

CHAPTER 3

Building an Ecosystem of Effective Institutional Partnerships

Lead Author: J. Keith Baker, North Lake College, TX

Contributing Author: Robert Rak, Bristol Community College, MA

Community colleges are becoming more experienced in developing public/private partnerships with government entities (including local schools, governments, and community agencies), nonprofits and the private sector. Community college leaders must continue to identify strategies for productive partnerships and elevate a dialogue about the benefits and challenges inherent in a rapidly escalating social and technological environment. This chapter describes best practices for developing public/private sector partnerships around sustainability including renewable energy (wind, solar, and geothermal), gardens, and transportation.

Sustainability is a good fit for community colleges because it includes multiple stakeholders: community, societal, economic and environmental. Changing demographics and swiftly evolving technologies require community colleges to provide a state-of-the-art curriculum for ever-changing labor requirements. Industry partners can give college administrators insight into where jobs will be in the future. In his book, *What Excellent Community Colleges Do*, Josh Wyner suggests that “to prepare a skilled workforce, colleges need to understand whether their programs are aligned with labor market needs.” With this in mind, a community college’s “workforce” strategy should be centered on ways the college can help students become the best job candidates for local industries.

Responding to private and public sector needs will also help colleges obtain funding for state-of-the-art technology to maintain modern business practices. Many community college facilities and academic programs are in need of updating. In order to maintain long-term relevance, community colleges should offer training programs in cooperation with local industry. Community colleges can reach underserved populations while providing local businesses with the skilled labor force that they need.

Students expect sustainability to be addressed in their academic experience. They also expect it at work. The wide adoption of voluntary sustainability reporting, as well as the emerging B-Corp model, is not only a response to regulations but to pressure from the stakeholder base and the expectations of their growing millennial generation workforce.¹

¹ Baker, Pamela S. PhD. “Sustainability Standards and Sustainability Reporting Is the Accounting Profession Ready?”, *American Accounting Association, Paper Presentation, March 2017 Southwest Region Spring Meeting*

CASE STUDY: USING RENEWABLE ENERGY POWER PURCHASE AGREEMENTS

This case relates the public/private sector partnership with Sun Edison for the installation of a 3.2 MW Solar Carport at Bristol Community College in Massachusetts.

A real advantage of a Power Purchase Agreement is that there are no upfront costs when using a Third-Party PPA structure. Bristol CC entered into a Power Purchase Agreement with SunEdison in 2013. These agreements typically last 20 years (but this can be negotiated). BCC chose to enter a 20 year contract and opted for a fixed PPA price (no escalation) for contract term, which was a valuable price hedge against increasing utility cost. (While you can get a lower starting price, it could be accompanied by a possible escalation each year. SunEdison was responsible for project design, financing, construction, and O&M for the 20 year contract term and it is important to note that SunEdison owns the project, not BCC. BCC purchases the electricity generated from the project. That pricing includes both supply and delivery costs.

The project has averaged 3,500,000+ kWh/year generated from the 9,676 MEMC modules that make up the solar canopy over the new parking lot that has an expected \$1.75 Million in projected savings over contract term. It has allowed BBC to diversify their electricity supply and provided 100% of electrical requirements in the summer and about 2/3 during the winter months. It has had great public relations impact and an excellent educational opportunity for BCC. Bristol CC has demonstrated that solutions can be had; your institution only has to think about things differently and be willing to accept change.

CASE STUDY: PARTNERSHIPS FOR RENEWABLE ENERGY PROGRAMS

The Iowa Community Colleges have a heightened interest in turning out wind energy technicians. Walking onto the Estherville campus of Iowa Lakes Community College (ILCC) today one notes a large building entitled the *Wind Energy & Turbine Technology* in shiny silver letters. ILCC started with the idea of a small group of wind energy experts and college administrators in 2003. This group began discussions on a possible wind program for Iowa Lakes Community College and, by November of that year, the Iowa Department of Education approved the first educational wind program in the state—ILCC's two-year Associate in Applied Science, Wind Energy and Turbine Technology. There were 15 students the first year (fall of 2004). By the second year of operation, admissions to the program had to be temporarily suspended, due to demand alongside limited space.²

They began working with the American Wind Energy Association (AWEA) as a business advisor. The ILCC program worked for the approval for the AWEA's Wind Turbine Service Technician's

² ILCC's Website at Wind Energy Tab FOA titled "When/How did the Wind Energy and Turbine Technology program get started?", accessed at: <https://www.iowalakes.edu/academic-programs/programs-of-study/industrial-technology/wind-energy-turbine-technology/faqs/when-how-did-the-wind-energy-and-turbine-technology-program-get-started/>

Program seal of approval, which ILCC earned in 2011. Public/ private partnerships like the one with ASEA and firms like Chava Wind LLC continue to upgrade wind installations on campus and training and job internships for students.

Mount Wachusett Community College (MWCC), located in Gardener, MA., received a grant from the National Science Foundation, Advanced Technological Education Program, which is aimed at funding a full curriculum in energy service sector careers. After MWCC completed the plan outlined in the NSF grant, the college entered into a partnership with the Community Power Corporation of Litton Colorado to build and install a 50kW to 75kW downdraft gasifier plant that uses wood chips as the feedstock. MWCC partnered with the U.S. Department of Energy's Golden Field Office for this construction and received a \$1.2 million research and development project grant.³

The biomass wood chip project provides between 50kW and 75 kW of electricity and nearly 420,000 Btu's of thermal energy per hour and has resulted in displacing 682.65 tons of CO₂ per year. To put this into perspective, the energy generated is sufficient to provide one year's worth of electricity and heating needs for 44 homes.

MWCC then added both solar and wind applications on campus, as part of its Renewable Energy Curriculum Development. Starting with a small 5kW photovoltaic array, within five years, MWCC added 100 kW of photovoltaic panels on the main building. To accomplish this, the college partnered with the Massachusetts Technology Collaborative, Mass Development Finance Agency, and the Massachusetts Executive Office of Environmental Affairs Sustainability Office on development and funding of this \$870,000 project.

Partnerships for the campus wind project began in 2007, when MWCC partnered with Massachusetts Executive Office of Energy and Environmental Affairs, the Division of Capital Asset Management, the Department of Energy Resources, and the Executive Office of Administration and Finance to enable construction of this \$9 million wind energy project. In March 2011, MWCC had activated two new Vestas V82 wind turbines that generate 1.64 MW.⁴ These wind turbines are generating 100% of MWCC's annual electricity and returning power back to the grid as a source of revenue and have enhanced MWCC as a training facility for wind technicians. This project earned MWCC a Climate Leadership Award from Second Nature in 2011.

These stories illustrate that implementing a campus renewable energy curriculum takes time, and steady attention from multiple partners sharing funding, expertise, and goals. Community

³ MWCC's Website – Tab titled "CHP Project" accessed at:

<http://mwcc.edu/sustain/biomass/chp-project/>

⁴ MWCC's Website – Tab titled "e-News" article named "MWCC Honored with National Climate Leadership Award" accessed at:

<http://archive.constantcontact.com/fs023/1102470512203/archive/1106180619666.html>

colleges bring to the table many assets including infrastructure, but most importantly, the teaching and training function and connection with local communities.

CASE STUDY: GEOTHERMAL HEATING AND COOLING

John Wood Community College (JWCC) in Quincy, IL obtained a \$50,000 grant from the Association of Electric Cooperative's "GeoAlliance" Program and the Illinois Clean Energy Community to pay for installing a geothermal heating and cooling system in its new student activity center. This saves 540,000-kilowatt hours of energy with a closed loop system buried 200 feet in the ground near the building that provides the water source for its heat pump. It is estimated that this system of eight closed loops is saving JWCC \$25,000 each year in energy costs.

DESIGNING RENEWABLE ENERGY CURRICULA THROUGH PARTNERSHIPS

Cape Cod Community College (CCCC) developed an education and training ladder to prepare students for jobs in sustainable energy and water. The program is designed through close partnerships with local industry, including internship programs with firms such as 1) Cape Wind a firm working on a wind energy farm off the coast of Cape Cod; 2) Cape Light Compact an energy service firm operating on Cape Cod and Martha's Vineyard serving over 200,000 customers; 3) U.S. Army Corps of Engineers; 4) Clean Energy Designs a successful solar integration, energy efficiency and solar installation firm with 20 years' experience; 5) and many others.

Similarly, Ivy Tech Community College (ITCC) of Indiana has concentrated on workforce alignment partnering with industry leaders. ITCC has developed with the commiseration and energy sector employers several sustainable energy training certificates including:

- Industrial Wind Technology Technical Certificate
- Renewable Energy Technology Technical Certificate

An example of this industry cooperation can be best explained by Vectren Corporation's partnership with Ivy Tech Community College for a variety of training programs. Vectren has participated in many projects where they have made cash and like kind donations. One such example was Vectren donating a power plant simulator valued at \$110,000 to the Evansville, Indiana campus⁵. Partnerships with Vectren, Johnson Melloh Solutions, Siemens, General Electric, Kirby Risk, Caterpillar, ALCPA and American Electric Power are allowing industry contributions in addition to job placement. These include donating the latest equipment, guest instructors, collaborative training materials, aid with fund raising and joint funding of infrastructure. An example of aid with fund raising is "In 2001, then CEO Niel Ellerbrook played

⁵ Ivy Tech Foundation 2011-2012 Annual Report. "Vectre and Ivy Tech Work Together to Improve Southwest Indiana, page 25, Accessed at: <https://www.ivytech.edu/files/11-12annual-report.pdf>

a major role in leading the Ivy Tech Foundation capital campaign, which resulted in raising \$9 million and later Vectren sponsored the included sponsorship of the Ivy Tech Workforce Certification Center, dedication of the Vectren Auditorium and a commitment of \$200,000 over five years”⁶.

Another certificate program at ITCC is their Environmental Design - Technical Certificate where students learn by hands-on learning, and just like their Energy Technology program partners with several local businesses. ITCC students due to these active industry partnerships make sure ITCC’s graduates have cutting edge technology as part of their curriculum.

Another benefit of graduates of the energy technology certificates and environmental design program being actively sought by firms involved is as alumni allow for input for upgrading these programs and in fund raising. Over time ITCC has trained students who maintain, build, assess and design wind turbines systems, energy storage systems, solar photovoltaic systems, solar thermal systems, geothermal systems and design smart grid homes. This addition to more traditional energy system jobs that ITCC continue to provide training for such as grid operators, power linemen, power plant operators and electricians.

CASE STUDY: GARDENS AND WETLAND ACCESS

Greenfield Community Colleges (GCC) in Greenfield, MA runs a series of Wetlands Access Workshops. This is a partnership between the Office of Workforce Development and Community Education and its Sustainable Agriculture and Green Energy Center (SAGE). The project is funded by the Massachusetts Department of Conservation and Recreation Recreational Trails Education Grants program.

The GCC campus Outdoor Learning Laboratory (OLL) includes a ¼-acre permaculture garden, a one-acre accessible botanical garden and organic vegetable garden teaching space, an accessible geological rock park, and forest research plots. Vistoris to the OLL use a boardwalk that sits atop an emerging wet-meadow wetland whose plants will grow up around the boardwalk. Students and community members will be able to study them up close without disturbing the protected area. The OLL is an ongoing initiative, funded through grants from the Wallace Genetic Foundation, the National Science Foundation–Advanced Technology Education, and the Massachusetts STEM Starter initiatives have included accessible botanical garden beds, organic garden beds, teaching nodes, and various samples of natural meadow and wetland habitats.

The success of the OLL has allowed GCC to expand on existing partnerships with Four Rivers Charter School that borders the same wetland area and GCC is working with the Town of

⁶ Ivy Tech Foundation 2011-2012 Annual Report. “Vectre and Ivy Tech Work Together to Improve Southwest Indiana, page 25, Accessed at: <https://www.ivytech.edu/files/11-12annual-report.pdf>

Greenfield which is applying for a separate grant to enhance its recreational/educational trail system. Over time various other advocacy/preservation/ education organizations that have participated and/or partnered in GCC's Wetlands Access Workshop are the Mount Grace, Kestral, and Franklin Land Trusts, Mass Audubon Society and the Connecticut River Watershed Council.

CASE STUDY: PARTNERSHIPS FOR TRANSPORTATION

North Lake College in Irving, Texas worked with the Dallas Area Rapid Transit system to allow a DART Light Rail station to open on some of its property adjacent to the main campus. The Dallas County Community College District (DCCCD) Chancellor Dr. Wright Lassiter Jr. made the announcement that the station would be open in December of 2012 and that "North Lake College and the DCCCD as had a rich and very supportive relationship." Lassiter said "The North Lake College Station in Irving gives faculty, staff and students an environmentally friendly option for traveling to and from the college via the Orange Line." Continuing with this leadership in encouraging mass transit and the lowering of the DCCCD's carbon foot print, they introduced the GoPass program in the Summer of 2017 that allows students in the DCCCD that meet the following requirements to be able to apply for a free DART pass for bus and train transportation: To participate in the GoPass program a credit student enrolled in six or more credit hours (for the Fall or Spring semesters) and three or more credit hours (for Summer semester) or a continuing education student must be enrolled in 96 or more contact hours (for the Fall or Spring semesters) and 48 or more contact hours (for Summer semester). Artful coordination between the college presidents, the DCCCD Chancellor Dr. May and having a Trustee of the DCCCD like Philip J. Ritter who is also a member of the Dallas Area Rapid Transit Board as well as being the DART Planning Committee Chair, Regional Transportation Council Member helps in allowing public/private partnerships work to serve the community, environment and students better.

CONCLUSION

Community colleges continue to face differing demands from stakeholders for education, training and innovation. Community college boards, administrators, staff and faculty must be aware of the changing demand in structure, offerings and facilities that new technology will cause. Developing effective institutional partnerships that are nurtured and maintained is imperative. Networking with local and regional partners is essential as experts anticipate constantly new technology will cause fast turnaround in job changes and appurtenant training needs. Forward thinkers, such as Ravi Hutheesing, sustainable technology assessment educator Michael Nentwich, Ph.D. and David Sam, Ph.D. of Elgin Community College's award winning⁷

⁷ 2017 Bellwether Award Finalists: Elgin Community College – Elgin, IL: Integrated Career and Academic Preparation System (ICAPS) – A Story of Success, Sustainability, and Scale. Bellwether Award Finalists 2014 Bellwether Award Winner 2013 Accessed at: <https://education.ufl.edu/futures/home/past-winners/>

Integrated Career and Academic Preparation System suggest that new technology will reduce the average retraining cycle down to a period as short as four years.



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Thank you for reading this chapter of the NCSE Community College Handbook for Sustainability Education and Operations.

Does your institution do something different in this area?
Do you have a project, program, or innovation in practice in this area?

[Please consider submitting a case study to NCSE.](#)

NCSE will review your case study and an NCSE team member will reach out to you for additional information. The case study may be included in the NCSE Community College Handbook for Sustainability Education and Operations.