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Briefing Paper:

The Apollo Alliance Green MAP Proposal and the Ohio Economy

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Policy Matters Ohio convenes the Ohio Apollo Alliance, a coalition of business and labor, community and environmentalists, who work on strengthening Ohio's economy, job base and communities through the opportunities offered by development of the new green energy economy.

We know that firms are already serving new green energy markets in Ohio. A new report by the Pew Charitable Trust shows that Ohio has 2,513 clean energy companies today, with 35,267 jobs.¹ This new market has developed partly in response to the growing number of states, including Ohio, that have instituted a renewable energy portfolio, which drives long-term demand by utilities for wind, solar, geothermal, biomass and other forms of renewable energy.

The federal climate legislation under consideration, HR. 2454, "The American Clean Energy and Energy Security Act of 2009," will increase the demand for renewable energy through national 'Renewable Portfolio Standards' and 'Energy Efficiency Standards' embodied in the bill. Many more Ohio companies may, with access to capital and reliable demand, choose to enter such markets themselves.

As the nation stands on the brink of sweeping change in energy supply, certain programs must be in place to make sure that domestic firms that are willing to move into new markets have the critical support they need to make that entry: access to capital, consulting expertise, reliable domestic demand, workforce training programs.

The most important initiative of the Apollo Alliance is the Green MAP (Manufacturing Action Plan).² We call on the Ohio Congressional delegation to seize the opportunity to harness climate change legislation to revitalize Ohio's industrial base. The goals of the GreenMAP are threefold:

- 1. Fostering long-term domestic manufacturing capacity in the clean energy and energy efficiency industries;**
- 2. Achieving job creation through the construction and operation of qualified clean energy projects and qualified energy efficiency projects; and**
- 3. Realizing energy efficiency potential in existing industrial infrastructure.**

¹ Pew Charitable Trust, "The Clean Energy Economy: Powering Jobs, Business and Investment Across America", June 2009; summary slides available at:

http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Clean_Energy_Economy/cee_slides.pdf

² <http://apolloalliance.org/programs/apollo-green-manufacturing-action-plan-greenmap/>



In this briefing paper, we highlight opportunities that federal climate legislation could provide to Ohio employers if the right programming and policies ensure that demand accrues to domestic firms and that support is provided to allow small and medium-sized firms to take advantage of this opportunity. The specific recommendations of the Apollo GreenMAP program are discussed.

In addition to the GreenMAP proposals, Policy Matters Ohio recommends that Ohio legislators consider underwriting conversion studies: planning initiatives and feasibility studies for the redevelopment of significant industrial facilities that have been closed (Delphi plants in Dayton and other automotive supply and assembly plants throughout the state, for instance), but which may contribute to the ramp-up needed to serve production for green energy components in domestic facilities. Conversion strategies have been employed in both the case of plant closure (as in Wilmington, where the Ohio Department of Development is working with a commission of local officials in a redevelopment feasibility plan for the DHL Hub) and in the private redevelopment of former military bases.

Potential Green Energy Components Suppliers in Ohio

In 2005, the Renewable Energy Policy Project³ looked at 20 of the top states in terms of potential for green job growth. Ohio ranked fourth in the nation because of the structure of its industrial base, with dense networks of upstream and downstream suppliers in close proximity to R&D facilities, supporting logistics, financiers with a history in new market development, a well-trained work force and strong post-secondary training facilities.

The Renewable Energy Policy Project identified specific sectors through the North American Industrial Classification system (NAICs), as potential suppliers of component parts to companies making equipment for the generation of renewable energy in solar, wind, geothermal and biomass. Using the renewable-energy sectors from the REPP report, we have drawn on data from Dun & Bradstreet⁴ to identify Ohio companies that are in those industries that could produce component parts needed to build renewable energy generation plants or equipment like solar panels, wind turbines, geothermal pumps and or biomass distilleries. These firms may or may not be serving green energy markets at this point, and they may or may not be interested in the opportunity, but since they produce in these sectors, they may chose to investigate green energy markets expanding as the move toward federal climate legislation increases demand for clean and renewable energy.

To analyze the need for retooling (producing for green energy markets) and retrofit (energy efficiency to protect against price shock), we developed two interactive, county-by-county maps of small and medium sized manufacturers in Ohio:

1. To identify employers that might choose to expand into new green markets and
2. To identify firms that may need to invest in new energy efficiency to remain competitive.

³ Renewable Energy Policy Project (REPP), “Renewable Energy Manufacturing in Ohio,” 2005, http://www.policymattersohio.org/apollo2005/REPP_Ohio_Mfg.pdf. A complete list (with pictures) of the actual parts needed for this green production is included in the index of the REPP study.

⁴ Dun & Bradstreet is a business information firm used by creditors, customers and suppliers. The data is self-supplied. Policy Matters Ohio subscribes to the Selectory database; see <http://www.selectory.com/Selectory/Login.aspx?registrationCode=goog0071>

These firms would benefit the most from the policy proposals of the Apollo GreenMAP plan.

The first map (<http://www.policymattersohio.org/ohiogreenindustry/GreenIndustryMap.htm>) provides a county-by-county list of small- and medium-sized firms in sectors that could produce some of the components for generation of wind, solar, geothermal and/or biomass. This might include, for instance, a mill that could provide cold rolled steel for wind turbine blades, a silica plant that might upgrade its product to supply solar panel manufacturers, or an iron forge that produces a casting for the body of a wind turbine. It might be a company that makes household sinks and commodes that modifies some product for use in the geothermal production equipment line. It could be a rendering plant that contemplates moving into cellulosic biomass production. It may be a sawmill that transforms a waste stream (sawdust) into biomass feedstock.

We focused on smaller firms because these firms have the greatest potential for growth and may benefit the most from specific federal programming to support a diversification into new green markets. We found such firms in virtually every county of Ohio. Dun and Bradstreet data indicates that 3,141 firms that collectively employ 256,684 workers may have new market opportunities in green energy component manufacture. The industries with the largest number of firms and employing the most workers in the sectors that could serve new green energy markets are paper manufacturing, chemical manufacturing, plastics and rubber manufacturing, primary and fabricated metal manufacturing, and nonmetallic mineral product manufacturing. Table 1 on the next page shows the NAICS codes that have the potential to serve the green energy component industry, the number of firms in these subsectors and the total employment in these firms.

Table 1: Sub-sectors with the Potential to Serve Green Energy Component Industry (firms under 500 in employment)

NAICS code	General Industry Category	Number of Ohio Firms	Total Employment
113	Forestry and Logging	3	278
211	Oil and Gas Extraction	7	346
212	Mining (except Oil and Gas)	57	3,090
213	Support Activities for Mining	40	2,457
237	Heavy and Civil Engineering Construction	1	45
311	Food Manufacturing	90	9,501
312	Beverage and Tobacco Product Manufacturing	8	285
316	Leather and Allied Product Manufacturing	1	25
321	Wood Product Manufacturing	184	9,226
322	Paper Manufacturing	267	24,867
324	Petroleum and Coal Products and Manufacturing	51	2,715
325	Chemical Manufacturing	389	33,202
326	Plastics and Rubber Products Manufacturing	586	55,118
327	Nonmetallic Mineral Product Manufacturing	313	20,755
331	Primary Metal Manufacturing	337	32,738
332	Fabricated Metal Manufacturing	281	15,752
333	Machinery Manufacturing	264	22,046
334	Computer and Electronic Product Manufacturing	100	8,546
335	Electrical Equipment, Appliance, and Component Manufacturing	120	11,977
336	Transportation Equipment Manufacturing	7	490
337	Furniture and Related Product Manufacturing	10	779
339	Miscellaneous Manufacturing	26	2,446

Policy Matters Ohio, based on data from the Dun & Bradstreet Selectory Database, June 2009

- Around 2,200 Ohio small and mid-sized companies build the raw materials and some of the basic components for renewable energy systems: building materials like concrete and brick, metals (both raw and fabricated), plastics, chemicals.
 - Each of these industries encompasses a multitude of firms across a broad range of sizes, from around 20 employees to 500.
 - There are between 100 and 500 companies for each of these basic industry areas.
 - Rubber and plastic manufacturing represents the largest industry with almost 600 companies in that category.

- The large number of plastics and rubber manufacturing companies, which include those that produce foam insulation and other building materials, could also take advantage of moves to promote energy efficiency.
 - There are 28 firms—comprising about 1,600 jobs—that have the potential to produce insulation to meet the demand for heat efficient buildings created by measures such as updated building codes, subsidized housing retrofits, and mandated natural gas end-use reductions.
 - Ohio also has a large number of wood product manufacturers, which include manufacturers of engineered wood products, who could tap into growing market for advanced building materials.
- There is a smaller but still significant presence of equipment, machine, and computer manufacturers vital to building technologically advanced renewable energy systems.
 - About 500 Ohio firms employing 43,000 workers produce for these sectors, again representing both small businesses and larger firms up to 500 employees.
 - There is strength, in particular, in battery, wire, cable, and fiber optic manufacturing, all of which are needed for storage and transfer of power for new energy systems. About 120 Ohio companies, many of them smaller businesses, employ over 11,000 workers in building these essential electrical components.

These companies may or may not produce for green energy markets at present. If the right conditions are in place – the capital, the technical assistance, domestic content provisions to ensure the jobs don't go overseas, and long-term demand from federal mandates for renewable energy - the managers of these Ohio firms might find themselves looking at how to participate in the new green markets. New jobs may come from that growth – but of equal importance, new markets could support existing jobs and strengthen the careers of the workers, the strength of the factories, and the economic health of Ohio's communities.

These firms may or may not chose to pursue the opportunity, but it is incumbent on legislators to ensure that if they do, the support is there to help them move into new green energy markets. The Apollo GreenMAP proposals address these needs. The primary goal of the proposal is to ensure job retention as well as job growth across the manufacturing sectors. These firms produce in sectors that are the most likely to see job growth.

The firms listed here only represent a portion of manufacturers who should be supported by manufacturing programs linked to climate change legislation. Energy efficiency is a critical part of reducing greenhouse gas emissions. The potential for reinvestment in the industrial base with energy efficiency strategies represents one of the best opportunities since World War II for reinvestment in America's industrial plants and equipment.

The Need for Energy Efficiency in Ohio's Industrial Base

The second map (<http://www.policymattersohio.org/EnergyIntensiveManufacturers2009/OhioMap.htm>) provides a county-by-county list of small and medium sized firms whose primary line of business is



energy intensive and subject to competitive conditions.⁵ These firms in particular will need assistance from the federal government to retrofit their factories for greater energy efficiency so as to protect them from price shock as the price of greenhouse gas rises under the proposed cap and trade mechanism of the federal climate legislation.

Because Ohio hosts a mature industrial base, the supply chains across the state include commodity products, which are goods produced from raw materials and sold to manufacturers who make them into other products. These firms use lots of energy in the production process. The presence of complete supply chains makes Ohio an ideal location for development of the new green energy industry, since the greenhouse gas emissions of materials transported for production is compressed. Ensuring the health of these firms, which stand at the base of the supply chain, is important to maintaining Ohio's industrial economy. Climate change legislation must include provisions that allow these employers to invest in the equipment, processes and workforce training necessary to remain competitive.

The small and medium sized energy intensive firm should be eligible for assistance to adopt energy efficient strategies, equipment, processes and protocols in their manufacturing plants. For Ohio, it will be important that these firms to be given opportunity not only to produce for new green markets if possible, but to provide access to capital to reduce their carbon footprints within the necessary time frame.

Table 2: Small and Medium-Sized Ohio Firms in Energy Intensive and Competitive Industries (Employment Less than 500)

General Industry Sector	Number of Ohio Firms	Firms' Total Employment
Mining (except Oil and Gas)	1	76
Food Manufacturing	1	250
Wood Product Manufacturing	3	245
Paper Manufacturing	31	4,334
Chemical Manufacturing	178	14,794
Nonmetallic Mineral Products	106	8,862
Primary Metal Manufacturing	105	10,541
Electrical Equipment, Appliance, and Component Manufacturing	5	357

Source: Policy Matters Ohio, based on Dun & Bradstreet Selectory Database, accessed June 12, 2009

In total, 434 firms supporting over 39,000 jobs were identified in the Dun & Bradstreet database as producing in energy intensive sectors. Once again, we looked at only the small and medium-sized firms.

⁵ The sectors are taken from a briefing book by the Energy Intensive Manufacturers Working Group, led by Jack McMackin. His congressional testimony is at http://Republicans.EnergyCommerce.house.gov/Media/file/Hearings/Energy/042309_ACES/Panel%202/McMackin%20Testimony.pdf.

Current climate legislation contains provisions to address energy efficiency needs of larger firms through allocation of carbon allowances.

Within these sectors, we found that iron and steel mills, chemical manufacturers and nonmetallic mineral product manufacturers represent the largest groups of manufacturers in Ohio that are energy intensive and vulnerable to competition.

- Dun & Bradstreet indicates there are 105 Primary Metal Manufactures with less than 500 in employment in Ohio.
 - Of these 105 firms, 80 are steel and iron mills employing a total of about 7,125 people. This production is concentrated in northeastern Ohio. Firm size ranges from 30 workers to 500.
- There are 178 firms with less than 500 workers in the category of chemical manufacturing, with a total of 14,749 employees; this represents the largest industry sector in Ohio that is both energy intensive and in internationally competitive sectors.
 - Within this sector, plastic and resins makers, many smaller in size, but including some companies with up to 300 employees, employ 4,084 people across 58 firms.
 - Franklin and Cuyahoga counties host a concentration of these firms, followed by Hamilton and Medina.
 - General organic and inorganic chemical manufacturers employ 6,590 people across 69 small and mid-sized firms.
- In terms of non-metallic mineral manufacturing, 106 small and medium sized firms employ 8,862 workers.
 - There are 28 glass manufacturers in the middle range in terms of size. The industry accounts for about 3,348 jobs.
 - A broad range of firms manufacturing clay products, such as china for fixtures, bricks, porcelain, pottery and ceramic tiles are included in the list. There are about 50 firms, with 3,300 total jobs.

The Apollo GreenMAP Program

The Ohio Apollo Alliance proposes a set of economic development initiatives to ensure that renewable energy demand accrues to domestic firms and that support is provided to assist small and medium sized manufacturers access that demand. The goals of the GreenMAP (Green Manufacturing Action Plan) are three fold:

- 1. Fostering long-term domestic manufacturing capacity in the clean energy and energy efficiency industries;**
- 2. Achieving job creation through the construction and operation of qualified clean energy projects and qualified energy efficiency projects; and**
- 3. Realizing energy efficiency potential in existing industrial infrastructure.**

There are four primary provisions of the plan to accomplish these goals:



Apollo Alliance GreenMAP Provision #1: Provide access to capital so Ohio manufacturers can retool for new green markets and can retrofit their plants to become energy efficient.

1. Create stable funding for manufacturers to retool and retrain workers so they can access new clean energy/efficiency markets
 - a. Provide a suite of financial mechanisms (including loans, loan guarantees, grants, bonds, tax credits, debt securitization, insurance, portfolio insurance, and other forms of financing support or risk management) for qualifying manufacturing projects.
 - b. Funding can be used for retooling, retrofitting, worker training or retraining.
 - c. Funding can be used for firms to retool to access new markets in a range of renewable energy and energy efficiency sectors; firms making their own operations more efficient through installation of efficient systems may also use funding.

GreenMAP provision #2: Attach standards to funding to ensure these are good, American jobs.

The renewable energy standards of proposed climate legislation, and of Ohio's new electricity bill (SB221) mandate a portion of electrical energy to come from renewable sources. This mandate will drive demand for the new products needed to generate renewable energy: new factories to produce biomass, new piping for geothermal, solar panels and wind turbines, towers and blades. The mandate will increase year over year and will remain in place, ensuring the level and type of demand that can produce returns necessary for an employer to consider investment. However, such production could also happen anywhere that industrial goods are produced. To ensure that the benefit of green energy markets accrues to workers in this country, domestic production must be assured for firms that receive financial support. The GreenMAP proposal would require that eligible firms must:

- a. Be located in the U.S. and intend to remain in the country for at least five years.
- b. Apply funding only to U.S. processes and equipment purchases.
- c. When purchasing equipment using these funds, that equipment must have undergone assembly in the U.S. unless this equipment is not available in the U.S. (standard Buy American language).
- d. Pay at least the state average manufacturing wage, and benefits; pay prevailing wage on any construction projects.

Apollo GreenMAP Provision #3: Include support to the Manufacturing Extension Partnership program to help firms access these new markets and organize into supply chains.

While the firms listed at <http://www.policymattersohio.org/ohiogreenindustry/GreenIndustryMap.htm> produce in sectors that supply component parts for the generation of renewable energy sources, the management team of each firm may or may not have the interest or capacity to reach out to new, unorganized green markets. Since 70 percent of equipment for green energy production currently comes from overseas,⁶ the domestic market must be quickly assembled to ensure growth and jobs benefit the American industrial base and American taxpayers. This may take a tremendous amount of technical assistance to small and medium sized manufacturers.

⁶ www.apolloalliance.org

In addition, firms will need to quickly develop strategies for improving the energy efficiency of their manufacturing facilities as the price of pollution rises with the carbon cap and trade system. Firms listed at (<http://www.policymattersohio.org/EnergyIntensiveManufacturers2009/OhioMap.htm>) show energy intensive firms in Ohio. There will be a tremendous need for engineers trained in energy audits and lean manufacturing processes to assist firms across Ohio in identifying the best efficiency strategy for their plant, to package the financial backing for the investment, and to help ensure worker training brings the workforce into efficiency strategies.

Ohio has a tremendous network of Manufacturing Extension Centers, Wright Centers and Edison Centers that work with firms on growth and retooling strategies. These services must be expanded to meet new demand that will accompany the cap and trade. Therefore, the GreenMAP proposes:

- a. Priority given to firms that can demonstrate they have worked with their regional MEP to develop a plan for retooling/industrial efficiency.
- b. Separate and additional authorization of funding to MEPs so they can provide technical assistance on these projects.

Apollo Recommendation #4: Include mechanism for inter-agency cooperation.

A national authority should coordinate financial and technical assistance programs for American firms to rapidly retool and invest in energy efficiency. Even now, many programs to assist in the new energy economy are in place, but scattered across federal and state sources. The national government must bring these sources together in a well-coordinated institution that offers American manufacturers easy access to the support they will need. To that end, Apollo recommends that new green energy manufacturing support programs be administered by a Clean and Efficient Manufacturing Finance Authority under direction of a Board of Directors that includes the Energy, Treasury, Commerce, Labor, and Education secretaries or designees.

Summary and Conclusion

In sum, there is good potential for job retention and creation in Ohio as a result of federal climate legislation. However, it is critical that climate legislation contain provisions to ensure that the orders come to domestic manufacturers, that the jobs created and retained are American jobs, and that small and medium-sized American manufacturing firms get the support they need to quickly retool for energy efficiency and new green markets. We look to the provisions of the GreenMAP plan to make climate legislation the Green Marshall Plan for the Midwest.

We also call on the Ohio delegation to make funding available to Ohio communities with large unused industrial facilities, to conduct conversion feasibility studies to determine how these facilities could be returned to produce capacity to strengthen the clean and green energy industrial base in the state.

