

Minutes of the Research, Economic Development, and Innovation Committee
University of Wisconsin System Board of Regents
Union South, University of Wisconsin-Madison
December 6, 2012

Regent Higgins convened the meeting of the Research, Economic Development, and Innovation (REDI) Committee at 1:00 p.m. and then turned the meeting over to Regent Bradley upon his arrival. Regents Bradley, Drew, Higgins, Hribar, Walsh, and Whitburn were present for the meeting.

Regent Bradley asked for a motion to approve the minutes of the October 4, 2012, REDI Committee meeting. Regent Drew offered a motion, which was seconded by Regent Higgins and approved with no discussion.

Wisconsin Economic Development Corporation—New Interim CEO Reed Hall: Economic Development Partnership and Priorities

Regent Bradley indicated that the first presentation of the day would focus on the WEDC partnership with UW System and the launch of the Office of Economic Development. The presentation would start with comments from Reed Hall, who was asked to serve as interim secretary and CEO because of his management experience as the former head of the Marshfield Clinic. Noting Mr. Hall has a passion for economic development and has served on the boards of Forward Wisconsin, the University of Wisconsin Alumni Association, and the statewide chamber of commerce, Regent Bradley welcomed him to the meeting.

Mr. Hall said he was honored to serve in the interim role of Secretary and CEO of WEDC, and that part of his role is to underscore the good work that the staff of WEDC are doing to administer grants and loans. He said there is a lot of work going on related to business development in the state of Wisconsin, and the organization continues to do that work as it wrestles with some of the issues that have come to the forefront.

Mr. Hall said he wanted to address these issues and assure the Committee that the organization is on the right track. He said that staff have been doing an inventory of issues confronting the organization, some of which originated with the Department of Commerce. He explained that all of the loans that are in arrears, except for one, date back to the Department of Commerce. He said that in the conversion of the Department of Commerce to the new WEDC, and going from 300 to 50 staff people, some issues inherently arise. He said that upon reflection, not all of the attention was paid to the financial aspects of the organization, such as the banking functions and the loan officer functions, but the organization is now working on solutions. He said that WEDC has engaged the Wisconsin Bankers Association in a consulting role, which is working with WEDC Vice Presidents and staff to develop suggestions for best practices for managing the loan portfolio and risk control screening for loans that are undertaken. He explained that WEDC's mission is different than that of a bank and is focused on creating jobs, attracting new businesses and retaining businesses, and hopefully, preventing brain-drain of graduates.

Mr. Hall noted that partnerships are critical to WEDC, including the partnership with the UW System. He said this partnership has worked very well because of the shared mission related to economic development and ensuring there are businesses in the state of Wisconsin looking for the bright young minds coming out of the UW System institutions. He said that another part of that partnership is categorizing individuals within the great university system that are willing to consult with Wisconsin businesses to help them grow. He said that hundreds of thousands of jobs available in Wisconsin, and the businesses they represent, can use assistance from the university. He noted that Associate Vice President Brukardt and others within the university are working to develop a listing of individuals at each campus that can help businesses with start-ups and further development.

Mr. Hall explained that WEDC not only administers forgivable loans, tax credits, and grants, but is also working very hard on the international scene on capital accumulation and foreign missions. He noted that WEDC has been involved in business development missions in Asia, India, and South America, with more planned for Asia, South Africa, South America, and Australia. He said that WEDC understands that Wisconsin is competing in a global capital accumulation economy, and the organization is working with the Legislature on a bi-partisan effort related to capital accumulation, with more funding available for start-up companies that cannot access funding from the normal banking system.

After providing an overview of what WEDC is doing, Mr. Hall noted that organization's first independent audit should be completed by December 18, and he was anticipating a clean audit opinion, perhaps with a couple of footnotes. He said that he thinks WEDC is headed in the right direction, and there are a lot of great things to be accomplished through the partnership with the UW System.

Mr. Hall noted that he had two videos representing some of the exciting work that WEDC is doing. The first video highlighted Virent Industries and the firm's partnership with WEDC and the University of Wisconsin. The second video featured Rockwell Automation, the company's partnership with the UW System, and successful growth and expansion in the state of Wisconsin. Following the videos, Mr. Hall said that the information shared in the videos and the partnership that WEDC has with the UW System, including Wisconsin Alumni Research Foundation and the Wisconsin Technology Foundation, represent the Wisconsin Idea at its best. He said that businesses in the state rely on the graduates of the UW System, and WEDC wants to do more with the university system, because more can be accomplished by working together than by working separately.

Regent Bradley thanked Mr. Hall for his remarks, and introduced Lee Swindall, WEDC's Vice President of Business and Industry Development, to highlight the WEDC's industry cluster focus across the state. He said the areas of focus reflect the unique competitive advantage Wisconsin business and industry can provide and help to focus economic development energies for the greatest impact.

Mr. Swindall thanked Regent Bradley and the Committee for the invitation to speak and said he would provide an overview of the investment strategy and operational deployment of his division into the marketplace to support targeted industry development in the state. He explained that the

Division of Business and Industry Development is one of four divisions at WEDC and focuses on targeted industry and industry sector development at the macro level. He also described the role of the other WEDC divisions and identified several examples of priority industry sectors in Wisconsin, including water technology, energy power and controls, agriculture, and medical device and technology development. He noted that WEDC also includes a focus on workforce development because as everyone has learned in the past two years, workforce development is a primary impediment to industry growth in nearly every sector of the state.

Mr. Swindall stated that WEDC manages its investment portfolio of approximately \$6 million much like a fund manager at a private company, with sector funds and sector managers assigned to those funds, and the sectors corresponding to the priority driver industries that WEDC identified as the primary and principle drivers of economic growth in the state. He indicated that while other industry sectors will continue to matter, WEDC will make offensive investments where the state's competitive potential and differentiation is the highest. He noted that WEDC's involvement with the Milwaukee Water Council included a strategic investment designed to support the tenancy costs of water technology companies seeking to access the specialized research capabilities of the water flow lab, which was donated by A. O. Smith and Badger Meter, and is located at the base level of the Accelerator Building. He added that recent experiences have validated that that strategic investment has exceeded WEDC's initial expectations, with 14 companies planning to occupy the building, a foreign company interested in occupancy, and another company contemplating the move of their headquarters and manufacturing facilities to Wisconsin. He said that the Milwaukee Water Council Accelerator Building, the future Water Technology Business Park, and UW-Milwaukee's School of Freshwater Sciences now constitutes the epicenter of global water technology development.

Mr. Swindall relayed that in one of his initial meetings with newly-hired Associate Vice President Brukardt, Associate Vice President Brukardt asked him what he needed. He said that he was clear, concise, and quick in telling Associate Vice President Brukardt that what he needed was an asset map of the UW System. This would inform him of any and all key capabilities, centers of excellence, centers of unique knowledge and expertise, select faculty proficiencies, and the labs present at each of the campuses. He also said he wanted all of this information summed together in a 360-degree view of the assets available to Wisconsin industries that will help to increase their competitiveness, their innovation potential, their potential to increase jobs, economic growth, and export capacity and capabilities. He added that he needed all of this information in approximately six months. He noted that to some extent, this type of information exists at WARF for the UW-Madison campus, but it is not compiled for the rest of the UW System, and there are vast, untapped potentials that the state is not able to draw upon because the information has not been compiled. He said that with that asset map, he intends to create a Center for Advanced and Composite Materials in the state of Wisconsin, because it will be a key, competitive differentiator for the future of industry in the state. He said he also intends to create an Institute of Manufacturing Innovation, as it is clear that Wisconsin manufacturers need to raise innovation capabilities rapidly in order to be able to compete in an increasingly competitive global economy.

Mr. Swindall said that Associate Vice President Brukardt has been extraordinarily helpful thus far, manifests an open attitude, and is always available to engage in discussions about ways in which WEDC and the UW System could work together. He added that recent experiences with the

UW System, both with and without Associate Vice President Brukaradt, have been extraordinarily positive. He also noted that Chancellor Lovell's integration into both the Milwaukee Water Council and the Wisconsin Energy Research Consortium are seen as extremely valuable points of participation in the building out of those two industry sectors. He added that WEDC is looking for new ways to work more deeply and broadly with the UW System in the future, as he and many others believe that many of the potentials of the UW System have not yet been realized. He said that WEDC also plans to repeat the same exercises with the Wisconsin Technical College System and the independent colleges and universities in Wisconsin. Eventually, there will be a statewide view of key, competitive capabilities that can be enhanced and abetted by participation from people within the UW System. He said that all of the existing information needs to be brought together in an organized fashion, so that it can be easily accessed and allow the state to be more nimble, reactive, and produce outcomes quickly. Mr. Swindall then offered to answer any questions from the Committee.

Regent Higgins asked Mr. Swindall if, in his limited experience in working with the UW System, he had found the UW System to be responsive within the parameters needed. Mr. Swindall stated that he had found the UW System to be highly responsive, both at the Board of Regents and System Administration level and at the individual campus level. He specifically noted that UW-Parkside, Milwaukee, Madison, and Platteville really stand out as the campuses with which WEDC has been most active thus far, and he has been highly encouraged by their responsiveness. Regent Higgins then asked Mr. Swindall what metrics or characteristics come to mind as the kinds of things other campuses might emulate. Mr. Swindall stated that he believes there is a distinction between the missions of the various institutions. Some institutions are engaged with the economy at the root level, in the generation of new deployable technologies that can be commercialized, and therefore support growth in the gross domestic product of the state. The missions of other institutions are still chiefly academically focused. He said that WEDC is looking for a deeper pairing of those things and will be able to better move forward with other campuses once the asset map is created and identifies where these potentials lie within the UW System.

Mr. Swindall provided an example of WEDC's engagement with the North Coast Marine Manufacturing Alliance in Wisconsin, which includes both defense and non-defensive boat builders, which contacted WEDC for assistance in developing more durable, less chemically-reactive materials to build the hulls of their boats. Mr. Swindall said that WEDC, lacking an asset map of UW System, conducted a quick scan of the state and was unable to identify a center of excellence devoted to this type of activity in the state of Wisconsin, and eventually connected the boat builders to Mankato State in Minnesota. He said the Alliance was astounded by what they found at Mankato State as they realized their competitive advantage had been impaired for years by being unable to produce successive generations of better, lighter, less chemically-reactive materials to manufacture the hulls of their boats. He concluded by saying that WEDC wants to create those kinds of connections and generate those successes with the UW System, rather than with institutions out of state.

Regent Bradley thanked Mr. Swindall and Mr. Hall for their presentations and noted that he appreciated the emphasis from both of them on the partnership that WEDC and the UW System are building to accomplish economic development in the state of Wisconsin.

Discussion of Economic Development Road Map for the UW System

Regent Bradley asked Senior Vice President Michael Morgan to introduce the Committee's next topic, the discussion of the UW System's economic development road map. Senior Vice President Morgan thanked Mr. Hall and Mr. Swindall for being outstanding partners and for their leadership in working with the UW System. He said he also wanted to acknowledge the chancellors, provosts, and other leaders in the UW System for the many exciting, unique, and creative economic development activities occurring on the campuses. He said that the depth and breadth of these activities have been revealed as Associate Vice President Brukardt has spent time on the campuses, and the road map that he will be presenting to the Committee is richer because of what he has learned. Senior Vice President Morgan said that is very pleased with UW System's partners at WEDC and the partners at the UW institutions. He then invited Associate Vice President Brukardt to present UW System's economic develop plan.

Associate Vice President Brukardt started his presentation by thanking WEDC, Mr. Hall, Mr. Swindall, and the rest of the WEDC team for their helpfulness and for fitting him into their organization. He invited the Regents to think of the UW System's economic development plan as UW System focusing its energies and accelerating the many activities and initiatives already under way. He said that having the opportunity to work with a partner such as WEDC provides a strong assist in the system's efforts to align interests and build a productive and sustainable program. He said that economic growth depends on translating knowledge into tangible, measurable benefits.

He said the UW System has the benefit of a unique partnership with WEDC that was designed to help ensure that the state and the university coordinate and collaborate in the important process of supporting current and prospective businesses to grow and prosper across the state. He noted the UW System's vast talent pool of more than 180,000 students, 40,000 faculty and staff, and some of the brightest and most energetic minds in the state or anywhere in the world. He also noted that at WEDC, the state has an innovative public-private partnership focused on business and industry, entrepreneurship and innovation, international development, and community development. He said that the jointly funded Office of Economic Development provides an important link for the communication and collaboration of the two organizations.

Associate Vice President Brukardt, quoting Regent Mark Bradley from remarks made at a REDI Committee meeting earlier in the year, said:

“In a 21st century economy, our greatest assets will be college graduates, academic laboratories, and the ability to translate university research into new discoveries, new industries, and new jobs. As other assets fluctuate wildly or even diminish in value, this is where we can invest wisely and look forward to positive returns for years to come.”

He said that the role of the Office of Economic Development is one of translation and connection, and one focused on the industries and jobs that communities, the state, and the nation will need in the years to come.

Associate Vice President Brukardt said that economic development means different things to different stakeholders. He noted that the World Bank’s definition of economic development, which focuses on technological and social progress and the dual elements of productivity and well-being, is the beginning of an understanding of economic development. He said that Wisconsin state legislators have also defined economic development very specifically in Wis. Stats. § 238.01(3), which authorizes the WEDC:

“Economic development program means a program or activity having the primary purpose of encouraging the establishment and growth of business in this state, including the creation and retention of jobs.”

Associate Vice President Brukardt said that another aspect of the REDI Committee’s charter—innovation—also has an economic aspect to it. He said that to be called an innovation, an idea must be replicable at an economical cost and must satisfy a specific need, and further explained how inventions are different than innovations as commercialization is an important element of innovation. He explained that an important aspect of innovation is that it can help to power a business plan to commercialize a solution that someone values enough to purchase.

He said that the work of the Office of Economic Development is to help foster the transfer of knowledge, invention, and expertise into tangible, measurable, economic benefits. He said that while everyone is in favor of invention, to fully realize economic development there must be a commercialization. He said that businesses may do the ribbon cutting and hiring, but it is university talent and inventiveness that can help businesses achieve results faster and more effectively. He said that the mission of the Office is to connect the richness of UW faculty and staff talent, innovative spirit, and entrepreneurial energy with Wisconsin businesses to foster job growth and build better communities. Furthermore, he explained that the vision of the Office is to serve as a higher education model for talent development, research, innovation, and technology transfer that lead to job creation in communities across Wisconsin. He said it is the goal of the Office to build a strong, strategic alignment between the UW System and WEDC, and also with another critical partner—Wisconsin businesses.

Associate Vice President Brukardt said that the economic development plan from his office aligns the key initiatives of WEDC and UW System and provides an action plan to support economic development initiatives across the UW System campuses. He said that the plan is all about linking the resources of the university to businesses—more effectively, more easily, and more often. He explained that the plan is organized around three goals, or the “Three Cs”:

- Communication—raising the awareness of and commitment to economic development by the UW System.
- Connection—identifying and building stronger connections that link UW System talent and research activities with established businesses, entrepreneurs, economic development agencies, and other resources.

- Capital—accelerating investment in UW-generated innovations so that ideas can be more rapidly developed and businesses can be built more quickly.

Associate Vice President Brukardt concluded his presentation by explaining that the plan includes 20 action items, and elaborating on three of the action items:

- a web portal that will provide a convenient link to UW System talent, making it easier for business to work with UW System;
- campus contacts and the importance of providing a single point of contact for economic development inquiries at each campus; and
- the tech transfer process and WiSys, and a review of the method and levels of funding provided to support innovation and entrepreneurship. UW System is currently working on funding mechanisms that will help to ensure sustainability for this important tech transfer mechanism.

He also noted that the plan spans a three-year time frame, and the budget needs of the Office are modest.

Regent Walsh asked Associate Vice President Brukardt to elaborate on the funding mechanisms for technology transfer that he referred to in his presentation. Associate Vice President Brukardt explained that UW System was looking at how to continue to fund WiSys in ways that would result in an evergreen fund that will continually refresh itself. He said that WiSys has been funded on a “pay as they go” basis and UW System would like to find a way to invest some dollars from both the UW System and other sources. Regent Walsh then asked what were the metrics of success and failure of the economic development plan, and what should the Committee expect to see within a year. Associate Vice President Brukardt said, paraphrasing an earlier comment from Regent Falbo, that the ultimate metric will be ribbon-cuttings. He said that much of the work that campuses will do will lead to job creation, but that UW institutions will not necessarily be doing the hiring. Other metrics might include the number of students and faculty involved, increases in research funding, the types of projects worked on from a technology-transfer standpoint, and the number of patents. Regent Walsh asked if the Regents would receive a report, to which Associate Vice President Brukardt responded that all of the campuses have already provided metrics for the Act 32 reporting requirements which will be provided to the Regents.

Regent Whitburn said that in the last three years there has been increasing and positive attention from the state Legislature on the topic of venture capital and consideration given to including funds in the budget or in a separate bill. He encouraged Associate Vice President Brukardt to think about possible synergies as those dollars are earmarked for partnerships with the UW System initiatives. Associate Vice President Brukardt said that the amount of venture capital dollars in the state of Wisconsin has historically been very small, and if a fund of venture capital dollars comes to fruition, it would certainly generate and accelerate the interest in tapping university talent to help bring products and ideas to commercialization.

Regent Hribar commented that some of the successes of the UW System’s economic development efforts cannot be easily measured, as some of the companies the UW institutions are helping are just starting up. However, she thinks that the loyalty that is being built by the

institutions cannot be underestimated and hoped that these companies remember and give back to the institutions in terms of philanthropy and internship opportunities for students. Associate Vice President Brukaradt noted that she had raised an important point and said that one of the action items in the economic development plan relates to tapping the vast alumni network that exists in Wisconsin and around the world.

UW-Madison—Update on Economic Development Initiatives

Regent Bradley invited UW-Madison Provost Paul DeLuca to provide an update on the institution's economic development initiatives.

Provost DeLuca started his presentation by stating that he would provide a vignette of how UW-Madison has focused its capability on economic development. He said that UW-Madison is one of the top institutions in the United States in terms of federally-funded research expenditures, bringing a lot of diverse horsepower to the discovery process. He noted that UW-Madison's research spending is even more significant when federally-funded research support is combined with non-federal, or industrial support. He said that this non-federal support, through industrial contract relationships, is generally more focused on aspects of economic development. He said that UW-Madison has been among the top five universities for total research support for over 20 years.

Referring to a slide which illustrated UW-Madison's most productive doctoral degree programs, Provost DeLuca explained that the institution's discovery process starts with these doctoral degree programs. He noted that there is a great degree of diversity among the top 107 doctoral degree programs that pervades every school on campus, and more importantly, the degree programs or discovery processes overlap, which is what leads to innovation, creativity, and subsequent economic development.

Provost DeLuca said that in 2012, the Office of Corporate Relations received more than 800 requests for contact or information from over 500 different entities seeking a contact point within UW-Madison. He cited General Electric's Medical Systems Division, Dow Chemicals, and Johnson Controls as outstanding examples of UW-Madison's collaborations with industry. He said that General Electric funds an enormous interdisciplinary program on campus as well as campus research facilities. He said that GE scientists and engineers are present at UW-Madison, working side-by-side with faculty, staff, and students. He said that virtually all of General Electric's imaging science platform relies in some way on UW-Madison technologies. He noted that these technologies contribute to the health of the community, the success of General Electric, and the local economy.

Provost DeLuca provided examples of many successful companies that spun out of the discovery process at UW-Madison—NimbleGen Systems, Inc., Stratatech, TomoTherapy, Standard Imaging, Cellular Dynamics International, Virent, Deltanoid Pharmaceuticals, and SHINE Medical Technologies—that are located in Wisconsin, and have had a direct and positive impact on the economy and the development of the state. He also referred to a slide illustrating the "financial family tree" that grew out of his home department, the Department of Medical Physics, which now includes several for-profit entities that have led to annual revenue streams of more than \$400 million per year, as well as economic impact on the state of Wisconsin of five to eight times that

amount. He said these companies employ enormous numbers of people in high-tech, high-paying positions in the state of Wisconsin.

Provost DeLuca said that the reach of UW-Madison also has to be international, noting that before Gilles Bousquet was appointed the Interim Chancellor at UW-Eau Claire, he helped to start the Shanghai Innovation Office at UW-Madison, the purpose of which was to work with Wisconsin companies with facilities in China and help Wisconsin companies make connections in China. He indicated that SHINE Medical Technologies, which will eventually employ 150 people and produce isotopes for medical diagnostic procedures that are essential to the health care industry in the United States, and will serve customers worldwide. He noted that the core ideas and technology for the company were developed by him 20 years ago, not for the purpose of economic development, but to understand the underlying processes that cause cancer from cosmic radiation.

Provost DeLuca said that UW-Madison does very well at the discovery process, and reasonably well at licensing through the tremendous capabilities of WARF. However, there are several steps in the discovery-to-product process, and one of the main weaknesses for UW-Madison is the lack of entrepreneurs in the immediate vicinity to take discoveries to application and to economic development. To address this issue, over the next several years UW-Madison plans to build an interface between the institution, WARF, and venture capital, to move discoveries to the invention market. At the conclusion of his presentation, Provost DeLuca offered to answer questions.

Regent Walsh asked who was heading up the Office of Corporate Relations, as that office has been very helpful. Provost DeLuca indicated that Charlie Hoslet is in charge of that office and referred back to his slides, which included information on the office's work in 2012.

Regent Drew asked for more information on SHINE Medical Technologies and when the company would start production. Provost DeLuca stated that the company received the first stage of funding from the Department of Energy, which also required matching local funds. He said that he had actually seen the initial prototype, and it looked good and functioned well. He also said that the first-order prototyping and first-order demonstration should be completed within the next six to eight months, and then phase two would begin. He noted that the cooperation from the City of Janesville has been spectacular.

The committee adjourned at 2:19 p.m.