American Energy & Manufacturing Competitiveness Partnership

A Summary of Public-Private Partnerships
Each PPP in this infographic has been characterized by its principal purpose as an Early Market, Innovation Network, Mature Market or Test Bed/Demonstration model. The Council notes that while any PPP may be predominantly characterized by one model, it may also have characteristics that fit within multiple models. The summary also suggests a possible application for each PPP's organizational model.

The public policy recommendations are categorized using the "pillars" framework developed by the Advanced Manufacturing Partnership (AMP) Steering Committee for the July 2012 report on advanced manufacturing under the auspices of the President's Council of Advisors on Science and Technology (PCAST). The "Clean Energy Market Risk" category (not in the AMP framework) has been added for purposes of this report.

Early Market PPPs tend to focus predominantly on research for technologies that are less established in the market and/or have few mature firms able or willing to support a PPP on their own. Some Early Market PPPs also engage in prototyping and early commercialization activities. Several of the Energy Innovation Hubs fall into this category, working for example on battery technologies, rare earth mineral substitutes or artificial photosynthesis. Industry often partners in such hubs, but tends not to lead them due to the earlier stage of the market or technology.

Mature Market PPPs seek to advance the objectives of more mature industries. These PPPs tend to be industry-led and focus on pre-competitive research, cooperative research on advanced manufacturing technologies, or on standards. The technologies addressed by these PPPs can be early-stage or more mature, but there are enough mature companies in the market that the private sector engages heavily in the leadership.

Test Bed / Demonstration PPPs focus predominantly on testing and demonstration—often working to establish the market for an emerging technology or group of technologies. Although the other PPP models in this study may include testing and demonstration components, the Test Bed / Demonstration PPPs have testing and demonstration as their primary function. These PPPs are local by nature, even if their user community is national or global in scope.

Innovation Network PPPs are generally national or international networks of applied research and demonstration organizations, often focused on a particular technology or set of technologies at each node in the network. The network nodes are sometimes linked by a broad theme, such as advanced manufacturing technologies under the National Network for Manufacturing Innovation or nanotechnology applications under the Interuniversity Microelectronics Centre.
PUBLIC PRIVATE PARTNERSHIPS (PPP) – NATIONAL

Commonwealth Center for Advanced Manufacturing (CCAM)
Membership-based applied research consortium focused on additive manufacturing innovation.

Policies Indirectly Supporting the PPP

Joint Center for Energy Storage Research (JCESR)
Research partnership to overcome critical scientific and technical barriers and create new energy storage technology.

Policies Indirectly Addressed by the PPP

Energy Efficient Buildings Hub (EEB Hub)
Open consortium accelerating adoption of advanced energy retrofit commercial buildings by working on design, demonstration and deployment of market proven solutions.

Policies Indirectly Addressed by the PPP

Policies Indirectly Supporting the PPP

National Additive Manufacturing Innovation Institute (NAMII)
Membership-based applied research consortium focused on additive manufacturing innovation.

Policies Indirectly Addressed by the PPP

National Network for Manufacturing Innovation (NNMI)
Network of up to 15 tech-focused institutes to create manufacturing research infrastructure for U.S. industry and academia to solve industry-relevant problems.

Policies Indirectly Addressed by the PPP

Fraunhofer Center for Sustainable Energy Systems (CSE)
Nonprofit applied R&D laboratory dedicated to the commercialization of clean energy technology.

Policies Indirectly Addressed by the PPP

Policies Indirectly Supporting the PPP

National Digital Engineering and Manufacturing Consortium (NDEMC)
Partnership to demonstrate potential competitiveness impact of high performance computing on small and medium-sized manufacturers.

Policies Indirectly Addressed by the PPP

Policies Indirectly Supporting the PPP

PUBLIC POLICY RECOMMENDATIONS

● Enabling Innovation
  ● Demonstration Facilities: The U.S. government should establish a mechanism for working with the private sector to finance support for the implementation of large-scale R&D, demonstration, and commercialization of clean energy technologies, where such demonstrations are essential to enable private sector adoption of clean energy technologies. Recommended by: Harvard Kennedy School; Brookings; WWII; ITIF; SAFE; Tasey
  ● Innovation Standards: Industry CEOs and government leaders should elevate and advance U.S. technical standards (a voluntary consensus standards-setting process) as applicable to drive innovation in clean energy and advanced manufacturing. Recommended by: CoC; CAP; CNG
  ● Innovation Tax Incentives: The U.S. government should provide additional incentives for private-sector investments in innovation through tools such as VC capitalization incentives; Production Tax Credits; Investment Tax Credits; and the R&D Tax Credit. Recommended by: AAM; Brookings; WWII; ITIF; NSTC; PCAST; CAP; CNG; Harvard Kennedy School; Bloomberg
  ● Public Funding of Pre-Competitive R&D: The Administration should support annual expenditures on energy and advanced manufacturing R&D/DOE. To be effective, this funding must be long-term, stable, and have broad enough bipartisan support to service election cycles. Recommended by: PCAST; NSTC; Harvard Kennedy School; PCAST; AEC; Brookings; WWII; CoC; ESRC; AEI

● Technology Development Finance: Foster a continuous and enhanced capital access for clean energy and advanced manufacturing technologies from concept to scale-up. Examples include government managed VC funds to create a Green Bank or a Clean Energy Deployment Administration, grants, and loan guarantees. Recommended by: Bloomberg; CoC; AWEA; BGA; United States Steeks; PCAST; Brookings; CNG

● Securing the Talent Pipeline
  ● Talent—Broadly Defined: Talent is labeled as broadly defined when the PPP studied lists talent as a core component of its mission, however, does not identify its breakdown of talent-specific activities. Recommended by: NSTC; Brookings; WWII; AEI; CoC; ITIF; PCAST; AWEA
  ● Talent—K-12: Federal programs in cooperation with state and local partners should target K-12 students to proactively develop the next generation of engineers. Recommended by: NSTC; Brookings; WWII; AEC; CoC; ITIF; PCAS; AWEA

● Clean Energy Markets Risks
  ● Demand Pull Regulations: Increase the incentives for large-scale deployment of clean energy through tools such as carbon pricing, utility purchase power agreements (reverse auction mechanisms), mandatory disclosure of building and appliance energy use and carbon data, demand-side management, and assure renewables access to the grid. Recommended by: CAP/CNG; Harvard Kennedy School; Bloomberg; SAFE; CoC; ITIF; LBWI; AWEA; BGA; United States Steeks

● Enabling Innovation
  ● Demonstration Facilities: The U.S. government should establish a mechanism for working with the private sector to finance support for the implementation of large-scale R&D, demonstration, and commercialization of clean energy technologies, where such demonstrations are essential to enable private sector adoption of clean energy technologies. Recommended by: Harvard Kennedy School; Brookings; WWII; ITIF; SAFE; Tasey
  ● Innovation Standards: Industry CEOs and government leaders should elevate and advance U.S. technical standards (a voluntary consensus standards-setting process) as applicable to drive innovation in clean energy and advanced manufacturing. Recommended by: CoC; CAP; CNG
  ● Innovation Tax Incentives: The U.S. government should provide additional incentives for private-sector investments in innovation through tools such as VC capitalization incentives; Production Tax Credits; Investment Tax Credits; and the R&D Tax Credit. Recommended by: AAM; Brookings; WWII; ITIF; NSTC; PCAST; CAP; CNG; Harvard Kennedy School; Bloomberg
  ● Public Funding of Pre-Competitive R&D: The Administration should support annual expenditures on energy and advanced manufacturing R&D/DOE. To be effective, this funding must be long-term, stable, and have broad enough bipartisan support to service election cycles. Recommended by: PCAST; NSTC; Harvard Kennedy School; PCAST; AEC; Brookings; WWII; CoC; ESRC; AEI

● Technology Development Finance: Foster a continuous and enhanced capital access for clean energy and advanced manufacturing technologies from concept to scale-up. Examples include government managed VC funds to create a Green Bank or a Clean Energy Deployment Administration, grants, and loan guarantees. Recommended by: Bloomberg; CoC; AWEA; BGA; United States Steeks; PCAST; Brookings; CNG
PUBLIC-PRIVATE PARTNERSHIPS (PPP)—NATIONAL

Enabling Innovation

Demonstration Facilities: The U.S. government should establish a mechanism for working with the private sector to stimulate and accelerate the development of large-scale energy technology demonstration, where such demonstrations are essential to enable private sector adoption of new and emergent advanced manufacturing technologies. Recommended by: Harvard Kennedy School; Bi; Brookings; WRI; ITIF; SAFE; Taxeye

Innovation Standards: Industry CEO’s and government leaders should elevate and advance U.S. technical standards (a voluntary consensus standards-setting process) as applicable to drive innovation in clean energy and advanced manufacturing. Recommended by: CoC; CAP; CNG

Innovation Tax Incentives: The U.S. government should provide additional incentives for private-sector investments in innovation through tools such as VC capitalization incentives, Production Tax Credits, Investment Tax Credits, and the R&T Tax Credit. Recommended by: AAM; Bi; Third Way; Brookings; (TIF; NSTIC; PCAST; CAP; CNG; Harvard Kennedy School; Bloomberg

Public Funding of Pre-Competitive R&D: The Administration should support annual expenditures on energy and advanced manufacturing R&D. To be effective, this funding must be long-term, stable, and have broad enough bipartisan support to serve election cycles. Recommended by: PCAST; NSTIC; Harvard Kennedy School; PCAST; AEIC; Bi; Brookings; WRI; CoC; ESIC; AEI

Public/Private Partnerships: Create and support national and regional public-private, government-industry-academia partnerships to accelerate investment in and deployment of advanced manufacturing, renewable energy, and energy efficiency technologies. Recommended by: NSTIC; Bi; Third Way; Brookings; CoC; CAP; CNG; AAM

Technology Development Finance: Foster a continuum of enhanced capital access for clean energy and advanced manufacturing technologies from lab to scale up. Examples include government-managed VC funds the creation of a Green Bank or a Clean Energy Deployment Administration, grants, and loan guarantees. Recommended by: Bloomberg; CoC; AWEA; BGA; (United States) PCAST; Bi; CAP; CNG

Securing the Talent Pipeline

Talent-Broadly Defined: Talent is labeled as broadly defined when the PPP studied lacks talent as a core component of its mission, however, does not identify its breakdown of talent-specific activities.

Talent-K-12: Federal programs in cooperation with state and local partners should target K-12 students to proactively develop the next-generation of STEM workers. Recommended by: NSTIC; Bi; TW; AEI; Brookings; WRI; PCAS; AISE

NextEnergy
Nonprofit to accelerate the development and growth of advanced energy industries in Michigan.

Policies Directly Addressed by the PPP

Policies Indirectly Supporting the PPP

SEMATECH
Member-based global consortium of semiconductor producers working on pre-competitive research to accelerate commercialization of technology innovations.

Policies Directly Addressed by the PPP

Policies Indirectly Supporting the PPP

Oak Ridge Manufacturing Demonstration Facility (MDF)
Facility offering collaborative, shared infrastructure for the development and use of energy-efficient, rapid, flexible manufacturing tech and rapid tech dissemination.

Policies Directly Addressed by the PPP

Policies Indirectly Supporting the PPP

Smart Grid Interoperability Panel (SGIP 2.0)
Member-based partnership to coordinate smart grid standards development.

Policies Indirectly Addressed by the PPP

Policies Indirectly Supporting the PPP

Solar Technology Acceleration Center (SolarTAC)
Member-based solar research and testing facility.

Policies Directly Addressed by the PPP

Policies Indirectly Supporting the PPP

PUBLIC POLICY RECOMMENDATIONS

● Enabling Innovation

● Demonstration Facilities: The U.S. government should establish a mechanism for working with the private sector to stimulate and accelerate the development of large-scale energy technology demonstration, where such demonstrations are essential to enable private sector adoption of new and emergent advanced manufacturing technologies. Recommended by: Harvard Kennedy School; Bi; Brookings; WRI; ITIF; SAFE; Taxeye

● Innovation Standards: Industry CEO’s and government leaders should elevate and advance U.S. technical standards (a voluntary consensus standards-setting process) as applicable to drive innovation in clean energy and advanced manufacturing. Recommended by: CoC; CAP; CNG

● Innovation Tax Incentives: The U.S. government should provide additional incentives for private-sector investments in innovation through tools such as VC capitalization incentives, Production Tax Credits, Investment Tax Credits, and the R&T Tax Credit. Recommended by: AAM; Bi; Third Way; Brookings; (TIF; NSTIC; PCAST; CAP; CNG; Harvard Kennedy School; Bloomberg

● Public Funding of Pre-Competitive R&D: The Administration should support annual expenditures on energy and advanced manufacturing R&D. To be effective, this funding must be long-term, stable, and have broad enough bipartisan support to serve election cycles. Recommended by: PCAST; NSTIC; Harvard Kennedy School; PCAST; AEIC; Bi; Brookings; WRI; CoC; ESIC; AEI

● Public/Private Partnerships: Create and support national and regional public-private, government-industry-academia partnerships to accelerate investment in and deployment of advanced manufacturing, renewable energy, and energy efficiency technologies. Recommended by: NSTIC; Bi; Third Way; Brookings; CoC; CAP; CNG; AAM

● Technology Development Finance: Foster a continuum of enhanced capital access for clean energy and advanced manufacturing technologies from lab to scale up. Examples include government-managed VC funds the creation of a Green Bank or a Clean Energy Deployment Administration, grants, and loan guarantees. Recommended by: Bloomberg; CoC; AWEA; BGA; (United States) PCAST; Bi; CAP; CNG

● Securing the Talent Pipeline

● Talent-Broadly Defined: Talent is labeled as broadly defined when the PPP studied lacks talent as a core component of its mission, however, does not identify its breakdown of talent-specific activities.

● Talent-K-12: Federal programs in cooperation with state and local partners should target K-12 students to proactively develop the next-generation of STEM workers. Recommended by: NSTIC; Bi; TW; AEI; Brookings; WRI; PCAS; AISE

● Clean Energy Markets Risks

● Demand Pull Rejuvenation: Increase the incentives for largescale deployment of clean energy through tools such as carbon pricing, utility purchase power agreements (reverse auction mechanism), mandatory disclosure of building and appliance energy use and carbon data, demand-side management, and assure renewables access to the grid. Recommended by: CAP/CWIC; Harvard Kennedy School; Bloomberg; SAFE; AISE; CoC; ITIF; LBNL; AWEA; BGA; United States EArborists

● Finance (Adoption-Deployment): Establish government programs for financing of energy efficiency measures such as Property Assessed Clean Energy (PACE) Financing, renewable energy projects using Real Estate Investment Trusts and Master Limited Partnerships, and revolving or expansion of advanced manufacturing facilities. Recommended by: AISE; ORNL; Brookings; AWEA; BGA; United States EArborists; Bi; TW

● Government Procurement: The federal government should leverage the power of procurement to create demand for early markets for clean energy and advanced manufacturing sectors to scale up production and enjoy economies of scale. Recommended by: Bloomberg; WRI; SAFE; PCAST; AISE; AAM; NSTIC; AEI; Brookings; Bi; ITIF; NSTIC

● Green Leasing (Misc.): Development innovative lease language that reassigns the allocation of costs, benefits, and financial risks of energy efficiency investments between tenants and owners. How costs and benefits of efficiency investments and their practical applications are practiced are critical to the market. Government should elevate and advance U.S. technical standards (a voluntary consensus standards-setting process) as applicable to drive innovation in clean energy and advanced manufacturing. Recommended by: CoC; Harvard Kennedy School; Bloomberg; SAFE; AISE; ORNL; LBNL; AWEA; BGA; United States EArborists

● Talent Incentives to Spur Demand: Provide tax credits and federal funding for energy-efficiency improvements and to accelerate the turnover to advanced technology vehicles. Government can also incentivize the adoption of demand-side management tools by utilities through savings goals, financial incentives and time-varying customer rates. Recommended by: CoC; Harvard Kennedy School; Bloomberg; CAP; CNG; SAFE; AISE; AEIC; ORNL

● Tax Incentives to Foster Demand: Provide tax credits and federal funding for energy-efficiency improvements and to accelerate the turnover to advanced technology vehicles. Government can also incentivize the adoption of demand-side management tools by utilities through savings goals, financial incentives and time-varying customer rates. Recommended by: CoC; Harvard Kennedy School; Bloomberg; CAP; CNG; SAFE; AISE; AEIC; ORNL

● Technical Assistance: Enhance industrial access to high performance computing resources, Industrial Assessment Centers, Small-Firm Energy Management, and Implementation Support Services Recommended by: AISE; ORNL; Brookings; SAFE

● Use mechanisms such as appliance efficiency standards, CAFE standards, Renewable Energy Portfolio Standards, building codes, and electricity generation emission standards to ensure a diversity of energy sources and drive demand for energy-efficiency and renewable energy technologies. Recommended by: CAP/CWIC; CoC; SAFE; AISE; ORNL; LBNL; AWEA; BGA; United States EArborists

● Improving the Business Climate

● Alternative Fuel and Transmission Infrastructure: Spur investment in alternative fuel infrastructure, Carbon Capture & Sequestration (CCS), and improved (more energy-efficient) and increased transmission through tools such as targeted tax incentives, financial products, and streamlined permitting and aging processes. Recommended by: SAFE; CoC; AISE

● Standards: Use mechanisms such as appliance efficiency standards, CAFE standards, Renewable Energy Portfolio Standards, building codes, and electricity generation emission standards to ensure a diversity of energy sources and drive demand for energy-efficiency and renewable energy technologies. Recommended by: CAP/CWIC; CoC; SAFE; AISE; ORNL; LBNL; AWEA; BGA; United States EArborists

● Tax Incentives to Foster Demand: Provide tax credits and federal funding for energy-efficiency improvements and to accelerate the turnover to advanced technology vehicles. Government can also incentivize the adoption of demand-side management tools by utilities through savings goals, financial incentives and time-varying customer rates. Recommended by: CoC; Harvard Kennedy School; Bloomberg; SAFE; AISE; ORNL; LBNL; AWEA; BGA; United States EArborists

● Technical Assistance: Enhance access to High Performance Computing resources, Industrial Assessment Centers, Small-Firm Energy Management, and Implementation Support Services Recommended by: Safe; ORNL; Brookings; SAFE; AISE

● Provide assistance to SMEs for technical challenges; export promotion and increasing knowledge capital through organizations such as NIST’s MEP. Recommended by: Bloomberg; CoC; ORNL; Bi; TW; Brookings
PUBLIC-PRIVATE PARTNERSHIPS (PPP)—INTERNATIONAL

Catapult Centres (United Kingdom)
Network of seven UK centers, each dedicated to improving innovation and making available research and technical services in electronics and optoelectronics; IT; materials; chemistry; nanotech; mechanical systems; and green energy.

Fraunhofer-Gesellschaft (Germany)
German nonprofit organization focusing on applied research in health, security, communication, energy and environment.

Inteuros Advanced Technology Group (Denmark)
Network of nine nonprofit research and technology organizations to disseminate knowledge and tech to companies and public institutions to increase Danish innovation and competitiveness.

Industrial Technology Research Institute (ITRI) (Taiwan)
Taiwanese nonprofit R&D organization engaging in applied research and technical services in electronics and optoelectronics; IT; materials; chemistry; nanotech; medical device and biomedical technologies; mechanical systems; and green energy.

Interuniversity Microelectronics Centre (IMEC) (Belgium)
Belgian nonprofit independent research center based on nanoelectronics and nanotech applied to healthcare, smart electronics, sustainable energy, and safer transport.

PDES, Inc. (United States)
International industry-government-university-member-based consortium working to develop and implement information standards for data exchange.

PUBLIC POLICY RECOMMENDATIONS

Enabling Innovation

Demonstration Facilities: The U.S. government should establish a mechanism for working with the private sector to identify and support the development of large-scale energy technology demonstrations, where such demonstrations are essential to enable private sector adoption of clean energy and advanced manufacturing technologies. Recommended by: Harvard Kennedy School; Bi; Brooksings; WRi; ITF; SAFE; Taxeye

Innovation Standards: Industry’s CEO’s and government leaders should elevate and advance U.S. technical standards (a voluntary consensus standards setting process)—as applicable to drive innovation in clean energy and advanced manufacturing. Recommended by: CoC; CAP; CNG

Innovation Tax Incentives: The U.S. government should provide additional incentives for private sector investments in innovation through tools such as VC capitalization incentives; Production Tax Credits, Investment Tax Credits, and the R&D Tax Credit. Recommended by: AAM; Bi; Third Way; Brookings; (ITF; NISTC; PCAST; CAP; CNG; Harvard Kennedy School; Bloomberg)

Public Funding of Pre-Competitive R&D: The Administration should support annual spending on energy and advanced manufacturing RD&D. To be effective, this funding must be long-term, stable, and have broad enough bipartisanship support to serve election cycles. Recommended by: PCAST; NISTC; Harvard Kennedy School; PCAST; AEIC; Bi; Brooksings; WRi; CoC; ESIC; AEI

Public Private Partnerships (PPP): Create and support national and regional public-private, government-industry-academia partnerships to accelerate investment in and deployment of advanced manufacturing, renewable energy, and energy efficiency technologies. Recommended by: NISTC; Bi; Third Way; Brookings; CoC; CAP; CNG; AAM

Technology Development Finance: Foster a continuum of enhanced capital access for clean energy and advanced manufacturing technologies from concept up to scale up. Examples include government managed VC funds the creation of a Green Bank or a Clean Energy Development Administration, grants, and loan guarantees. Recommended by: Bloomberg; CoC; AIWEA; BGA; United Steelworkers; PCAST; Bi; CAP; CNG

Securing the Talent Pipeline

Talent—Broadly Defined: Talent is labeled as broadly defined when the PPPs identify talent as a core component of its mission, however, does not identify its breakdown of talent-specific activities.

Talent K-12: Federal programs in cooperation with state and local partners should target K-12 students to proactively develop the next-generation of clean-energy leaders. Recommended by: NISTC; Bi; TW; AE; Brooksings; WRi; PCAS; AES

Clean Energy Markets Risks

Demand Pull Regulations: Increase the incentives for largescale deployment of clean energy through tools such as carbon pricing, utility purchase power agreements (reverse auction mechanisms), mandatory disclosure of building and appliance energy use and carbon data, demand-side management, and assure renewables access to the grid. Recommended by: CAP/CWG; Harvard Kennedy School; Bloomberg; SAFE; AES; CoC; ITF; LBNL; AIWEA; BGA; United Steelworkers

Finance (Adoption/Deployment): Establish government programs for financing of energy efficiency measures such as Property Assessed Clean Energy (PACE) Financing, renewable energy projects using Real Estate Investment Trusts and Community Solar, and expansion of advanced manufacturing facilities. Recommended by: AAM; ORNL; Brooksings; AIWEA; BGA; United Steelworkers; Bi; TW

Government Procurement: The federal government should leverage the power of procurement to create demand for early markets for clean energy and advanced manufacturing sectors to scale up production and enjoy economies of scale. Recommended by: Bloomberg; WRi; SAFE; PCAST; AES; AAM; NISTC; AEI; Brooksings; Bi; ITF; NISTC

Green Leasing (Misc.): Develop innovative lease language that reassigns the allocation of costs, benefits, and financial risks of energy efficiency investments between tenants and owners. How costs and benefits of efficiency investments and programs are allocated is important to the tenant and owner is important to determining incentives for energy efficiency in leased space. Recommended by: ASE

Public Outreach: Based on multidisciplinary. social science research, increase America’s energy knowledge and correct misconceptions about manufacturing. For example, the Secretary of Education—in coordination with the Secretary of Energy—should issue guidelines for integrating energy-related curriculum at all education levels, from grade school through post-graduate education tracks—including vocational schools. Recommended by: CAP/CWG, PCAST

Standards: Use mechanisms such as appliance efficiency standards, CAFE standards, Renewable Energy Portfolio Standards, building codes, and electricity generation emission standards to ensure a diversity of energy sources and drive demand for energy efficiency and renewable energy technologies. Recommended by: CAP/CWG; CoC; SAFE; AES; ORNL; LBNL; AIWEA; BGA; United Steelworkers

Tax Incentives to Spur Demand: Provide tax credits and federal financing for energy-efficiency improvements and to accelerate the turnover to clean energy technologies. Government can also incent the adoption of demand-side management tools by utilities through savings grants, financial incentives and time-varying customer rates. Recommended by: CoC; Harvard Kennedy School; Bloomberg; CAP; WRi; SAFE; AES; ACEEE; ORNL

Technical Assistance: Enhance Industrial access to High Performance Computing Resources, Industrial Assessment Centers, Small Firm Energy Management, and Implementation Support Services for early adopters and the public sector. Provide assistance to SMEs for technical challenges; export promotion and increasing knowledge capital through organizations such as NIST’s MEP. Recommended by: Bloomberg; CoC; ORNL; Bi; TW; Brooksings
**Public Policy Recommendation Summary & Cross-Sectional Review**

This table is a compilation of the total number and category of all policy recommendations reviewed in a series of 139 reports authored by the American Enterprise Institute, the Brookings Institution, and the American Energy Innovation Project. The reports focused on the development of a PPP for clean energy manufacturing, increase energy efficiency efforts, and spur investment in renewable energy technologies. The authoring organizations and titles are listed in the first column. The PPPs include technical assistance, regulatory reform, public outreach, and government procurement.

<table>
<thead>
<tr>
<th>Clean Energy Technology Policies</th>
<th>Energy Efficiency Policies</th>
<th>National Manufacturing Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Assistance</td>
<td>Tax Incentives to Spur Demand</td>
<td>Standards</td>
</tr>
<tr>
<td>Infrastructure</td>
<td></td>
<td>Regulatory Reform—General</td>
</tr>
<tr>
<td>Transmission Infrastructure</td>
<td></td>
<td>Public Outreach</td>
</tr>
<tr>
<td>Alternative Energy and</td>
<td>Climate</td>
<td>Government Procurement</td>
</tr>
<tr>
<td>Community Colleges</td>
<td>Talent–Workforce Development</td>
<td></td>
</tr>
<tr>
<td>Talent–Vocational/Credentialing/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talent–Tertiary Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talent–K-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talent–Immigration Reform</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pipeline</td>
<td>Innovation Tax Incentives</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demonstration Facilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please note that the number of policy categories (26) is larger than the number of categories listed in the “Public Policies” section of this report. Please also note that the list of recommendations included in the body of this report are either directly addressed by or indirectly support one or more of the PPPs reviewed. The number of recommendations included in the body of this report are either directly addressed by or indirectly support one or more of the PPPs reviewed. Please refer to the body of this report for the development of the PPPs.

*The “Strategy” policy recommendations transcend the barrier types and policy categories. For example, a common recommendation in the “Strategy” category is for strategies to be developed to address the various barriers to the development of a PPP.*
ABOUT THE COUNCIL ON COMPETITIVENESS

WHO WE ARE
The Council’s mission is to set an action agenda to drive U.S. competitiveness, productivity and leadership in world markets to raise the standard of living of all Americans.

The Council on Competitiveness is the only group of corporate CEOs, university presidents and labor leaders committed to ensuring the future prosperity of all Americans and enhanced U.S. competitiveness in the global economy through the creation of high-value economic activity in the United States.

COUNCIL ON COMPETITIVENESS
1500 K Street, NW
Suite 850
Washington, DC 20005
T 202-682-4292
Compete.org

HOW WE OPERATE
The key to U.S. prosperity in a global economy is to develop the most innovative workforce, educational system and businesses that will maintain the United States’ position as the global economic leader.

The Council achieves its mission by:
• Identifying and understanding emerging challenges to competitiveness
• Generating new policy ideas and concepts to shape the competitiveness debate
• Forging public and private partnerships to drive consensus
• Galvanizing stakeholders to translate policy into action and change