

The Shortage of Broadcast Engineers – is there, or do we just need to know where to look?

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Introduction

The history of broadcasting is a proud and progressive one and in the 20th century, the technological advances in broadcasting paralleled those in other fields. The history of the broadcast engineer, (1940 photo) the men and women from the earliest days of radio through today's mobile television, who made the magic happen has been evolutionary.



As the broadcast industry continues to evolve (2011 photo), there are two questions that are asked at stations every day by station and engineering department management:

Where can I find a qualified broadcast engineer?

Do I hire someone with knowledge of information technology, or radio frequency engineering, or both?

This paper will attempt to answer the former question while providing information to help the station or engineering manager answer the latter.



Assessing the Broadcast Engineering Community Today

The field of broadcast engineering has always been evolving. Though not the only one, a defining event that can be pointed to that triggered many of the changes over the last 30 years is the deregulation of broadcasting by the FCC that began in the 1980's.

Prior to deregulation, stations were required to employ broadcast engineers who held a license from the FCC. The FCC 1st and 2nd Class Radiotelephone licenses were cherished authorizations that served as job tickets for thousands of radio and television engineers. In the pre-deregulation days, it was common for top 50 market television stations to employ as many as 60 engineers and technicians. They worked in master control, at the transmitter, in the studio, maintenance shop and management. Following deregulation, and because of evolving technology, some of the functions performed by these engineers and technicians were no longer needed, and an FCC license was no longer required. Stations began to reduce some of the engineering and technician positions.

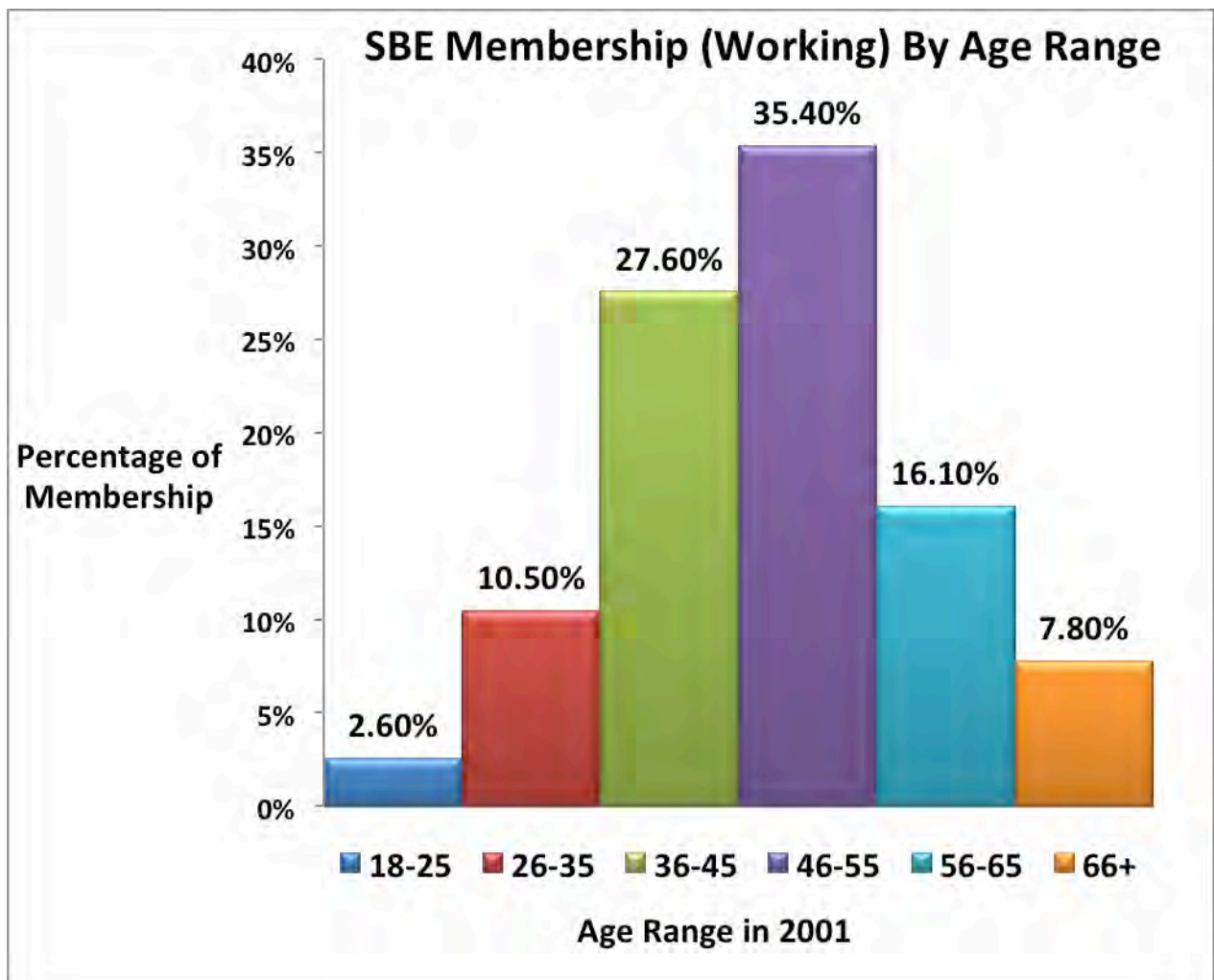
Over the last 40 years, the number of engineering and technician jobs at radio and television stations has declined. The federal government’s Bureau of Labor Statistics, which provides estimates of how many people are employed in a particular industry, reported in 1999 that 25,570 people were employed in the United States in technical jobs at radio and television stations. In 2008, they reported that technical jobs in the US were down to 22,200. The Bureau also reported that the number of broadcasting “establishments” dropped from 10,287 in 2001 to 9,737 at the end of the third quarter of 2011; more than a 5% decline.

These figures verify what most people in broadcasting have assumed for years, that there are fewer technical jobs in broadcasting today than in the past.

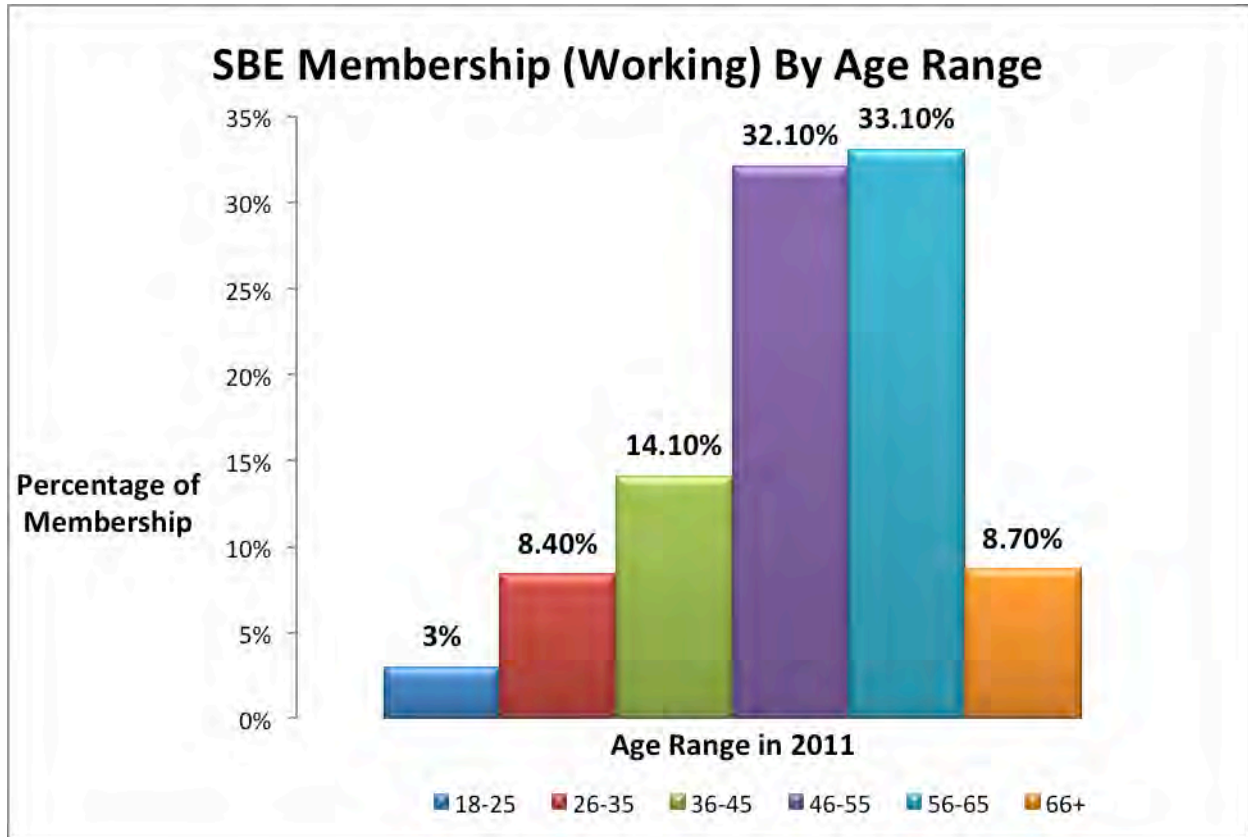
However, deregulation wasn’t the only factor in this decline.

Aging Demographic

The perception of many in the industry is that the average age of technical staff at broadcast stations has been on the rise for years. Using SBE membership statistics as a barometer of the industry, this perception is valid.

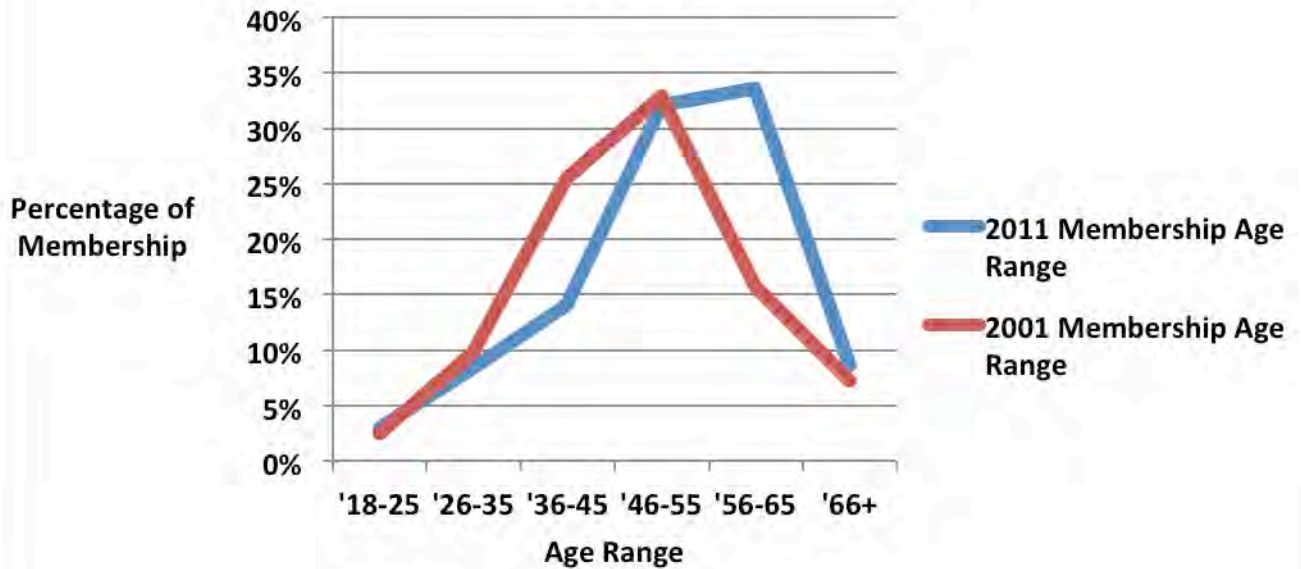


In 2001, 33% of SBE members were between the ages of 45 and 56 but only 16% were between the ages of 55 and 65. Also that year, 9.8% of members were between the ages of 25 and 36 and 25% were between the ages of 35 and 46.



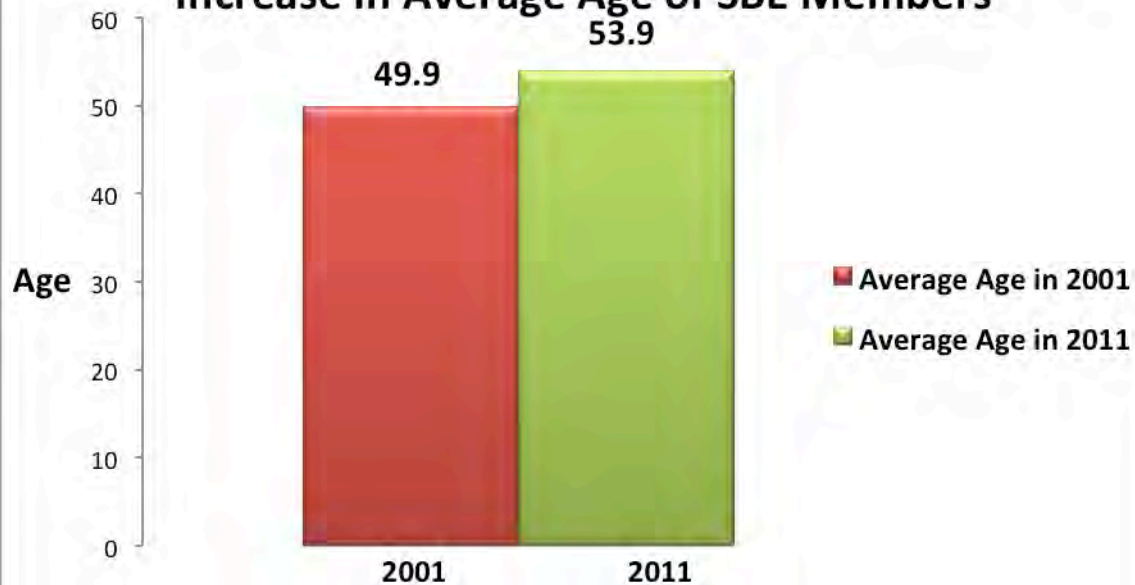
At the end of 2011, 32% of members of the SBE currently working were between the ages of 45 and 56. Another 33% were between the ages of 56 and 66. A cumulative total of 65% of all members were between the ages of 45 and 66. 8.4% of members were between the ages of 25 and 36, and 14.1% were between the ages of 35 and 46.

SBE Membership Age Range Comparison 2001 vs 2011



The chart above illustrates the shift, or aging, of SBE membership and likely the engineering community at large over a ten-year period, from 2001 to 2011.

Increase In Average Age of SBE Members



So over the last 10 years, based on SBE membership used as a gauge of the technical broadcast field as a whole, the average age has risen by four years, from 49.9 in 2001 to 53.9 in 2011.

Our statistics also indicate the number of new members in the youngest age range has varied over the last ten years. Looking at some of those years, in 2001, there were 117 members under the age of 31. In 2003, 155, in 2005, there were 95, in 2007, 110, while in 2011 there were 140. Though it is an encouraging sign to see the number of young new members, and therefore younger personnel in the field, the raw numbers fall far short of what is needed to replace those who are retiring or leaving the field.

In 2011, out of 547 new members who joined the SBE, 25% of them were under the age of 30 years old or younger (135).

Changes in Technology

Changes in technology have taken place throughout the history of broadcast engineering. The changes over the last 15 years have been rapid. Digital technology, computer networking and software are all disciplines that engineers and technicians need to know today to attain or keep a job. Those who are successful today have likely made, or are making, this transition.

Industry Deregulation

The Telecommunications Act of 1996 removed many of the restrictions to owning multiple radio or television stations. The number of companies owning radio stations in the US was significantly reduced over the next several years. This gave rise to a handful of larger companies, especially in radio, which acquired multiple stations in a market. From an engineer staffing standpoint, this consolidation effected engineering in several ways.

Station clusters were created in many markets with three to as many as seven stations owned by a single company and many times housed under one roof. With this economy of scale, engineering staffs were reduced leaving fewer engineers to care for more stations. Though the studios were many times under one roof, most of the time the transmitters were still scattered. In many cases, these changes created some better chief or engineering market management positions with attractive salaries and benefits to handle the large clusters. Many well-qualified, seasoned engineers moved into these positions. Though these positions require long work hours and on-call responsibilities, the stability of the positions, their good pay and generally higher age of the engineers who fill them, has contributed to a somewhat stagnant engineering pool. Experienced engineers have been less willing to move to other markets when positions open. Consolidation has also contributed to the reduction of engineering personnel in general, as many of the engineers who lost their jobs left the industry rather than move to another market where a job might have been.

So, a talent gap, and in some markets, a shortage of engineers has been developing. This has impacted smaller broadcast companies and markets the most, who have found it increasingly difficult to find and hire full-time engineers. Many of those stations have gone to contracting their engineering work or supplementing their staff engineer with consultants or contractors when projects dictate.

The Economy

The recession that began in the spring of 2008 affected just about every industry and broadcasting was not spared. Advertising revenues were hard hit in both radio and television. With less cash, stations only made essential repairs and put off buying new equipment. Some stations and networks reduced their work forces through reduced work weeks or layoffs or both. Some stations even went dark. Engineering departments were not spared from these cuts. The remaining engineers were left to cover additional responsibilities that were once handled by those now departed.

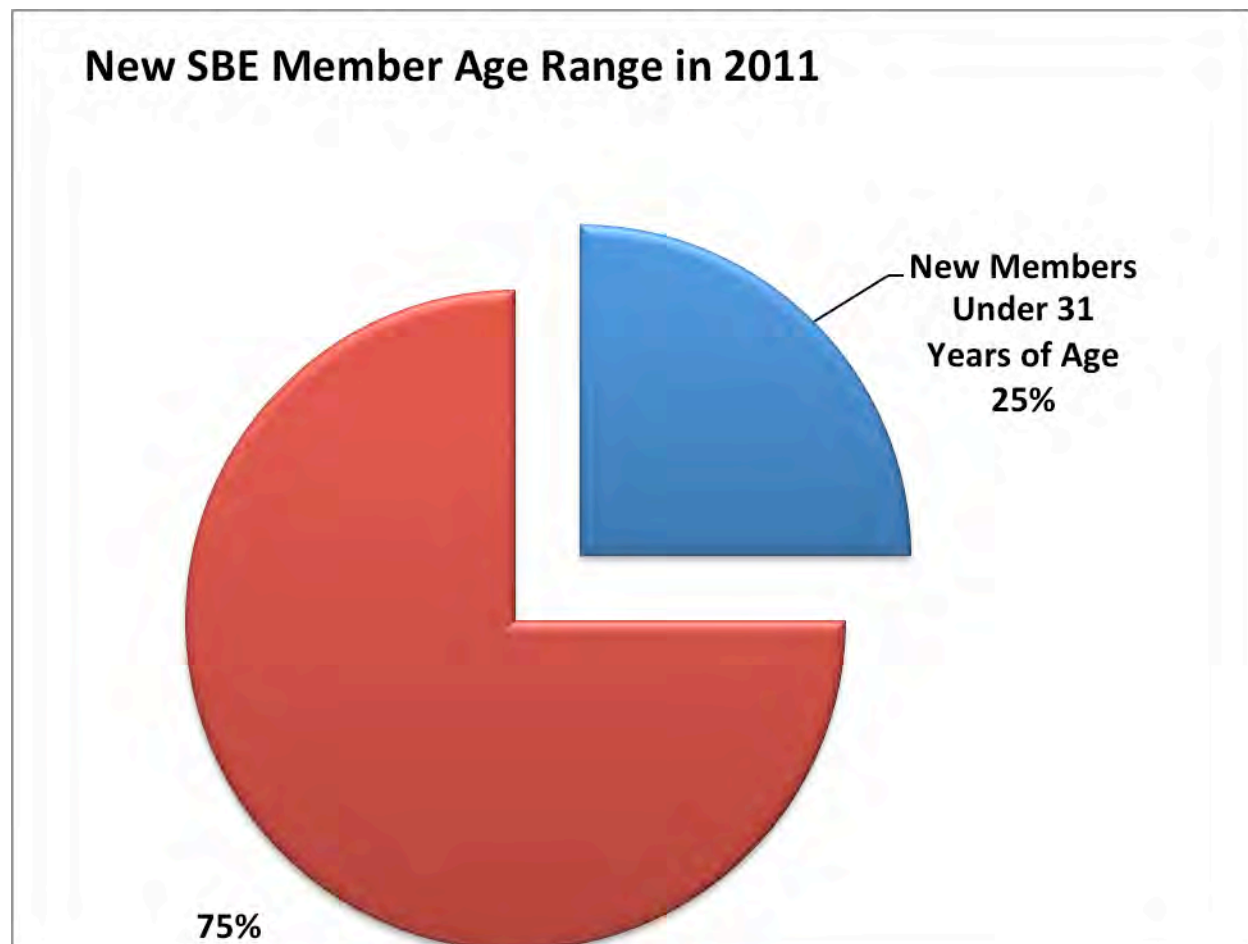
Long-time engineers have been leaving the industry through retirement, workforce reductions or to other fields. The number of new engineers and technicians entering the field has been far fewer than those leaving.

Employment Trends

To hear some people tell it, you would believe that no one is entering the broadcast engineering field. Obviously that's not the case, though there are far fewer people entering the field today than in the past. Let's take a look at some indicators of just who is entering radio and television engineering, the skill sets and training they are coming in with and the types of jobs they are filling.

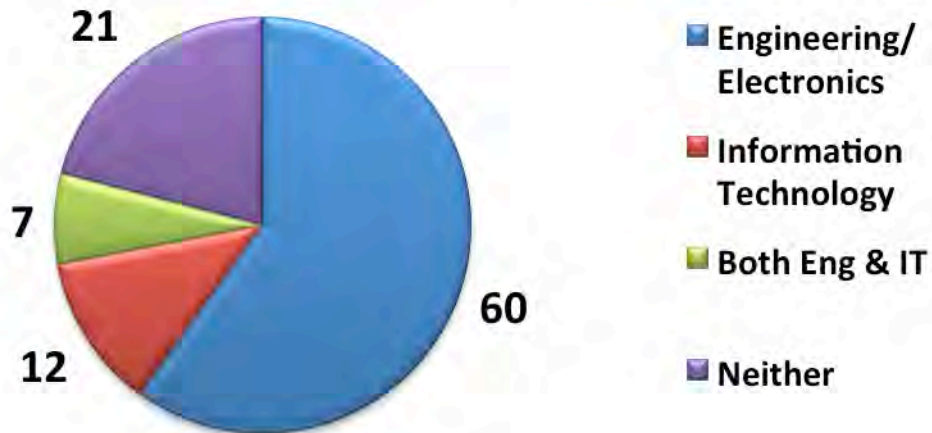
Who is entering the field?

One indicator of new personnel entering the broadcast engineering workforce is the record of new membership within the Society of Broadcast Engineers. Now, not everyone joins the SBE when they first enter the business. In fact, studies indicate that the most people don't join the professional association that represents their field until they are in their 30's. Some never join. But the number of new members that enter the SBE each year is significant enough, typically between 500 and 600 annually, that we can use those figures as a barometer.



In 2011, of 547 people who joined the SBE, 137, 25% of them, were younger than 31 years old.

Educational Background of New SBE Members

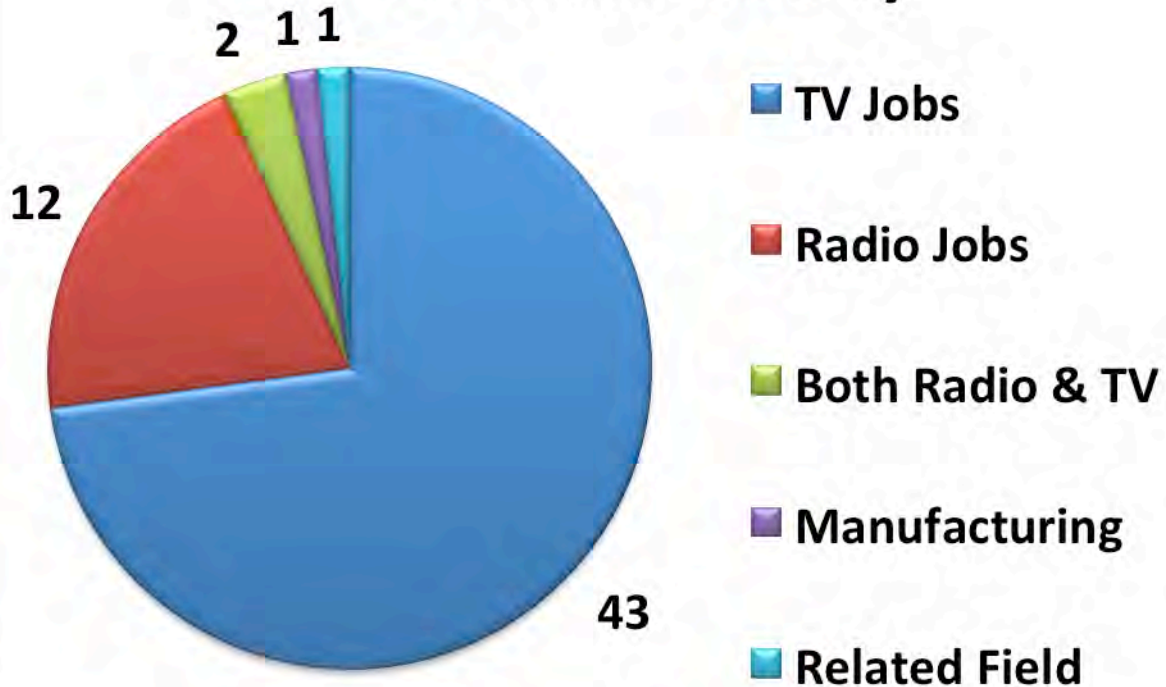


Types of skill and knowledge

What educational background do those entering the field possess?

Our information indicates that of those joining the SBE during the sample period, 60% had engineering or electronics as their major field of study at a two-year trade school or a two-year or four-year college or university. 12% studied Information Technology of one form or another. 7% included both IT and engineering /electronics in their educational background. 21% had neither engineering/electronics nor IT as their principle field of study.

Number of Jobs Available by Broadcast Facility

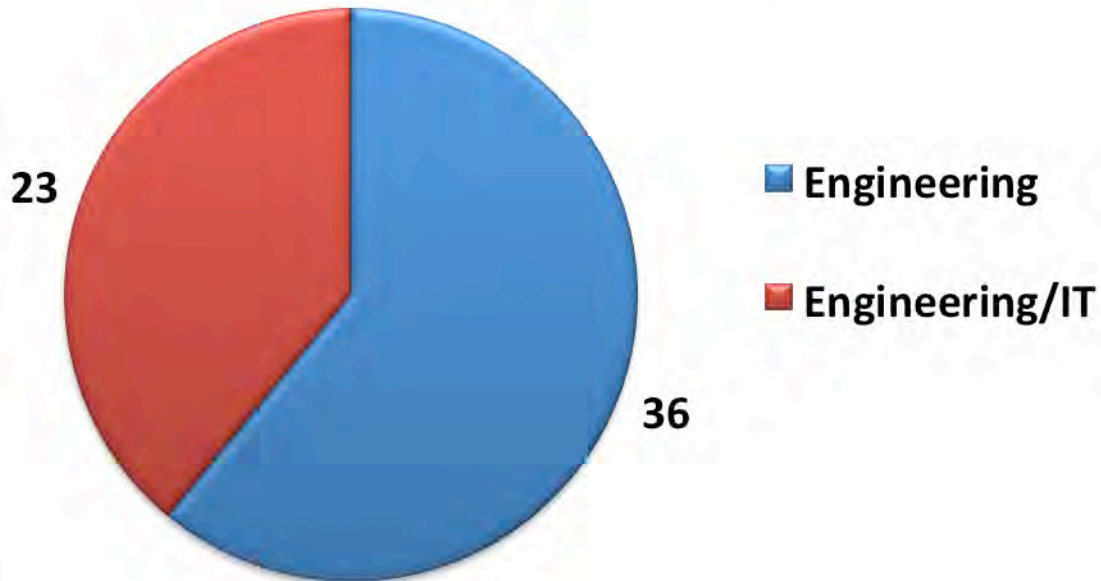


Broadcast Engineering jobs available today

Though there are fewer technical positions in broadcasting today than in previous decades, there are jobs available and, in many cases, openings go unfilled. Station and engineering managers report that jobs they advertise sometimes don't attract enough candidates, qualified or otherwise; sometimes, no candidates at all.

The SBE has operated a job listing service for close to 25 years. On January 11, 2012, the SBE JobsOnline system included 59 available broadcast engineering jobs. Of those, 43 of them (75%) were in television, and just 12 were in radio. Two jobs had responsibilities in both radio and television. One job was with a manufacturer and one was in a related field.

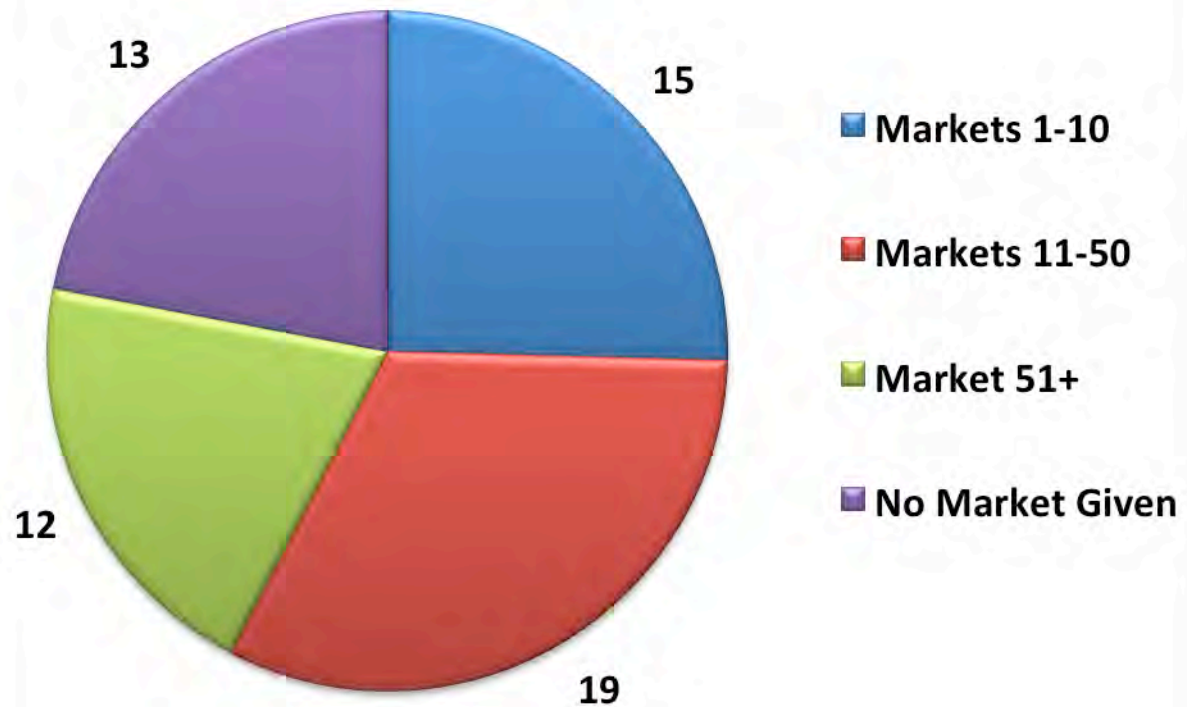
Type of Position Advertised



Of those same positions, 36 were defined as “engineering” jobs. 23 were defined as both engineering and IT positions. None of the positions were defined as “IT-only” jobs.

This would indicate what many have reported in recent years; the trend of creating positions at stations that include both RF engineering and IT responsibilities; a reflection of the change in broadcast technology. It may also reflect recognition that knowledge of RF continues to be an important and necessary skill-set desired by management. Stations need a technical staff that has both engineering and IT skill-sets.

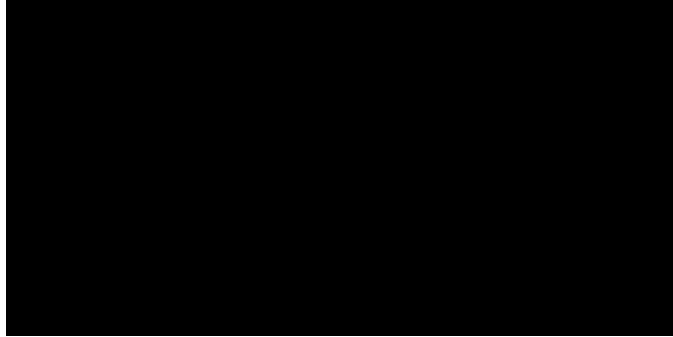
SBE Job Listings by Market Size



Job postings during the sample period came from markets large and small. From Market #1 to Market #93. Of the jobs posted, 58% were in markets 1 – 50 and 26% were in markets 51 and smaller. 20% of the total was in markets 1-10. 22% reported no market size.

Resources for the Employer and the Engineer-Job Seeker

So, where does the station manager, or station engineering director or chief, look for and find engineering and IT staff? One way is to advertise the position within the industry through the various job lists that exist.



SBE JobsOnline

The first service I will mention is the one I've cited some of the statistics from here today, the JobsOnline service of the Society of Broadcast Engineers. As mentioned earlier, it's been around for about 25 years and is accessible to more than 5,000 members of the SBE. It's free to post technical broadcast positions and the system process is automated. SBE members are able to establish search criteria that are customized in six different categories to their own needs and desires. This includes station type, position level, geographic location, salary level and others. The system automatically sends an email message to the member when a position has been posted that meets their personally selected criteria.

It's the most visited section of the SBE website. Positions are listed for up to 60 days; longer if reposted by the employer.



SBE Resume Service

The SBE Resume Service is also available to members. It provides a semi-private opportunity for those interested in seeking a new position to post their resume, without divulging their name, for potential employers to see. Employers can review the anonymous resumes, select those they wish to pursue and for a small fee, receive the complete resume with names and contact information from the SBE national office.

SBE Certified Schools

The SBE national Certification Committee reviews and certifies post-secondary schools that have technical broadcast curriculum and that wish to have their curriculum certified by the SBE. Currently, there are ten schools in the U.S. and Canada on the certified list. Graduates from these programs are good prospects for stations to consider hiring. Graduates of the Armed Forces Radio and Television

Service Technical Training Program are also good prospects for hire, once they have completed their military service obligations. The AFRTS program is also certified by the SBE.

SBE Certified Schools

Bates Technical College, Tacoma, WA

Cayuga Community College, Auburn, NY

Cleveland Institute of Electronics, Cleveland, OH

Loyalist College of Applied Arts and Technology, Belleville, ON

Michigan Career & Technical Institute, Plainwell, MI

Milwaukee Area Technical College, Milwaukee, WI

Mitchell Technical Institute, Mitchell, SD

Southern Alberta Institute of Technology, Calgary, AB

Spokane Community College, Spokane, WA

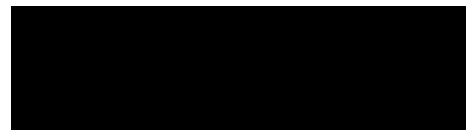
St. Louis Community College at Florissant Valley, St. Louis, MO

Certified Military Training Program

AFRTS Technical Training Program

Defense Information School

Ft. Meade, MD



NABEF Technology Internship Program

The National Association of Broadcasters Education Foundation selects ten candidates each year to participate in their Technology Apprentice Program. The interns are typically college seniors with an interest in broadcast engineering. They participate in the NAB Show, complete a station or media facility internship over the summer, facility tours and other projects during their six month apprentice program. They also have the opportunity to take the Certified Broadcast Technician exam to become certified by the SBE at the end of their internship.

State Broadcast Association Job Listings



Many of the state broadcaster associations in the U.S. have their own job boards and most include engineering positions. They are accessed via the websites of the associations. Some of these same associations hold job fairs each year within their state.

Other Commercial Industry Job Boards

Generic job listings link job searchers with potentially thousands of jobs in all sorts of disciplines. These include Monster.com, Careerbuilder.com, Simply Hired and many others. They will have some broadcast related positions, including engineering and other technical posts, though you may have to do a lot more searching to get to what you're looking for.

Summary and Conclusion

Job openings exist yet some find it hard to find employment.

Some small market stations struggle to find engineering services while many engineers choose to leave the broadcast engineering field rather than move to a smaller or comparably sized market for a job.

More engineers leave the field than enter.

Available positions increasingly require knowledge of IT and RF.

It's a field in transition where employers seek to fill positions with those who have a broader range of skill-sets. Engineers who haven't kept up with changes in technology retire or leave broadcasting for another field.

Entry level engineering staff can be found coming out of schools and the military. More experienced engineers can be found but will need to be enticed with financial incentives to lure them away from situations they are reluctant to leave.

Many who are entering the field come in with IT and engineering/electronics knowledge. Those who have been in the industry for a while but still have much of their career ahead of them will need to expand their skill-sets to reflect technology advancements. The predominant trend is to hire and keep those with both skill sets.

Fewer jobs, fewer engineers, yet many stations that can't find engineers or can't afford the engineers that are available. Even some larger market stations sometimes find it hard to find people with the right skill sets. With an engineer age bubble that will continue to move into retirement years and not enough people entering the business behind them, a more severe shortage is likely to develop over the next ten years. Changes in technology will impact how severe this shortage is.