Manufacturing and Technology Survey
April 2014

Manufacturing and Technology Survey
April 2014

Introduction

November 2010, as part of our efforts to support the Mid-Columbia Energy Initiative (MCEI), the MCEI Manufacturing and Technology Committees jointly conducted a survey in partnership with Gary White, TRIDEC. The objective of the survey was to identify barriers to growth for companies within the technology and manufacturing sectors, suppliers they are seeking to be around them, and policy or regulatory issues that are preventing their company growth.

April 2014, the Tri-Cities Research District (TCRD) undertook this task again to reconnect with the companies, to learn of their growth and challenges. We also provided them information on how the last set of results were used in speaking with State and Federal legislators as well as local stakeholders. We thank the companies who took their time to participate. Our goal is to again take the results of the information gathered and develop action items in order to assist in the further growth of this segment of the Tri-Cities new economy.

Summary

Of the company's surveyed, 55% identified themselves as primarily a technology company, 11% as manufacturing and 36% as both technology and manufacturing. This is almost a mirror of the 2010 results. Overall the survey resulted in a 39% response rate. Business stated sales are increasing with 64% of companies surveyed project sale increasing and as a result 82% project employment increases. Most of the companies remained focused on national and international markets for their products and services.

Technology companies are constantly searching for manufacturing vendors within the local and region area. Technology group is seeking specialized workforce in IT, control systems and precision machine shops. Manufacturing focused workers such as advanced welders and electro plating to support the push the region's technologies past the 'idea' phase to tangible hardware. Professional services such as patent, business attorneys or law firms specializing in technology along with technology experts and venture capital were also strongly identified and an issue unresolved from the last survey. They are also concerned about continuing local efforts to support and grow WSU TC and CBC.

Workforce within the science, technology, engineering and mathematics (STEM) disciplines is critical for the development of this sector. Mention is made of the need for more progressive leadership regarding STEM. The clear theme within this section is the need for young workers, specifically engineers with commercial and government experience. Radio Frequency engineers are listing as challenging to find. Civil Engineer graduates are suggested to receive training in electronic design, AutoCAD, Civil 3D or similar software as part of their curriculum. The Hanford site is seen as competition for such workforce. Overall recruitment remains a challenge and many companies stated that they would like an environment more attractive to young skilled professionals and a

central downtown or focal hub area is needed. The need to continue to expand our specialized health care system is also mentioned as a recruitment tool. That said the impacts of the Affordable Care Act and patchwork system of incentives limits many in making new investments. Finally, the existing nuclear workforce is complimented for being knowledgeable, qualified and stable.

Regulatory policies were mentioned both at a state and federal level. Need for state to have a business friendly environment, specifically support Department of Health desire to update material and process with federal so that responses and process for licensing has a better flow. The desire for the state legislature to stop raiding trust funds and adequately fund infrastructure and economic development projects. Oversight issues related to Federal AMSE US Gov. 10-CFR 21 is an area local companies could use some support and advocacy and again the Affordable Care Act and impacts are noted.

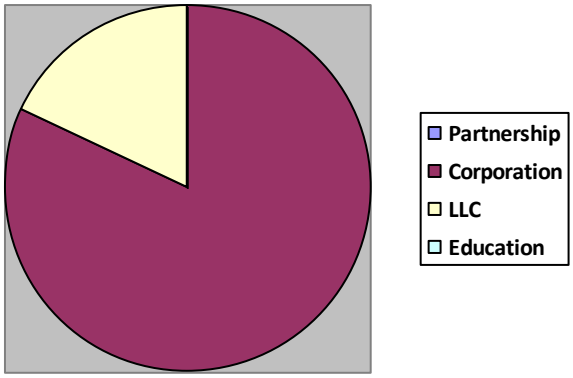
Observations and Conclusions

- Maintain database of current local technology company needs for alternative/renewable products ready for commercialization remains along with our need to promote them.
    - Seek national recognition positive stories of companies and region.
    - Become experts in specific targets areas.
    - Skill sets (pass to education workgroup)
    - Basic/Specialty Manufacturing
    - TCRD and MCEI are focused on right stuff, continue to seek to be the cornerstone for companies to come into region.
    - End-Use Market
        - Identify ‘dual-opportunity’ uses for local AND regional/national/international
        - Point out low cost of living, quality schools as part of recruitment.
- Enforce the NEED for manufacturing incentives in WA State. This will attract the companies many are desperately searching for to push their technology past the demonstration stage to commercialization
    - B&O needs greater incentives for businesses also seeking manufacturing incentives
    - Success of IPZ goals will be a positive factor. Connect companies with WSU TC, CBC and PNNL for partnerships.
    - Promote grant programs for more efficient manufacturing processes
        - Open opportunities i.e. Energy Park Land for manufacturing and energy related development.
        - SMR should be built here!
        - Need for physical infrastructure and sense of place.
- Assess transportation needs for shipping products and components regionally, nationally, and internationally
    - Promote ‘greener’ low-cost shipping solutions

Supporting growth of the technology and manufacturing sector is an important step to assist our community’s transition to a true post Hanford economy.

Manufacturing and Technology Survey
April 2014

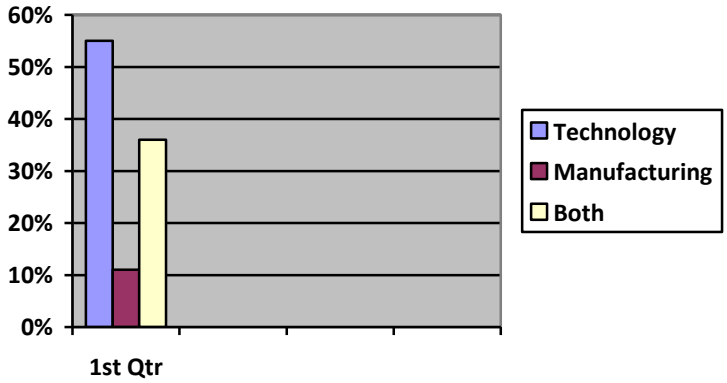
Business Structure
Sole Proprietor:
Partnership: 0%
Corporation: 82%
LLC: 18%
Educational 0%



Primary Product or Service

- Construction
- Nuclear Fuel
- Research & Development
- Engineering Services
- Consulting (Engineering)
- Wireless Modems
- Electrical Generation
- Energy Technologies
- Nuclear Services
- Design & Build Custom Equipment
- Research & Development of Advanced Energy Technology
- Tools for Radioactive & Hazardous Operations
- Architectural & Engineering Services
- Engineering & Fabrication Services
- Professional Services

Are you considered a
Technology Company: 55%
Manufacturing Company: 11%
Both: 36%



Years in Business
1 – 9…..18%
10 – 19…..18%
20 – 24…..9%
25+…..55%

Annual Sales Range
$400 Million
$125 Million
$64 Million TC only
$50 Million
$40 Million
$30 Million
$6-10 Million
$2-4 Million
$2 - 3 Million
$350,000
N/A (1)

Sales
Increasing: 64%
Stable: 27%
Decreasing: 9%
N/A: 0%

Market Share
Increasing: 73%
Stable: 27%
Decreasing: 0%
N/A: 0%

Product Life Cycle
Emerging: 18%
Growing: 54%
Maturing: 18%
Declining:
N/A: 10%

Number of Employees
1 – 49…..36%
50 – 99…..18%
100+…..46%

Market
Local: 27%
Regional: 45%
National: 55%
International: 64%
N/A: 0%
*some noted multiple markets.

Over the next five years will you employment needs be
Increasing: 82%
Stable: 18%
Decreasing: 0%
N/A: 0%

Do you plan on expanding within the next 3 – 5 years? Yes: 91% No: 9%

Survey Questions

What do you see as BARRIERS TO GROWTH regarding the following?
Community:

- None (1)
- Focal HUB, Aquatic Center, Arts Center need to draw younger skilled work force.
- There are limited social activities for young professionals. We lose good people to the big city life in Seattle and Portland.
- Size and portion for better air transportation to and from the Tri-Cities
- Sixty percent of our local revenues come from non-local clients, meaning that our company is relatively more sensitive to the national economy and overall Federal spending. Insofar as our local business sources are concerned, barriers we are sensitive to are those that impact the attraction of new businesses and business growth within the greater Tri Cities region.
- The ultra-conservative political and social nature of the community tends to discourage young and progressive potential employees from relocating here. That has hurt us in terms of being able to hire the best and brightest. Lack of a singles scene, cultural venues, great restaurants, and nightlife is also an issue. The focus on Hanford and reliance on government contracting has categorized Richland as an "old-school" government-contractor town and <u>not</u> as a thriving, creative, entrepreneurial environment.
- Ability to recruit employees nationally to a small town in a remote location.
- Community: Regionally, stable / slow-growth demand for additional energy defers new generation projects. Conversely, demand-side management/smart grid, conservation / energy efficiency, energy storage are each long term solutions to meet market demand allowing delay of costly expansion of transmission infrastructure.
- The size of the Tri-Cities has grown to the point where it is easier to recruit professionals to move here.
- Lack of performing arts and cultural link. Need to balance.
- Very supportive, nuclear smart.

Legislative:

- None (4)
- The legislature needs to stop raiding the public works trust fund. Our city clients are paralyzed by lack of funding for new and replacement public infrastructure. The legislature needs to adequately fund CERB. Our Port district clients are struggling to find funding for critical projects.
- West side politics-not investing in east side infrastructure and secondary education.
- Unwillingness/inability of our legislators to devise approaches to regulating the energy industry and consumers in ways that will promote conservation and investment in advanced energy technology is preventing growth in this industry. Policy makers and the renewable/alternative energy sector need to define a strong policy agenda for our nation's abundant domestic renewable energy resources. A non-partisan policy agenda is needed to send a strong signal to private capital

markets, ensuring the availability of the financing and investment capital necessary for a national renewable/alternative energy scale-up.

Few people truly understand the national security risks of relying so heavily on imported foreign petroleum. Credible analyses have been done that factor in the externalities associated with producing a gallon of oil in the Middle East. When including these negative externalities — social costs that are not factored into the market value of gasoline — a gallon of gas at the pump should cost between $7-8. Congress needs to communicate this reasoning and use it to pass bipartisan legislation to "level the playing field" for domestic renewable energy. We are becoming more aware of the value of domestically produced "cleaner" energy with the significant increase in U.S. natural gas production through "fracking". This may help the public realize the value of domestic sources of energy but in the short term it is just reducing interest in alternatives to fossil fuel.

- Washington State issues don't significantly drive our business with the exception of the B&O tax for work on Hanford Cleanup.
- DOE Land Transfer to TRIDEC and development of Clean / Carbon-neutral Energy Park.
- Want to be taxed as small business through pay + fair taxes – want big business to follow suit. Legislation should be for people not themselves.
- Statewide-lousy on labor law, more expensive –some most expensive. Hanford is part of this. Employee vs Employer mentality. Only reason still here is ability to consolidate, if we just based it on wages we would be out of here. Next to California, Washington is the most labor friendly, i.e. PTO mandated issue and state saying can't limit carryovers -it didn't pass but just the mentality on the west side.

Regulatory:

- None (4)
- Health care is in a shambles. We need to defund the Affordable Health Care Act and put health care back in the hands of private business.
- One of the largest potential barriers to achieving the necessary level of investment in renewable/alternative energy is the lack of policy certainty that currently exists. Despite record levels of funding for renewable energy as a result of the stimulus, as long as energy and climate legislation remains stalled in Congress, investors will be wary of putting money into new projects. The United States has a patchwork system of incentives that have been allowed to expire numerous times, causing abrupt stops and starts in investment. Policy-makers have been unwilling or unable to find policy instruments that enable the translation of macroeconomic benefits into microeconomic incentives such as a nationwide Renewable Electricity Standard, to establish a baseline market demand, or a feed-in tariff.

  The Congressional Budget Office found that a tax on carbon, starting at $20 per ton, could raise $1.25 trillion over the next decade while cutting emissions by more than 20% by 2050. This would enable Congress to maintain income tax cuts and avoid cuts to social programs. The narrow tax incentives and patchwork regulations have allowed the government – not the market—to choose winners

and losers. A carbon tax, if part of broad tax reform, could bring an end to this approach, providing certainty to utilities and energy companies and allowing these businesses to make investments needed for a clean and secure energy future. A carbon tax would provide a clear market signal for U.S. businesses and consumers, giving flexibility to choose technologies that save energy and money, boosting sales of more fuel-efficient cars and other goods. But partisan gridlock and the political fear of anything labeled a "tax" is preventing this sensible solution.

- National regulations make a bigger difference (e.g., Affordable Care Act) than State or Local regulations.
- Delayed / elongated approval of SMR technology
- Keep in balance quality of life, environment and economics. Currently to sided with environment. Keep low cost of power affordable. Balance with quality of life.
- Oversight issues AMSE-US GOV 10-CRF 21 requirements federal.
- Federal requirements superior to state. State has 20 year old process. Stuck in deterministic model, no exceptions. Risk based verses risk informed and performance based. Department of Health stacks material. Licenses- still trying for over five years to get relicensed. Department of Health tried in the past to rewrite WAC but got closed due to resource limitations.

Financial:

- None (8)
- At the federal level we need to fund infrastructure including transportation, water resource, and utility projects.
- Local banks/bankers do not understand the advanced technology development sector and the R&D sector and are unwilling to provide sufficient credit lines/working capital for companies who fall outside of the traditional balance sheet scenarios. Although we have been reluctant to accept investments from Angles or other venture partners because of the demands for quick ROI, eventually this will be needed if we wish to move into volume manufacturing. The potential investors we have talked with generally would prefer to see our company relocate.
- Have not had need. Maybe an issue this next year. America should be more about products, manufacturing, infrastructure, real services verses services just to grow money.

Workforce:

- None (3)
- Hard to find skilled younger professional
- Civil Engineering graduated need to receive training in electronic design and project including AutoCAD, Civil 3D or similar software.
- There is a lack of critical thinkers who are well-educated educated in STEM and who are able and willing to work across disciplines in an unstructured environment. Recent excitement about Delta High School and the 3 new STEM middle schools in Pasco is an important advancement for education here in the Tri-Cities. The fact that Richland was unwilling to support Delta's new school

building program is an indication of the lack of progressive thinkers on the Richland School Board.
- Competition for skilled workers and cyclic hiring at Hanford
- For some fields it can be challenging; RF Engineers
- No issues. Think unemployment structure is more entitlement than necessarily help.
- Yes, need good quality nuclear engineering folks. Need more young engineers with nuclear experience commercial and government.
- One benefit of location, more nuclear knowledgeable, very qualified candidates. We offer stability and have low turnover.

Infrastructure:
- None (4)
- Airport improvements, G Way problem, central location, better use of rivers
- The lack of funding for new and aging infrastructure is crippling the economy.
- The cost of air travel and reduction in aircraft size supporting the Tri-Cities is a hindrance. The addition of direct flights to San Francisco is a positive. The lack of high speed internet availability in many buildings is frustrating.
- Expanded airport will support our ability to service our National and International clients.
- BPA transmission system capacity restrains growth.
- City of Richland should encourage companies and entities to help bring increased services. Would rather see cost effective land offered than infrastructure given away via tax credits/incentives.
- International sources, communities local infrastructure not a limitation. Use less power and water due to efficiently. Roadways are the main source. Shipping via Port of Everett since it is only port in the state that allows product, otherwise we use the Port of Oakland. Going to Europe via Baltimore. Seeing fewer and limited number of ships taking on consignments, primarily use ACL for Atlantic, concerns about reliability.

Other:
- None (7)
- The majority of our current business is derived from Federal sources, meaning we are impacted by the Federal deficit and reduced Federal spending.
- Until there is a "critical mass" of entrepreneurs in the energy sector located here it will be difficult for the sector to thrive and grow quickly in this region. PNNL is not spinning off new businesses or licensing its technology locally and provides very little support to technology companies here.
- Time.
- Biggest problem, PNNL limits growth; competition with commercial. PNNL should not get into commercial work and let companies grown and expand. Hard to compete with mom and pop shops. No longer bidding on Hanford work. More headquarters work, considering relocating could use small company support to help upgrade product.

What VENDORS/SERVICE PROVIDERS need to be located in the greater Tri-Cities (categories, not specific companies)?

- None (1)
- Central downtown area, grow WSU TC and CBC
- Whole Foods, Sam's Club, Second Costco
- Specialized medical care/physicians so people do not have to travel to Seattle or Spokane.
- As a professional services company, we are adequately served by the existing community of general business service providers.
- Patent and business attorneys specializing in this sector; control system technology experts; precision machine shops and advanced welders experienced in high temperature materials; good IT support services
- We are still going out of the area for most of our legal services. I see friends and neighbors still going out of the area for serious medical services.
- Everything that we needed is now here. We used to blame the airport flight availability but that is now very good overall.
- Electro plating company. Currently going to Spokane, Seattle, and Portland to get service.
- Seeking people supporting future nuclear more direct support from such vendor located locally for collaboration. Fukushima related company.
- Paper, nut and bolts. Specialty metals, ingots. Don't necessarily need local.

What ENERGY TECHNOLOGIES do your technologies/products integrate with?

- LEED facility design green architecture and engineering.
- Water reuse, green power including small hydroelectric facilities and energy production from agricultural by-products.
- Nuclear technologies in a wide varied of applications, fuel, waste management etc.
- Our safety and environmental professional services are applicable to all energy technologies. We have particular depth and experience to support nuclear energy technologies in the areas of radiation protection, nuclear safety, licensing, environmental protection and emergency preparedness.
- Auxiliary power, back-up power, motive power, combined heat and power, fuel cell systems, bio-fuel
- Primarily Nuclear.
- Energy generation (nuclear, hydro, wind, solar), energy storage (battery), energy distribution, demand-side management (smart grid, distributed generation) demand response operating systems (load-balancing technology, advanced metering), generation projects development and construction (new solar, wind sites; SMR), wind site environmental assessments, conservation products (VFDs, lighting efficiencies, etc.)
- We usually work with all the major technologies because we provide the wireless conductivity that they need for data and control systems.
- Nuclear power, potential water, dams.
- Architect Engineer Service Company focused on energy sector, transmission, substation, nuclear, wind power, grid and storage.

- Nuclear, renewable, concentrated solar. International-wind, trying biomass.

What must the Tri-Cities do to encourage the growth of a high technology/manufacturing sector?

- No Answer (1)
- Tax Credits to new businesses
- Provide adequate infrastructure to support the growth. Train the workforce to meet the demand for jobs.
- Invest in education
- The obvious answer is to offer an immediate and sustainable economic advantage. The financial equation includes transportation, labor, land, infrastructure, regulation, and taxation. The Tri Cities does not control all elements, and is dependent on State and National support.
- Success of the goals of the IPZ will be a positive factor. We can take better advantage of what is being done to support manufacturing for the aerospace industry in WA State and implement some of the innovations such as additive manufacturing (3-D printing) for prototype development. Improved availability of the resources at PNNL and better partnerships between PNNL and local high-tech businesses would be a plus.
- National recognition through publicity.
- To recruit families here we show the lower cost of housing, the quality of our schools and the ease of raising a young family here. Most of the talent that we recruit comes from the large metropolitan area with a very high cost of living and a day to day struggle to raise a family.
- SMR's should be built here. Whatever we can do to bring this product here.
- Become experts in specific areas. PEI group would love to have them here. Specialist nuclear power plan HVAC.
- 1. TCRD growth. 2 MCEI focused on right stuff- continue to seeking to be cornerstone for companies to be in.

Would you be interested in a trade mission to China, India, Mexico, other?

- No (3)
- Yes (3)
- Maybe
- Not in the near term. Our company's current priority is US-based growth within the Health Care/Cancer Care, Oil & Gas and Energy business sectors. That said, we are responsive to specific opportunities in our core areas of radiological and nuclear safety, occupational and environmental protection.
- Maybe China. We have distributors in LA for over 20+ years and one distributor in India for 20+years.
- Currently working China, India, Mexico, Africa (Kenya), and UK. Japan (Fukushima) This year really hope to grow.
- Taiwan Power, Korea.
- No, established.