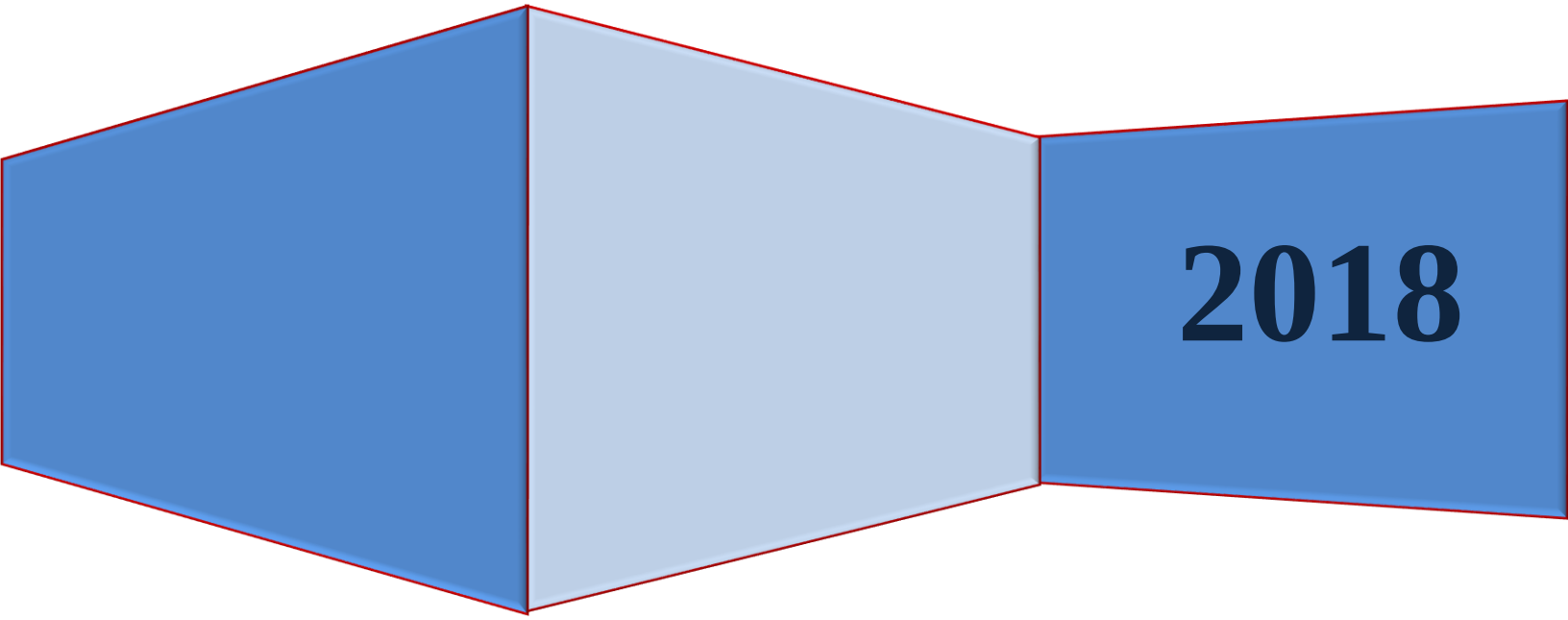
CLRC Construction Labor Research Council

Estimating the Need for New Electricians 2018-2027

A Report to the National Labor-Management Cooperation Committee

The Construction Labor Research Council



Introduction

One of the most important aspects of strategic planning is a clear understanding of workforce composition and needs: past, present and future. Quantifying these workforce characteristics for union electricians is a valuable tool for management and labor in order to optimize future business opportunities in the electrical industry.

This study provides an overview of past IBEW employment patterns, current employment and estimated projections to the year 2027 regarding the need for new electricians. For many years, the NECA-IBEW National Labor Management Cooperative Committee (NLMCC) has commissioned the Construction Labor Research Council (CLRC) to conduct this annual study. This report represents the 2018 version of the report.

There are two major sections to the report:

I. Background (p. 3)
This section provides an historical overview of employment by IBEW district and total for the years 2008-2017. This includes change in employment (percent and number of workers), trends, age distributions and demographic information about the departure age of IBEW workers. These data also support statistical analyses used to make projections about future worker needs.

II. Projected Need for New Electricians (p. 13)
This section offers estimated projections for IBEW employment for the years 2018-2027, by district and total. Projections are broken out into *replacement* and *growth* categories in order to provide additional insight into IBEW employment patterns. Alternative growth models also are shown.

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. The NEBF maintains records which track over 250,000 IBEW electricians by age, year, state and other variables such as when they enter and/or leave the NEBF database. The study includes only individuals for whom contributions were made to the NEBF and whose birth year and state of residence were known. 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.

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

Data from BLS provide total electrician employment figures and the basis for growth projections for electricians. BLS is a respected federal agency and provides useful information such as the CPI and unemployment figures, as well as large data sets and complex reports for experienced researchers.

Interpretation of the Results

Readers are cautioned to interpret and use this report in a prudent manner. While the analyses of the past in the report are historical and accurate, the estimated projections 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.

Construction Labor Research Council
1250 Connecticut Avenue, NW
Suite 700
Washington, DC 20036
202.347.8440
clrc@clrcconsulting.org
www.clrcconsulting.org

I. Background

This section provides a summary of employment patterns in the IBEW as a whole and for each IBEW district. These data also are referenced in the statistical computations performed in *Section II. Projected Need for New Electricians* in order to make projections about future worker needs for each district and total IBEW. The analyses in this section include workers ages 18-70.

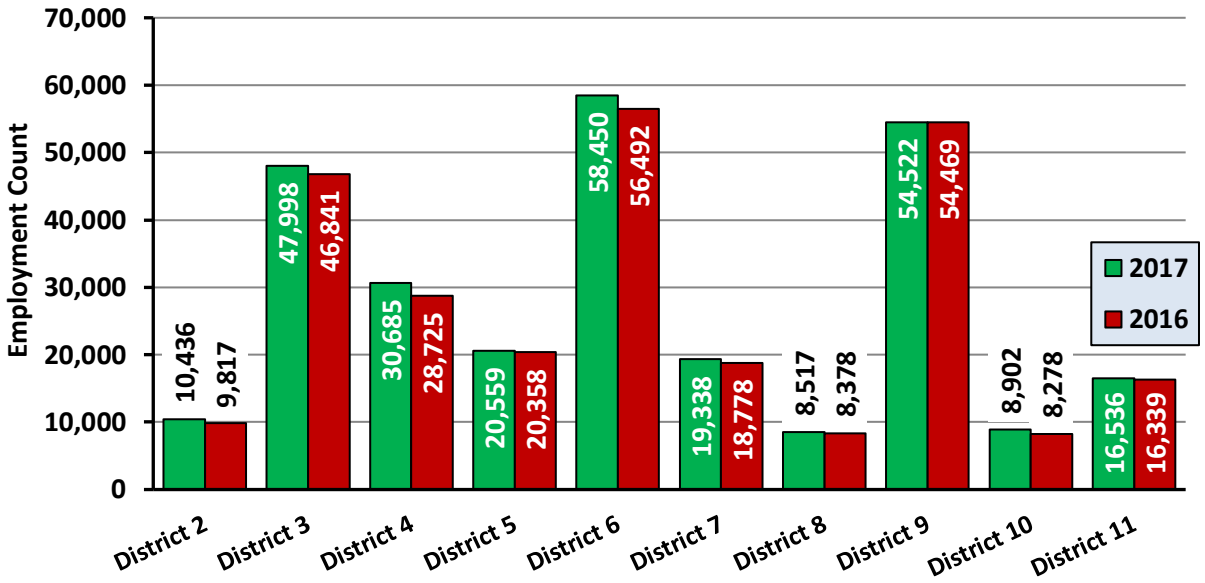
Exhibit 1 – Electrician Employment Change
IBEW and all electricians (union and nonunion) actual and projected average annual growth/decline

	Actual 2009-2017	Actual 2014-2017	Projected 2016-2026
IBEW	-0.5%	1.2%	1.1%
All Electricians	0.8%	4.5%	1.1%

As shown in **Exhibit 1**, actual average annual IBEW employment change for the eight year time period 2009 through 2017 was -0.5 percent, based on NEBF records. During this same time, the count for all electricians (union and nonunion) increased at a 0.8 percent average annual rate.

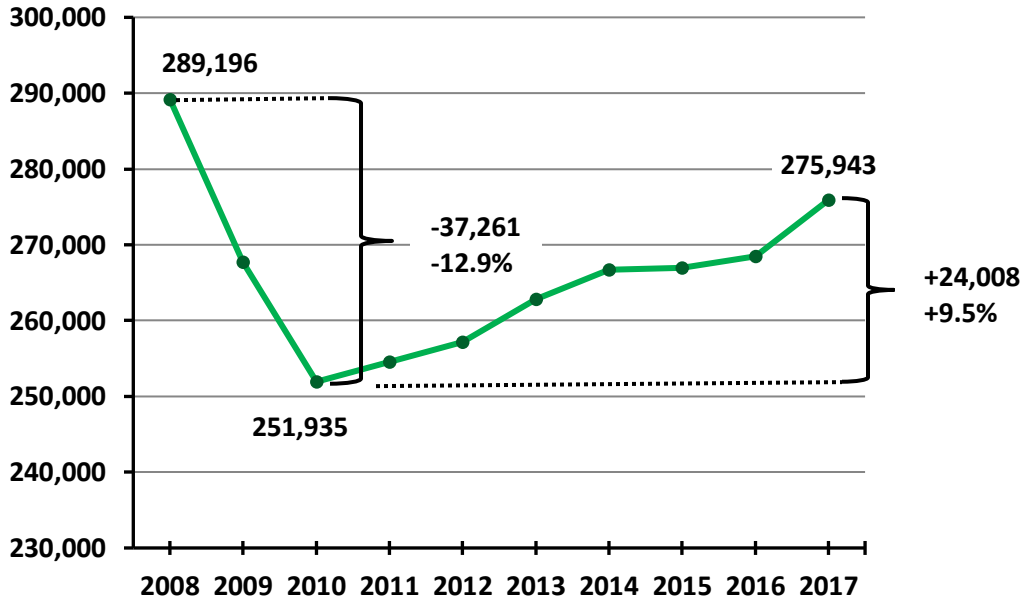
However, for the most recent years—2014-2017—IBEW membership actually grew by an annual average of 1.2 percent (2.8 percent in 2017), while the annual average rate for all electricians grew at a rate of 4.5 percent. Moreover, the forecast from BLS is modestly optimistic, with a projected 1.1 percent average annual growth rate until 2026, for a total increase of 11.0 percent for 2016-2026. CLRC uses the BLS projection, which is for all electricians (union & nonunion), for union electricians

Exhibit 2 – IBEW Employment
Employment by district for 2016 and 2017



In 2017 employment with the IBEW ranged from a low of 8,517 in District 8 to a high of 58,450 in District 6.

Exhibit 3 – IBEW Overall Employment Trend
Employment trend for all districts combined: 2008-2017

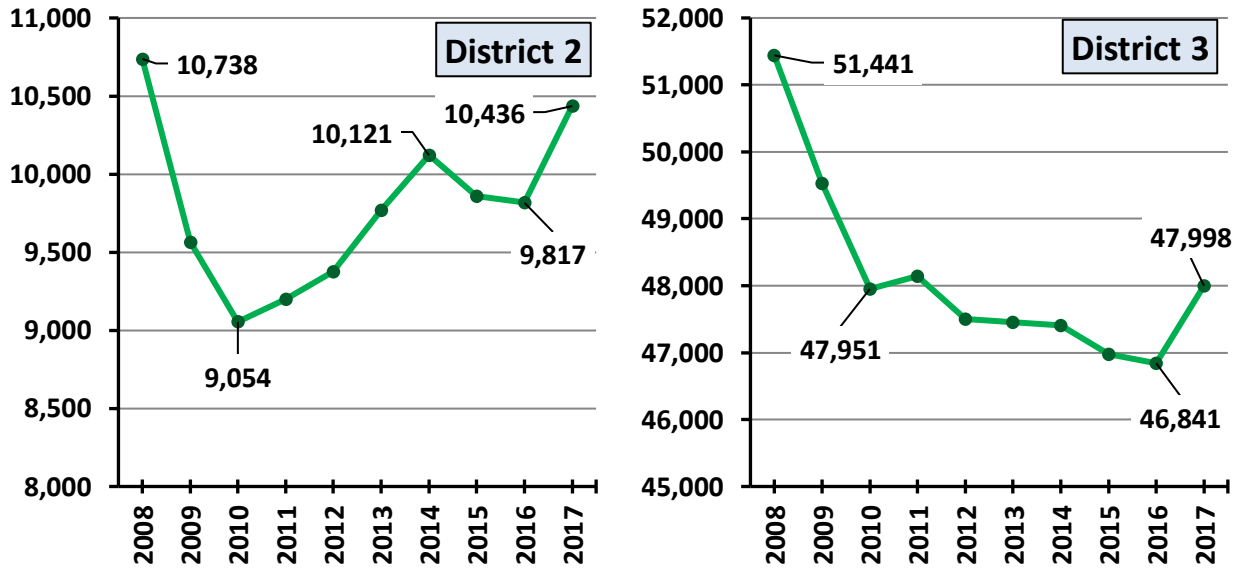


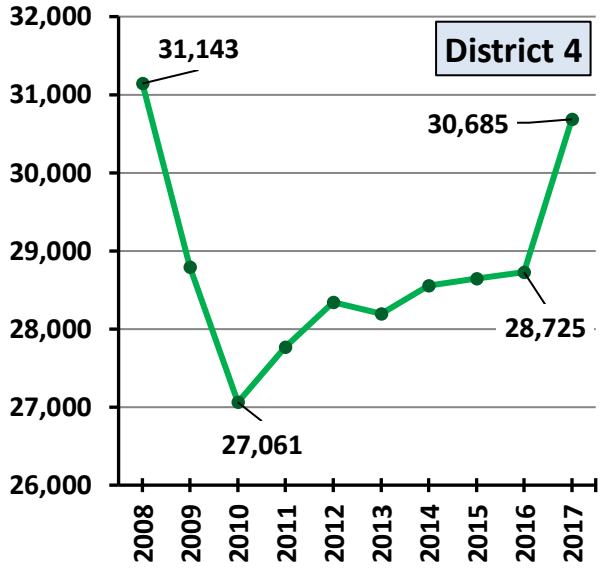
As shown in **Exhibit 3**, total net IBEW employment, as tabulated from the NEBF records, has declined by 13,253 (-4.6 percent) from 2008 to 2017. However, careful readers will note that employment actually increased in all but two years, 2009 and 2010, where the decline was pronounced during the Great Recession.

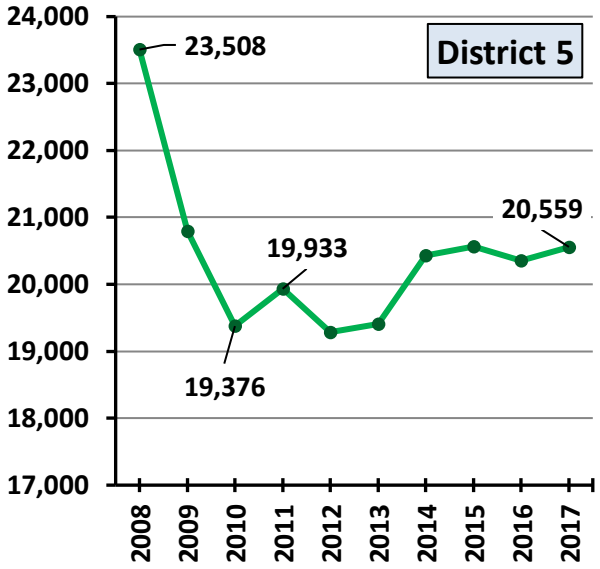
There are some trends of interest within **Exhibit 3**. First, from 2008-2010 the workforce of union electricians fell significantly, by 12.9 percent (37,261). Following this, from 2010-2014, employment slowly rose, leveled off from 2014-2016, then had a noticeable increase in 2017. During this time, employment rose by 9.5 percent or 24,008 workers.

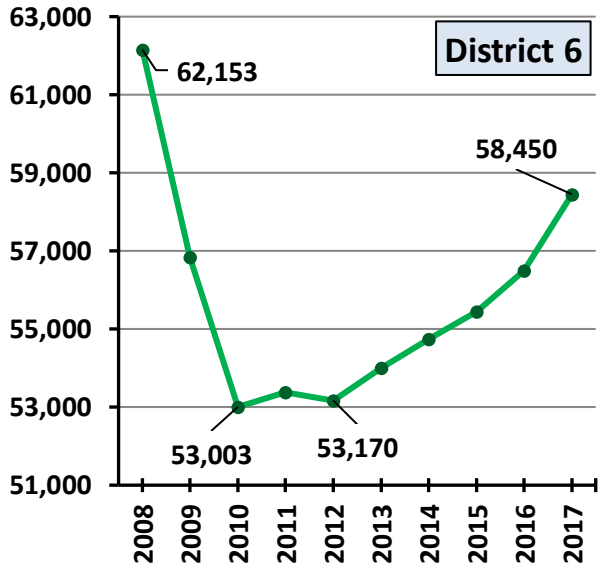
In **Exhibit 4** the membership trend for each district is illustrated in the following charts. Net membership declined in 9 of 10 districts, yet all districts saw an uptick in membership in 2017. The beginning, ending, and key points between are noted in each chart.

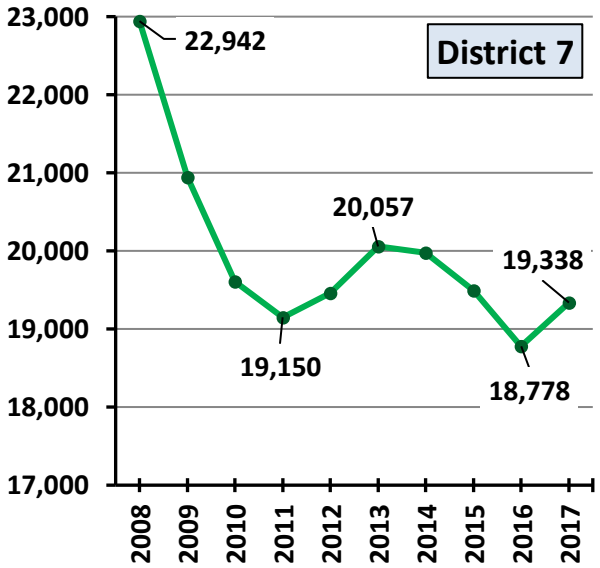
Exhibit 4 – IBEW Employment Trends by District
Employment trend for each district: 2008-2017

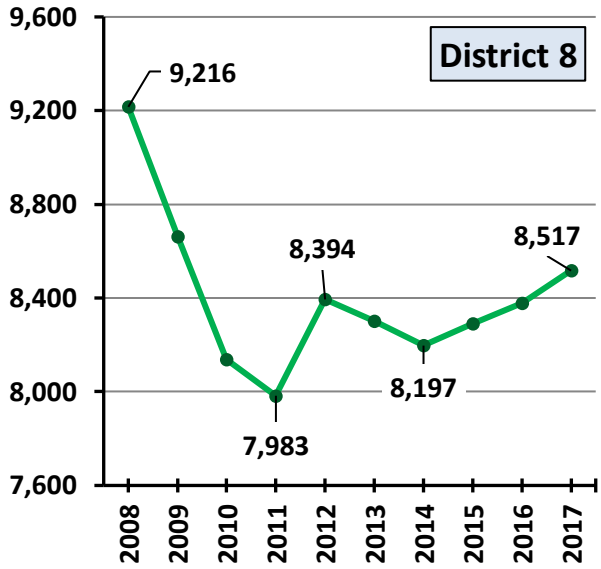


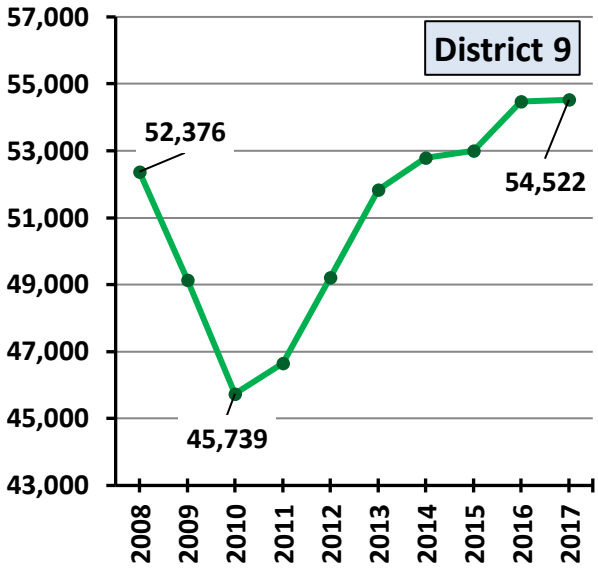

District 4
32,000
31,000
30,000
29,000
28,000
27,000
26,000
31,143
30,685
28,725
27,061
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017

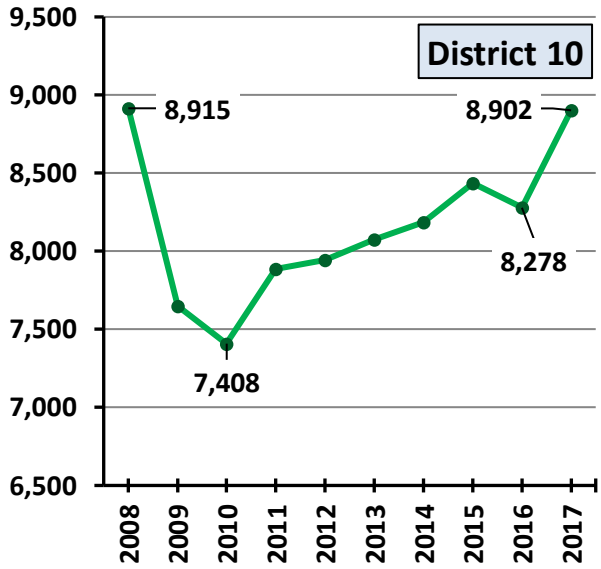

District 5
24,000
23,000
22,000
21,000
20,000
19,000
18,000
17,000
23,508
20,559
19,933
19,376
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017


District 6
63,000
61,000
59,000
57,000
55,000
53,000
51,000
62,153
58,450
53,003
53,170
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017


District 7
23,000
22,000
21,000
20,000
19,000
18,000
17,000
22,942
20,057
19,338
19,150
18,778
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017


District 8
9,600
9,200
8,800
8,400
8,000
7,600
9,216
8,394
8,517
8,197
7,983
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017


District 9
57,000
55,000
53,000
51,000
49,000
47,000
45,000
43,000
52,376
54,522
45,739
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017


District 10
9,500
9,000
8,500
8,000
7,500
7,000
6,500
8,915
8,902
8,278
7,408
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017

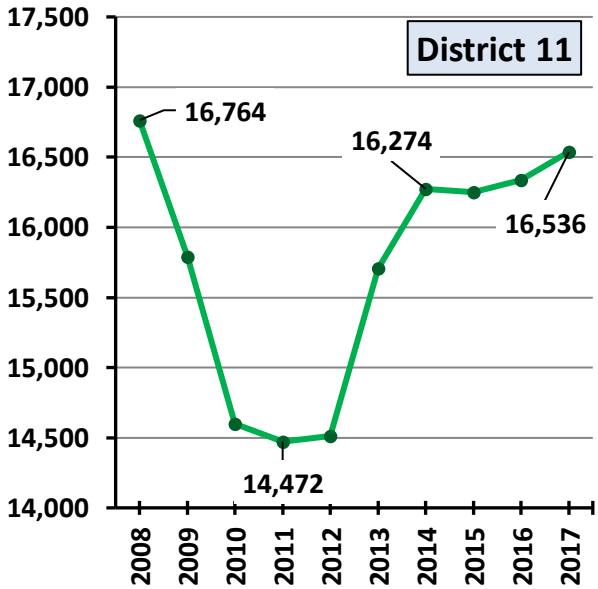

District 11
17,500
17,000
16,500
16,000
15,500
15,000
14,500
14,000
16,764
16,274
16,536
14,472
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017

Exhibit 5 – Percent Change in IBEW Employment
Net percent change in IBEW employment by district: 2008-2017

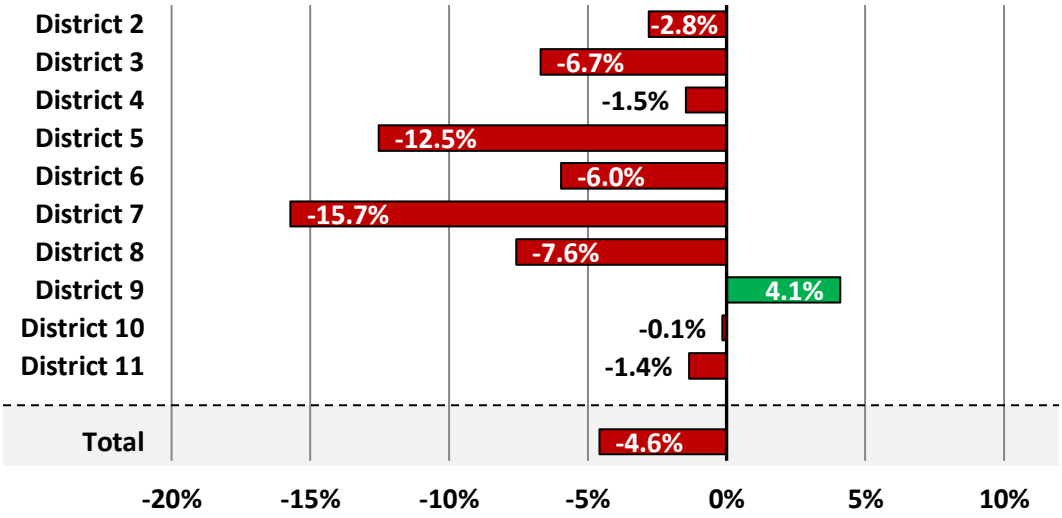
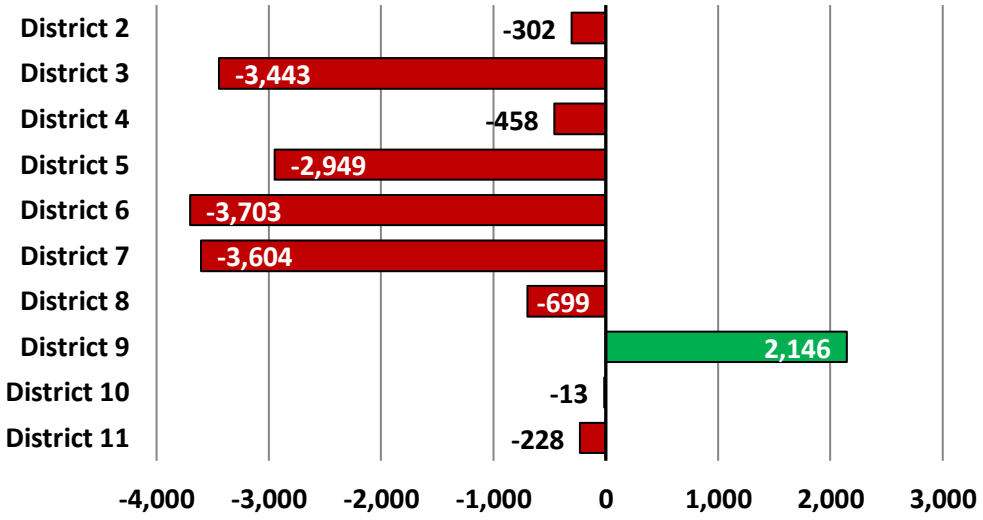


Exhibit 6 – Numerical Change in IBEW Employment
Net employment change in the IBEW by district: 2008-2017



As **Exhibits 5 and 6** illustrate, nearly every district had a net loss of workers from 2008-2017, ranging from -0.1 percent (loss of 13 employees) for District 10 to -15.7 percent (loss of 3,604 employees) for District 7. District 9 achieved a gain of 4.1 percent (2,146 employees) in employment during this time. All of the districts saw an increase in membership from 2010 to 2017, however, as shown previously in **Exhibit 4**.

Exhibit 7 – IBEW Worker Age
Age distribution of IBEW workers: 2008 and 2017

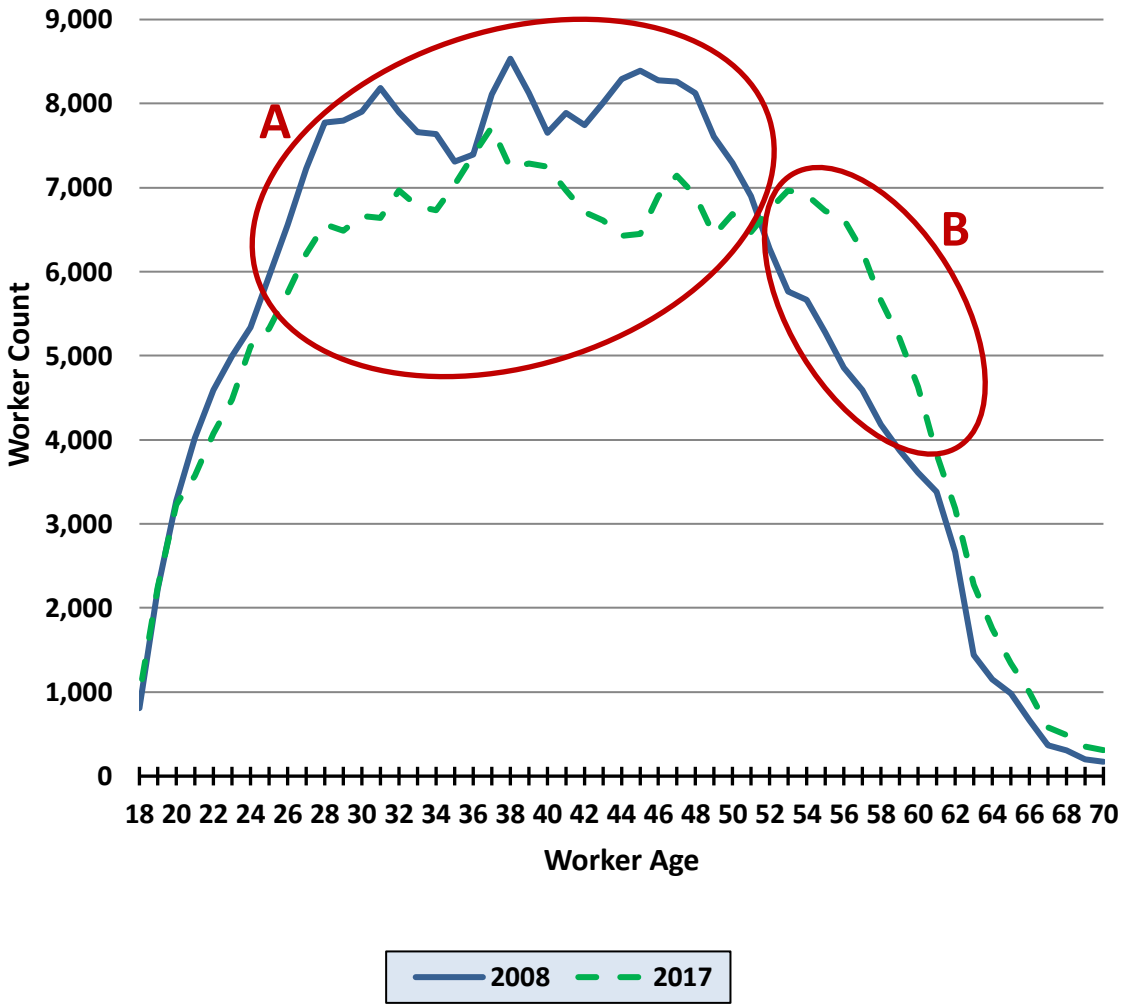


Exhibit 7 shows the distribution of IBEW workers by age in 2008 and 2017 (ages 18-70). This chart shows that there were fewer younger (oval A) and more older (oval B) workers in 2017 than in 2008. The average age in 2008 was 40.4 and by 2017 the average age had increased to 41.7.

Exhibit 8 – Change in IBEW Employment
Change in IBEW employment by age: 2008 vs. 2017

Exhibit 8 shows the change in the number of IBEW workers from 2008 to 2017 by age. In other words, for each age from 18-70, how many workers did the IBEW add/lose during the eight year span from 2008 to 2017? Analyses of the IBEW age distribution shows that the majority of worker losses occurred between ages 19 and 50, as shown by the red shaded areas below the center line in **Exhibit 8**. Increases in IBEW worker count generally occurred for ages 50 and older (green).

Exhibit 9 – IBEW Worker Age Distribution Compared to US Averages – Chart
Age distribution of IBEW workers, Electricians, Construction, and US Total Employed: 2017

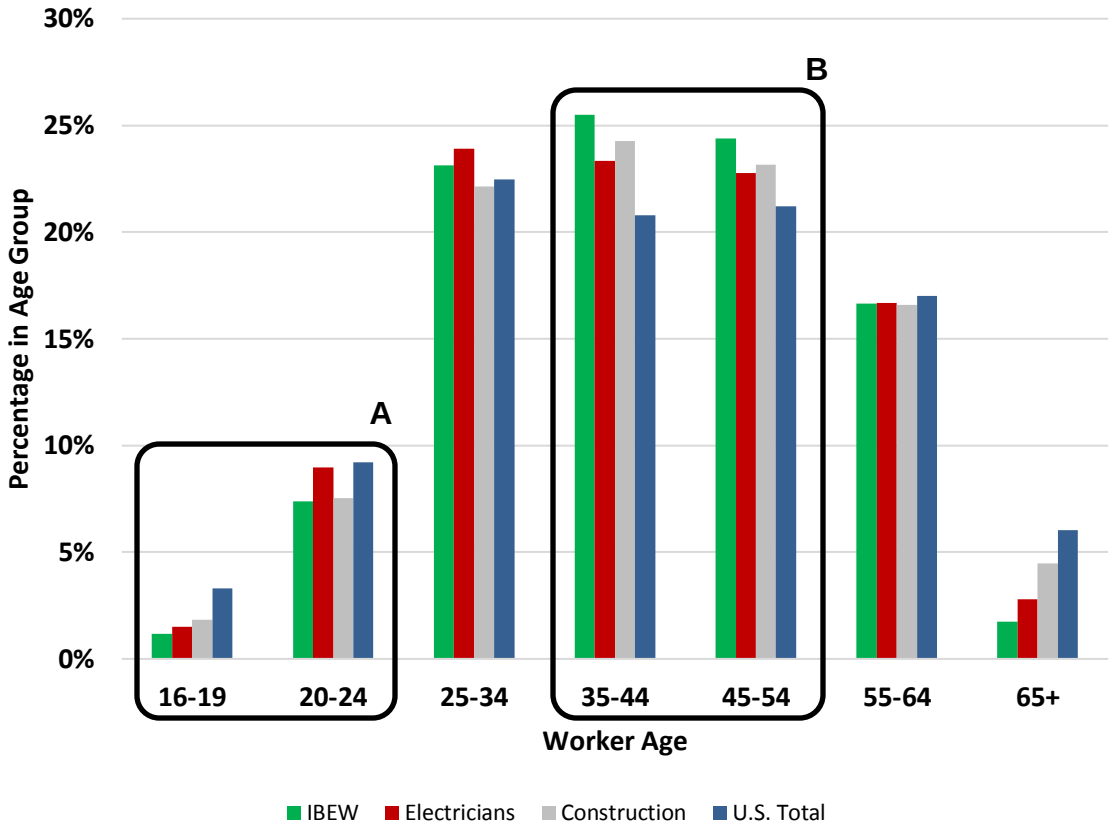


Exhibit 9 shows the distribution of IBEW workers, all electricians, the construction industry, and total employed in the U.S. by age in 2017. In other words, this chart describes the percentage in each age range of all employed workers in a given worker category (e.g., IBEW had 1 percent of their workers between the ages of 16 and 19). This graph shows that all four categories have fairly similar distributions, with the primary discrepancies occuring in the age ranges 35-44, 45-54, and 65+.

For example, the largest difference occurred in the age cluster of 35-44, where the four categories of workers varied from 21 to 26 percent of their respective members (see **Exhibit 10** for specific values). On the other hand, the most similar age group was between the ages of 55 and 64, where all four classifications were within half a percent of one another (i.e., all categories rounded to 17 percent).

The same information is displayed in the form of a table on the next page (**Exhibit 10**). **Exhibit 10** references **Rectangles A and B**.

Exhibit 10 – IBEW Worker Age Distribution Compared to US Averages – Table
Percent of IBEW workers, Electricians, Construction, and US Total Employed by age: 2017

Age Range	IBEW		Electricians	Construction	U.S. Total		
16-19	1%	8%	1%	2%	3%	12%	A
20-24	7%		9%	8%	9%		
25-34	23%		24%	22%	23%		
35-44	26%	50%	23%	24%	21%	42%	B
45-54	24%		23%	23%	21%		
55-64	17%		17%	17%	17%		
65+	2%		3%	4%	6%		

Exhibit 10 shows the same data as **Exhibit 9**, broken into percents and displayed in a table. The most notable difference was between the ages of 35 and 54 (**Rectangle B**). The IBEW had 50 percent of their workforce fall in this age range, while U.S. Total Employed was nearly 10 percent lower in the same age range (42 percent).

On the other hand, U.S. Total Employed (12 percent) was 4 percent higher than IBEW (8 percent) from ages 16-24 (**Rectangle A**), and 4 percent higher in ages 65 and above (6 vs. 2 percent).

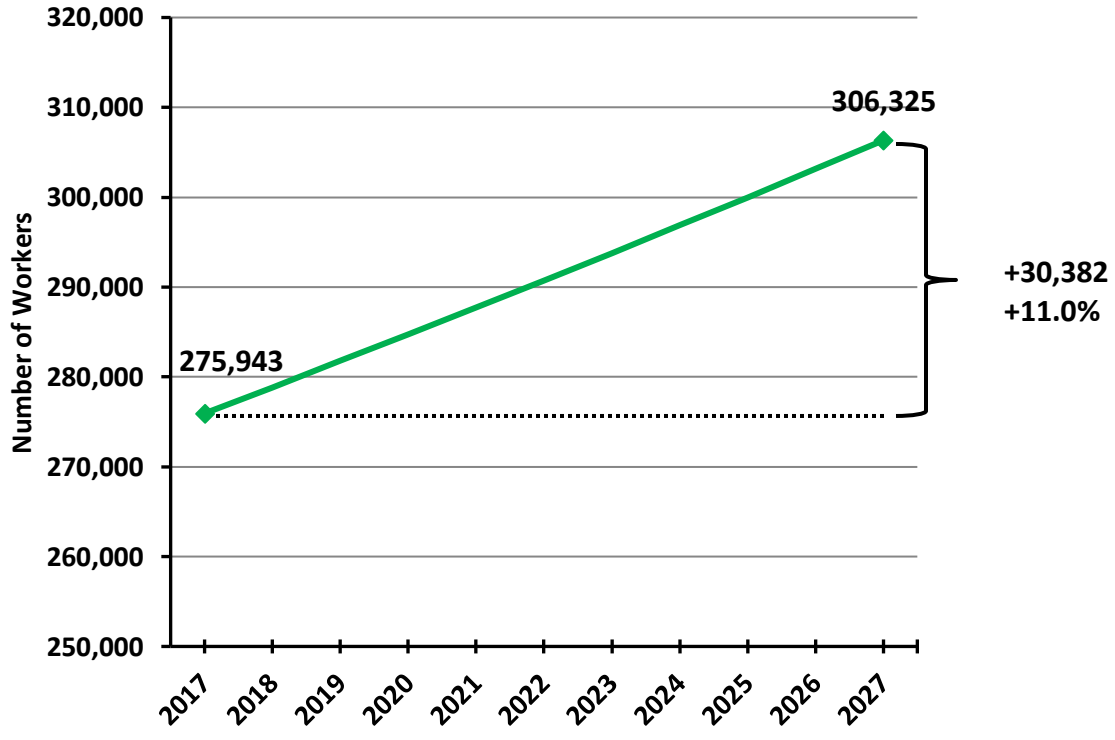
It is also interesting that from ages 25-34 and 55-64, all four groups were within two percent of each other (22 to 24 percent from ages 25-34 and 17 percent for all groups from ages 55-64).

II. Projected Need for New Electricians

The projected need for new electricians offers estimated projections for IBEW employment to the year 2027, by district and total (based on BLS projections for all electricians). Projections are divided into *replacement* and *growth* categories in order to provide additional insight into IBEW employment patterns. Replacement needs arise when employees retire, leave the occupation, die, or otherwise depart. Growth represents increases in the marketplace due to new electrical construction work.

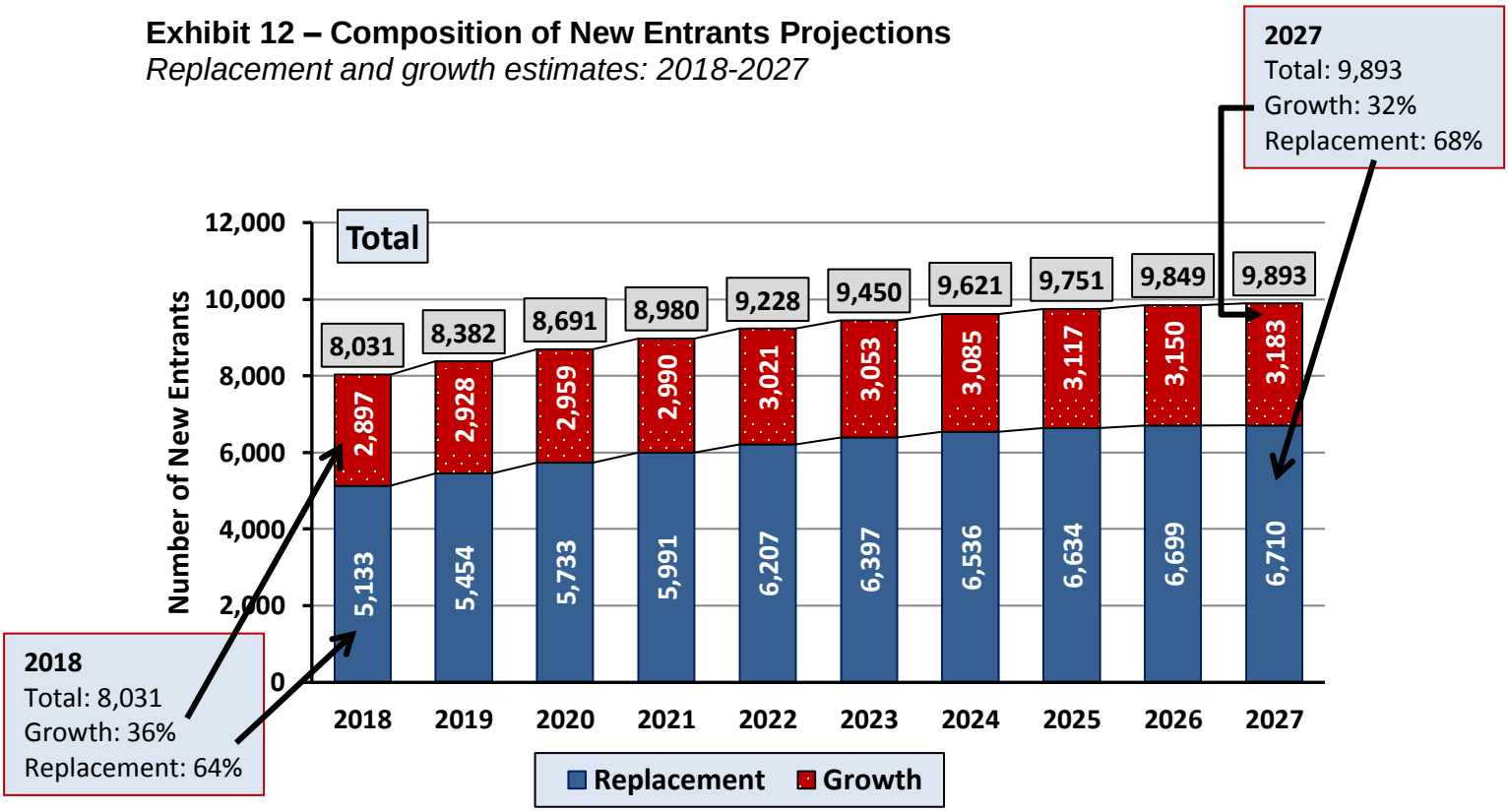
Although union contractors have experienced a net decline in employment since 2008, the future looks brighter with expected annual growth at 1.1 percent. The opportunity will be there for the union sector to grow as fast as, or faster than, the nonunion sector.

Exhibit 11 – Employment Projections
Estimated employment count for IBEW: 2017-2027



The total United States electrician workforce is expected to increase by 11.0 percent from 2017-2027, according to BLS. As shown in **Exhibit 11,** there will be a need for 30,382 more union electricians in 2027 than were in place in 2017. The average annual increase needed is approximately 1.1 percent for the IBEW. BLS provides this projection every two years. Therefore, the projected percent growth used here is the same as last year. Next year BLS will release new projections.

Exhibit 12 – Composition of New Entrants Projections
Replacement and growth estimates: 2018-2027



New entrants are needed for two reasons:

1) *Replacement* – New entrants replace those who leave the electrical occupation.
2) *Growth* – New entrants meet growth needs in the industry.

As shown in **Exhibit 12** above, in 2018, 8,031 (2,897 for growth + 5,133 for replacement) new entrants will be needed to meet the replacement and growth needs of the union electrical industry; and by 2027, 9,893 (3,183 for growth + 6,710 for replacement) new entrants will be needed.

The higher proportions for replacement (compared to growth) are a function of growing departures from the union electrician occupation coupled with the 1.1 percent annual growth projections.

Exhibit 13 – Employment Projections by IBEW District
Estimated total employment for IBEW districts: 2018-2027

District	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
District 2	10,546	10,656	10,768	10,881	10,996	11,111	11,228	11,346	11,465	11,585
District 3	48,502	49,011	49,526	50,046	50,571	51,102	51,639	52,181	52,729	53,283
District 4	31,007	31,333	31,662	31,994	32,330	32,670	33,013	33,359	33,710	34,064
District 5	20,775	20,993	21,213	21,436	21,661	21,889	22,119	22,351	22,585	22,823
District 6	59,064	59,684	60,311	60,944	61,584	62,230	62,884	63,544	64,211	64,886
District 7	19,541	19,746	19,954	20,163	20,375	20,589	20,805	21,023	21,244	21,467
District 8	8,606	8,697	8,788	8,880	8,974	9,068	9,163	9,259	9,357	9,455
District 9	55,094	55,673	56,258	56,848	57,445	58,048	58,658	59,274	59,896	60,525
District 10	8,995	9,090	9,185	9,282	9,379	9,478	9,577	9,678	9,779	9,882
District 11	16,710	16,885	17,062	17,242	17,423	17,606	17,790	17,977	18,166	18,357
Totals	**278,840**	**281,768**	**284,727**	**287,716**	**290,737**	**293,790**	**296,875**	**299,992**	**303,142**	**306,325**

Exhibit 13 shows a 1.1 percent annual growth pattern for each IBEW district and total. This is based on the *assumption that union growth parallels total industry forecasted growth.* This translates to a net increase of over 27,000 more workers for the IBEW from 2018-2027. However, in reality there will be a need to hire and train *many more than 27,000 new workers* because there will also be replacement needs. In other words, both growth and replacement figures need to be considered when planning for future workforce needs.

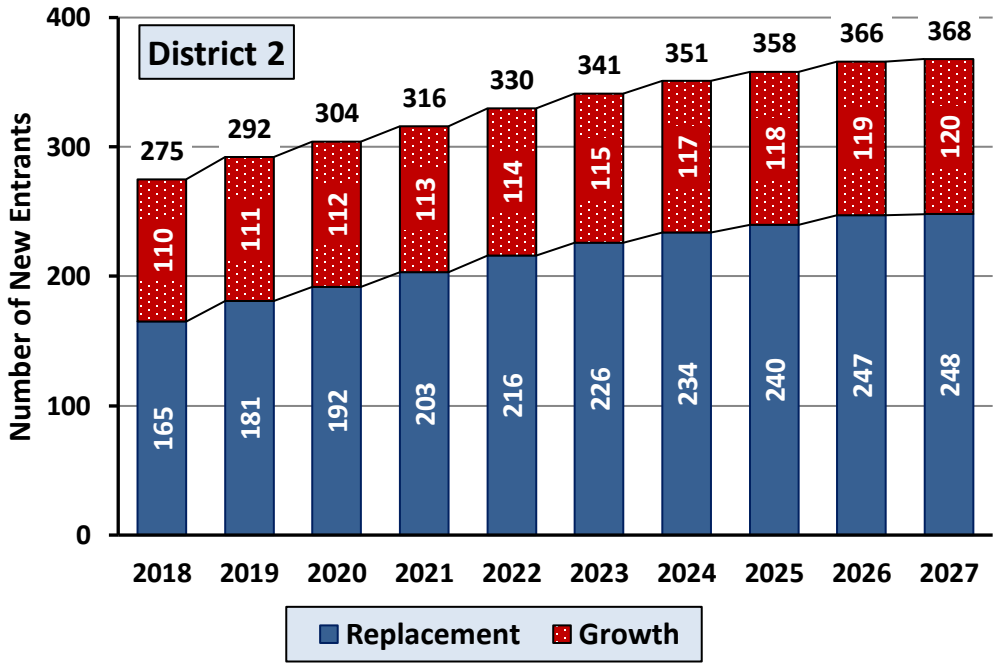
Exhibit 14 – New Entrants Projections by IBEW District
Estimated number of new entrants for IBEW districts: 2018-2027

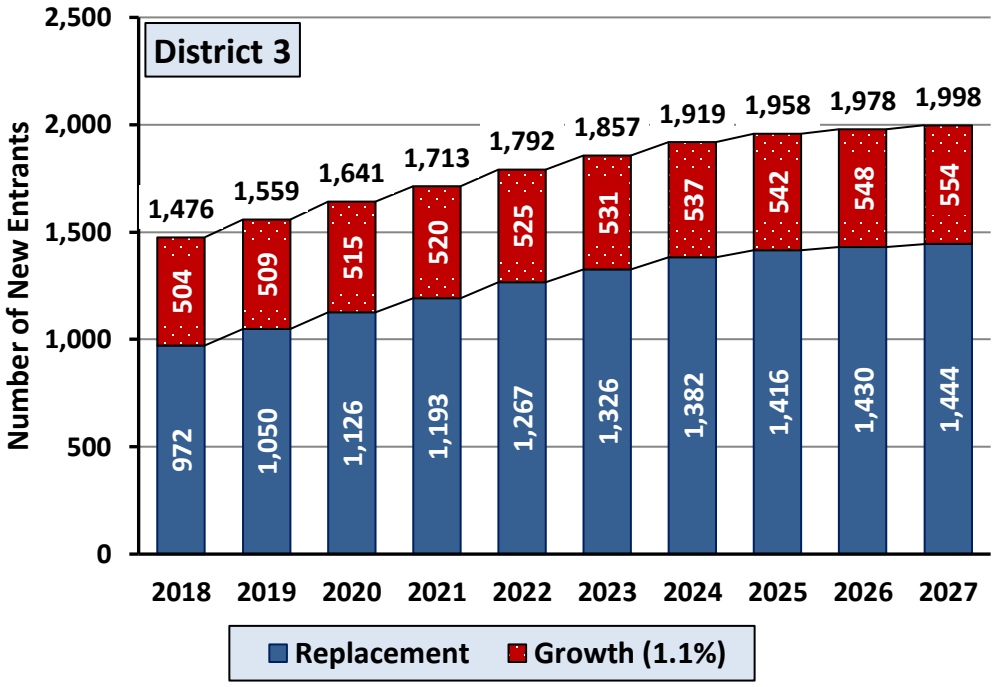
District	2018	2019	2018	2021	2022	2023	2024	2025	2026	2027	Total
District 2	275	292	304	316	330	341	351	358	366	368	3,301
District 3	1,476	1,559	1,641	1,713	1,792	1,857	1,919	1,958	1,978	1,998	17,891
District 4	826	860	890	924	946	961	985	999	1,004	1,006	9,401
District 5	683	692	703	703	711	715	709	703	709	710	7,038
District 6	1,528	1,620	1,713	1,794	1,863	1,924	1,966	2,002	2,027	2,034	18,471
District 7	754	771	786	799	807	810	806	809	809	802	7,953
District 8	305	312	316	320	315	319	316	316	313	307	3,139
District 9	1,467	1,525	1,575	1,625	1,667	1,706	1,740	1,766	1,792	1,806	16,669
District 10	253	265	266	271	272	275	279	282	283	291	2,737
District 11	464	483	498	514	525	540	551	558	567	572	5,272
Totals	**8,030**	**8,382**	**8,692**	**8,981**	**9,228**	**9,450**	**9,621**	**9,751**	**9,849**	**9,893**	**91,877**

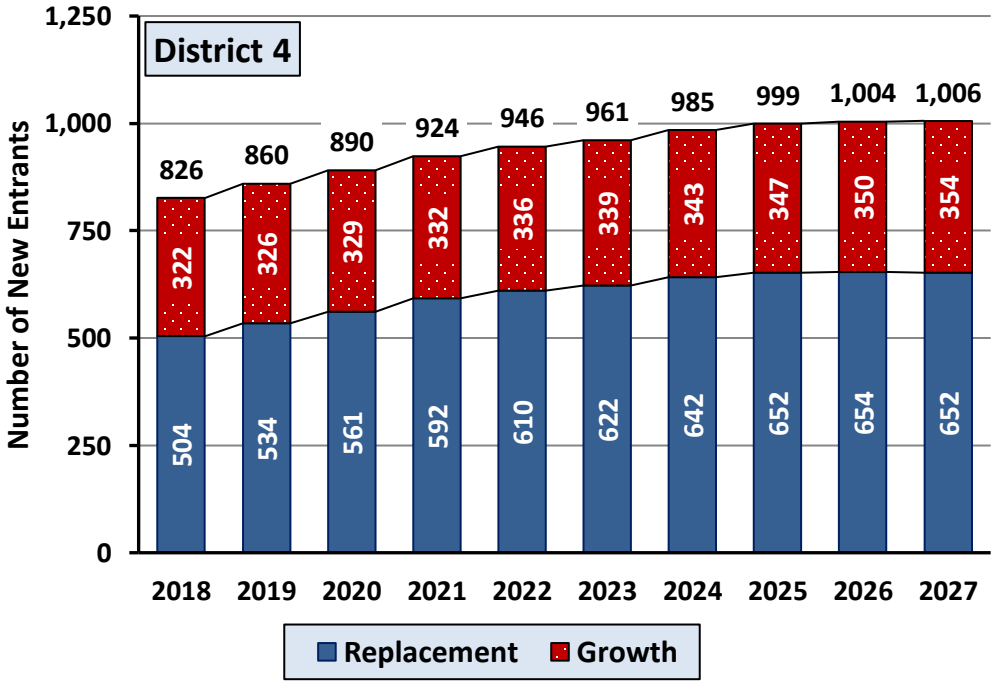
Each year IBEW districts need to add new people to meet both replacement *and* growth needs. As **Exhibit 14** shows, thousands of new union electricians will need to be added in order to meet projected growth of the industry. These new entrants will replace those who leave the IBEW while also meeting growth needs. The total number of new entrants needed from 2018 to 2027 is 91,877.

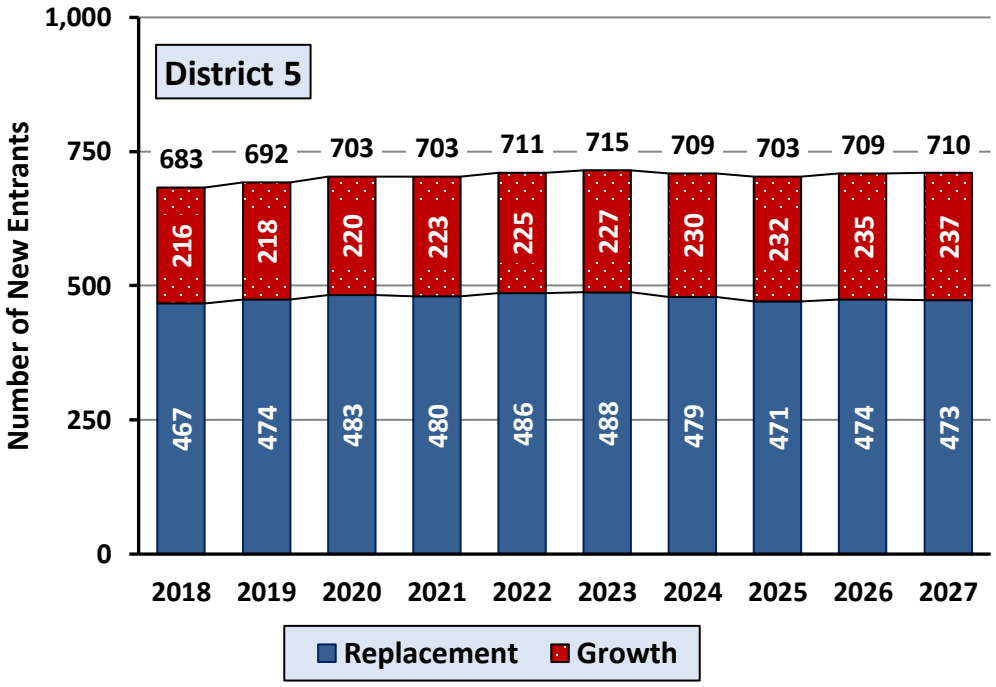
Exhibit 15 shows the number of new entrants needed—growth, replacement and total—from 2018-2027 for each IBEW district. For example, in District 2 in 2027 there will be a need for 368 new entrants (see also **Exhibit 14**). Of these new entrants, 120 (33 percent) will be due to growth in the electrical industry and 248 (67 percent) will be needed to replace workers who leave the occupation.

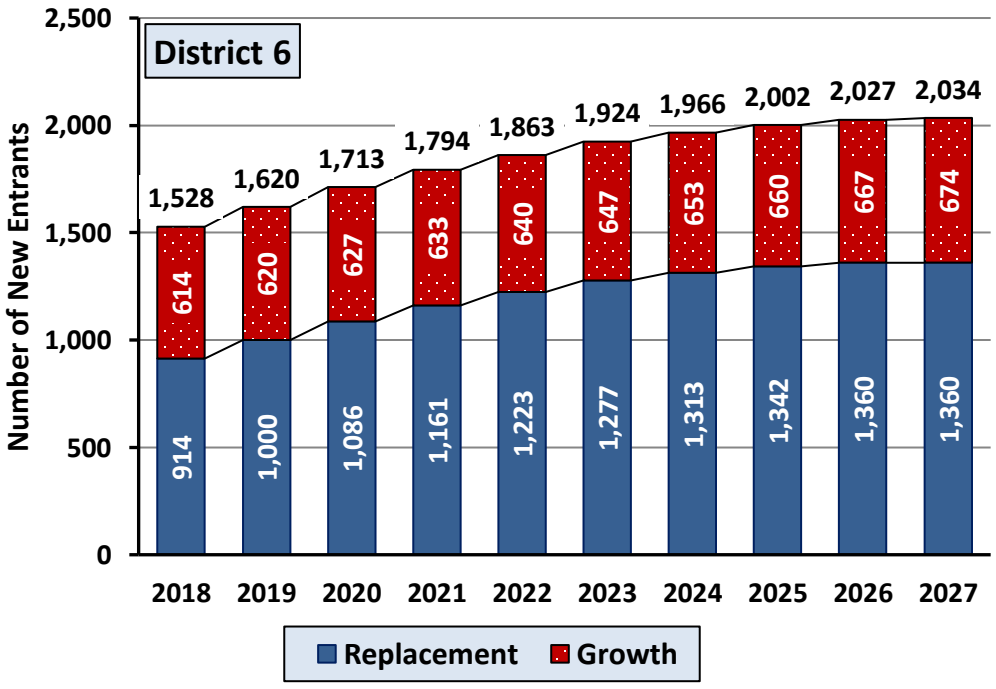
Exhibit 15 – Composition of New Entrants Projections by District
Replacement and growth estimates for IBEW districts: 2018-2027

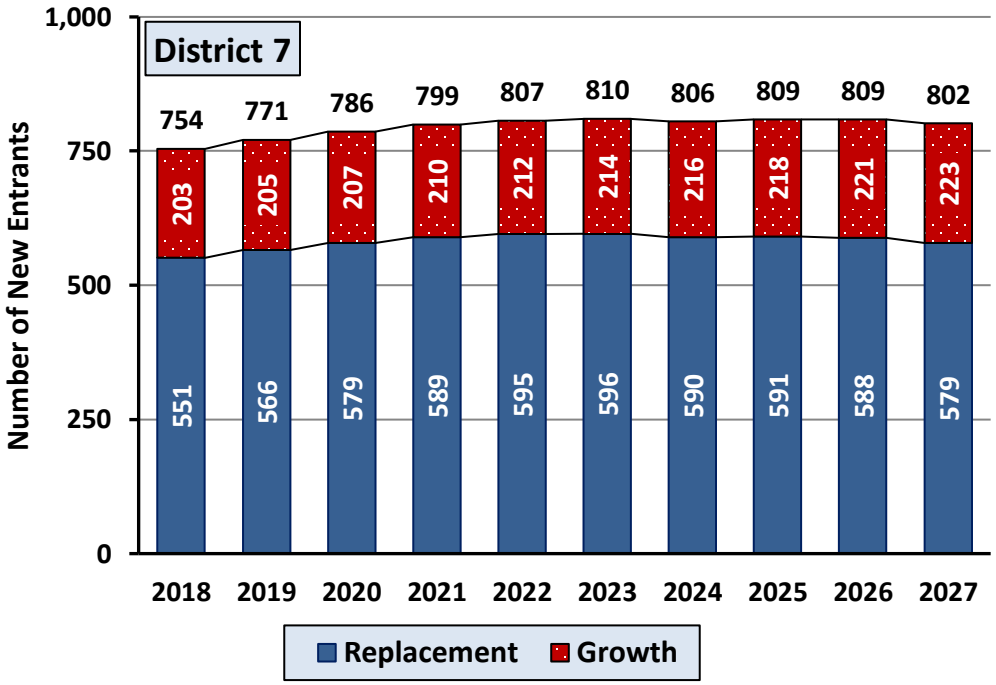


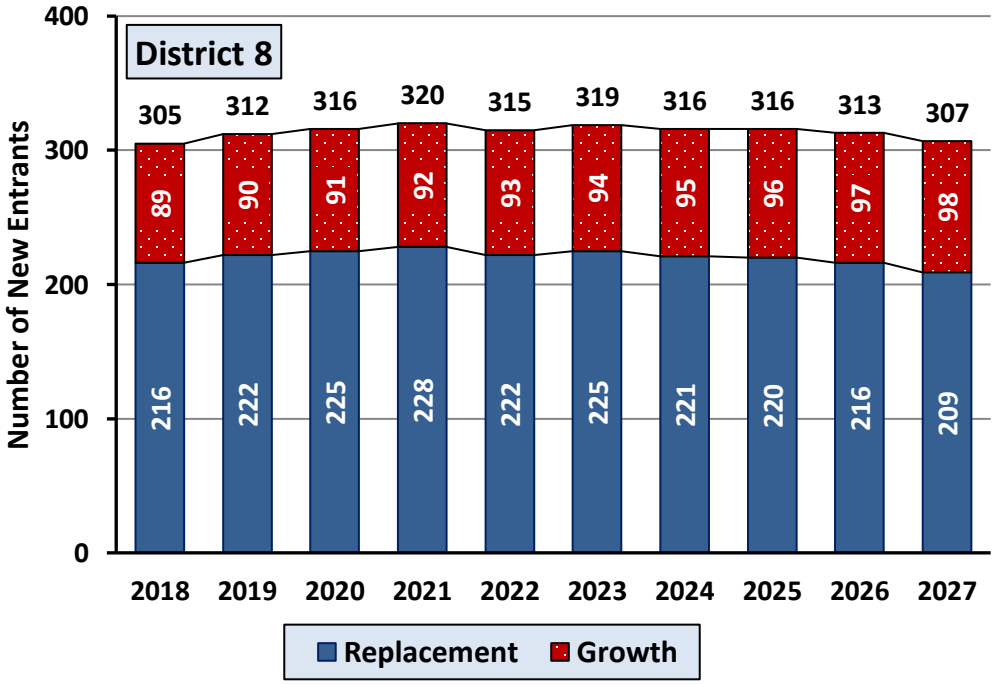

District 3
Number of New Entrants
2,500
2,000
1,500
1,000
500
0
1,476
1,559
1,641
1,713
1,792
1,857
1,919
1,958
1,978
1,998
504
509
515
520
525
531
537
542
548
554
972
1,050
1,126
1,193
1,267
1,326
1,382
1,416
1,430
1,444
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
Replacement
Growth (1.1%)

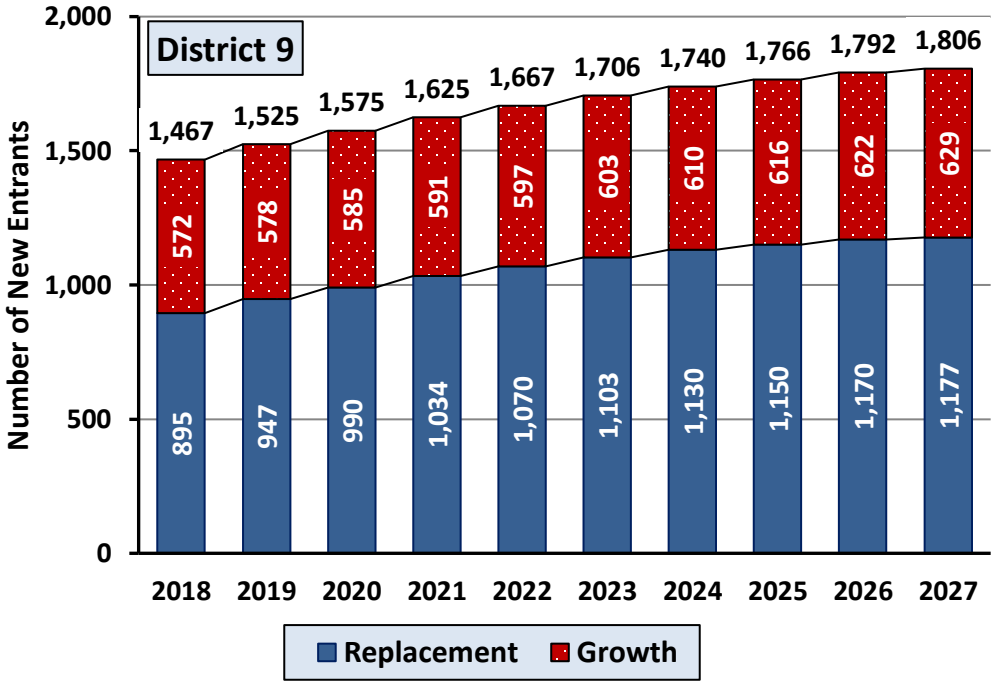

District 4
Number of New Entrants
1,250
1,000
750
500
250
0
826
860
890
924
946
961
985
999
1,004
1,006
322
326
329
332
336
339
343
347
350
354
504
534
561
592
610
622
642
652
654
652
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
Replacement
Growth

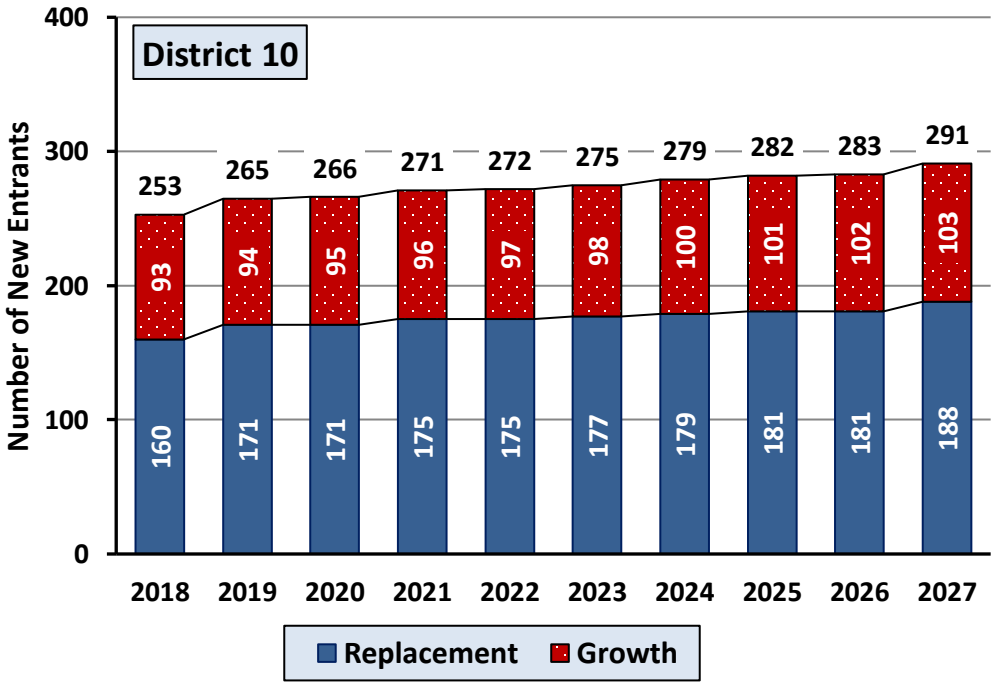

District 5
Number of New Entrants
1,000
750
500
250
0
683 692 703 703 711 715 709 703 709 710
216 218 220 223 225 227 230 232 235 237
467 474 483 480 486 488 479 471 474 473
2018 2019 2020 2021 2022 2023 2024 2025 2026 2027
Replacement
Growth


District 6
Number of New Entrants
2,500
2,000
1,500
1,000
500
0
1,528 1,620 1,713 1,794 1,863 1,924 1,966 2,002 2,027 2,034
614 620 627 633 640 647 653 660 667 674
914 1,000 1,086 1,161 1,223 1,277 1,313 1,342 1,360 1,360
2018 2019 2020 2021 2022 2023 2024 2025 2026 2027
Replacement
Growth


District 7
Number of New Entrants
1,000
750
500
250
0
754 771 786 799 807 810 806 809 809 802
203 205 207 210 212 214 216 218 221 223
551 566 579 589 595 596 590 591 588 579
2018 2019 2020 2021 2022 2023 2024 2025 2026 2027
Replacement
Growth


District 8
Number of New Entrants
400
300
200
100
0
305 312 316 320 315 319 316 316 313 307
89 90 91 92 93 94 95 96 97 98
216 222 225 228 222 225 221 220 216 209
2018 2019 2020 2021 2022 2023 2024 2025 2026 2027
Replacement
Growth


District 9
Number of New Entrants
2,000
1,500
1,000
500
0
1,467
1,525
1,575
1,625
1,667
1,706
1,740
1,766
1,792
1,806
572
578
585
591
597
603
610
616
622
629
895
947
990
1,034
1,070
1,103
1,130
1,150
1,170
1,177
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
Replacement
Growth


District 10
Number of New Entrants
400
300
200
100
0
253
265
266
271
272
275
279
282
283
291
93
94
95
96
97
98
100
101
102
103
160
171
171
175
175
177
179
181
181
188
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
Replacement
Growth

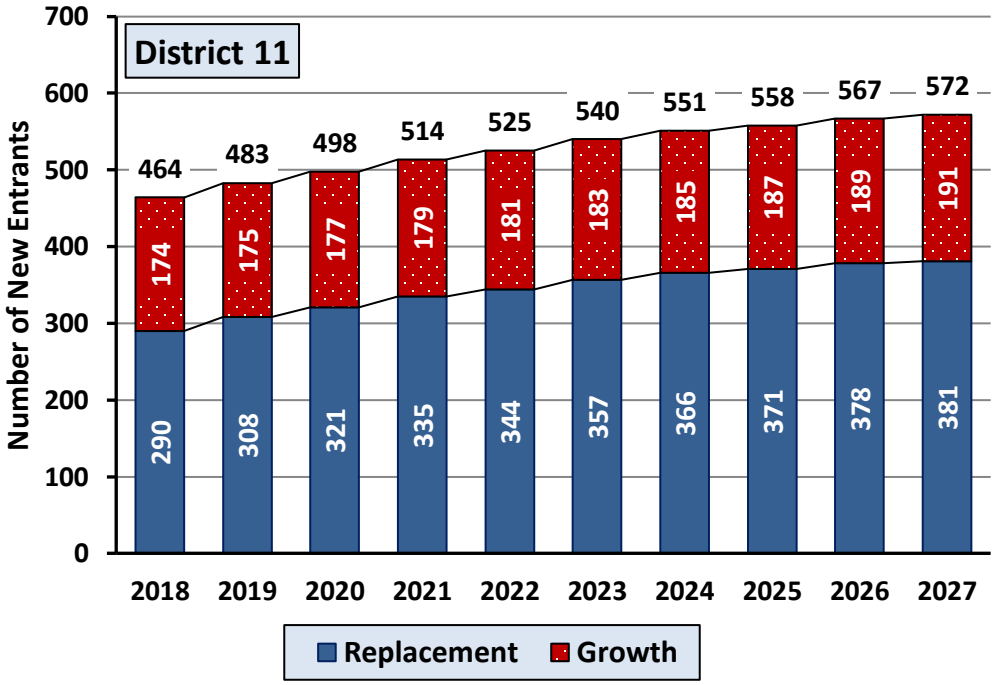
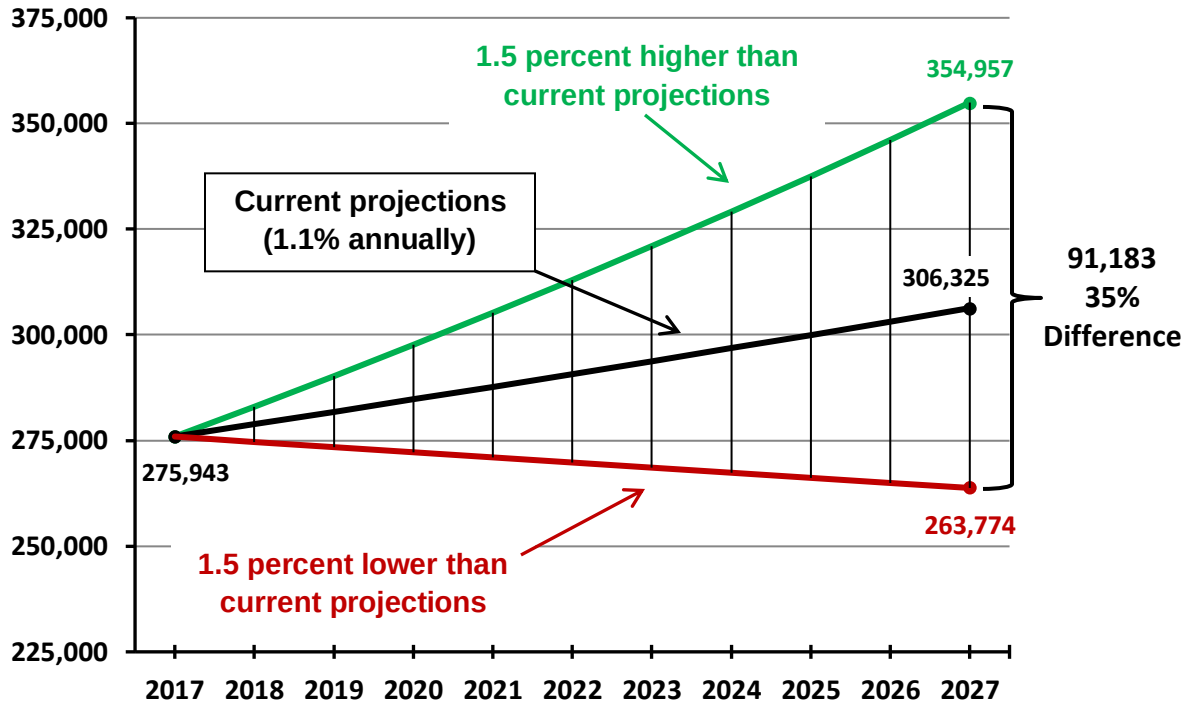

District 11
Number of New Entrants
700
600
500
400
300
200
100
0
464
483
498
514
525
540
551
558
567
572
174
175
177
179
181
183
185
187
189
191
290
308
321
335
344
357
366
371
378
381
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
Replacement
Growth

Exhibit 16 –Employment Projection Models
IBEW employment projections using different growth assumptions



The projection used in this study is a 1.1 percent annual growth figure (black line). This BLS value represents the best estimate for all electricians in the construction industry. However, the actual growth rate of IBEW electricians in the construction industry is likely to vary somewhat from this figure. As shown above in **Exhibit 16**, even small deviations of 1.5 percent higher/lower result in fairly dramatic differences, especially the farther out the estimate is projected. By 2027, there would be a 91,183 (35 percent) difference between the high and low variations of 1.5 percent from the current 1.1 percent model. Fortunately, projections will be updated each year, with the years that are closer to the projection date providing more accurate predictions than the years farther out.

Contact

Questions or comments about this report should be addressed to:

Construction Labor Research Council
1250 Connecticut Avenue, NW
Suite 700
Washington, DC 20036
202.347.8440
www.clrcconsulting.org
clrc@clrccsonsulting.org