

# Navigating the cleantech stimulus: an executive checklist



# Executive summary

The recently enacted American Recovery and Reinvestment Act of 2009 (“stimulus bill”) provides significant grants, tax incentives and policy initiatives to stimulate investment and innovation in the cleantech sector. Significant cleantech funding is provided at federal, state and local levels. The wide variety of available programs and incentives will create opportunities for many cleantech businesses. However, because the requirements differ for each program, determining which incentives to apply for is not a straightforward process. Cleantech executives need to evaluate their options in the context of each organization’s development status, growth plan and financial position.

The government’s cleantech stimulus incentives have implications beyond the financial benefits of the grants and tax breaks. Stimulus provisions are meant to drive investment, innovation and demand. Ultimately, the stimulus provisions will have wide-reaching implications for the dynamics and growth of the cleantech sector in particular and the economy in general.

The government’s investment in cleantech also marks the industry’s transition from an entrepreneurial and venture capital-backed sector to one interlinked with the policies and actions of government, both in the United States and around the world. Cleantech executives must assess the broader impact of the stimulus initiatives on their organization’s development and growth plan—regardless of whether they choose to take advantage of any incentives.

Complicating the outlook is the potential for legislation to limit or discourage carbon emissions and impose stringent new energy-efficiency standards. If it is codified into law, such legislation could provide additional opportunities for the cleantech industry.

Grant Thornton has developed a checklist of eight key factors that cleantech executives need to address. These factors are outlined below and discussed in detail in the remainder of this document.

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### **1. Identify available incentives**

Cleantech executives should first ensure that they know what incentives are available. There are many types of incentives, including tax credits, loan guarantees, grants, and funding from state and local agencies. Significant investments in clean technology and energy efficiency are expected to be made by an array of government agencies. Those investments may ultimately find their way to cleantech businesses.

### **2. Evaluate eligibility criteria and compliance obligations**

Cleantech executives must determine which incentives their business may qualify for given the array of differing eligibility criteria. Cleantech executives will also need to understand and assess the impact of the ongoing compliance obligations that accompany many of the incentives.

### **3. Understand the incentive application process**

The process for applying for incentives varies widely. Cleantech executives need to ensure that they have access to the necessary skills and experience to navigate the application process. Executives must also determine whether the anticipated benefits outweigh the time and costs involved.

### **4. Take an industry-wide perspective — follow the money**

The overall economics and dynamics of the cleantech sector and the economy are shifting. Cleantech executives need to consider how certain incentives may affect their business—whether directly or indirectly. Incentives may drive innovation and demand not only within a company’s own subsector, but also within competing subsectors. An optimal strategy for some cleantech businesses might be to align themselves with other businesses that will be direct recipients of government incentives.

### **5. Model the financial implications**

Whether it is through direct investment funds, a reduced tax bill or increased demand, the government’s cleantech initiatives will both directly and indirectly affect the financial outlook for a cleantech business. Cleantech management teams should evaluate the effects of each incentive being considered. In addition, executives should model scenarios for broader financial effects on revenues and costs.

### **6. Reassess your strategic focus and business plan**

After cleantech executives understand the implications of specific incentives, they may face a new set of business opportunities and challenges. These could include opportunities to capitalize on significant grant funding or to accelerate investment and development plans in response to an expectation of increased demand.

### **7. Build your stimulus capabilities**

Tapping into stimulus funds or merely responding to the new environment created by the incentives may well require cleantech businesses to develop new skills and capabilities. In particular, cleantech businesses will need to adapt to a sector now heavily influenced by government, which may require significant interaction with federal, state or local authorities.

### **8. Maintain a global outlook**

Despite the size of the U.S. government’s investment in cleantech, it represents only a fraction of the total cleantech stimulus programs available from governments around the world. Cleantech businesses need to take a global perspective, identifying other potential incentives and assessing the probable impact of those incentives on the cleantech sector.

# Identify available incentives

The stimulus bill contains a wide array of cleantech incentives and programs encompassing tax credits, loan guarantees, grant programs and government spending on energy-efficiency programs. Some of these incentives are new; others are modifications of existing programs.

As a whole, these incentives offer something for almost every U.S. cleantech business. However, many programs are targeted at specific cleantech subsectors such as fuel cell technology or weatherization. In addition, the format and terms of these incentives make certain programs more or less relevant—and attractive—to a cleantech business depending on its stage of development, investor profile and financial status.

Cleantech executives need to come to grips quickly with the various incentives offered and begin to identify those that are relevant and potentially beneficial.

## Federal tax credits

The stimulus bill has extended the timetable, expanded the scope or increased the benefit of many pre-existing tax credits. It has also created new credits and grant options. Hence, businesses that have looked at cleantech production or investment credits in the past may want to revisit them. Some of the most significant alternative-energy federal tax credits are as follows:

- **§ 45 Production Tax Credits (PTCs)** provide a credit for the first 10 years after a facility is placed in service for each kilowatt-hour of electricity produced from qualifying sources—such as solar energy, biofuels or geothermal energy—and sold to an unrelated party.

- **§ 48 Energy Tax Credits (ETCs)** provide a credit of up to 30 percent for investments in qualifying energy property. The stimulus bill establishes an election to claim ETCs in lieu of PTCs. This election could accelerate the tax benefits and allow them to be used by a third-party nonoperating investor. The stimulus bill also allows the ETC to be claimed without regard to whether the facility is financed with subsidized energy financing or industrial development bonds.
- **Cash grants in lieu of tax credits** allow taxpayers to apply for a cash grant in lieu of the PTC or ETC, generally for property placed in service or constructed in 2009 or 2010. Receipt of these grants makes the tax benefits available without regard to the existing tax status of the taxpayer.

Deciding whether to claim the PTC or ETC or apply for a cash grant is not straightforward and requires careful consideration. All three options have potential benefits and drawbacks. The options are mutually exclusive, and an election is expected to be irrevocable once it has been made.

The stimulus bill has created a new **§ 48C Advanced Energy Project Tax Credit** for investment in equipment used to manufacture qualified energy property. Unlike PTCs and ETCs, both of which benefit taxpayers that use qualified energy property, the **§ 48C** credit provides an incentive to encourage the manufacture of the qualified energy property itself.

The stimulus bill includes additional federal tax incentives designed to increase the demand for the products and services of cleantech companies by giving businesses, governments and individuals a tax benefit to help pay for these products and services. With that goal in mind, a number of enhancements to existing incentives have been made:

- **Transit fringe benefits**—The fringe benefit exclusion for transit benefits provided by an employer has been increased from \$120 to \$230 in 2009.
- **§ 25C Residential Energy-Efficient Home Improvement Credit**—The credit rate for nonbusiness energy-efficient property, such as insulation, insulated windows, and high-efficiency furnaces and air conditioners, has been increased from 10 to 30 percent, and the lifetime credit limitation has been increased from \$500 to \$1500.
- **§ 25D Residential Energy-Efficient Property Credit**—The lifetime caps on this credit have been eliminated for solar hot water, geothermal and wind property; further, the credit is now available without regard to the use of subsidized energy financing.

The stimulus bill includes a series of incentives to encourage additional investment in vehicles which use alternative fuels. Most importantly, the **§ 30B Alternative Motor Vehicle Credit** can now be taken against the alternative minimum tax. New credits are provided for motorcycles and certain low-speed vehicles, and a credit is provided to offset the cost of retrofitting plug-in electric motors in vehicles.



### Tax credit bonds

The stimulus bill includes an additional \$4 billion of tax credit bond authorization. A portion of the interest on tax credit bonds is paid in the form of a tax credit rather than cash, provided that the proceeds of the bonds are used for their designated cleantech purpose. The increased allocation is designed to stimulate demand and provide a significant incentive for additional investment. Available tax credit bonds include the following:

- **Clean Renewable Energy Bonds (CREBs)**—The stimulus bill triples the size of this program by authorizing an additional \$1.6 billion in bonds. Generally, the proceeds of a CREB must be spent on renewable-energy facilities within 3¼ years of issuance. CREBs may be issued by public power providers, governmental bodies, cooperative electric companies, certain not-for-profit electric utilities and certain other lenders.
- **Qualified Energy Conservation Bonds (QECBs)**—The stimulus bill quadruples the size of this program by authorizing an additional \$2.4 billion in bonds. QECB proceeds may be used to fulfill a wide range of qualified conservation purposes, including capital expenditures for reducing energy consumption in public buildings; research in alternative-fuel technologies; construction and maintenance of mass commuting facilities; performance of demonstration projects designed to promote the commercialization of green buildings; and public-education campaigns.

### Loan guarantees

The stimulus bill has expanded the scope of the loan guarantee program that was originally introduced in the Energy Policy Act of 2005. Use of the original program was comparatively rare because its terms were considered onerous by some businesses. Expansions to the scope and changes to the terms of the program will likely make it a more attractive proposition for cleantech businesses seeking loan financing.

### Department of Energy grants

The stimulus bill allocates approximately \$10 billion to the Department of Energy (the DOE) to be distributed as grants to businesses involved in a wide range of cleantech activities. Grants will be awarded to enable businesses to develop and demonstrate new technologies and invest in manufacturing facilities and smart-grid infrastructure.

Additional grant monies will be disbursed for activities which are more specialized, such as an advanced electric-driven vehicle education program and a smart-grid information clearinghouse.

Grant funding is clearly a very attractive opportunity. Many businesses may find that they are pursuing or could pursue projects and initiatives which are potential candidates for grant funding.

### Department and agency direct spending

The stimulus bill provides—in addition to DOE grants—funds to nine government departments and agencies (see Appendix 4). Substantial portions of these funds are to be used to promote alternative energy and energy-efficient practices. These funds may be used in a variety of ways:

- Facilitation of weatherization and energy-conservation improvements to department buildings, among them public housing
- Funding of training costs for cleantech jobs
- Retrofitting of department facilities to include alternative-energy sources
- Use of more fuel-efficient vehicles

Many of these programs will result in the procurement of products and services from cleantech businesses. Figuring out exactly where and when these procurement opportunities will arise and how to win them will be an extremely high priority for the sales teams of many cleantech businesses.

### State and local incentives

A significant portion of the funds assigned to the various government departments will be allocated to states and local entities, which will in turn implement cleantech initiatives at state and local levels. State and local agencies will not only provide cleantech tax breaks and grants, but also procure cleantech products and services. For example, local funding could include weatherization program funds for a public housing agency that in turn procures those services from local businesses. It should be noted that the allocation to states is not automatic; states must apply for certain funds separately. Before applying for state incentives, cleantech executives should ensure that officials in those states have requested funding.

Undoubtedly, competition will result between state governments as they seek to create incentives that will attract cleantech businesses to their states and create new jobs. Indeed, states may create additional cleantech incentives from within their own budgets. These incentives may come in a variety of forms:

- Investment or R&D tax credits
- Sales tax exemptions
- Property tax abatements
- Utility incentives
- Grants
- Financing
- Infrastructure improvements

Cleantech executives should not only monitor and evaluate state and local incentives, but engage with state officials regarding the potential for specific incentives for their business.

**See the Appendices for summary tables showing how cleantech businesses are affected by each type of incentive.**

# Evaluate eligibility criteria and compliance obligations

For the majority of cleantech incentives, the devil is in the details. What on the surface may sound like a great incentive may be less enticing on closer examination. Conversely, programs that don't initially sound relevant may prove very valuable when the details are reviewed. As is noted earlier, many cleantech incentives are extensions and modifications of pre-existing incentive programs. Businesses that have previously considered participating in those programs should revisit that possibility. Some of the key eligibility and compliance obligations of cleantech incentives are as follows:

## Production and investment tax credits

- Property must meet specific definitions of qualifying property to satisfy the § 45 PTC or § 48 ETC requirements.
- Property must be placed in service by 2012 or 2013, depending on the type of property, to qualify for the PTC.
- Some types of property must be placed in service by 2016 to qualify for the ETC.
- Taxpayers must apply for and be approved to receive a grant in lieu of the PTC or ETC; these grants are generally available for property placed in service in 2009 or 2010.
- Both the ETC and a grant in lieu of the ETC or PTC require a basis reduction.
- Only one credit may be elected, and the election is expected to be irrevocable.
- Taxpayers must apply for and be approved to receive the § 48C Advanced Energy Project Tax Credit.

## Loan guarantees

Although the federal government's loan guarantee program has been updated to make it more attractive, it retains several restrictions:

- The project must be located in the United States.
- Recipients must comply with the National Environmental Policy Act (NEPA).
- Recipients may face "Buy American" restrictions.
- Recipients must pay various DOE fees.
- The DOE might require evidence of a minimum credit rating.
- The DOE will have audit rights.

## Government grants and direct spending

- Many incentives will be awarded on a competitive basis.
- Many criteria have yet to be finalized.
- Many of the grants will require cost sharing.
- Timetables apply both to submission of funding applications and to subsequent use of the funds.

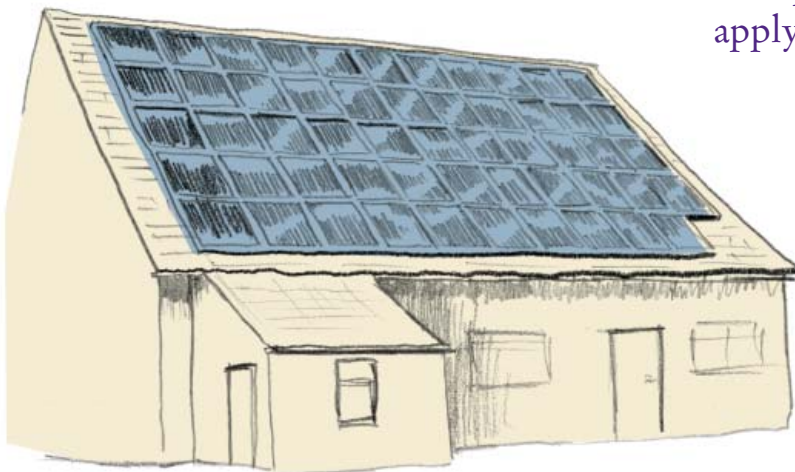
### State and local incentives

Individual state and local incentives may include terms similar to those in federal incentives, along with additional terms:

- Job creation
- Geographic location of investments
- Profile of the business owners and investors
- Investment levels

It is important for cleantech executives to understand both the detailed eligibility and award criteria and any associated compliance obligations. It is also important for cleantech executives to negotiate specific incentives and terms with government authorities whenever possible.

Don't be overwhelmed — you probably already have similar experience evaluating options involving other state and local incentives (e.g., manufacturers' R&D credits, angel investment credits, etc.). This process is no different — you are just applying different criteria.



# Understand the incentive application process

In addition to identifying incentives with acceptable eligibility criteria and compliance obligations, executives must understand the incentive application process.

The wide range of available incentives results in a diverse set of application procedures. For example, the DOE's Advanced Research Projects Agency—Energy (ARPA-E) application process invites businesses to submit a concept paper upon which the DOE will determine whether to pursue direct discussions.

Normally, most tax credits are claimed and delivered through a company's annual tax return, but some of the cleantech incentives have separate application processes or limited funding. If incentives are available only on a first-come, first-served basis, businesses should apply quickly.

There is a wide range of mechanisms for gaining access to funds disbursed through department and agency grants and spending programs. Some funds may be applied for directly from the agency or department. Other funds will be distributed to state and local agencies, which will require businesses to identify and comply with the application process in place within the state or locality. In many cases, the specific details of how funds will be channeled are still being determined. Some funds have tight timetables for application and distribution. Cleantech executives need to monitor announcements and be alert to application timetables and requirements.

Government departments with cleantech funds designated for their own use will likely seek to procure relevant products and services from existing government suppliers and contractors. For many companies, doing business with the government may be an entirely new activity. For some cleantech businesses, it may well be a brave new world. Cleantech businesses should determine whether and how they can begin to engage with the government, either as a direct supplier or through commercial relationships with existing government suppliers. In any event, cleantech businesses will likely need to train employees in the skills and capabilities needed to work effectively with the government, or hire individuals who already possess these skills.

Cleantech executives must learn the process—and learn it quickly—for contracting with government departments and accessing available funds directly. Companies must then ensure they have the requisite capabilities to navigate the various application processes.

Applying for incentives may require significant investments of management's time and energy. Before applying for incentives, executives need to be confident that the potential benefits outweigh the time and costs involved.

If you are a smaller firm, don't be intimidated by the prospect of applying for government grants. You may have heard that there are many large companies applying for the funds, and that application requests have far exceeded the total of allowed grant amounts, but we have seen smaller firms succeed. The key is that these firms committed senior resources to the grant process and developed a shared sense of urgency with government officials.

# Take an industry-wide perspective—follow the money

Although it is still very new, the cleantech industry is a tremendously diverse sector. Cleantech products harness a wide range of alternative-energy sources—from wind to solar, from fuel cells to biomass. Cleantech companies produce energy-efficiency technologies such as weatherization, smart grids and carbon sequestration. Cleantech businesses specialize in meeting needs across the supply chain:

- Technology research, development and licensing
- Manufacturing
- Facility and infrastructure construction, operation and maintenance
- Sale and distribution of equipment and services to corporations and consumers
- Information and support services

At such an early stage in the development of the cleantech industry, it is uncertain which subsectors will be winners and losers; it is also uncertain where in the supply chain the highest revenues and profits will be earned.

Cleantech stimulus initiatives will play a major role in shaping the development of the industry, driving both investment in clean technologies and demand for cleantech products and services. Some stimulus programs are targeted at

You really do need to follow the money and be thoughtful about the application process. For instance, the Department of Defense will spend \$4.76 billion on improving energy efficiency. Any business that wants to access those funds needs to be an approved supplier or contractor, and that can be a process in and of itself.

specific types of alternative energy or specific energy-efficiency and emissions-reduction activities. Some funds are designated for extremely specific uses, while other funds leave significant discretion to government departments and agencies.

As a consequence, cleantech executives need to look beyond the direct funding opportunities for their own business. They need to follow the money and take an industry-based perspective. Businesses need to focus not only on the incentives directed at them, but also on incentives directed at their suppliers and customers. Cleantech executives should identify where incentives are flowing and ask pertinent questions:

- Are the prospects for our alternative-energy products competitively strengthened or weakened?
- Will any funds directed at our suppliers allow them to offer discounts and still remain profitable?
- Are funds flowing elsewhere in our specific supply chain that will stimulate innovation or generate increased demand?
- Will any stimulus funds for our customers encourage competition and reduce prices?
- Will differing state and local funds put us at an advantage or at a disadvantage against our direct competitors based on our geographic location?
- Do we need to adjust our focus or look at building relationships with businesses or other entities that will receive—or benefit most from—stimulus funding?

In early-stage, fast-moving markets, businesses that can adapt, rather than those with the best technology or product, are the most likely to emerge as winners. Cleantech stimulus programs may present a game-changing opportunity for executives who are alert to the implications. Businesses should identify where funds are flowing and adapt their strategies, processes and capabilities so that they can capitalize on opportunities to outshine the competition.

# Model the financial implications

Cleantech executives need to evaluate and model the potential financial benefits—and associated costs—of any stimulus funding opportunity.

Executives creating business models in this new world need to consider a wide range of factors:

- How will the cleantech stimulus incentives affect overall demand for cleantech energy, products or services?
- How will the cleantech stimulus incentives affect demand within the specific cleantech focus of our business?
- How well is our business positioned to capture increased demand?
- How will the stimulus incentives affect pricing—and how will the pricing of traditional energy sources be affected?
- How will specific incentives, particularly those related to government department and agency spending, create demand directly with customers and indirectly across our supply chain?
- Will incentives and increased demand earlier in our supply chain result in lower costs for us?
- What new costs will we incur when we apply for and comply with specific incentives?
- How will these incentives affect our cash flows?
- How will these incentives and their consequences improve our access to and cost of funding?
- Over what period of time will the financial consequences be realized?

Given the systemic uncertainties in the cleantech industry, executives should apply this analysis to—and model a range of scenarios for—each incentive. Building a robust financial model will provide executives with an understanding of the critical sensitivities, risks and assumptions accompanying specific incentives.



Many businesses today are turning to a triple bottom line approach to managing their businesses, which includes an expanded spectrum of economic, ecological and social criteria for measuring success. Even without the benefit of tax incentives, many businesses are finding that savings occur when implementing environmental improvements. These should be factored into your modeling decisions.

# Reassess your strategic focus and business plan

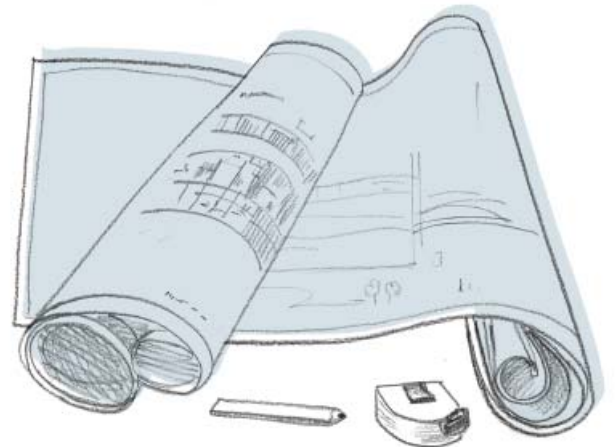
The potential receipt of government stimulus funding and the wider impact of stimulus incentives on the cleantech sector require cleantech businesses to revisit their strategic focus and business plans.

As is discussed above, the stimulus initiatives will most likely change the pace and direction of the cleantech sector as a whole, as well as the strategic and financial scenarios for each cleantech business.

As a consequence, cleantech executives will need to make critical decisions about whether to change their organization's strategy, focus and priorities. Critical changes may include the following:

- Increasing or accelerating investment activity to take advantage of investment tax credits
- Increasing production or accelerating in-production target dates to take advantage of production tax credits
- Relocating all or part of their business operations in order to have access to specific state and local funds
- Refocusing the sales force to target government departments and agencies which have mandates to adopt cleantech products
- Redirecting R&D activities to align them with government department and agency grant programs
- Building relationships or strategic alliances with other businesses that are set to benefit from cleantech stimulus programs
- Tapping investors for increased or accelerated funding as a result of a significantly improved outlook for the business

These assessments and decisions need to be monitored and updated continually as the impact of the stimulus initiatives becomes more apparent. A further quantum change in the marketplace could occur if legislation is passed to restrict carbon emissions.



# Build your stimulus capabilities

In order to pursue cleantech incentives and respond to the potential shift in strategic priorities discussed above, it is likely that most cleantech businesses will need to build new capabilities or enhance existing ones.

The infusion of the government's cleantech stimulus investments is transforming the cleantech sector from an entrepreneurial and venture capital-backed industry to one whose future is interconnected with the government policies, actions and funding.

Such a significant shift brings both new opportunities and new challenges. It will require most cleantech businesses to develop a new set of skills to manage the interaction with government representatives, departments and agencies.

At a minimum, cleantech executives will need to enhance their ability to monitor and assess how the government's involvement affects the cleantech industry in general and their supply chain in particular.

Cleantech executives also need to ensure that they are able to determine appropriate incentives to pursue. Either in-house personnel or third-party advisors should assist management in making those determinations.

Given the credit crisis, a core competency in winning government funds could very well be a decisive competitive advantage.

If management concludes that a specific incentive is attractive, it must determine what expertise and resources are needed to apply for—and possibly compete for—that incentive. For certain types of incentives, making this determination may involve working with advisers who have expertise in specific tax rules or government contracting procedures.

For incentives offered at the state or local level or involving limited allocations to select applicants, businesses may need to hire or outsource to experts skilled in lobbying and in navigating the intricacies of government funding.

Cleantech executives also need to ensure that they have identified all reporting or compliance obligations accompanying specific incentives. Failure to comply could be costly; therefore, it is vital that businesses maintain accountability and assign the resources necessary to ensure that the business remains in compliance.

Even companies that do not elect to receive direct stimulus funding may well experience positive financial outcomes—for example, increased revenues brought about by selling to government departments and agencies. Selling to those entities is a specialized skill set that many cleantech businesses will need to develop. The priority for other cleantech businesses may be to develop or expand the organization's ability to collaborate with businesses that are expected to benefit directly from incentives.

Cleantech executives must weigh their options while simultaneously maintaining their focus on the market and on the development of products, services, technology and operations. Executives can also expect to face an increased competitive challenge. Although cleantech stimulus programs undoubtedly provide a boost to—and an opportunity for—cleantech businesses, many incentives will be the subject of significant competition. With the economic environment so challenging, funding and growth opportunities in other sectors are few and far between. The cleantech stimulus initiatives will only serve to attract new players, and thus new competitors, into the sector.

# Maintain a global outlook

Climate change is a global issue that is driving worldwide interest and investment in cleantech. In many ways, the United States is playing catch-up. There are leading cleantech businesses in countries such as Germany, Denmark, India and China.

The economic crisis has also been a global phenomenon, triggering stimulus packages from numerous governments around the world. Many of these stimulus packages have included cleantech components, comprising both new incentives and enhancements to existing ones. The sidebar provides examples of recent cleantech incentives offered by foreign governments. That listing is, however, by no means exhaustive.

U.S.-based cleantech businesses must evaluate whether there are attractive incentives or opportunities in other countries. Evaluating these options will require many of the steps outlined in the preceding sections of this report. Executives need to understand exactly what incentives are available, what the application processes and criteria entail, and what compliance or reporting conditions are included. If foreign-based incentives look attractive, executives must determine whether their businesses have sufficient capabilities to take advantage of those incentives.

When making their determinations, executives need access to local market knowledge and expertise. Indeed, businesses may be required to establish local operations and hire local sales and operations employees in those countries. In extreme cases, executives may determine that the scale of the opportunity warrants moving their business completely to a new overseas market.

Whether or not a U.S.-based cleantech business pursues foreign incentives, it will need to remain alert to their implications. Foreign stimulus activity will have a global impact on the cleantech sector and thus an individual impact on every cleantech business. Monitoring and evaluating global trends in the industry will be a critical competency for cleantech businesses in the coming months and years.

## Examples of foreign government cleantech activity

### Canada

- Clean Energy Fund to support R&D projects in fields such as carbon capture and storage
- \$1 billion Green Infrastructure Fund for transmission lines to connect renewable-energy projects

### China

- Plans to invest ¥13 billion (\$1.9 billion USD) in wastewater treatment and solar power projects in rural areas during the next three years

### Brazil

- Major auction of wind energy permits in November 2009

### South Korea

- Expected to invest \$38 billion USD in green projects during the next four years

### Japan

- Stimulus spending includes \$145 million USD for home solar power

### United Kingdom

- Recent budget included multiple cleantech items, including £525 million (\$840 million USD) for offshore wind energy development and £405 million (\$648 million USD) to promote low-carbon energy and advanced green manufacturing

The Chinese government plans to spend billions of dollars on energy efficiency, emissions and pollution reduction, and environmental protection as part of the country's stimulus package. It is our experience that accessing those funds requires a local partner.

# Appendices

Table 1: **Cleantech tax incentives**

	§ 45 Production Tax Credits (PTCs)	§ 48 Energy Tax Credit (ETCs)	§ 48 ETCs in Lieu of § 45 PTCs	Cash grants in lieu of § 48 ETCs or § 45 PTCs	§ 48C Advanced Energy Project Tax Credit
Wind	✓	Small wind	✓	✓ + Small wind	✓
Closed-loop biomass	✓		✓	✓	
Open-loop biomass	✓		✓	✓	
Geothermal	✓	Includes geothermal heat pumps	✓	✓ + Includes geothermal heat pumps	✓
Solar	✓	✓	✓	✓	✓
Small irrigation power	✓		✓	✓	
Landfill gas	✓		✓	✓	
Trash combustion	✓		✓	✓	
Hydropower/marine and hydrokinetic	✓		✓	✓	
Fuel cell		✓		✓	✓
Microturbine		✓		✓	✓
Combined heat and power (cogeneration) systems		✓		✓	
Other renewable sources					✓
Energy storage systems for electric vehicles					✓
Electric grids for transmission of renewable energy					✓
CO <sub>2</sub> capture and sequestration					✓
Renewable fuel refining and blending					✓
Energy conservation technology production					✓
New plug-in electric vehicles and components					✓
Other advanced energy property designed to reduce greenhouse gas emissions					✓

Table 2: **Cleantech loan guarantees**

	Loan guarantees
Renewable energy systems	✓
Facilities that manufacture components for renewable energy systems	✓
Transmission systems and upgrades	✓
Pilot-scale advanced biofuels	✓

Table 3: **Selected Department of Energy cleantech incentives**

	Stimulus bill funding	DOE grants	DOE spending	DOE state and local funding
Energy-efficiency and conservation grants	\$3.2B			✓
Weatherization assistance programs	\$5.0B			✓
State renewable-energy and energy-efficiency programs	\$3.1B			✓
Advanced battery manufacturing grants	\$2.0B	✓		
Applied energy research, development, demonstration and deployment activities	\$2.5B	TBD	TBD	
• Biomass	(\$800M)	✓		
• Geothermal	(\$400M)	✓		
• Alternative-fueled vehicles pilot grant program	(\$300M)	✓		✓
Transportation electrification	\$400M			
Energy-efficient appliance rebate program and Energy Star	\$300M	TBD	TBD	
Electricity delivery and energy reliability, including smart-grid programs	\$4.0B	✓		
Western Area Power Authority (WAPA) transmission infrastructure	\$3.26B		✓	
Fossil energy and R&D (including carbon sequestration)	\$3.4B	✓		
Advanced Research Projects Agency — Energy (“ARPA-E”)	\$400M		✓	
Environmental cleanup	\$6.0B		✓	
Scientific research	\$1.6B		✓	

Table 4: **Other government department and agency cleantech incentives**

Department or agency	Program	Stimulus bill funding	Grants	Department and agency spending	State and local funding
Environmental Protection Agency	Environmental cleanup and remediation	\$900M	✓	✓	✓
Environmental Protection Agency	Diesel emission reduction	\$300M	✓		✓
Department of Defense	Variety of energy-efficiency programs	\$4.76B		✓	
General Services Administration	Energy-efficient vehicle procurement	\$300M		✓	
General Services Administration	Green buildings	\$4.5B		✓	
Department of the Interior	Variety of improvement programs, including energy efficiency	\$884M		✓	
Department of Housing and Urban Development	Includes public housing energy-efficiency programs	\$2.25B			✓
Department of Transportation	Public transportation energy efficiency and emissions reduction	\$100M			✓
Department of Labor	Green jobs training	\$537.5M		✓	
Department of Veterans Affairs	Includes energy projects	\$1.05B		✓	
Department of Education	Includes energy-efficiency projects	\$60M			✓

Sources:

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We focus on helping cleantech organizations:

- identify and apply for government grants and credits;
- identify qualified expenditures for cleantech-related tax credits;
- explore alternative locations based on tax and other governmental incentive programs;
- address compliance with government regulations around the globe; and
- meet ongoing financial reporting requirements.

In addition, we can:

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