

Replenishing the Aging Work Force in the Power Industry

1.0 Introduction

Aging work force is a frequently discussed topic at the forefront of many organizations' management planning. The power industry has known for years that the current trend will eventually result in a shortage of qualified personnel required to maintain and support the well being of the business. If there is no corrective action to reverse this trend, then who will keep the lights on? Today's recruiting and retention must replace outgoing personnel, but, more importantly, it must bring new blood into the power industry.

In general, resource development is the responsibility of industry and academia, requiring a joint and/or independent approach. Academic institutions provide the initial instruction for students. Industry focused instruction is provided to new graduates by their employers.

The power industry needs to be very visible as a valuable, meaningful, and long-term career choice. Technical training and career development for new recruits should be recognized as an effective investment in the work force supply. Within the power industry, appropriate business plans/models are necessary for identifying the work force requirement. Succession planning (for the business) and professional advancement (for employees) need to complement each other. This approach, when applied diligently, will replenish the aging work force and keep the lights on.

2.0 Increase the Size of the Work Force Supply Pool

The power industry work force is rapidly aging, and the experienced resource pool is getting smaller. Nowadays, typical demographic in a power utility shows mainly two major groups. One group is the well-seasoned veterans (or old-timers), and the other is the eager rookies (or new-comers). There are not many in between the two groups. In order to ensure constant and adequate work force resources, the power industry needs to look closely at the work force supply and demand situation.

2.1 Identify the Root Cause

During the early nineteen nineties, many power industry companies were downsized, re-organized and re-engineered. Especially in the power utility business, work force reduction was top priority with various early retirement incentives and hiring freezes across the whole organization. Employment opportunities were very limited, even for the highly educated, new graduates from Power Engineering Departments of well-known universities. Because of this negative employment impact, enrollment in Power Engineering in many universities diminished over the years. With low enrollment, various universities reduced the teaching faculties in Power Engineering. In fact, some universities stopped offering Power Engineering courses because of extremely small class size. When course offerings were not readily available, fewer students were able to take any Power Engineering courses. Since employment opportunities in the power industry became scarce, less students were interested in Power Engineering. With this vicious circle, many universities could not adequately support the Power Engineering program, in terms of faculty size or teaching resources. On top of that, the boom of "Dot Com" activities and the popularity of Information Technology (IT) enterprises in the nineties created a sizeable drain from the limited available resources for Power Engineering towards the supply pool for Computer & Software Engineering. This was clearly demonstrated by the increase in student enrollment and financial grants in Computer & Software Engineering, with an almost equal decrease in student interest, course availability and financial support in Power Engineering. This unfortunate situation is the root cause of the problem, which resulted in a big void in the supply side of Power Engineering graduates, especially in the late 2000s when the power industry needs to replenish the aging work force.

2.2 Collaboration between Industry and Academia

In order to rebuild and strengthen the supply side of Power Engineering graduates, both power industry and academia must recognize the fact that they need each other in order to be successful. Then, mutual collaboration is the essential strategy for all parties involved. With that in mind, the power industry needs to support academic institutions with financial

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Abstract

This paper discusses the program to develop, and more importantly, to attract the interest of the next generation of technical experts. The respective roles of industry and academia are discussed. Replenishing the aging work force is discussed as a four step approach starting with increasing the size of the available work force supply pool by presenting the profession as an appealing career choice. Encourage and support career entry by making the process a seamless transition into the power industry. Effectiveness of the new work force is accelerated through fast tracked training and development. Strong retention programs reduce departures from the industry.

Sommaire

Cet article discute du programme à développer, et d'une manière plus importante, la façon d'attirer l'intérêt de la prochaine génération d'experts techniques. Les rôles respectifs de l'industrie et du milieu universitaire sont discutés. Le comblement de la main-d'œuvre vieillissante est discuté en tant qu'approche en quatre étapes commençant par l'augmentation de la taille du bassin de main-d'œuvre disponible en présentant la profession comme un choix attrayant de carrière. L'encouragement et le support de ce choix de carrière en facilitant le processus de transition dans l'industrie énergétique. L'efficacité de la nouvelle main-d'œuvre est accélérée par la formation et le développement rapides. Les programmes de rétention forts réduisent les départs de l'industrie.

contribution, curriculum review and suggestions, power industry insight and career opportunity outlooks. In return, academic institutions need to revitalize the Power Engineering program by increasing the size of Power Engineering teaching faculty, aligning it with work force requirements and work force projection, offer more industry courses and produce more well-educated industry graduates.

Similar to situations elsewhere, power industry in Alberta, Canada encountered the same problem of short supply in Power Engineering graduates from academic institutions within the province. To rectify this supply side problem, several key players in the Alberta power industry joined forces with a provincial university in 2007 to form the Alberta Power Industry Consortium (APIC), which is a non-profit organization that represents an excellent example of "collaboration between industry and academia" for the ultimate good of society.

APIC's mission statement states that: "Bring Alberta power companies together, with University of Alberta as the coordinating organization, to solve technical problems of common interest, to produce more well-educated graduates, to support professional development of current employees, and to promote cooperation and exchange in Alberta power engineering community." As indicated by this mission statement, in addition to increasing the "work force supply pool" by producing more graduates, there are many other tangible benefits to all participants of the consortium.

Within APIC, there are six core members and two supporting organizations.

The Six core members are:

- Alberta Electric System Operator - Utility Regulator
- AltaLink Management Ltd. - Transmission Utility

- ATCO Electric - Transmission & Distribution Utility
- EPCOR - Transmission & Distribution Utility
- Fortis Alberta - Distribution Utility
- University of Alberta - Academic Institution

The two supporting organizations are:

- iCORE (Informatics Circle Of Research Excellence) - Albert's provincial government research agency.
- NSERC (Natural Science and Engineering Research Council of Canada) - Canada's federal government research agency

In terms of financial input to the consortium, each core member committed a multiple-year contribution of financial grant, with the exception of University of Alberta. The total financial grant from the consortium members was then matched by a grant from the provincial government (i.e. iCORE). Furthermore, the total financial grant including the provincial contribution was then matched once again by a grant from the federal government (i.e. NSERC). Management and usage of these financial grants became the accountability of the consortium, especially in the case of University of Alberta acting as the coordinating organization.

In the spring of 2008, an Industrial Research Chair in Power Quality was appointed at University of Alberta as a result of APIC's initiatives. Based upon the funding allotted to this research chair, more new faculty members will be hired in the discipline of Power Engineering. With this new infusion of teaching faculty bench-strength, more Power Engineering courses are planned and will be offered to target and attract new students. Higher enrollment in Power Engineering studies will produce more Power Engineering graduates. Therefore, this particular strategic move is expected to increase the size of the power industry work force supply pool.

For the purpose of alignment with real-life requirements and future outlooks of power industry, the existing Power Engineering curriculum was reviewed by APIC. Constructive recommendations were accepted by University of Alberta to enhance course development in this industry.

Besides the increase in size of work force supply, other tangible benefits generated by APIC are as follows:

- (1) Solving technical problems through collaborative research
 - Completing and delivering projects with common interest to APIC members
 - Working with project collaborators from the power industry
 - Coordinating joint projects from various APIC members
 - Assisting in technology and human resources transfer
- (2) Supporting professional development
 - Offering six continuing education courses in the next five years
 - Offering four research-project-based courses on specific subjects
 - Reporting and technology transfer of projects
- (3) Promoting industry-wide cooperation
 - Implementing joint efforts in project research & collaboration
 - Holding an annual conference/forum
 - Participating in workshops and seminars organized by APIC

Since the formation of APIC in 2007, the feedback from consortium members were very positive. There were many valuable and visible achievements. One good example was the First Annual Power & Energy Innovation Forum held in November 2008. During this one-day forum, technical staff from each consortium member did a presentation to highlight interesting projects or activities in their organizations. The objectives were to promote technical innovation, to exchange knowledge and ideas, and to share real-life experience and learning.

3.0 Encourage and support career entry

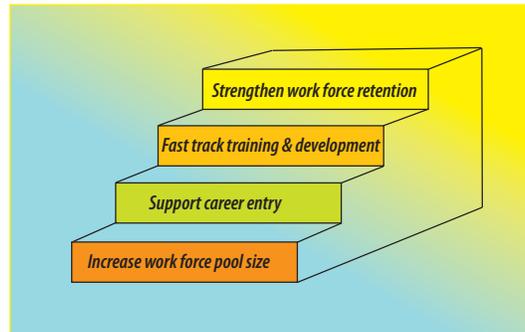
Recruiting and staffing must evolve and adapt to the business and economic climate. In many instances, the traditional approach of recruiting from graduating classes is insufficient. Collaboration programs provide

employers an early start in the recruiting process. It also helps potential employees (students) to start career planning and development prior to graduation.

3.1 Student Programs

The future of today's companies lies in the hands of the students who are completing their degrees. In a few years, these students will be entering the job market as full-time employees, their potential bounded only by their imagination. In an effort to engage and challenge the minds of these students, while opening their eyes to the possibilities of what the future can hold, work experience terms not only involves the students in the everyday workings of the business, but challenges them to develop innovative and imaginative solutions to complex problems. Through these programs, employers can open the imagination of the students to the possibilities of life after school.

The academic phase of a career focuses on developing core knowledge and skills, which is often biased towards theory. The working phase of a career then applies this knowledge and skill to industry specific applications, bridging the gap between theory and real-life. It is advantageous for both an employee and employer to have these two career phases overlap thereby permitting the real-life application of academic studies as early as possible. Work-term experience programs provide this opportunity, allowing students to put what they have learned into practice. In addition, these work-term experience programs also provide an introduction into an industry sector. Employers can promote the power industry, and more importantly, the wide range of career paths available within the industry.



Steps to "keeping the lights on"

3.1.1 Summer Students

Summer students are employed for the shortest period, 4 months, which limits the scope of learning and experience. A summer student's training is typically limited in scope, focusing on a specific topic. Summer employment provides students an entry point into an industry before they qualify for a co-op or internship program. Hiring summer students allows employers to evaluate future talent, which can be encouraged into co-op programs, internships and permanent employment.

3.1.2 Co-op Students

Co-op students are available for 4 or 8 months with the longer 8-month term being preferred. The longer period allows for more diverse training than can be provided for summer students, and can include additional topics or span across multiple departments (cross functional training). The longer duration also allows for longer duration tasks; in many cases, small projects can be executed by a co-op student.

3.1.3 Interns

Long internships, which are typically 12 to 16 continuous months, are more effective than co-op and summer placements because they most closely resemble full time employment. Interns participate in personal career planning programs managed by Human Resources. Experiencing a "Performance Review" or "Goals and Objectives" session teaches an intern career management.

Interns follow the same development process as first year technical staff, and all technical training is required. Even though an intern may remain in an office setting, the training required for field services personnel will also be assigned. Environmental Health and Safety courses, such as "Lock Out Tag Out" and "Confined Spaces," allow an intern to appreciate the activities that occur outside of the office place.

The local engineering governing body, the Association of Professional Engineers, Geologists, and Geophysicists of Alberta (APEGGA) acknowledges and recognizes the value of the experience gained during an internship. Students who have completed an internship program are granted one year of engineering experience credit towards the experience requirement for professional engineer registration.

3.2 Active Recruiting

Recruiting must be a continuous, ongoing process, especially for students and new graduates who are often unfamiliar with potential employers. A common mistake is to wait and start the recruiting only when a staffing position becomes available.

3.2.1 Campus Ambassador

The Campus Ambassador (representing an employer) promotes an organization within academic institutions through on-campus relations/recruiting activities such as: career fairs (or career day), employment information sessions, industry tours, industry lectures, and sponsorships.

The Campus Ambassador roles and responsibilities include:

- Being an active member of the Campus Executive Team in developing and executing a strategy for promoting the employer on-campus, and directly supporting the Campus Recruiting Leader and other executive team members, before and during campus recruiting
- Promoting corporate events on campus, and assist in distributing corporate information and recruiting materials, including corporate publications
- Creating on-campus awareness for corporate internship and full time employment opportunities
- Serving as the on-campus contact person for the student body as well as career days, job fairs, and pre-recruiting meetings
- Actively seek and report new opportunities for on-campus exposure for the employer

3.2.2 Career Fairs

Career fairs are an established method for recruiting staff, however, it is important to target a diverse audience. Career fairs associated with academic institutions tend to attract mainly students and recent graduates while the “open market” career fairs tend to attract more experienced people.

The focus of a career fair can vary, from skill sets (e.g. engineering), sectors (e.g. power industry) to new graduates. Considerations should be given to attending a wide range of career fairs. If an employer expands the career fair attendance to include all general events, exposure of the employer will be broadened in the following ways:

- It introduces and promotes a business to people that may not be familiar with the organization
- Attendees who are directly interested may forward information to friends and contacts
- It creates awareness for people with transferable skills who are currently working in different industries

3.3 Leveraging Academic Alumni

An effective recruiting team should contain members that are similar to the people attending the career fair. For example, new graduates and former interns/co-op students should be part of the recruiting team at a career fair held at an academic institution.

For on-campus recruiting, it is advantageous to have an employee, who is a recent alumnus of that academic institution, as a member of the on-site recruiting team. Since this employee is very familiar with the campus, the academic programs, the departments, the faculties and the students, the whole recruiting effort will be more efficient and productive.

3.4 Referral Bonus

A Talent Referral Program is a recruiting tool designed to encourage current employees to refer qualified external candidates to fill open positions throughout the business. If the referred candidate is hired, a cash award will be paid to the employee making the referral. One half of the payment will be processed shortly after the new hire's start date, the remainder after 6 to 12 months, provided both the referring employee and new hire are still on the payroll.

Talent Referral Programs are usually associated with experienced staff recruiting. This is also an effective tool for recruiting the next round of co-op and internship students. Allowing the current students to participate in recruiting the next round creates more interest on campus.

4.0 Fast Track Work Force Training & Development

Accelerating professional development increases an employee's effectiveness by yielding results in a shorter period of time. Mentoring programs promote the transfer of useful knowledge and experience to junior staff. Mentors use every opportunity to teach- in house, in the field and at conferences.



Photo Credit: AltaLink Management Ltd. – EIT Program.

Power industry succession planning requires attracting young graduates with the help of both industry and academia, through incentive programs such as professional development and fast-track internships.

4.1 Training

Having a well designed work force training program in place is very important as it sends the correct message about the employer's strong commitment to develop new talents.

4.1.1 In-House Training

Formal, classroom style, training is a valuable starting point as it falls in the comfort zone for students and new graduates. Unstructured training must be minimized as too much sends the wrong message. Publishing the curriculum is another essential step in building confidence in the training program.

The structure of the formal training component incorporates the introduction and promotion of the power industry and the career paths within. Using a diverse group of instructors, from different industry sectors, is required to represent the various career paths. For example, an electric utility and equipment supplier illustrate the diverse, yet sometime similar, career paths. Exposure to multiple departments and business units within an organization further promotes the diverse career opportunities.

The goal of the formal training is to build a broad foundation of knowledge from which a career can grow. The program is designed to insure experiences are not limited to an assigned department or organization, for example:

- Students and new graduates assigned to a project integration team should be familiar with the activities of a product development team
- Protection department members should be familiar with the activities of a SCADA/communications department
- Students and new graduates working for an equipment supplier should have an understanding of careers within a power utility

More detailed knowledge is acquired through assigned tasks; for example, the concept of DCE (Data Communications Equipment) is introduced in the Serial Communications training module, and setting up a specific device will only be done as an assigned task. This allows all of the participants in the program to be introduced to the technology used and the associated career path in SCADA/communications.

4.1.2 On-the-Job Training

On the job or “hands on” training complements the formal sessions by providing an opportunity to put into practice the lessons learned. Task assignment must be carefully planned to promote continuous development.

Task duration must also be given careful consideration. Short-term tasks are good as they can be used to expose a person to a variety of topics and skills. The short duration also provides the opportunity to complete the cycle—see a task through from start to completion.

Longer duration tasks are equally important and at least one should be ongoing. Focusing on an assignment for a longer period of time promotes planning and multi-tasking. A long duration task should be chosen for co-op and internship students to align with their academic obligations which are typically in the form of status and project reports.

4.1.3 External Training

Employers should take advantage of available job-related, structured training. This training is a critical component of the overall development for targeted employees' career placement purpose. Some examples of external training include:

- Power industry related courses provided by academic institutions
- Power industry sponsored workshops, seminars and courses
- Short courses organized by technical societies (such as IEEE) and industrial/professional associations

4.2 Site/Facility Visits

Classroom training and facility visits are complementary activities, each reinforcing the information provided by the other. Learning about a 400 MVA transformer does not fully convey the size of the equipment. Viewing a transformer in a substation switchyard completes the learning experience. One cannot appreciate the size of a 400 MVA transformer without seeing one.

The approach used for formal training is also applied to facility visits. The program should include a diverse range of facility visits, encompassing multiple departments and organizations. Ideally, multiple end users (covering the aspects of transmission, distribution, generation, energy and industrial applications) and equipment suppliers are targeted for site and facility visits, which can include: substation, control center, manufacturing plant and factory acceptance test room.

4.3 Networking

Networking is one of the most effective and frequently used career development techniques. It is never too early to start developing alliances, connections and relationships. Networking at industry and professional events will broaden the exposure to valuable learning and career possibilities.

4.3.1 Local Volunteering

When local technical events are held, there are many opportunities to participate and support the local organization. This is a good venue for new comers to interact with industry experts and experienced peers. There are two ways to achieve the desired result: employee volunteering or employer nomination. The experience gained from these events, which can include workshops, seminars, conferences and technical meetings, is not restricted to the technical domain. Other tangible benefits include the following:

- Developing diverse interpersonal skills by interacting with attendees including international delegates.
- Improving the business understanding of the power industry companies.
- Building self-confidence through peer networking in a social environment.
- Learning professional and communication skills by attending and observing presentations.

4.3.2 Conferences

Besides providing opportunities for students and new staff to gain a greater understanding of the power industry, conferences also offer the means for meeting and interacting with a wide range of industry experts. Exposure to end users, consultants, vendors, etc. showcases the broad range of career paths within the power industry.

A common trap is to limit conference attendance to senior or more experienced staff. Everyone is faced with a finite budget for conference attendance and a "smart spending" program can increase attendance level without increasing the overall cost. For example, the cost difference between flying and driving several people from one location to another location to attend a conference, can be used to include an additional attendee, thereby increasing the benefit for the same cost. This enabled

students and junior staff to attend the Western Power Delivery Automation Conference and the Western Protective Relay Conference.

This concept of staff development through conference attendance must not be limited to local events. Larger and high profile events provide a greater opportunity to learn from and network with peers.

4.4 Mentoring & Fast-Tracking

For the purpose of fast-tracking, on-the-job mentoring is an essential and critical part of competency development. In addition to providing technical advice to the protégé, the mentor also offers guidance in professional and networking skills, techniques for information gathering and analysis.

Besides the on-going mentoring, one interesting concept is the "pairing of senior engineering leader (mentor) with junior engineering staff (protégé)" for attending conferences. At a technical gathering, a mentor can provide real-life and real-time coaching and support to his/her protégé. As an invaluable benefit to the protégé, the mentor offers face-to-face networking introduction for the protégé to all the peers at the event. For example, one power utility applied this concept at IEEE T&D Conferences (North America) and CIGRE General Sessions (Europe), and the results were very positive.

Job shadowing is another useful method to speed up staff development. By assigning a junior engineering staff to work with a senior technical member of another department for a short period of time will give the junior staff a brief insight of other departments.

Another fast-tracking tool is the appointment of an EIT (Engineer In Training) coordinator. This appointee (a mid-level engineer) is accountable for managing the EIT program and assisting the company orientation program, by providing technical and administrative assistance. As a win-win situation, the EIT coordinator will develop leadership skills while the EIT's will have the necessary guidance and support.

5.0 Strengthening Work Force Retention

If the power industry follows the strategic approach outlined earlier, the work force supply pool will be adequate and sustainable, career entry for new technical staff will be effective and orderly, work force training and career development will be efficient, timely, proactive and productive. When all these efforts produce an appropriate work force, the next question is how to minimize turnovers or early exits. In other words, power industry got the people they need, but what is the power industry doing to make the people stay (or in other words, to keep the people)?

With the ultimate intent of retaining the work force to look after a successful business, power industry needs to address the following aspects discussed in the sequel:

5.1 Career Management

For an employee to proactively manage his/her career, he/she needs to know the career progression inside the organization. If the employer has a clear and visible process for career advancement, such as a company policy, this would certainly help the employee to know what position level he/she is at, and how to move to the next higher level. This policy must clearly state all available position levels in the organization, requirements, qualifications and criteria for each level, and the advancement procedure to move from one level to the next. This will become a road map for the employee to follow in order to achieve a successful career. For example, a well-defined and formally declared company policy on "Engineer Level and Development" in one power utility actually lists the engineer levels from Entry Level EIT (Engineer in Training) to Advanced Specialist (i.e. Chief Engineer). In addition, it also specifies the timing and process for promotions.

To transform a simple job-continuation into a meaningful career management, position responsibility and accountability must be mutually agreed between employer and employee. Performance expectation needs to be clearly communicated to the employee, and he/she must plan and execute his/her actions to align with the expectation of the employer.

Regular and timely feedback on job performance is very important in terms of career progression and management, besides the annual performance review. For a well-designed performance review and development (PRD) process, the following activities need to be implemented:

- Beginning of the year: Clear goals and the associated activities need to be established and agreed between the employee and employer. A formal record will be required to document the goals and activities.

- End of the year: The employee needs to list all the results of the activities identified at the beginning of the year. Then, the employer and the employee will jointly review the results to determine if the identified goals are met. A formal record will be required to document the goals, activities and results.

The bottom line is that, a well-run performance assessment needs to be open, clear, fair and timely. In addition, both the employee and employer must have a common understanding of the performance expectation.

5.2 Encouragement on Professional & Technical Exposure

With respect to career advancement, technical committee participation is beneficial to both employers and employees. The output of these committees is typically a standard or technical publication, however, it is often unclear what the committee's intentions are. Supporting the involvement of an employee allows an employer to know the details of the journey that resulted in the publication. Knowing how and why a decision was made is always better than just knowing what the decision is.

For an employee, participating in a technical committee reflects the acceptance from the peers and industry. Committee work raises the profiles of the employee and employer, especially for organizations with international coverage. Conference organizing committees provide a unique opportunity for employees and employers to gain insight into industry practices.

Other opportunities for professional and technical exposure are volunteering in technical organizations and professional societies. Examples are as follows:

- Volunteering for local IEEE section or chapter is a good investment in terms of getting to know the peers in various industries and also allowing other like-minded professionals to get to know the volunteer. Building professional relationship amongst peers and learning the operations of the organizations are definitely some of the desirable benefits.
- Volunteering for technical events (such as workshops, seminars, conferences, etc.) held locally is another excellent way to meet new peers and friends, to gain new experience and to learn new things.

These volunteering opportunities will further enhance peer networking and personal skills development, especially leadership skills that are extremely useful for the employee.

5.3 Continuous Learning and Development

Most of the training, learning and development processes and opportunities have been outlined in the "Fast Track Work Force Training & Development" section. However, for the purpose of continuous improvement on employee competency, a company-wide approach for providing and supporting regular training must be formally established. Allotment of opportunities and funding must be fair and align with business plan and business requirements. A well-defined training plan for each employee needs to be set up at the beginning of the year, and this plan should dovetail into the "goals and objectives" of the performance review and development process. If the plan is carried out timely, the employee will achieve his/her training goal and the employer will have a better trained work force. It is a win-win situation and it will certainly help in work force retention.

5.4 Work/ Life Balance

Nowadays, employees in any organization are under a lot of stresses at work and at home. These are the result of rapid and frequent changes in workplace and technologies, fast pace life style, non-stop connectivity, information overload and various social pressures. To maintain a healthy work force, any organization must pay genuine attention to the work-life balance of the employees. In order to achieve this balance, flexible work arrangements are effective means.

Flexible work arrangements assist a company in attracting and retaining valued employees by leveraging flexible work schedules to create an inclusive environment that encourages growth for both the business and the employees. Existing and potential employees generally want work time flexibility and employer support to meet a variety of needs. There are several flexible work arrangements that can be implemented, as follows:

- Flextime: Full-time employees vary the start and end times of their workdays. Flextime is a low-cost option to introduce and maintain, and it can have great benefits in terms of improved morale and greater productivity.

- Compressed Workweek: Employees compress a full-time workload into fewer than five days per week. Wherever state or local law/country requires overtime to be paid after 8 hours, compressed workweeks will not be offered.
- Reduced Hours: Reduced hours is an option where an employee may work 30 hours or more and maintain full benefits. An employee working reduced hours is considered a full-time head for staffing purposes.
- Part-Time Work: Employees reduce their workload and consequently their hours decrease to fewer than the standard workweek requirements with a corresponding reduction in pay and adjustment of benefits.
- Job Sharing: Two employees with reduced workloads and corresponding reduced schedules share the responsibilities of a single full-time position. It is a variation of a part-time arrangement and each job sharer is individually on a reduced schedule; part-time policies apply.
- Telecommuting: Employees perform full-time work responsibilities up to several days a week at sites other than their primary location - usually their home or a satellite office.
- Remote Work: Employees perform full-time work responsibilities exclusively from a location outside the primary work site - usually their home or a satellite office.

Depending on the employee's particular situation, one of the above mentioned flexible work arrangements might be an ideal work structure to have. If the employer is open for this arrangement, the employee will certainly be less stressful, and work force retention will be easier to achieve.

5.5 Succession Planning

To run a successful business in the power industry, there needs to be an adequate work force. More importantly, the complements within the work force must be at the appropriate levels in terms of capabilities and accountabilities. Therefore, succession planning needs to be proactive and must also take into consideration the existing work force structure and positions. As indicated earlier, employers should make the accountabilities and qualifications for all positions known and visible to employees. They should also think ahead and develop a realistic and functional succession plan. This plan would have potential candidates identified for various position moves (usually in terms of promotions). Once the plan is in place, the employer needs to discuss the potential career moves with the identified candidate. By doing this, the employee will know the possibility and opportunity of career advancement, and the employer will know the "acceptance and success" level of the plan. This key activity will strengthen the work force retention for sure.

5.6 Employee Benefits

For an employee to stay with an employer, the employee must be satisfied with the overall offering from the employer. This overall offering covers a lot of tangible and intangible items. Employment benefits from an organization are some of the items employees are very interested in. These benefits can include the following listings:

- Health and dental care - to offset the cost for prescription drugs, eye glasses, dental check up and required works, ambulance ride and hospital stays
- Health spending account - to pay for eligible health or dental expenses that are not covered by insurance
- Employee life insurance - employer paid insurance for employee up to two times the annual earnings
- Health care insurance(beyond the basic provincial health-care plans) - employer and employee jointly paid health care insurance for employee and his/her family
- Out of country medical emergencies coverage - insurance to protect the employee and his/her family for medical emergencies while away from the country
- Short term & long term disability - employee coverage against illness lasting a prolonged period
- Retirement savings - various forms of pension plans and retirement saving plans
- Education assistance - financial support provided by employer to offset the cost of further education for the purpose of career advancement
- Company scholarship - financial support provided by employer to

support higher education for children (or grand children) of the employees

- Annual vacation - paid time-off every year for employee to enjoy
- Sabbaticals - half paid leave up to eight weeks, offered to employee at regular intervals (e.g. 4 years)
- Earned rest days - one day-off per month for employee to take to address personal needs
- Memberships - professional memberships paid by employer for employee, including technical society membership if applicable
- Incentive pay - annual bonus payment depending on job performance and business results
- Wellness fund - financial reimbursement for expenses on fitness and wellness activities
- On-site fitness facility (Gym) - employer sponsored on-site facility for employee use
- Networking Friday afternoon - monthly, employer sponsored event for employees to interact and socialize

It should be noted that not all employers provide all the above benefits. An employer may select a combination of the benefits from the above listings. If benefits offered with employment are expanded or enhanced, the employee will be more satisfied with the overall offering from the employer, and this will further reinforce work force retention.

5.7 Retirement

Typical demographic in a power utility shows mainly two groups, namely the veterans and the rookies. In order to keep the veterans working in the power utility as long as possible, for the purpose of knowledge transfer or technical guidance, a phasing retirement program is a very reasonable and attractive tool. The potential retiree may be offered a reduced

work schedule, such as three days a week, for a period of time before full retirement. The advantage of this arrangement to the potential retiree is to phase in the upcoming retirement at a slower and controlled rate. The benefit to the employer is the continuation of service provided by the potential retiree. If this program is carried out appropriately and proactively, this will strengthen the capability of the work force without any major disruption.

An employer should be open to the concept of leveraging retirees from other companies within the power industry. To be effective in this approach, the employer needs to be flexible to adjust the time (reduced work hours), location (off site) and assignment (the task acceptability may be very selective) to accommodate the special desire of the employee. Employers need to value and appreciate the proven expertise provided by these employees and should take every opportunity to maximize the benefits.

6.0 Conclusions

The work force shortage can be addressed by increasing the size of the work force pool, attracting new talent, fast tracking development and retaining experienced personnel. Increasing the size of the work force pool is approached by introducing and promoting careers within the power industry. Encouraging career entry must start with students through partnership programs with academic institutions. Work force development is most effective when it is addressed by the industry, not a single employer. End users and suppliers working together can develop a more versatile work force. Strong retention programs insure the investment in attracting and developing talent is not lost.

About the Authors

Randy Kimura received his Bachelor of Science and Master of Science in Electrical Engineering from the University of Alberta. Randy is a member of the IEEE Substations Committee Working Group C12 and C14, Western Power Delivery Automation Conference committee, IEC/TC57 Working Group 10, 17 and 19, CIGRE Working Group B5.39, and the DNP3 Technical Committee. He is a registered Professional Engineer in the province of Alberta. Randy is currently the VAR/OEM Manager for SUBNET Solutions Inc. Outside of working hours, Randy's passion is wildlife photography. To the right, he zooms in on several nests of the American Avocet, containing both adults and chicks. Originally concentrating on large mammals (e.g. bears, elk, bighorn sheep), birds were a natural progression, he says.



Daniel Wong received his B.Sc. EE in 1975 from the University of New Brunswick. His work experience includes UNB & NB Power (NB: 1976-1981), TransAlta (Alberta: 1981-2000) and General Electric (Alberta; 2000-2005). In NB Power and TransAlta, Daniel held many key roles in Power System Protections. At GE, his major accountabilities were Lead Protection Engineer, Product Line Manager and Asia Sales Liaison. Since June 2005, Daniel is the Principal Engineer (Protection & Control) at AltaLink (Alberta). He is an IEEE Senior Member, a Professional Engineer (Alberta & NB), and the Chair of Alberta Power Industry Consortium. He and his wife Kimberley enjoy overseas travel, with trips to Europe and the Middle East. To the left, they were thrilled to find such lush greenery in an oasis near Muscat, Oman.