



Utility Industry Labor Sourcing Strategy Cost Analysis

Finding Quality Resources through Economically Feasible Means

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Abstract

As the utility industry continues to change a more deliberate focus is being given to the costs of goods sold. Finding the best labor sourcing strategy is becoming a key element of running a successful utility. This study evaluates the three best fit labor sourcing strategies for utility craft employee work scopes from a direct wage perspective, total hourly cost perspective and finally across a recurring project scope perspective. From an hourly total labor cost perspective the crew augmentation strategy is a 26% savings versus the internal resources strategy and a 15% savings versus the outsourced scope strategy. The crew augmentation strategy had a project cost savings of 11% versus the outsource scope strategy and a 39% project cost savings versus the internal resources strategy. The crew augmentation labor sourcing strategy is best aligned with the utility industry's evaluation criteria.

Introduction

As the U.S. Federal reserve’s decision to taper quantitative easing (stimulus) spending the associated rising interest rates that have already been realized and are projected to continue rising will weigh heavily on the utility industry’s share prices. Along with weak power demand and generation fundamentals that are eroding industry growth forecasts the utility industry has to be more and more focused on their costs of service (EEI Finance Committee, 2014). Labor costs both internally and contracted make up a large portion of costs of goods sold. As the utility industry’s core workforce of “baby boomers” begin to meet retirement age the ratio of the internal labor force to contract labor will continue to grow in favor of a contract workforce. The line worker workforce expected to retire within the next five to ten years could approach 50% in certain organizations (U.S. Department of Energy, 2006). This means that evaluating the best and most cost efficient way to utilize a contract workforce must be established.

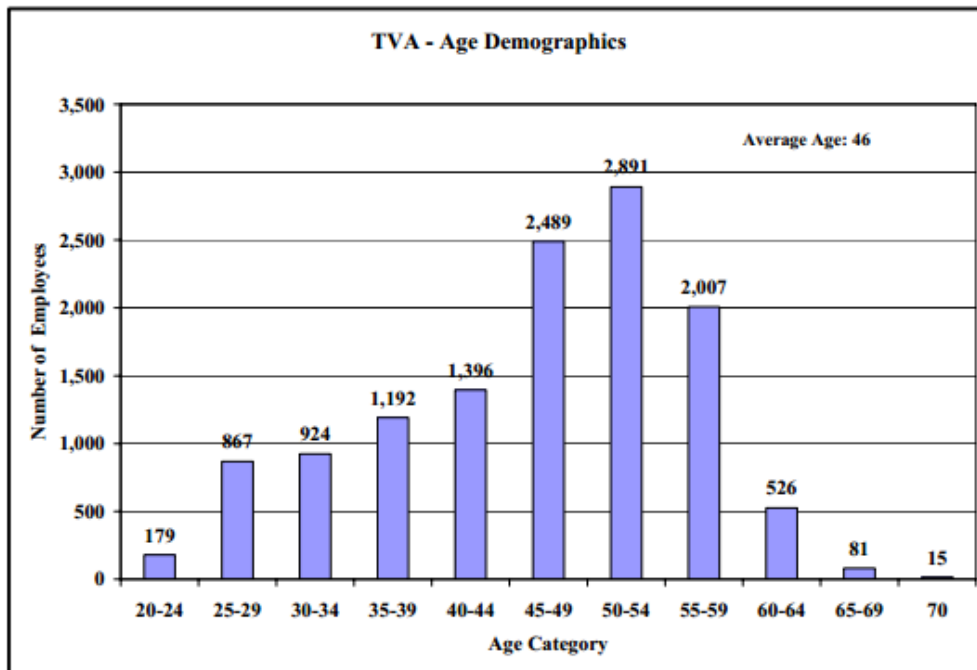


Figure 1- Source U.S. Department of Energy, 2006

To evaluate labor sourcing options this study is designed to evaluate the three strategies that are the best fit for the utility industry based on utility craft work scopes. While the labor concerns for the utility industry still apply to managerial, sales, clerical etc. job scopes they are of far less dire attention at this time due to these positions cross training and experience overlap potentials with other industries. With this in mind pure staff augmentation, independent contractors, consulting etc. labor strategies have been intentionally omitted as they are not applicable solutions to the utility craft work scopes. The three applicable labor sourcing strategies are the use of internal resources, outsourcing scope of work contracting and crew augmentation contracting. This study will focus its analysis of these labor strategies on cost the Performance Information Market (PIM) system allows organizations to evaluate their performance using



stated objectives (Edward W. Rogers, 98-09). The utility industry stakeholders' PIM system heavily weights safety, system reliability and cost. So when evaluating labor sourcing options cost must be a primary concern to align with corporate evaluation paradigm/standards as this study has done.

The first of the three labor sourcing strategies introduced is the use of a utility owner's internal workforce. This strategy is the traditional model moving from recruiting and resourcing individual employees through training and apprenticeship models through to the point where an employee can eventually become an individual contributor on their own. The employees hired as internal resources are also employed year round and are given significant benefit and retirement packages to incentivize employment with the utility. This model is slow as well as very difficult to utilize the internal resources effectively year round without incurring downtime expenses to completed scopes. This strategy is thought to be best employed for utilities' core competencies with static annual scopes. This study will evaluate a static annual work scope to identify if this strategy is best aligned with corporate cost concerns.

The second of the three labor sourcing strategies is the use of outsourced scope resources. The use of outsourced scope resources is done using the typical bid process following a utility's publication of a request for proposal (RFP). Companies included in the RFP bid to complete the scope of work defined at a set price and are evaluated based on their attributes versus prices. This strategy is best implemented for skill sets that are commodities (Tayntor, 2000) and economies of scales can be realized by contractors who have larger scope specific asset bases than the utility requiring the scope completion. This strategy allows for a flexible and prepared workforce to be utilized from the beginning of the project but the bidding process requires that the contractor protect and preserve their gross margin strategically.

The third of the three labor sourcing strategies is the use of crew augmentation resources. The use of crew augmentation resources is typically done through the sourcing of contractors with the applicable licensing and experience to complete certain scopes of work at an agreed upon hourly rate for each classification of work. The utility is then paying only for the actual labor utilized to complete the scope of work. In some instances the utility will provide the asset base or the material required to complete the scope. This approach is cost effective but other value can be added by asking the crew augmentation contractor to provide their own assets and materials as pass through costs to eliminate the utility's overhead of asset management at no additional costs from the contractor. For the crew augmentation labor sourcing strategy this analysis will utilize CANUS Corporation as the case study model.



Methods

The evaluation of the costs of the three labor sourcing strategies in question was done through three separate structures. A pure hourly compensation analysis was done first, followed by an hourly total labor cost of a single individual was done and finally a project cost to analyze the cost impacts of the three labor sourcing strategies across a three man crew performing a nine month scope of work.

First, the pure straight time hourly rates were compiled for each labor sourcing strategy. Since most Utility Craft positions are represented by the International Brotherhood of Electrical Workers (IBEW) there was no difference to the direct hourly wage between the three strategies. As a base case analysis the Northwest Line Agreement which governs IBEW represented pay rates for Washington and Oregon was used.

Secondly, an hourly labor cost rate was constructed for each of the labor sourcing strategies that produced a total hourly labor cost as well as a ratio of total hourly labor cost to the direct hourly wage. For all three labor sourcing strategies the direct labor and subsistence was held constant due to governing labor agreements. Next taxes and insurances were evaluated. Using a constant tax rate and industry average Utility loss rate modifications and industry average contracting loss rate the insurance rate was established for the internal resources and outsourced scope strategies. The crew augmentation Insurance rate was populated using CANUS Corporation's loss rates. Next, benefits, facility, fee and risk were analyzed for each labor sourcing strategy. For the internal resources strategy the commonly used and openly discussed ratio of hourly labor cost to direct wages was populated pushing these costs to facility and overhead costs since fee and risk costs are null for internal resources. For the outsourcing scope strategy overhead costs, risk and fee were all captured as mean values from GAAP financials published for the largest publically traded utility contractors in the United States. For the crew augmentation strategy the CANUS Corporation's real world values were used.

Finally, a project cost was analyzed for each of the three labor sourcing strategies. The project chosen was a standard recurring scope of work completed within nine months utilizing three full time skilled employees. This analysis began by first using the hourly labor cost reached in the prior analysis. Next tools and equipment costs were added at a standard rate of \$40/hour with the real costs realized using internal resources and crew augmentation strategies where material is either purchased by the owner or is a pass through cost. The tools and equipment is marked up by the industry standard 10% for scope work when evaluating the outsourced scope strategy. This standard can be observed using GAAP financials published for publically traded utility contractors, gross profitability levels are not impacted by material and tool purchases. All three combination hourly costs (hourly labor cost plus hourly tools and equipment) were multiplied by the number of productive hours worked to complete a nine month scope of work for the crew to get a production cost. This was done using three fourths of a standard 2,000 hour annual work schedule and multiplying that by the crew size of 3. Then for the internal resources who could not simply be released from employment when their scope of work was completed were assigned



labor costs during non-core scope which was the remainder of the year until their core scope began again.

Results

The first analysis conducted of the direct straight time hourly rates for each of the three labor sourcing strategies produced identical direct hourly cost for the classifications evaluated. This is due to governing labor relations contracts with the IBEW local unions. The classification used for further analysis and presented in the table was the test technician classification which had a direct straight time hourly rate of \$45.62 for all three labor sourcing strategies.

Pure Hourly	Internal Resources	Outsourced Scope	Crew Augmentation
Direct Labor Cost	\$45.62	\$45.62	\$45.62



The second analysis conducted of hourly labor cost for each of the labor sourcing strategies produced varied hourly costs by strategy. The internal resources strategy was by far the most expensive option with a total hourly labor cost of \$102.10. This strategy's cost per hour was 2.24 times higher than the direct hourly cost. The outsourced scope strategy was the next most costly strategy with a total hourly labor cost of \$87.11. This strategy's cost per hour was 1.91 times higher than the direct hourly cost. The crew augmentation strategy was the least expensive option with a total hourly labor cost of \$75.85. This strategy's cost per hour was 1.66 times higher than the direct hourly cost. From an hourly total labor cost perspective the crew augmentation strategy is a 26% savings versus the internal resources strategy and a 15% savings versus the outsourced scope strategy.

Hourly Labor Cost	Internal Resources	Outsourced Scope	Crew Augmentation
Direct Labor Cost	\$45.62	\$45.62	\$45.62
Subsistence	\$3.00	\$3.00	\$3.00
Insurances/Taxes	\$9.72	\$9.24	\$8.75
Benefits	\$17.02	\$9.72	\$9.72
Facility Costs	\$7.29	\$0.00	\$0.00
Overhead Costs	\$19.45	\$6.32	\$4.86
Risk/Contingency	\$0.00	\$6.76	\$0.00
Fee/Margin	\$0.00	\$6.45	\$3.89
Total	\$102.10	\$87.11	\$75.85
Direct Labor Ratio	2.24	1.91	1.66



The third analysis conducted was of the costs of a 3 employee crew for a 9 month project with recurring scope for each of the labor sourcing strategies produced even wider variations in costs by strategy than the previous analysis. The internal resources strategy had a total project cost of \$852,398.85. The outsourced scope strategy had a total project cost of \$590,010.42 a project cost savings of 31% versus the internal resources strategy. The crew augmentation strategy had a total project cost of \$521,312.40 a project cost savings of 11% versus the outsource scope strategy and a 39% project cost savings versus the internal resources strategy.

9 Month Project Recurring Scope Costs	Internal Resources	Outsourced Scope	Crew Augmentation
Hourly Labor Cost	\$102.10	\$87.11	\$75.85
Tools/Equipment	\$40.00	\$44.00	\$40.00
Production Hours of Scope	1,500.00	1,500.00	1,500.00
Crew Size	3.00	3.00	3.00
Production Hours Cost	\$639,459.00	\$590,010.42	\$521,312.40
Labor Costs During Non-Core Scope	\$212,939.85	\$0.00	\$0.00
Annual Cost of Scope	\$852,398.85	\$590,010.42	\$521,312.40
% Savings	0%	31%	39%



Through the first three analyses the cost savings realized by using the outsourced scope and crew augmentation strategies are clear and presumed to be scalable. To further understand the impact of the cost savings potential of these two labor sourcing strategies the analysis was then evaluated when scaled to a larger project scope. When the project is scaled to a utility wide initiative the ongoing cost savings become even more apparent. For instance if the project scope used in the analysis was to become a utility wide initiative requiring 100 individuals instead of 3 a cost saving of \$8.7M could be realized annually using the outsourced scope strategy and a cost savings of \$11M could be realized annually using the crew augmentation strategy.

9 Month Project Recurring Scope Costs	Internal Resources	Outsourced Scope	Crew Augmentation
Hourly Labor Cost	\$102.10	\$87.11	\$75.85
Tools/Equipment	\$40.00	\$44.00	\$40.00
Production Hours of Scope	1500	1500	1500
Crew Size	100	100	100
Production Hours Cost	\$21,315,300.00	\$19,667,013.96	\$17,377,080.00
Labor Costs During Non-Core Scope	\$7,097,994.90	\$0.00	\$0.00
Annual Cost of Scope	\$28,413,294.90	\$19,667,013.96	\$17,377,080.00
% Savings	0%	31%	39%
\$ Savings	\$0.00	\$8,746,280.94	\$11,036,214.90

See the below graph that demonstrates the widening cost savings available between the labor sourcing strategies as the scope of work scales;

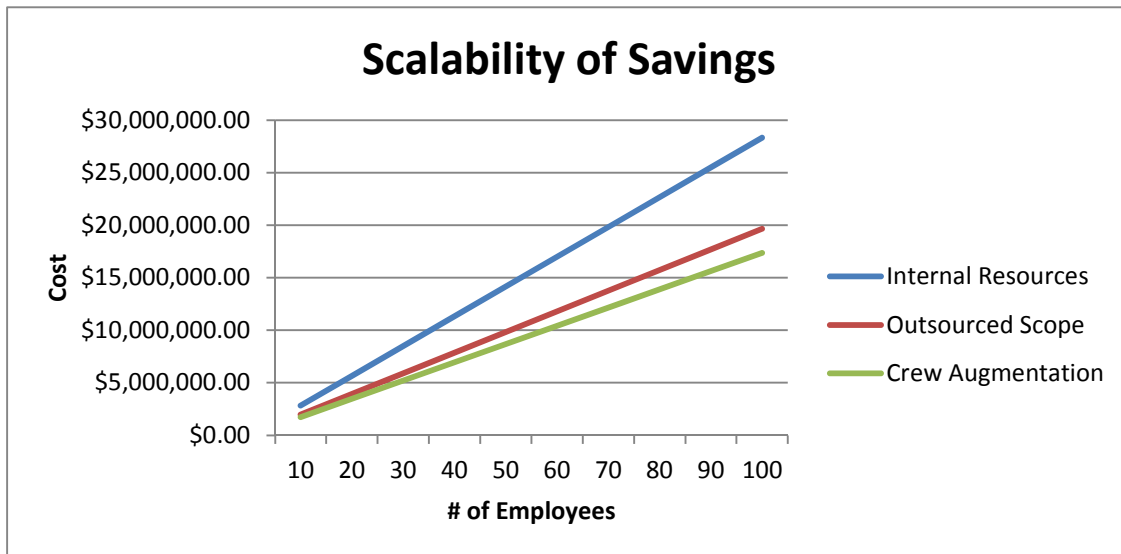


Figure 2 – Scalability of Savings

Conclusion

While generation appears to be declining the industry stakeholders' PIM system's focus of providing a reliable service to end users should still provide for growing infrastructure development spending requiring qualified journeymen to service the utility industry stakeholders' interests (Investments, 2014). Meaning that identifying and effectively utilizing the most cost effective labor sourcing strategy that can continue to provide reliable services is of utmost importance in the coming years as labor sourcing costs continue to be a prominent cornerstone to operating successful utilities.

This analysis has demonstrated that the most cost effective labor sourcing strategy is crew augmentation. Therefore, if safety and system reliability are maintained the crew augmentation labor sourcing strategy is best aligned with the utility industry's PIM and stated corporate objectives. The outsourced scope labor sourcing strategy seems like the second best labor sourcing strategy based on cost. From the cost perspective the greatest point of difference between the two strategies is that the contractors who would be utilized via the outsourced scope strategy will have to include in their pricing a premium for the risks and contingency planning required to preserve their gross margin during a fixed price bid. So in reality the utility isn't paying for just the labor and asset costs actually used they are paying for the labor and asset costs of a worst case scenario every time.

The least preferential labor sourcing strategy when evaluated from a cost perspective is the use of internal resources. It appears that the benefit plans offered to lure employees to hire into the utility industry setup a dangerously high cost ratio for internal resources that seems to grow



throughout employment. This coupled with the exceptional amount of overhead and fixed assets such as facility costs that typical utility companies carry and are assigned to the overall hourly cost of ownership for each labor production unit makes the hourly cost of internal resources undesirable. On top of the hourly cost being undesirable for the internal resource labor sourcing strategy when compared to other strategies the lack of employment flexibility when evaluated over the life of a project begins to create a larger cost disparity between the labor sourcing strategies as the scope of work scales larger. It must also be recognized that while non-core scope work does still produce value it is not the job that the individual's employment was designed to achieve so for this calculation the non-core scope outcome values which will vary wildly and become highly subjective are calculated as null. This analysis has demonstrated that the most cost effective labor sourcing strategy is crew augmentation.

The key features of the crew augmentation case study used for this analysis that allows for cost savings when compared to the other labor sourcing strategies are;

- An outstanding safety record (lower insurance costs)
- Streamlined value chain processes (lower overhead costs); which in CANUS's case is achieved with large managerial spans of control and the use of innovative Enterprise Software tools that integrate with client process software
- An outstanding asset management practice (lower tools and equipment costs)

CANUS Corporation acted as the crew augmentation case study for this analysis. To find out more about CANUS and their services please visit their website at <http://www.canus.co>



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