Training for Regional Energy in North Dakota (TREND)
TAACCCT Round II Grant Evaluation Final Report

September 2016

Presented by Corporation for a Skilled Workforce (CSW) and the Ray Marshall Center (RMC) for the Study of Human Resources at the University of Texas at Austin.

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Executive Summary

Background: An Overview of the TREND Program

The Training for Regional Energy in North Dakota (TREND) is a collaborative consortium of five community colleges – two state and three tribal – formed in 2012 to address the workforce needs of North Dakota's then rapidly growing energy industry.

Situated in and near the Bakken Formation and the Williston Basin, Bismarck State College (BSC), Nueta Hidatsa Sahnish College (NHSC), Sitting Bull College (SBC), Turtle Mountain Community College (TMCC) and Williston State College (WSC) are uniquely positioned to work with industry partners in the energy sector and related industries to produce educational and career training programs designed to meet the sector's specific talent needs, while helping the underemployed and unemployed acquire skills to secure jobs in technical fields. TREND was funded by a $14.6M award under the Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant program – Round II. Subsequently, in 2014 the TREND consortium applied for and received Round IV TAACCCT funding to continue work begun in 2012.

Over the four-year period of Round II funding, TREND worked to create new and enhanced educational and training programs, student support systems, and partnerships with industry and North Dakota's workforce systems. The consortium's three overarching goals were to:

1. Increase the **attainment of industry-recognized certificates and degrees** with a focus on stackable credentials in the oil, gas and construction sectors;
2. Deliver education and training in a more innovative, effective, and efficient way with a focus on **basic skills and supporting more flexible and technology-enabled learning;**
3. Transform recruitment, retention, and employment strategies with focus on enhanced **student support services and career navigation**, as well as strengthened commitments from and **relationships with business and industry**

For member colleges, TREND funding provided an opportunity to increase capacity including equipment and infrastructure, program offerings in oil and gas, transportation, welding and construction trades, student access to a variety of credentials, and intensive/customized student support systems – from intake to job placement. Additionally, TREND funding played an important role in strengthening partnerships with employers and state agencies resulting in increased programmatic alignment to good jobs and increased opportunities for students to find, secure and retain those jobs.

Underlying each of TREND's three goals were corresponding strategies and activities shown in Figure 1:

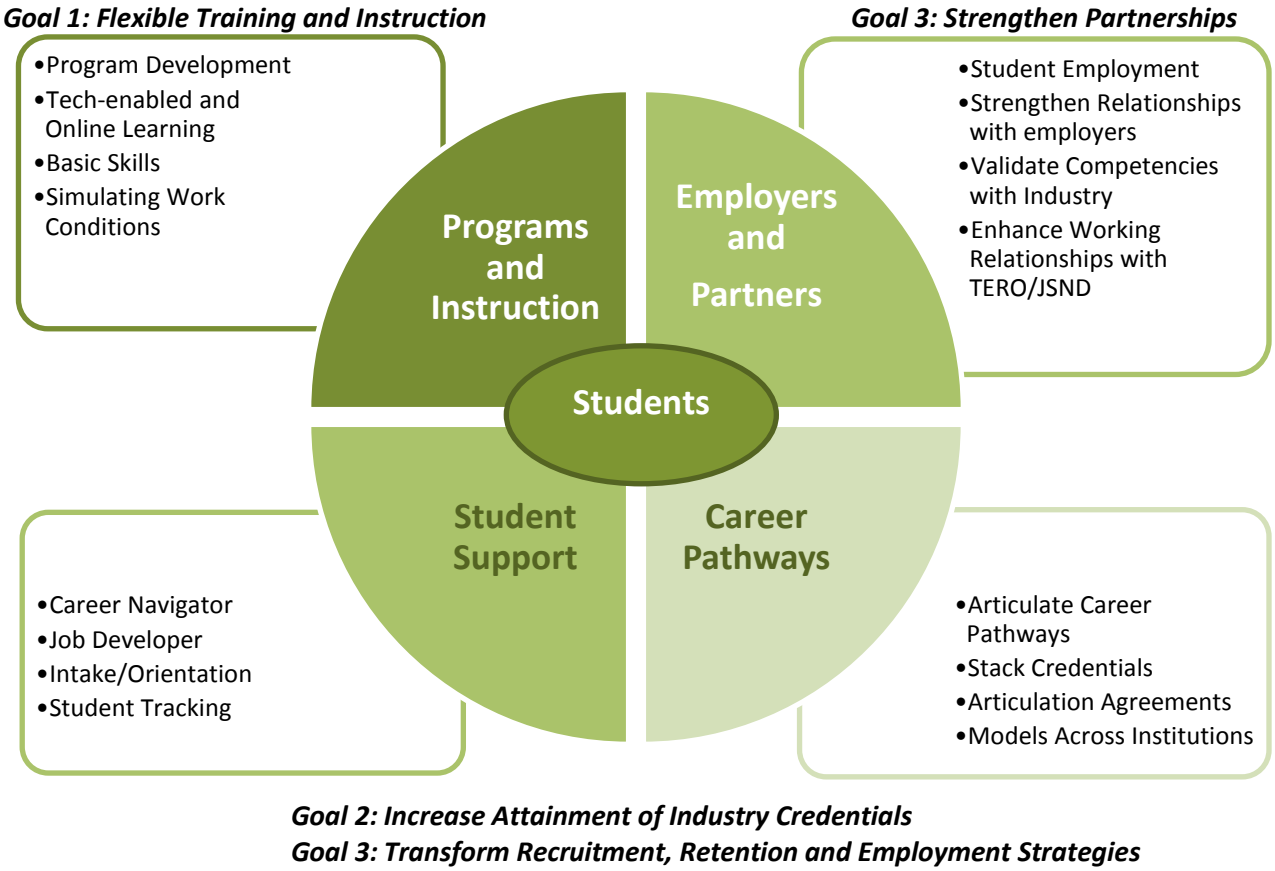


Figure 1: TREND Strategies and Activities

Overview of Third Party Evaluation

The Corporation for a Skilled Workforce (CSW) conducted the implementation study, and the Ray Marshall Center for the Study of Human Resources at the Lyndon B. Johnson School of Public Affairs at the University of Texas Austin (The Ray Marshall Center), conducted a quasi-experimental impact analysis to assess the effectiveness of the project.

Implementation Evaluation

The implementation evaluation was developed and operationalized around a set of key guiding questions associated with each of the TREND strategies and related deliverables (outlined below). These questions provided the overall, ongoing context and road map for the implementation evaluation. This set of strategies with their planned deliverables and related research question also helped to identify and hone the focus of specific evaluation activities, which included site visits, surveys, interviews and observations of meetings or other consortium activity.

Strategy 1 – Articulate and map career pathways and develop new and enhanced curriculum and credentials to fill gaps in TREND targeted industries.

TREND Deliverables	Implementation Evaluation Questions
➢ Career and Education Pathways ➢ Industry-Sector Partnerships ➢ Transfer and Articulation ➢ Criteria for Assessing Prior Learning ➢ Model for offering credit for non-credit courses ➢ Evaluation Process	✓ How were career pathways developed and mapped? ✓ How are they being used? ✓ How were industry sector partnerships developed and implemented? ✓ Describe the articulation process across TREND colleges and between 4 year institutions. ✓ How is prior learning being assessed and credited? ✓ How have career pathways affected students' ability to choose programs and to reach their goals? ✓ What is the status and result of the credit/non-credit model? ✓ What new tools/technology are being employed in this area? ✓ What staffing has occurred? What impact has it had on student recruitment, retention and completion? ✓ How do students find out about prior learning assessment?

Strategy 2 – Redesign program development and delivery systems to meet the needs of TAA eligible and other adult workers and the hiring and skill needs of TREND targeted industries.

TREND Deliverables	Implementation Evaluation Questions
➢ Access to equipment and technology enabled learning ➢ Multiple modalities utilized ➢ General and developmental education aligned to occupational courses and programs ➢ Guide for faculty and staff to develop smaller certificates to stack ➢ Evaluation process	✓ What equipment has been integrated in programs as a result of TAACCCT funding? ✓ How is faculty being trained on equipment? ✓ What industry certificates have been adopted as a result of TREND? ✓ What and how are certifications used when working with industry partners? ✓ How has curriculum and delivery changed in each of the programmatic areas? ✓ What teaching modalities are being used? ✓ How are faculty involved in creating stackable credentials? ✓ What impact has the purchase of equipment had on instructional design and delivery? ✓ How are technology-enabled tools being integrated in programmatic areas? ✓ What impact has TREND had on overall curriculum development and delivery? ✓ What has been the most valuable aspect of TREND as it relates to students and employers? ✓ What issues or challenges are you experiencing within the TREND grant?

Strategy 3 – Transform recruitment, retention and employment support strategies.

TREND Deliverables	Implementation Evaluation Questions
➢ Career navigation in place ➢ Recruitment, referral, and placement process in place (TERO, JSND offices, colleges) ➢ Hiring, retention and advancement processes in	✓ What process is used for student job placement? ✓ What and how are JSND and TERO integrated in student recruitment and retention? ✓ How are students supported throughout their programmatic journey (recruitment, job shadowing, apprenticeships, hiring, and retention? ✓ What systems are used to track TREND student? How is the information

place ➢ Data collection system in place (track employment, wages, retention) ➢ Model for learning/work related cohorts (adapted to other programs)	analyzed and used to improve TREND performance? ✓ How has TREND changed, expanded or improved employer engagement? ✓ How has TREND changed, expanded or improved job training and student placement? ✓ What's working and what needs improvement? ✓ What issues and challenges have arisen in the TREND work?

In the course of the grant period, CSW conducted three evaluation site visits during Fall 2014, Fall 2015, and Spring 2016. Additionally, CSW attended a day long employer meeting in August 2015. Areas of focus and inquiry for site visits were as follows:

Fall 2014: TREND Participation

- Students' motivation for and interest in program participation
- Primary barriers to and facilitators of program and employment access and persistence
- Promising recommendations, strategies, and policies for overcoming barriers and encouraging persistence.

Fall 2015: TREND Results

- Evaluate the status of TREND strategies and deliverables
- Evaluate the results of TREND implementation for member colleges
- Understand the potential for sustaining TREND accomplishments and outcomes beyond grant funding

Spring 2016: TREND Sustainability

- Identify what changed in context and conditions since receiving TAACCCT funding
- Identify what innovations have occurred
- Identify how TREND colleges will leverage and continue their partnership

Winter 2014/15 qualitative data collection included three surveys. The first survey collected information from both a student and faculty perspective about influences on participation in programs and job placement. The second survey gathered information directly from TREND employer partners to understand employer needs, the level of engagement, and areas for improvement. The final survey was sent to TREND faculty, staff and administrators to determine how they perceived the level and strength of employer engagement.

Additionally, quantitative data describing the nature of TREND participants, participant outcomes and impacts has been routinely collected and reported upon by the Ray Marshall Center (RMC). Details on their evaluation design and findings can be found in the second half of this report.

The first half of this report of this report describes qualitative/formative results of the implementation evaluation conducted by CSW. The second half of the report presents the quantitative/summative results based on the final round of data collection conducted and presented by the Ray Marshall Center.

Section I: Implementation Evaluation Final Report

Approach

The TREND Round 2 Final Site visit was conducted in April 2016 to prepare a final assessment of the status of implementation of each TREND strategy and to determine how TREND colleges were planning to sustain and build upon achievements and to address new and continuing challenges moving forward. CSW staff met with TREND colleges' leadership and staff as well as faculty when possible. Interviews were structured around a series of key topics and questions corresponding to TREND deliverables, innovations within TREND work, and intentional strategies to move TREND work forward.

Strategy 1: Articulate and map career pathways and develop new and enhanced curriculum and credentials to fill gaps in oil and gas, transportation, welding, and construction industries

Strategy 2: Redesign program development and delivery systems to meet the needs of TAA eligible and other adult workers and the hiring and skill needs of TREND targeted industries

Strategy 3: Transform recruitment, retention, and employment support strategies

Key Topics and Interview Questions:

Deliverables	Innovation Questions	Sustainability Questions
Strategy 1: Career Pathways • Career and Education Pathways • Industry-sector Partnerships • Transfer and Articulation • Criteria for PLA • Model for Offering Credit/Non-Credit • Evaluation Processes **Strategy 2: Program and Delivery Redesign** • Access to Equipment and Technology Enabled Learning • Multiple Modalities Utilized • General & Developmental Education Aligned to Occupational Courses and Programs • Guide for Faculty and Staff to Develop Smaller Certificates that Stack • Evaluation Process **Strategy 3: Transform Recruitment, Retention, and Employment Strategies** • Career Navigation in Place	1. What are the most important innovations that have come out of the TREND project? 2. Have you accomplished what you expected since the beginning of the grant? Why/why not? 3. If you could go back and talk to the grant writing team four years ago, what would change about your college's goals and commitment to the TREND project? 4. What surprised you about TREND achievements? What changed from a student perspective? Employer perspective? Institutional perspective?	1. What are your plans for programs developed through TREND? 2. What is your strategy for maintaining business sector partners? 3. What is your strategy for maintaining programs after the grant? 4. What have been the main benefits from TREND work? 5. Describe a situation where a TREND member brought something more to the strategy than you could achieve on your own.

• Recruitment, Referral, and Placement Processes • Hiring, Retention, and Advancement Processes in Place • Data Collection System in Place • Model for Learning/Work-related Cohorts		6. What is the lasting value of the TREND project to your college? 7. What's needed to sustain and grow what's in place?

Figure 2: TREND Site Visit Interview Questions

What Sustainability Means

The U.S. Department of Labor's Employment and Training Administration recently released a Planning Guide (https://www.doleta.gov/business/PDF/SustainGuide.pdf) to help TAACCCT recipients meet the challenges inherent in sustaining grant funded work. The guide makes clear that under the auspices of DOL funding, "sustainability" goes beyond maintaining status quo to "make sure goals of the project continue to be met through activities that are consistent with the current conditions and workforce development needs of the region, including both workers and industry."

For four of the five TREND colleges, applying for and receiving Round IV TAACCCT funding in 2014 provides the sustainability plan to maintain and grow programs, increase faculty skills, improve student support services (particularly to tribal college populations) expand industry partnerships and re-engage state and federal agencies in more concerted efforts to identify technical jobs and place students in those jobs. As might be expected, Round II and Round IV are part of a consortium-wide strategic continuum with little distinction in key sustainability elements between Round II and Round IV.

Key Elements of Sustainability	Round II (2012-2016)	Round IV (2014-2018)
Strategic Vision	Enhance TREND members' capacity to meet the talent needs of North Dakota's energy sector by developing and delivering flexible programs aligning to those needs while creating expanded opportunities for students to gain skills and credentials as the pathway to employment in high-skilled, technical jobs.	Enhance TREND members' capacity to meet the talent needs of North Dakota's energy sector by developing and delivering flexible programs aligning to those needs while creating expanded opportunities for students to gain skills and credentials as the pathway to employment in high-skilled, technical jobs.
External Environment	Growing and expanded energy sector; unprecedented boom in oil drilling,	Sector downturn requiring recalibration of programmatic focus for

	petroleum processing, energy maintenance/line workers, and related industries of transportation, construction trades, and welding.	some TREND Colleges. Increase in enrollment creating increased revenue, increased competition for qualified faculty to meet enrollment demands, and increased need for partnerships/job placement functions.
Targeted Populations	Adult Tribal Members TAA Eligible Participants Underemployed Incumbent Workers Career/Technical Education Students	Adult Tribal Members TAA Eligible Participants Underemployed Incumbent Workers Career/Technical Education Students

Status of Programs and Sustainability Outlook

Key Program Elements	Round II (2012-2016)	Round IV (2014-2018)
Programs	**BSC – Expanded** • Welding • Petroleum Production/Oil Field Training • Mechanical Maintenance • Process Plant Technology • Instrumentation and Controls **WSC – Expanded or Enhanced** • CDL • Diesel Tech • Welding • Business Services • Petroleum Production/Oil Field Training **SBC – New** • CDL • Welding • Electrician • Concrete • Oil Drilling **SBC – Expanded** • Building Construction Trades • Energy Technology **TMCC – New** • CDL • Concrete **TMCC – Expanded or Enhanced**	**BSC – Online simulations to expand:** • Electrical Power Generation • Renewable Energy Generation • Geographic Information Systems • Water and Wastewater Management • Enhance: • Petroleum Production Technology • Instrumentation and Control • Mechanical Maintenance • Process Plant Technology • Lineworker Programs **WSC, SBC, TMCC – Additional Welding Certificates:** • TIG, Pipe, and Auto Process **SBC, TMCC – Expand Building Construction Trades** • NCCER Standards/Certification • Plumbing Technology (TMCC) **BSC, SBC, TMCC- Expand CDL** • Highway Construction

	• Welding • Building Construction Technology • Process Plant Technology **Nueta Hidatsa Sahnish** • CDL • Welding • Building Construction Trades	Certificate • Heavy Equipment Operation Program Certificate **TMCC – Enhanced** • Process Plant Technology
Management Structure	BSC Lead Partner Colleges Project Managers Career Navigators/Job Developers Faculty College Staff	BSC Lead Partner Colleges Project Managers Career Navigators Faculty College Staff

Partnership Elements	Round II (2012-2016)	Round IV (2014-2018)
Partners/Stakeholders	All Five TREND Colleges TERO JSND Employer Partners	Four TREND Colleges TERO JSND Employer Partners
Funding	Round II TAACCCT Additional Grant Funding Leveraged	Round IV TAACCCT (except NHSC) State Board of Higher Education Envision 2030

Figure 3: Key Elements of Sustainability

External Environment

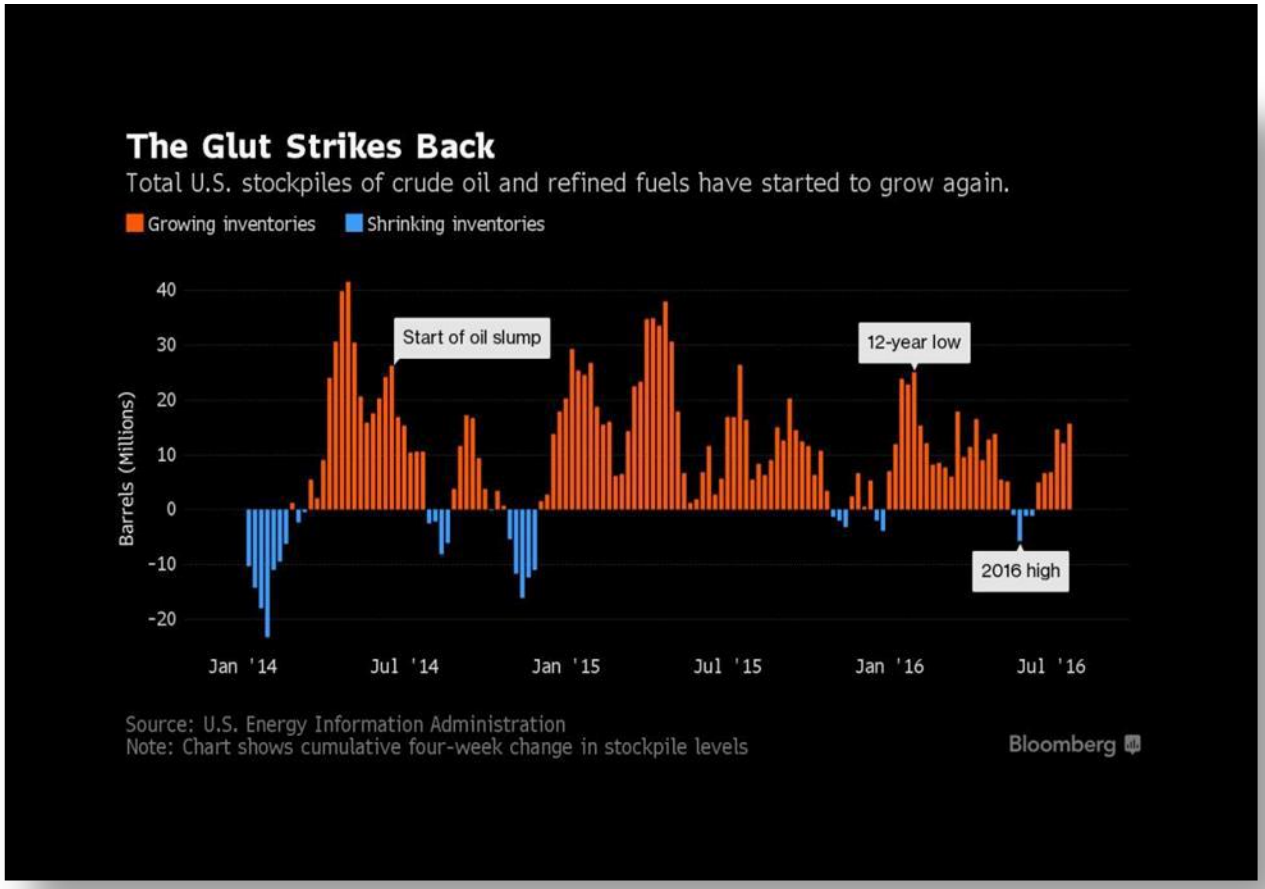
As with all economic environments, the ebb and flow of the energy sector was hard to predict in 2012. As recently reported in BAKKEN.com, Exxon Mobile saw its weakest profit in nearly 17 years; down 59% from a year ago while headlines like that from Bloomberg, marked a major downturn in North Dakota's fiscal well-being. Through experience and prescience TREND colleges factored in a potential shift in energy markets resulting in an intentional strategy to focus TREND work on ***building the capacity to adapt to change while remaining relevant*** to North Dakota's educational/economic eco-system.

BAKKEN BUST HITS NORTH DAKOTA HARD.

THE BOTTOM LINE: NORTH DAKOTA HAS BEEN LOSING JOBS FAST SINCE THE OIL BUST HIT, LEAVING 1,000 WELLS IDLE AND CREATING A $1BILLION BUDGET SHORTFALL.

Bloomberg, Jan. 2016

All five TREND Colleges reported the energy sector downturn did impact their respective institutions over the life of the grant. This impact included increased enrollment, waiting lists for some programs, increased competition for faculty, reduced state funding, the need to accelerate program development and to further enhance student support systems with emphasis on job development. However, all were in a good position to mitigate that impact. TREND members collaborated to effectively leverage knowledge, skills, and resources. The TREND funding, in a sense, insulated members from the ups and downs illustrated in the chart below.



TREND Implementation Status and Sustainability Outlook

Bismarck State College (BSC) Instructional Programs

Core TAACCCT Elements: Career Pathways, Technology Enabled Learning, Sector Strategies/Employer Engagement

Bismarck State College's (BSC) strength is its 40 years of experience in energy programs. A deep understanding of how to approach employer/sector needs while building and enhancing instructional programs proved invaluable to not only BSC but to all TREND members. Bismarck State College's mature online instructional programs led to a collaboration with TREND Consortium partner Turtle Mountain Community College. The approach made lateral and vertical articulation of content and credit seamless.

By creating general instructional areas that could be leveraged and sustained over the long term and by increasing delivery capacity through online and simulation instruction, BSC was able to pivot during the economic downturn without major financial impact on the college. Through its leadership and partnership with TREND members, BSC helped all TREND colleges to do the same.

Another critical component of TREND work was developing, articulating and validating through industry feedback, career pathways in TREND programmatic areas. This work successfully incorporated industry credentials and helped faculty think differently about course and program sequence in relationship to students attaining short- and long-term educational goals linked to viable and continuing employment. BSC TREND faculty met constantly as new equipment arrived, new/enhanced labs were developed to ensure not only the quality of BSC programs but to make sure programs aligned to TREND's collaboratively developed Career Pathways. The success of TREND deliverables paved the way for TREND strategies to be adopted and implemented college-wide, thus ensuring sustainability through systemic change. The model below illustrates student pathways.

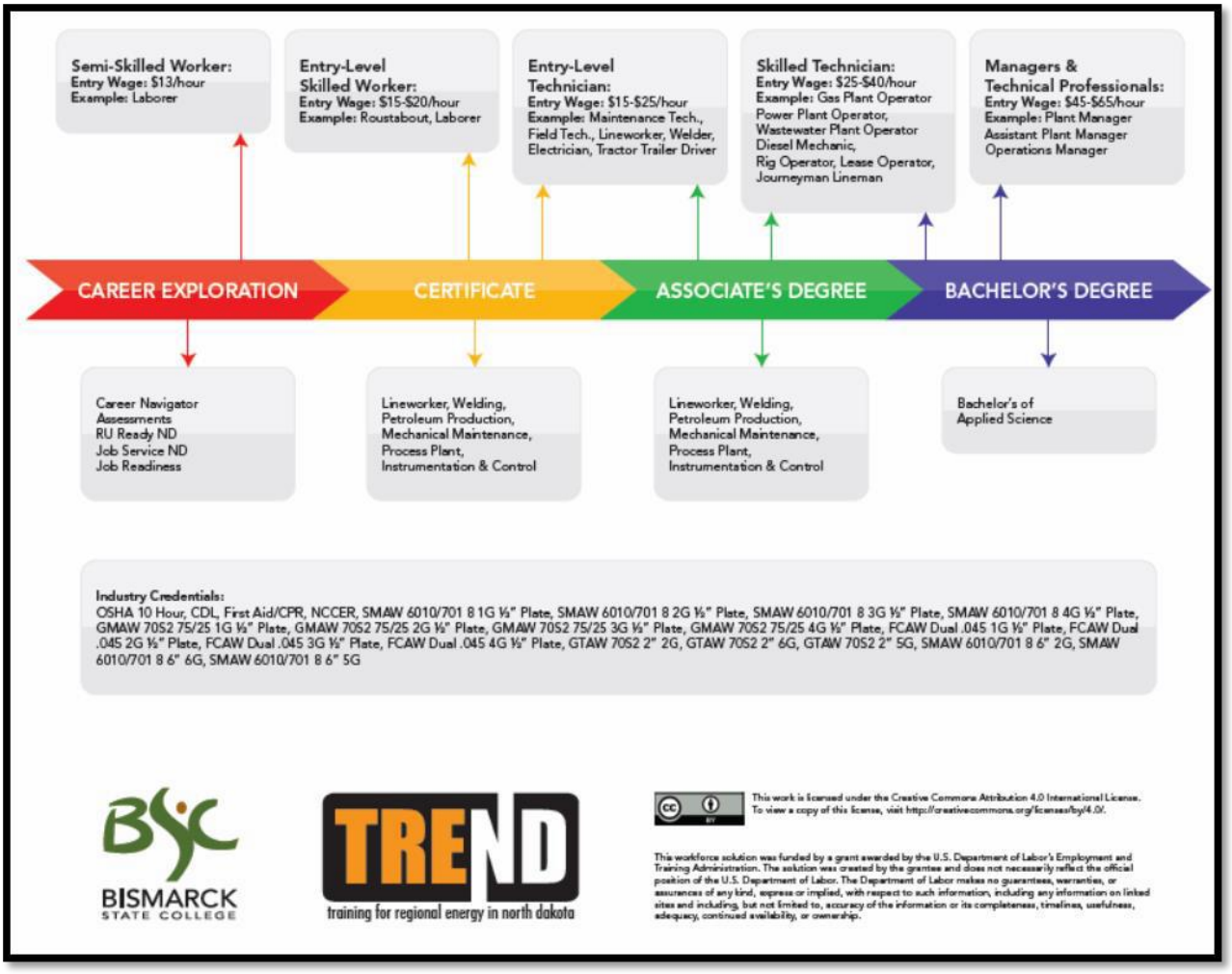


Figure 4: TREND Career Pathways

Bismarck State College (BSC) Management, Partners/Stakeholders

Core TAACCCT Element: Evidence-based Design, Strategic Alignment with Other Stakeholders

BSC was cited by all TREND members as instrumental in shaping and facilitating TREND members' success. Governance structures including fiscal governance, were based on earned trust. Sometimes heady, the cadence of work meant goals were met, standards were maintained and a maze of sometime confusing compliance criteria were navigated. Face-to-face meetings among and between TREND project managers, faculty, career navigators and job developers enabled members to share best practices, strategies and resources. Members were trained in all business aspects of grant management and because of employee turnover, "training" often meant retraining.

The consortium facilitated a network of information exchange and over time more organic relationships which extended to all partners including employers. Leadership from each TREND college were engaged in quarterly meetings to make sure the initiative had informed leadership champions – essential to sustaining outcomes after funding. TREND members were instrumental in establishing a data collection/management system that moved easily into Round IV. The system includes spot checks for deliverables and sustainability – all data-driven.

BSC provided administrative support for member colleges early on, making routine field calls, synthesizing individual college progress and aggregating it to the whole – keeping and telling a story of continuity. Perhaps the greatest consortium-wide impact was securing a jobs services agreement with the state of North Dakota allowing TREND members' access to State Longitudinal Data Systems (SLDS). This data enables TREND members to track participant employment records (in the aggregate) and verify employment gains made by TREND students. SLDS data comes from 43 states – so important when dealing with a transient or online community of learners.

Four of the five TREND colleges have integrated SLDS as a component of college-wide data collection systems – all but NHSC, who chose to forego the agreement to share data. SLDS numbers help the consortium demonstrate the positive impact TREND has had on students, on building a talent pipeline, and on long-term economic health for the region as evidenced by the proud BSC Line Worker Program graduates in the picture below.

Figure 5: BSC Line Worker Program Graduates

Nueta Hidatsa Sahnish College (NHSC) Instructional Programs

Core TAACCCT Elements: Career Pathways, Technology Enabled Learning

Over the life of TREND Round II funding, change has been one of the only constants for Nueta Hidatsa Sahnish College. The college has experienced three new Vice Presidents in as many years. Until recently, TREND management suffered from a lack of staffing continuity with little administrative oversight. Emphasis on oil was identified as a huge misstep particularly in light of the energy downturn. Yet, in the final year of funding, NHSC has made considerable progress in the areas of program and faculty development. Career pathways in Welding and Construction Trades have been defined and have been embraced by faculty. Assessment has been incorporated in CTE programs with faculty now writing learning objectives. Block classes have been introduced and are now a factor in course design and offerings. Project-based learning is bubbling to the surface is being examined in conjunction with career pathways.

All of these building blocks are now firmly developed and are coming together with TREND initiatives a key driver in NHSC instructional development processes which are more inclusive and more transparent. The college hopes to expand building trades and CDL programming. A strategic decision to discontinue outsourcing CDL instruction led to hiring a full-time faculty member. Concurrently, the success of industry credentials has motivated NHSC to locate national certification in the construction trades.

Nueta Hidatsa Sahnish College (NHSC) Student Populations, Management Structure, Partners/Stakeholders

Core TAACCCT Element: Evidence-based Design, Strategic Alignment of Workforce Systems and Other Stakeholders, Career Pathways with Latticed and Stacked Credentials

Two major structural barriers for NHSC, data collection and TERO/JSND alignment, have been corrected. The college spent the final year of TREND reconstructing data for programs of study; locating and tracking the records of all 104 students. This process revealed that college-wide data wasn't managed as effectively and efficiently as possible, producing a shift in data management structures. Faculty have nurtured relationships with students and are leveraging those relationships to help collect vital student data; something tribal members are often wary of. Faculty are now administering TREND surveys in the classrooms as part of intentional data collection outreach.

NHSC has made a concerted effort to reach out to TERO and JSND to learn how to work together to help students access over 477 TERO job postings. College staff have learned processes to place Native American students in non-native companies helping students call in weekly for temporary jobs using TERO as the referral mechanism. TERO has also expressed interest in using TREND's stackable credentials model to help employers train new workers at

all stages of employment. This "up-skilling" strategy is helping link incumbent workers to NHSC programs. Faculty function as the liaison between students and employers and are serving as mentors to fill the gap when TREND's Career Navigator position expires.

NHSC student services helps TREND students in a number of ways including transitioning from job readiness skills to life skills, job search support, assessment and placement, using TREND tools which are fully integrated including the new Employability Guide and PowerPoint deck.

Sitting Bull College (SBC) Student Population

Core TAACCCT Elements: Career Pathways/Student Support

Sitting Bull College's leadership, faculty and staff have one goal in mind – improving student outcomes by offering relevant programs and support strategies designed to help students manage and overcome the daunting challenge of systemic poverty, lack of access, and cultural barriers. A particular emphasis for SBC is the tribal community's at-risk male population.

Creativity and persistence are major components of SBC's student support strategy; using the Career Navigator function as the primary means of outreach, support, and job placement. Of note is an initiative to help Native students who resist employment opportunities if the opportunity requires relocation. SBC is working with temporary job agencies to place students in short-term, part-time positions matching students who are labor ready with labor finders. Students earn an income while engaging in work-based learning. SBC had found that a day-to-day work strategy eases students into learning how to make a commitment to a job helping stave off a major hurdle to success; student employment attrition.

Transportation is another hurdle for students attending SBC. In response, the college is offering housing to students enrolled in the Welding Program. The upskill training needs of SBC's employers are being met through short-term programs, designed and delivered in 3-4 week sessions and can include housing options. Orientation and outreach now focus on job skills and job skill attainment. All certificate programs have job skills integrated. TREND students receive customized orientation in coordination with SBC's student services. TREND brought career fairs to SBC with over 60 employers participating in Spring 2016. Work with BNSF, the Border Patrol, and North Dakota's Department of Transportation have led to student job placement. Attending job fairs and orientation is now mandatory. Instructors are partners with the Career Navigator. They actively engaged in recruiting students, requiring job fair attendance, and in providing support for students after course/program completion.

Sitting Bull College (SBC) Instructional Programs

Core TAACCCT Elements: Career Pathways, Stacked and Latticed Credentials, Sector Strategies, Online and Technology Enabled Learning

During the course of Round II funding, SBC expanded its capacity to serve students and employers by launching new programs in Welding, Electrical Technology, and CDL. The Energy Tech Program has been relaunched under a revised strategy now providing energy audit

certification for residential and commercial building. This module will be integrated into the expanded Building Trades Program. All TREND programs are subject to the same internal program audit conducted for non-TREND programs to determine quality, cost, interest and feasibility of the offering. After this process, SBC tightened up TREND curriculum, created flexible modules and integrated some courses and programs to sustain and maintain TREND capabilities and to expand the model to certificate programs outside of TREND.

For SBC, the largest hurdle to success is locating faculty. The new electrical lab is not operating. Welding is not being offered although there is a student waitlist. Short-term fixes like hiring adjunct faculty to teach six weeks of pipe welding or a journeyman to help students currently enrolled in electrical programs is less than optimal. Expansion of the CDL Program to include heavy equipment is predicated on locating qualified faculty. SBC has been successful in hiring and retaining a new Building Trades instructor.

Figure 5: Sitting Bull College Construction Trades Program Graduates

Sitting Bull College (SBC) Management Structure, Partners/Stakeholders, Funding

Core TAACCCT Element: Evidence-Based Design, Strategic Alignment of Workforce System and Other Stakeholders

After SBC's recent restructuring, TREND programs are now located under the direction of the newly hired Dean of Academics who reports directly to the President. This strategy creates a greater alignment across all of SBC's academic and CTE offerings and increases the college's ability to leverage operational resources to deliver flexible learning products. NCCER certifications have been noted by leadership as an extremely important tool to engage and reward students' job skill attainment. As a national credential, NCCER has set the stage to expand these types of offerings and assessments to other non-TREND programs.

SBC has partnered with TERO to help students write TREND specific resumes and acquire job search skills using the TERO system. SBC uses TERO's social media presence as part of the college's outreach strategy, integrating it in SBC's Career Services Page on Facebook. Lastly, SBC cited the ability to track student wage data as a game changer particularly as SBC continues to

successfully leverage state support and funding for Career Technical Education renovations and new infrastructure (SBC's electrical lab).

Turtle Mountain Community College (TMCC) Student Population

Core TAACCCT Elements: Career Pathways/Student Support

For TMCC's leadership, the issue of persistent poverty in their community frames the college's vision of dramatically closing the poverty gap through innovative yet relevant educational opportunities. Participation in TREND is seen by TMCC leadership as a vehicle to help the reservation community, particularly adults, engage in taking incremental steps toward long-term, life sustaining work beginning with the attainment of a GED, access to and attainment of certifications and industry credentials through flexible delivery programs, securing a job and acquiring the ability to successfully live and work in communities outside the reservation.

For TMCC's student population, dealing with life issues is overwhelming. Tribal colleges are located in the state's poorest areas where employment when available is usually in low-skilled, low-wage jobs. The unemployment rate exceeds 70%. Culturally, students struggle to find footing in communities outside of the reservation and even when employed, often return to their community of origin, continuing the cycle of poverty. For TMCC, TREND funding provided not only the opportunity to create meaningful programs, but more importantly, the opportunity to fund an intensive student support system. The system, although resource heavy, is customized to meet the needs of each student, with a team of faculty, the TREND project manager, and career navigator, working directly with individual students to ensure success. The model has been adopted and is being used as a tool to improve all TMCC's student services college-wide to ensure sustainability.

"WE DON'T LET STUDENTS FAIL" DR. JAMES DAVIS, PRESIDENT TMCC

TREND recruitment and retention strategies informed Turtle Mountain's entire outreach campaign helping TMCC create a unique approach to promote smaller, achievable programmatic pieces to TMCC's student population resulting in an enrollment increase from 4% to 9%. Predicated on the success of this work, TMCC is building out and extending TREND recruitment and retention strategies as a scalable, replicable model. Additionally, TMCC has included in its strategic plan, the goal of promoting the TREND framework as a best practice model to all Tribal Colleges in an effort to sustain the work at a regional and state level.

Turtle Mountain Community College (TMCC) Instructional Programs

Core TAACCCT Elements: Sector Strategies/Employer Engagement, Stacked and Latticed Credentials, Tech Enabled Learning

To TMCC, the instructional design and delivery systems resulting from TREND participation were exceptional. After TREND, the college uses articulated career pathways and stackable credentials in its Process Plant Technology, Welding, and Building Construction Technology (within which Concrete is stackable) programs. Prior to TREND, TMCC had never offered a sixteen week certificate. The Commercial Vehicle and Heavy Equipment (a Round IV initiative), and Welding programs were built using BSC's block scheduling model.

General education is no longer a separate course as it has been integrated into CTE career readiness and tech communication instruction. The model resulted in greater retention and has now migrated to developmental education programs embedding TREND processes as systemic change tools. Work-based learning is a foundational component of all TREND programs. As an example, Welding students experience a business in the classroom as part of an internship strategy. For TMCC, maintaining the ability to continue to develop short-term tech training is critical to student success.

Turtle Mountain Community College (TMCC) Management Structure

Core TAACCCT Element: Sector Strategies/Employer Engagement, Tech-enabled Learning, Evidence-based Design

Faculty are fully engaged in leveraging benefits from TREND particularly to upgrade their skills in order to fully use programmatic equipment, engage employers in curriculum design, and to continuously innovate. Equipment purchases like mobile computers allow faculty and students to go to site specific spaces to engage in learning. A Drone is now used in CDL training back up exercises to record movement using GPS technology as points of reference. New opportunities being implemented through Round IV funding, include Heavy Equipment training, Pipe Welding, and enhanced CDL.

Career navigators and job developer functions are now ubiquitous at TMCC. Much of that function is now data-driven. TREND provided the means to track students from start to completion and to demonstrate how success is linked to employment by receiving wage data through the State Longitudinal Data System (SLDS). Through BSC's considerable efforts, SLDS now provides aggregate wage data to TREND colleges enhancing the ability to compare and analyze data. These tools are built into TMCC's systems and will be maintained after the grant funding ends.

Turtle Mountain Community College (TMCC) Partners/Stakeholders

Core TAACCCT Element: Strategic Alignment with Stakeholders, Evidence-based Design, Transferability of Credit

TMCC cited the importance of the consortium and the rich learning platform it provided for all aspects of the grant. Faculty continue to seek industry partners and employer input as both a function of instructional improvement and as an avenue for students to find job and create the means for tribal students to transition successfully to work. The partnership with Bismarck

State College has particular benefit to TMCC as the college hopes to develop an Associate Degree in Power Plant Technology through an online delivery system. Articulation agreements have gotten stronger as have business partnerships.

TMCC's leadership is determined to continue to seek funding to support, sustain, and grow the systemic changes developed under Round II TAACCCT funding. The President seeks, at some point, to increase the college's artificially low tuition while leveraging Round IV funding to access other state and federal grants.

> ***"TREND CREATED MORE AVENUES FOR NETWORKING WITH THOSE SHARING SIMILAR PROBLEMS"***
> ***TREND PROJECT MANAGER***

Williston State College (WSC)

Core TAACCCT Elements: Strategic Alignment with Workforce Systems and Other Stakeholders, Career Pathways, Sector Strategies

In response to changing job dynamics where energy was once the driving force, Williston State College (WSC) envisions leveraging TREND work and partnerships to develop a regional instructional strategy where programs would not be separate but become appendages of a learning hub. The hub concept would more closely mirror integrated systems commonly used in production processes starting with design, NIMS/CPPT, moving to industrial maintenance within the petroleum/natural gas sector to the food industry.

Building on TREND's technology-enabled instruction and delivery systems, the hub concept would draw from shared instructional models and career pathways, where all partners could use lab space in specific time blocks or access online courses through articulation with Bismarck State College. The concept would also reach back to high school partners in a concerted effort to develop a regional talent pipeline; developing people who have the skills to meet shifting job dynamics.

Williston State College Instructional Programs

Core TAACCCT Elements: Technology-enabled Learning, Career Pathways, Stacked and Latticed Credentials, Sector Strategies, Employer Engagement

WSC faculty have embraced a systems approach to programmatic design. An example is the marriage of two programs – Saltwater Disposal/Petroleum with IT. Faculty recognize PLC technicians need programming skills so have developed a phased approach to mechatronics curriculum beginning with electrical skills, process control, instrumentation, hydraulics leading to an AMATROL certification with integrated fundamentals of networks and CISCO certifications as part of the "lattice" of credentials. The "hub" prototype will have open labs supported by automation/simulation technology. Faculty continue to upgrade skills creating their own models of stackable credentials. Armed with relevant skills and knowledge, faculty are better positioned to engage industry and students in a holistic model of student mentoring. In this model, self-identified CTE students move from general advising to program specific resources.

Students who self-select welding are given math pre-tests. Those identified as needing math recovery, are coached to access and complete a self-paced/open entry/exit math remediation process. These new processes and tools are being scaled campus-wide.

In addition, WSC had combined the Career Navigation/Job Placement function with TREND grant management strategically combining data with coaching from faculty advisors who have embedded employability skills and business management skills in each CTE program. The approach blends learner support in direct partnership with faculty.

Williston State College (WSC) Management

Core TAACCCT Element: Evidence-based Design

A critical change in the last year of Round II funding was to improve the Williston's data collection process by combining TREND project management with the Career Navigation function. This strategy led to improved data collection systems delivering individual student data from program to financial aid to career. Student surveys are now delivered in hard copy to TREND classrooms and are administrated in real-time. Access to SLDS data enabled WSC to track state wage data and match it with WSC participant placement data providing a more robust picture of a student's end-to-end journey as well as better overall metrics for the college. Data is consistent, clear and concise. For WSC, the next step is to collect dynamic data that reflects fully a student's life.

Williston State College (WSC) Partners/Stakeholders

Core TAACCCT Elements: Strategic Alignment with Workforce Systems and Other Stakeholders, Sector Strategies/Employer Engagement

Students have multiple avenues through which they connect to employers and engage in WBL – a strength of WSC. Employer partners include the Hess Corporation which offered six competitive internships. Two Hess internships were awarded to Williston students. WSC's Career Navigator and instructors acted as liaisons between the students and industry and worked with students to develop resumes and prepare for the internship review process.

Another project with high industry engagement included Petroleum students repairing and placing a donated pumping unit on campus. Students managed the project from design through due diligence to implementation. At each phase industry partners were engaged as contractors. Many provided donated labor and supplies. Three student teams presented ideas to industry and educator panels, incorporating panel feedback and refinement at each phase. Project management skills were an essential part of competing successfully. Welding students raised funds for a field trip across the state to manufacturers that provide viable employment alternatives that mitigate oil downturns.

The college has active and engaged CTE program advisory committees. Industry members provide regular feedback on programs. A renewed relationship with Williston's JSND includes a commitment by entities to collaborate more on Job Fairs and in future efforts to train students on placement and job preparedness. WSC will continue to build on a comprehensive outreach strategy including web design, social media, print media, and economic development

partnership messaging. These important relationships produce TREND champions and lead to community support as a component of sustainability.

Summary

Overall, Round 2 TAACCCT funding has resulted in TREND colleges implementing the range of strategies and their related deliverables, albeit with some challenges and caveats. Clearly, planned activities, consortium-wide efforts and focus, and equipment purchases were all designed to achieve an overarching goal of capacity building. Dedicated support staff at each college have proven instrumental in ensuring TREND strategies have gotten traction and TREND participants have received the individualized support and structure needed.

Further, the consistent structure and high quality of grant management support delivered by BSC's staff was frequently noted by consortium members as critical throughout implementation. During site visits, colleges repeatedly noted BSC's leadership as instrumental in data collection and tracking, developing and facilitating productive meetings, fielding questions, and in general creating a strong partnership built upon mutual goodwill throughout the grant period.

As with all initiatives made up of multiple partners, success and challenges vary from partner to partner and college to college. Changes in the energy industry, challenges with hiring and retaining quality faculty, and difficulty finding local employment opportunities for graduating participants were all noted as obstacles along the way. Even so, TREND colleges have largely successfully implemented - and secured funding to sustain – their vision for innovations or expansions in program delivery, student supports, career pathways, and employer/partner engagement.

Training for Regional Energy in North Dakota (TREND):

Final Evaluation Report

Gregory Cumpton
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September 2016

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INTRODUCTION

The Training for Regional Energy in North Dakota (TREND) Consortium project is a four-year project funded by the Department of Labor's (DOL) Round Two Trade Adjustment Community College and Career Training (TAACCCT) grants program. The grant was awarded in September 2012 to Bismarck State College (BSC), which is leading a consortium of five colleges across North Dakota. Other colleges in the TREND project include Nueta Hidatsa Sahnish College, Sitting Bull College, Turtle Mountain Community College, and Williston State College. These five colleges all reside in the western half of the state, so are relatively close to the Bakken Formation, a region primarily focused on oil drilling, extraction, and production which provides the focus of much of the consortiums' efforts. For a large state like North Dakota, 'relatively close' means that three of the colleges are between 220 and 280 miles away from Williston, ND, the primary urban center within the Bakken Formation.

The TREND project intends to capitalize on the region's energy sector, providing training and certification for jobs either directly related to the drilling and piping of oil (such as welding and petroleum production certification), the processing of oil into various useful components (e.g., process plant certification), transportation of drilling and processing materials and supplies (e.g., Commercial Driver's License (CDL) certification), or ancillary but related job opportunities (e.g., construction and energy management certifications).

The Corporation for a Skilled Workforce (CSW), in collaboration with the Ray Marshall Center for the Study of Human Resources at the Lyndon B. Johnson School of Public Affairs at the University of Texas Austin (The Ray Marshall Center), is conducting an implementation study and an outcomes analysis to assess the effectiveness of the project. The Ray Marshall Center (RMC) is the lead for the outcomes analysis. For this final outcomes report, researchers use provided data to determine program completion rates, credit hours received by participants, employment status in the immediate post-training period, and earnings outcomes.

This report begins by describing the oil labor market in North Dakota in general, and the oil boom which began in 2006 (Zeman) in the Bakken Formation. The report outlines participant characteristics, identifies three primary groups of interest (program completers, program exiters who did not complete a program, and individuals still enrolled in a TREND

college), and focuses on three sets of outcomes: college credits received, employment status (employed or not), and earnings. The report begins by examining all program participants (N=2,461), then focuses on participants who completed a program (N=907), looks at the provided employment status post-training of completers, and, finally, presents earnings information for employed program completers who provided it (N=258).

NORTH DAKOTA AND THE BAKKEN OIL FIELD

Oil development in what is now North Dakota began during the late Devonian and early Mississippian period, roughly 350 million years ago. The Williston Basin, the region which would later become the Bakken Formation, resided underwater just north of the Equator; under anoxic marine conditions layers of organic material deposited over millennia becoming oil and gas (Theloy 2014). Oil extraction first arrived in North Dakota in 1951, with the Clarence Iverson #1 drill in Williams County, which produced hundreds of thousands of barrels of oil over 28 years.[1] However, geologic features generally inhibit ready access to the large quantities of reserves, including "reservoir quality and thickness, structural and stratigraphic framework, rock-mechanical properties, nature fractures, to pore-overpressure distribution, organic geochemical parameters, and trapping mechanisms" (Theloy 2014). These difficulties made the Bakken Formation oil too difficult or too expensive to extract prior to the early 2000s except for a period in the 1980s when, adjusted for inflation, the market cost of crude oil reached over $80 a barrel (in 2015 dollars) (Apaydin 2014). Technological advances in horizontal drilling combined with historically high market costs of crude oil (reaching an inflation-adjusted peak of $138 a barrel in June of 2008 and maintaining a market cost of over $80 a barrel from Oct. 2010 through Oct. of 2014) led to increasing drilling and extraction in the Bakken Formation.[2] By 2012, North Dakota produced more barrels of oil per day (on average) than Alaska; by the end of 2015, North Dakota produced 1.2 million barrels of oil per day, more than countries such as India and Columbia. For the rural counties in North Dakota at the heart of the Bakken Field, this

[1] http://www.ndoil.org/image/cache/Facts_and_Figures_2011_-_online.pdf

[2] http://www.eia.gov/forecasts/steo/realprices/

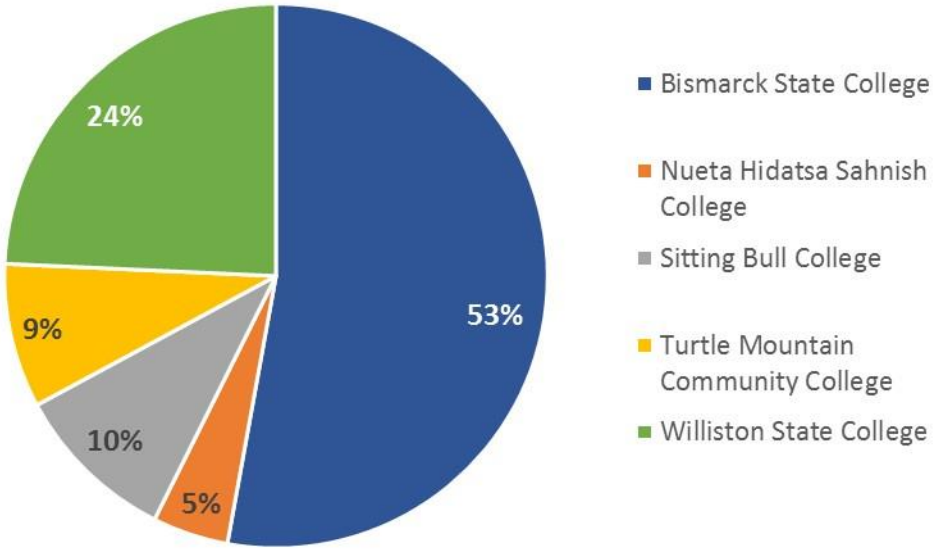
rapid increase in oil drilling activity requires not just companies and equipment but well-trained, skilled workers.

The ragged coattails of oil boom employment opportunities are varied. New residents in previously small towns and rural areas place strain on infrastructure; Williston's service population increased 20% just between 2012 and 2014 (Johnson 2015). More residents mean greater need for city and county services, including police officers (Johnson 2015). Housing and rent costs have also increased significantly in the region (Apaydin). A key goal for the TREND program is to train individuals, enabling them access to higher paying jobs.

PARTICIPANT CHARACTERISTICS

This section examines participation and completion patterns and describes the population served by the TREND program. Data for this section comes from college academic records, specifically individual demographics and program of enrollment. By the end of Round II, a total of 2,461 individuals had participated in the TAACCCT TREND program. Figure 1 describes the share of students served by college. Roughly half of all program participants enrolled at Bismarck State College (53%), with the other half attending the other four colleges.

Figure 1. TREND Participation, by College (N=2,461)



The majority of students identified themselves as White (67%), with just under a quarter identifying themselves as Native American (23%), with 6% of participants being African American. Participants were overwhelmingly male (84%) but less than a tenth (8%) identified as veteran. The average age of participants was 28 years old, though individuals as young as 17 and as old as 73 enrolled in a TREND program. Less than 1% of participants (4) identified themselves as having petitioned and been granted Trade Adjustment Assistance. While this

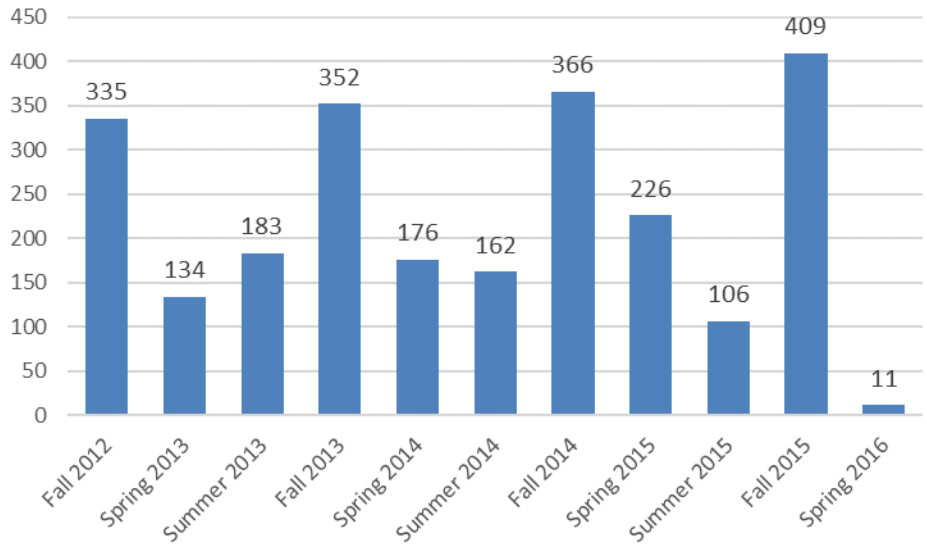
number appears relatively small, between the fall of 2013 and the fall of 2015 only 49 individuals received any Trade Readjustment Allowance (TRA) in North Dakota, which provides income support to unemployed individuals engaged in workforce training programs like TREND (U.S. Department of Labor).[3] More than a quarter of participants (27%) were eligible for Federal Pell Grant aid. Eligibility varied greatly depending on the college attended, with less than 20% of participants attending Bismarck and Williston State Colleges (15% and 19%, respectively) qualifying for Pell aid, while nearly half of training program enrollees attending Nueta Hidatsa Sahnish and Sitting Bull Colleges (48% and 49%, respectively) qualifying for Pell aid; the vast majority (91%) of TREND participants attending Turtle Mountain Community College qualified for Pell aid.

While roughly 40% of students enrolled in a TREND program possessed some type of previous higher education experience (e.g., enrolled but did not graduate from college or received a Bachelor' or Associate's degree) the vast majority of these students enrolled in a program at Bismarck State College, with nearly three-quarters (74%) of participants there having some college experience. Fewer than 10% of program enrollees in each of the other colleges reported having any college experience.

Participants enrolled in a TREND program from the Fall of 2012 through the Spring of 2016 (Figure 2) with more than half of participants (58%) enrolling in fall semesters. All colleges enrolled participants throughout the grant period, though only Nueta Hidatsa Sahnish College enrolled Round 2 participants in the Spring of 2016.

[3] https://www.doleta.gov/tradeact/Stateoverview.cfm

Figure 2. Participant Intake Over Time



Colleges offered 24 programs for potential enrollees, though just over half of students chose one of four programs: Energy Management (18% of all participants), Process Technology (14%), Commercial Driver's License certification (10%) and Business Management (9%). More than a third of TREND participants enrolled in Lineworker (7%), Petroleum Production (7%), Welding (6%), Instrumentation and Control (5%), Oil Drilling (5%), and Welding Technology (4%) training programs. Other course offerings accounted for 15% of student enrollment and included the following: Mechanical Maintenance, Accounting, Diesel Technology, Information Technology, Building Construction, Construction Technology,
Electrical, Plumbing, Administrative Assistant, Building Trades, Energy Technology, Concrete, Framing, and Transportation Technology.

Both Bismarck State College and Williston State College offered TREND-specific online courses, and TMCC offered one online program through BSC. More than a third (38%) of TREND participants began their enrollment program through an online course offering. All coursework for the Energy Management training was online; Petroleum Production program participants tended to enroll through the online program as well, with 64% doing so; more than half (56%) of enrollees in the Process Technology program accessed the program online. Other programs with at least some online enrollees included the following: Accounting, Administrative Assistant, Business Management,

Instrumentation and Control, Lineworker, and Welding. Online offerings allowed a wider catchment area for potential program enrollees; TREND enrollees lived in all 50 states and several international locations (Table 1). International students represented American citizens that are serving in the U.S. Military Forces overseas.

Table 1. Share of State of Origin or Residence, by Classroom or Online Enrollment

	In North Dakota	Nearby North Dakota	Oil Producing States	Other States/ International
Classroom	82%	12%	2%	4%
Online	37%	9%	20%	32%

Note: Based on self-reported state of residency upon enrollment in a TREND program. Nearby North Dakota includes residents in the following states: Montana, South Dakota, Wyoming, and Minnesota. Oil producing states include all states whose October 2015 crude oil monthly-thousand barrels exceeded 10,000 according to the U.S. Energy Information Administration and includes states whose coastal waters border significant federal offshore oil regions, which includes the following states: Alaska, California, Colorado, Florida, Louisiana, New Mexico, Oklahoma, Pennsylvania, and Texas. All other states not within these two categories are classified as "Other States."

Online enrollees differed demographically than their classroom peers, having a higher average age (32 compared to 25 years old) and included a larger share of participants with previous higher education experience (78% compared to 17%). Online participants tended to be white at much higher rates than their classroom taught peers (85% and 56% respectively). African Americans made up 9% of online participants but only 4 percent of classroom enrollees. Online participants were also more likely to be veterans (14%) than those enrolled in classroom courses (4%).

These notable differences between online and classroom TREND participants indicate that they represent unique constituencies. While ostensibly seeking the same goal, to train for careers in the energy industry, those from online backgrounds are more likely to have already been employed in the field and more likely to have earned a college degree (either a bachelor's or an associate's) prior to enrollment.

PROGRAM OUTCOMES

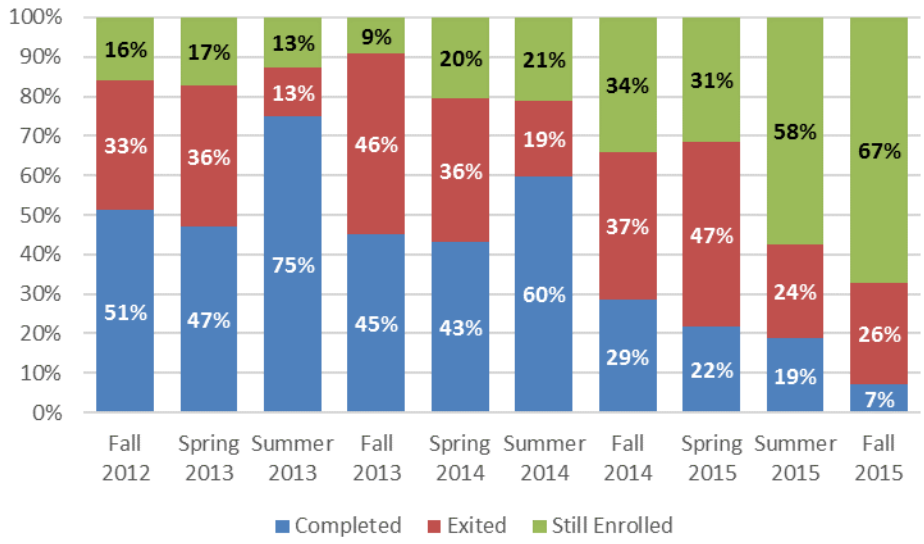
This section summarizes outcomes of participants in the TAACCCT TREND program. Numbers and figures in this report reflect data collected from the colleges between the fall of 2012 and the spring of 2016. Information on credit hours earned and completion relies on college data systems and entered into TREND tracking spreadsheets. Individual employment and earnings, both before enrolling in the program and after successful completion of the program, rely on student reports through exit surveys and college staff follow-up. The TREND Consortium lead college, Bismarck State, was successful arranging access to state wage data in the summer of 2016. Regrettably, this proved too late to provide a thorough analysis for the purposes of this report, but the data is included later in this report.

PROGRAM COMPLETION

TREND served 2,461 participants during Round 2. A total of 907 students (37%) ***completed their program of study***; 809 students (33%) ***exited their program without completing a degree or certificate***; and, 745 students (30%) ***remain enrolled in a program***.[4] Participant completion, exit, and enrollment status varies by program but primarily by the start date of enrollment (Figure 3).

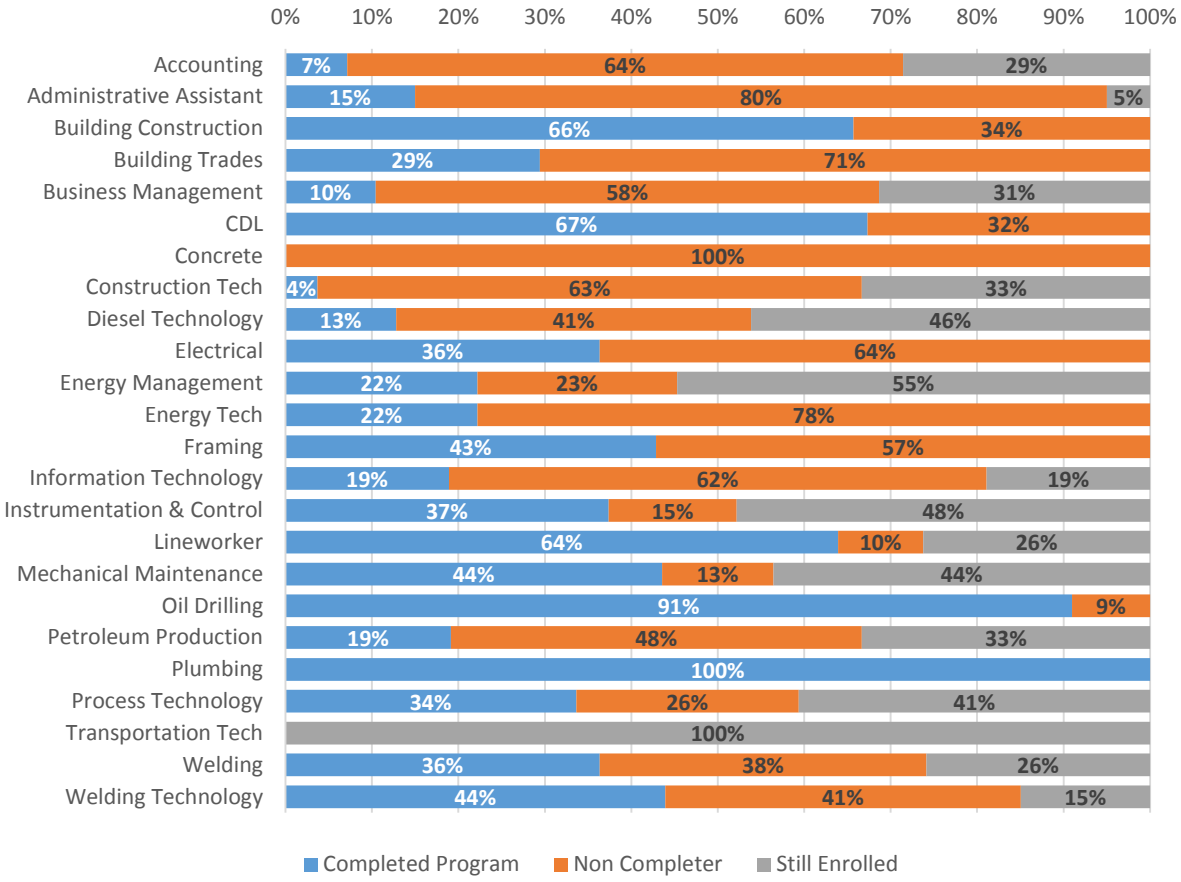
[4] Completion status determined by two variables: successful completion and unsuccessful completion. Individuals in the former group completed a program, those in the later exited without completing a program. Student records lacking evidence of either completion or exiting are still enrolled.

Figure 3. Completion, Exit, and Enrollment Status, by Initial Enrollment Semester



Enrollment and completion status also varied by program (Figure 4), with some programs indicating large portions of completers (Plumbing and Oil Drilling have shares of completers above 90%) while other programs include a large share of individuals who dropped out, chose another program, or for some other reason were classified as being a non-completer (Concrete, Administrative Assistant, Energy Technology, and Building Trades programs each experienced non-completion rates over 70%). Several programs include a large share of individuals still enrolled in a TREND college or program (e.g., Transportation Technology and Energy Management programs).

Figure 4. Completion, Exit, and Current Enrollment Shares of TREND Program Entrants, by Program (N=2,461)



Individuals still enrolled in a program (N=745) are excluded from further outcome analysis; only completers and non-completers (N=1,716) are discussed. Calculated completion rates for TREND programs exclude students still enrolled in a program; just over half (53%) of all non-exiting enrollees completed a program of study. Completion rates for programs vary by program and college (Table 2). Several programs at colleges report perfect (100%) completion rates, while others report null (0%) completion rates.

Table 2. Completion Rates by Program and College

Program	BSC	NHSC	SBC	TMCC	WSC
Accounting					9%
Administrative Assistant					16%
Building Construction				66%	

Building Trades			29%		
Business Management					14%
CDL		52%	26%	46%	100%
Concrete			0%		
Construction Technology		6%			
Diesel Technology					27%
Electrical			35%		
Energy Management	49%				
Energy Tech			14%		
Framing			43%		
Information Technology					22%
Instrumentation & Control	72%				
Lineworker	87%				
Mechanical Maintenance	77%				
Oil Drilling			91%		
Petroleum Production	26%				31%
Plumbing			100%		
Process Technology	58%			59%	
Welding	77%	0%	60%		
Welding Technology				66%	26%

Note: Includes online and classroom enrollees in programs with more than 5 participants.

COLLEGE CREDITS

Excluding the Williston State College CDL program, which granted continuing education credit rather than college credit for completion, and less than five students from two programs at Sitting Bull College, all completers received some college credit, though average credits received varied by college and program (Table 3). College credits needed to complete program requirements varied by program but also from person to person as some entrants arrived with some experience at college, while others likely needed to take preparatory coursework prior to taking some portions of the training courses.

Table 3. Average College Credit Hours Received for Program Completers

Program	BSC	NHSC	SBC	TMCC	WSC
Accounting					46.3
Administrative Assistant					30.3
Building Construction				9.9	
Building Trades			19.0		
Business Management					51.2
CDL		15.1	10.8	15.4	0.0
Construction Tech		26.0			
Diesel Technology					54.6
Electrical			18.0		
Energy Management	43.9				
Energy Tech		52.0	12.0		
Framing			18.0		
Information Technology					57.4
Instrumentation & Control	52.3				
Lineworker	36.9				
Mechanical Maintenance	51.4				
Oil Drilling			4.0		
Petroleum Production	49.0				40.3
Plumbing			3.5		
Process Technology	47.0			43.0	
Welding	34.5		5.9		
Welding Technology				40.6	29.9

Note: No college credit hours reported for programs at colleges with no completers.

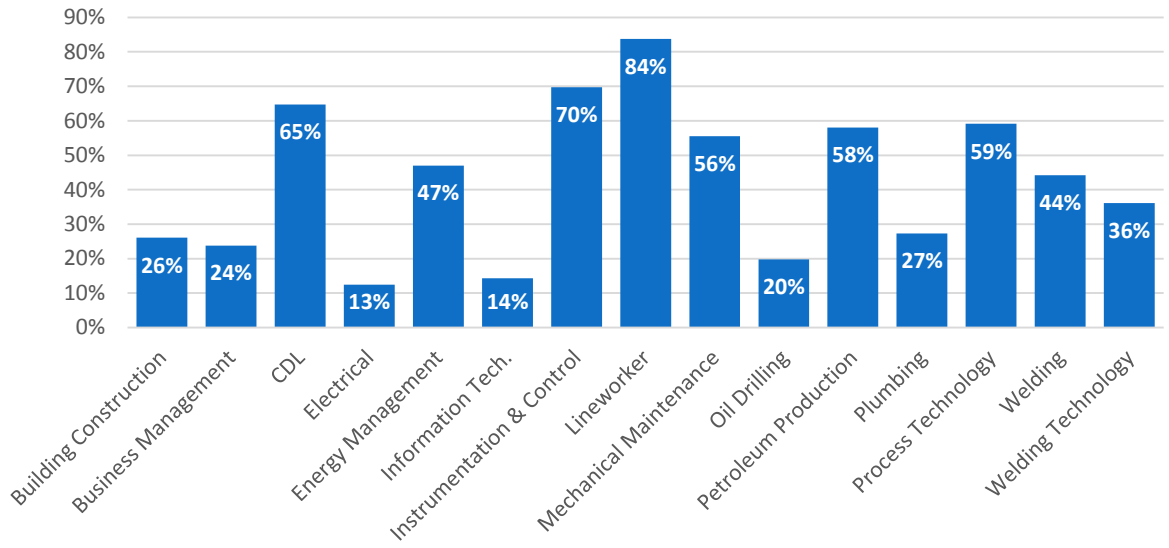
TAACCCT grants encouraged colleges to build stackable credential program structures, so that individuals could exit the program in the short term but potentially return and build upon their learning in future years. Outside of the structure of programs, such as providing interim employment-based certificates, one key method colleges of provided for additional learning involves accumulating college credits throughout the training programs. Ideally, even non-completers from a program earned college credits, allowing them to return at a later time. More than three-quarters (78%) of TREND non-completers received some form of college credit despite not completing their program. Non-completers earned on average 15 college credit hours and lacked an average of 29 credits (roughly nine three-credit courses) to reach the average total credits received by completers for their college's program.

POST PROGRAM EMPLOYMENT

Employment information relies on student reported and college collected information; several collected variables indicate student employment status, including date of employment, name of position, name of employer, full or part time status, whether the job was within or outside the field of study, and information on post-training salary. Individually, these variables exhibited a large share of missing information but they complement one another, with some individuals providing a name of their position post-program completion and others providing their date of employment. Taking the union of these sets provided an indication of post-training employment outcomes. Since the union of these variables neglects acknowledgement of lack of employment, non-response is assumed to indicate an individual is not employed. As some completers likely found employment but neglected to report back to their college, employment status may understand actual employment. On the other hand, measuring employment status through surveys of program participants may over estimate actual employment as individuals may falsely report this information. Hence, employment rates here, while clearly representing the data collected on employment, may over or under estimate actual employment.

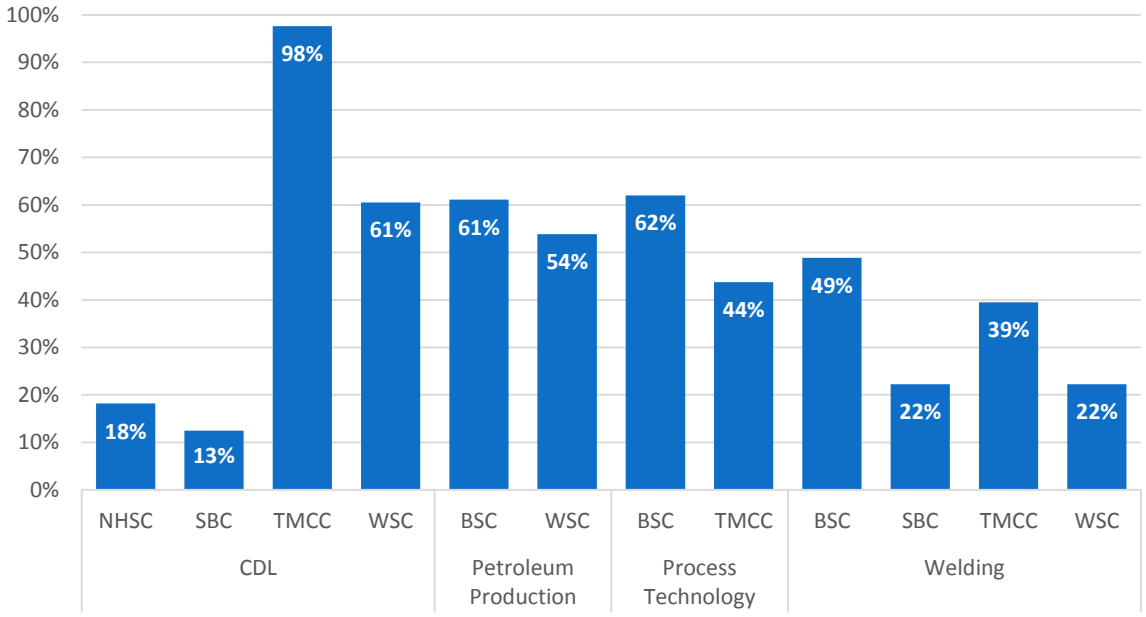
Out of 907 completers, 472 (52%) provided information indicating likely employment, though these varied by program (Figure 5). Colleges developed or enhanced programs offered through TREND in order to match students with high demand and high wage employment. More than 60% of graduates from some programs (Lineworker, Instrumentation and Control, and CDL) found employment after completing their training, while completers from some programs (Electrical, Information Technology, and Oil Drilling) reported much lower rates of employment (not more than 20%). Note employment rates presented only include programs where more than five individuals reported employment.

Figure 5. Employment Rates of Completers, by Program



Employment rates by program may also differ by college, as some colleges offered similar programs (Figure 6). TREND colleges not only provide structured curriculum, but also employment services, which may differ by college. The relatively high rate of employment for CDL program graduates is due, in large part, to very high rates of reported employment for both Turtle Mountain Community College (98%) and Williston State College (61%) CDL completers.

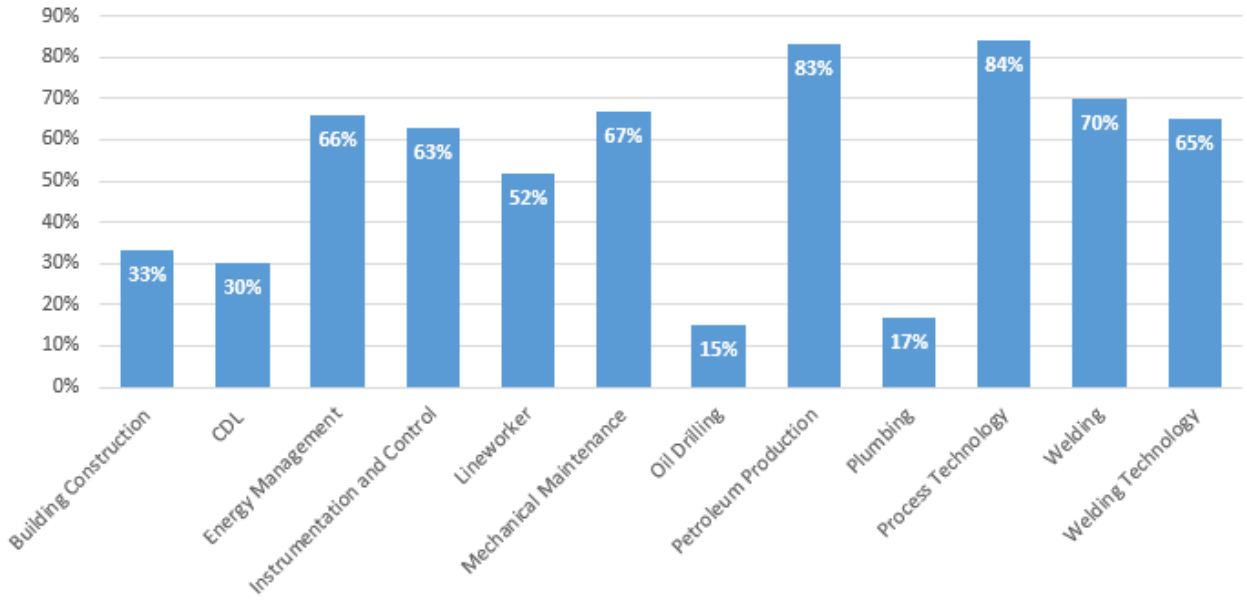
Figure 6. Employment Rates of Completers, by Program and College



POST PROGRAM EARNINGS

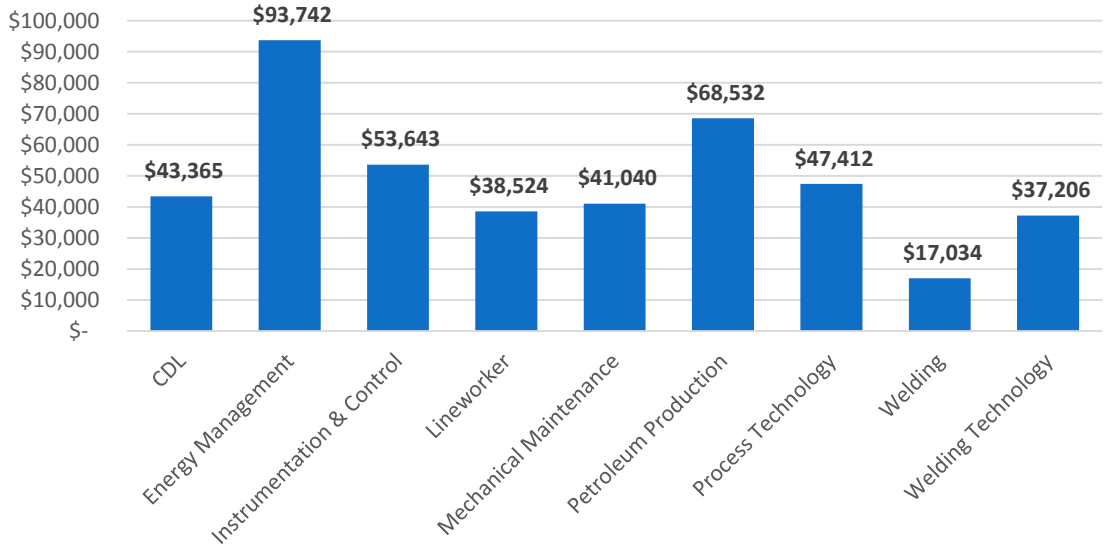
A majority (55%) of TREND employed completers provided wage information about their post training jobs, though the share reporting earnings varied by program (Figure 7). The larger the share of reported earnings, the more confidence that presented earnings reflects the true earnings of individuals who completed the program and found employment.

Figure 7. Share of Employed Completers Reporting Earnings, by Program



Reported average earnings of employed program completers indicate varying levels of income depending on the program (Figure 8).

Figure 8. Average Reported Earnings for Employed Graduates, by TREND Program



Note that while average earnings for Energy Management graduates exceed $90,000 more than 96% of employed energy management program completers had some experience with previous higher education, in addition to Energy Management being offered as a Bachelor's-level program for participants that have already attained their Associate's degree. The average reported salary for TREND graduates was $48,369 (with a median of $42,372).

State Longitudinal Data System (SLDS) DATA

The TREND Consortium only recently received its first SLDS data on four of the five TREND colleges, too late for a thorough analysis. TREND lead, Bismarck State College, stayed in close contact with Job Service North Dakota (JSND) throughout the TREND grant period to work through various issues to eventually get permission to receive SLDS data. At this time, TREND is only allowed to receive data in the aggregate. BSC worked with SLDS to develop the reporting template and data-sharing process, and in turn provided that information to other TAACCCT grantees in the state to allow for easier reporting.

SLDS results are below for the three and a half program years of the Round II TAACCCT grant. The TREND Consortium colleges asked the SLDS for data to report on the required Department of Labor outcomes for non-incumbent workers – employed the first quarter after the quarter of exit; and of those employed from the first quarter also maintained employment in the second and third quarters after exit. But because the TREND Consortium serves many participants that enter the training with some sort of employment, whether a minimum wage job or employed in the industry of choice, TREND also asked for employment data from SLDS on all participants.

Figure 9. Average Reported Earnings for Employed Graduates, by TREND Program

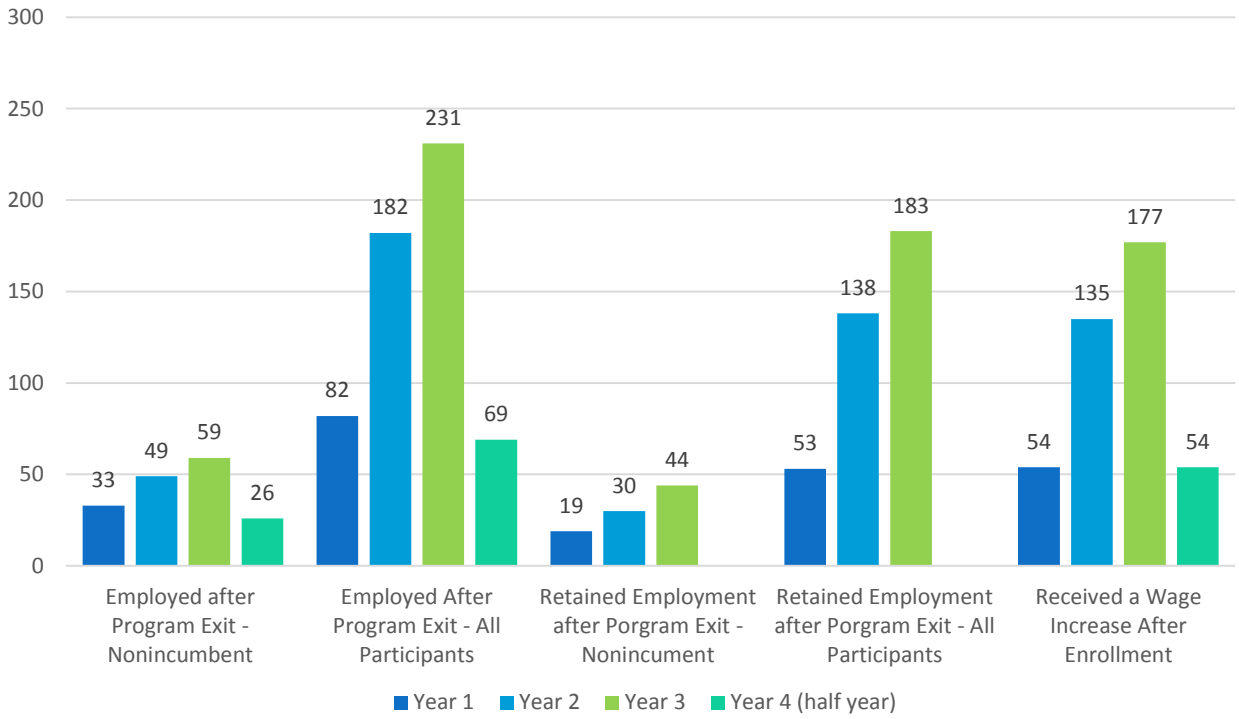


Figure 9 above provides outcome information for program completers. Considering just over 900 completers, these figure indicate a post-program employment rate over 60% (larger than the estimated 52% using survey data alone). Of those initially employed, two in three (66%) were found employed six months after completing their program.

CONCLUSION

Programs in the TREND colleges are still underway, with another 745 participants who enrolled during Round 2 of the TAACCCT grant (30% of all enrollees); many of these participants will continue to complete their program, find employment, and report earnings in the near future. Hence, information presented here represents not the culmination of the TREND consortiums efforts but a snapshot of their progress.

LIMITATIONS

Results presented include notable limitations related primarily to data collection and reporting. While colleges provided data on individuals using their own data systems, most of the colleges relied on individual college program managers to obtain this data and then place it within a TREND Excel file, the mode mutually decided upon by researchers and the consortium.[5] While this method can be effective, there should always be concerns regarding transcription errors or other types of data inconsistencies.[6] Furthermore, each college maintains their own data systems and their own excel files. Unique differences across these files, both in structure and content, required researchers to develop common definitions across all files.[7] These post-collected common definitions lean more toward generality rather than specificity, and investigatory queries may have suffered as a result.

In particular, large portions of information on individuals' prior employment background and post-program outcomes remain missing from the dataset provided to researchers. Outside of the general nature of dealing with missing information, this type of data, hinting at the 'success' of 'failure' of an individual, is likely not missing at random, though employment status and earnings were more likely to be reported for employed completers than other groups, allowing for some cautious reporting on these metrics. Efforts are still underway by the colleges to obtain more detailed outcome employment information from the State of North Dakota.

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[5] Though several notes follow in detail about this issue, readers should note that the issues described are common among programs and initiatives similar to the TREND program. Discussion of these here is an attempt to provide insight for future evaluations and to provide context for TREND colleges as they continue to work on evaluating their programs.

[6] For example, various data fields indicating the type of certificate or degree awarded were originally used to determine whether an individual had completed a program. However, some colleges reported the certificate or degree that would have been reported had the student completed a program (essentially pre-filling the data table) and using another variable (unsuccessful completion) to indicate whether the reported received degree had been actually achieved.

[7] For example, colleges collected exit wages on completing participants provided RMC researchers, alternatively, an hourly wage (assumed to be for a 40 hour work week), a weekly wage, a monthly wage, or one of two slightly different categories of yearly wages. Researchers then grouped these responses into the most consistently collected yearly categories.

The original evaluation plan called for a quasi-experimental study, where TREND participants would be 'matched' with similar non-TREND college goers in an effort to measure the impact of the TREND program on employment and earnings. However, there are a couple of problems with using a quasi-experimental approach for this particular evaluation. First, all colleges closest to the locations for high demand fields for which individuals are training participate in TREND during this round of funding; thus, there are no individuals receiving equivalent training not funded through this grant, preventing researchers from establishing the counter-factual of what might have happened to individuals if they had not engaged in this program. Second, both the large share of likely non-random missing data about participant employment and earnings prior to and after program participation as well as the reliance of surveys to collect this information likely introduces some undeterminable biases within the data; this prevents a fully accurate accounting of 'success' or 'failure' of individuals in the program regarding their employment and earnings goals. Any similar program without individual administrative data available to program directors or researchers encounters this second often difficult issue. Regardless, college data on entry and completion, being derived from administrative data, does not include these data quirks.

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