

Union Electrician Workforce Characteristics and Projections

*A report to the National Labor-
Management Cooperation Committee*

A report focusing on the historical and current characteristics of the union electrician workforce and projections of the needs for new entrants to the workforce

Construction Labor Research Council

2022

I. Introduction

One of the most important aspects of strategic planning is having a clear understanding of workforce characteristics and needs. This report describes the characteristics of the current and historical union electrician workforce. Equally important, the report quantifies the future workforce needs for union electricians and serves as a valuable resource for management and labor for their business planning. Specifically, this study provides an overview of past NECA/IBEW employment trends, the current employment situation, the age of the workforce and estimated workforce projections regarding the need for “new entrants.”

There are four major sections to the report.

I. Introduction

The Introduction provides background information and describes the data sources used in this report.

II. Historical Union Electrician Employment

This section provides a historical overview of union electrician employment by NECA district and total. It includes employment count and change in employment (percentage and number of workers), trends and other relevant information. These data also support the statistical analyses used to make projections about future worker needs in Section IV. Data are reported for two age groups: 18-70 and 18-21.

III. Age of Union Electricians

This section outlines the age of union electricians, with an emphasis on how the age distributions have changed over time. It also presents findings regarding the increases/decreases in the union electrician workforce by worker age.

IV. Needs Projections for the Union Electrician Workforce

This section offers estimated projections for union electrician employment. Projections are broken out into replacement and growth categories in order to provide additional insight into future employment patterns. Alternative growth models also are shown.

Appendix

The Appendix contains the same charts that are in the body of the report, except that inclusion of NEBF workers required 500 hours of work (rather than one hour as in the body of this report) during the year. This higher threshold means that the union electrician workers covered in this report are those who worked the equivalent of at least three or four months during the year. While there are some differences in the results between the one hour and 500 hour thresholds, many of the results are similar. This is because most of those who worked at least one hour also worked at least 500 hours, and everyone who worked 500 hours necessarily worked one hour, thus there is overlap between the two data cuts.

Source Data

The primary databases used in the study came from the National Electrical Benefit Funds (NEBF) and the Bureau of Labor Statistics (BLS) in the Department of Labor.

Union electrical workers (NEBF data) – these are those individuals for whom contributions were made to the NEBF, whose birth year and state of residence were known and who worked at least one hour (or 500 hours in the Appendix) in 2021. Note that this is not the same as the number of IBEW members because some people may be members without working, employed in another industry or otherwise not within the NEBF record system at the time of this study.

Total electrician workforce (BLS data) – these data come from the Bureau of Labor Statistics. BLS is a respected federal agency which provides useful information such as the CPI and unemployment figures, as well as large data sets and complex reports for experienced researchers. The data reflect all workers classified as electricians (union and nonunion) in the construction industry.

Interpretation of the Results

Readers are cautioned to interpret and use this report in a prudent manner. While the analyses of the past—the historical data—are accurate, the estimated projections for new entrants reflect our best professional judgment about what the future might hold. The methodology used is detailed and thorough. However, projections should be seen as tools, but not absolute truth, when planning for the future.

Throughout Section II in this report there are often “a” and “b” versions of an exhibit number. The a version represents the age group of 18-70; the b version represents a subset of the a version—a data cut for those ages 18-21. The presentation of the data for the a and b versions will follow the same format for a given exhibit number. This will allow for quick and easy side-by-side comparisons of the full workforce to the younger cohort of workers.

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For many years the NECA-IBEW National Labor Management Cooperative Committee (NLMCC) has commissioned the Construction Labor Research Council (CLRC) to conduct an annual workforce study. Originally titled “New Entrants,” it is now titled “Union Electrician Workforce Characteristics.”

This study was made possible by the generous assistance of the NEBF staff in providing the needed information.

II. Historical Union Electrician Employment

This section provides a historical overview of union electrician employment by NECA district and total. It includes the employment count and change in employment (percentage and number of workers), trends and other relevant information. These data also support the statistical analyses used to make projections about future worker needs in Section IV.

Exhibits 2.1a and 2.1b show the membership in each district for the years 2005 – 2021 for 18-70 and 18-21 year olds, respectively. As Exhibit 2.1a shows for the 18-70 age group, in 2021 employment ranged from a low of 9,526 in District 10 to a high of 70,324 in District 9. In 2005, District 6 had the largest membership at 60,741 and District 10 had the smallest membership at 6,246. For all districts combined, the membership grew from 268,201 in 2005 to 309,847 in 2021 (15.5%). The lower membership counts for each district tended to be in the 2010-2012 timeframe and the higher counts in the 2019-2021 time range. For the union electrician workforce as a whole, there was a net annual gain in workers for most of the years shown (declines in 2009, 2010 and 2011), with an overall net increase of 41,646 (15.5%).

For exhibits 2.1a – 2.2b, the darker green the cell, the higher the membership/percentage change for each district and the darker red the cell, the lower the membership/percentage change for each district.

Exhibit 2.1a Union Electrician Employment by NECA District and Total Ages 18-70

District	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2005-2021
Dist 2	10,311	10,185	10,581	10,614	9,537	9,028	8,873	9,200	9,616	10,049	9,935	10,092	10,810	11,364	11,762	11,474	11,304	993
Dist 3	51,366	50,506	51,094	51,300	49,420	47,844	46,515	46,435	46,605	46,972	46,986	47,224	48,627	49,078	49,429	48,144	46,891	(4,475)
Dist 4	29,073	29,539	30,970	30,619	28,650	26,924	27,255	28,165	28,154	28,652	29,021	29,289	31,543	32,779	34,325	34,612	35,251	6,178
Dist 5	21,059	21,806	22,025	21,812	20,965	19,539	20,106	20,094	20,235	21,356	21,689	21,610	21,914	22,927	24,401	23,828	23,186	2,127
Dist 6	60,741	60,768	62,178	61,723	56,629	52,810	51,797	52,134	53,095	54,093	55,264	56,802	58,924	60,021	61,218	60,382	60,182	(559)
Dist 7	19,952	20,475	21,499	22,517	20,982	19,655	19,105	19,881	20,533	20,613	20,266	19,780	20,551	21,197	22,838	23,332	25,197	5,245
Dist 8	8,450	8,907	9,095	8,884	8,672	8,157	7,958	8,477	8,404	8,373	8,599	8,766	8,956	9,196	9,967	9,624	9,744	1,294
Dist 9	46,423	47,509	49,809	50,670	49,007	45,632	45,135	48,545	51,462	53,110	54,296	56,821	57,194	59,672	64,547	70,867	70,324	23,901
Dist 10	6,246	6,467	7,335	7,291	7,735	7,501	8,069	8,335	8,483	8,683	8,965	8,870	9,561	9,577	10,014	9,358	9,526	3,280
Dist 11	14,580	14,718	15,546	16,284	15,793	14,604	14,194	14,419	15,664	16,307	16,426	16,651	16,909	17,550	18,671	18,294	18,242	3,662
Total	268,201	270,880	280,132	281,714	267,390	251,694	249,007	255,685	262,251	268,208	271,447	275,905	284,989	293,361	307,172	309,915	309,847	41,646

Results shown in Exhibit 2.1b for the 18-21 age group followed a pattern similar to the 18-70 age group. Like last year, District 6 had the highest membership at 2,701 while District 2 had the lowest at 424 in 2021. For all districts combined, the membership for this young cohort of workers grew from 8,105 in 2005 to 13,567 in 2021, an increase of 67.4%. The years with the lowest and highest counts tended to parallel the results for the 18-70 age group. Every district had more workers in this age group in 2021 than in 2005.

Exhibit 2.1b Union Electrician Employment by NECA District and Total Ages 18-21

District	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2005-2021
Dist 2	256	278	340	331	230	192	194	224	276	369	362	372	439	466	514	465	424	168
Dist 3	860	944	1,203	1,281	1,049	892	1,007	1,013	1,129	1,225	1,277	1,297	1,406	1,337	1,510	1,296	1,282	422
Dist 4	1,383	1,473	1,762	1,533	1,137	948	979	1,049	1,119	1,244	1,308	1,344	1,740	1,820	2,033	1,942	2,048	665
Dist 5	1,303	1,467	1,425	1,280	897	831	870	723	907	1,129	1,096	1,214	1,211	1,563	1,773	1,460	1,420	117
Dist 6	1,312	1,450	1,700	1,411	841	650	785	939	1,217	1,392	1,483	1,776	2,200	2,392	2,768	2,551	2,701	1,389
Dist 7	774	1,014	1,138	1,103	791	648	637	787	932	877	838	753	836	928	1,132	1,074	1,395	621
Dist 8	291	419	427	350	270	211	207	299	279	293	320	333	393	417	525	444	430	139
Dist 9	1,249	1,470	1,657	1,426	996	796	882	1,088	1,323	1,447	1,432	1,624	1,431	1,634	2,011	2,407	2,356	1,107
Dist 10	216	336	472	406	283	246	323	339	327	353	411	392	516	605	685	526	514	298
Dist 11	461	490	598	623	424	301	345	425	662	740	672	697	744	861	1,073	990	997	536
Total	8,105	9,341	10,722	9,744	6,918	5,715	6,229	6,886	8,171	9,069	9,199	9,802	10,916	12,023	14,024	13,155	13,567	5,462

Exhibits 2.2a and 2.2b show the percentage change in each district for the years 2005 – 2021 for the 18-70 and 18-21 groups, respectively. For the age 18-70 group, the larger growth years tended to be from 2017 – 2019. For the younger age group, the high-growth years were dispersed over several different years. Interestingly, the largest declines were all in 2009 for the 18-21 age group (the 18-70 age group was similar, with their largest declines typically in 2009-2010).

The years with the lowest employment count in Exhibits 2.1a and 2.1b were often preceded by the year with the largest percentage decrease, which would be expected. Similarly, years with the largest percentage increase often immediately preceded years with the greatest growth in employment. The average annual percentage increase for 2005 – 2021 was 0.9% and 4.2% for the 18-70 and 18-21 age groups, respectively.

For the 18-21 age group, there was a significant increase in membership in 2019 of 16.6%. However, this was followed by a decline in membership of 6.2% in 2020, likely due to COVID-19. In 2021 there was a slight rebound of 3.1%. Overall, there was a loss of 457 (-3.3%) younger NECA members during the past three years, from just prior to the pandemic to 2021.

Exhibit 2.2a Percentage Change in Union Electrician Employment by NECA District and Total Ages 18-70

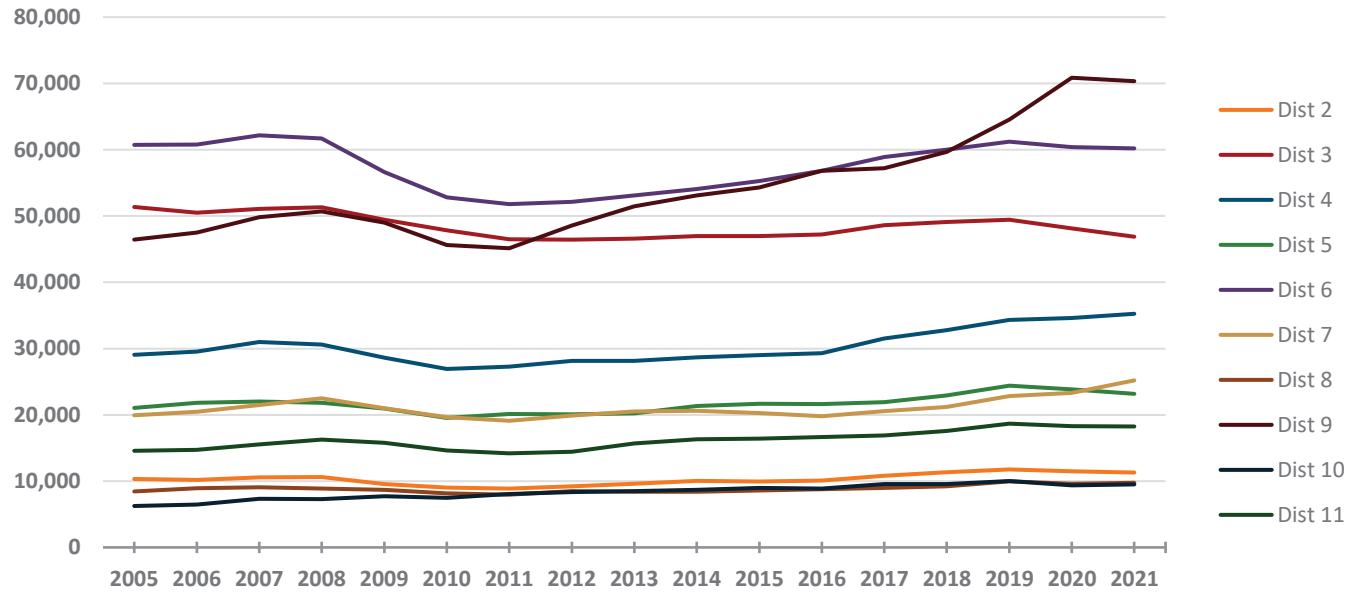
District	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Avg
Dist 2	-1.2%	3.9%	0.3%	-10.1%	-5.3%	-1.7%	3.7%	4.5%	4.5%	-1.1%	1.6%	7.1%	5.1%	3.5%	-2.4%	-1.5%	0.7%
Dist 3	-1.7%	1.2%	0.4%	-3.7%	-3.2%	-2.8%	-0.2%	0.4%	0.8%	0.0%	0.5%	3.0%	0.9%	0.7%	-2.6%	-2.6%	-0.6%
Dist 4	1.6%	4.8%	-1.1%	-6.4%	-6.0%	1.2%	3.3%	0.0%	1.8%	1.3%	0.9%	7.7%	3.9%	4.7%	0.8%	1.8%	1.3%
Dist 5	3.5%	1.0%	-1.0%	-3.9%	-6.8%	2.9%	-0.1%	0.7%	5.5%	1.6%	-0.4%	1.4%	4.6%	6.4%	-2.3%	-2.7%	0.7%
Dist 6	0.0%	2.3%	-0.7%	-8.3%	-6.7%	-1.9%	0.7%	1.8%	1.9%	2.2%	2.8%	3.7%	1.9%	2.0%	-1.4%	-0.3%	0.0%
Dist 7	2.6%	5.0%	4.7%	-6.8%	-6.3%	-2.8%	4.1%	3.3%	0.4%	-1.7%	-2.4%	3.9%	3.1%	7.7%	2.2%	8.0%	1.6%
Dist 8	5.4%	2.1%	-2.3%	-2.4%	-5.9%	-2.4%	6.5%	-0.9%	-0.4%	2.7%	1.9%	2.2%	2.7%	8.4%	-3.4%	1.2%	1.0%
Dist 9	2.3%	4.8%	1.7%	-3.3%	-6.9%	-1.1%	7.6%	6.0%	3.2%	2.2%	4.7%	0.7%	4.3%	8.2%	9.8%	-0.8%	2.7%
Dist 10	3.5%	13.4%	-0.6%	6.1%	-3.0%	7.6%	3.3%	1.8%	2.4%	3.2%	-1.1%	7.8%	0.2%	4.6%	-6.6%	1.8%	2.8%
Dist 11	0.9%	5.6%	4.7%	-3.0%	-7.5%	-2.8%	1.6%	8.6%	4.1%	0.7%	1.4%	1.5%	3.8%	6.4%	-2.0%	-0.3%	1.5%
Total	1.0%	3.4%	0.6%	-5.1%	-5.9%	-1.1%	2.7%	2.6%	2.3%	1.2%	1.6%	3.3%	2.9%	4.7%	0.9%	0.0%	1.2%

Exhibit 2.2b Percentage Change in Union Electrician Employment by NECA District and Total Ages 18-21

District	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Avg
Dist 2	8.6%	22.3%	-2.6%	-30.5%	-16.5%	1.0%	15.5%	23.2%	33.7%	-1.9%	2.8%	18.0%	6.2%	10.3%	-9.5%	-8.8%	4.5%
Dist 3	9.8%	27.4%	6.5%	-18.1%	-15.0%	12.9%	0.6%	11.5%	8.5%	4.2%	1.6%	8.4%	-4.9%	12.9%	-14.2%	-1.1%	3.2%
Dist 4	6.5%	19.6%	-13.0%	-25.8%	-16.6%	3.3%	7.2%	6.7%	11.2%	5.1%	2.8%	29.5%	4.6%	11.7%	-4.5%	5.5%	3.3%
Dist 5	12.6%	-2.9%	-10.2%	-29.9%	-7.4%	4.7%	-16.9%	25.4%	24.5%	-2.9%	10.8%	-0.2%	29.1%	13.4%	-17.7%	-2.7%	1.9%
Dist 6	10.5%	17.2%	-17.0%	-40.4%	-22.7%	20.8%	19.6%	29.6%	14.4%	6.5%	19.8%	23.9%	8.7%	15.7%	-7.8%	5.9%	6.5%
Dist 7	31.0%	12.2%	-3.1%	-28.3%	-18.1%	-1.7%	23.5%	18.4%	-5.9%	-4.4%	-10.1%	11.0%	11.0%	22.0%	-5.1%	29.9%	5.1%
Dist 8	44.0%	1.9%	-18.0%	-22.9%	-21.9%	-1.9%	44.4%	-6.7%	5.0%	9.2%	4.1%	18.0%	6.1%	25.9%	-15.4%	-3.2%	4.3%
Dist 9	17.7%	12.7%	-13.9%	-30.2%	-20.1%	10.8%	23.4%	21.6%	9.4%	-1.0%	13.4%	-11.9%	14.2%	23.1%	19.7%	-2.1%	5.4%
Dist 10	55.6%	40.5%	-14.0%	-30.3%	-13.1%	31.3%	5.0%	-3.5%	8.0%	16.4%	-4.6%	31.6%	17.2%	13.2%	-23.2%	-2.3%	8.0%
Dist 11	6.3%	22.0%	4.2%	-31.9%	-29.0%	14.6%	23.2%	55.8%	11.8%	-9.2%	3.7%	6.7%	15.7%	24.6%	-7.7%	0.7%	7.0%
Total	15.2%	14.8%	-9.1%	-29.0%	-17.4%	9.0%	10.5%	18.7%	11.0%	1.4%	6.6%	11.4%	10.1%	16.6%	-6.2%	3.1%	4.9%

Exhibits 2.3a and 2.3b illustrate the trend lines in membership for each district. These charts graphically portray the data in Exhibits 2.1a and 2.1b.

Exhibit 2.3a Union Electrician Employment Trends by NECA District Ages 18-70



There was much more variance for the age 18-21 workforce trends, as displayed by the jagged lines in Exhibit 2.3b. Every district saw an upswing in these younger workers from about 2010/2011 to 2019. All districts except Districts 4, 7 and 9 declined from 2019 to 2021.

Exhibit 2.3b Union Electrician Employment Trends by NECA District Ages 18-21

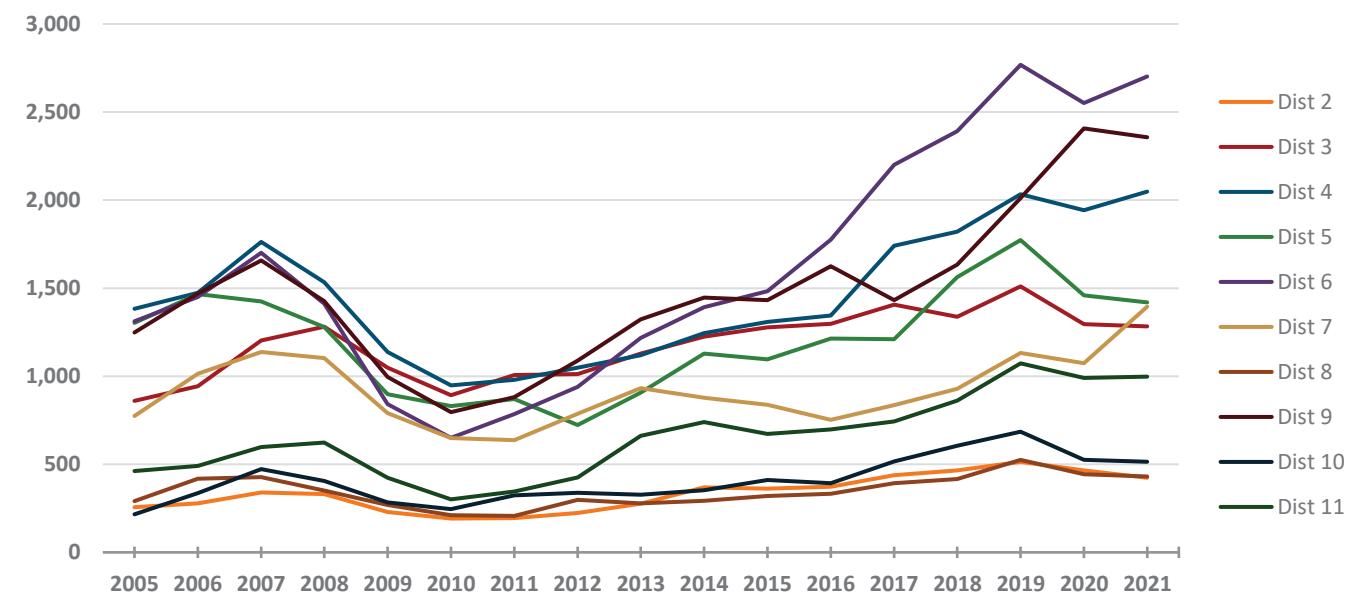


Exhibit 2.4a shows the employment count for the age 18-70 cohort by district for three benchmark years: 2005, 2016 (five years prior to 2021) and 2021.

Exhibit 2.4a Union Electrician Employment by NECA District for Select Years Ages 18-70

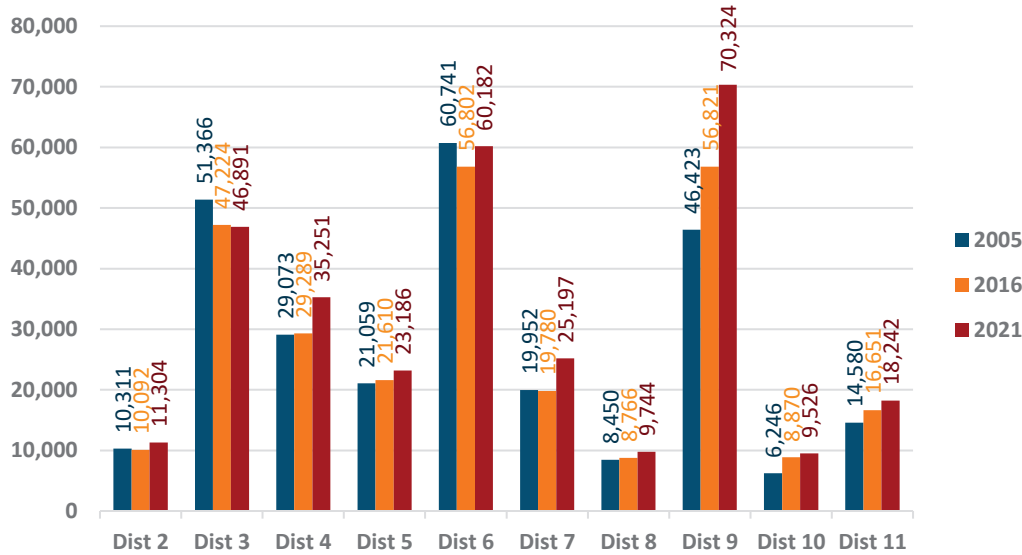


Exhibit 2.4b contains the employment counts for the same years as Exhibit 2.4a, but for the age 18-21 data cut. The 2021 membership counts were higher than the 2005 and 2016 values in every district except one (District 3), and that was very close.

Exhibit 2.4b Union Electrician Employment by NECA District for Select Years Ages 18-21

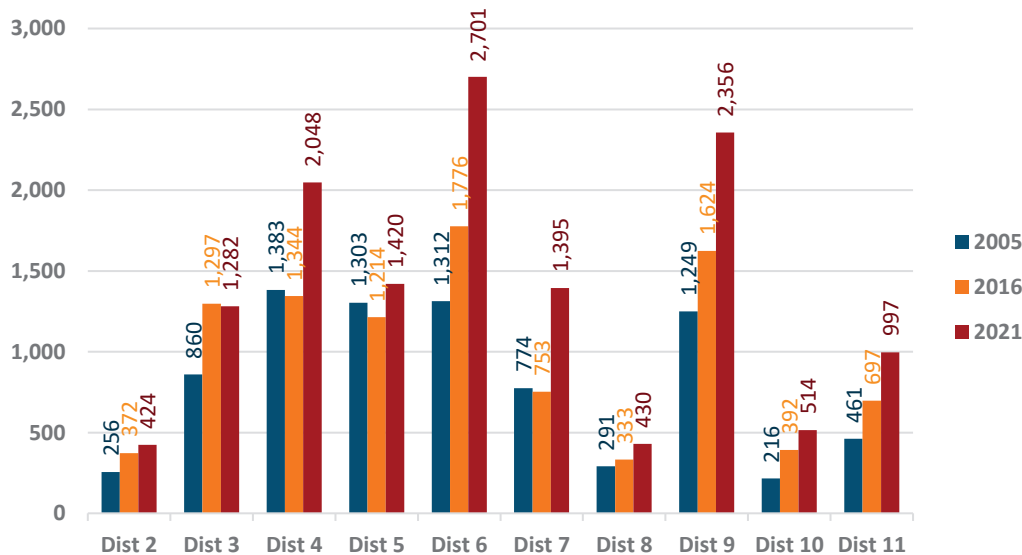


Exhibit 2.5a summarizes the net change for each district and total for three time spans: 2005 – 2021, 2016 – 2021 and 2020 – 2021. Data are shown as the number of workers and percentage change. There were 41,646 more employees in 2021 than in 2005 (15.5%, 16 years) and 33,942 more in 2021 than in 2016 (12.3%, five years); however, there 68 fewer employees in 2021 than in 2020 (-0.02%, one year).

Exhibit 2.5a Net Change in Union Electrician Employment by NECA District and Total Ages 18-70

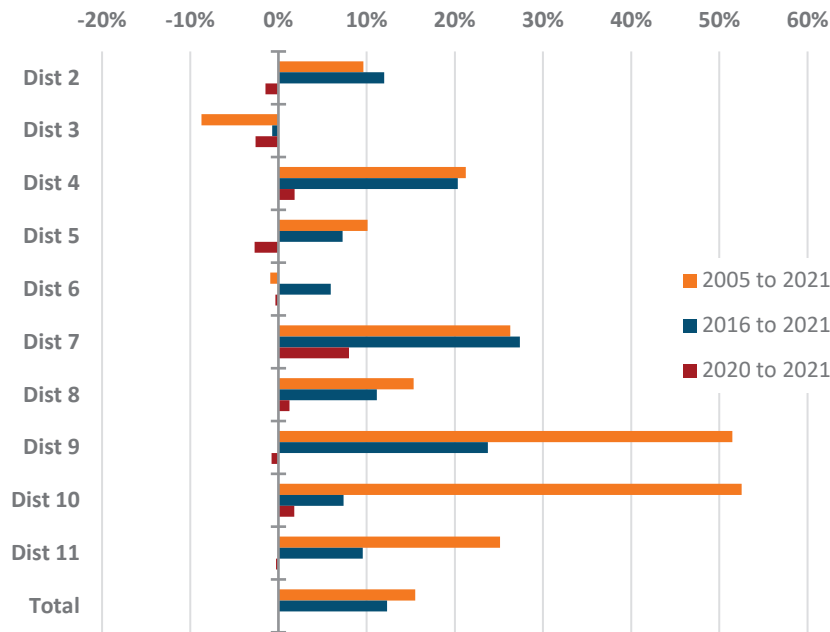
District	2005-21	2016-21	2020-21	2005-21	2016-21	2020-21
Dist 2	993	1,212	-170	9.6%	12.0%	-1.5%
Dist 3	-4,475	-333	-1,253	-8.7%	-0.7%	-2.6%
Dist 4	6,178	5,962	639	21.2%	20.4%	1.8%
Dist 5	2,127	1,576	-642	10.1%	7.3%	-2.7%
Dist 6	-559	3,380	-200	-0.9%	6.0%	-0.3%
Dist 7	5,245	5,417	1,865	26.3%	27.4%	8.0%
Dist 8	1,294	978	120	15.3%	11.2%	1.2%
Dist 9	23,901	13,503	-543	51.5%	23.8%	-0.8%
Dist 10	3,280	656	168	52.5%	7.4%	1.8%
Dist 11	3,662	1,591	-52	25.1%	9.6%	-0.3%
Total	41,646	33,942	-68	15.5%	12.3%	0.0%

From 2016 – 2021 every district except District 3 saw an increase in the number of members age 18-21 (and District 3's loss was small). During the past year, however, six districts had a decline in membership for this younger age cohort. Interestingly, in 2021 District 7 had the largest increase by far, a substantial 29.9% jump in membership of 18-21 year old workers.

Exhibit 2.5b Net Change in Union Electrician Employment by NECA District and Total Ages 18-21

District	2005-21	2016-21	2020-21	2005-21	2016-21	2020-21
Dist 2	168	52	-41	65.6%	14.0%	-8.8%
Dist 3	422	-15	-14	49.1%	-1.2%	-1.1%
Dist 4	665	704	106	48.1%	52.4%	5.5%
Dist 5	117	206	-40	9.0%	17.0%	-2.7%
Dist 6	1,389	925	150	105.9%	52.1%	5.9%
Dist 7	621	642	321	80.2%	85.3%	29.9%
Dist 8	139	97	-14	47.8%	29.1%	-3.2%
Dist 9	1,107	732	-51	88.6%	45.1%	-2.1%
Dist 10	298	122	-12	138.0%	31.1%	-2.3%
Dist 11	536	300	7	116.3%	43.0%	0.7%
Total	5,462	3,765	412	67.4%	38.4%	3.1%

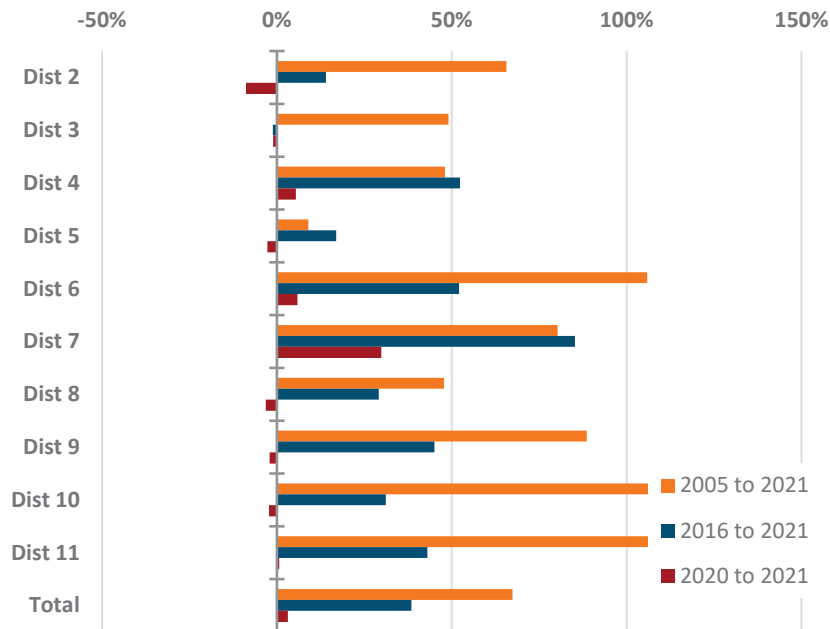
Exhibit 2.6a Percentage Change in Union Electrician Employment by District and Total Ages 18-70



Exhibits 2.6a to 2.7b graphically present the data from Exhibits 2.5a and 2.5b. The percentage and numerical change in membership for three time periods are shown in the exhibits.

For ages 18-70 (Exhibit 2.6a), four districts had increases for all time periods analyzed and only District 3 had declines for all three time periods. Four districts (Districts 4, 7, 8, 10) had an increase during the most recent time period, 2020-2021. The sizes of the decreases were small in the six districts with a decrease.

Exhibit 2.6b Percentage Change in Union Electrician Employment by District and Total Ages 18-21



The percentage change in membership for 18-21 year olds for the same three time periods is shown in Exhibit 2.6b.

Membership increased in four districts (Districts 4, 6, 7, 11) from 2020-2021 and declined in the other seven, although typically by a small amount.

See page 11 for a focused look at the most current data cut, 2020 – 2021.

Exhibit 2.7a Change in Union Electrician Employment by District Ages 18-70

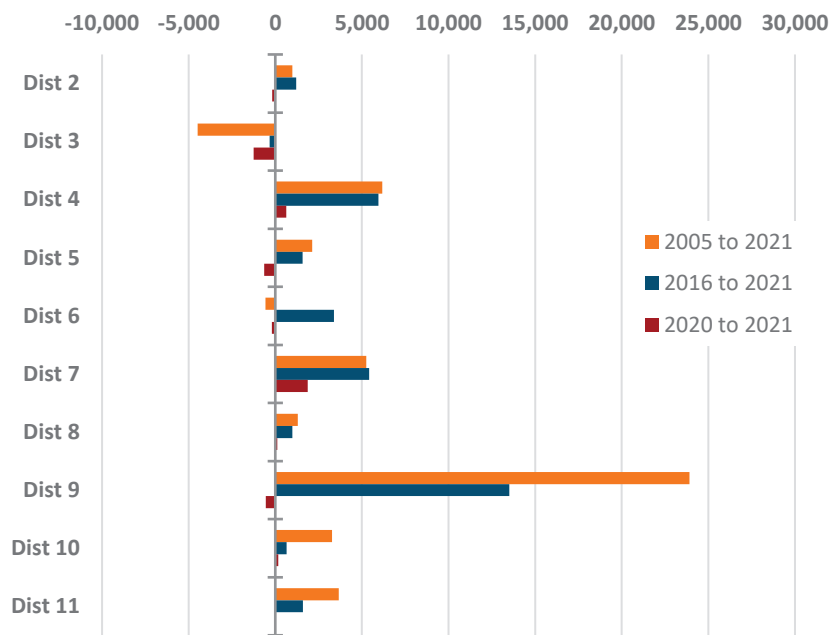


Exhibit 2.7a shows the numerical change for the same three time periods as Exhibits 2.6a and 2.6b for ages 18-70.

Some districts had significant increases in their number of union electricians while others had just nominal increases (or decreases in some cases). In other words, there were significant differences in the growth rates among the 10 districts.

From 2020 – 2021 membership changes ranged from a low of -1,253 to a high of 1,865, with a total net change of -68 across all districts.

Exhibit 2.7b Change in Union Electrician Employment by District Ages 18-21

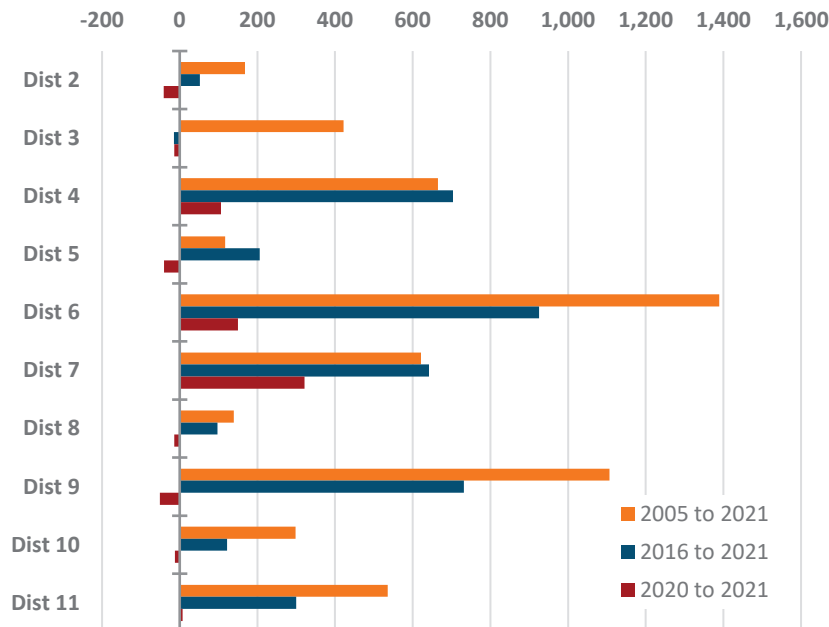
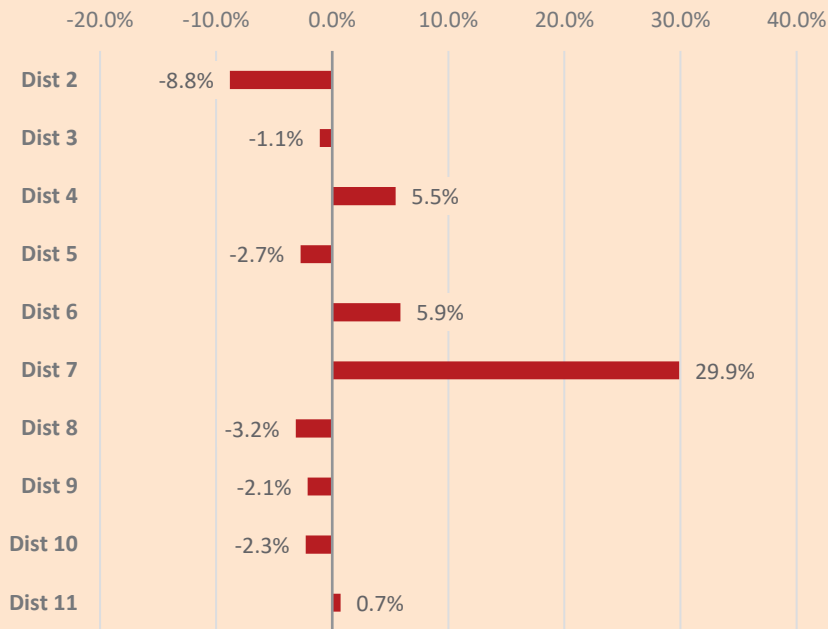


Exhibit 2.7b contains a data cut that is a subset of Exhibit 2.7a, looking at just the younger union electricians in the 18-21 age group.

From 2020 – 2021 membership changes for this data cut ranged from a low of -51 to a high of 321, with a total net gain of 412 across all districts.

Supplement to Exhibit 2.6b Percentage Change in Union Electrician Employment by District and Total Ages 18-21



This exhibit is an excerpt from Exhibit 2.6b, showing only data for 2020 - 2021. By separating this out, current results are easier to see.

Of the 10 NECA districts, six saw changes modest of +/- 5.0% and four had changes greater than this. Specifically, one district saw a decline of 8.8%, two had increases of a little more than 5.0% and one, District 7, had a very large jump of 29.9% in membership of younger employees.

The total union electrician employment count trend lines for the two age groups covered in this report, 18-70 and 18-21, are shown in the same chart in Exhibit 2.8. (Note that the y-axis is a log scale with a base 10 because of the large gap in number of workers between the two age groups.)

Exhibit 2.8 Union Electrician Workforce Count Trend

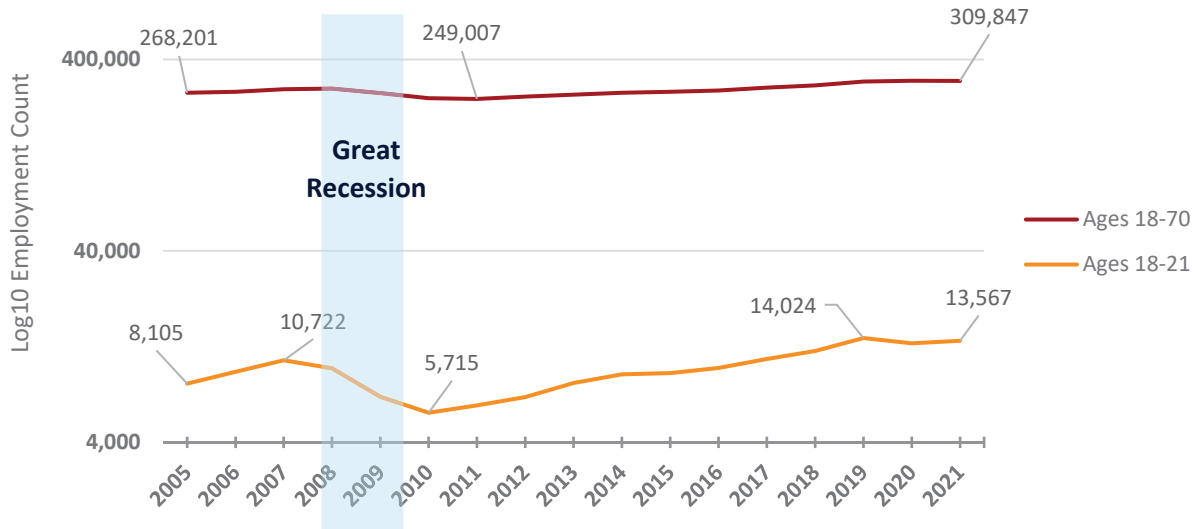
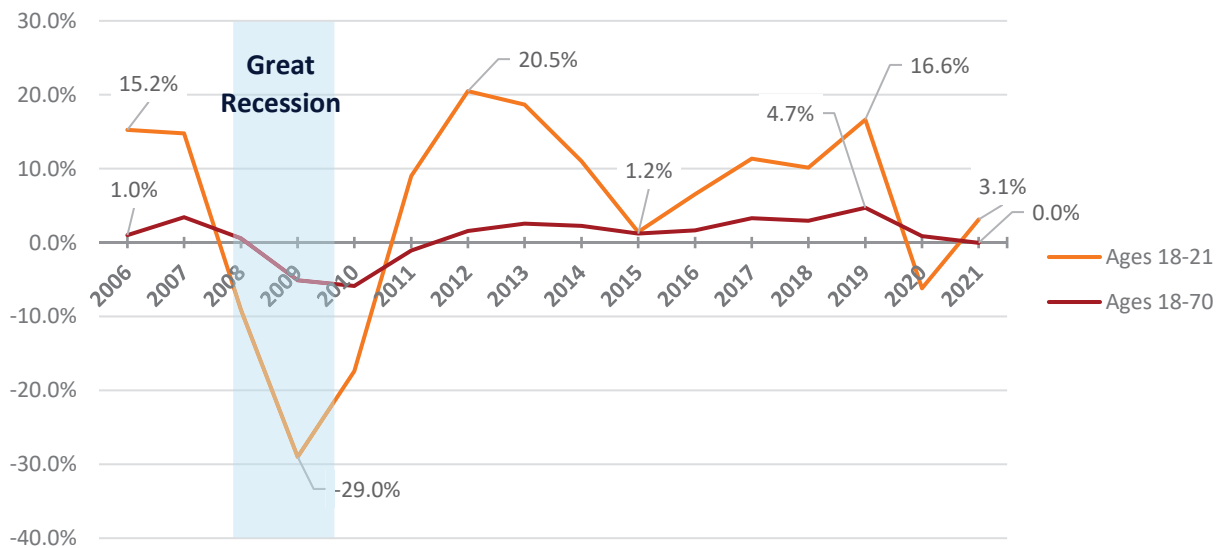


Exhibit 2.9 illustrates the yearly percentage change for the two age groups. As expected, the 18-21 age group had more variance, as is often the case for smaller sample sizes. Membership in both groups fell noticeably during the Great Recession (December 2007 to June 2009). Both age groups increased 12 of the 16 years shown.

Exhibit 2.9 Percentage Change Trend in Union Electrician Workforce Count



III. Age of Union Electricians

This section outlines the age of union electricians, with an emphasis on how the age distributions have changed over time. It also presents findings regarding the increases/decreases in the union electrician workforce by worker age.

Exhibit 3.1 shows the age distributions for union electricians in 2010 and 2021. Since there were more electricians in 2021 than in 2010, the maroon line is generally above the yellow line in the exhibit.

Exhibit 3.1 Union Electrical Worker Age: 2010 vs 2021

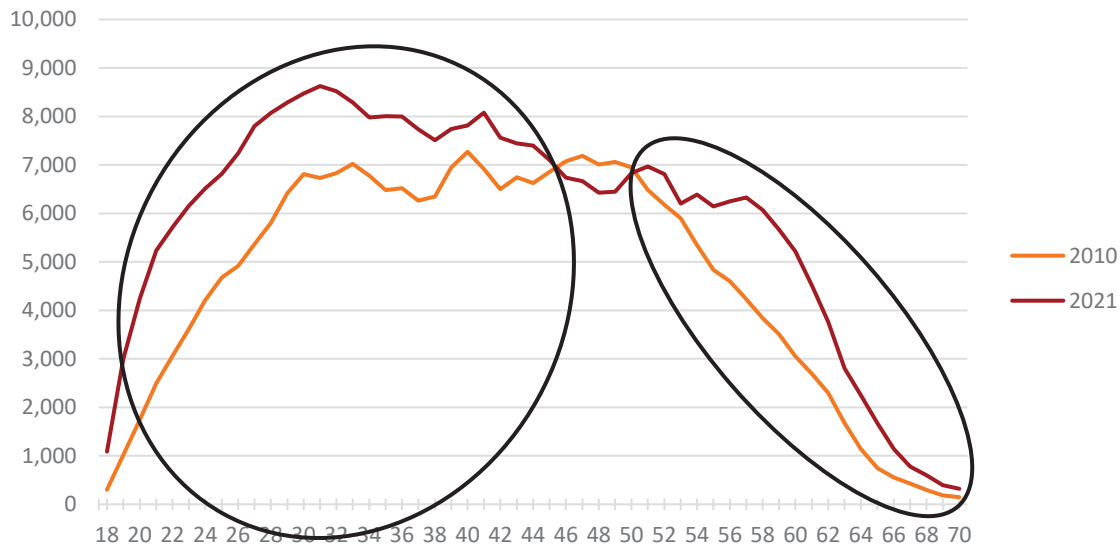


Exhibit 3.2 is shows the data in Exhibit 3.1 in a different manner. This exhibit plots the differences between the number of union electricians in 2010 and 2021 for each worker age (i.e., the gaps between the two lines in Exhibit 3.1). For most ages, there was a gain in the number of workers from 2010 to 2021 (green).

Exhibit 3.2 Change in the Number of Union Electricians by Age: 2010 vs 2021

Only for ages 46-50 were there fewer workers in 2021 than in 2010 (red).

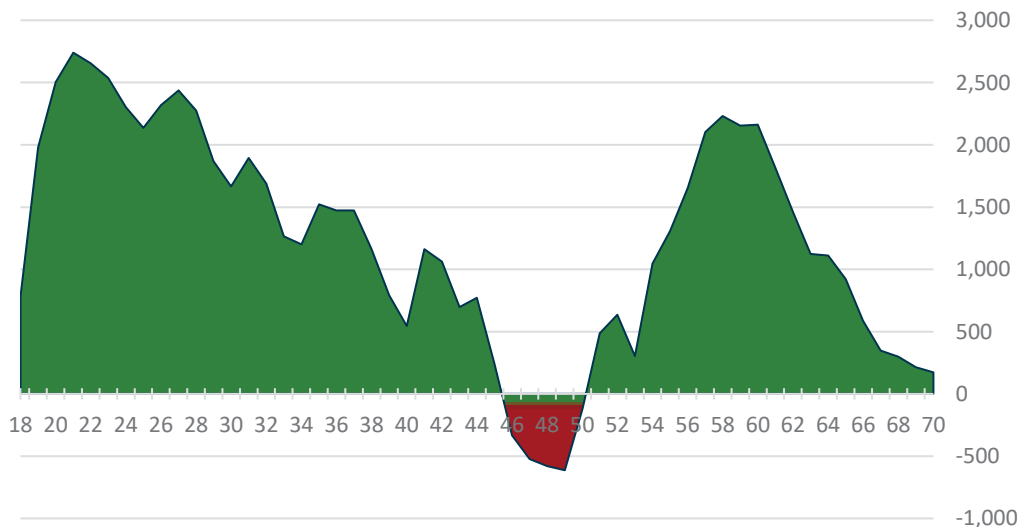
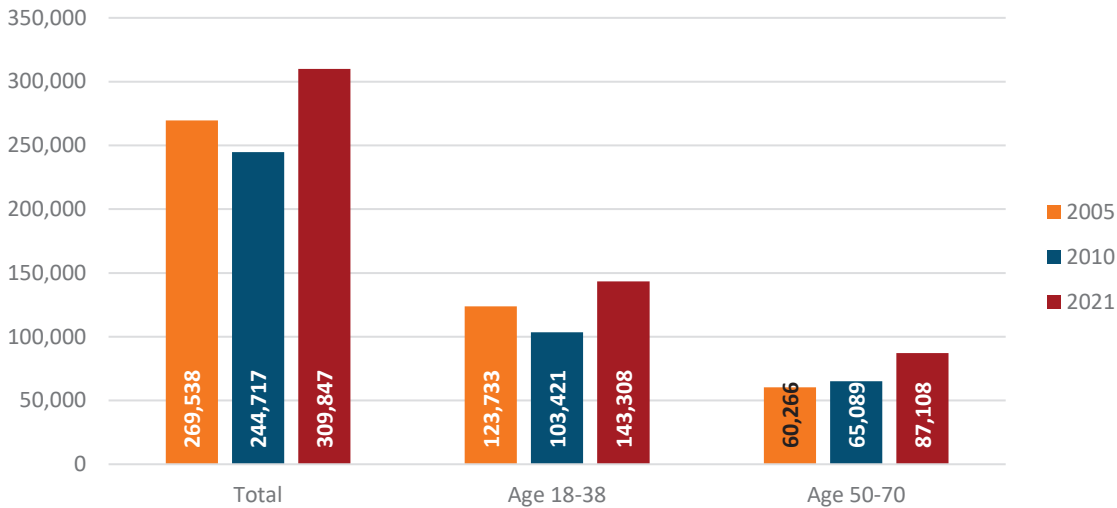


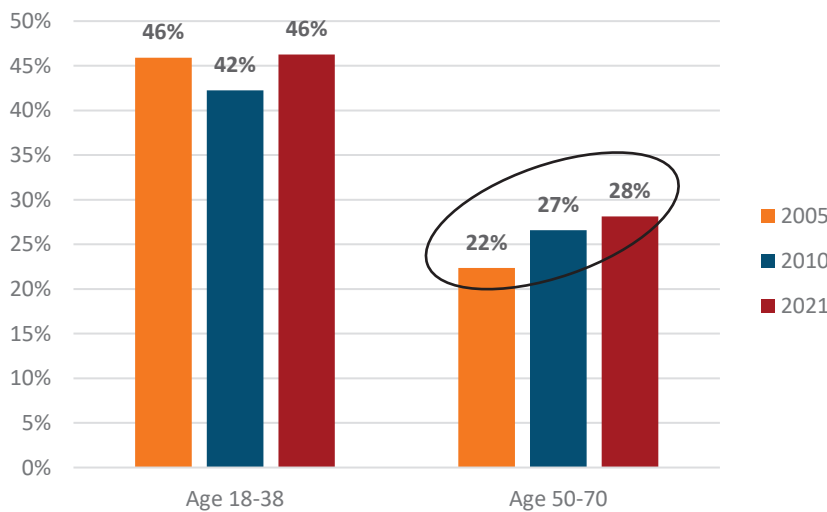
Exhibit 3.3 displays the headcounts for all union electricians (i.e., Total in the chart), those age 18-38 and those age 50-70. There were more employees in the younger 20-year time span than the older one. For the total and the age 18-38 groupings, the lowest number of workers occurred in 2010 and the largest number in 2021. For the age 50-70 data cut the number of workers increased modestly from 2005 to 2010 and more significantly from 2010 to 2021.

Exhibit 3.3 Number of Union Electrical Workers for Various Ages and Years



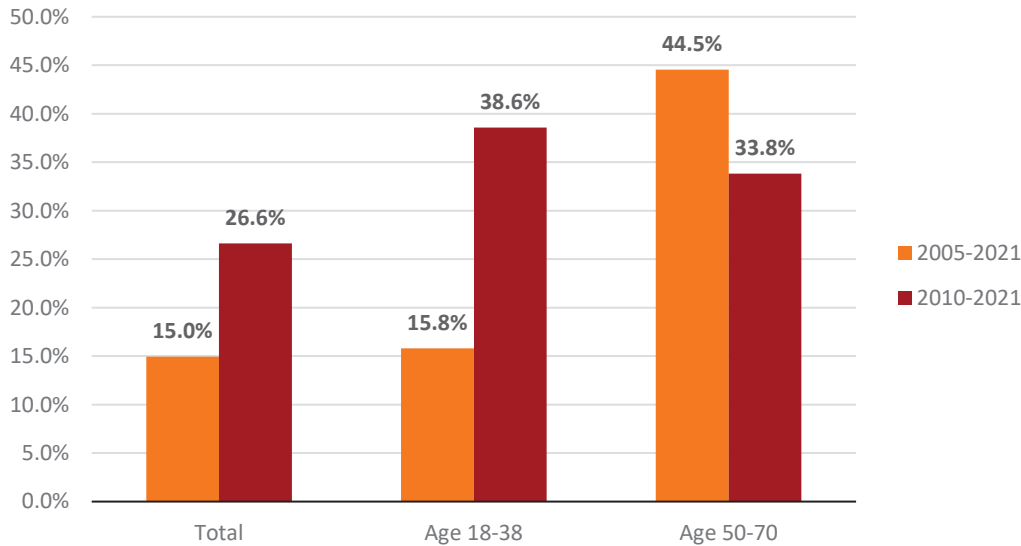
In Exhibit 3.4 the percentage of the workforce that is younger (age 18-38) and older (age 50-70) is shown. More were in the younger than older ends of the age spectrum. However, like Exhibit 3.3, the percentage of the workforce in the 50-70 age group grew steadily, from 22% in 2005 to 28% in 2021. The percentage in the 18-38 age group was the same in 2021 as it was in 2005 (46%). These statistics exemplify the aging of the union electrician workforce.

Exhibit 3.4 Percentage of Union Electrical Workers for Various Ages and Years



As a segue from the two previous exhibits, Exhibit 3.5 contains the change scores for two time periods (2005 – 2021 and 2010 – 2021) for three data cuts: Total, age 18-38 and age 50-70. Interestingly, the age 18-38 age group grew more in the shorter time span (2010-2021, 11 years) than in the longer time range (2005-2021, 16 years). However, a more logical story held for the age 50-70 cohort where the longer the time range, the greater the growth.

Exhibit 3.5 Percentage Change in the Union Electrical Workforce



The charts in Exhibits 3.6 and 3.7 on the next page illustrate the change (number and percentage) in employment from 2020 to 2021 for each age cohort. For example, there were 1,224 and 23.4% more employees at age 20 than there were at age 19.

Exhibits 3.6 and 3.7 both highlight the flow of employees into and out of IBEW employment by the age of the employee. As expected, the younger the worker, the greater the annual increase in workers. This applies until around age 44. From then to age 62, in general the older the worker the greater the loss of workers as they age. The peak for departures is age 62 (or age 66 as a percent of the workforce).

Note, there is likely more turnover (possibly much more) than these charts show because some employees may have been hired and then left their employment in the same year. Those two actions (beginning and ending employment) would cancel each other out and not be reflected in the in the data file used in this report.

Exhibit 3.6 Workforce Gains and Losses by Age

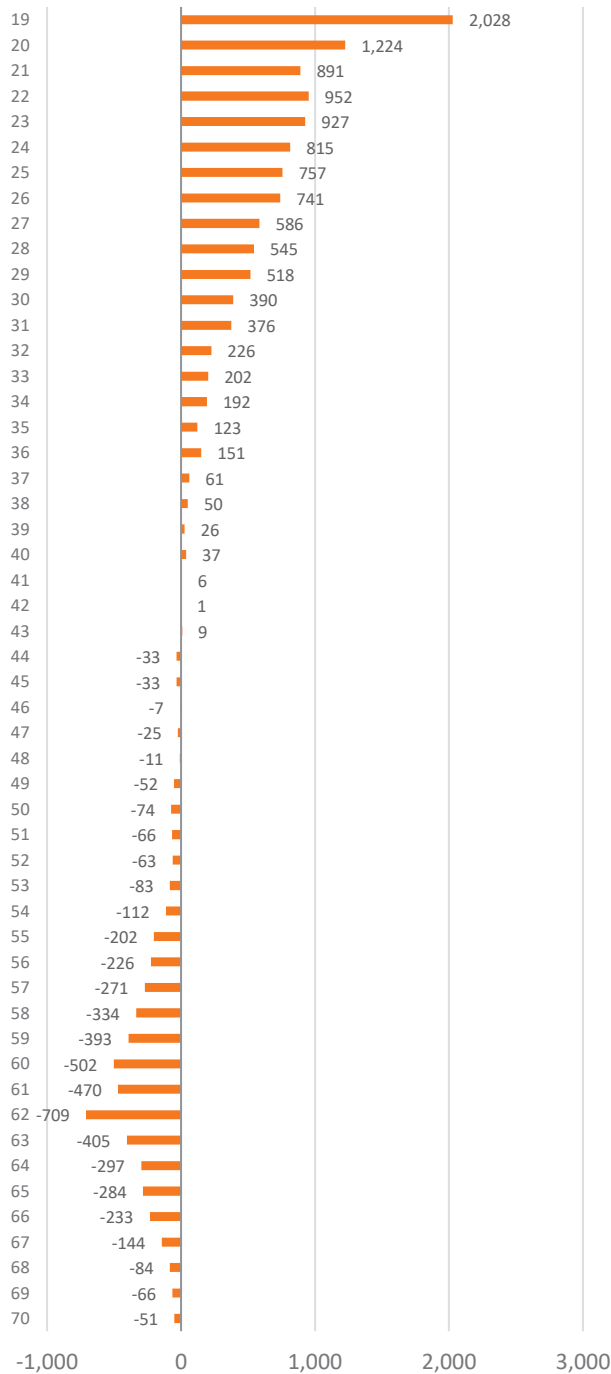
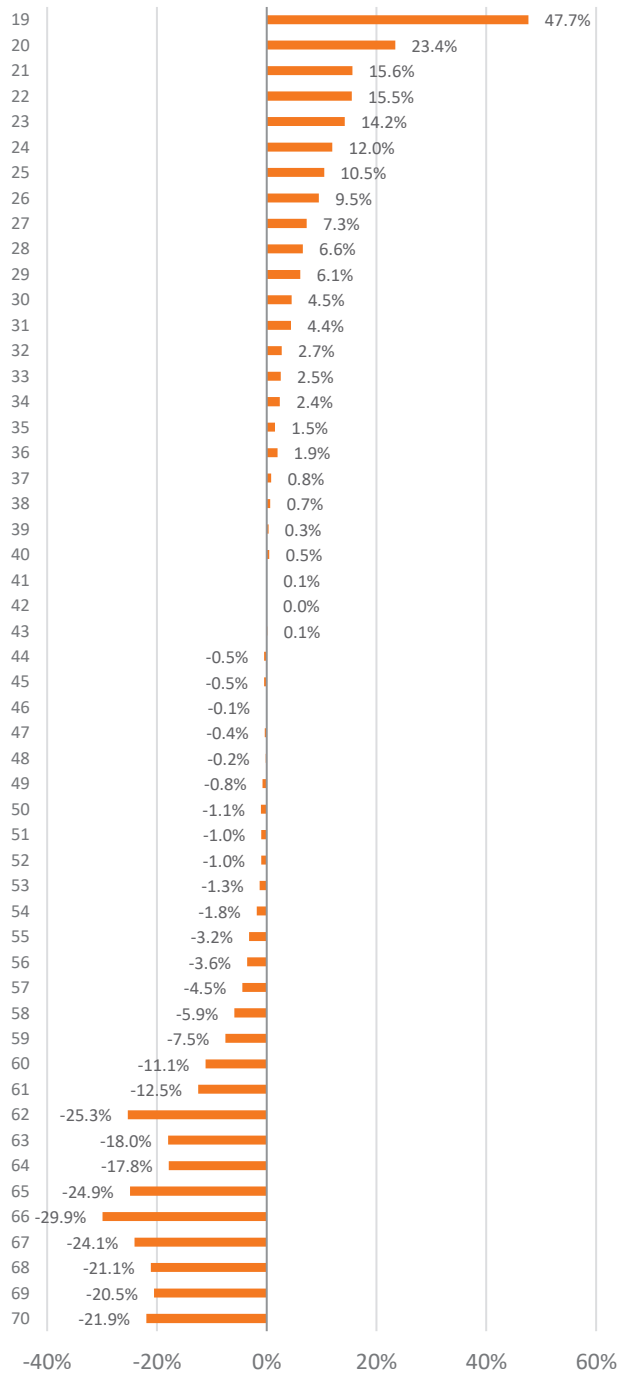


Exhibit 3.7 Percentage Workforce Gains and Losses by Age



IV. Needs Projections for the Union Electrician Workforce

This section offers estimated projections for union electrician employment. Projections are divided into *replacement* and *growth* categories in order to provide additional insight into future employment patterns. Alternative growth models also are shown.

The historical and projected employment values of union electricians are plotted in Exhibit 4.1. For the projections, low and high models are shown. From 2011 to 2019 there was steady growth. That leveled off in 2020 and 2021, as shown in the exhibit. The future union electrician headcount in 2027 is estimated to range from 314,524 to 364,603. The BLS projection is 326,290. Again, these are projections, and they can change due to a wide variety of unpredictable situational factors.

Exhibit 4.1 Union Electrician Total Employment

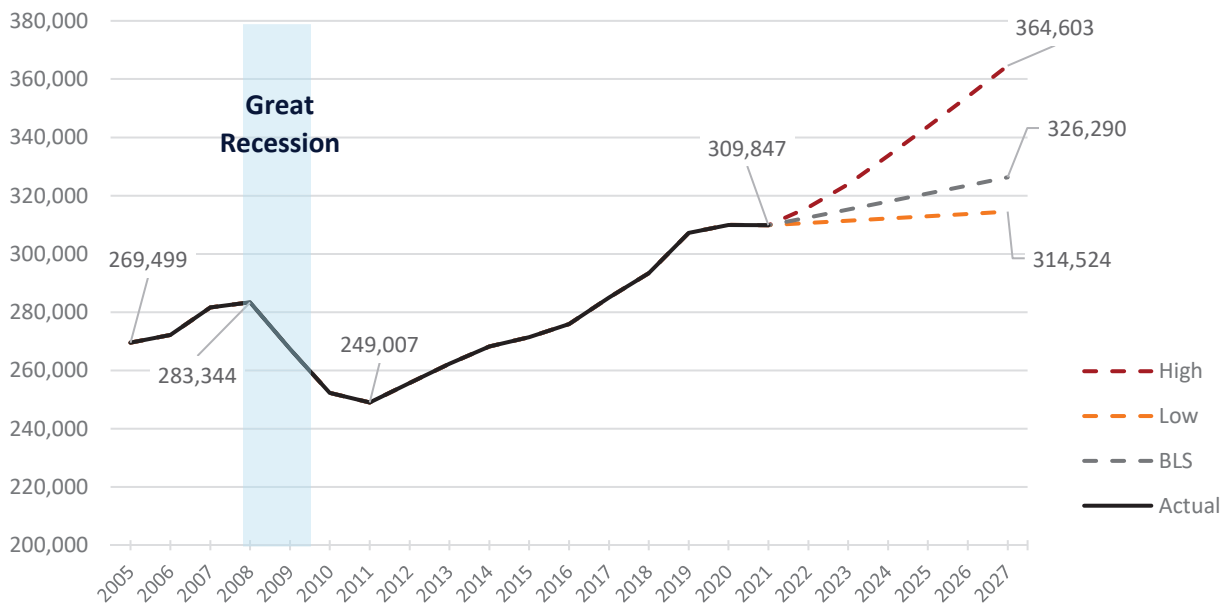


Exhibit 4.2 has the change percentages behind the values shown in Exhibit 4.1. From 2006 to 2021 the average growth in membership for those ages 18-70 was 0.7%, with wide variance, ranging from -5.7% (2010) to 4.7% (2019). BLS projects modest growth of less than 1.0% per year for electricians (union and nonunion). The CLRC low projection reflects 0.25% growth each year and the high projection is 2.0% for 2022, 2.5% for 2023 and 3.0% thereafter.

Exhibit 4.2 Union Electrician Total Employment Percentage Change

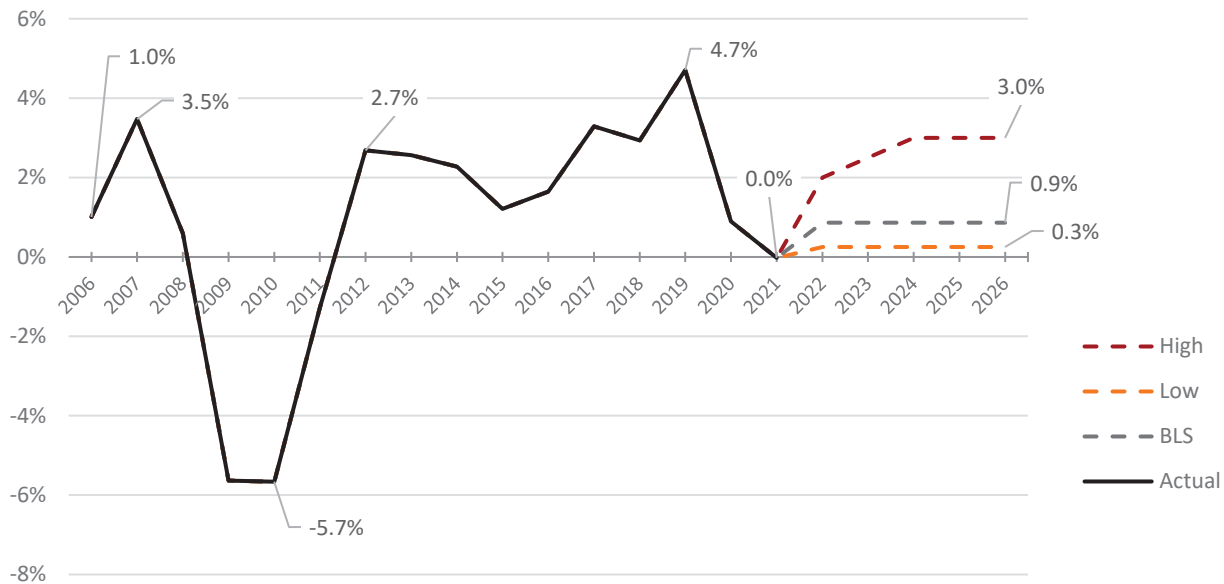


Exhibit 4.3 shows the number of employees needed each year based on *growth* only. That is, this is the *increase* in the number of workers needed annually, excluding replacement. Replacement needs are not included in Exhibit 4.3. However, Exhibit 4.4 shows growth and replacement needs combined.

Exhibit 4.3 Union Electrician Change in Employment

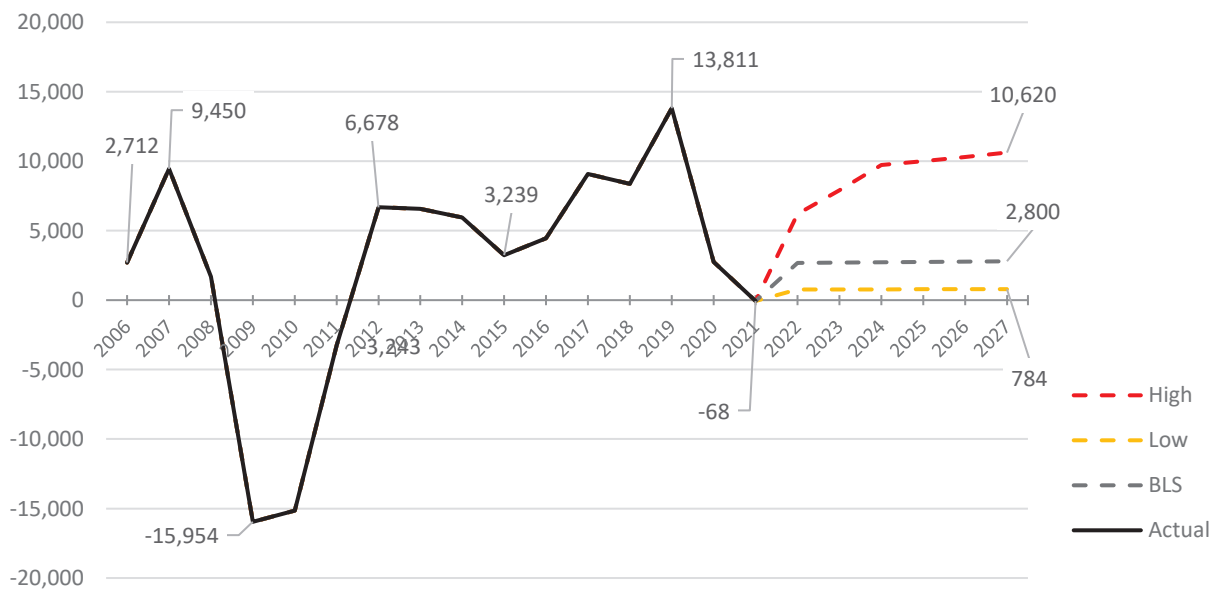
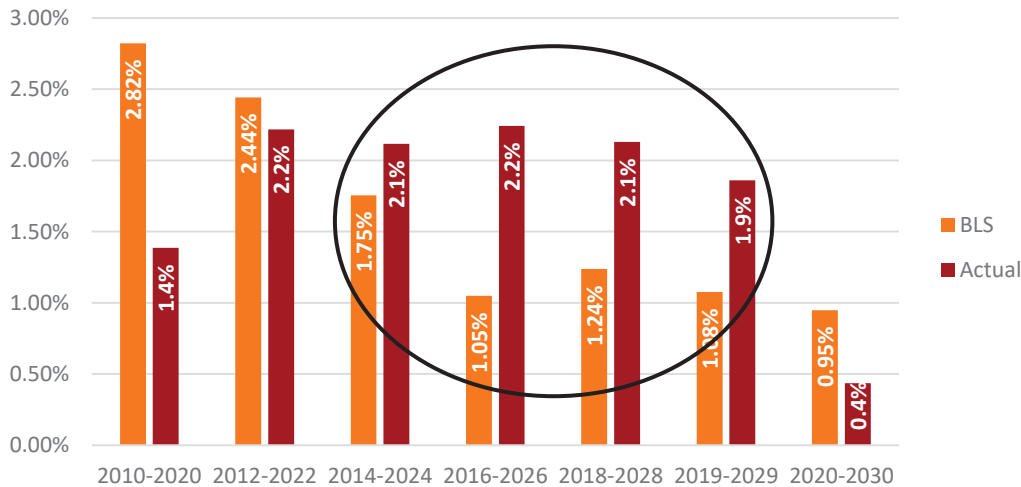


Exhibit 4.4 shows the annual growth rate for the 10-year projections for all electricians published by BLS every year (previously every two years). It also has the *actual* growth rates of union electrical employment (from the NEBF data) juxtaposed with the BLS projections.

Note, the actual/NEBF numbers are for different time frames than the BLS values because NEBF statistics are not available for future dates, so this is not a purely straightforward comparison (e.g., the 2010 – 2020 label on the x-axis covers 2010 – 2020, however the 2016 – 2026 period covers only 2016 – 2021 for the NEBF “actual” data). Thus, the start date is the same for BLS and actual, but the end date is 2021 for all actual data.

The actual NEBF growth rates were higher than the BLS projections in four of the time periods shown. The most current time range, 2020-2030 (which compares BLS projections to actual data for just two years—2020 and 2021), shows actual growth lower than BLS projections. However, this could easily change as additional actual data are added to the analysis in future years.

Exhibit 4.4 BLS Electrician Employment Growth Projections vs. NEBF Actual Growth



In Exhibit 4.5 the 10-year and 1-year growth projections published by BLS are shown. The optimism for growth, as stated by the government agency, has generally been declining since 2010.

Exhibit 4.5 BLS Employment Projections for Electricians

Time Period	10yr	1yr
2010-2020	32.1%	2.82%
2012-2022	27.3%	2.44%
2014-2024	19.0%	1.75%
2016-2026	11.0%	1.05%
2018-2028	13.1%	1.24%
2019-2029	11.3%	1.08%
2020-2030	9.9%	0.95%
2021-2031	9.0%	0.87%

The data in Exhibit 4.6 show the number of new entrants needed (growth + replacement). Low and high estimates are provided. The low estimates are 17,483 in 2022 to 17,703 in 2027; the high estimates are 45,862 in 2022 to 56,380 in 2027.

Exhibit 4.6 Union Electrician Projected New Entrants Needs

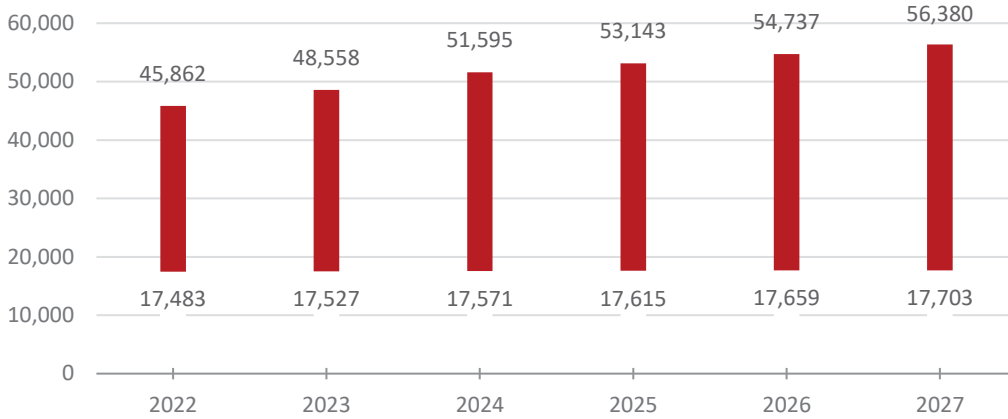


Exhibit 4.6 is important for planning purposes because it outlines the total number of new employees that are needed each year (growth + replacement).

Exhibit 4.7 outlines the projected growth, replacement and new entrants needs. Growth values represent the increase (or decrease) in the total number of union electricians. The replacement needs reflect the churn within the workforce. For example, even if there is no growth, due to retirements, quits and other departures there will be a number of replacement needs just to stay at the same employment level. New entrants means the total number of new employees entering the workforce (growth + replacement). **This “new entrants” information in this report is the key in helping labor and management develop future workforce plans.**

Exhibit 4.7 Union Electrician Projected Workforce Counts Summary Table

	2022	2023	2024	2025	2026	2027
Growth						
Low	775	777	778	780	782	784
High	6,197	7,901	9,718	10,010	10,310	10,620
BLS	2,682	2,705	2,728	2,752	2,776	2,800
Replacement						
Low	16,709	16,751	16,792	16,834	16,876	16,919
High	39,666	40,657	41,877	43,133	44,427	45,760
BLS	28,187	28,704	29,335	29,984	30,652	31,339
New Entrants						
Low	17,483	17,527	17,571	17,615	17,659	17,703
High	45,862	48,558	51,595	53,143	54,737	56,380
BLS	30,869	31,409	32,063	32,736	33,428	34,139

Exhibit 4.8 contains the detailed annual percentage change and numerical count for 2005 – 2027. From 2005 – 2021 actual results are shown. From 2022 – 2027 the assumptions used in the projections in this section of the report can be examined.

Exhibit 4.8 Union Electrician Actual and Projected Employment Change

Year	Percentages		Workforce	
	Low	High	Low	High
2005	-	-	269,499	269,499
2006	1.01%	1.01%	272,211	272,211
2007	3.47%	3.47%	281,661	281,661
2008	0.60%	0.60%	283,344	283,344
2009	-5.63%	-5.63%	267,390	267,390
2010	-5.66%	-5.66%	252,250	252,250
2011	-1.29%	-1.29%	249,007	249,007
2012	2.68%	2.68%	255,685	255,685
2013	2.57%	2.57%	262,251	262,251
2014	2.27%	2.27%	268,208	268,208
2015	1.21%	1.21%	271,447	271,447
2016	1.64%	1.64%	275,905	275,905
2017	3.29%	3.29%	284,989	284,989
2018	2.94%	2.94%	293,361	293,361
2019	4.71%	4.71%	307,172	307,172
2020	0.89%	0.89%	309,915	309,915
2021	-0.02%	-0.02%	309,847	309,847
2022	0.25%	2.00%	310,622	316,044
2023	0.25%	2.50%	311,398	323,945
2024	0.25%	3.00%	312,177	333,663
2025	0.25%	3.00%	312,957	343,673
2026	0.25%	3.00%	313,740	353,983
2027	0.25%	3.00%	314,524	364,603
2028	0.50%	3.00%	316,096	375,541
2029	0.50%	3.00%	317,677	386,807
2030	0.50%	3.00%	319,265	398,412
2031	0.50%	3.00%	320,862	410,364

APPENDIX

The body of the report bases the NEBF data for union electricians on those who worked at least one hour in 2021. The Appendix uses a 500 hour threshold. Therefore, the union employment values are generally smaller in the Appendix than in the body of the report, yet many results are surprisingly consistent and trend lines are often parallel.

Exhibit 2.1a Union Electrician Employment by NECA District and Total Ages 18-70 (500 hours)

District	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2005-2021
Dist 2	10,311	10,185	10,581	10,614	9,537	9,028	8,873	7,689	8,264	8,743	8,996	9,236	9,881	10,379	10,792	10,077	10,425	114
Dist 3	51,366	50,506	51,094	51,300	49,420	47,844	46,515	41,886	42,293	43,237	43,407	43,988	45,025	45,743	46,270	43,717	43,686	(7,680)
Dist 4	29,073	29,539	30,970	30,619	28,650	26,924	27,255	25,179	24,801	25,717	26,133	26,511	28,314	29,516	31,090	30,532	31,878	2,805
Dist 5	21,059	21,806	22,025	21,812	20,965	19,539	20,106	17,030	17,191	18,538	18,923	18,707	19,148	19,903	21,111	20,404	20,436	(623)
Dist 6	60,741	60,768	62,178	61,723	56,629	52,810	51,797	46,725	47,867	49,071	50,883	52,300	54,379	55,454	56,495	54,284	55,362	(5,379)
Dist 7	19,952	20,475	21,499	22,517	20,982	19,655	19,105	17,173	17,927	18,072	17,892	17,567	17,996	18,750	19,903	19,674	21,563	1,611
Dist 8	8,450	8,907	9,095	8,884	8,672	8,157	7,958	7,354	7,359	7,314	7,543	7,760	7,903	8,148	8,816	8,438	8,823	373
Dist 9	46,423	47,509	49,809	50,670	49,007	45,632	45,135	41,595	44,315	45,420	47,208	49,833	50,506	53,010	57,326	61,153	61,637	15,214
Dist 10	6,246	6,467	7,335	7,291	7,735	7,501	8,069	6,914	7,068	7,350	7,731	7,394	7,910	8,146	8,633	7,858	8,197	1,951
Dist 11	14,580	14,718	15,546	16,284	15,793	14,604	14,194	12,826	13,982	14,695	14,814	15,067	15,241	15,795	16,771	16,346	16,605	2,025
Total	268,201	270,880	280,132	281,714	267,390	251,694	249,007	224,371	231,067	238,157	243,530	248,363	256,303	264,844	277,207	272,483	278,612	10,411

Exhibit 2.1b Union Electrician Employment by NECA District and Total Ages 18-21 (500 hours)

District	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2005-2021
Dist 2	256	278	340	331	230	192	194	160	219	293	295	295	360	374	404	369	373	117
Dist 3	860	944	1,203	1,281	1,049	892	1,007	645	714	823	869	907	1,019	1,013	1,132	946	1,060	200
Dist 4	1,383	1,473	1,762	1,533	1,137	948	979	762	808	926	1,005	1,021	1,253	1,370	1,546	1,444	1,588	205
Dist 5	1,303	1,467	1,425	1,280	897	831	870	506	593	802	797	859	878	1,092	1,277	1,086	1,140	-163
Dist 6	1,312	1,450	1,700	1,411	841	650	785	664	841	995	1,115	1,279	1,616	1,825	2,112	1,956	2,122	810
Dist 7	774	1,014	1,138	1,103	791	648	637	533	647	638	624	576	587	672	775	726	933	159
Dist 8	291	419	427	350	270	211	207	200	194	183	215	232	271	306	358	320	317	26
Dist 9	1,249	1,470	1,657	1,426	996	796	882	701	893	891	927	1,085	968	1,117	1,377	1,667	1,657	408
Dist 10	216	336	472	406	283	246	323	232	220	238	290	251	351	444	499	357	382	166
Dist 11	461	490	598	623	424	301	345	287	425	519	461	494	518	609	759	733	774	313
Total	8,105	9,341	10,722	9,744	6,918	5,715	6,229	4,690	5,554	6,308	6,598	6,999	7,821	8,822	10,239	9,604	10,346	2,241

Exhibit 2.2a Percentage Change in Union Electrician Employment by NECA District Ages 18-70 (500 hours)

District	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Avg
Dist 2	-1.2%	3.9%	0.3%	-10.1%	-5.3%	-1.7%	-13.3%	7.5%	5.8%	2.9%	2.7%	7.0%	5.0%	4.0%	-6.6%	3.5%	0.3%
Dist 3	-1.7%	1.2%	0.4%	-3.7%	-3.2%	-2.8%	-10.0%	1.0%	2.2%	0.4%	1.3%	2.4%	1.6%	1.2%	-5.5%	-0.1%	-1.0%
Dist 4	1.6%	4.8%	-1.1%	-6.4%	-6.0%	1.2%	-7.6%	-1.5%	3.7%	1.6%	1.4%	6.8%	4.2%	5.3%	-1.8%	4.4%	0.7%
Dist 5	3.5%	1.0%	-1.0%	-3.9%	-6.8%	2.9%	-15.3%	0.9%	7.8%	2.1%	-1.1%	2.4%	3.9%	6.1%	-3.3%	0.2%	0.0%
Dist 6	0.0%	2.3%	-0.7%	-8.3%	-6.7%	-1.9%	-9.8%	2.4%	2.5%	3.7%	2.8%	4.0%	2.0%	1.9%	-3.9%	2.0%	-0.5%
Dist 7	2.6%	5.0%	4.7%	-6.8%	-6.3%	-2.8%	-10.1%	4.4%	0.8%	-1.0%	-1.8%	2.4%	4.2%	6.1%	-1.2%	9.6%	0.6%
Dist 8	5.4%	2.1%	-2.3%	-2.4%	-5.9%	-2.4%	-7.6%	0.1%	-0.6%	3.1%	2.9%	1.8%	3.1%	8.2%	-4.3%	4.6%	0.4%
Dist 9	2.3%	4.8%	1.7%	-3.3%	-6.9%	-1.1%	-7.8%	6.5%	2.5%	3.9%	5.6%	1.4%	5.0%	8.1%	6.7%	0.8%	1.9%
Dist 10	3.5%	13.4%	-0.6%	6.1%	-3.0%	7.6%	-14.3%	2.2%	4.0%	5.2%	-4.4%	7.0%	3.0%	6.0%	-9.0%	4.3%	1.9%
Dist 11	0.9%	5.6%	4.7%	-3.0%	-7.5%	-2.8%	-9.6%	9.0%	5.1%	0.8%	1.7%	1.2%	3.6%	6.2%	-2.5%	1.6%	0.9%
Total	1.0%	3.4%	0.6%	-5.1%	-5.9%	-1.1%	-9.9%	3.0%	3.1%	2.3%	2.0%	3.2%	3.3%	4.7%	-1.7%	2.2%	0.5%

Exhibit 2.2b Percentage Change in Union Electrician Employment by NECA District Ages 18-21 (500 hours)

District	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Avg
Dist 2	8.6%	22.3%	-2.6%	-30.5%	-16.5%	1.0%	-17.5%	36.9%	33.8%	0.7%	0.0%	22.0%	3.9%	8.0%	-8.7%	1.1%	3.9%
Dist 3	9.8%	27.4%	6.5%	-18.1%	-15.0%	12.9%	-35.9%	10.7%	15.3%	5.6%	4.4%	12.3%	-0.6%	11.7%	-16.4%	12.1%	2.7%
Dist 4	6.5%	19.6%	-13.0%	-25.8%	-16.6%	3.3%	-22.2%	6.0%	14.6%	8.5%	1.6%	22.7%	9.3%	12.8%	-6.6%	10.0%	1.9%
Dist 5	12.6%	-2.9%	-10.2%	-29.9%	-7.4%	4.7%	-41.8%	17.2%	35.2%	-0.6%	7.8%	2.2%	24.4%	16.9%	-15.0%	5.0%	1.1%
Dist 6	10.5%	17.2%	-17.0%	-40.4%	-22.7%	20.8%	-15.4%	26.7%	18.3%	12.1%	14.7%	26.3%	12.9%	15.7%	-7.4%	8.5%	5.1%
Dist 7	31.0%	12.2%	-3.1%	-28.3%	-18.1%	-1.7%	-16.3%	21.4%	-1.4%	-2.2%	-7.7%	1.9%	14.5%	15.3%	-6.3%	28.5%	2.5%
Dist 8	44.0%	1.9%	-18.0%	-22.9%	-21.9%	-1.9%	-3.4%	-3.0%	-5.7%	17.5%	7.9%	16.8%	12.9%	17.0%	-10.6%	-0.9%	1.9%
Dist 9	17.7%	12.7%	-13.9%	-30.2%	-20.1%	10.8%	-20.5%	27.4%	-0.2%	4.0%	17.0%	-10.8%	15.4%	23.3%	21.1%	-0.6%	3.3%
Dist 10	55.6%	40.5%	-14.0%	-30.3%	-13.1%	31.3%	-28.2%	-5.2%	8.2%	21.8%	-13.4%	39.8%	26.5%	12.4%	-28.5%	7.0%	6.9%
Dist 11	6.3%	22.0%	4.2%	-31.9%	-29.0%	14.6%	-16.8%	48.1%	22.1%	-11.2%	7.2%	4.9%	17.6%	24.6%	-3.4%	5.6%	5.3%
Total	15.2%	14.8%	-9.1%	-29.0%	-17.4%	9.0%	-24.7%	18.4%	13.6%	4.6%	6.1%	11.7%	12.8%	16.1%	-6.2%	7.7%	3.5%

Exhibit 2.3a Union Electrician Employment Trends by NECA District Ages 18-70 (500 hours)

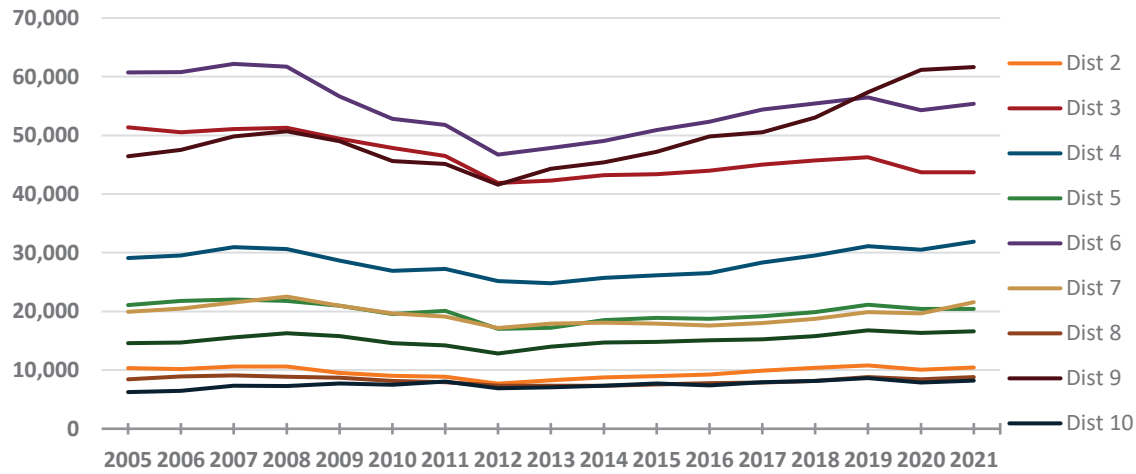


Exhibit 2.3b Union Electrician Employment Trends by NECA District Ages 18-21 (500 hours)

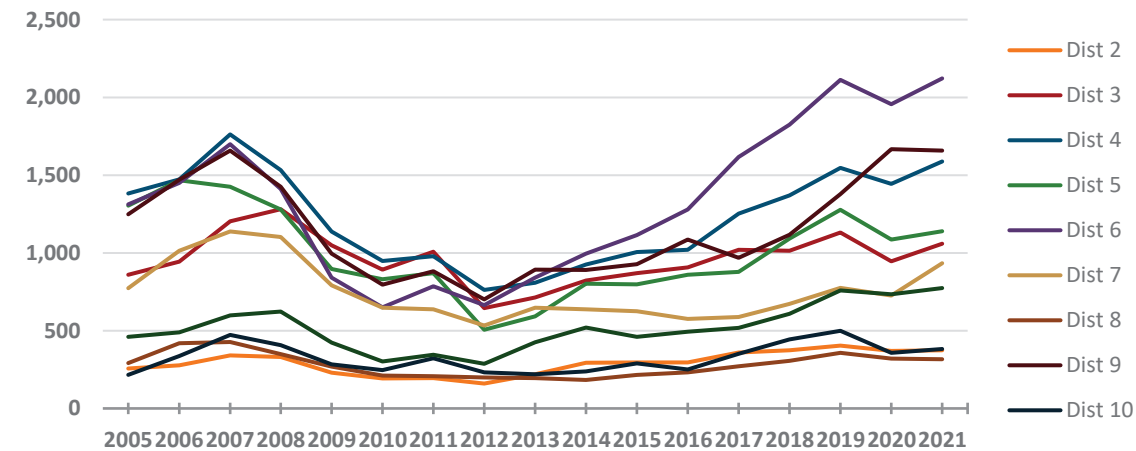


Exhibit 2.4a Union Electrician Employment by NECA District for Select Years Ages 18-70 (500 hours)

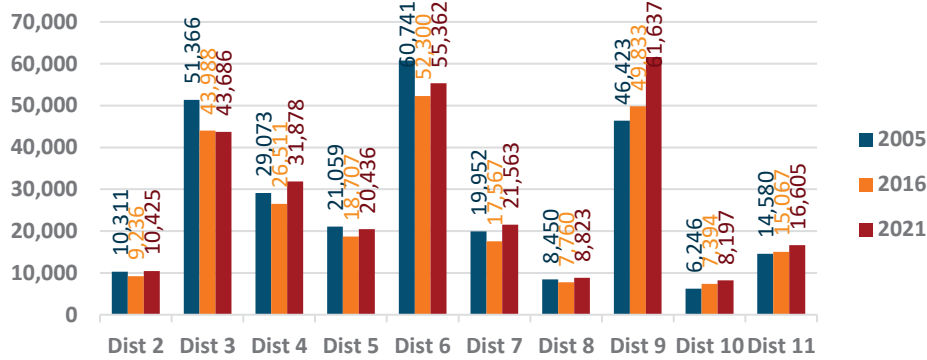


Exhibit 2.4b Union Electrician Employment by NECA District for Select Years Ages 18-21 (500 hours)

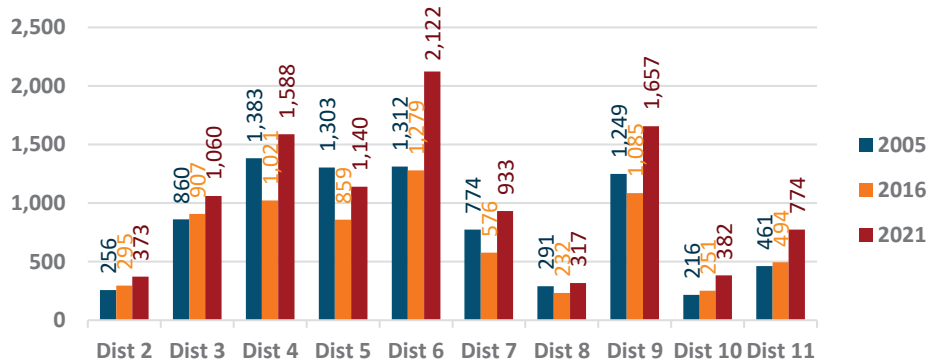


Exhibit 2.5a Net Change in Union Electrician Employment by NECA District and Total Ages 18-70 (500 hours)

District	2005-21	2016-21	2020-21	2005-21	2016-21	2020-21
Dist 2	114	1,189	348	1.1%	12.9%	3.5%
Dist 3	-7,680	-302	-31	-15.0%	-0.7%	-0.1%
Dist 4	2,805	5,367	1,346	9.6%	20.2%	4.4%
Dist 5	-623	1,729	32	-3.0%	9.2%	0.2%
Dist 6	-5,379	3,062	1,078	-8.9%	5.9%	2.0%
Dist 7	1,611	3,996	1,889	8.1%	22.7%	9.6%
Dist 8	373	1,063	385	4.4%	13.7%	4.6%
Dist 9	15,214	11,804	484	32.8%	23.7%	0.8%
Dist 10	1,951	803	339	31.2%	10.9%	4.3%
Dist 11	2,025	1,538	259	13.9%	10.2%	1.6%
Total	10,411	30,249	6,129	3.9%	12.2%	2.25%

Exhibit 2.5b Net Change in Union Electrician Employment by NECA District and Total Ages 18-21 (500 hours)

District	2005-21	2016-21	2020-21	2005-21	2016-21	2020-21
Dist 2	117	78	4	45.7%	26.4%	1.1%
Dist 3	200	153	114	23.3%	16.9%	12.1%
Dist 4	205	567	144	14.8%	55.5%	10.0%
Dist 5	-163	281	54	-12.5%	32.7%	5.0%
Dist 6	810	843	166	61.7%	65.9%	8.5%
Dist 7	159	357	207	20.5%	62.0%	28.5%
Dist 8	26	85	-3	8.9%	36.6%	-0.9%
Dist 9	408	572	-10	32.7%	52.7%	-0.6%
Dist 10	166	131	25	76.9%	52.2%	7.0%
Dist 11	313	280	41	67.9%	56.7%	5.6%
Total	2,241	3,347	742	27.6%	47.8%	7.7%

Exhibit 2.6a Percentage Change in Union Electrician Employment by District and Total Ages 18-70 (500 hours)

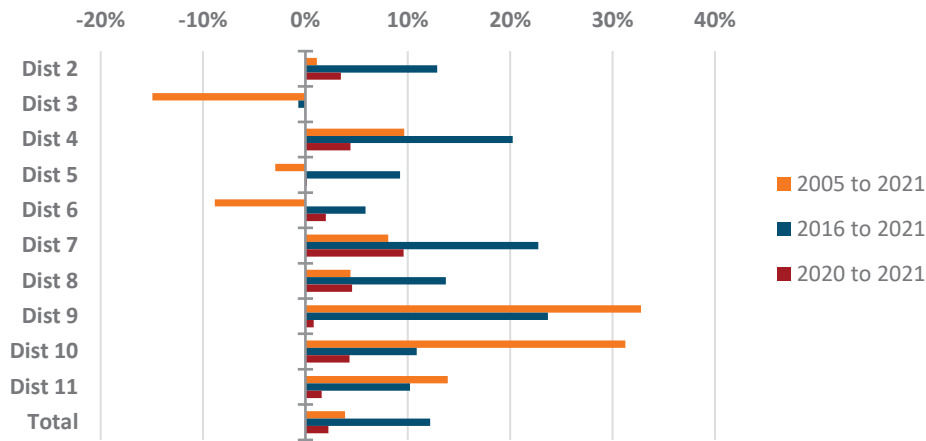


Exhibit 2.6b Percentage Change in Union Electrician Employment by District and Total Ages 18-21 (500 hours)

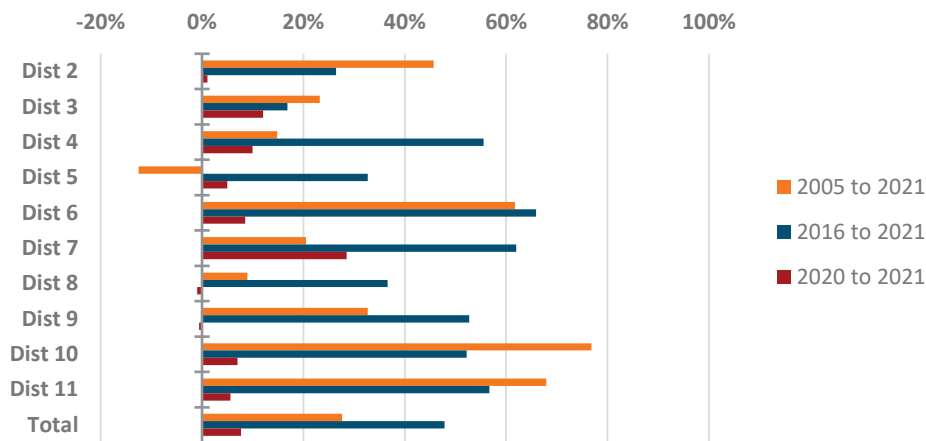


Exhibit 2.7a Change in Union Electrician Employment by District Ages 18-70 (500 hours)

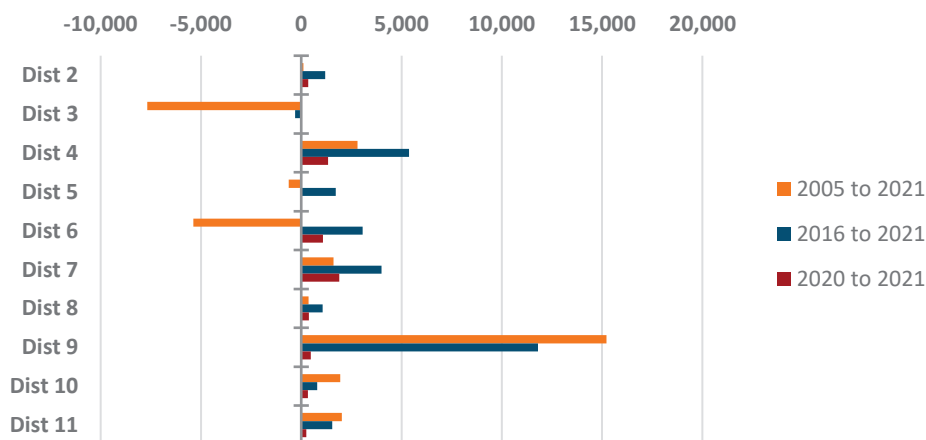


Exhibit 2.7b Change in Union Electrician Employment by District Ages 18-21 (500 hours)

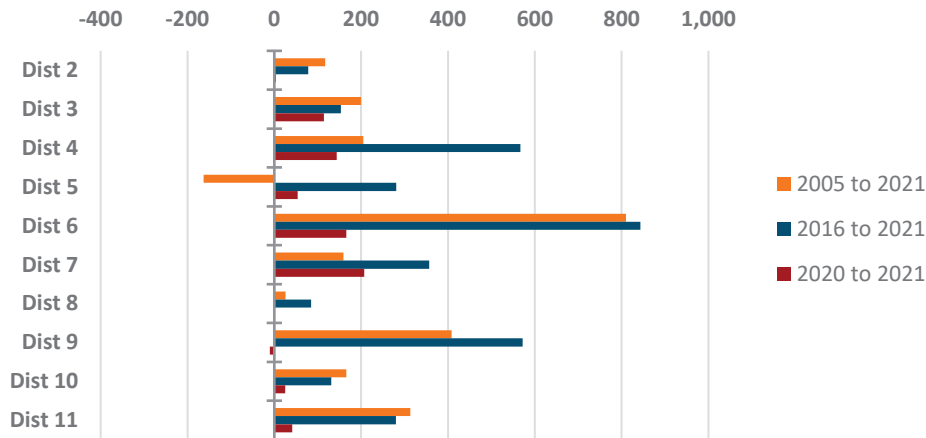


Exhibit 2.8 Union Electrician Workforce Count Trend (500 hours)

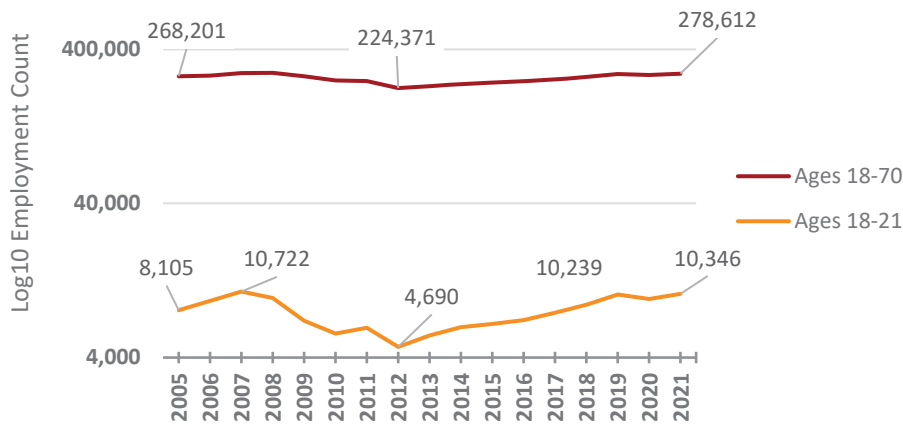


Exhibit 2.9 Percentage Change Trend in Union Electrician Workforce Count (500 hours)

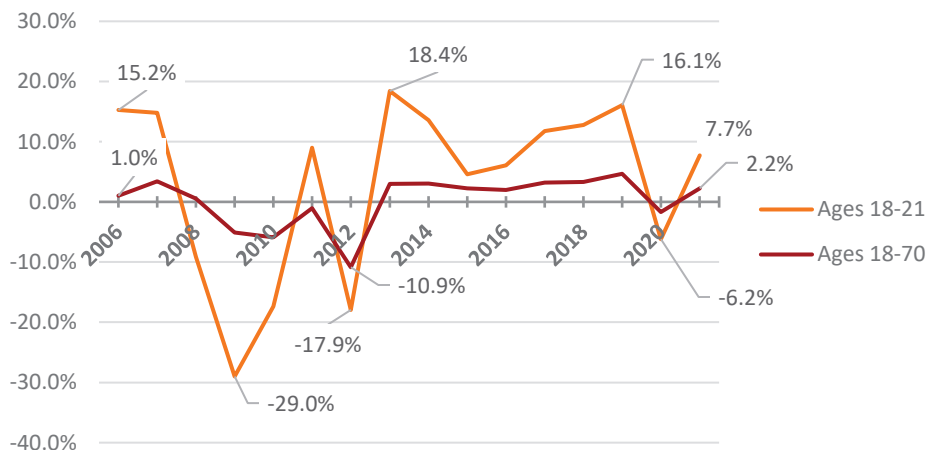


Exhibit 3.1 Union Electrical Worker Age: 2010 vs 2021 (500 hours)

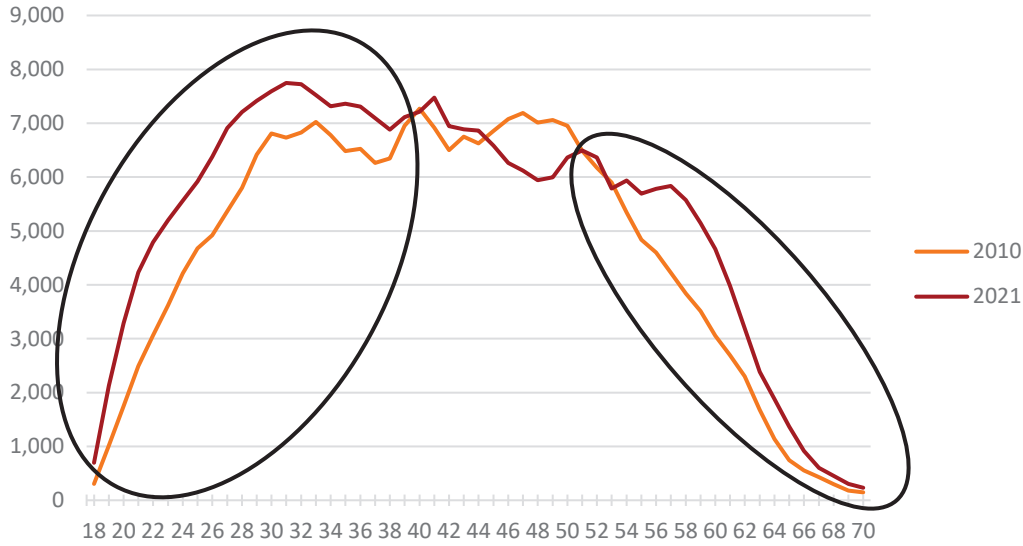


Exhibit 3.2 Change in the Number of Union Electrician Employment by Age: 2010 vs 2021 (500 hours)

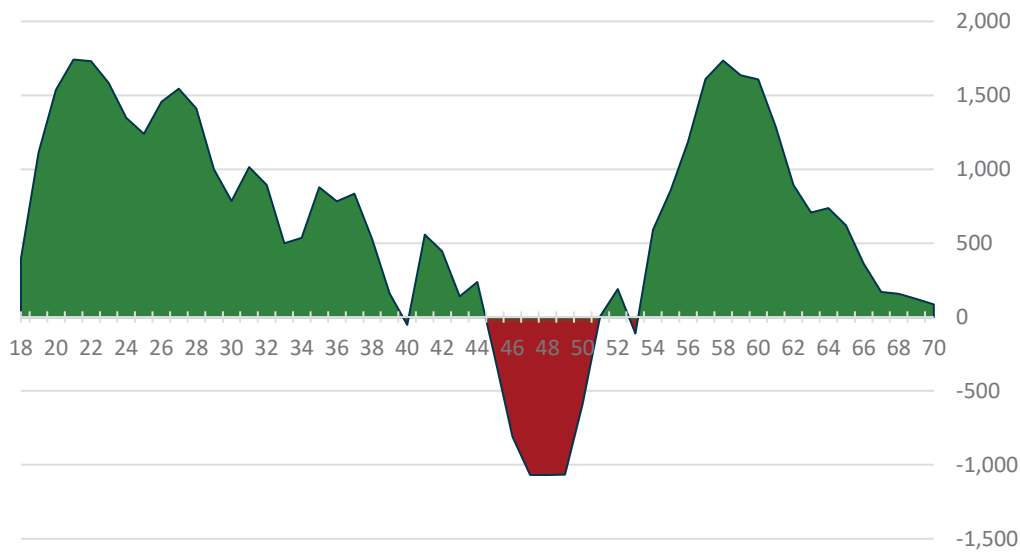


Exhibit 3.3 Number of Union Electrical Workers for Various Ages and Years (500 hours)

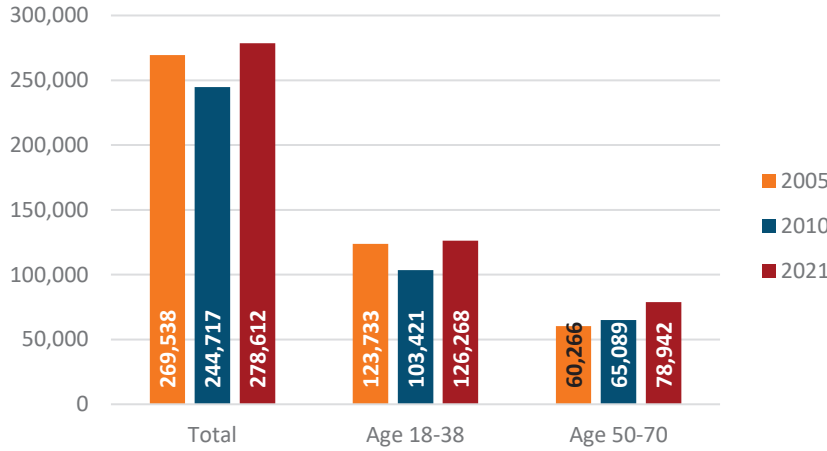


Exhibit 3.4 Percentage of Union Electrical Workers for Various Ages and Years (500 hours)

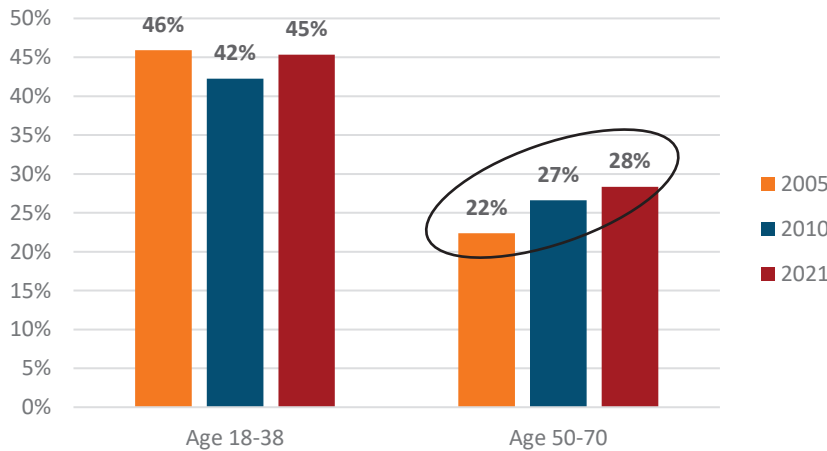


Exhibit 3.5 Percentage Change in the Union Electrical Workforce (500 hours)

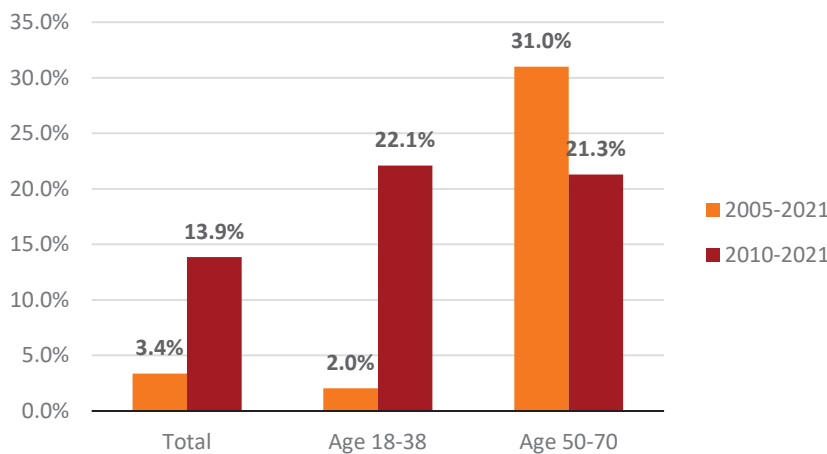


Exhibit 3.6 Workforce Gains and Losses by Age (500 hours)

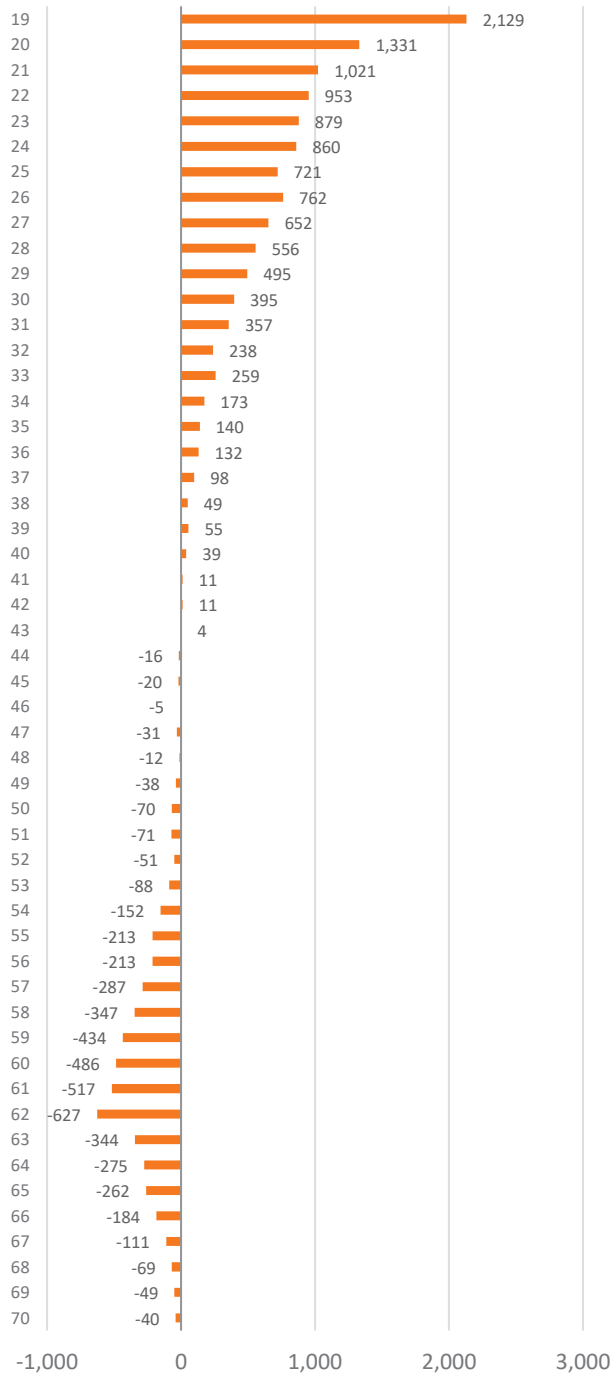


Exhibit 3.7 Percentage Workforce Gains and Losses by Age (500 hours)

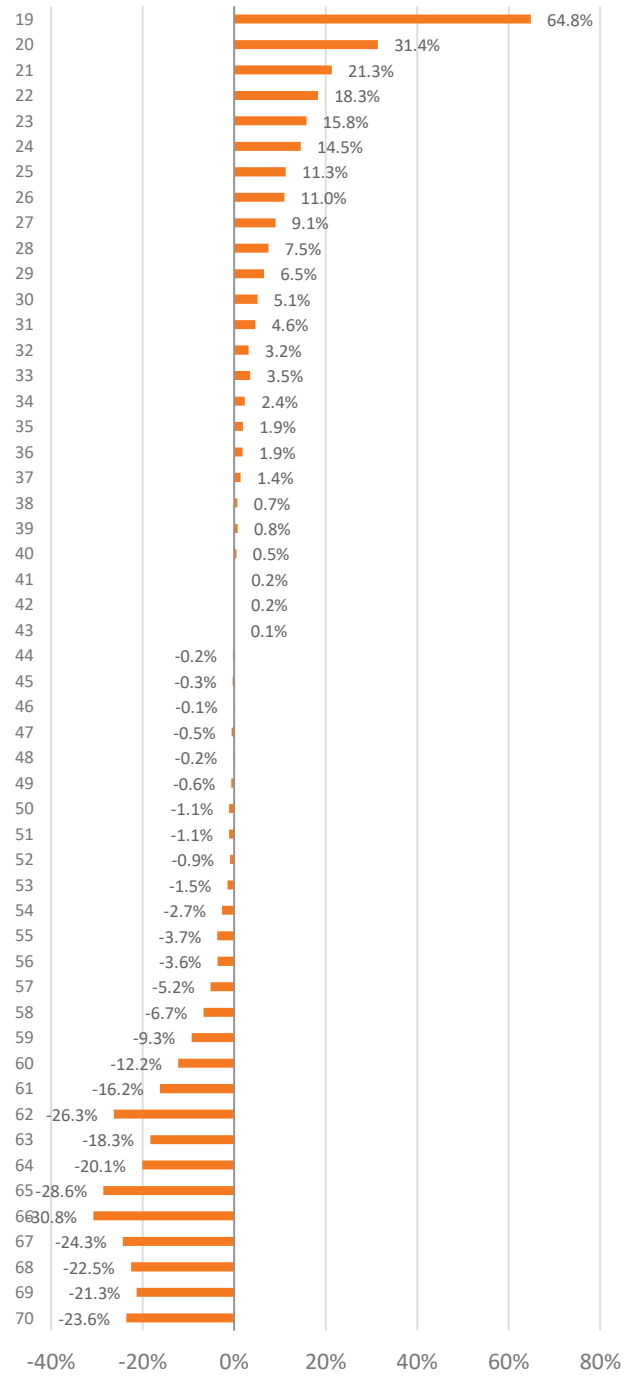


Exhibit 4.1 Union Electrician Total Employment (500 hours)

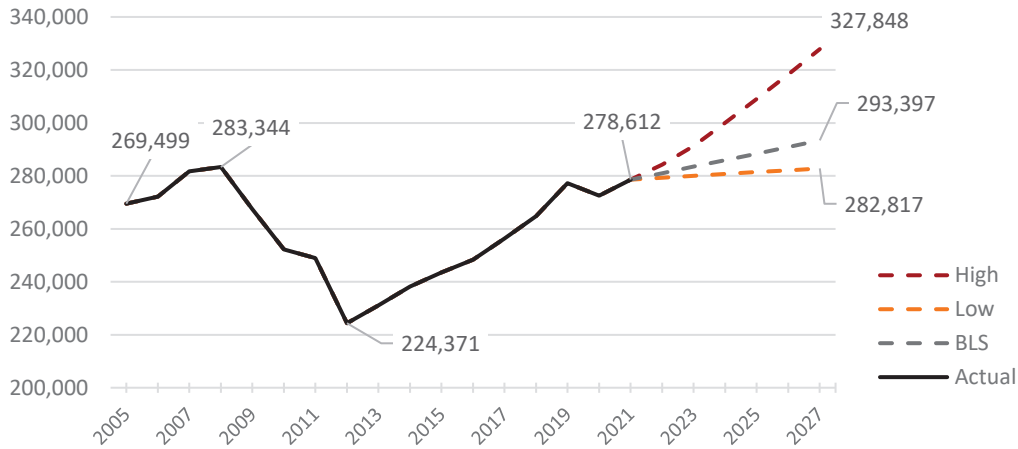


Exhibit 4.2 Union Electrician Total Employment Percentage Change (500 hours)

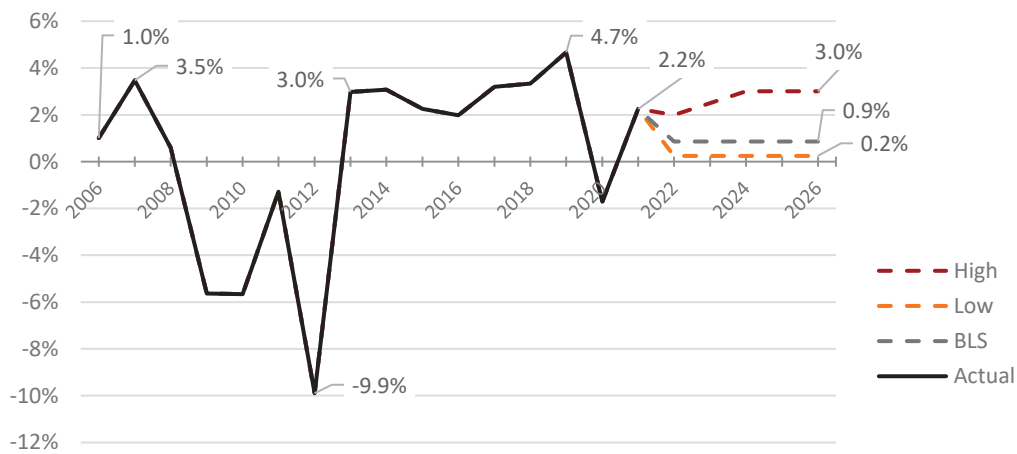


Exhibit 4.3 Union Electrician Change in Employment (500 hours)

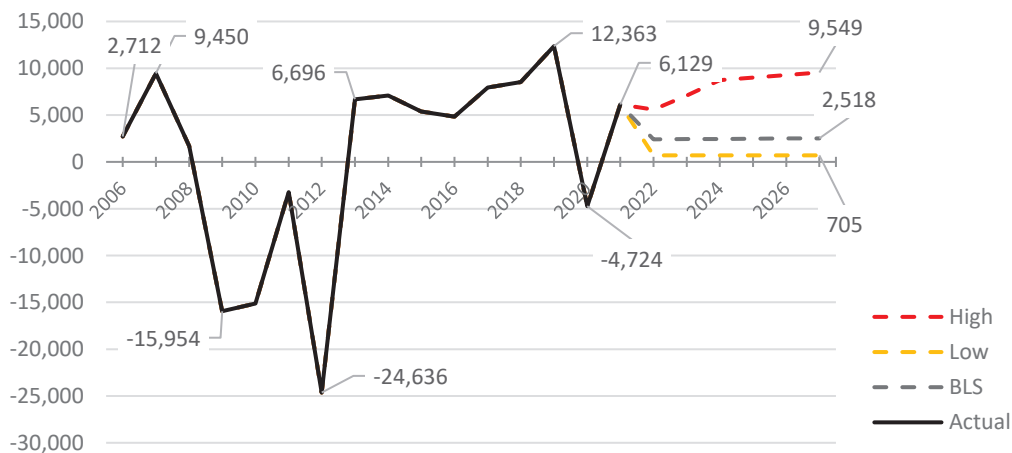


Exhibit 4.4 BLS Electrician Employment Growth Projections vs. NEBF Actual Growth (500 hours)

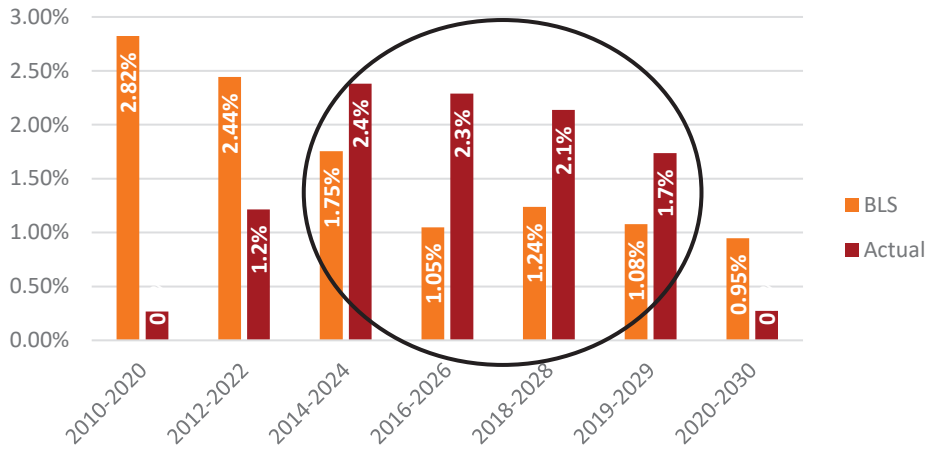


Exhibit 4.5 BLS Employment Projections for Electricians (500 hours)

Time Period	10yr	1yr
2010-2020	32.1%	2.82%
2012-2022	27.3%	2.44%
2014-2024	19.0%	1.75%
2016-2026	11.0%	1.05%
2018-2028	13.1%	1.24%
2019-2029	11.3%	1.08%
2020-2030	9.9%	0.95%
2021-2031	9.0%	0.87%

Exhibit 4.6 Union Electrician Projected New Entrants Needs (500 hours)

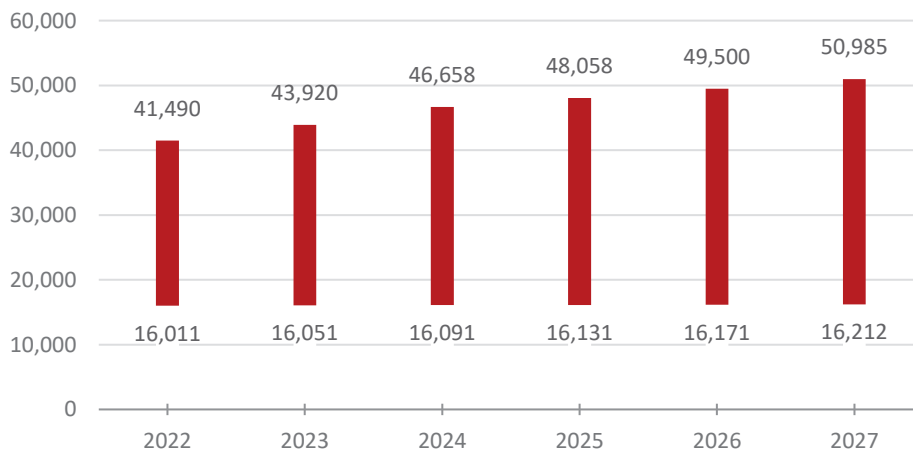


Exhibit 4.7 Union Electrician Projected Workforce Counts Summary Table (500 hours)

	2022	2023	2024	2025	2026	2027
Growth						
Low	697	698	700	702	704	705
High	5,572	7,105	8,739	9,001	9,271	9,549
BLS	2,411	2,432	2,453	2,475	2,496	2,518
Replacement						
Low	15,314	15,352	15,391	15,429	15,468	15,507
High	35,917	36,815	37,920	39,057	40,229	41,436
BLS	25,616	26,084	26,655	27,243	27,849	28,471
New Entrants						
Low	16,011	16,051	16,091	16,131	16,171	16,212
High	41,490	43,920	46,658	48,058	49,500	50,985
BLS	28,027	28,516	29,109	29,718	30,344	30,989

Exhibit 4.8 Union Electrician Actual and Projected Employment Change (500 hours)

Year	Percentages		Workforce	
	Low	High	Low	High
2005	-	-	269,499	269,499
2006	1.01%	1.01%	272,211	272,211
2007	3.47%	3.47%	281,661	281,661
2008	0.60%	0.60%	283,344	283,344
2009	-5.63%	-5.63%	267,390	267,390
2010	-5.66%	-5.66%	252,250	252,250
2011	-1.29%	-1.29%	249,007	249,007
2012	-9.89%	-9.89%	224,371	224,371
2013	2.98%	2.98%	231,067	231,067
2014	3.07%	3.07%	238,157	238,157
2015	2.26%	2.26%	243,530	243,530
2016	1.98%	1.98%	248,363	248,363
2017	3.20%	3.20%	256,303	256,303
2018	3.33%	3.33%	264,844	264,844
2019	4.67%	4.67%	277,207	277,207
2020	-1.70%	-1.70%	272,483	272,483
2021	2.25%	2.25%	278,612	278,612
2022	0.25%	2.00%	279,309	284,184
2023	0.25%	2.50%	280,007	291,289
2024	0.25%	3.00%	280,707	300,028
2025	0.25%	3.00%	281,409	309,028
2026	0.25%	3.00%	282,112	318,299
2027	0.25%	3.00%	282,817	327,848

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