

iisd

International
Institute for
Sustainable
Development

Institut
international du
développement
durable

*China's Low-Carbon Competitiveness and
National Technical and Economic Zones*

Business Sentiments Survey of China's Low-Carbon and Energy Policies

Pan Tao
Geng Yu
Dave Sawyer

March 2015

IISD REPORT

iisd.org

© 2015 The International Institute for Sustainable Development
Published by the International Institute for Sustainable Development.

International Institute for Sustainable Development

The International Institute for Sustainable Development (IISD) contributes to sustainable development by advancing policy recommendations on international trade and investment, economic policy, climate change and energy, and management of natural and social capital, as well as the enabling role of communication technologies in these areas. We report on international negotiations and disseminate knowledge gained through collaborative projects, resulting in more rigorous research, capacity building in developing countries, better networks spanning the North and the South, and better global connections among researchers, practitioners, citizens and policy-makers.

IISD's vision is better living for all—sustainably; its mission is to champion innovation, enabling societies to live sustainably. IISD is registered as a charitable organization in Canada and has 501(c)(3) status in the United States. IISD receives core operating support from the Government of Canada, provided through the International Development Research Centre (IDRC), from the Danish Ministry of Foreign Affairs and from the Province of Manitoba. The Institute receives project funding from numerous governments inside and outside Canada, United Nations agencies, foundations and the private sector.

Head Office

161 Portage Avenue East, 6th Floor, Winnipeg, Manitoba, Canada R3B 0Y4
Tel: +1 (204) 958-7700 | Fax: +1 (204) 958-7710 | Website: www.iisd.org

China's Low-Carbon Competitiveness and National-Level Economic and Technological Development Zones Business Sentiments Survey of China's Low-Carbon and Energy Policies

March 2015

Written by Pan Tao, Geng Yu and Dave Sawyer

Executive Summary

The International Institute for Sustainable Development has been conducting a project to assess how China's technical and economic industrial zones are interacting with the emerging low-carbon and energy policy framework. A major focus of the work is to assess the effectiveness of the policy environment from a business perspective, with the intention of providing policy-makers in government and industrial zones with information to help shape future policy design.

This report presents the results of a survey assessing business sentiments regarding the emerging low-carbon and energy policy framework. Starting in May 2014, 1,000 companies were surveyed, with 230 questionnaires completed by both light and heavy manufacturing facilities in 16 provinces. In addition to these online surveys, 12 in-depth interviews and site visits were completed and a number of workshops were held to solicit input.

The participating firms include a mix of sectors and firm sizes, with the energy-intensive businesses accounting for one quarter of all respondents and light manufacturing accounting for the rest. Of these, 30 per cent are small energy users who consumed up to 3,000 tonnes of standard coal equivalent annually, while about one quarter are very large energy users that consume more than 10,000 tonnes of coal equivalent annually. Just under half of the firms are participating in the pilot carbon-trading schemes, the Top 10,000 Energy-Consuming Enterprises program or both. This finding indicates the flagship energy and emission programs are touching a large number of firms across sectors and regions.

We asked questions about what types of management systems are in place to manage carbon and energy. Most of the companies surveyed, 58 per cent have environmental-management systems in place and 8 per cent have energy-management systems in place. Mirroring this finding, less than 50 per cent of the facilities have an energy-saving target in place; the smaller the firm, the fewer targets or management systems are in place. When energy-saving targets are in place, we found evidence of a significant variation in how those targets are specified (by product, fuel use or sales for example), with little conformity across companies. This variation speaks to an opportunity to standardize energy targets across sectors, subsectors or products.

Greenhouse gas (GHG) inventories are clearly a lesser focus for companies. We found that only 20 per cent currently have a GHG inventory in place, with another 11 per cent planning to implement one. This leaves about 69 per cent of the sample without a GHG inventory in place. Having a GHG inventory is such a fundamental administrative function for businesses to successfully transition to lower-emitting operations that there is clearly an opportunity to increase the prevalence of GHG inventories within surveyed participants. Companies identified a number of reasons for such low penetration of GHG inventories, including a lack of knowledge, questionable benefits from investing in the inventory and low perceived government priority for GHG inventories.

A major focus of the analysis was also to assess the effectiveness of the emerging policies from a business perspective. Our first observation is that a significant number of policies are currently affecting companies. Topping the list are subsidies for energy projects, differentiated electricity pricing and phasing out unproductive capacity. Energy-saving incentives and the pilot carbon-trading schemes were also identified as affecting business. However, one clear concern about carbon-trading schemes is the fairness of free quota allocation. For example, many power plants received large quantities of free allocations while many manufactures with excellent energy performance had to buy carbon permits. While a number of programs were identified as being impactful, there is also a low level of policy awareness. Only 20 per cent of the firms indicate they are "well aware" of the policies, with 26 per cent "not aware at all" and 55 per cent "somewhat aware." The level of policy awareness really decreases as the firm size decreases, with the smallest firms least aware of policies. There is clearly a significant opportunity for policy-makers to better communicate with companies about their policy intentions, especially with small and medium-size

enterprises (SMEs). There is also an opportunity for increasing the reach of the programs and policies by lowering the participation thresholds to include smaller enterprises.

Barriers to company responses to the policies were also investigated. While companies identified a significant number of barriers, three are worth noting:

1. Uncertainty about state-of-the-art technology for their facilities, with a full 50 per cent of the sample identifying a need to better understand technologies.
2. A lack of capital and low incentives.
3. Confusion over the many policies that exist, the application process to be followed and the sheer complexity of the process.

Companies would be better able to participate if accountabilities were better defined and programs streamlined.

Having a single government point of contact or “window” that would coordinate multiple programs could reduce the high transaction costs associated with multiple reports to multiple levels of government across multiple programs. There are strong company views on improving the administrative effectiveness of the policies. One recommendation is to provide better policy continuity, with 52 per cent of respondents indicating a need to make policy more certain over time. The starting and stopping of policies makes it difficult for companies to be confident that long-term investment will achieve payback. Companies also identified a need for better coordination between departments and agencies. Overlapping jurisdictions, both at the sector and the geographic levels, make it hard for companies to keep track of requirements and program opportunities. Reporting of the same or similar data to multiple departments and agencies at multiple levels of government was cited as a source of high administrative costs.

The survey also sought to understand what policy instruments are of interest to companies. Not surprising, 54 per cent of businesses indicated that they prefer subsidized energy project loans. Many companies cited the high paybacks associated with energy conservation and GHG technologies, with a need to accelerate these paybacks through subsidy programs. Another preference is to have a standardized procurement list of energy-saving technologies that would be eligible for the subsidy programs. Such a simplified list would reduce uncertainty and increase policy participation.

Mirroring a number of observations about a lack of information on energy and low-carbon technologies, companies are very interested in receiving better technical guidance and knowledge. Strengthening third-party technical capacity to provide specialized energy-efficiency and low-carbon services would also help.

Companies also identified their preferences for capacity building to better manage their energy and emissions. Companies indicated that current training programs are typically too general to be meaningful. Despite this experience with current training offerings, over 60 per cent of companies indicated a significant need for more training, especially in low-carbon technologies and the pilot carbon-trading schemes. Companies are very interested in receiving more training on technologies and benchmarks relevant to their facilities, but they would also like help developing strategies and corporate governance arrangements to better orient activities towards improving energy and emissions performance. Only 20 per cent of the sample indicated a need for training for GHG accounting systems. This was not the case, however, for the larger businesses that recognize a need to support GHG inventory development as a prerequisite for participating in the pilot carbon-trading schemes and other emerging policy requirements. Regarding the training methodology, peer-to-peer learning is the preferred method. Companies also recommended that government compile sector-based technical guidance on energy standards and best practices.

Table of Contents

| | |
|--|----|
| 1.0 Overview | 1 |
| 2.0 Overview of Participating Companies | 2 |
| 3.0 Managing Energy and GHGs | 4 |
| 4.0 Perceptions on Policy Effectiveness | 6 |
| 4.1 Barriers to Implementation | 7 |
| 4.2 Company Views on Improving Policy Effectiveness..... | 8 |
| 4.3 Company Views on Preferred Policy Instruments..... | 9 |
| 5.0 Capacity-Building Needs of Companies..... | 10 |
| 6.0 Opportunities to Strengthen Policy | 11 |
| 7.0 Recommendations for Policy..... | 12 |

1.0 Overview

The International Institute for Sustainable Development (IISD) has been conducting a project to assess how China's technical and economic industrial zones are interacting with the emerging low-carbon and energy policy framework. A major focus of the work is to assess the effectiveness of the policy environment from a business perspective, with the intention of providing policy-makers in government and industrial zones with information to help shape future policy design.

This report presents the results of a survey assessing business perceptions of the emerging low-carbon and energy policy framework. Starting in May 2014, 1,000 companies were surveyed, with 230 questionnaires completed by both light and heavy manufacturing facilities in 16 provinces. In addition to these online surveys, 12 in-depth interviews and site visits were completed, and a number of workshops were held to solicit input.

Through this work, IISD sought to understand how companies are managing their energy and GHG emissions. We asked a series of questions about internal management systems and practices, differentiating results by the size of participating facilities based on energy use. We asked a series of questions about business perceptions on the effectiveness of the current energy and low-carbon policies. We sought to understand the range of policies affecting businesses, as well as perceived barriers that limit how firms respond. We then asked how firms might improve policy effectiveness from an administrative perspective by identifying the types of policy instruments that are preferred by companies. We then sought to identify the capacity needs of companies, focusing on the types of training and knowledge firms are seeking.

Based on our analysis, we identified opportunities to strengthen the current policy environment, highlighting areas where policy-makers might look to coordinate and strengthen policy. A series of recommendations also aim to make policy more efficient, to achieve the energy and emission goals of the policies while keeping costs low to maintain competitiveness.

To our knowledge, this is the first systematic survey of business perceptions of China's carbon and energy policies. Given the rapid development and deployment of low-carbon and energy policies, we fully recognize that significant work has been undertaken to implement a comprehensive set of policies. In that light, this report is intended to help policy-makers and businesses alike better understand the current system, while providing a window into how policy might be designed to be more effective and efficient.

2.0 Overview of Participating Companies

In this section, we provide a profile of the participating businesses in the survey. Light manufacturing makes up the vast majority of the sample, with 77 per cent of responding firms. The energy-intensive sector—which includes sectors such as cement, aluminum, electricity, iron and steel, petroleum refining and paper—make up the remaining 23 per cent (Figure 1).

Participating facilities were categorized by size using employment figures, with about 50 per cent of the sample sitting in the 100–1,000 range, 25 per cent below 100 employees and 25 per cent greater than 1,000.

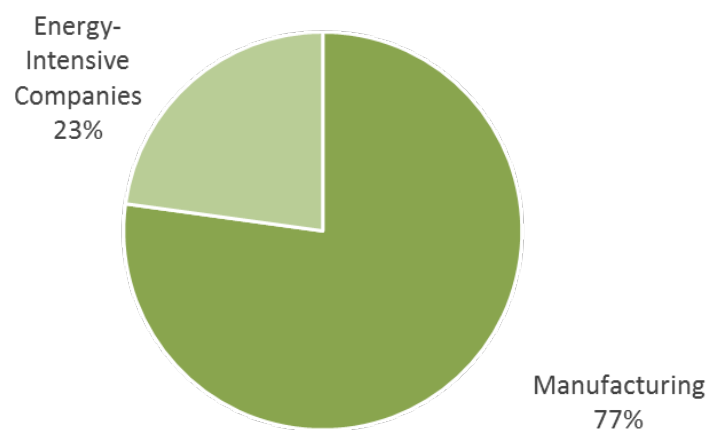


FIGURE 1: PARTICIPATING COMPANIES

Most businesses in the survey were small, with about a quarter characterized as “very energy intensive.” Facilities were also characterized by energy use, in terms of tonnes of standard coal equivalent used annually. Very energy- and emission-intensive firms, characterized as consuming more than 10,000 tonnes of coal equivalent annually, make up 25 per cent of facilities. Reflecting a large manufacturing base included in the sample, over 30 per cent of facilities consume less than 3,000 tonnes annually. One quarter of respondents were unsure of their energy use (Figure 2).

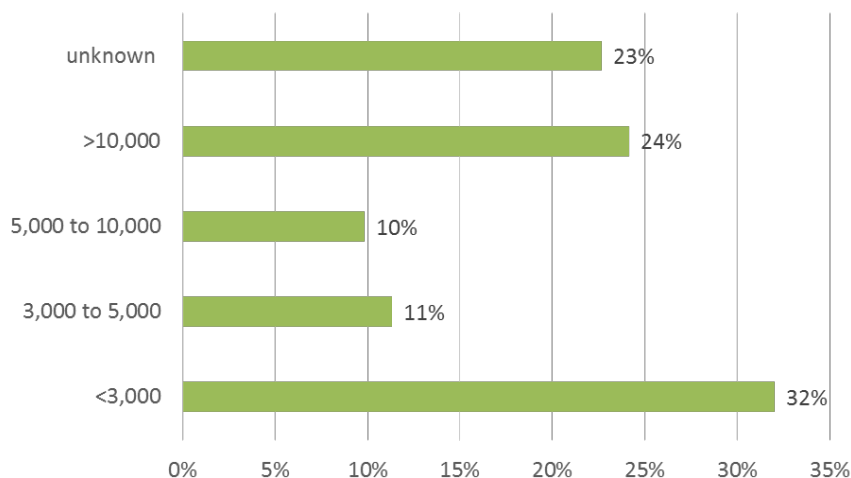


FIGURE 2: ENERGY USES (TONNES OF COAL EQUIVALENT)

About 40 per cent of all businesses surveyed are participating in pilot carbon-trading schemes or the Top 10,000 Energy-Consuming Enterprises program. That said, more than half of the businesses are not participating in the main low-carbon energy policies, namely pilot emission-trading schemes and the Top 10,000 Energy-Consuming Enterprises program (Figure 3):

- 20 per cent of the firms are participating in pilot carbon-trading schemes.
- 16 per cent are in the Top 10,000 Energy-Conserving Enterprises program.
- About 10 per cent are participating in both.

With 40 per cent of sample businesses participating, it seems that the main energy and climate policies have good coverage of companies.

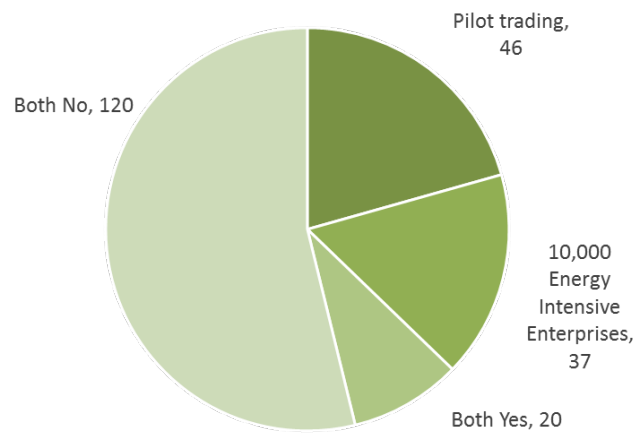


FIGURE 3: PARTICIPATION IN PROGRAMS

3.0 Managing Energy and GHGs

The next set of questions sought to develop a baseline on core systems and practices in place at the enterprises. In this series of questions, we asked whether or not facilities have energy or emission management systems in place, whether or not targets are articulated, and if the company is compiling or preparing GHG accounting reports.

Most businesses have an environmental-management system in place. A full 60 per cent of surveyed businesses had either environmental-management or energy-management systems in place (Figure 4). The vast majority have some form of environmental management system in place, such as an International Organization for Standards (ISO) standard or something similar. Energy-management systems were identified in just 4 per cent of the surveyed companies. A full 40 per cent had no such system in place.

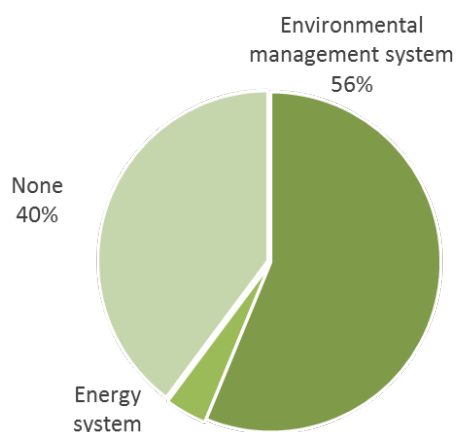


FIGURE 4: ENVIRONMENTAL OR ENERGY MANAGEMENT SYSTEM IN PLACE?

Half of the companies surveyed have energy-saving targets. The results indicate that firms are focused on energy conservation, with targets in place in almost 50 per cent of facilities (Figure 5). A high percentage of facilities are unsure (23 per cent) if they have a target in place, while about a third have no energy conservation targets in place.

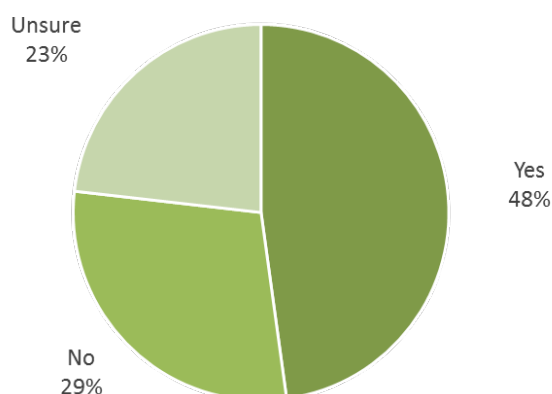


FIGURE 5: ENERGY-SAVING TARGETS IN PLACE?

The smaller the firm, the less focus on energy-saving targets. Of the large energy-using facilities (>10,000 tonnes of coal equivalent), 82 per cent have an energy target in place. This number drops off to less than 20 per cent for facilities using less than 5,000 tonnes of standard coal equivalent per year and even lower for smaller facilities of less than 3,000 tonnes of coal equivalent per year. Clearly, the smaller the company, the less focus there is on energy-saving targets.

There is a very diverse range of energy-saving targets in place. We also asked facilities what type of energy-saving targets they have in place. A major observation is that we found evidence of about 12 different types of energy-saving targets, including absolute energy-saving targets for different fuel types—some based on consumption by either dollar value or output, and some related to energy and emissions intensities. While this result is perhaps not surprising given the diverse sectors and enterprises surveyed, it does indicate a need perhaps to develop a more standardized system of energy targets to allow for better comparisons between facilities and for benchmarking performance in time.

Most companies have not prepared a GHG emission inventory. 39 per cent of the sample have an emission inventory or are planning to implement one, with the vast majority (61 per cent) having no GHG emission inventory in place (Figure 6). There are a number reasons cited for low GHG inventory development. One of the reasons cited is concern over data confidentiality and disclosure of GHG information. Disclosure is particularly worrisome with the carbon trading pilots being developed, with firms concerned about a risk that publishing emission inventory data will lead to emission reduction targets based on preliminary data. But if companies are to better manage emissions, they must develop emissions inventories.

Other reasons given for a low level of GHG inventory preparation include:

- Companies lack knowledge and expertise in the approach and methodologies for GHG accounting.
- Firms do not understand the benefit that may arise from developing an inventory.
- Companies do not see how developing an emission inventory will increase productivity or reduce costs.
- Companies perceive that GHG emissions reporting is a low priority for government.

While there was a low rate of GHG preparation overall in the sample, 63 per cent of the largest facilities are preparing a GHG inventory or have one in place. This number falls off dramatically for facilities that consume under 5,000 tonnes of coal equivalent annually with just 11 per cent reporting they were planning for or preparing a GHG inventory.

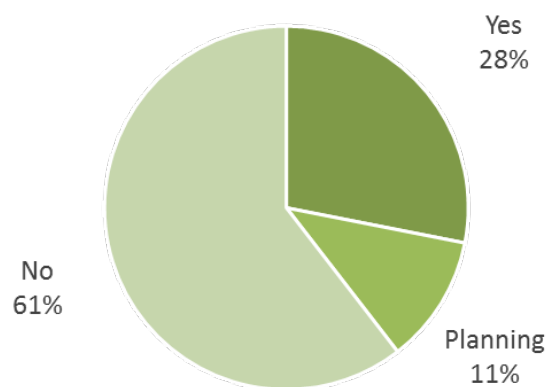


FIGURE 6: GHG INVENTORY IN PLACE?

4.0 Perceptions on Policy Effectiveness

A major focus of the work is to provide a business view of how effective the emerging carbon and energy policy environment is at altering business decisions. To do this, we asked a series of questions assessing a broad range of policies that are aligned with the 12th Five-Year Plan, including phasing out unproductive capacity, carbon trading, subsidies, and various other regulatory and pricing approaches.

A wide range of policies are affecting business. We asked companies to identify which policies are affecting their operations. The first observation is that companies believe there is a wide range of policies that affect their operations. Some policies, however, definitely are perceived as more impactful than others. Firms perceive the following policies as high business drivers that affect business: phasing out production, energy-saving project subsidies, differentiated electricity pricing, energy-saving incentives and pilot carbon-trading schemes (Figure 7).

We also asked firms what policies they prefer, related to the benefits they receive from the policies. This line of inquiry was added to provide policy decision-makers with a view of company preferences. It is not surprising that firms prefer subsidy-based policies for energy conservation projects. Policies that reduce the costs of energy investments are strong economic drivers from a business perspective. Not surprisingly, administrative burden, the approvals process and performance evaluations were considered less desirable.

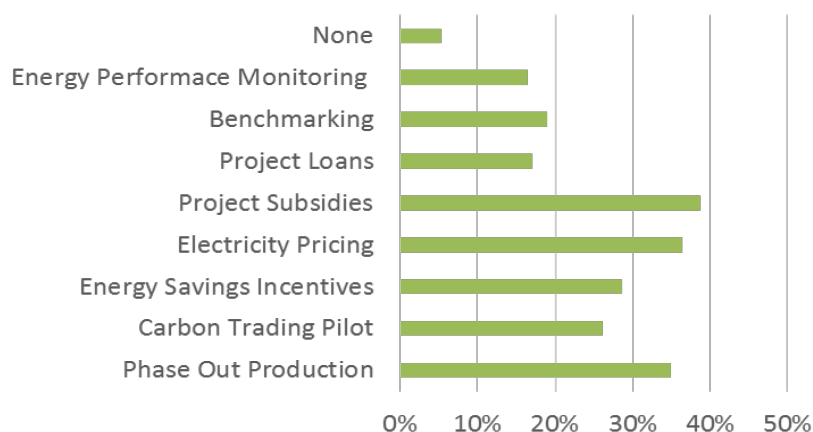


FIGURE 7: POLICY IMPACTS ON COMPANIES

Companies showed a high level of awareness of a broad range of policies. However, our results indicate that the level of understanding of policies is low. Only about 19 per cent of the enterprises are familiar with a low-carbon and energy policies, while 55 per cent understand energy conservation policies only somewhat and 26 per cent do not understand the emerging policy mix at all (Figure 8).

When we asked companies about why their level of awareness is so low, many responded that they did not participate in the development process and were not engaged during implementation. They also stated that it is a challenge to determine who is coordinating the policies given the multiple departments and multiple jurisdictions involved.

According to enterprises surveyed, the rapid policy deployment has been a major challenge for companies, leaving very little time to plan for compliance and to determine a cost-effective strategy. In a typical example, a central

agency would post a notification that would be converted by local planning units, which would take time. By the time the notification reached companies, the policy would be into the compliance period, or close to it, which would then require some very rapid and short-term decisions. Such reactionary decision making inevitably leads to poor short-term decisions and, ultimately, higher costs.

Companies also observed that energy and carbon policy information needs to be made more transparent and open, with a focus on strengthening outreach, especially in the regions below the provincial level.

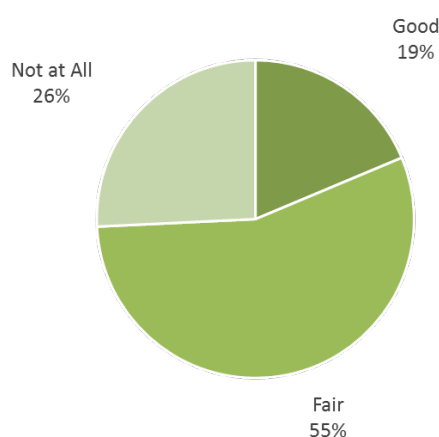


FIGURE 8: POLICY AWARENESS

There is a policy gap and low policy coverage for the small emitters. For 20 per cent of the sample, or the very smallest emitters using less than 3,000 tonnes of coal equivalent per year, there are limited policies in place. Of these small emitters, 15 per cent indicated that there is no policy affecting their businesses, 28 per cent were affected by at least one policy and 50 per cent are affected by at least two policies. Small enterprises identified only three types of policies that affect their business: energy-efficiency benchmarking, energy-saving loans and energy-consumption monitoring.

4.1 Barriers to Implementation

A key objective of low-carbon policy is removing barriers to implementing low-carbon and energy-conservation projects. To this end, we surveyed businesses to determine what factors currently limit their ability to implement low-carbon and energy-conservation projects. Based on the results (Figure 9), there are currently five main barriers to energy conservation and low-carbon implementation:

1. **Companies are uncertain about technologies and their appropriateness for their operations.** In the survey, 50 per cent of facilities indicated that they lack technical information on mitigation opportunities that are appropriate for their businesses. Respondents commonly cited two barriers: (i) concern over whether or not the technology will affect production negatively as a barrier and (ii) understanding the latest energy-saving technologies. Businesses badly need to gain a better understanding of the credibility of energy technologies and the appropriateness of certain types of operations.
2. **Access to subsidies is uneven, and timelines are often poor, thereby limiting the use of subsidies.** Thirty-five per cent of enterprises noted that there are inadequate government incentives, and that short application and subsidy assistance timelines limit their use of incentive programs in place. It was often noted that

some companies have access to national, provincial, city and industrial park financial subsidies, while other companies only have access to one level of subsidy. When subsidies are available, many programs start and stop in an unpredictable manner, so consistency across time is a major concern. It is particularly challenging for companies when a subsidy program expires after a project has been implemented, as this reduces the incentive to continue with the project.

3. **Lack of financial capital was cited by 35 per cent of firms as a barrier.** Current market pressures and an economic slowdown are reducing available capital to implement projects that reduce energy and decrease emissions. While firms recognize there is a payback associated with energy conservation projects, the payback period is often too long to make it into their capital budget decision making.
4. **Reporting to multiple levels of government results in high transaction costs.** Thirty-three per cent of respondents reported that participating in the policies is time intensive with high associated transaction costs. There are two dimensions to this barrier. The first is that there are multiple levels of reporting to different departments or third-party evaluation institutions. Satisfying these multiple and overlapping reporting requirements requires a significant amount of time and resources. Streamlining reporting would make program participation clearer and communicating program requirements would help companies to better participate in programs.

A closely related point is that small companies have a hard time participating because they are either too small in terms of energy use or their projects do not meet a minimum investment threshold for program participation.

Interestingly, 20 per cent of all firms identified internal barriers as a hindrance to implementing actions. A lack of awareness by senior management was one such barrier. A second is the low share of total energy costs in operations, which reduces the incentive to allocate time and resources.

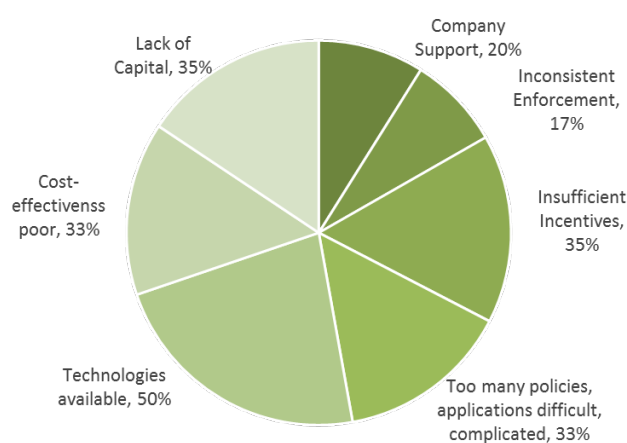


FIGURE 9: POLICY BARRIERS

4.2 Company Views on Improving Policy Effectiveness

We sought to understand business’s view on how energy and GHG policy might be reoriented to be more effective. We asked a series of questions covering various issues of policy design, including administrative requirements, types of instruments and coordination across government. We found that:

- **Better policy continuity is strongly desired.** A full 52 per cent of respondents indicated a need to improve policy continuity. Business decisions are long-lived, and understanding how the policy will affect capital investment decisions over time is a high priority for companies. Continual starting and stopping of programs just adds to uncertainty, which then deters investment.
- **Forty-five per cent of respondents cited a need for better coordination and collaboration between departments.** More communication and cooperation among departments is needed to improve government efficiency and reduce the regulatory burden on enterprises. Multiple overlapping reporting requirements for similar data in different formats is a constant challenge for companies.
- **Thirty-eight per cent of respondents felt that heavy administrative burdens and high transaction costs were barriers to interacting with the policy.** Particularly in the case of energy efficiency, the government approval process is often complex, requiring a high degree of information disclosure. The application review and evaluation processes slow the speed of implementation. Streamlining the approval process would help by bolstering policy credibility and increasing effectiveness.

4.3 Company Views on Preferred Policy Instruments

Given the multiple types of policy instruments that are being implemented, understanding which instruments are preferred by companies can help shape the future mix of policy instruments. We posed questions about regulatory instruments such as compulsory reporting and auditing, publishing lists and taking punitive measures such as limiting access to electricity. We also inquired about economic instruments, including taxes, subsidies and carbon trading. We found that:

- **Fifty-four per cent of companies responded that subsidized loans are highly desired.** The payback period for energy-saving and low-carbon technologies is generally longer than the term required for allocating investments within facilities. As a result, there is a significant role for subsidizing these technologies to reduce the payback period and accelerate implementation.
- **Forty-eight per cent of respondents support a standardized procurement list of qualifying energy-saving technologies eligible for subsidies.** Having a simplified list of technologies that qualify for subsidies would make it easier for companies to choose and implement technologies, thereby adding certainty and clarity to the subsidy program.
- **Forty-two per cent of respondents desired more information on technical guidelines and industry standards, including strengthening third-party technical guidance.** A lack of technical guidance is a real information barrier for companies, and any effort made to reduce this uncertainty and provide technical assistance or best practices is helpful. Companies also prioritize strengthening third-party technical capacity to assist with evaluating and implementing new technology.
- **Thirty-seven per cent of respondents support regulatory action to change behaviour.** Many respondents thought that taking regulatory action—like publicly calling out units for noncompliance or taking punitive measures like differential electricity pricing and enforced brownouts—would be effective for changing behaviour.

Many businesses indicated a desire to talk with government about how policy might be designed to better address company needs. This dialogue would help with program design and implementation, improve the cost-effectiveness of the program and likely lead to better environmental and economic outcomes.

5.0 Capacity-Building Needs of Companies

A major focus of the project is to identify capacity needs in companies to help implement energy conservation and low-carbon projects. We therefore asked companies about the type of training they typically use, including the quality of the training. In our findings, 42 per cent of facilities had participated in low-carbon and energy-related training delivered by third parties or government departments. More than half of these companies (58 per cent) indicated that this training was very general and of limited use, and expressed a desire for more specific training that is better aligned with technical and administrative needs. Most of the companies (61 per cent) indicated a significant need for low-carbon training, especially for companies that are participating in the pilot carbon-trading schemes, and particularly for senior management (Figure 10).

Companies were also asked to identify the type of training that is needed. Almost 50 per cent of firms identified a need to better understand technologies relevant to their operations. Also of interest is that over 40 per cent of the facilities identified a need for training on corporate strategy and governance arrangements. Closely related was a high demand to better understand the low-carbon and energy policies that are emerging. Interestingly, developing a GHG accounting system scored very low, with only 20 per cent of the sample identifying it as a training need. However, the demand for GHG training is much higher for enterprises participating in the pilot carbon-trading schemes. Overall, the large businesses indicated the highest need for training. Companies especially seek to obtain peer-to-peer learning.

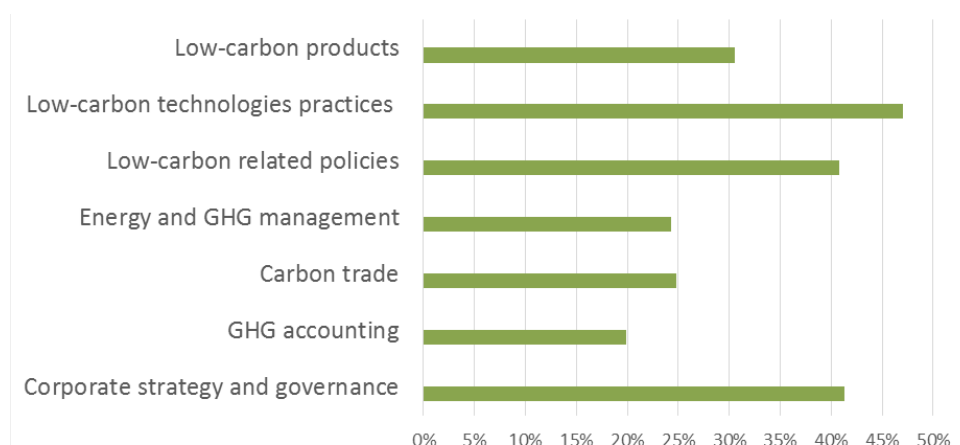


FIGURE 10: INDUSTRY TRAINING NEEDS

6.0 Opportunities to Strengthen Policy

Our analysis indicates that there are seven areas where efforts could be made to strengthen policy and better work with companies to ensure efficient and effective energy conservation and low-carbon policy outcomes:

1. **Raise policy awareness.** Our results indicate that only 20 per cent of the sample is “well aware” of government policies, while 26 per cent had “no level of awareness.” Across the enterprises sampled, the smaller the company, the lower their level of awareness. These results indicate that companies do not fully understand the emerging energy and low-carbon policy environment, with over 50 per cent of the sample not very aware of policies and programs. There is an opportunity for more government outreach to engage business and better communicate policy directions.
2. **Smaller companies need good energy management and inventory systems in place to capitalize on significant energy and GHG opportunities.** Our results indicate that large, energy-intensive companies have relatively good energy management systems in place. Of the large energy users in the sample, 82 per cent have energy targets, with 63 per cent of them having internal or external carbon disclosure reports. However, when we look at the larger population of facilities, one quarter (23 per cent) do not have information on annual energy consumption, with half the companies having no energy target and 72 per cent of the companies having no carbon disclosure report (GHG inventory).
3. **Companies would like more technical guidance.** More than half the companies indicated they are lacking capacity to understand technologies that improve energy efficiency and implement cleaner energy projects in their operations. Most of the companies interviewed expressed concern about a lack of information on their energy and emission performance relative to industry benchmarks, as well as the range of incentives and other policies that are affecting their operations.
4. **The policies that have the most impact on companies include subsidies,** differentiated electricity pricing and phasing out unproductive capacity. Many companies (40 per cent) indicated that these three policies are affecting their operations significantly. Also ranking high in terms of impact are performance standards and benchmarking. In interviews, a number of companies mentioned that a lack of transparency and fairness in the quota allocation schemes under the pilot carbon trading systems have a negative impact on their companies.
5. **Companies see a need for better-designed incentives and subsidies.** More than half the companies indicated that the current incentive systems are neither sufficient nor predictable enough to affect their investment decisions. More than half the companies indicated that subsidies should be increased to reduce the payback periods for technologies.
6. **Companies desire more focused training.** Companies are gravely concerned about lack of specific training on strategy, tools and technology available. More than 61 per cent of companies is interested in more focused training in simplified and practical tools such as GHG accounting. Training needs are differentiated by company size, with SMEs requiring training to improve their level of awareness of policies, available technologies and products. Larger companies were more interested in tools that are applicable to the broader policy environment and carbon-trading schemes.
7. **Increase expertise and third-party services.** The companies interviewed indicated a lack of internal capacity to effectively manage energy and transition to low-carbon operations. There is therefore demand for external support and guidance in areas such as energy auditing, facilitated peer-to-peer learning, as well as more public-private dialogue on partnerships and policy development.

7.0 Recommendations for Policy

Based on our interviews, workshops and analysis of the survey results, we offer six recommendations to help with short-term policy implementation. These include:

- **Focus on smaller enterprises.** While we found that the pilot carbon-trading schemes and the Top 10,000 Energy-Consuming Enterprises program cover a large share of the sampled enterprises, we also found a major gap in policies directed at SMEs. SMEs lack internal capacity in the basic systems and practices to better manage carbon and energy, yet we found a demand for more information on how they can improve energy performance and reduce emissions. Current policy almost exclusively focuses on the largest industrial energy users, which account for 60 per cent of national energy use. This leaves a significant opportunity to target programs and policies at the remaining 40 per cent of small energy users.
- **More transparency in the carbon emission trading systems.** Implementing trade systems is very complex and not necessarily intuitive to industry leaders. There is clearly a need to better communicate with companies on policy developments, especially when it comes to how free quota allocations are calculated. We heard widespread comments on the need to become more transparent and systematic about how allocations are made under the carbon-trading scheme. For example, one clear concern about the carbon-trading scheme is the fairness of free quota allocation. Many power plants received large free quotas, while many manufacturers with good energy performance must buy permits. Respondents often cited variations within companies and misaligned carbon costs through allocation decision making as challenges within the program.
- **Incent more energy conservation through lowering energy use participation thresholds.** Current energy conservation subsidies are dependent upon investments in the order of RMB10 million and energy savings are equivalent to about 500 tonnes of coal equivalent per year at the national and provincial levels. While this is good for the large and energy-intensive users, it precludes a whole series of energy-efficiency opportunities for smaller enterprises. We identified a significant demand for more subsidies for smaller operations, lowering the investment energy-saving threshold at both the local and municipality levels.
- **Streamline administrative procedures.** A common refrain from companies was the multiple government departments and jurisdictional levels involved in energy and low-carbon management. As a result, companies are unsure about which programs they are eligible to participate in, and the regulatory burden on these companies is increased by having to interact with multiple levels of government and multiple programs. Third-party verification procedures were also cited as a significant challenge. Efforts could be made to look for a registry-based system instead of an approval-based system, and reporting and evaluation should be streamlined.
- **Establish a collaborative partnership between businesses, government and third parties.** The survey results indicate that businesses are very eager to enter a dialogue with government to better understand energy and low-carbon policy environment, to seek information on programs and to share experiences. Industry associations or other third-party players could play a significant role in facilitating a dialogue between government and enterprises. Funding models for such third-party organizations could include a mix of public and private revenue models. Such partnerships could play multiple roles, including helping to monitor, verify, facilitate and provide technical advisory services. Such third-party organizations can also act as a window between government and industry. Such dialogue, especially if it became routine, would only improve policy effectiveness and efficiency.
- **Focus on technical guidance and improving capacity within industry.** The survey results indicate that enterprises have a high demand for credible technical guidance on facility management, on best practices and for benchmarking performance. There is a role for government to coordinate technical agencies working with businesses to identify technical standards for industry, renewable energy opportunities and sector benchmarks. Engaging a broad alliance of training institutes in helping them focus on providing useful technical training, including through identifying standards and best practices, could help with policy implementation.

©2015 The International Institute for Sustainable Development
Published by the International Institute for Sustainable Development.

International Institute for Sustainable Development

Head Office

161 Portage Avenue East, 6th Floor, Winnipeg, Manitoba, Canada R3B 0Y4

Tel: +1 (204) 958-7700 | Fax: +1 (204) 958-7710 | Website: www.iisd.org

iisd International
Institute for
Sustainable
Development Institut
international du
développement
durable

www.iisd.org