

U.S. Department of Housing and Urban Development

Dated : 12/21/2017



Office of Public and Indian Housing  
Office of Public Housing  
Financial Management Division

**Calculation of Utilities Expense Level (UEL) Inflation Factor for Calendar Year (CY) 2018**

In order to provide PHAs with additional transparency on how inflation factors are derived, HUD has expanded the level of detail provided in its annual inflation factor guidance. This CY 2018 Formula Income Inflation Factor Guidance document will explain how the data is derived, describe the calculations that are performed, communicate the CY 2018 inflation rates, and provide additional access to data which the industry can use to more deeply analyze the resulting inflation factors.

The data for calculating the UEL Inflation factor for CY 2018 is extracted from the Bureau of Labor Statistics (BLS) ‘Consumer Price Index for All Urban Consumers (CPI-U). The reporting period for the operating subsidy calculation runs from July 1 to June 30. Using the monthly indices for the 12-month period, an average index is calculated for each of the reporting periods, by utility type. Nationally, the weighted change in utility price between the CY 2017 and CY 2018 reporting periods (weighted by the percentage of total public housing spending on utilities, by type) was 03.58% (see Table 1).

The rate of change in the reporting period (03.58%) is then multiplied by 1.5 to reflect the anticipated rate that PHAs will pay during the funding period. In essence, the funding period lags the reporting period by 18 months (1.5 years). As shown below, this calculation results in a CY 2018 UEL inflation factor of 5.37%. The 03.58% (weighted rate of change in reporting period) x 1.5 (18 month lag) = 5.37% (2018 UEL Inflation Factor). **The inflation factor to be used on the CY 2018 HUD-52722 is 1.0537, (1 + 0.0537).**

**Table 1: Calculation of CY 2018 UEL Inflation Factor**

Utility Type	Percent of Total Utility Costs	July 2015-June 2016 CPI Average	July 2016-June 2017 CPI Average	Inflation Factor	Weighted Inflation Factor
[a]	[b]	[c]	[d]	[e]	[f] = [b] x [e]
Water	36%	\$503.93	\$523.65	3.91%	1.41%
Electricity	36%	\$207.06	\$209.06	0.97%	0.35%
Gas	14%	\$157.67	\$169.54	7.53%	1.09%
Fuel	12%	\$215.77	\$228.09	5.71%	0.70%
Other Utilities	2%	\$227.46	\$233.62	2.71%	0.05%
<b>Total Utility Costs</b>	<b>100%</b>				
<b>Weighted Average Inflation Factor</b>					<b>3.58%</b>
<b>CY 2018 UEL Inflation Factor - Using 18-months Adjustment</b>					<b>5.37%</b>

See Table 2 on Page Two for details on the computation of utility specific CPI indices.

Table 2: Calculation of Inflation Factor by Utility Type Using CPI-U

Dated : 12/21/2017

Reporting Period	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average Index	Inflation Factor
<b>Water &amp; Sewerage Maintenance</b>														
CY 2017 (Jul 15 - Jun 16)	492.931	498.209	498.898	499.187	500.515	501.462	504.402	506.031	508.140	510.778	513.157	513.440	<b>503.929</b>	
CY 2018 (Jul 16 - Jun 17)	513.040	516.427	518.004	518.722	520.577	521.107	525.645	527.759	528.876	530.602	531.355	531.685	<b>523.650</b>	<b>3.91%</b>
<b>Electricity</b>														
CY 2017 (Jul 15 - Jun 16)	216.406	215.786	214.132	205.604	202.479	201.787	203.169	202.528	202.487	201.778	205.038	213.474	<b>207.056</b>	
CY 2018 (Jul 16 - Jun 17)	214.193	214.222	214.381	206.397	202.984	203.146	205.230	206.416	205.692	206.671	210.541	218.865	<b>209.062</b>	<b>0.97%</b>
<b>Utility (Piped) Gas Service</b>														
CY 2017 (Jul 15 - Jun 16)	162.733	162.885	161.189	159.422	157.750	155.746	156.513	155.981	154.822	154.130	154.994	155.914	<b>157.673</b>	
CY 2018 (Jul 16 - Jun 17)	162.129	164.715	165.881	167.049	167.469	167.935	172.319	172.967	170.755	172.597	174.901	175.807	<b>169.544</b>	<b>7.53%</b>
<b>Fuel Oil</b>														
CY 2017 (Jul 15 - Jun 16)	258.620	237.580	231.835	229.191	226.289	208.561	195.029	189.373	192.617	196.349	208.488	215.295	<b>215.769</b>	
CY 2018 (Jul 16 - Jun 17)	212.482	207.143	212.019	224.453	221.808	235.127	243.347	242.467	240.619	239.822	233.216	224.542	<b>228.087</b>	<b>5.71%</b>
<b>All Utilities (Fuels and Utilities)</b>														
CY 2017 (Jul 15 - Jun 16)	234.137	233.847	232.417	226.784	224.606	223.521	224.537	224.063	223.918	223.529	226.197	231.941	<b>227.458</b>	
CY 2018 (Jul 16 - Jun 17)	233.713	234.407	235.057	230.610	228.801	229.492	232.516	233.688	232.714	233.827	236.615	241.94	<b>233.615</b>	<b>2.71%</b>

## How to Calculate the 2018 UEL Inflation Factor: Step-by-Step Methodology

Table 1: Calculation of CY 2018 UEL Inflation Factor

Utility Type	Percent of Total Utility Costs	July 2015-June 2016 CPI Average	July 2016-June 2017 CPI Average	Inflation Factor	Weighted Inflation Factor
[a]	[b]	[c]	[d]	[e]	[f] = [b] x [e]
Water	36%	\$503.93	\$523.65	3.91%	1.41%
Electricity	36%	\$207.06	\$209.06	0.97%	0.35%
Gas	14%	\$157.67	\$169.54	7.53%	1.08%
Fuel	12%	\$215.77	\$228.09	5.71%	0.70%
Other Utilities	2%	\$227.46	\$233.62	2.71%	0.05%
<b>Total Utility Costs</b>	<b>100%</b>				
<b>Weighted Average Inflation Factor</b>					<b>3.58%</b>
<b>CY 2018 UEL Inflation Factor - Using 18-months Adjustment</b>					<b>5.37%</b>

### Step One: Calculate the Percent of Total Utility Costs to Determine Weighting

The Department calculates the Percent of Total Utility Costs using the national level income statements (FDS Data).

Percent of Total Utility Costs = Five Year Average of Percent of Total Utility Costs (FDS)

Utility Costs (FDS)	2014	2015	2016	2017	2018	5-Year Total
Water	\$537,520,586	\$556,280,842	\$586,200,894	\$596,362,105	\$597,603,376	\$2,873,977,883
Electricity	\$591,897,613	\$580,320,514	\$562,571,711	\$558,945,196	\$551,216,564	\$5,718,919,401
Gas	\$215,420,090	\$227,831,241	\$255,778,144	\$227,903,231	\$223,256,264	\$3,995,140,568
Fuel	\$202,403,228	\$183,379,006	\$202,236,997	\$200,554,096	\$185,156,353	\$2,123,918,650
Other Utility Expense	\$28,000,780	\$25,612,021	\$27,394,799	\$27,332,502	\$27,470,951	\$1,109,540,733
<b>Total</b>	<b>\$1,575,242,297</b>	<b>\$1,573,423,624</b>	<b>\$1,634,182,545</b>	<b>\$1,611,097,130</b>	<b>\$1,584,703,508</b>	<b>\$8,114,460,157</b>

  

Annual % Total Utility Costs	2014	2015	2016	2017	2018	5-Year Avg.
Water	34.12%	35.35%	35.87%	37.02%	37.71%	36.02%
Electricity	37.58%	36.88%	34.43%	34.69%	34.78%	35.67%
Gas	13.68%	14.48%	15.65%	14.15%	14.09%	14.41%
Fuel	12.85%	11.65%	12.38%	12.45%	11.68%	12.20%
Other Utilities	1.78%	1.63%	1.68%	1.70%	1.73%	1.70%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

### Step Two: Calculate Inflation Factor

Source: Bureau of Labor Statistics CPI Detailed Report Tables (<http://www.bls.gov/cpi/#tables>)

Document monthly utility costs, and calculate annual growth (see Historic CPI Table)

Inflation Factor = Annual Growth Rate for each utility (Water, Electricity, Gas, Fuel, Other Utilities)

CPI Inflation Factor (BLS)	Jul 15 - Jun 16 CY 2017	Jul 16 - Jun 17 CY 2018	Inflation Factor
Water	\$503.93	\$523.65	3.91%
Electricity	\$207.06	\$209.06	0.97%
Gas	\$157.67	\$169.54	7.53%
Fuel	\$215.77	\$228.09	5.71%
Other Utilities	\$227.46	\$233.62	2.71%

### Step Three: Calculate Weighted Average Inflation Factor

Weighted Inflation Factor = [Inflation Factor] X [Percent Total Utility Cost]

Utility Type	Annual % Total Utility Costs	Inflation Factor	Weighted Inflation Factor
Water	36.02%	3.91%	1.41%
Electricity	35.67%	0.97%	0.35%
Gas	14.41%	7.53%	1.08%
Fuel	12.20%	5.71%	0.70%
Other Utilities	1.70%	2.71%	0.05%
<b>Weighted Average Inflation Factor</b>			<b>3.58%</b>

### Step Four: Calculate 18-months Adjustment

CY 2018 UEL Inflation Factor - Using 18-months Adjustment = [Weighted Inflation factor] X 1.5

CY 2018 UEL Inflation Factor - Using 18-months Adjustment	5.37%
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**Table 2: Calculation of Inflation Factor by Utility Type Using CPI-U**

**CPI Detailed Report Tables**

<http://www.bls.gov/cpi/#tables>

Reporting Period	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Average Index	Inflation Factor
<b>Water &amp; Sewerage Maintenance</b>														
CY 2009 (Jul 07 - Jun 08)	314.165	315.830	316.390	316.869	318.703	319.460	322.470	324.418	325.023	325.327	326.259	327.152	<b>321.006</b>	
CY 2010 (Jul 08 - Jun 09)	330.693	335.915	336.067	339.437	341.181	341.965	344.374	345.232	346.222	347.420	349.813	350.418	<b>342.395</b>	<b>6.66%</b>
CY 2011 (Jul 09 - Jun 10)	354.834	359.915	360.657	363.712	364.951	365.664	370.268	373.080	374.109	375.775	377.921	377.579	<b>368.205</b>	<b>7.54%</b>
CY 2012 (Jul 10 - Jun 11)	381.694	385.242	385.959	387.509	389.255	390.362	393.336	396.895	398.361	399.072	399.649	400.044	<b>392.282</b>	<b>6.54%</b>
CY 2013 (Jul 11 - Jun 12)	403.385	405.874	408.108	409.102	409.527	411.067	414.691	418.722	420.614	424.463	425.355	426.863	<b>414.814</b>	<b>5.74%</b>
CY 2014 (Jul 12 - Jun 13)	429.460	435.793	435.246	436.200	437.628	438.486	442.190	444.814	446.071	446.612	447.548	448.234	<b>440.690</b>	<b>6.24%</b>
CY 2015 (Jul 13 - Jun 14)	451.200	452.459	452.456	454.864	454.999	455.317	458.119	461.013	462.214	462.830	462.998	463.579	<b>457.671</b>	<b>3.85%</b>
CY 2016 (Jul 14 - Jun 15)	468.197	471.538	471.925	475.476	478.295	480.698	483.308	486.233	487.250	488.293	488.981	490.072	<b>480.856</b>	<b>5.07%</b>
CY 2017 (Jul 15 - Jun 16)	492.931	498.209	498.898	499.187	500.515	501.462	504.402	506.031	508.140	510.778	513.157	513.440	<b>503.929</b>	<b>4.80%</b>
CY 2018 (Jul 16 - Jun 17)	513.040	516.427	518.004	518.722	520.577	521.107	525.645	527.759	528.876	530.602	531.355	531.685	<b>523.650</b>	<b>3.91%</b>
<b>Electricity</b>														
CY 2009 (Jul 07 - Jun 08)	184.408	184.081	184.365	177.244	173.406	173.357	175.219	174.606	175.639	177.818	182.260	194.434	<b>179.736</b>	
CY 2010 (Jul 08 - Jun 09)	199.068	200.795	198.579	191.513	187.473	188.342	190.471	190.645	190.065	189.007	191.066	199.924	<b>193.079</b>	<b>7.42%</b>
CY 2011 (Jul 09 - Jun 10)	199.251	198.360	198.286	190.376	187.708	187.388	186.903	185.448	189.061	190.210	192.416	200.767	<b>192.181</b>	<b>-0.47%</b>
CY 2012 (Jul 10 - Jun 11)	201.914	201.624	200.405	191.481	188.198	188.711	189.166	189.539	191.028	191.323	195.838	203.836	<b>194.422</b>	<b>1.17%</b>
CY 2013 (Jul 11 - Jun 12)	205.963	205.362	205.812	197.003	193.193	192.777	193.612	193.183	192.148	192.472	196.159	204.907	<b>197.716</b>	<b>1.69%</b>
CY 2014 (Jul 12 - Jun 13)	203.318	202.870	202.628	194.544	191.837	191.879	194.525	194.739	193.856	194.553	199.557	208.737	<b>197.754</b>	<b>0.02%</b>
CY 2015 (Jul 13 - Jun 14)	209.538	208.514	209.106	200.392	197.442	198.043	203.026	202.224	204.131	198.654	206.715	217.529	<b>204.610</b>	<b>3.47%</b>
CY 2016 (Jul 14 - Jun 15)	217.930	217.148	215.054	206.667	202.889	204.275	208.172	208.696	205.894	206.179	207.683	217.468	<b>209.838</b>	<b>2.56%</b>
CY 2017 (Jul 15 - Jun 16)	216.406	215.786	214.132	205.604	202.479	201.787	203.169	202.528	202.487	201.778	205.038	213.474	<b>207.056</b>	<b>-1.33%</b>
CY 2018 (Jul 16 - Jun 17)	214.193	214.222	214.381	206.397	202.984	203.146	205.230	206.416	205.692	206.671	210.541	218.865	<b>209.062</b>	<b>0.97%</b>
<b>Utility Gas Service</b>														
CY 2009 (Jul 07 - Jun 08)	219.865	211.181	208.211	209.993	218.791	220.496	220.065	225.808	233.931	244.862	258.374	271.234	<b>228.568</b>	
CY 2010 (Jul 08 - Jun 09)	291.713	272.982	247.788	239.218	235.114	232.548	227.000	218.459	207.179	193.534	182.464	183.979	<b>227.665</b>	<b>-0.39%</b>
CY 2011 (Jul 09 - Jun 10)	186.191	183.632	178.424	181.922	191.324	190.497	199.199	200.120	195.832	188.014	186.595	187.442	<b>189.099</b>	<b>-16.94%</b>
CY 2012 (Jul 10 - Jun 11)	192.003	190.655	183.759	185.293	182.120	185.106	186.351	188.289	185.110	185.197	184.327	185.940	<b>186.179</b>	<b>-1.54%</b>
CY 2013 (Jul 11 - Jun 12)	186.719	186.808	184.144	181.220	179.708	178.193	176.044	169.753	168.196	163.692	156.863	160.714	<b>174.338</b>	<b>-6.36%</b>
CY 2014 (Jul 12 - Jun 13)	162.972	165.953	164.528	165.966	171.243	173.098	171.597	171.888	171.248	176.159	179.173	179.557	<b>171.115</b>	<b>-1.85%</b>
CY 2015 (Jul 13 - Jun 14)	177.356	173.861	173.315	173.329	173.035	172.898	179.982	186.095	199.340	196.872	192.303	188.769	<b>182.263</b>	<b>6.51%</b>
CY 2016 (Jul 14 - Jun 15)	189.659	183.960	183.376	179.226	178.558	182.908	179.184	173.978	170.592	164.839	162.639	164.205	<b>176.094</b>	<b>-3.38%</b>
CY 2017 (Jul 15 - Jun 16)	162.733	162.885	161.189	159.422	157.750	155.746	156.513	155.981	154.822	154.130	154.994	155.914	<b>157.673</b>	<b>-10.46%</b>
CY 2018 (Jul 16 - Jun 17)	162.129	164.715	165.881	167.049	167.469	167.935	172.319	172.967	170.755	172.597	174.901	175.807	<b>169.544</b>	<b>7.53%</b>

<b>Fuel Oil</b>														
CY 2009 (Jul 07 - Jun 08)	257.111	257.371	265.137	274.111	310.618	319.208	326.483	328.985	363.868	380.632	411.126	447.302	<b>328.496</b>	
CY 2010 (Jul 08 - Jun 09)	451.625	408.493	381.707	339.343	288.406	252.024	238.731	233.018	220.067	223.648	222.165	234.500	<b>291.144</b>	<b>-11.37%</b>
CY 2011 (Jul 09 - Jun 10)	233.688	245.314	244.478	249.977	268.379	268.396	284.786	277.928	279.826	286.351	282.293	273.349	<b>266.230</b>	<b>-8.56%</b>
CY 2012 (Jul 10 - Jun 11)	268.947	271.261	273.386	286.119	298.220	312.718	333.993	353.223	375.042	386.950	383.814	375.363	<b>326.586</b>	<b>22.67%</b>
CY 2013 (Jul 11 - Jun 12)	368.867	367.286	364.563	362.809	372.654	369.085	374.377	384.747	395.016	390.483	379.681	349.807	<b>373.281</b>	<b>14.30%</b>
CY 2014 (Jul 12 - Jun 13)	348.104	364.165	379.131	383.117	382.355	382.532	381.889	393.782	385.552	368.552	357.838	355.966	<b>373.582</b>	<b>0.08%</b>
CY 2015 (Jul 13 - Jun 14)	359.780	364.124	367.519	365.450	366.749	375.607	389.522	405.344	393.705	382.025	376.855	370.317	<b>376.416</b>	<b>0.76%</b>
CY 2016 (Jul 14 - Jun 15)	367.725	363.420	355.892	341.771	329.681	303.844	273.718	279.040	295.603	270.850	272.874	267.649	<b>310.172</b>	<b>-17.60%</b>
CY 2017 (Jul 15 - Jun 16)	258.620	237.580	231.835	229.191	226.289	208.561	195.029	189.373	192.617	196.349	208.488	215.295	<b>215.769</b>	<b>-30.44%</b>
CY 2018 (Jul 16 - Jun 17)	212.482	207.143	212.019	224.453	221.808	235.127	243.347	242.467	240.619	239.822	233.216	224.542	<b>228.087</b>	<b>5.71%</b>

<b>All Utilities</b>														
CY 2009 (Jul 07 - Jun 08)	206.140	204.334	204.264	200.836	202.161	203.006	204.796	205.795	209.221	213.302	219.881	231.412	<b>208.762</b>	
CY 2010 (Jul 08 - Jun 09)	239.039	235.650	228.450	221.199	216.285	215.184	215.232	213.520	210.501	207.175	206.358	212.677	<b>218.439</b>	<b>4.64%</b>
CY 2011 (Jul 09 - Jun 10)	212.961	212.661	211.618	207.937	208.955	208.760	211.381	210.819	212.295	211.726	212.773	217.820	<b>211.642</b>	<b>-3.11%</b>
CY 2012 (Jul 10 - Jun 11)	219.614	219.602	217.695	213.031	210.978	212.505	214.045	215.587	216.672	217.254	219.956	225.022	<b>216.830</b>	<b>2.45%</b>
CY 2013 (Jul 11 - Jun 12)	226.643	226.493	226.409	220.450	218.199	217.674	218.199	217.189	216.667	216.006	216.388	221.789	<b>220.176</b>	<b>1.54%</b>
CY 2014 (Jul 12 - Jun 13)	221.449	222.769	222.634	218.287	217.964	218.496	220.228	220.992	220.251	221.382	224.847	230.506	<b>221.650</b>	<b>0.67%</b>
CY 2015 (Jul 13 - Jun 14)	230.899	229.580	230.318	225.244	223.566	224.407	230.098	232.014	235.139	230.588	234.483	240.396	<b>230.561</b>	<b>4.02%</b>
CY 2016 (Jul 14 - Jun 15)	241.250	239.790	238.285	232.192	229.680	231.150	232.309	231.912	229.829	228.304	228.748	235.136	<b>233.215</b>	<b>1.15%</b>
CY 2017 (Jul 15 - Jun 16)	234.137	233.847	232.417	226.784	224.606	223.521	224.537	224.063	223.918	223.529	226.197	231.941	<b>227.458</b>	<b>-2.47%</b>
CY 2018 (Jul 16 - Jun 17)	233.713	234.407	235.057	230.610	228.801	229.492	232.516	233.688	232.714	233.827	236.615	241.940	<b>233.615</b>	<b>2.71%</b>