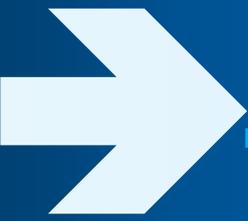




Wisconsin
Technology
Council



LOOKING TO THE FUTURE: A CASE FOR BOLD ACTION



Increasing access to
capital for Wisconsin
entrepreneurs



Infrastructure and
business climate



Workforce development



Technology
development

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Introduction 3

Increasing access to capital for Wisconsin entrepreneurs 5

Workforce development 11

Infrastructure and business climate 13

Technology development 17

INTRODUCTION



THE CASE FOR BOLD ACTION

Wisconsin's economy has been made and remade over time. Nineteenth century wheat fields gave way to modern dairy farms and cranberry bogs; territorial lead mines and turn-of-the-century logging camps eventually bowed to world-class manufacturing.



Tom Still, President

None of that happened without innovation and risk. Ingenious and often entrepreneurial people made bold decisions, in private and public settings, to keep Wisconsin prosperous in the face of changing markets and technologies.

Wisconsin is remaking its economy yet again, this time to compete in a world where the challenges to its prosperity are more likely to come from Shanghai or Mumbai than Chicago or Minneapolis. As the state enters an election year in which a new governor and Legislature will be elected, the candidates for those public offices and more deserve to hear some of the best ideas available for – yet again – transforming Wisconsin's economy.

That transformation is well under way in part because the markets wait for no one, and because Wisconsin represents only a fraction of the national and world economies. It is also under way because some bold choices have been made. Those choices in recent years include building on the state's research and development foundation, standing by investors who stand by homegrown companies, and working to awaken an entrepreneurial culture that was all but dormant.

Those choices were made during a decade in which Wisconsin lost 160,000 jobs in manufacturing, a shock wave that reverberates through the state to this day. Economists believe three-quarters of those jobs will never return. To prosper anew and to protect its historic quality of life, Wisconsin must now nurture emerging industry sectors as well as the physical and educational infrastructure that will support them.

While constructive, bipartisan steps have been taken in recent years, Wisconsin cannot rest on its laurels. People in other recession-battered states also understand that economic forces are rapidly reshaping the world, and that there may be no second chances for those who dawdle. If states are the laboratories of democracy, so are they citadels for economic innovation. Wisconsin has a history of providing such innovation – it is time to do so again.

The role of the Tech Council

The Wisconsin Technology Council is the bipartisan, non-profit science and technology policy adviser to the governor and the Legislature. The Tech Council periodically issues “white papers” and special reports to assist those policymakers.

The ideas offered in the Wisconsin Technology Council’s 2010/2011 white papers are intended to set the table for a renewed public discussion about improving the state’s tech-based economy.

Some of the ideas contained in the Tech Council’s white papers are new. Others are restatements and updates from previous white papers, legislative proposals or executive branch proposals. Some are based on our knowledge of innovative programs in other states. And some are ideas brought forward throughout the course of the year by entrepreneurs, researchers, investors and others who deal daily with issues surrounding the tech-based economy in Wisconsin.

Some would suggest bold ideas won’t fly in Wisconsin for various political reasons. But that’s what some observers said six years about Wisconsin’s Act 255 investor tax credits program, now called “Accelerate Wisconsin.” That program is today cited as a national model for targeting tax credits around emerging tech sectors.

How past white papers have contributed

Past white papers have contributed to a number of executive and legislative branch actions:

- Passage of the Act 255 investor tax credits;
- Creation of the Wisconsin Angel Network;
- Expansion of the scope of allowable bonding projects for the Wisconsin Health and Educational Facilities Authority;
- Repeal of the shareholder wage lien law;
- Improvements in laws governing entrepreneurial activity by University of Wisconsin faculty;
- Improvements in processes and regulations vital to expanding broadband availability;

- Extension of the “single-sales factor” sales apportionment for corporate income to technology and service firms in Wisconsin;
- Support for the “Emerging Technology Centers” concept within the UW System, which was first envisioned as Centers of Excellence in the Tech Council’s Vision 2020 report;
- Support for an Interdisciplinary Research Center, also through Vision 2020, which was consistent with the Wisconsin Institutes for Discovery and Morgridge Institute for Research;
- Broader recognition of the economic value of academic research and development in Wisconsin;
- Creation of the I-Q Corridor branding concept and evolving multi-state relationships;
- Support of the high speed rail system connecting the major hubs of the I-Q Corridor, and;
- Proposals contained in SB 409, the Connecting Opportunities in Research and Entrepreneurship bill, related to “farm shoring,” Act 255 improvements, research funding and an education tax credit for employers.

Our four areas of priority

The 2010-2011 ideas are organized by overall order of priority, within key subject areas. Our broad priorities:

➔ **Improving access to capital for Wisconsin entrepreneurs.**

➔ **Workforce development strategies.**

➔ **Improvements in Wisconsin’s infrastructure and business climate.**

➔ **Technology development and transfer strategies.**

INCREASING ACCESS TO CAPITAL



Private equity, such as angel and venture capital, is instrumental to the success of many start-up companies.

INCREASING ACCESS TO CAPITAL FOR WISCONSIN ENTREPRENEURS

The recommendations in the section fall under four categories:

1. Attracting investment capital to Wisconsin for high-growth, early and mid-stage companies.
2. Sustaining and improving angel investing in Wisconsin.
3. Creating a Wisconsin Venture Network to support later-stage venture capital formation.
4. Modernizing Wisconsin's tax code to better attract and retain capital.

Specific proposals in each category:

1. ATTRACTING INVESTMENT CAPITAL TO WISCONSIN FOR HIGH-GROWTH, EARLY AND MID-STAGE COMPANIES.

The innovation economy of the United States is the envy of the world. The nation's venture capital industry accounts for more than 85 percent of the world's venture capital. In 2008, venture capital-backed companies employed more than 12 million people (11 percent of private sector employment) and generated nearly \$3 trillion in revenue (21 percent of gross domestic product).

Year after year, venture-backed companies outperform the overall economy in terms of creating jobs and growing revenue. Perhaps most important, venture capital builds new industries nearly from scratch through investments in "disruptive" technologies and business models.

While Wisconsin has built a strong foundation on research and angel capital, it has not fully participated in the venture economy. In fact, the Midwest is a net "exporter" of dollars for private equity. The time is right for Wisconsin to focus on developing investment capital for high-growth, early and mid-stage companies. This would be accomplished by attracting capital from the coasts, the region, Wisconsin and abroad. There is a growing sense of urgency about the ability of promising Wisconsin start-ups to raise follow-on rounds of financing.



 **Wisconsin is a net exporter of dollars for private equity. That must change for Wisconsin to prosper.**

 **Emerging companies such as Stemina Biomarker Discovery, led by Beth Donley and Gabriela Cezar (above), often compete for private equity investments.**

For example, some states are using bonding authority to create early stage investment pools or venture capital authorities. Others are encouraging their pension funds to invest in emerging companies closer to home, either directly or through local or regional investment funds. Still others are following a “fund-of-funds” approach which would bring in an experienced fund of funds manager to develop a Fund of Funds for the lead investor(s) in the state. Here are strategies Wisconsin should consider:

Champion creation of a “fund-of-funds”

A number of states have increased investment capital for entrepreneurs through a fund-of-funds model. The fund of funds manager is hired by an investor or group of investors to generate a superior rate of return for the fund-of-funds. The manager deploys the fund’s capital by investing in top-tier venture capital funds, and by offering co-investment opportunities. The manager is often directed to make investments in seed and early stage venture capital, growth funds, and buy-out funds to diversify the portfolio.

These venture funds may focus on the industries in which the state excels: life sciences, medical devices and equipment, information technology, software and Internet services, business and financial services, advanced manufacturing and a variety of “cleantech” sectors such as renewable energy and water technologies. The design of the fund and scope of its investments are driven by the fund manager with input by the fund’s lead investors.

The advantage of a fund-of-funds model is the creation of a “diversified portfolio” of venture funds. It is important to note the most important goal for the fund’s investors is to achieve an internal rate of return, or IRR, that outperforms its benchmarks. By investing the money into several top-tier funds across many stages, a greater probability of success is created, while risk is reduced through diversification.

The second goal of a state championed fund-of-funds is to entice the manager and the venture capital funds it invests in to open offices in the state. The fund will request venture funds to review and consider investing in local entrepreneurial deals, or direct the

entrepreneurs to sources of capital better suited to their stage and investment profiles. By bringing in the fund manager, the state will benefit by plugging into a deep syndication network of venture firms which co-invest with local and regional funds.

Some fund managers have a proven record of bringing in syndication partners that invest up to six times the lead investment amount. For example, a \$1 million local “lead” venture firm syndicates with five other firms investing \$1 million each in the same company for a total round of \$6 million.

There are many examples of states using creative means to bring together the money needed to invest in funds in the state. Many ideas have been studied and conversations have advanced regarding proposals to create a Wisconsin focused fund-of-funds.

There are three ways in which states can champion the creation of a fund-of-funds.

- A. The first model is to request the state pension fund to hire a fund-of-funds manager to create a state-focused fund. This has been done by several states in the past five years, including Michigan, Ohio, Oregon, and, most recently, North Carolina.
- B. The second model is to create a public-private sector partnership in which the state uses its existing investor tax credits to encourage investments in high-growth businesses, and then selects a provider (manager) to come in and raise the fund. The state can “champion” the fund idea, but the private sector funds it and creates it.

This model of relying on private sector fundraising has been done in Indiana, with Eli Lilly's venture team leading the investor round.

The second model may have the best chance for short-term success because it is a partnership between the public and private sectors to develop a market-driven sustainable venture capital fund driven by the fund's investment performance. It will also have the side benefit of building a local venture capital community that is capable of investing in a variety of sectors at various stages of development.

This model, under development in Wisconsin by Credit Suisse, requires no additional taxpayer risk because it has no taxpayer money backing up the fund or general state revenues invested into the fund. It leverages existing investor tax credits through Accelerate Wisconsin. The structure of the fund is as follows:

- The private sector institutional investors (foundations, pensions) would be asked to commit up to \$100 million to a fund of funds manager. The manager (Credit Suisse) would work with the lead investors, raise the fund, then select six to 10 venture capital funds over two to three years in which to invest.
- The fund manager would commit to opening a Wisconsin office, and would work with the funds it invests in to open offices in Wisconsin as well. Bringing more funds to Wisconsin would result in more capital looking at deals in the state.
- The venture funds that receive rounds from the fund typically would have at least another \$5 to \$6 for every dollar the fund puts into their fund, as one investor typically does not invest more than 15 to 20 percent of a venture funds total assets. For example, a \$100-million fund-of-funds under management could leverage another \$500 to \$600 million of investments by the individual venture funds or the syndication partners of the funds.
- This model will create access to capital for Wisconsin entrepreneurs in various industry sectors and different stages of development and plug Wisconsin's venture community into the national syndication market.
- This model will leverage the existing relationships of the fund manager (Credit Suisse) which already has billions of dollars under management and is actively deploying capital into venture funds nationwide. (North Carolina, Florida, Oregon, Michigan, Ohio and Indiana).
- This model could also help build our local venture community by bringing the Credit Suisse Emerging Manager's conference to Wisconsin in 2011.
- This model requires no state monies outside the tax credits already in place. Existing credits in place through Accelerate Wisconsin encourage angel investors and qualified venture funds to invest in Wisconsin companies that meet the state Department of Commerce's requirements for Qualified New Business Venture designation.

C. The third model is a state-created, public-private partnership with a fund-of-funds manager, with investments backed by taxpayer guarantees. This model is a longer-term strategy, due to required legislative action, but it has proven successful in some states. Objectives of this type of Wisconsin fund are:

- Commit up to \$100 million to eight to 10 venture capital funds over five years that will raise at least \$500 million in aggregate and commit to offices, staff and investments in Wisconsin.
- Create access to capital for Wisconsin entrepreneurs in various industry sectors and different stages of development.
- Minimize and defer the cost to Wisconsin taxpayers, with a long-term goal of significantly increasing Wisconsin's tax revenue and eliminating the cost of a sustainable program.

Tax-credit enhanced fund-of-funds, privately managed to invest in traditionally structured, experienced venture capital funds, have been used in a number of states (Michigan, Ohio, Oregon and Oklahoma) to attract experienced venture capital firms to a state. Money is raised from debt sources with contingent state tax credits providing collateral, requiring about \$2 of borrowing for every \$1 that is available to commit to venture capital funds. (The other \$1 covers early debt service and the cost of running the program).

Sometimes promoted as potentially having no cost to a state with returns from the investments sufficient to pay the debt, conservative modeling suggests a more realistic expectation of a cost of 30 percent to 60 percent of the amount borrowed, primarily incurred in years 11 through 14 of the fund's life.

However, when coupled with the successful approach of the existing Kansas Biotech Authority, new tax revenue generated from the investment activity is used to retire the debt. This creates a sustainable source of venture capital and entrepreneurial funding well into the future.

The tax credit enhanced fund-of-funds would have the ability to borrow up to \$200 million over five years, creating the ability to commit up to \$20 million a year in amounts of \$5 million to \$20 million in one to three venture capital funds annually for the first five years (eight to 10 funds over five years). Up to \$200 million of contingent tax credits would secure the debt, with an expectation that \$60 million to \$120 million of the tax credits would ultimately be utilized, primarily drawn upon in years 11-14 of the fund-of-fund existence.

Companies funded by the venture capital firms would have a tax baseline established, consisting of the total payroll withholding, sales, and corporate income taxes in the year prior to their first receipt of funding from one of the venture capital firms backed by the fund-of-funds. Any increase in tax revenue generated from the company's activity would be used to pay down the debt of the fund-of-funds, ultimately freeing up the collateral for further borrowing and fund-of-fund investments beyond year five. Once the debt is retired and an investment pool of \$100 million is established, the diversion of the incremental tax revenue to the fund-of-funds would be discontinued and the fund-of-fund would become self sustaining from the returns on its venture capital investments.

[continued on pg. 11]

ISSUE SPOTLIGHT: CAPCO REVISITED



What do the following technology-based companies, all with Wisconsin roots, have in common?

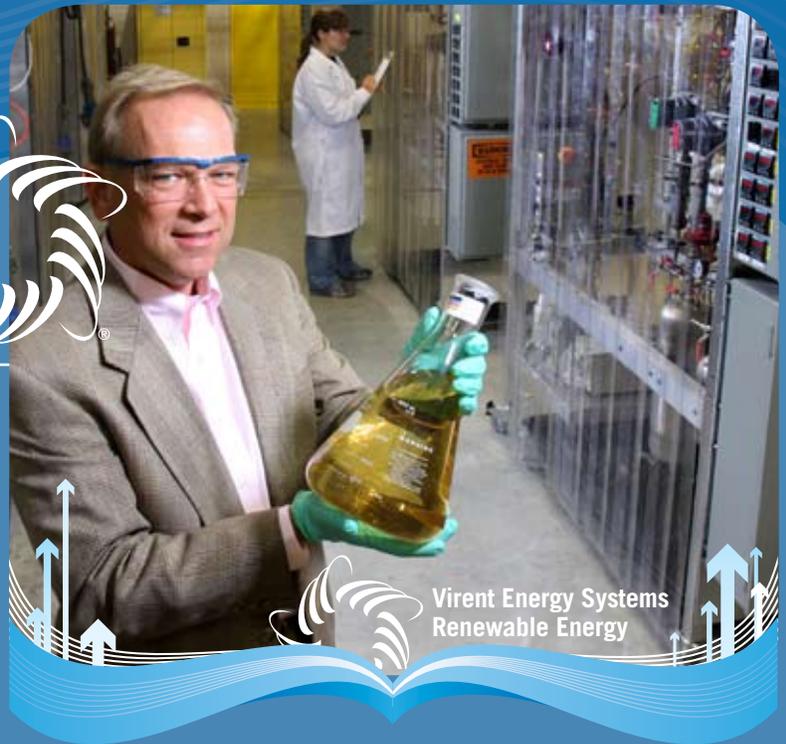
TomoTherapy, Virent Energy Systems, Guild.com, Collectar, EraGen Biosciences, Mortgagebot, NameProtect, BuySeasons, NeuWave Medical and Alfalight.

Answer: All of those companies and a dozen more received investments under Wisconsin's Certified Capital Company program, a state tax credit program designed to target investments to promising start-up and early stage companies.

Created in 1998, Wisconsin's CAPCO program provided \$50 million in state tax credits during the life of the program and sparked enduring economic benefits through the investments of three venture capital funds focused exclusively on Wisconsin.

Dr. Donald A. Nichols, a professor emeritus of economics and public affairs at the UW-Madison, analyzed the results the investments of two of the funds formed to manage \$34 million as a result of Wisconsin's CAPCO program. Here are results through 2009, according to Nichols:

- 23 CAPCO companies hired 898 new, in-state workers with payrolls of \$61.6 million.
- Total full- and part-time employment of more than 3,500 created at those same firms.
- An average 2009 salary of \$68,650 paid to those new workers.
- Attraction of \$485 million in additional capital for CAPCO firms from private sources.
- A 14:1 ratio of total capital invested per tax credit.
- Ongoing direct, personal income tax of \$900,000 per year for CAPCO-created employees.
- Other indirect benefits such as additional state and local taxes paid by the companies.



- Nichols calculated the net revenue impact after credits for the state through 2009 at two times the state investment, with an additional one-time multiplier every 31 months into the future.

The program was not renewed in Wisconsin due to the shortcomings of one of three CAPCO investors that could have been corrected legislatively, but it has continued to evolve in other states such as Texas and Alabama, which have doubled their investments in the past four years. In the nine states where CAPCO programs have invested \$1 billion, some 21,000 jobs have been created.

“CAPCO made a huge difference to our company,” said Toni Sikes, founder and former CEO of Guild.com, a Madison-based firm. “It was risky money that came at a time when it would have been very difficult to find other investors, but it attracted additional investments and helped to facilitate the growth of the company.”

The lesson for Wisconsin policymakers is that investments in early stage programs such as CAPCO or the current Accelerate Wisconsin tax credits pay dividends over time, protecting the taxpayers' investment while growing new jobs and revenues.

2. SUSTAINING AND IMPROVING ANGEL INVESTING IN WISCONSIN

Encourage state-led direct investments in high-growth businesses

Another model is to use the state's bonding authority to create a fund that makes investments in other funds. In May 2010, Ohio voters passed by a wide margin a referendum on bonding \$700 million for extending the Ohio Third Frontier. While this is not expressly a fund-of-funds, the model can be used to create the needed investment pool for a fund-of-funds.

Ohio Third Frontier makes direct investments in high-growth businesses. Foregoing the re-investment of dollars in other funds, Third Frontier makes equity investments in later-stage businesses and seeds the market with grants through the Ohio Research and Commercialization Grant Program.

The Ohio Business Roundtable's independent assessment of the first \$473 million invested from Third Frontier since its creation in 2003 shows the program providing an annualized return of 22 percent. The December 2009 report revealed product sales of Third Frontier projects already equal \$440 million alone, nearly matching the state's investment.

An additional \$3.2 billion of follow-on funding has been secured for Third Frontier projects, as well. The rapid rate of return on Third Frontier's initial investments suggests receipts from derived activities will surpass the state's investments as early as 2014. Third Frontier investments have created an estimated 41,300 jobs from 2003 through 2008.

It appears Wisconsin law may allow bonding for a Third Frontier-style project through existing vehicles without a referendum.

Encourage pension funds to become more active investors

Many states have encouraged, with some requiring, pension funds to make higher-risk investments in high growth businesses. While pension funds have a fiduciary responsibility to make the best investments for investors, it does not preclude the pensions from achieving good returns on investments in high-risk firms while contributing significantly to a state's economy.

The California Public Employees' Retirement System's in-state investments fed an estimated \$15.1 billion into in-state economic activity in 2006, a recent study reported, and created 124,000 jobs – more jobs than that state's motion picture industry.

Other states that have either pension funds that are already making investments in state-based high-growth business or have been mandated to do so include: Florida, New York, Michigan and Indiana.

Wisconsin has substantially increased its early stage investment market in recent years. From 2003 through 2009, the number of angel networks and funds in the state grew from six to 22. During that same period, angel networks and funds increased investment dollars from \$1.7 million to \$22.1 million annually. The number of companies funded, or "deals," grew by a similar percentage.

During this period, Wisconsin enacted a 25 percent investment tax credit for early stage investments. The Wisconsin Angel Network was also launched as a public-private project of the Wisconsin Technology Council, with the support of the Departments of Financial Institutions and Commerce. WAN is dedicated to serving and growing Wisconsin's early stage investment market. Here are proposals designed to continue this successful trend:

Continue expanding early stage investment tax credits

The investment tax credit program, often referred to as the "Accelerate Wisconsin" or Act 255 credits, has proven to be a success. The Legislature and governor have twice expanded the Accelerate Wisconsin credits, which originally took effect Jan. 1, 2005. The recent passage of tax credits in Minnesota offer refundable credits, which allows non-Minnesota investors to participate in the program. That moves the I-Q Corridor (Wisconsin, Minnesota and Illinois) a step closer to effectively offering a region-wide incentive for investors from throughout the United States to consider our region's entrepreneurs.

Extra incentive for initial, early stage investments

The current capital crisis has meant most investors have focused on keeping alive current portfolio companies versus investing in start-ups. An extra incentive to investors to make those initial investments in new start-ups will not only help create more new businesses, but also commits those early stage investors to the success of those businesses.

Wisconsin could increase the 25 percent investment tax credit to 40 percent for the first \$500,000 invested in a start-up business. Following the existing regulations for the investment tax credit, the investors must not have invested in the business before nor be active participants in the management of the company. This could encourage more investments at the seed stage and start-up phases.

Convert the tax credits to refundable credits

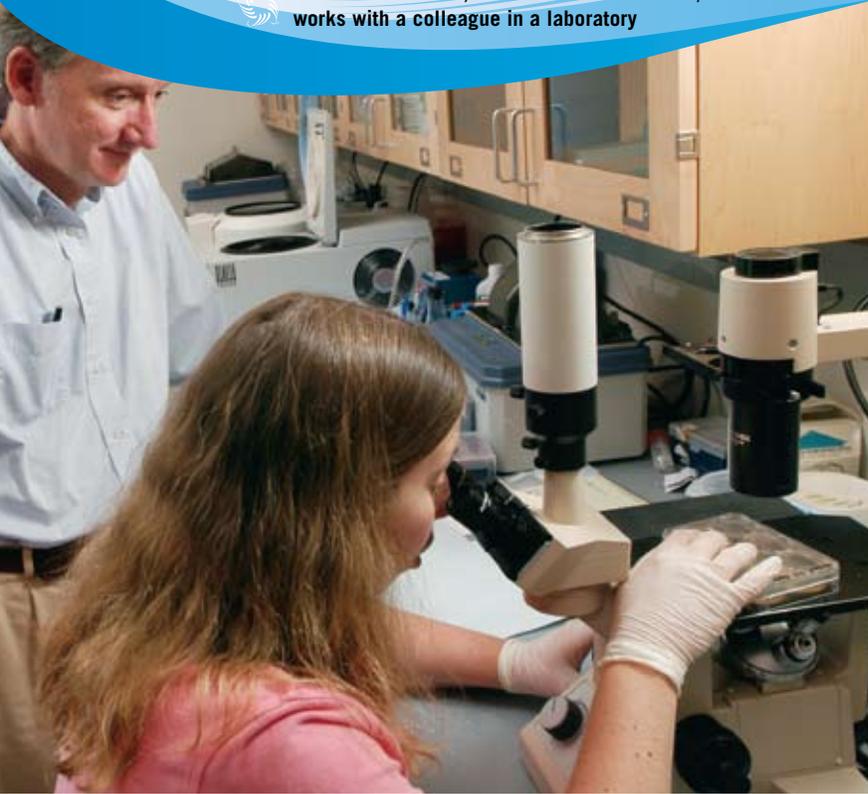
An often-stated goal regarding the risk capital market is to attract out-of-state investors. However, the current investment tax credits are only of value to investors that pay Wisconsin income taxes. By converting the tax credits into refundable credits, investors from out-of-state will be incentivized to make investments in Wisconsin companies.

A refundable credit would not increase the cost of the investment tax credit program because the credits have a yearly cap.

Currently investment credits received by funds are transferable to a



Dr. James Thomson, noted stem cell scientist, works with a colleague in a laboratory



3. CREATING A WISCONSIN VENTURE NETWORK TO SUPPORT LATER-STAGE VENTURE CAPITAL FORMATION

The Wisconsin Venture Network will seek to measurably increase the amount of seed, expansion and corporate strategic capital invested into companies in Wisconsin by creating a robust venture capital community. The WVN is a collaborative initiative designed to accelerate Wisconsin's high growth companies by ensuring access to capital.

WVN's founders include representatives from the Wisconsin Technology Council, BioForward, the State of Wisconsin, entrepreneurs and business leaders in Milwaukee and Madison, and the UW-Madison. The WVN will strive to bring on strategic partners that will help it achieve its goals.

The Wisconsin Venture Network, modeled in part on the success of the Wisconsin Angel Network, would help identify sources of funding; be a source of Wisconsin deal flow to any venture capitalist who is interested; provide infrastructure support for venture capital visitors, including office space; gather and distribute information on deals that happen; and track and publish data and metrics.

Wisconsin tax-paying party. But the sale/transfer is made at a discount to the full value of the credit, requiring fund managers to track the sale and includes an administrative fee. A refundable credit would be more efficient than a transferrable credit. The option to sell the credits has not been made available to angel investors.

Dedicated funding for the Wisconsin Angel Network

The Wisconsin Angel Network, launched alongside the investment tax credits and with an initial "seed investment" by the state of \$250,000, has proven to be a valuable component to fueling the growth of early stage capital in Wisconsin. WAN is recognized nationally and internationally as a model for efficiently assisting the early stage market. At present, WAN's funding by the state averages about \$80,000, with the remaining program costs being supported by the Wisconsin Technology Council and private sponsors. Recurring funding of \$100,000 per year for the program (\$200,000 per biennium) would allow the program to offer more services to small population sectors of Wisconsin and provide a stable foundation for its long-term existence.

Continue to support marketing efforts to attract outside investors to Wisconsin

This could take place through Tech Council conferences, regional conferences such as the Mid-America Healthcare Venture Forum, I-Q Corridor Investors' Forums, a Wisconsin presence at national conferences or other approaches that will serve to highlight investment possibilities in Wisconsin.

4. MODERNIZING WISCONSIN'S TAX CODE TO BETTER ATTRACT AND RETAIN CAPITAL

Other proposals designed to increase access to capital rest on possible changes to Wisconsin's tax code. While Wisconsin's tax burden per capita has dropped in recent years compared with other states, some targeted changes could make the state more attractive to investors at home and outside the state.

Continue to build a 21st century tax system

Wisconsin's tax system grew up around an economy that has changed dramatically, from one that was almost exclusively based on agriculture, raw resources and manufacturing to an economy that is defined by service, technology and exports. The Tech Council should support a tax restructuring plan that would enhance Wisconsin's economic competitiveness, regionally and nationally, through consideration of ideas such as elimination of the personal property tax.

Restore Wisconsin's capital gains exclusion

The state rate should at least match the federal exclusion rate while maintaining the 100 percent capped exclusion for rollover investments in Qualified New Business Ventures.

Change the state R&D tax credit to an R&D tax refund

This change would help early stage companies that don't have tax liabilities because they have yet to become profitable. This is often the case with R&D-oriented companies, especially in the life sciences sector.

Workforce development begins with the educational needs of our youngest learners. We must invest in K-12 science, math and technology and improve access to higher education loans for older students.



TomoTherapy is a Wisconsin company that grew from two co-founders to hundreds of employees.

WORKFORCE DEVELOPMENT



WORKFORCE DEVELOPMENT

In early 2000, Wisconsin had more than 2.7 million non-farm workers, with a smaller population base. Unemployment was under 3 percent. The state actually added 125,000 jobs in one year alone, from early 1999 to early 2000.

But that was a time when manufacturing employment in Wisconsin was still very much on the rise. There were 611,000 manufacturing jobs in the state in early 2000, according to state records, compared to 422,000 today.

Most of those manufacturing jobs are lost forever to global competition and industry trends. Manufacturing is still a vibrant part of Wisconsin's economy, but it has changed dramatically, in part because of technology and other efficiencies.

“While it’s popular to talk about out-sourcing, most of those (manufacturing) jobs were eliminated because of productivity,” said David Ward, president of NorthStar Economics. NorthStar is the economic adviser to the Wisconsin Technology Council.

Some incremental increases in manufacturing can be expected over time, Ward said, but the halcyon days of 600,000-plus jobs will remain a hazy memory. So, where will new jobs be produced? Sectors such as care for the aging, education, food processing and safety, some information technology sectors, transportation and alternative fuels hold potential. As Ward explained, rising standards of living in China, India and other emerging nations mean more demand for protein, fiber and energy. Wisconsin is positioned to be a supplier in at least two out of three.

It’s good to set ambitious goals for job growth in Wisconsin, and history shows the numbers can turn around quickly. The real question is how Wisconsin will create the kinds of 21st century jobs it needs. The answer lies within the private sector and its potential for innovation. Between 1969 and 2000 in the United States, Ward noted, 69 million of the 76 million jobs created in the United States were in the private sector.

You cannot, however, provide strong private sector employees without addressing what makes a valuable worker—a strong education. Therefore, we offer specific proposals emphasizing education from the earliest years to the highest levels of achievement.



 **Entrepreneurs such as Kelly Fitzsimmons (left) and Jim Hagstrom have built successful companies**

Proposals in this category fall under three broad categories:

1. Improve access to higher education through use of financial aid and other strategies that put young people as well as adults on a path to earning a post-secondary degree or certificate.
2. Increase Wisconsin's K-12 investment in science, technology, engineering and math education.
3. Focus on the needs of business when it comes to filling critical workforce voids, and develop sustainable relationships between higher education and industry.

Specific proposals:

- Encourage the governor and Legislature to improve and clarify the education tax credit language adopted as part of SB-409 to help the marketplace fill critical voids in the supply of college-educated workers.
- Encourage state funding for Wisconsin's Youth Options program. Currently funding for high school students taking college-level courses is through the school district. In Minnesota the funding comes from the state.
- Support efforts to enhance STEM education, as outlined in the Tech Council's report on Educating a Tech-Savvy Workforce for Wisconsin and another 2009 report by the Public Policy Forum. The Tech Council's Human Capital Committee recommends the Tech Council become the facilitator of statewide efforts.
- Endorse the progress of the State Superintendent's Entrepreneurship Task Force, which aims to increase entrepreneurial literacy in Wisconsin's K-12 schools.
- Encourage development of science and technology charter schools that may help fill voids in those STEM areas.
- Develop a plan to encourage youth to take part in entrepreneurial ventures through programs such as the Youth Entrepreneurs in Science (YES) business plan contest, business education classes, extracurricular clubs and other related efforts.
- Require a third year of math and science for graduation from high school.
- Improve access to higher education, whether it is obtained through four-year colleges, technical colleges or certificate programs. This may include increasing the availability of need-based financial aid for low- and middle-income families. It may also require sustaining a level of funding for the system consistent with the state's need to stimulate economic development via enrollment, scientific and technical research and competitive academic excellence. Continue to stress sufficient funding for the UW System.
- Encourage continued collaboration on workforce training issues.
- Enact the recommendations of the Next Generation Assessment Task Force to revamp Wisconsin's system of K-12 student assessment.
- Encourage development of the UW-Milwaukee's proposed \$150 million engineering campus near the Milwaukee Medical Complex in Wauwatosa.
- Redefine the senior year of high school. Wisconsin spends a great deal of money to educate kids twice – once in the K-12 system and again in the first year or so of college or technical college, where remedial education costs represent up to 20 percent of spending. This would allow more focus on solving that problem in the 12th grade, when students can get remedial help in those areas where tests or performance show they're lacking. It is also a great time to introduce students to the choices available to them, from technical college or internships to college.
- Provide special scholarships and/or loan forgiveness programs for Wisconsin students pursuing careers in STEM-related fields, through which loans would be forgiven at a rate of 10 percent for each year that the student remains employed in a qualifying high-tech job in Wisconsin.

INFRASTRUCTURE & BUSINESS CLIMATE



Wisconsin's transportation infrastructure is vital to attracting people and capital.

INFRASTRUCTURE AND BUSINESS CLIMATE

Proposals in this category fall under three broad categories:

1. Protect recent policy initiatives and programs that have given Wisconsin a foothold in the highly competitive game of tech-based development.
2. Build an infrastructure that improves and creates the right pathways into the state, from safe roads and bridges to high-speed electronic commerce and telecommunications, to a cost-efficient and environmentally responsible energy portfolio.
3. Create an inviting regulatory climate that attracts new companies and workers while retaining those who have already invested in Wisconsin.

Specific proposals:

- Encourage policymakers and candidates to “first do no harm” when it comes to developing Wisconsin’s tech-based economy. This begins with not rolling back policy gains and specific programs launched in recent years, ranging from investor tax credits to investments in the state’s research and development infrastructure. Wisconsin should continue to invest in innovation and job creation.
- Build upon the Tech Council’s “I-Q Corridor” branding efforts and encourage public and private entities in Wisconsin to adopt branding strategies that call out the state’s innovation, entrepreneurial culture and quality of life.



Wisconsin researchers must have the freedom to conduct their work in consistent regulatory environments.

- Use the Tech Council's revised "Future of Research in Wisconsin" statement to remind policymakers of the dangers of regulating research and development activities in ways that go beyond existing federal and academic efforts. This statement was adopted in 2002 to provide guidance during the debate over human embryonic stem cell research and revised in the fall of 2009 following a legislative hearing on nanotechnology.
- Support plans for the high-speed rail route that would connect Chicago, Milwaukee and Madison, and eventually the Twin Cities.
- Restore fairness and predictability to the civil legal system; ensure uniform employment regulations and establish a competitive regulatory environment.
- Maintain and improve the transportation infrastructure, including regional strategies that may address rail, air and highway needs.
- Encourage conservation and "clean energy" technologies.
- Encourage the state to lift its moratorium on the construction of new nuclear power generation plants in Wisconsin.
- Support efforts to increase Wisconsin's access to out-of-state electric power, and the safe and efficient transmission of in-state electric power.
- Improve broadband and cell phone penetration in order to facilitate electronic commerce.
- Promote Wisconsin as a "farm-shoring" location for tech-based companies.
- Support the efforts of the Public Service Commission of Wisconsin to explore the level of regulation of telecommunication providers in Wisconsin.
- Support the efforts of the UW System and others to better connect the state's academic resources with foreign companies and investors, with the goal of increasing foreign direct investment.
- Work with the UW System and others to revive, in some form, the Wisconsin Economic Summits.

ISSUE SPOTLIGHT: HIGH-SPEED RAIL CAN DRIVE ECONOMY



High-speed rail can knit together the major cities along the I-Q Corridor.

The Marquette interchange in Milwaukee cost more than \$800 million to rebuild between 2004 and 2008, and few people seriously questioned whether that “subsidy” of Wisconsin’s highway transportation system would pay for itself many times over.

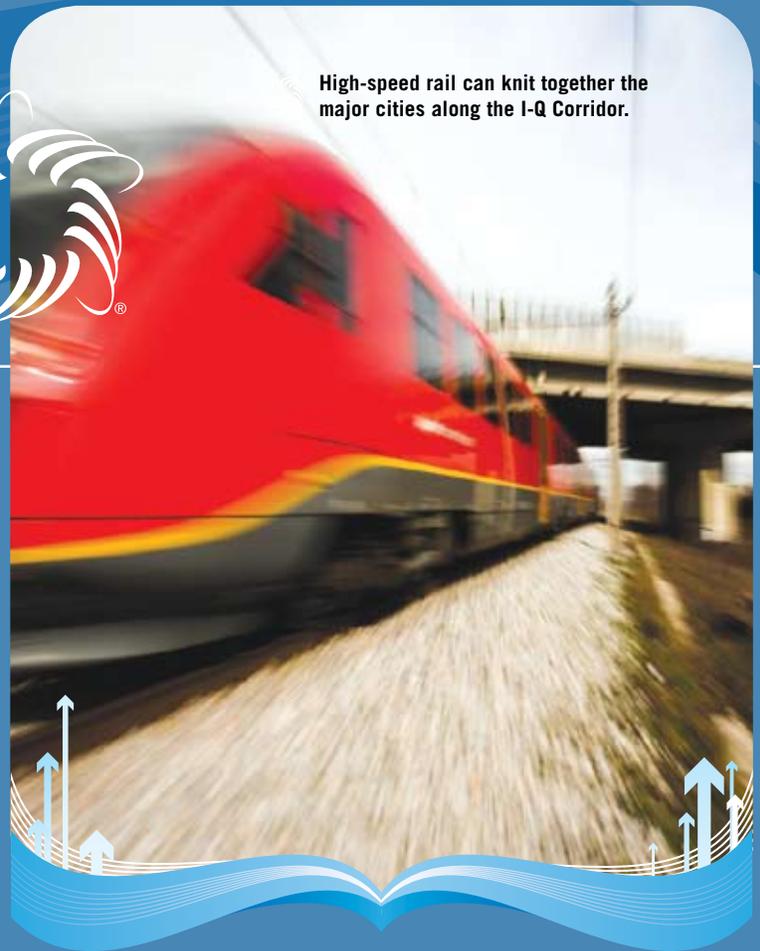
Milwaukee’s Zoo interchange, the mix-master for I-94, I-894 and Highway 45, could cost \$2.3 billion to rebuild once work begins in 2012. Again, most people familiar with the volume of statewide commerce passing through that intersection can agree reconstruction is a much-needed investment.

With that perspective in mind, consider the relatively modest \$7.5 million per year subsidy for a high-speed rail line that could redefine Wisconsin’s connections to Chicago and the Twin Cities.

Wisconsin has a chance to build a high-speed rail line, with hard-to-get federal money, that will change the economic destiny of its largest cities and many of its smallest communities.

There are solid economic reasons why Wisconsin should embrace building a Milwaukee-to-Madison rail line and improve the existing Milwaukee-to-Chicago connection.

The Obama administration announced Jan. 28 that 31 states would share in about \$8 billion in stimulus dollars targeted for high-speed rail, with the biggest chunks (\$5.5 billion) marked for projects in four states: California, Florida, Illinois and Wisconsin. Unlike most states, Wisconsin received the full amount of its grant request, \$810 million for high-speed rail, in part because of the quality of the state’s plan and its cohesiveness with neighboring states.



Wisconsin ranks 48th among the 50 states in overall federal spending on a per capita basis. While Wisconsin sends \$45 million in taxes to Washington each year, only 86 cents of each \$1 is returned here. The rail money is an opportunity to change that dismal dynamic.

In other American cities and regions with passenger rail, economic growth has taken place within a short distance of the line and its stations. One recent study noted there are more than 100 “transit-oriented developments” in the United States, mostly within walking distance of passenger rail stations.

In communities such as Brookfield, Oconomowoc and Watertown, which are proposed stops along the Milwaukee-to-Madison route, public and private leaders are hustling to persuade planners to build stations in their towns. Why? They expect a mix of commercial, retail and residential development to follow the trains like a caboose.

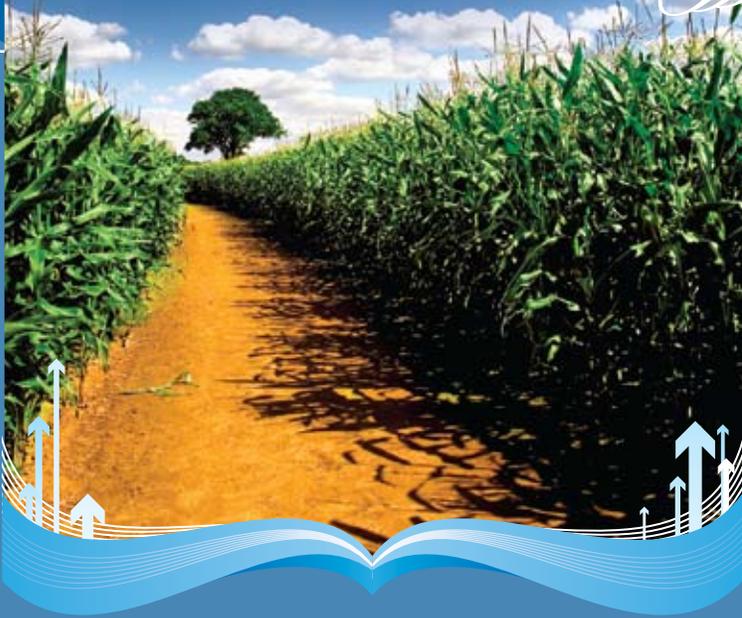
Studies in states such as Texas, California, Florida and Ohio have shown passenger rail can help lure tech-based businesses and investment.



Broadband deployment in rural Wisconsin can enhance economic development.



ISSUE SPOTLIGHT: BROADBAND ACCESS IN RURAL WISCONSIN



That's a sector where Wisconsin is poised to compete. The proposed line to the Twin Cities would tie together the major hubs of the "I-Q Corridor," which extends from Chicago through Wisconsin and into Minnesota. A distance of only 400 miles separates two dynamos of the Midwest economy – Chicago and Minneapolis/St. Paul. That's a shorter distance than what separates San Diego from the "Silicon Valley" in California. Within the region are some of the nation's leading research universities, federal labs, financial centers, tech companies and talent pools. High-speed rail will help bring them closer together.

It will also help rural Wisconsin, Iowa and Minnesota. There are 15 rural counties with nearly 550,000 people with 50 miles of La Crosse. These people would gain access to Chicago, Milwaukee, Madison, and the Twin Cities with a stop in La Crosse.

Virtually every form of transportation in the United States is subsidized to one degree or another, but all offer a return on investment. High-speed rail has the potential to pay for itself in Wisconsin for generations to come. Let's not miss the train.

Greater broadband access and cell-phone service is important to rural Wisconsin for many reasons:

- It allows small businesses, which account for 60 percent of new jobs in Wisconsin, to expand their markets and customer bases to the national and even international levels.
- It creates more opportunities for creation of businesses related to information technology, one of the fastest-growing sectors in the U.S. economy. Wisconsin is 21st among the states in IT employment, but poised for growth if the right "highways" are opened to all parts of the state.
- It enables hospitals and clinics to better utilize telemedicine applications. An example might be rapidly locating digital medical records and medical images that can be easily transmitted to doctors or clinics in remote locations. Wisconsin is a hotbed of electronic medical record innovation, and it should capitalize on that.
- It provides rural Wisconsin residents with greater access to higher education through distance learning systems. Those systems themselves could become an export industry for Wisconsin, which could better leverage its K-gray educational system.
- It makes rural Wisconsin more likely to attract large data centers, which are part of many of today's virtually integrated businesses and corporations.

By developing sustainable relationships between higher education and industry, we help address the needs of businesses throughout the state.



Accelerating transfer of technology from the lab to the marketplace is the goal of "Research to Jobs."

TECHNOLOGY DEVELOPMENT



TECHNOLOGY DEVELOPMENT

Proposals in this category fall under three broad categories:

1. Focus on the needs of business when it comes to filling critical workforce voids, and develop sustainable relationships between higher education and industry.
2. Continue to develop collaborative public-private partnerships, not only in Wisconsin but with organizations outside the state, to enhance interdisciplinary research, development and tech transfer. Examples includes the Wisconsin Institutes of Discovery and the Morgridge Institute for Research in Madison, the CaliT2 project in California and the "research circles" approach used by GE Healthcare.
3. Implement the recommendations of the Research to Jobs Task Force.

Specific proposals:

- Support UW-Milwaukee efforts to expand its research functions, which include a \$150-million engineering campus and research park in Wauwatosa.
- Support the efforts of the WiSys Technology Foundation to assist faculty at Wisconsin's comprehensive campuses as they compete for extramural research funding.
- Support the "Research to Jobs" task force recommendation to create Emerging Technology Centers around specific centers of excellence in the UW System. (Note: Other "Research to Jobs" recommendations are included in this section.)
- Support efforts, such as contained in SB-409, to build Wisconsin's capacity to win Small Business Innovation Research grants and related grants from federal agencies.
- Support the efforts of the Public Service Commission of Wisconsin to explore the level of regulation of telecommunication providers in Wisconsin.
- Support a UW system-wide business plan competition that would coordinate with the Governor's Business Plan Contest.



 Wisconsin research institutions are among the nation's leaders.

 Exact Sciences was moved from Massachusetts to Madison under the leadership of Kevin Conroy, former CEO of Third Wave Technologies.

- Create a UW Certificate Educational Program on Technology Transfer for economic development professionals and business incubator managers.
- Launch a Wisconsin Entrepreneur-in-Residence Program to identify and retain qualified and experienced CEO candidates for start-ups.
- Establish a Wisconsin Tech Transfer CEO Placement Program to award loans to early-stage companies to recruit CEOs.
- Modify the UW System Leave of Absence policy to encourage faculty to engage in Wisconsin start-up companies.
- Consider establishing a UW System version of the UW-Madison Office of Corporate Relations, working through that existing framework, to better connect businesses working with the non-doctoral comprehensive campuses.
- Seek start-up funding for the Center on Public Opinion and Technology (CPOT) within the UW-Madison Department of Life Sciences Communications. This would help companies and policymakers better understand how public opinion and values affect adoption of new technologies. It could launch a national center that could eventually pay dividends to the university.
- Improve marketing of the technologies in the WARE, UWM Research Foundation, and WiSys portfolios, especially to small- and medium-sized businesses and Wisconsin trade associations that often represent those businesses.
- Leverage UW System graduates in the Milwaukee area, where there are excellent examples of collaboration (the GE Healthcare “master agreements” with WARE, for example) but a lack of recognition. The UW System should work harder to close the Milwaukee-Madison cultural and business divide while supporting the growth of the UW-Milwaukee research infrastructure.
- Build upon the UW-Madison’s reputation for being one of the nation’s top “cleantech” universities. The UW-Madison

has been engaged in cleantech research for decades. The Solar Energy Lab, founded in 1954, is the oldest of its kind. More recently, the university has become a focal point for research in bioenergy and is home to one of three federal Bioenergy Research Centers. In 2009, the College of Engineering entered into a long-term partnership with Vestas related to wind power R&D. The UW-Madison in 2009 also received 10 of 71 funding awards from the U.S. Department of Energy for advanced nuclear research, totaling more than \$5 million. The UW-Madison Energy Institute and the Wisconsin Bioenergy Initiative are other examples of leveraging research expertise to pursue commercial opportunities.

- Support UW-Milwaukee efforts to establish a Freshwater Institute. In the new National Intelligence Council paper, “Global Trends 2025: A Transformed World,” clean water technology is identified as a technology breakthrough that will change the world and drive the new economy. The Midwest sits on the greatest repository of freshwater in the world. The Great Lakes hold about 20 percent of the world’s fresh water, on top of other abundant lakes and aquifers in the region. New industrial uses for water abound in farming, biofuels, biopharma, nanotech, chemicals and semiconductor industries. The UW-Milwaukee should collaborate with other Wisconsin schools with clean water expertise, as well as other Great Lakes institutions, such as the University of Illinois at Chicago, Wayne State in Detroit and Case Western in Cleveland.

APPENDIX: STATE-BY-STATE EXAMPLES

Here are examples of states that have employed various models, some of which are described in brief below.

- **Ohio** passed a \$700 million bond issue on its May 4th ballot to renew for five years the state's largest economic development project, the Ohio Third Frontier, which invests in research and commercialization of technology in five industry sectors. The Ohio Business Roundtable's independent assessment of the first \$473 million invested from Third Frontier since its creation in 2003 shows the program providing an annualized return of 22 percent. The December report revealed product sales of Third Frontier projects already equal \$440 million alone, nearly matching the state's investment. An additional \$3.2 billion of follow-on funding has been secured for Third Frontier projects, as well. The rapid rate of return on Third Frontier's initial investments suggests receipts from derived activities will surpass the state's investments as early as 2014. Third Frontier investments have created an estimated 41,300 jobs from 2003 through 2008.
- The **California** Public Employees' Retirement System's in-state investments fed an estimated \$15.1 billion into in-state economic activity in 2006, a recent study reported, and created 124,000 jobs – more jobs than that state's motion picture industry.
- **Florida** Gov. Charlie Crist signed legislation in 2008 that allowed the state to invest up to \$1.95 billion from its pension fund in tech-based companies. That figure represented 1.5 percent of the fund's total assets at the time. Technology and growth investments include, but are not limited to, space technology, aerospace and aviation engineering, computer technology, renewable energy and life sciences.
- **North Carolina's** State Treasurer announced the NC Innovation Fund in spring 2010. The Innovation Fund is a \$230 million commitment to Credit Suisse to create and manage a fund-of-funds.

- **Washington** held \$1.4 billion in Washington-based investments at the end of 2008, using the money to leverage additional capital from other sources to invest in the Pacific Northwest state.
- **New York** held \$403.6 million in in-state investments as of March 2009 through its Common Retirement Fund with another \$500 million available to invest in New York-based businesses.
- **Michigan** capitalized its Invest Michigan! Fund with \$300 million from the state's pension fund. It was divided into two capital pools: one targeting smaller companies with high growth characteristics and another targeting more mature companies seeking a change of control through a buyout transaction.
- In **Indiana**, the public pension funds collaborated with state universities and various health-based companies to launch the Indiana Future Fund, an investment fund designed to benefit Indiana companies, especially in the life sciences and high technology arena.

OTHER STATE OR REGIONAL STRATEGIES INCLUDE:

- **The Ohio Research and Commercialization Grant Program**, a component of Third Frontier, provides firms that have won federal SBIR, STTR, or Advanced Technology Program grants up to \$350,000 over two years to commercialize their technology.
- **The Maryland Technology Transfer Fund**, run through the state's Technology Development Corporation, makes non-equity investments of up to \$75,000 in companies that partner with federal laboratories or universities to develop early-stage technologies with potential for commercialization or government procurement. No repayment is required unless and until the company receives revenue from sales.
- **The Utah Centers of Excellence Program** helps start-up companies commercialize technologies developed in Utah universities. Applicants apply for \$50,000 to \$100,000 grants, with the opportunity to apply for additional funding up to a maximum of \$500,000 over two years. Start-ups are required to match state funds dollar-for-dollar, but may use other sources of capital, such as angel investments, to meet the match requirement.



ISSUE SPOTLIGHT: NUCLEAR ENERGY



- **Cleveland's Jump Start Ventures** is a public-private venture fund that raises money from the state and federal government, private foundations, and individual investors and makes \$250,000 to \$600,000 investments in high potential early-stage companies in the Cleveland region.
- **The Kansas Technology Enterprise Corp.** makes direct equity investments in early-stage companies that commercialize unique technologies and have the potential to create high-paying jobs in Kansas. It is funded by a \$1.5 million annual allocation from the state.
- **Oklahoma's i2E's Seed Capital Fund** is a \$7 million fund capitalized by the state of Oklahoma and private investors. It provides equity investments to early stage companies. The fund typically makes 10 investments of \$100,000 each per year.
- **Minnesota** has adopted an investor tax credit law patterned after Wisconsin's successful law (see below) and Illinois is debating similar legislation.
- **Wisconsin** enacted investor tax credits beginning in January 2005 and has twice improved upon the program, first in 2009 and again in 2010 with SB-409, the Creating Opportunities through Research and Entrepreneurship legislation. The CORE bill accelerates tax credits that were renewed and improved through the 2009 legislation. The law allows angel investors and venture funds to receive a 25 percent tax credit for investments in Qualified New Business Ventures, as defined by the state Department of Commerce. Beginning in 2011, Wisconsin's credit pool expands nearly three-fold.

A more complete summary of state-by-state examples is available at www.wisconsintechcouncil.com

Two of the nation's 104 nuclear reactors are located in Wisconsin – but they will be the last unless the state lifts what amounts to a moratorium on building new plants.

Wisconsin's Three Mile Island-era moratorium no longer makes sense. If you believe global climate change is the single largest environmental threat to the planet, you should embrace energy sources that don't emit greenhouse gases. If you believe there will be millions of new plug-in hybrid vehicles, all getting recharged while idle, you should want power sources that can reliably handle the load without generating more carbon.

Solar and wind power will be a part of the answer, but those alternatives can't measure up to nuclear energy when it comes to steady and massive production of electricity. Today, those alternatives account for about 2 percent of electricity generation.

ISSUE SPOTLIGHT: BIOFUELS

The April 20, 2010 explosion onboard the Deepwater Horizon, which killed 11 workers and unleashed millions of gallons of crude oil into the Gulf of Mexico, has renewed public calls for fuels that aren't as toxic to the environment.

The question is whether technology and public policy are within range of meeting the nation's demand for "green" fuels.

Scientists for years have shown they can produce liquid fuels from grass, leaves, wood and much more. But the question dogging the renewable fuels industry has always been "scale."

Can anyone out there produce these fuels on a scale needed to power the world's cars and trucks?

The problems are well known. Fossil fuels are still plentiful, cheap and contain more BTUs of energy than alcohol fuels. And America uses a lot of energy – about 400 million gallons of gasoline a day just to power cars and trucks.

Dozens of companies are working on different solutions. Some are focused on making fuel from cellulosic material because it is abundant and cheap. At the same time, its sugars are locked tightly within its fibrous membranes so they're difficult to economically extract – and the alcohol-based fuels from crop "sugars" are usually blended, not used as a stand-alone source of fuel.

There are 30 cellulosic biofuel plants built or under construction, according to a report on the biofuels industry released this year. But most are small and many are still part of a research effort to "scale" future production plants. One of the most promising private projects is Wisconsin's Virent Energy, which is producing fuels from sugar plants and which announced its latest round of financing (\$46 million) in June 2010.



"The solutions will likely be regional," said Troy Runge, director of the Wisconsin Bioenergy Initiative. "You'll see different technologies in the south-east, such as algae and solar, where they have a lot of sun. In the Midwest, where we have a lot of rain but less light and heat, you'll see other technologies that utilize grasses and wood which we have in abundance."

Runge said that conversion technologies to unlock sugars from plant materials are only a part of the equation. Also needed are the businesses and marketing systems necessary to collect, store and process the tens of millions of tons of cellulose feedstock materials required to produce enough fuels for a modern economy.

Still, there are examples of success. The U.S. ethanol industry, spurred by enormous government incentives, last year produced 12 billion gallons of ethanol alcohol – and Brazil converted its enormous sugar cane industry to a system that produces almost all of its transportation fuel.

The technologies are there. What's needed is a consistent government policy that allows investors to put money in the best ideas and to stick with them as they scale up. Make no mistake: Oil will be with us for a long time. Without investment and policies that will bring biofuels production up to scale, the migration from oil will take that much longer.

Third Wave • Mirus Bio • TomoTherapy • NimbleGen •
Imago • SoftSwitching Technologies • ProCertus BioPharm
• GWC Technologies • WICAB • NeoClone Biotechnology
• Stratatech • ioGenetics • Deltanoid Pharmaceuticals •
Opgen • GenTel Biosciences • Quintessence Biosciences
• AlfaLight • NeuroGenomeX • Echometrix • Silatronix
• Helix Diagnostics • ConjuGon • Scarab Genomics
• NovaScan • Graphene Solutions • Virent Energy Systems
• SonoPlot • BioSentinel • Bridge to Life • Mithridion •
NeuWave Medical • aOva Technologies • NovaShield • Cellular
Dynamics International • Ratio, Inc. • Centrose • Colby
Pharmaceutical • Stemina Biomarker Discovery • FluGen
• Nemean Networks • AquaMOST • Platypus Technologies

A Better World Starts Up Right Here

When it comes to start-up companies aiming to improve the world, there's no stopping the dynamic start-up team of the University of Wisconsin-Madison and WARF. The great discoveries of the university begin to grow into healthy businesses with the help of WARF. Some, like Third Wave Technologies, Mirus Bio, TomoTherapy, NimbleGen Systems and Imago Scientific Instruments, have surpassed their start-up beginnings through successful acquisition or IPO, ensuring UW-Madison discoveries are at work improving lives around the world every day.

Helping invent a better world. warf.org





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