

# MANAGEMENT INFORMATION SERVICES, INC.

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## JOBS CREATION IN THE ENVIRONMENTAL INDUSTRY IN THE U.S. AND NINE STATES:

ARIZONA  
CALIFORNIA  
CONNECTICUT  
FLORIDA  
MICHIGAN  
MINNESOTA  
NORTH CAROLINA  
OHIO  
WISCONSIN

April 2006

### **SYNTHESIS OF FINDINGS AND POLICY RECOMMENDATIONS**

Highlights are presented here from state reports on *Jobs Creation and the Environmental Industry*, conducted by Management Information Services, Inc. (MISI) for the Jobs and Environment Initiative and the Building Diagnostic Research Institute (BDRI), May, 2004 - April 2005. These reports present new detailed information about the *jobs creation impact and potential of the environmental industry in nine diverse states and the nation as a whole.*

### **KEY FINDINGS**

#### **MILLIONS OF JOBS OF ALL KINDS EXIST TODAY IN THE U.S. AND CORE MANUFACTURING STATES, THANKS TO ENVIRONMENTAL PROTECTION -- BUT THIS CONNECTION IS LARGELY OVERLOOKED**

Millions of good stable jobs, including manufacturing jobs, have been created by environmental protection throughout the U.S., for people in all walks of life -- blue-collar, white-collar and high-tech, carpenters, cashiers, electricians, truck drivers, etc. -- and continue to be created. Also, in all states studied, data show that investments in the environment will provide a greater than proportionate assist to the manufacturing sector. Each state is home to diverse environmental companies, many global leaders in their field; however, their strong role in employment generation is largely overlooked in economic development initiatives and policy.

Meanwhile, each day, people in virtually every line of work earn their livelihood thanks to environmental management and investment. But few workers realize that their jobs are directly or indirectly tied to, and in many cases even dependent on, the environmental industry. Similarly, the significant and positive employment role of the

environmental industry is not salient for many policy-makers at the national, state, and local levels. Each state offers a different set of economic circumstances, although intensive manufacturing emphasis is common among most of the states. The jobs creation benefits of environmental investments are diverse in the types of jobs created among the states, but consistently positive across all nine states. Therefore, the jobs benefits could be maximized and focused in each state across the range of local priorities, strengths, and concerns; for example:

- **Arizona** enjoys a high quality of life, but is suffering from severely weakened infrastructure, water shortages, and low rankings in workforce skill levels.
- **California** is the 6<sup>th</sup> largest economy in the world and a national environmental leader, but it nevertheless ranks low in workforce education and faces acute problems related to water resources, pollution, and energy infrastructure.
- **Connecticut** faces a shrinking pool of younger workers and a declining industrial sector, but has high-tech ambitions.
- **Florida** faces water, disaster management, and other land use planning issues, as well as a pressing need to diversify its economy.
- **Michigan** is home to the nation's automotive industry and has the 4<sup>th</sup> largest high-tech employment ranking in the U.S, but is facing stiff competition from imports, debates on vehicle fuel efficiency, etc.
- **Minnesota** is currently emphasizing manufacturing exports and Minneapolis-St. Paul is rated as the world's most "knowledge competitive region."
- **North Carolina** is a coastal state faced with constant water and land use planning issues, as well as a low ranking in the educational level of its manufacturing workforce.
- **Ohio** is the nation's 6<sup>th</sup> largest exporter, but is struggling with jobs creation in Cleveland, Akron, and Toledo, which are among America's poorest cities.
- **Wisconsin** is the 2<sup>nd</sup> most manufacturing intensive state in the nation and home to America's top ranked public universities for R&D spending.

The reports find that each state could reap strong economic and jobs creation benefits from increased environmental investments and from a better linking of environmental and economic development policies, including new skills training and anti-poverty efforts.

In sum, contrary to public perception and policy presumption:

- Environmental investment is good for jobs, workers, and long-term economic vitality.

- Environmental investment and jobs creation are not in conflict.
- The environmental industry has been long overlooked as a major source of current and future employment in the U.S.
- “Environmental jobs” are created directly and indirectly and across the spectrum of work activities, and could help offset jobs lost in manufacturing-dependent locales.

### **IN THE U.S. IN 2005, THE ENVIRONMENTAL INDUSTRY GENERATED MORE THAN 5 MILLION JOBS ACROSS THE NATION**

For perspective, compared to employment generated by other industries, this is:

- More than ten times the U.S. pharmaceuticals industry
- Nearly six times more than the apparel industry
- Almost three times more than the chemical industry
- Fifty percent more than religious organizations
- Nearly half the employment in hospitals
- Almost one-third the size of the entire construction industry

### **THE NATIONAL ENVIRONMENTAL INDUSTRY IS LARGER THAN REALIZED**

Over the past four decades, protection of the environment has grown rapidly to become a major sales-generating, profit-making, job-creating U.S. industry.

In fact, in the late 1990s, the environmental industry in the U.S. was on a trajectory to surpass defense spending in importance to the U.S. economy. At the time, environmental spending was projected to reach \$245 billion by 2005, while defense spending was projected to reach \$225-230 billion

Environmental spending surpassed the 2005 projections, but so has defense spending. However, absent world events, such as the war in Iraq and increased domestic security expenditures post September 11, 2001, the environmental industry might today indeed surpass defense spending in importance.

### **THE ENVIRONMENT INDUSTRY IS LARGER THAN THE TOP FORTUNE 500**

The size and scope of the U.S. environmental industry is not fully clear to the public at large, decision-makers, or the media. The size and scope of the environmental industry at the state level are likewise not fully appreciated.

Nationally, the environmental “industry” ranks above the top of the Fortune 500, and MISI estimates that in 2005 protecting the environment generated:

- \$341 billion in total industry sales
- 5.3 million jobs
- \$47 billion in Federal, state, and local government tax revenues

- \$22 billion in corporate profits

Indeed, the sales and spending of the U.S. environmental industry are larger than that of Exxon Mobil, America's largest corporation.

### **THE ENVIRONMENTAL INDUSTRY IS LIKELY TO GROW AND HAS BEEN RECESSION PROOF**

The environmental industry will continue to grow rapidly for the foreseeable future, and MISI forecasts that in the U.S. real expenditures (2005 dollars) will increase from \$341 billion in 2005 to:

- \$394 billion in 2010
- \$448 billion in 2015
- \$496 billion in 2020

The environmental protection industry has been relatively "recession proof:"<sup>1</sup>

- In the late 1970s the U.S. economy was reeling from inflationary shocks, record interest rates, energy crises, and anemic economic growth, but between 1975 and 1980 environmental expenditures (EP) expenditures grew nearly 60 percent, from \$81 billion to \$128 billion.
- In the early 1980s the U.S. experienced the most severe economic recession in half a century, with many industries experiencing depression-level problems, but between 1980 and 1985 EP expenditures increased by \$38 billion -- 30 percent.
- During the early 1990s the U.S. experienced a relatively mild recession, with GDP declining one percent and unemployment increasing to 7.5 percent; nevertheless, between 1990 and 1995 EP expenditures increased from \$214 billion to \$240 billion -- 12 percent.
- Between 2000 and 2005, while U.S. economic and job growth was generally anemic, the EP industry expanded continuously, growing to \$341 billion.

### **IN NINE DIVERSE STATES, THE ENVIRONMENTAL INDUSTRY IS A MAJOR EMPLOYER AND ECONOMIC FORCE**

**MISI estimates that in 2003:**

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<sup>1</sup>All figures quoted in these bullets are in constant 2005 dollars.

### **In Florida:**

- \$15.4 billion in sales were generated by environment-related industries in Florida
- Environment-related jobs totaled 220,000 (compared to 540,500 jobs ascribed to tourism).
- The environmental industry comprised three percent of gross state product.
- Florida environmental industries accounted for five percent of the sales of the U.S. environmental industry.
- Environment-related jobs comprised three percent of Florida employment.
- Environment-related jobs in Florida comprised 4.4 percent of the total number of environment-related jobs in the U.S.

### **In Michigan:**

- Sales of the environmental industries in Michigan totaled \$12.9 billion.
- The number of environment-related jobs totaled nearly 217,000.
- The environmental industry in Michigan comprised 3.9 percent of gross state product.
- Environment-related jobs comprised 4.9 percent of Michigan employment.
- Michigan environmental industries accounted for 4.3 percent of the sales of the U.S. environmental industry.
- Environment-related jobs in Michigan comprised 4.4 percent of the total number of environment-related jobs in the U.S.

### **In Minnesota:**

- Sales of Minnesota's environmental industries totaled \$5.1 billion.
- The number of environment-related jobs totaled more than 92,000.
- The environmental industry in Minnesota comprised 2.6 percent of gross state product.
- Minnesota environmental industries accounted for 1.7 percent of the sales of the U.S. environmental industry.
- Environment-related jobs comprised 3.5 percent of Minnesota employment.
- Environment-related jobs in Minnesota comprised 1.8 percent of the total number of environment-related jobs in the U.S.

### **In North Carolina:**

- Sales generated by environment-related industries in North Carolina totaled \$9.1 billion.
- The number of environment-related jobs totaled 112,000.
- The environmental industry in North Carolina generated 3.1 percent of gross state product.
- North Carolina environmental industries accounted for about three percent of the sales of the U.S. environmental industry.
- Environment-related jobs comprised 2.9 percent of North Carolina employment.
- Environment-related jobs in North Carolina comprised 2.5 percent of the total number of environment-related jobs in the U.S.

### **In Ohio:**

- Sales of the environmental industries in Ohio totaled \$12.2 billion.
- The number of environment-related jobs totaled more than 176,000.
- The environmental industry in Ohio comprised 3.2 percent of gross state product.
- Environment-related jobs comprised 3.3 percent of Ohio employment.
- Ohio environmental industries accounted for 4.1 percent of the sales of the U.S. environmental industry.
- Environment-related jobs in Ohio comprised 3.5 percent of the total number of environment-related jobs in the U.S.

### **In Wisconsin:**

- Sales of the environmental industries in Wisconsin totaled \$5.4 billion.
- The number of environment-related jobs totaled more than 97,000.
- The environmental industry in Wisconsin comprised 2.9 percent of gross state product.
- Wisconsin environmental industries accounted for 1.8 percent of the sales of the U.S. environmental industry.
- Environment-related jobs comprised 3.5 percent of Wisconsin employment.
- Environment-related jobs in Wisconsin comprised two percent of the total number of environment-related jobs in the U.S.

## **MISI estimates that in 2004:**

### **In Arizona:**

- Sales generated by environment-related industries in Arizona totaled \$6.9 billion.
- The number of environment-related jobs totaled 90,500.
- The environmental industry in Arizona comprised 3.6 percent of gross state product.
- Arizona environmental industries accounted for 2.1 percent of the sales of the U.S. environmental industry.
- Environment-related jobs comprised 3.9 percent of Arizona employment.
- Environment-related jobs in Arizona comprised 1.8 percent of the total number of environment-related jobs in the U.S.

### **In California:**

- Sales generated by environment-related industries totaled \$51 billion.
- The number of environment-related jobs totaled 598,500.
- The environmental industry comprised 3.3 percent of gross state product.
- California environmental industries accounted for 15.8 percent of the sales of the U.S. environmental industry.
- Environment-related jobs comprised 4.1 percent of non-farm employment.
- Environment-related jobs comprised 11.7 percent of the total number of environment-related jobs in the U.S.

### **In Connecticut:**

- Sales generated by environment-related industries in Connecticut totaled \$5.8 billion.
- The number of environment-related jobs totaled 65,800.
- The environmental industry in Connecticut comprised 3.2 percent of gross state product.
- Connecticut environmental industries accounted for 1.8 percent of the sales of the U.S. environmental industry.
- Environment-related jobs comprised four percent of Connecticut employment.
- Environment-related jobs in Connecticut comprised 1.3 percent of the total number of environment-related jobs in the U.S.

**And, in all nine states studied:**

- Most firms examined had been hiring new employees on a regular basis.
- Environment-related employment has been increasing in recent years between one and three percent annually.

**IN ALL STATES, MANUFACTURING JOBS BENEFIT FROM ENVIRONMENTAL ACTIVITIES:**

- *In Arizona*, more than 13 percent of private sector environmental jobs are in manufacturing, compared to nine percent for all other private sector employment.
- *In California*, 14 percent of private sector environmental jobs are in manufacturing, compared to 12 percent for all other private sector employment.
- *In Connecticut*, more than 18 percent of private sector environmental jobs are in manufacturing, compared to 14 percent for all other private sector employment.
- *In Florida*, more than seven percent of private sector environmental jobs are in manufacturing, compared to six percent for all other private sector employment.
- *In Michigan*, 29 percent of private sector environmental jobs are in manufacturing, compared to 17 percent for all other private sector employment.
- *In Minnesota*, more than one fifth of private sector environmental jobs are in manufacturing, compared to 15 percent for all other private sector employment.
- *In North Carolina*, more than 24 percent of private sector environmental jobs are in manufacturing, compared to 19 percent for all other private sector employment.
- *In Ohio*, nearly one-third of private sector environmental jobs are in manufacturing, compared to less than 20 percent of all private sector employment.
- *In Wisconsin*, 31 percent of private sector environmental jobs are in manufacturing, compared to 21 percent for all other private sector employment.

Thus, in all nine states examined, investments in protecting the environment are likely to provide a greater than proportionate assist to the manufacturing sector.

**ENVIRONMENTAL PROTECTION GENERATES MILLIONS OF JOBS THROUGHOUT ALL SECTORS OF THE ECONOMY AND WITHIN MANY DIVERSE OCCUPATIONS.**



MISI forecasts that U.S. employment created directly and indirectly by environmental protection will increase from 5.3 million jobs in 2005 to:

- 5.8 million jobs in 2010
- 6.3 million jobs in 2015
- 6.9 million jobs in 2020

Firms working in the environmental and related areas employ a wide range of workers at all education and skills levels and at widely differing earnings levels. Even in environmental companies, most of the employees are not classified as “environmental specialists.” Rather, most of the workers are in occupations such as laborers, clerks, bookkeepers, accountants, maintenance workers, cost estimators, engine assemblers, machinists, mechanical and industrial engineers, welders, tool and die makers, mechanics, managers, purchasing agents, truck drivers, etc. -- all jobs that lie outside the easily identified classically “green” sector.

### **HIGH-TECH EMPLOYMENT IN ALL NINE STATES BENEFITS FROM ENVIRONMENTAL ACTIVITIES:**

- *In Arizona, more than 10 percent of private sector environmental jobs are in professional, scientific, and technical services, and environmental investments generate, proportionately, four times as many jobs in professional, scientific and technical services as the state average.*
- *In California, more than 11 percent of private sector environmental jobs are in professional, scientific, and technical services, and environmental investments generate, proportionately, four times as many jobs in professional, scientific and technical services as the state average.*
- *In Connecticut, 27 percent of private sector environmental jobs are in professional, scientific, and technical services, proportionately, more than four times as many jobs in professional, scientific and technical services as the state average.*
- *In Florida, more than seven percent of private sector environmental jobs are in professional, scientific, and technical services and environmental investments generate, proportionately, 2.5 times as many jobs in professional, scientific and technical services as the state average.*
- *In Michigan, more than 20 percent of private sector environmental jobs are in professional, scientific, and technical services and environmental investments generate, proportionately, more than six times as many jobs in professional, scientific and technical services as the state average.*

- *In Minnesota, 11 percent of private sector environmental jobs are in professional, scientific, and technical services, and environmental investments generate, proportionately, more than five times as many jobs in professional, scientific and technical services as the state average.*
- *In North Carolina, nearly 20 percent of private sector environmental jobs are in professional, scientific, and technical services and environmental investments generate, proportionately, five times as many jobs in professional, scientific and technical services as the state average.*
- *In Ohio, more than 11 percent of private sector environmental jobs are in professional, scientific, and technical services, and environmental investments generate, proportionately, more than five times as many jobs in professional, scientific and technical services as the state average.*
- *In Wisconsin, more than ten percent of private sector environmental jobs are in professional, scientific, and technical services and environmental investments generate, proportionately, more than four times as many jobs in professional, scientific and technical services as the state average.*

### **JOBS OF SURPRISING VARIETY ARE CREATED IN ALL FOUR STATES, FOR ALL SKILL LEVELS**

**For example, in 2003, environmental protection generated:**

#### **In Florida:**

- More jobs for sheet metal workers (821) than for geoscientists (241)
- More jobs for electricians (708) than for chemists (242)
- More jobs for accountants and auditors (1,272) than for medical scientists (255)
- More jobs for computer software engineers (1,839) than for hazardous material removal workers (1,267)

#### **In Michigan:**

- More jobs for machinists (966) than for forest and conservation technicians (190)
- More jobs for executive secretaries (2,522) than for environmental scientists (1,523)
- More jobs for truck drivers (2,176) than for hazardous material removal workers (1,210)
- More jobs for human resource managers (297) than for medical scientists (225)

### **In Minnesota:**

- More jobs for machinists (265) than for geoscientists (127)
- More jobs for executive secretaries (771) than for biological technicians (293)
- More jobs for truck drivers (1,452) than for environmental scientists and specialists (1,324)
- More jobs for electricians (303) than for occupational health and safety specialists (112)

### **In North Carolina:**

- More jobs for sheet metal workers (605) than for biological technicians (449)
- More jobs for stock clerks (605) than for chemists (539)
- More jobs for electricians (420) than for conservation scientists (760)
- More jobs for truck drivers (1,971) than for civil engineers (760)
- More jobs for management analysts (482) than for foresters (177)

### **In Ohio:**

- More jobs for welders (385) than for biochemists (43)
- More jobs for office clerks (5,301) than for environmental engineers (1,470)
- More jobs for plumbers (353) than for health and safety engineers (140)
- More jobs for customer service representatives (2,716) than for environmental scientists and specialists (2,490)

### **In Wisconsin:**

- More jobs for truck drivers (2,328) than for hazardous material removal workers (510)
- More jobs for receptionists (777) than for medical scientists (479)
- More jobs for security guards (354) than for chemists (287)
- More jobs for janitors (1,478) than for landscaping and grounds workers (488)

### **In 2004, environmental protection generated:**

#### **In Arizona**

- More jobs for sheet metal workers (430) than for geoscientists (107)

- More jobs for office clerks (1,492) than for environmental engineers (854)
- More jobs for executive secretaries (1,008) than for forest and conservation technicians (626)
- More jobs for accountants and auditors (595) than for medical scientists (108)

### **In California**

- More jobs for cashiers (12,832) than for geoscientists (2,283)
- More jobs for executive secretaries (8,218) than for forest and conservation workers (2,110)
- More jobs for janitors (13,565) than for natural science managers (1,917)
- More jobs for electricians (4,723) than for chemists (1,548)

### **In Connecticut:**

- More jobs for sheet metal workers (281) than for geoscientists (84)
- More jobs for office clerks (1,207) than for environmental engineers (714)
- More jobs for executive secretaries (783) than for forest and conservation workers (243)
- More jobs for financial managers (437) than for conservation scientists (73)

### **IN ALL NINE STATES, ENVIRONMENTAL COMPANIES:**

- Are located throughout the state, in major urban centers, suburbs, small towns, and rural areas.
- Range in size from small firms of several employees to large firms employing thousands
- Are engaged a wide variety of activities, including manufacturing, engineering, research, remediation, testing, monitoring, analysis, etc.
- Include some of the most sophisticated, innovative, high-tech firms in the state

### **IN ALL NINE STATES, ENVIRONMENTAL COMPANIES ARE AMONG THE MOST SOPHISTICATED, HIGH-TECH FIRMS, SUCH AS:**

- **American Energy Exchange, Inc., in Kalamazoo, Michigan** manufactures energy recovery equipment built around its patented frost free heat exchanger, and is the second largest manufacturer of this type of energy recovery equipment in the U.S.

- **American Ref-Fuel Company**, in Connecticut, is the largest waste-to-energy company in the northeastern U.S.
- **ANGI International, Inc., in Wisconsin**, is one of the world's leaders in manufacturing and distributing Compressed Natural Gas (CNG) refueling equipment for natural gas vehicles and other applications in the CNG Industry.
- **Dewberry**, in North Carolina, currently ranks among *Engineering News-Record's* "Top 50" design firms.
- **Ecolab, in St. Paul, Minnesota**, is a \$3 billion company and a leading global developer and marketer of premium cleaning, sanitizing, pest elimination, maintenance, and repair products and services for the world's hospitality, institutional, and industrial markets.
- **First Solar, LLC, in Perrysberg, Ohio** is a leading U.S. manufacturer of solar photovoltaic modules.
- **Servern Trent Laboratories**, with offices Florida and elsewhere, is one of the leading environmental testing companies in the world.
- **Southwest Windpower, Inc.**, in Arizona, is the world's leading manufacturer of wind generators used for rural electricity generation.
- **Tetra Tech**, with offices in California and elsewhere in the nine states studied, is a leading U.S. provider of environmental consulting, engineering, and technical services.
- ....and many others described in the full state reports.<sup>2</sup>

## **POLICY OPPORTUNITIES AND RECOMMENDATIONS: JOBS CREATION AND THE NEXT TIER OF ENVIRONMENTAL POLICY**

All states have environmental policies and jobs creation policies, but in no state are these programs sufficiently linked, if at all. Therefore, no state has yet understood or realized the existing jobs creation benefits of environmental activities, nor the jobs creation potential of the environmental industry, including its potential to contribute significantly to workforce training and anti-poverty efforts. This nexus between jobs creation and environmental protection can and should constitute the "next tier" of environmental and economic development policy in the U.S., i.e., take environmental protection activities to a level more integrated with economic policies to maximize the socio-economic benefits of environmental investments. Strategic policy options exist for the nation as a whole and all states, even counties.

As the state reports make clear, environmental investments pay significant dividends in jobs creation and workforce development in all sectors. The scope, diversity, and scale of environmental employment indicates that, rather than viewing environmental spending or compliance costs as economically negative, states should aggressively move to maximize the short and long-term benefits of environmental spending.

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<sup>2</sup>Interestingly, many of the companies have names that do not readily identify their environmental focus.

Today's separate policy tracks should "cross over" to better link jobs and environment goals and maximize benefits of environmental management for economic development. Without such crossover, invaluable jobs creation benefits are being lost. No state studied is achieving this crossover.

### **Each State Should Create a Public-Private Jobs and Environment Task Force**

An immediate recommendation would be for all 50 states to create a Task Force on "Jobs Creation and Environment Investment," with the goal of connecting environmental investment and spending with other government agencies and initiatives linked to economic development and workforce training, especially to align tax incentives and other policy tools with pro-active environmental jobs creation.

While environmental policy is governed by the public sector, these studies show that significant private sector activity derives from these policies. Thus, each state could also create an Environmental Jobs Association to better highlight and support the jobs creation benefits of the environmental industry.

### **EACH STATE HAS SPECIAL POLICY OPPORTUNITIES AT HAND TO MAXIMIZE JOBS CREATION BENEFITS, SUCH AS:**

#### **In Arizona:**

- Highlight jobs creation through the Climate Change Advisory Group
- Add an environmental jobs focus to the Rural Economic Development Initiative
- Provide an environmental industry thrust to the Arizona Association for Economic Development

#### **In California:**

- Intensify the Treasurer's Office "Green Wave" jobs focus to create a national model
- Bring an environmental jobs focus to the California Alliance for Jobs
- Add an environmental parameter to the Workforce Investment Board

#### **In Connecticut:**

- Focus on environmental jobs in the Governor's Competitiveness Council
- Make environmental jobs a priority for the "Yankee Ingenuity Competition"
- Add environmental jobs training to the Department of Economic and Community Development

### **In Florida:**

- Highlight the environmental jobs potential through the Strategic Plan for Economic Development
- Add an environmental jobs focus to the portfolio of the Governor's Council of Economic Advisors
- Integrate environmental jobs into the Enterprise Florida public-private partnership system

### **In Michigan:**

- Integrate an aggressive environmental jobs component in all of the following: Michigan Strategic Plan; Clean Michigan Initiative; Clean Michigan Fund; State Environmental Sciences Board; Michigan Retired Engineer Technical Assistance Fund; Michigan Energy Office; Department of Environmental Quality; Department of Labor and Economic Growth; Michigan Biomass Energy Program; Michigan Economic Growth Authority: Smart Zone Planning; and Michigan NextEnergy Program
- Develop a specific initiative focused on jobs creation in the automotive sector, based on research, development, and marketing of more energy efficient automobiles and trucks

### **In Minnesota:**

- Centralize a jobs creation focus in the Minnesota Sustainable Development Initiative
- Integrate environmental jobs creation in "Governor's Forums: Citizens Speak Out" public interactive discussions sponsored by the Minnesota Pollution Control Agency
- Establish staff focus on environmental jobs creation within the Governor's Council on Workforce Development

### **In North Carolina:**

- Flesh out the jobs and environment linkage referred to in the North Carolina 20/20 Report
- Add an environmental jobs focus to coastal habitat protection programs
- Finance environmental jobs projects through the Clean Water Management Trust Fund

### **In Ohio:**

- Convoke an “Environmental Jobs and Manufacturing” Summit, convened by the state of Ohio, with an ongoing jobs focus on the jobs-environment nexus in any annual state-policy session on manufacturing and outsourcing
- Integrate an aggressive environmental jobs component in the following: Third Frontier Project; Research and Development Investment Loan Fund; Clean Ohio Fund; Edison Technology Centers; Innovation Ohio Loan Fund; Technology Investment Tax Credit Program; and Energy Efficiency Skills for Professionals

### **In Wisconsin:**

- Expand the innovative Green Tier program to better highlight the jobs-environment benefits for participating agencies and companies
- Re-establish the Wisconsin Conservation Corps, which was terminated in 2003
- Integrate the jobs creation component in key programs, such as Grow Wisconsin, Technology Zone, Community Financial Assistance, Cooperative Environmental Focus, and the Brownfield Development Program

Finally, these studies have shown that a timely breakthrough opportunity exists for states to recognize and realize the economic and jobs benefits that could flow from facilitating the growth of environmental and environment-related industries. This would be a fresh new arena for economic development initiatives, including the creation of lucrative new export markets.

In addition, from the long-term point of view of expanding the constituency in favor of environmental protection, the positive jobs creation impact of environmental investment could create new constituents for environmentalism among all worker groups, including unionized labor in the automotive industry. This could expand and diversify the voices in favor of environmental protection nationwide – which is much needed, especially in an era of inter-generational transition.

Jobs creation is a reconciling force between economic development and environmental protection, which have traditionally been treated as irreconcilable. The link between jobs creation and environmental protection can be maximized for strategic impact on the jobs outlook of the U.S., and long-term environmental and economic health.

**In sum, the link between jobs creation and environmental management is pivotal for economic development, and presents a strategic and solutions-oriented new policy approach with practical benefits for workers in all communities and walks of life.**



## **ABOUT THE JOBS AND ENVIRONMENT INITIATIVE**

The Jobs and Environment Initiative, founded in 2004 by Paula DiPerna, is a pilot program of research, policy analysis, and public education. The objective of the Initiative is to examine and demonstrate the links between jobs creation in all sectors of economic activity, including manufacturing, and all aspects of environmental management. The Initiative seeks to describe and analyze current jobs benefits of environmental investment and stewardship; bring further public and policy attention to the strength and scope of the environmental industry; examine potential for further jobs creation; highlight policy opportunities, and improve understanding of the positive contributions of environmental management to economic growth and employment generation, at the local, state, regional, national, and international levels. The Initiative conducts state-based and national reports and other inquiries and is a collaboration between Management Information Services, Inc. and the Building Diagnostics Research Institute. (For further information contact Paula DiPerna at 212-688-0942.)

## **ABOUT MANAGEMENT INFORMATION SERVICES, INC.** **([www.misi-net.com](http://www.misi-net.com))**

Management Information Services, Inc. (MISI) is a Washington, D.C.- based economic research firm with expertise on a wide range of complex issues, including energy, electricity, and the environment. The MISI staff offers expertise in economics, information technology, engineering, and finance, and includes former senior officials from private industry, federal and state government, and academia. Over the past two decades MISI has conducted extensive proprietary research, and since 1985 has assisted hundreds of clients, including Fortune 500 companies, nonprofit organizations and foundations, academic and research institutions, and state and federal government agencies such as the National Academies of Science, the White House, the U.S. Department of Energy, the U.S. Environmental Protection Agency, the Department of Defense, the Energy Information Administration, and the General Services Administration.

## **ABOUT THE BUILDING DIAGNOSTICS RESEARCH INSTITUTE** **([www.buildingdiagnostics.org](http://www.buildingdiagnostics.org))**

The Building Diagnostics Research Institute, Inc. (BDRI) is a Section 501(c)(3) not-for-profit organization dedicated to providing the highest level of research, education and training, and public outreach. The Institute's mission is to leverage more than 25 years of building diagnostics experience in order to enhance health, safety, security, and productivity, and it is implemented by conducting basic and applied research, providing education and training for health and building professionals, disseminating knowledge, and serving as an advocate for the general public. BDRI's basic and applied research, its education and training, and its public outreach are carried out by an interdisciplinary team of staff and external scientists and professionals representing a variety of

disciplines, including chemistry, industrial hygiene, engineering, microbiology, and law and public policy.

### **BIOGRAPHICAL INFORMATION**

**Paula DiPerna**, founder of the Initiative, served formerly as President of the Joyce Foundation, and Vice-President for International Affairs for the Cousteau Society. She is a widely published author and public policy analyst.

**Roger Bezdek, Ph.D.**, President of Management Information Services, Inc. has 30 years experience in consulting and management in the environmental, energy, economic forecasting, and regulatory areas, serving in private industry, academia, and the Federal government. He has served as a consultant to the White House, Federal and state agencies, environmental organizations, corporations, and research organizations. Dr. Bezdek, is an internationally recognized expert in economic forecasting and environmental analysis, and is the author of four books and 200 articles in scientific and technical journals. He received a Ph.D. in Economics from the University of Illinois (Urbana).

**Robert Wendling, M.A.**, is Vice President of Management Information Services, Inc. He has 28 years experience in consulting and management in the energy, environmental, statistical/econometric modeling, and regulatory areas. He has served in industry as corporate CEO and president, as corporate vice president, and in senior positions in the U.S. Department of Commerce and the Department of Energy. He is the author of 100 reports and professional publications on energy and environmental topics and lectures frequently on various energy, forecasting, regulatory, and economic modeling topics. He received an M.A. in Economics from George Washington University.

**James Woods, Ph. D.**, is CEO of the Building Diagnostics Research Institute. Dr. Woods has 35 years experience in management and consulting in the environmental industry, serving in academia, industry, and as an advisor to DOE, EPA, NIST, and the National Academies of Science. He has extensive experience in end-use demand in the residential, commercial, and industrial sectors, environmental factors, and energy modeling, has managed 20 large scale energy and environmental research projects, and is the founder of the Building Diagnostics Research Institute. He received a Ph.D. in Mechanical Engineering from Kansas State University.