	60.8	66.5	63.0	51.2	60.5	-0.02	0.98
1994	51.4	56.6	56.9	54.6	54.8	54.2	56.4	57.4	57.7	58.4	59.5	54.2	56.0	-0.07	0.93
1995	54.0	53.1	55.0	58.2	59.4	56.8	53.7	56.0	58.5	58.8	59.7	60.2	57.0	0.02	1.02
1996	62.2	59.4	62.6	75.4	74.5	64.9	66.1	66.6	74.7	80.2	77.0	76.0	70.0	0.23	1.23
1997	73.2	73.1	66.5	66.1	63.6	61.0	57.7	62.1	61.3	64.7	65.8	58.9	64.5	-0.08	0.92
1998	53.9	51.3	47.6	50.0	50.0	45.8	44.7	44.4	48.1	47.3	46.1	39.0	47.4	-0.27	0.73
1999	40.2	38.1	43.2	53.1	53.0	53.5	59.8	65.6	68.8	67.5	71.9	72.7	57.3	0.21	1.21
2000	76.1	86.1	90.0	84.1	82.8	85.7	89.5	92.1	110.8	110.0	110.4	101.6	93.3	0.63	1.63
2001	96.7	92.4	83.5	86.4	93.1	90.2	81.6	82.0	91.6	75.9	71.3	56.2	83.4	-0.11	0.89
2002	58.9	60.0	69.7	76.9	74.7	73.3	77.6	80.4	92.3	98.7	85.5	86.8	77.9	-0.07	0.93
2003	97.6	123.8	129.4	102.3	87.9	89.8	92.7	96.6	91.1	101.1	95.9	98.1	100.5	0.29	1.29
2004	109.3	103.7	109.7	119.9	121.0	114.2	123.0	135.1	140.9	166.6	159.7	135.3	128.2	0.28	1.28
2005	141.1	149.5	173.3	175.4	170.8	187.2	189.8	200.6	212.6	264.1	206.2	198.5	189.1	0.48	1.48
2006	197.1	196.2	206.5	230.4	239.6	246.9	237.5	250.2	201.3	197.5	197.2	203.0	216.9	0.15	1.15
2007	180.9	193.5	220.2	238.0	226.5	227.6	243.5	231.2	246.2	249.6	296.7	271.9	235.5	0.09	1.09
2008	278.2	287.5	353.7	365.1	398.2	421.0	431.9	346.7	342.3	281.8	224.1	168.0	324.9	0.38	1.38
2009	161.6	147.2	139.2	167.4	166.4	191.1	172.8	204.1	193.2	202.8	215.7	205.1	180.6	-0.44	0.56
2010	229.4	206.9	225.5	240.0	235.8	221.8	218.5	231.1	227.7	243.7	255.3	259.2	232.9	0.29	1.29
2011	270.0	289.3	321.8	339.8	328.4	333.7	327.8	307.3	317.8	310.6	337.1	311.0	316.2	0.36	1.36
2012	322.0	329.2	344.3	339.4	325.8	295.4	298.7	324.1	342.4	351.0	323.8	317.4	326.1	0.03	1.03
2013	318.9	342.4	321.0	318.3	307.7	304.8	311.6	319.3	328.0	318.4	307.0	314.7	317.7	-0.03	0.97
2014	308.5	322.0	318.1	318.7	316.5	308.8	307.8	306.9	302.3	283.4	272.3	229.9	299.6	-0.06	0.94
2015	182.6	191.5	193.1	183.8	202.6	198.7	194.0	189.2	169.4	173.5	167.4	130.8	181.4	-0.39	0.61

<b>2016</b>	119.2	113.4	119.4	123.6	144.4	155.4	157.6	149.8	163.1	159.7	157.0	158.8	143.5	-0.21	0.79
<b>2017</b>	161.1	163.5	161.3	162.9	173.6	171.5	179.6	188.9	204.2	213.5	223.7	223.8	185.6	0.29	1.29
<b>2018</b>	229.4	226.5	224.8	231.8	251.1	261.4	256.9	254.3	262.5	271.1	267.4	235.1	247.8	0.34	1.34

**Geometric mean:** **5.11%**

P : Preliminary. All indexes are subject to revision four months after original publication.

\* : Data is regularly evaluated per revised seasonal factor every year

http://data.bls.gov/cgi-bin/srgate

**PPI Commodity Data**

Series Id: WPU112D\*

Not Seasonally Adjusted

Group: Machinery and equipment

Item: Off-highway, equipment, ex. parts

Base Date: 199912

Years: 1982 - 2018

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	% Change	Convert to Positive
1982	97.8	98.2	98.8	99.4	100.1	100.5	100.3	100.6	100.9	100.8	101.2	101.4	100	N/A	N/A
1983	101.2	101.2	101.6	101.4	101.8	102	102.6	102.8	103	102.9	103.1	103.1	102.2	2.22%	1.02
1984	102.9	103	103.1	103.2	103.1	103.4	103.5	103.6	103.7	103.7	103.8	103.9	103.4	1.16%	1.01
1985	104.3	104.4	104.4	104.5	104.4	104.3	104.2	104.3	104.3	104.5	104.2	104.4	104.4	0.91%	1.01
1986	104.3	104.4	104.6	104.8	104.8	104.4	104.3	104.3	104.4	104.6	106.5	106.7	104.8	0.47%	1.00
1987	105.6	105.8	105.9	106	107.5	107.1	106.8	106.8	107.5	107.6	107.9	108.1	106.9	1.95%	1.02
1988	108.8	110.2	109.9	110.4	110.7	110.2	112.8	112.9	113.4	113.8	114.1	114.6	111.8	4.62%	1.05
1989	116.7	116.4	117.9	118.5	119.3	122.7	121.1	121.6	121.9	122.3	122.5	122.8	120.3	7.59%	1.08
1994	134.9	134.8	134.9	135.3	135.5	135.7	136	136.3	136.4	136.8	137.1	137.2	135.9	12.97%	1.13
1995	137.7	138.5	138.4	138.4	138.6	138.8	139	139.3	139.5	139.8	140.1	140.9	139.1	2.34%	1.02
1996	140.4	141.8	141.7	141.7	141.8	143.1	143.2	143.5	143.8	144.1	144.4	144.7	142.9	2.71%	1.03
1997	144.7	144.8	144.9	146.1	146.2	146.1	146.3	146.6	146.9	147.2	147.5	147.8	146.3	2.39%	1.02
1998	148.7	148.7	149.4	149.1	149.4	149.7	149.9	150.3	150.6	150.9	151.1	151.7	150.0	2.53%	1.03
1999	150.1	151.3	151.2	152.3	152.6	152.9	153.1	153.4	153.7	154	154.3	154.6	152.8	1.89%	1.02
1999	Change to new Series per note below												100	100	
2000	101.2	101.3	101.3	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	101.4	1.40%	1.01
2001	101.6	101.6	101.6	101.7	101.7	101.7	101.7	101.7	101.7	102.2	102.3	102.4	101.8	0.39%	1.00
2002	102.9	102.9	102.9	102.9	102.9	102.9	102.9	103.1	103.1	103.1	103.3	103.3	103	1.18%	1.01
2003	104.2	104.2	104	104	104.1	104.1	104.1	104.1	104.1	104.1	104.5	104.6	104.2	1.17%	1.01
2004	105.4	105.7	105.8	106.7	106.8	107	108.7	108.8	108.8	108.1	108.1	107.9	107.3	2.98%	1.03
2005	109.9	109.7	109.7	109.7	111.6	113.1	113.1	113.1	113.1	113.5	113.7	114	112	4.38%	1.04
2006	115.9	116.1	116.2	116.2	115.9	116	116	116	116.4	116.7	116.7	116.6	116.2	3.75%	1.04
2007	117.7	117.7	117.4	117.5	117.5	117.5	117.5	117.6	117	117.9	118.2	118.4	117.7	1.29%	1.01
2008	118.3	119.7	119.9	121.6	121.6	122	122.3	122.7	122.8	122.6	123.7	124.9	121.9	3.57%	1.04
2009	124.6	125.5	126.5	127.6	128.6	129.7	129.9	129.2	127.9	127.1	128.3	131.1	128	5.00%	1.05
2010	129.1	129.6	130	128.5	128.8	129.1	129.9	130.1	133.7	130.1	129.2	131.5	130	1.56%	1.02
2011	131.1	130.8	132.2	132	132.8	134.3	135.5	137.5	137.4	139	138.7	137.2	134.9	3.77%	1.04
2012	143.9	147.6	145.7	146.9	147.7	146	146.1	149.4	145.6	149.3	148.4	150.6	147.3	9.19%	1.09
2013	151.8	151.8	149.1	150.8	151.4	153	152.8	152.8	152.8	153	153.1	153.1	152.1	3.26%	1.03
2014	155.6	155.6	155.6	155.1	155.1	155.1	153.3	153.3	153.3	153.7	154.8	154.8	154.6	1.64%	1.02
2015	157.3	157.3	157.3	157	157	157	157.2	157.2	157.2	157.3	157.3	157.4	157.2	1.68%	1.02
2016	159.8	160.1	159.3	159	159	159	159.1	159.1	159.1	159.1	159.1	159.1	159.2	1.27%	1.01
2017	160.1	160.1	160.1	159.9	160	160	159.5	159.5	159.5	159.8	160	160	159.9	0.44%	1.00
2018	151.9	151.9	151.9	152.3	152.3	152.3	154.1	162.9	162.9	154.1	154.2	163	155.3	-2.87%	0.97

Geometric mean:

2.74%

P : Preliminary. All indexes are subject to revision four months after original publication.

\* : WPS1129 was discontinued in 1999. WPU112D is the closest report to the old WPS1129 report.

**WATER TREATMENT RECLAMATION ESCALATION RATE -- GEOMETRIC MEAN METHOD**

Category	Rate	% of Project	% of Escalation Rate
Reagents	2.95%	38.56%	1.14%
Power	3.23%	2.83%	0.09%
Labor	3.04%	42.96%	1.31%
Maintenance	2.94%	15.65%	0.46%

**Water Treatment Reclamation Escalation Rate: 2.99%**

**Reagents Composite** (represented by Lime Index)

Current Source US Geological Survey  
 Years 1918 - 2018 Unit value per metric ton of lime  
 limited to 100 years Years: 1904 - 2018

**Power Composite**

Current Source US Energy Information Administration  
 Years 1960 - 2018 Retail Prices of Electricity Sold by Electric Utilities (Table 7.4, Table 9.9 and Table 5.3)  
 58 years Years: 1960 - 2018

**Labor Composite**

See Labor Summary Tab

**Maintenance Composite** (includes repair/replacement and maintenance costs)

See Maintenance Summary Tab

**LIME STATISTICS<sup>1</sup>**  
**U.S. GEOLOGICAL SURVEY**  
 [All values in metric tons (t) lime unless otherwise noted]

Year	Unit value (\$/t)	% Change	Convert to Positive
1918	9.22	33.04%	1.33
1919	9.75	5.75%	1.06
1920	11.60	18.97%	1.19
1921	10.80	-6.90%	0.93
1922	10.10	-6.48%	0.94
1923	10.80	6.93%	1.07
1924	10.70	-0.93%	0.99
1925	10.30	-3.74%	0.96
1926	10.00	-2.91%	0.97
1927	9.65	-3.50%	0.97
1928	9.01	-6.63%	0.93
1929	8.64	-4.11%	0.96
1930	8.33	-3.59%	0.96
1931	7.60	-8.76%	0.91
1932	6.92	-8.95%	0.91
1933	6.92	0.00%	1.00
1934	7.89	14.02%	1.14
1935	8.03	1.77%	1.02
1936	7.92	-1.37%	0.99
1937	8.04	1.52%	1.02
1938	7.95	-1.12%	0.99
1939	7.79	-2.01%	0.98
1940	7.66	-1.67%	0.98
1941	7.79	1.70%	1.02
1942	8.01	2.82%	1.03
1943	8.20	2.37%	1.02
1944	8.29	1.10%	1.01
1945	8.55	3.14%	1.03
1946	9.39	9.82%	1.10
1947	10.40	10.76%	1.11
1948	11.40	9.62%	1.10
1949	12.10	6.14%	1.06
1950	12.30	1.65%	1.02
1951	12.90	4.88%	1.05
1952	13.00	0.78%	1.01
1953	12.80	-1.54%	0.98
1954	13.00	1.56%	1.02
1955	13.40	3.08%	1.03
1956	14.10	5.22%	1.05
1957	14.50	2.84%	1.03
1958	14.50	0.00%	1.00
1959	14.50	0.00%	1.00
1960	14.70	1.38%	1.01
1961	14.80	0.68%	1.01
1962	15.00	1.35%	1.01
1963	15.10	0.67%	1.01



**LIME STATISTICS<sup>1</sup>**  
**U.S. GEOLOGICAL SURVEY**  
 [All values in metric tons (t) lime unless otherwise noted]

Year	Unit value (\$/t)	% Change	Convert to Positive
1964	15.30	1.32%	1.01
1965	15.30	0.00%	1.00
1966	14.60	-4.58%	0.95
1967	14.80	1.37%	1.01
1968	14.80	0.00%	1.00
1969	15.40	4.05%	1.04
1970	16.30	5.84%	1.06
1971	17.50	7.36%	1.07
1972	18.60	6.29%	1.06
1973	19.20	3.23%	1.03
1974	24.30	26.56%	1.27
1975	30.30	24.69%	1.25
1976	33.30	9.90%	1.10
1977	36.90	10.81%	1.11
1978	40.50	9.76%	1.10
1979	45.50	12.35%	1.12
1980	49.00	7.69%	1.08
1981	51.80	5.71%	1.06
1982	54.50	5.21%	1.05
1983	56.30	3.30%	1.03
1984	56.40	0.18%	1.00
1985	57.00	1.06%	1.01
1986	57.90	1.58%	1.02
1987	55.20	-4.66%	0.95
1988	53.00	-3.99%	0.96
1989	54.90	3.58%	1.04
1990	57.10	4.01%	1.04
1991	57.00	-0.18%	1.00
1992	58.80	3.16%	1.03
1993	57.40	-2.38%	0.98
1994	58.60	2.09%	1.02
1995	59.50	1.54%	1.02
1996	61.50	3.36%	1.03
1997	61.00	-0.81%	0.99
1998	60.30	-1.15%	0.99
1999	60.40	0.17%	1.00
2000	60.60	0.33%	1.00
2001	61.30	1.16%	1.01
2002	62.60	2.12%	1.02
2003	64.80	3.51%	1.04
2004	68.80	6.17%	1.06
2005	75.00	9.01%	1.09
2006	81.20	8.27%	1.08
2007	87.10	7.27%	1.07
2008	92.40	6.08%	1.06
2009	105.00	13.64%	1.14

**LIME STATISTICS<sup>1</sup>**  
**U.S. GEOLOGICAL SURVEY**  
[All values in metric tons (t) lime unless otherwise noted]

Year	Unit value (\$/t)	% Change	Convert to Positive
2010	107.00	1.90%	1.02
2011	111.50	4.21%	1.04
2012	118.50	6.28%	1.06
2013	121.10	2.19%	1.02
Change to new series per note below			
2013	117.80	n/a	n/a
2014	119.10	1.10%	1.01
2015	121.50	2.02%	1.02
2016	121.00	-0.41%	1.00
2017	123.00	1.65%	1.02
2018	not available yet		
<b>Geometric mean:</b>			<b>2.95%</b>

<sup>1</sup>Compiled by T.G. Goonan and M.M. Miller.  
Data are calculated, estimated, or reported.  
Original data represented average value of lime used or sold by producers  
New series represents average value of quicklime

<http://www.eia.doe.gov/cneaf/electricity/epa/epat7p4.html>

## Retail Prices of Electricity Sold by Electric U

Source: US Energy Information Administration

### Electricity Industrial Sector Nominal Price

Year	Price per KWH	% Change	Convert to Positive
1960	110	N/A	N/A
1961	110	0.0%	1.00
1962	110	0.0%	1.00
1963	100	-9.1%	0.91
1964	100	0.0%	1.00
1965	100	0.0%	1.00
1966	100	0.0%	1.00
1967	100	0.0%	1.00
1968	100	0.0%	1.00
1969	100	0.0%	1.00
1970	100	0.0%	1.00
1971	110	10.0%	1.10
1972	120	9.1%	1.09
1973	130	8.3%	1.08
1974	170	30.8%	1.31
1975	210	23.5%	1.24
1976	220	4.8%	1.05
1977	250	13.6%	1.14
1978	280	12.0%	1.12
1979	310	10.7%	1.11
1980	370	19.4%	1.19
1981	430	16.2%	1.16
1982	500	16.3%	1.16
1983	500	0.0%	1.00
1984	483	-3.4%	0.97
1985	497	2.9%	1.03
1986	493	-0.8%	0.99
1987	477	-3.2%	0.97
1988	470	-1.5%	0.99
1989	472	0.4%	1.00
1990	474	0.4%	1.00
1991	483	1.9%	1.02
1992	483	0.0%	1.00
1993	485	0.4%	1.00
1994	477	-1.6%	0.98
1995	466	-2.3%	0.98
1996	460	-1.3%	0.99
1997	453	-1.5%	0.98
1998	448	-1.1%	0.99
1999	443	-1.1%	0.99
2000	464	4.7%	1.05
2001	505	8.8%	1.09
2002	488	-3.4%	0.97
2003	511	4.7%	1.05
2004	525	2.7%	1.03
2005	573	9.1%	1.09
2006	616	7.5%	1.08
2007	639	3.7%	1.04
2008	683	6.9%	1.07
2009	681	-0.3%	1.00
2010	677	-0.6%	0.99

<http://www.eia.doe.gov/cneaf/electricity/epa/epat7p4.html>

## Retail Prices of Electricity Sold by Electric U

Source: US Energy Information Administration

### Electricity Industrial Sector Nominal Price

Year	Price per KWH	% Change	Convert to Positive
2011	682	0.7%	1.01
2012	667	-2.2%	0.98
2013	689	3.3%	1.03
2014	710	3.0%	1.03
2015	691	-2.7%	0.97
2016	676	-2.2%	0.98
2017	688	1.8%	1.02
2018	696	1.2%	1.01
<b>Geometric Mean:</b>			<b>3.23%</b>

LABOR ESCALATION RATE SUMMARY -- GEOMETRIC MEAN METHOD

Labor	Rate	% of Project	% of Escalation Rate
Unskilled	3.05%	75%	2.29%
Skilled/Maintenance	3.01%	25%	0.75%
<b>Labor Rate =</b>			<b>3.04%</b>

**Labor Composite**

Current Source 1A Unskilled - Employment Cost Index  
 Years: 1985 - 2005 Series ID : ECU11242I  
 20 years Not Seasonally Adjusted  
 Compensation : Total compensation  
 Ownership : Private industry  
 Periodicity : Index number  
 Group : Handlers, equipment cleaners, helpers, and laborers occupations

Current Source 1B Unskilled - Employment Cost Index  
 Years: 2006 - 2018 Series ID : CIU2010000510000I  
 13 years Not Seasonally Adjusted  
 Compensation : Total compensation  
 Sector: Private industry  
 Periodicity : Index number  
 Industry Occupation: Production occupations including water treatment

Current Source 2A Skilled & Maintenance - Employment Cost Index  
 Years: 1985 - 2005 Series ID : ECU11212I  
 20 years Not Seasonally Adjusted  
 Compensation : Total compensation  
 Ownership : Private industry  
 Periodicity : Index number  
 Group : Precision, production, craft, and repair occupations

Current Source 2B Skilled & Maintenance - Employment Cost Index  
 Years: 2006 - 2018 Series ID : CIU2010000430000I (B)  
 13 years Not Seasonally Adjusted  
 Compensation : Total compensation  
 Sector: Private industry  
 Periodicity : Index number  
 Industry Occupation: Installation, maintenance, and repair occupations

http://data.bls.gov/cgi-bin/srgate

## Employment Cost Index

### Series Catalog:

Years: 1985 - 2005  
 Series ID : ECU11242I  
 Not Seasonally Adjusted  
 Compensation : Total compensation  
 Ownership : Private industry  
 Periodicity : Index number  
 Group : Handlers, equipment cleaners, helpers, and laborers occupations

Years: 2006 - 2018  
 Series ID : CIU2010000510000I  
 Not Seasonally Adjusted  
 Compensation: Total compensation  
 Sector: Private industry  
 Periodicity : Index number  
 Industry Occupation: Production occupations including water

### Data:

Year	Qtr1	Qtr2	Qtr3	Qtr4	Annual	% Change	Convert to Positive
1985				49.4		N/A	N/A
1986	49.7	49.9	50.2	50.5	50.1	N/A	N/A
1987	50.7	50.9	51.3	51.9	51.2	2.25%	1.02
1988	53	53.4	53.8	54.2	53.6	4.69%	1.05
1989	54.8	55.5	56.2	56.7	55.8	4.10%	1.04
1990	57.5	58.1	58.7	59.2	58.4	4.61%	1.05
1991	60	60.7	61.3	61.8	61.0	4.41%	1.04
1992	62.5	62.9	63.6	64	63.3	3.77%	1.04
1993	64.8	65.3	65.7	66.1	65.5	3.52%	1.04
1994	66.7	67.4	68.1	68.2	67.6	3.25%	1.03
1995	68.9	69.5	69.9	70.4	69.7	3.07%	1.03
1996	71.3	71.8	72.1	72.9	72.0	3.37%	1.03
1997	73.7	74	74.5	75.4	74.4	3.30%	1.03
1998	76	76.4	76.9	77.2	76.6	2.99%	1.03
1999	78.2	79	79.5	80.1	79.2	3.36%	1.03
2000	81.2	82.2	82.9	83.5	82.5	4.10%	1.04
2001	84.5	85.1	86	86.8	85.6	3.82%	1.04
2002	88.1	88.7	89.6	90.4	89.2	4.21%	1.04
2003	91.5	92.6	93.6	94.1	93.0	4.20%	1.04
2004	95.3	96.1	96.7	97.3	96.4	3.66%	1.04
2005	98.2	98.7	99.4	100	99.1	2.83%	1.03
2005	Change to new series per note below				99.3		
2006	100.4	101	101.6	102	101.3	1.94%	1.02
2007	102.1	102.8	103.2	104	103.0	1.75%	1.02
2008	104.8	105.2	105.8	106.1	105.5	2.38%	1.02
2009	107.1	107.6	108	108.2	107.7	2.13%	1.02
2010	109.5	110	110.7	110.8	110.3	2.34%	1.02
2011	111.7	113.2	113.4	113.8	113.0	2.52%	1.03
2012	113.8	114.4	114.8	115	114.5	1.31%	1.01
2013	115.7	116.1	116.3	116.7	116.2	1.48%	1.01
2014	117.8	118.1	118.8	119.4	118.5	2.00%	1.02
2015	120.4	121	121.7	122.5	121.4	2.43%	1.02
2016	123.4	124.2	125	125.5	124.5	2.57%	1.03
2017	126.5	127.2	128.6	129.2	127.9	2.69%	1.03
2018	130.2	131.1	131.5	132.3	131.3	2.66%	1.03
<b>Geometric mean:</b>						<b>3.05%</b>	

Old Series ID: ECU11242I (no change to data series but data was revised)

Old series data stopped at 2005. New series ID uses similar criterias as the old series ID.

http://data.bls.gov/cgi-bin/srgate

## Employment Cost Index

### Series Catalog:

Years: 1985 - 2005

Series ID : ECU11212I

Not Seasonally Adjusted

Compensation : Total compensation

Ownership : Private industry

Periodicity : Index number

Group : Precision, production, craft, and repair occupations

Years: 2006 - 2018

Series ID : CIU2010000430000I

Not Seasonally Adjusted

Compensation : Total compensation

Ownership : Private industry

Periodicity : Index number

Group : Installation, maintenance, and repair occupations involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of an establishment in repair.

### Data:

Year	Qtr1	Qtr2	Qtr3	Qtr4	Annual	% Change	Convert to Positive
1985				50.5		N/A	N/A
1986	51.2	51.4	51.8	52	51.6	N/A	N/A
1987	52.2	52.6	53.2	53.6	52.9	2.52%	1.03
1988	54.4	55	55.3	55.7	55.1	4.16%	1.04
1989	56	56.8	57.5	57.9	57.1	3.54%	1.04
1990	58.7	59.5	60	60.3	59.6	4.51%	1.05
1991	61.3	62	62.7	63	62.3	4.40%	1.04
1992	63.7	64.2	64.9	65.3	64.5	3.65%	1.04
1993	66.2	66.8	67.4	67.5	67.0	3.80%	1.04
1994	68.3	68.8	69.6	69.6	69.1	3.14%	1.03
1995	70.1	70.6	71.2	71.4	70.8	2.53%	1.03
1996	71.8	72.5	72.8	73.3	72.6	2.51%	1.03
1997	73.6	74.3	74.8	74.9	74.4	2.48%	1.02
1998	75.5	76.3	76.9	77.3	76.5	2.82%	1.03
1999	77.9	78.6	79.3	79.8	78.9	3.14%	1.03
2000	80.8	81.8	82.8	83.3	82.2	4.15%	1.04
2001	84.4	85	86.2	86.6	85.6	4.11%	1.04
2002	87.3	88.4	89.1	89.6	88.6	3.57%	1.04
2003	90.9	92	92.6	93.2	92.2	4.03%	1.04
2004	94.9	96	96.6	97.2	96.2	4.34%	1.04
2005	98.3	99.3	99.7	100	99.3	3.28%	1.03
2005	Change to new series per note below				99.3		
2006	100.9	102.1	103	103.4	102.4	3.12%	1.03
2007	103.5	104.1	105.2	105.8	104.7	2.25%	1.02
2008	106.3	106.6	107.4	108.1	107.1	2.34%	1.02
2009	108.6	108.9	109.4	109.8	109.2	1.94%	1.02
2010	111.1	111.5	111.6	111.9	111.5	2.15%	1.02
2011	112.6	114.2	114.9	115	114.2	2.38%	1.02
2012	116.1	116.8	117.5	117.8	117.1	2.52%	1.03
2013	118.6	119.3	119.9	119.9	119.4	2.03%	1.02
2014	121	122.6	123.5	123.5	122.7	2.70%	1.03
2015	124.1	124.2	124.6	124.8	124.4	1.45%	1.01
2016	125.6	126.1	126.9	127.1	126.4	1.61%	1.02
2017	127.7	129.2	130.2	130.9	129.5	2.43%	1.02
2018	131.3	133.4	133.9	134.6	133.3	2.93%	1.03
<b>Geometric mean:</b>						<b>3.01%</b>	

Old Series ID: ECU11212I (no change to data series but data was revised)

Old series data stopped at 2005. New series ID uses similar criterias as the old series ID.

MAINTENANCE ESCALATION RATE SUMMARY -- GEOMETRIC MEAN METHOD

Maintenance Items	Rate
Industrial pumps	4.43%
Domestic water systems	3.37%
Industrial controls and related parts and accessories	2.30%
Industrial Process Control Instruments	2.41%
Repair and Maintenance Services	2.22%
<b>Maintenance Rate =</b>	<b>2.94%</b>

**Maintenance Components**

Industrial Pumps Years: 1971 - 2018 48 years	Producer Price Index-Commodities Series ID : WPU114102 Not Seasonally Adjusted Group : Machinery and equipment <b>Item : Industrial pumps</b>
Domestic water systems Years: 2004 - 2018 15 years	Producer Price Index-Commodities Series ID : WPU11411311 Not Seasonally Adjusted Group : Machinery and equipment <b>Item : Domestic Water Systems</b>
Industrial controls and related parts and accessories Years: 1990 - 2018 29 years	Producer Price Index-Commodities Series ID : WPU117507 Not Seasonally Adjusted Group : Machinery and equipment <b>Item : Industrial controls and related parts and accessories</b>
Industrial Process Control Instruments Years: 1983 - 2018 36 years	Producer Price Index-Commodities Series ID : WPU1182 Not Seasonally Adjusted Group : Machinery and equipment <b>Item : Industrial process control instruments</b>
Repair and Maintenance Services Years: 2009 - 2018 10 years	Producer Price Index-Commodities Series ID : WPU551 Not Seasonally Adjusted Group : Repair and Maintenance Services <b>Item : Commercial and industrial machinery and equipment repair and maintenance</b>



<http://data.bls.gov/cgi-bin/srgate>

## PPI Commodity Data

### Series Catalog:

Series ID : WPU114102

Not Seasonally Adjusted

Group : Machinery and equipment

Item : Industrial pumps

Base Date: 198200

### Data:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann	% Change	Convert to Positive
1971	33.1	33.2	33.4	33.5	33.7	33.3	33.3	33.6	33.6	33.6	33.6	33.6	33.5	N/A	N/A
1972	33.7	34.2	34.3	34.3	33.8	34.5	34.6	34.6	34.6	34.6	34.7	34.7	34.4	2.69%	1.03
1973	34.7	35	35.1	35.3	35.3	36.2	36.1	36	36.2	36.7	37	37.2	35.9	4.36%	1.04
1974	37.4	37.6	38.9	40.2	42.3	44.7	46.9	47.6	48	49.3	51.3	51.6	44.6	24.23%	1.24
1975	52.3	53	53	52.7	52.8	52.8	53.3	53.4	53.7	53.8	54.1	54	53.2	19.28%	1.19
1976	54.2	55.1	55.5	55.7	55.4	55.5	55.6	56	56.5	56.6	56.5	57.5	55.8	4.89%	1.05
1977	58.2	58.1	58.3	58.3	58.9	59.5	60.3	60.2	60.7	61	61.5	61.6	59.7	6.99%	1.07
1978	61.9	62.3	62.5	63.6	63.8	64.6	64.9	65	65.4	65.6	66.9	67.1	64.5	8.04%	1.08
1979	67.3	67.3	68.1	68.6	69.7	69.9	70.1	70.8	71	71.8	72.3	75.7	70.2	8.84%	1.09
1980	76.9	77.6	79	80.4	81.1	81.4	82.3	82.8	83.3	85	87	88.5	82.1	16.95%	1.17
1981	89.2	90.5	91	91.2	93.6	94	95.6	96.3	95.8	96.5	97.3	97.7	94.1	14.62%	1.15
1982	98.9	99.4	99.8	100.4	100.5	100	100	100	100.2	100.1	100.4	100.5	100	6.27%	1.06
1983	101.1	101	100.2	100.2	100.2	100.2	100.3	99.2	99.3	98.7	98.8	98.9	99.8	-0.20%	1.00
1984	99	99.7	100	100.3	99.5	99.9	100	100.1	101	101.6	102.5	101.6	100.4	0.60%	1.01
1985	101.8	102.4	102.8	102	101.9	102.1	102.2	102.4	102.3	102.8	103.1	101.8	102.3	1.89%	1.02
1986	102.2	103.7	103.8	103.8	102.8	102.8	102.8	102.9	103.5	103.5	103.6	103.7	103.3	0.98%	1.01
1987	104.3	104.3	104.5	104.5	105.1	105	105	105.2	105.3	105.6	106.2	106.9	105.2	1.84%	1.02
1988	106.9	107.1	107.4	108.8	109.2	110.9	110.9	111.4	111.9	112.2	114	114.5	110.4	4.94%	1.05
1989	115.3	115.4	116.8	118.5	118.6	118.8	118.7	118.9	119.9	120	120.3	120.4	118.5	7.34%	1.07
1990	121	121.8	122.1	121.1	123.4	123.7	124	124.6	124.9	125.8	125.9	126.3	123.7	4.39%	1.04
1991	127.6	128.4	128.5	129.4	130.1	130.3	130.1	130.4	130.5	130.5	130.5	131.1	129.8	4.93%	1.05
1992	132.4	133.1	134	134.3	134.5	134.5	134.8	136.1	136.2	136.2	136.3	136.3	134.9	3.93%	1.04
1993	138	138.7	139.2	139.5	139.5	139.4	139.4	139.5	139.6	139.8	140	140	139.4	3.34%	1.03
1994	140.9	141.2	141.9	142.1	142.2	142.2	142.2	142.4	142.6	143	143	143.6	142.3	2.08%	1.02
1995	145.5	145.4	146.6	146.7	146.7	146.7	146.6	146.8	146.9	147	147.8	148.2	146.7	3.09%	1.03
1996	149.2	149	149.8	149.9	150.1	150	150.1	150.6	150.7	150.8	151	151.2	150.2	2.39%	1.02
1997	152.5	152.7	153.5	153.8	155.3	155.2	155.1	155.3	156	156.5	156.5	156.7	154.9	3.13%	1.03
1998	158.7	158.8	158.8	159	159	159	159.4	159.5	159.5	159.7	160.4	159.8	159.3	2.84%	1.03
1999	161	160.4	161.2	161.3	160.4	161.1	161.8	161.4	161.3	163.2	161.6	162	161.4	1.32%	1.01
2000	161.9	162.4	164.2	163.6	164.8	163.3	163.7	164	164.7	163.8	164.9	164.6	163.8	1.49%	1.01
2001	165.4	164.8	165.5	165.5	166.2	165.7	170.5	170.5	170.9	171	171.4	171.4	168.2	2.69%	1.03
2002	171.9	172.3	172.1	172.7	172.4	172.3	172.4	172.1	172.9	172.7	172.7	172.2	172.4	2.50%	1.02
2003	173.4	173.3	174	174.6	174	174	174.5	174.3	174.3	174.9	175	174.4	174.2	1.04%	1.01
2004	176.3	176	176.6	177.7	178.8	178.7	179.6	180.5	180.9	181.5	182.3	182	179.2	2.87%	1.03
2005	185.2	185.5	187.5	188.7	188.7	188.5	188.5	188.3	189.7	189.8	190.1	190.8	188.4	5.13%	1.05

<http://data.bls.gov/cgi-bin/srgate>

## PPI Commodity Data

### Series Catalog:

Series ID : WPU114102

Not Seasonally Adjusted

Group : Machinery and equipment

Item : Industrial pumps

Base Date: 198200

### Data:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann	% Change	Convert to Positive
2006	191.9	193.4	194.7	195	196.4	197	197.7	198	198	198.2	200.3	201.2	196.8	4.46%	1.04
2007	202.5	205.1	206.9	208.6	209.6	209.6	209.9	210.4	210.4	212.2	212.4	211.8	209.1	6.25%	1.06
2008	214.4	215	216.9	216.7	219	220.6	221.6	221.8	224	224.7	224.2	224.1	220.3	5.36%	1.05
2009	226.3	225.6	226.3	226.3	226.4	226.9	226.6	226.4	226.4	226.1	226.1	227.4	226.4	2.77%	1.03
2010	227.9	228.1	228.3	227.4	227.7	227.5	227.9	228.2	228.3	228.2	228.6	228.6	228	0.71%	1.01
2011	225.4	226.8	227.4	228.1	228.5	228.1	229.1	229.3	229.4	229.7	229.7	229.7	228.4	0.18%	1.00
2012	230.1	232.7	233.4	233.8	233.9	234.3	234.2	234.2	234.2	234.3	229.2	229.2	232.8	1.93%	1.02
2013	229.2	229.4	230.8	231.2	231.1	231.4	231.5	232.3	232.4	232.3	232.8	232.8	231.4	-0.60%	0.99
2014	235.2	235.8	235.8	236	235.9	235.8	235.9	235.9	235.9	236.3	236.7	236.8	236	1.99%	1.02
2015	239.3	239.6	239.7	240.4	240.3	240.3	240.5	240.5	240.5	240.5	240.5	241.7	240.3	1.82%	1.02
2016	244.3	244.6	244.3	244.3	243.2	243.2	243.1	243.1	243.1	243.1	243.1	244.1	243.6	1.37%	1.01
2017	244.5	246.7	247.9	247.9	247.9	247.9	247.9	247.9	247.9	249.5	251.6	252.4	248.3	1.93%	1.02
2018	253.5	253.9	254.3	254.4	256.5	256.5	257.3	258.5	259.8	261.1	260.5	260.7	257.2	3.58%	1.04
<b>Geometric mean:</b>														<b>4.43%</b>	

P : Preliminary. All indexes are subject to revision four months after original publication.

<http://data.bls.gov/cgi-bin/srgate>

## PPI Commodity Data

### Series Catalog:

Series ID : WPU11411311  
Not Seasonally Adjusted  
Group : Machinery and equipment  
Item : Domestic water systems  
Base Date: 200312

### Data:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann	% Change	Convert to Positive
2003	0	0	0	0	0	0	0	0	0	0	0	100	100	N/A	N/A
2004	100.5	100.5	100.5	102.6	102.9	103.3	106.1	107.1	107.3	107.5	108.3	109.1	104.6	4.60%	1.05
2005	110.9	114.3	114.3	113.6	114.2	114	114	114.4	114.3	114.7	114.9	117	114.2	9.18%	1.09
2006	116.9	117.9	118.2	118.6	119.1	120.5	118.2	118.6	119.8	120.6	120.9	120.5	119.1	4.29%	1.04
2007	121.7	122.3	122.4	122.4	123.3	123.7	123.3	123.7	123	124.9	125.7	125.8	123.5	3.69%	1.04
2008	126.1	128.3	127	127.7	128.6	128.5	128.4	129.3	128	129.1	129.8	128.4	128.3	3.89%	1.04
2009	129.1	129	129	129.4	130.6	130.6	130.7	130.7	130.7	130.1	130.1	130.1	130	1.33%	1.01
2010	130.2	130.2	130.8	131.4	132.9	133.4	133.3	133.7	133.3	133.4	133.3	132.7	132.4	1.85%	1.02
2011	136.9	135.5	136	136.2	136.4	136.9	138.1	137.8	138	138.1	138.3	139.5	137.3	3.70%	1.04
2012	141.3	141.6	141.5	141.8	141.5	141.8	142.1	142.1	141.7	142.2	141.8	142.5	141.8	3.28%	1.03
2013	143.5	145.3	145.3	145.4	145.7	146	146	145.8	145.7	145.9	146.3	146.3	145.6	2.68%	1.03
2014	148.4	149.5	149.5	149.7	149.7	150.1	150.1	150.3	150.3	150.3	150.1	150.1	149.9	2.95%	1.03
2015	152.8	152.6	153.5	155.3	155.2	155.3	155.4	156.6	156.7	156.9	156.5	157.3	155.3	3.60%	1.04
2016	158.2	158.3	158.6	158.8	156.3	156.5	156.8	156.8	156.8	156.8	156.8	157.6	157.4	1.35%	1.01
2017	158	158.7	160.9	161.3	161.4	161.4	161.4	161.4	161.4	161.4	161.5	161.8	160.9	2.22%	1.02
2018	163.1	163.1	163.1	162.7	163.3	163.3	162.7	162.7	162.7	168.5	168.3	167.8	164.3	2.11%	1.02

Geometric mean:

3.37%

P : Preliminary. All indexes are subject to revision four months after original publication.

<http://data.bls.gov/cgi-bin/srgate>

## PPI Commodity Data

### Series Catalog:

Series ID : WPU117507

NotSeasonally Adjusted

Group : Machinery and equipment

Item : Industrial controls and related parts and accessories

Base Date: 198200

### Data:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann	% Change	Convert to Positive
1990	120.2	120.5	120.4	120.6	121.2	121.3	121.5	122.1	123.1	123.6	124.4	124.8	122	N/A	N/A
1991	125.8	126.2	126.7	126.9	126.8	126.6	127.5	127.8	126.8	127	127.4	127.7	126.9	4.02%	1.04
1992	128.1	129.1	129.1	129.1	129.7	129.8	130	130.1	129.9	130.4	132.8	132.8	130.1	2.52%	1.03
1993	132.6	132.9	132.8	132.8	133.3	133.5	133.3	133.3	133.3	133.3	133.5	134.2	133.2	2.38%	1.02
1994	133.6	134.1	134.1	134.3	134.2	133.8	133.7	133.8	133.8	134	134.8	135.2	134.1	0.68%	1.01
1995	135.9	136.4	136.5	136.3	136	136.2	137.2	137	137.3	137.2	138.5	138.6	136.9	2.09%	1.02
1996	139.3	139	139.3	139.1	139.5	139.7	139.6	140.4	140.5	141.1	142.6	142.1	140.2	2.41%	1.02
1997	142.8	143.6	143.6	143.9	143.9	144.1	144.1	143.9	143.9	143.9	145.3	145.3	144	2.71%	1.03
1998	145.3	145.4	145.8	146	146.4	146.4	146.4	146.5	146.3	146.5	148.3	148.3	146.5	1.74%	1.02
1999	148.4	147.8	148	149.3	149.4	149.7	148.8	148.7	148.7	148.8	149.4	149.4	148.9	1.64%	1.02
2000	149.6	150.3	150.3	150.6	149.7	149.7	149.9	151.1	151.2	151.2	151.6	151.7	150.6	1.14%	1.01
2001	152.5	153.4	153.6	153.7	153.7	153.8	153.5	153.6	153.5	153.5	154	155.2	153.7	2.06%	1.02
2002	155.1	154.7	154.7	154.7	154.9	154.9	152.8	152.8	152.9	153.6	154.9	155	154.2	0.33%	1.00
2003	155	155.4	155.4	155.5	155.5	156	156.2	156.3	157.2	157.2	157.3	157.4	156.2	1.30%	1.01
2004	158.1	158.2	159.7	159.7	160.1	160.6	160.6	160.6	161.8	162.1	162.2	162.5	160.5	2.75%	1.03
2005	163	163.9	164.4	164.4	164.4	164.8	165	165	169.6	169.5	169.5	169.6	166.1	3.49%	1.03
2006	171.2	171.4	172.2	172.3	172.5	172.5	173.4	173.4	178.4	179.9	179.8	179.7	174.7	5.18%	1.05
2007	179.7	179.6	181.1	181.1	179.3	179.3	179.4	179.8	183.5	183.6	183.6	183.7	181.1	3.66%	1.04
2008	184.6	185.8	185.8	185.9	186	186.3	186.8	185.5	192.1	192.1	192.2	192.2	187.9	3.75%	1.04
2009	192.7	192.8	192.7	192.7	192.8	193	193.2	193.3	193.4	193.4	193.8	193.9	193.1	2.77%	1.03
2010	194.1	197.9	199	199.2	199.5	199.5	200.1	200.1	200.1	200.2	202.1	202	199.5	3.31%	1.03
2011	202.2	203.9	204.5	204.8	204.8	206.4	206.6	206.7	207.2	206.7	206.7	207.6	205.7	3.11%	1.03
2012	208.6	209.3	209.7	210	209.9	209.5	210.1	212.1	211.9	211.9	212.7	212.9	210.7	2.43%	1.02
2013	215	215.1	215.2	215.2	215.1	216	217.3	217.3	217.2	217.3	217.3	217.4	216.3	2.66%	1.03
2014	218.2	218.2	218.8	219	218.9	218.9	219.5	219.4	220.3	220.1	220.1	220.2	219.3	1.39%	1.01
2015	222.1	222.4	222.4	222.5	222.5	222.6	222.9	223.3	223.9	224.1	224.4	223.7	223.1	1.73%	1.02
2016	224.4	224	223.8	223.9	223.9	223.9	224.4	224.4	224	225.1	225.2	225.2	224.3	0.54%	1.01
2017	225.4	225.8	225.8	226.5	226.5	227.2	227.6	227.3	227.3	227.3	227.3	228.2	226.9	1.16%	1.01
2018	228.7	228.8	229.5	229.3	229.3	229	231.5	231.5	231.6	231.8	231.6	232.6	230.5	1.59%	1.02

Geometric mean:

**2.30%**

P : Preliminary. All indexes are subject to revision four months after original publication.

<http://data.bls.gov/cgi-bin/srgate>

## PPI Commodity Data

### Series Catalog:

Series ID : WPU1182

Not Seasonally Adjusted

Group : Machinery and equipment

Item : Industrial process control instruments

Base Date: 198306

### Data:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann	% Change	Convert to Positive
1983	0	0	0	0	0	100	99.9	100.2	100.2	100.2	100.2	100.5	100.2	N/A	N/A
1984	100.6	101.4	101.4	101.5	102.5	102.8	102.7	103.4	103.7	103.9	103.9	104.9	102.7	2.52%	1.03
1985	105.4	105.4	105.7	106	106.2	106.3	106.8	106.8	107	107.4	107.7	107.7	106.5	3.70%	1.04
1986	108.2	108.9	109.3	109.1	110.8	110.8	111.8	113.6	113.6	113.7	113.7	113.9	111.5	4.69%	1.05
1987	114.1	114.9	114.9	115.2	115.5	115.5	116.1	116.1	116.2	116.6	116.6	117.2	115.7	3.77%	1.04
1988	118.6	118.8	119.4	119.9	120	119.5	119.6	120	120	119.7	121.2	121.6	119.9	3.63%	1.04
1989	122	122.5	122.9	122.9	123.5	123.9	124.2	124.4	124.7	124.7	125.9	125.9	124.0	3.42%	1.03
1990	126.3	127.4	127.5	127.5	127.6	127.8	128.2	128.2	128.5	129.3	129.8	130.7	128.2	3.39%	1.03
1991	130.3	131	130.6	130.7	130.9	130.9	131	131.1	131.5	132.9	132.7	132.6	131.4	2.50%	1.02
1992	133.2	133.8	133.5	133.8	134	134	134.5	134.8	134.8	136.6	136.6	136.6	134.7	2.51%	1.03
1993	136.8	137.3	137.3	137.8	137.7	137.8	137.8	137.8	138	138	138	138.2	137.7	2.23%	1.02
1994	138.8	139.3	139.4	139.8	139.9	140	140	139.9	139.1	139.2	139.6	137.6	139.4	1.23%	1.01
1995	137.8	138.7	138.9	138.4	138.5	138.5	140	140.1	140.4	140.3	142.3	142.3	139.7	0.22%	1.00
1996	142.8	143.5	143.5	143.6	143.6	143.8	143.8	144	144	144.2	144.7	145.8	143.9	3.01%	1.03
1997	149.9	149.9	150.3	150.3	149.8	150	150.4	151	151	150.8	152.1	152.4	150.7	4.73%	1.05
1998	153.4	153.2	153.4	152.4	152.9	153	153.2	153.3	153.5	153.5	154.1	154.4	153.4	1.79%	1.02
1999	154.7	154.9	154.9	155.2	155.3	153.8	153.8	154.1	154.2	154.5	154.6	155.7	154.6	0.78%	1.01
2000	156.2	156.3	156.1	155.9	156.3	156.4	156.3	156.3	156.3	156.5	156.5	156.5	156.3	1.10%	1.01
2001	157.8	158	158.1	158.4	158.4	158.4	158.3	158.5	158.4	158.5	159.3	159.3	158.4	1.34%	1.01
2002	159.5	159.8	159.7	159.8	159.7	160	160	160.9	161	161.2	161.4	161.6	160.4	1.26%	1.01
2003	163.2	163.2	163.4	164.7	164.7	164.8	164.8	165	165	165.1	165.2	165.1	164.5	2.56%	1.03
2004	165.2	165.2	165.3	167.3	168.7	168.9	169.1	169.1	169.1	169.1	169	169.4	167.9	2.07%	1.02
2005	169.4	169.9	169.6	169.9	171.8	172.1	172.3	171.5	171.5	172.1	172.6	172.5	171.3	2.03%	1.02
2006	174.2	175.1	175.3	176.3	176.2	176.5	176.8	176.7	176.7	177.1	177.2	178.7	176.4	2.98%	1.03
2007	181.4	181.7	181.4	182.2	184.3	185	185.6	185.1	184.9	185.5	185.2	185.8	184.0	4.31%	1.04
2008	187.4	187.4	187.2	188.2	188.4	188.4	189.2	190.4	191.5	192.3	193.1	193.2	189.7	3.10%	1.03
2009	195.2	195.6	195.8	196.1	196.2	196.1	196.7	196.9	197	196.8	197.3	198.1	196.5	3.58%	1.04
2010	198.5	198.5	198.8	198.2	198	198.1	197.9	198.6	198.7	198.5	199.3	200.7	198.6	1.07%	1.01
2011	202	204.1	204	205.4	205.5	205.9	207.3	208.1	208.1	208.1	208.1	208	206.2	3.83%	1.04
2012	208.6	209.5	209.5	209.5	211.1	211.2	211.2	211.2	211.2	211.5	211.5	212.1	210.7	2.18%	1.02
2013	213.1	213.4	212.7	213.1	213.7	213.7	213.7	213.7	213.9	213.9	213.9	213.9	213.5	1.33%	1.01
2014	215.2	215.1	215.1	216	218.5	218.5	218.6	218.8	219.1	219.1	219.1	221	217.8	2.01%	1.02
2015	222.6	222.9	222.5	223	222.8	222.2	222.2	222.3	222.4	222.6	222.6	222.7	222.6	2.20%	1.02

<http://data.bls.gov/cgi-bin/srgate>

## PPI Commodity Data

### Series Catalog:

Series ID : WPU1182

Not Seasonally Adjusted

Group : Machinery and equipment

Item : Industrial process control instruments

Base Date: 198306

### Data:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann	% Change	Convert to Positive
2016	223.1	223.7	224.2	224.9	224.9	226	226	226	226.1	226.1	226	226.2	225.3	1.21%	1.01
2017	227.1	227.8	227.9	227.2	227.2	227.2	227.7	227.6	226.9	227.9	227.9	228.8	227.6	1.02%	1.01
2018	230.2	229.2	229.4	230.6	231.4	231.7	231.7	230.1	230.3	230.6	230.6	231.3	230.6	1.32%	1.01
<b>Geometric mean:</b>														<b>2.41%</b>	

P : Preliminary. All indexes are subject to revision four months after original publication.

<http://data.bls.gov/cgi-bin/srgate>

## PPI Commodity Data

### Series Catalog:

Series ID : WPU551

Not Seasonally Adjusted

Group : Repair and Maintenance Services

Item : Commercial and industrial machinery and equipment repair and maintenance

Base Date: 200903

### Data:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann	% Change	Convert to Positive
2009	0	0	100	100	100.3	100.4	100.4	100.2	100.3	100.4	100.3	100.6	100.3	N/A	N/A
2010	100.8	101.4	101.3	101	101.1	101.2	101.3	101.5	105.1	104.8	104.8	104.8	102.4	2.10%	1.02
2011	105.2	106.2	106.9	106.9	106.1	107.9	108	108.5	108.5	108.6	108.6	108.6	107.5	4.98%	1.05
2012	108.9	109.1	109.3	109.3	109.9	109.9	110	109.9	110.1	110.1	110.2	110.2	109.8	2.14%	1.02
2013	110.7	110.6	111.6	111.6	111.6	111.5	111.5	112.5	113.4	113.4	113.4	113.4	112.1	2.09%	1.02
2014	114.1	114.2	114.9	114.9	115	115.2	115.2	115.2	115.2	116.3	116	116	115.2	2.77%	1.03
2015	116.3	116.3	116.6	116.8	117	117	117	117	117	117	117	117	116.8	1.39%	1.01
2016	117	117.8	117.8	117.7	117.7	117.7	117.7	117.7	117.7	117.9	118.1	118.3	117.8	0.86%	1.01
2017	119.2	119.2	119.2	119.2	119.4	119.4	119.4	119.4	119.4	120.7	120.7	120.7	119.6	1.53%	1.02
2018	121	121.8	121.8	121.8	121.8	121.9	122.4	122.6	122.6	122.8	122.8	122.8	122.2	2.15%	1.02
<b>Geometric mean:</b>														<b>2.22%</b>	

P : Preliminary. All indexes are subject to revision four months after original publication.

## **Attachment 3C**

### **Discount (Yield or Rate of Return) Rate Data Tables**



Full Name	Value Date	YTD Total Return	Percent Change	Convert to Positive
Bloomberg Barclays U.S. Government/Credit Index	12/31/1973	2.298562	0.02298562	1.02298562
Bloomberg Barclays U.S. Government/Credit Index	12/31/1974	0.173907	0.00173907	1.00173907
Bloomberg Barclays U.S. Government/Credit Index	12/31/1975	12.291278	0.12291278	1.12291278
Bloomberg Barclays U.S. Government/Credit Index	12/31/1976	15.584238	0.15584238	1.15584238
Bloomberg Barclays U.S. Government/Credit Index	12/30/1977	2.994655	0.02994655	1.02994655
Bloomberg Barclays U.S. Government/Credit Index	12/29/1978	1.167421	0.01167421	1.01167421
Bloomberg Barclays U.S. Government/Credit Index	12/31/1979	2.279569	0.02279569	1.02279569
Bloomberg Barclays U.S. Government/Credit Index	12/31/1980	3.04756	0.0304756	1.0304756
Bloomberg Barclays U.S. Government/Credit Index	12/31/1981	7.286263	0.07286263	1.07286263
Bloomberg Barclays U.S. Government/Credit Index	12/31/1982	31.097855	0.31097855	1.31097855
Bloomberg Barclays U.S. Government/Credit Index	12/30/1983	7.987689	0.07987689	1.07987689
Bloomberg Barclays U.S. Government/Credit Index	12/31/1984	15.00544	0.1500544	1.1500544
Bloomberg Barclays U.S. Government/Credit Index	12/31/1985	21.325217	0.21325217	1.21325217
Bloomberg Barclays U.S. Government/Credit Index	12/31/1986	15.599849	0.15599849	1.15599849
Bloomberg Barclays U.S. Government/Credit Index	12/31/1987	2.303383	0.02303383	1.02303383
Bloomberg Barclays U.S. Government/Credit Index	12/30/1988	7.587892	0.07587892	1.07587892
Bloomberg Barclays U.S. Government/Credit Index	12/29/1989	14.228355	0.14228355	1.14228355
Bloomberg Barclays U.S. Government/Credit Index	12/31/1990	8.292586	0.08292586	1.08292586
Bloomberg Barclays U.S. Government/Credit Index	12/31/1991	16.125458	0.16125458	1.16125458
Bloomberg Barclays U.S. Government/Credit Index	12/31/1992	7.584939	0.07584939	1.07584939
Bloomberg Barclays U.S. Government/Credit Index	12/31/1993	11.03181	0.1103181	1.1103181
Bloomberg Barclays U.S. Government/Credit Index	12/30/1994	-3.509601	-0.03509601	0.96490399
Bloomberg Barclays U.S. Government/Credit Index	12/29/1995	19.242709	0.19242709	1.19242709
Bloomberg Barclays U.S. Government/Credit Index	12/31/1996	2.90357	0.0290357	1.0290357
Bloomberg Barclays U.S. Government/Credit Index	12/31/1997	9.757223	0.09757223	1.09757223
Bloomberg Barclays U.S. Government/Credit Index	12/31/1998	9.472479	0.09472479	1.09472479
Bloomberg Barclays U.S. Government/Credit Index	12/31/1999	-2.147122	-0.02147122	0.97852878
Bloomberg Barclays U.S. Government/Credit Index	12/29/2000	11.851169	0.11851169	1.11851169
Bloomberg Barclays U.S. Government/Credit Index	12/31/2001	8.502578	0.08502578	1.08502578
Bloomberg Barclays U.S. Government/Credit Index	12/31/2002	11.035881	0.11035881	1.11035881
Bloomberg Barclays U.S. Government/Credit Index	12/31/2003	4.668455	0.04668455	1.04668455
Bloomberg Barclays U.S. Government/Credit Index	12/31/2004	4.193423	0.04193423	1.04193423
Bloomberg Barclays U.S. Government/Credit Index	12/30/2005	2.369024	0.02369024	1.02369024
Bloomberg Barclays U.S. Government/Credit Index	12/29/2006	3.778366	0.03778366	1.03778366
Bloomberg Barclays U.S. Government/Credit Index	12/31/2007	7.226425	0.07226425	1.07226425
Bloomberg Barclays U.S. Government/Credit Index	12/31/2008	5.704	0.05704	1.05704
Bloomberg Barclays U.S. Government/Credit Index	12/31/2009	4.521	0.04521	1.04521
Bloomberg Barclays U.S. Government/Credit Index	12/31/2010	6.593	0.06593	1.06593
Bloomberg Barclays U.S. Government/Credit Index	12/30/2011	8.737	0.08737	1.08737
Bloomberg Barclays U.S. Government/Credit Index	12/31/2012	4.816	0.04816	1.04816
Bloomberg Barclays U.S. Government/Credit Index	12/31/2013	-2.352	-0.02352	0.97648
Bloomberg Barclays U.S. Government/Credit Index	12/31/2014	6.01	0.0601	1.0601
Bloomberg Barclays U.S. Government/Credit Index	12/31/2015	0.147220363	0.001472204	1.001472204
Bloomberg Barclays U.S. Government/Credit Index	12/31/2016	3.05	0.0305	1.0305
Bloomberg Barclays U.S. Government/Credit Index	12/31/2017	4.00	0.04	1.04
Bloomberg Barclays U.S. Government/Credit Index	12/31/2018	-0.42	-0.0042	0.9958

Geometric mean: 7.09%

Full Name	Value Date	YTD Total Return	Percent Change	Convert to Positive
Bloomberg Barclays U.S. Aggregate Index	12/31/1976	15.595498	0.15595498	1.15595498
Bloomberg Barclays U.S. Aggregate Index	12/30/1977	3.02538	0.0302538	1.0302538
Bloomberg Barclays U.S. Aggregate Index	12/29/1978	1.398805	0.01398805	1.01398805
Bloomberg Barclays U.S. Aggregate Index	12/31/1979	1.924445	0.01924445	1.01924445
Bloomberg Barclays U.S. Aggregate Index	12/31/1980	2.707597	0.02707597	1.02707597
Bloomberg Barclays U.S. Aggregate Index	12/31/1981	6.261099	0.06261099	1.06261099
Bloomberg Barclays U.S. Aggregate Index	12/31/1982	32.635016	0.32635016	1.32635016
Bloomberg Barclays U.S. Aggregate Index	12/30/1983	8.373009	0.08373009	1.08373009
Bloomberg Barclays U.S. Aggregate Index	12/31/1984	15.153796	0.15153796	1.15153796
Bloomberg Barclays U.S. Aggregate Index	12/31/1985	22.125676	0.22125676	1.22125676
Bloomberg Barclays U.S. Aggregate Index	12/31/1986	15.24882	0.1524882	1.1524882
Bloomberg Barclays U.S. Aggregate Index	12/31/1987	2.756946	0.02756946	1.02756946
Bloomberg Barclays U.S. Aggregate Index	12/30/1988	7.878508	0.07878508	1.07878508
Bloomberg Barclays U.S. Aggregate Index	12/29/1989	14.529286	0.14529286	1.14529286
Bloomberg Barclays U.S. Aggregate Index	12/31/1990	8.945261	0.08945261	1.08945261
Bloomberg Barclays U.S. Aggregate Index	12/31/1991	16.000538	0.16000538	1.16000538
Bloomberg Barclays U.S. Aggregate Index	12/31/1992	7.402604	0.07402604	1.07402604
Bloomberg Barclays U.S. Aggregate Index	12/31/1993	9.749142	0.09749142	1.09749142
Bloomberg Barclays U.S. Aggregate Index	12/30/1994	-2.916151	-0.02916151	0.97083849
Bloomberg Barclays U.S. Aggregate Index	12/29/1995	18.473766	0.18473766	1.18473766
Bloomberg Barclays U.S. Aggregate Index	12/31/1996	3.630583	0.03630583	1.03630583
Bloomberg Barclays U.S. Aggregate Index	12/31/1997	9.653966	0.09653966	1.09653966
Bloomberg Barclays U.S. Aggregate Index	12/31/1998	8.686512	0.08686512	1.08686512
Bloomberg Barclays U.S. Aggregate Index	12/31/1999	-0.821319	-0.00821319	0.99178681
Bloomberg Barclays U.S. Aggregate Index	12/29/2000	11.626067	0.11626067	1.11626067
Bloomberg Barclays U.S. Aggregate Index	12/31/2001	8.443473	0.08443473	1.08443473
Bloomberg Barclays U.S. Aggregate Index	12/31/2002	10.25503	0.1025503	1.1025503
Bloomberg Barclays U.S. Aggregate Index	12/31/2003	4.104447	0.04104447	1.04104447
Bloomberg Barclays U.S. Aggregate Index	12/31/2004	4.338787	0.04338787	1.04338787
Bloomberg Barclays U.S. Aggregate Index	12/30/2005	2.428532	0.02428532	1.02428532
Bloomberg Barclays U.S. Aggregate Index	12/29/2006	4.333766	0.04333766	1.04333766
Bloomberg Barclays U.S. Aggregate Index	12/31/2007	6.966623	0.06966623	1.06966623
Bloomberg Barclays U.S. Aggregate Index	12/31/2008	5.24	0.0524	1.0524
Bloomberg Barclays U.S. Aggregate Index	12/31/2009	5.93	0.0593	1.0593
Bloomberg Barclays U.S. Aggregate Index	12/31/2010	6.542	0.06542	1.06542
Bloomberg Barclays U.S. Aggregate Index	12/30/2011	7.842	0.07842	1.07842
Bloomberg Barclays U.S. Aggregate Index	12/31/2012	4.215	0.04215	1.04215
Bloomberg Barclays U.S. Aggregate Index	12/31/2013	-2.024	-0.02024	0.97976
Bloomberg Barclays U.S. Aggregate Index	12/31/2014	5.97	0.0597	1.0597
Bloomberg Barclays U.S. Aggregate Index	12/31/2015	0.549954938	0.005499549	1.005499549
Bloomberg Barclays U.S. Aggregate Index	12/31/2016	2.65	0.0265	1.0265
Bloomberg Barclays U.S. Aggregate Index	12/31/2017	3.54	0.0354	1.0354
Bloomberg Barclays U.S. Aggregate Index	12/31/2018	0.01	0.0001	1.0001

Geometric mean: 7.27%