# Business Reasons for Utilizing Renewable Energy Applications in Facilities to Assist in Extending the Life of the Heating Ventilation and Air Conditioning Systems

Submitted by Glendon Thompson

#### Advisor

Dr. Linda Thomas-Mobley

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# Business Reasons for Utilizing Renewable Energy Applications in Facilities to Assist in Extending the Life of the Heating Ventilation and Air Conditioning Systems

### Approved by:

Dr. Linda Thomas-Mobley College of Architecture Georgia Institute of Technology

Professor Kathy Roper College of Architecture Georgia Institute of Technology

Dr. Del Kiernan-Lewis College of Architecture Georgia Institute of Technology

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#### Summary

The political, cultural, and economic difference between China and the US are stark indeed. A new era for Sino-US ties were opened with the official visit of US President Richard Nixon to China in 1972. Since then scientific, technological, economic and trade cooperation, have become the most important backbone for Sino-US relations. The areas of energy efficiency and renewable energy are examples of such cooperation.

Neither country has sufficient domestic petroleum reserves to satisfy current demand; in a business as usual scenario, both countries will be increasingly dependent upon imports. The availability of capital has a direct influence on how a nation can reduce its increase in energy demand. It is increasingly the case that the private sector—not the government—provides the capital for energy projects, and it does so by paying greater attention to returns than to societal needs or goals, such as the environment.

Studying the thought processes of these private sector business people in these two countries as applied to a particular and major source of pollution and energy consumption is breaking into new ground and could lead the way for future research. It is the premise of this research that with regards to environmental

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<sup>&</sup>lt;sup>1</sup> <a href="http://books.nap.edu/openbook.php?record\_id=12001&page=3">http://books.nap.edu/openbook.php?record\_id=12001&page=3</a> <a href="Energy Futures">Energy Futures</a> and Urban Air Pollution: Challenges for China and the United States (2007) retrieved 11/2/2007

<sup>&</sup>lt;sup>2</sup> http://books.nap.edu/openbook.php?record\_id=9736&page=15 Cooperation in the Energy Futures of China and the United States (2000) retrieved 11/2/2007

pollution and energy usage, both the US and China should consider themselves players on the same team.

The intended audience for this thesis research is facility managers, property managers, building owners and all others in the building industry who are interested in extending the life of their HVAC systems while also reducing the energy demands of their buildings the common utility grid. This body of work is also appropriate for decision makers and experts in the building industry who seek a better understanding of some of the driving forces behind the business decisions made by their counterparts with respect to the application of renewable energy solutions in either the United States or China. This study can be use as a method of establishing essential questions in selecting a renewable energy system from a broad perspective using detailed data from individual buildings or a collection of such buildings. This research done in this thesis can be used as background information in developing feasibility studies or business plans.

Questions were crafted to elicit responses from experts in the building ownership, management and maintenance professions. These questions and responses are intended to trigger ideas for business reasons for utilizing renewable energy applications to assist the HVAC system from both China and the US.

These business related questions were developed using my over twenty five years business experience, my over four years experience in the renewable energy field and literature review.<sup>3</sup>

The research confirmed that indeed there is much common ground between these two economic giants on opposite sides of the world. The research also found anomalies in the answers from the Chinese professionals with regards to the use of renewable energy and as such proposes future research.

Analyzing the data collected, a generic recommendation is suggested with the caveat that efficient and effective renewable energy applications are most often affected by local conditions.

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<sup>&</sup>lt;sup>3</sup> Campbell, Scott (1996). Green cities, growing cities, just cities?: Urban planning and the contradictions of sustainable development. American Planning Association. Journal of the American Planning Association, *62*(3), 296. Retrieved August 25, 2007, from ABI/INFORM Global database. (Document ID: 9808300).

#### **Chapter 1: Introduction**

This research is intended to discover business reasons for utilizing renewable energy applications in buildings to help extend the life of the heating, ventilation and air conditioning (HVAC) systems. It is designed to focus on gleaning information from the United States and China. These two countries differ politically, socially, economically and culturally. In history, trading and other economic activity has always been a point of common ambitions. Therefore studying business and economic reasons for applying renewable energy applications will be edifying. This research is also intended to be a pre-cursor for future research into China's renewable energy applications in new and existing buildings.

With the advent of the industrial age and urbanization there has been a dramatic increase in demand for energy. Fossil fuels have been the source of much of this energy. With the increased use of these fossil fuels came two problems, environmental pollution and the depletion of limited resources. One solution is to tackle these challenges where it is most concentrated, that is in the buildings that have accompanied the economic development. A further refinement to the level of the HVAC system allows a more manageable solution to the stated complex problems. If business reasons can be found to utilize renewable energy sources to augment the usage of the HVAC then a reduction of the rate of depletion of the fossilized fuel which includes a reduction in environmental pollution can be achieved. In an attempt to find valid business reasons for utilizing renewable

energy to extend the life of the HVAC system, this thesis is designed to discover trends or general opinion in order to derive suggestions for valid business reasons. This thesis is intended to help find practical, holistic approaches to an environmental and economic problem.

#### **Chapter 2: The Problem**

Since the Industrial Revolution (around 1750), human activities have substantially added to the amount of heat-trapping greenhouse gases in the atmosphere. The burning of fossil fuels and biomass (living matter such as vegetation) has also resulted in emissions of aerosols that absorb and emit heat, and reflect light. The addition of greenhouse gases and aerosols has changed the composition of the atmosphere. The changes in the atmosphere have likely influenced temperature, precipitation, storms and sea level. 2

As sovereign countries the United States and China are the number one and two energy consumers in the world.<sup>3</sup> China is the largest emitter of sulfur dioxide (SO<sub>2</sub>) worldwide, and the two countries lead the world in carbon dioxide emissions (CO<sub>2</sub>).<sup>4</sup> The energy consumption by all the buildings in the United States causes the emission of 15,353,000 short tons of SO<sub>2</sub> which is 52% of the total US SO<sub>2</sub> emission and 21,102,000 short tons of nitrous oxides (NO<sub>x</sub>) which is 19% of the total US NO<sub>x</sub> emissions.<sup>5</sup>

The buildings sector is responsible for around one-third of global energy use and associated carbon dioxide emissions. In 2004, China was responsible for 15% of world energy consumption and associated emissions. Residential and

<sup>&</sup>lt;sup>1</sup> http://www.epa.gov/climatechange/science/recentcc.html retrieved 3/20/2008

http://ipcc-wg1.ucar.edu/wg1/wg1-report.html retrieved 3/20/2008

<sup>&</sup>lt;sup>3</sup> http://buildingsdatabook.eren.doe.gov/docs/1.1.10.pdf retrieved 3/22/2008

<sup>4</sup> http://books.nap.edu/openbook.php?record\_id=12001&page=1 Energy Futures and Urban Air Pollution: Challenges for China and the United States (2007) retrieved 11/1/2007

<sup>&</sup>lt;sup>5</sup> http://buildingsdatabook.eren.doe.gov/docs/3.3.1.pdf retrieved 3/21/2008

commercial buildings account for one-quarter of China's total energy consumption and around 27% of the country's electricity consumption. Overall, buildings are responsible for around 18% of energy-related carbon dioxide emissions in China.<sup>6</sup> In the United States 40% of energy consumption is in buildings and facilities.<sup>7</sup> The majority of this energy is derived from fossil fuels: in 2005, it was estimated that 40% of the US's energy came from petroleum, 23% from coal, and 23% from natural gas.<sup>8</sup>

In residential buildings the heating, ventilation and air conditioning (HVAC) consume 43% of the energy used by these buildings in the US.<sup>9</sup> In commercial buildings the HVAC consume 33.3% of the energy.<sup>10</sup> In total the HVAC systems consume 38.6% of the energy used by all the buildings in the US.<sup>11</sup>

#### The Scope

This thesis will attempt to provide a study of a series of business related background questions that can be used in developing a set of financially sound business reasons to utilize renewable energy with respect to the HVAC system. This study proposes a holistic approach to finding a solution to the stated problems of resource depletion and environmental pollution.

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<sup>&</sup>lt;sup>6</sup> http://www.chinadialogue.net/article/show/single/en/1425-Why-building-energy-efficiency-matters retrieved 11/3/2007

<sup>&</sup>lt;sup>7</sup> http://buildingsdatabook.eere.energy.gov/docs/1.1.3.pdf retrieved 11/3/2007

<sup>8</sup> http://www.eia.doe.gov/emeu/aer/pdf/pages/sec1\_3.pdf retrieved 3/21/2008

http://buildingsdatabook.eren.doe.gov/docs/1.2.3.pdf retrieved 3/21/2008

http://buildingsdatabook.eren.doe.gov/docs/1.3.3.pdf retrieved 3/21/2008

This thesis will compare and contrast responses from the building experts of the United States and China in order to support the hypothesis.

This thesis is not intended to provide every possible business reason to utilize renewable energy applications.

This thesis will not provide business reasons for any particular circumstance.

This thesis will not discuss in detail any particular renewable energy application.

This thesis will not discuss in detail any part of the heating ventilation and airconditioning (HVAC) systems.

This thesis will not present any renewable energy application solution to any particular HVAC system.

#### The Hypothesis

Although the societies of the United States and China are dissimilar in many ways, the challenge of global warming and environmental pollution produces common business reasons to develop renewable energy solutions for the heating ventilation and air-conditioning systems (HVAC) systems in the buildings of each country.

#### The Reason for the Research

As human society advanced the demand for the earth's natural resources exponentially increased. The industrialized era and its accompanying world population explosion<sup>12</sup> further exacerbated the already dire situation of natural resource depletion with heavy pollution and ecological crises. A key factor in

<sup>12</sup> http://www.census.gov/ipc/www/idb/worldpopinfo.html 3/21/2008

both the demand for natural resources and pollution is the worldwide need for energy. While there is no single solution for the complex problem of global warming, a focus on the application of non-polluting renewable energy sources and their efficient use in assisting the HVAC systems with its high energy usage and corresponding greenhouse gas production in the major polluting countries of the United States and China, is a constructive approach to the solution.

#### A Synopsis of the Research Chapters

#### Chapter 3: Methodology

It is the primary goal of this chapter to convey the research strategy, the research questions and why they were chosen and the research methods used.

#### **Chapter 4: Data Analysis Results and Findings**

This chapter analyzes the data collected from China and the United States using bar graphs. The results are then scrutinized to determine the validity of the hypothesis.

### **Chapter 5: Conclusions**

The results from the responses of professional experts in building management, ownership and maintenance from both countries are then evaluated for compatibility. Recommendations are made.

#### **Chapter 3: Methodology**

#### Introduction

This research is intended to discover business reasons for utilizing renewable energy applications in buildings to assist the HVAC systems and thereby help extend the life of these systems. It is designed to focus on gleaning information from building and environmental experts in the United States and China in order to provide insights to developing practical, financially feasible plans. This research can provide some guides as to the type of questions the decision makers should ask in order to develop fiscally sound business reasons. It is the primary goal of this chapter to convey the research strategy, identification of the experts, the research questions and why they were chosen and the research methods used.

#### Research Strategy

The primary strategy of this research is to treat the stated problems or challenges as a common business opportunity for cooperation between the United States and China. With this approach in mind responses of professional experts from both countries in the building ownership, maintenance and management arena were solicited in the form of a questionnaire.

#### **Research Questions Design**

The research questions were designed to:

 Determine the level of environmental awareness and interest in renewable energy.

It is important that knowledge of the environmental impact of the energy demand of the HVAC system is well understood. This awareness engenders a sense of urgency necessary to craft an effective plan. If there is also interest in renewable energy then the researcher or decision maker can then proceed to develop solutions along these lines.

- Determine the expected capital outlay for a renewable energy system.
   As with most business decisions there are financial consequences. The expected capital layout helps to determine the extent and the type of the renewable energy solution.
- Gather information on peak demand periods.

Some renewable energy solutions perform best during certain times of the day. If these times coincide with the peak demand periods then these solutions should be considered for best efficiency.

Gather information on budgets.

To help develop some financial parameters a percentage of capital, energy or maintenance budgets can be used. These questions might inspire others along these lines for the planners.

 Get estimates of all the operating costs of the HVAC as a percentage of budgets.

These questions frame the challenge of the HVAC system in overall budgetary terms. Knowing these costs allows the planner to develop reasonable budgets for a renewable energy system. If the renewable energy system reduces the cost of operating the HVAC system, then an estimate of a capital outlay recovery period or payback period can be determined.

Get estimates on acceptable expenditure on renewable energy systems
 as a percentage of budgets.

Knowing the operating cost of the HVAC and the expected payback period of the proposed renewable energy system are ingredients in developing sound business reasons. Another is the relative cost of the proposed renewable energy system. The renewable energy system should not be acquired at the detriment of other important capital improvement or maintenance projects.

- Determine the awareness of the importance of using energy efficiently.
   The efficient use of energy should be a main topic when developing business reasons for the application of any renewable energy system.
   Energy savings through efficiency can reduce the necessary capacity and cost of the renewable energy system.
- Ascertain the relative importance of economic, social and environmental significance.

In developing business reasons to undertake a major project such as this, the corporation's or decision maker's philosophy or goals must be taken into consideration. Understanding this philosophy will nurture sound business reasons for the proposal, and present a better chance to be successful when presented to top management.

## **Research Questions**

# Figure 1: Research Questions

2. Has your company or organization done any research in the renewal	ole energy
field?	3, 1, 1, 2,
Yes	
No	
Do not know	
3. What is your company's current understanding of the impact the ope	ration of
buildings have on the environment?	
Operation of buildings has no impact on the environment	
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	
Operation of buildings has great impact on the environment	
Do not know	
4. Would your company consider using a renewable energy source suc	h as
solar, wind, biomass?	
Yes	
No	
Do not know	
5. Would your company consider a clean renewable energy source to I	nelp offset
the energy required by the Heating Ventilation Air Conditioning (HVAC)	system?
Yes	
No	
Do not know	
QUESTIONS Page	2 of 6
6. Would an HVAC system that utilizes a renewable energy technology	which
cuts operating costs give your company a competitive edge?	
Yes	
No	
Do not know	
7. What capital outlay recovery period (payback period) would your con	npany
consider for a renewable energy system as described in question 6?	
Less than three (3) years	

Greater than five (5) years Do not know  8. What kind of assistance from the government would increase the possibility of your company installing an energy efficient renewable energy system? Tax credits Low interest long term loan guarantee Do not know Other (please state):  9. Would your company consider the use of a renewable energy system good customer relations? Do not know Yes No Optional - If yes/no please state why:  10. What are the peak daily demand periods for the HVAC system? 8 a.m. to 12 noon 12 noon to 4 p.m. 4 p.m. to 8 p.m. Other (please state):  QUESTIONS Page 3 of 6  11. What are the peak seasonal demand periods for the HVAC system? Spring Summer Autumn Winter Do not know  12. What is the expected life span of the HVAC system? Less than 5 years 5 to 10 years More than 10 years Do not know  13. What is your company's current annual electricity bill? Less than US\$60,000	Three (3) to five (5) years	
8. What kind of assistance from the government would increase the possibility of your company installing an energy efficient renewable energy system?  Tax credits  Low interest long term loan guarantee  Do not know  Other (please state):  9. Would your company consider the use of a renewable energy system good customer relations?  Do not know  Yes  No  Optional - If yes/no please state why:  10. What are the peak daily demand periods for the HVAC system?  8 a.m. to 12 noon  12 noon to 4 p.m.  4 p.m. to 8 p.m.  Other (please state):  QUESTIONS  Page 3 of 6  11. What are the peak seasonal demand periods for the HVAC system?  Spring  Summer  Autumn  Winter  Do not know  12. What is the expected life span of the HVAC system?  Less than 5 years  5 to 10 years  More than 10 years  Do not know  13. What is your company's current annual electricity bill?  Less than US\$60,000	Greater than five (5) years	
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' '		
US\$60,001 to US\$75,000	US\$60,001 to US\$75,000	

110075 004 (* 110005 000	
U\$\$75,001 to U\$\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	
Do not know	
14. What is your company's current annual maintenance budget?	
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	
15. What is your company's current annual capital expenditure budget for	or new
equipment?	
Less than US\$200,000	
U\$\$200,001 to U\$\$250,000	
U\$\$250,001 to U\$\$300,000	
U\$\$300,001 to U\$\$350,000	
Over US\$350,000	
Do not know	
DO HOU KHOW	
QUESTIONS Page	4 of 6
16. What portion of the electric bill is attributable to the operation of your	
company's the HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
47 Milest and the of the control of the control of the first the f	
17. What portion of the annual maintenance budget is attributable to the	repair of
your company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
18. What portion of the annual capital expenditure budget is attributable	to the
replacement of your company's HVAC system?	
Less than 5%	
5% to 10%	

10% to 15%	
15% to 20%	
Over 20%	
Do not know	
19. What percentage of the annual electricity bill would your company of	onsider
using to implement an energy efficient, renewable energy system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
QUESTIONS Page	5 of 6
20. What percentage of the annual maintenance budget would your cor	
consider using to implement an energy efficient, renewable energy syst	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
21. What percentage of the annual capital expenditure budget would yo	our
company consider using to implement an energy efficient, renewable en	
system?	<b>3</b> 7
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
22. Has your company developed a plan for the efficient use of energy	in the
building(s)?	
Yes	
No	
Do not know	
Do not know	
23. If your company has a plan for the efficient use of energy then:	
How effective has it been?	
Very effective	
Somewhat effective	
Not effective	
Not enective  Not Applicable	
Γίνοι Αρριίσανι <del>ο</del>	

24. If your company has a plan for the efficient use of energy then:	24. If your company has a plan for the efficient use of energy then:		
What were the major problems?:			
25. If your company has a plan for the efficient use of energy then:			
What were the major triumphs?:			
	6 of 6		
26. If your company has a plan for the efficient use of energy, was it wo	rth the		
effort?			
Yes			
No			
Do not know			
Not Applicable			
27. How would your company rank the following in order of importance,	with the		
most important first? A=economic development; B=Social justice;			
C=environmental protection			
A-B-C			
A-C-B			
B-A-C			
B-C-A			
C-A-B			
C-B-A			
Do not know			

**Research Methods** 

Data collection: Identification of the Experts

For this research the building industry experts are defined as that group of people involved in the ownership, management and maintenance of buildings. The selection process involved the targeting of knowledgeable people in specific industry groups, trade shows, business forums and government institutions.

The opinions of fifteen (15) experts from the United States and nine (9) from China were tabulated and analyzed. By soliciting opinions from a wide range of professional experts a broad based holistic solution to the stated problem of resource depletion and environmental pollution can be achieved.

The experts who chose to identify themselves include: facilities managers, directors of facilities, construction managers, building managers, maintenance directors, director of property services, regional director of facilities, general managers, project/budget managers and senior associates.

In the United States, expert opinions were solicited from members of the Building Owners and Managers Association (BOMA) and the International Facility Management Association (IFMA). These organizations were chosen in the quest for reliable information. The membership of these organizations

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consists of knowledgeable professionals in the building ownership, maintenance and management field.

In China, solicitation of expert opinions was accomplished at a building and environmental conference in Suzhou, China. This conference was attended by professionals from Beijing, Jiaxing, Shanghai and Suzhou. Further opinions were solicited from government building officials in Chengdu and again in Beijing. These individuals were targeted because of their knowledge and professionalism.

The solicitation to the targeted groups began in October 2007 and continued until mid-February 2008.

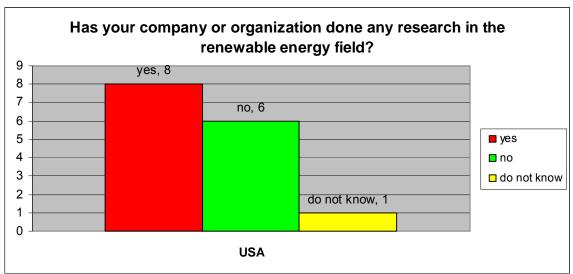
#### **Chapter 4: Data Analysis Results and Findings**

What follows are the answers from the responders from China and a comparison to the answers of the United States responders.

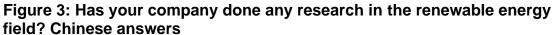
Has your company or organization done any research in the renewable energy field?

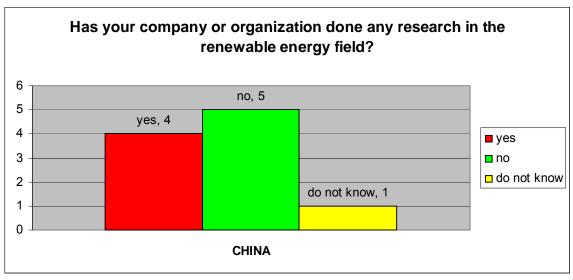
Fifty three percent (53%) of the US professionals indicated that their company or organization had done some research in renewable energy.

Figure 2: Has your company done any research in the renewable energy field? US answers



Similarly forty percent (40%) of the Chinese professionals stated that their organization had done research into renewable energy.



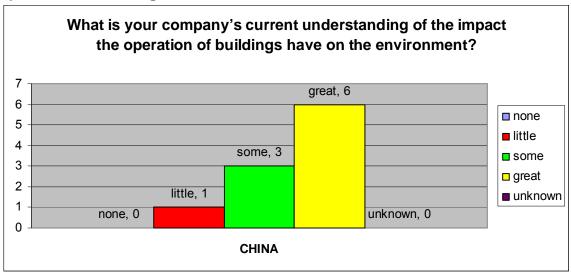


These results indicate that renewable energy is being studied by a majority of the combined professionals in China and the United States. It can also be inferred from these results that knowledge of renewable energy sources is a solid building block in developing a sound business case for its use to upper management.

What is your company's current understanding of the impact the operation of buildings have on the environment?

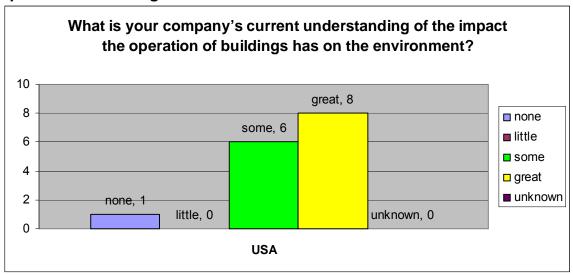
When asked about the impact the operation of buildings had on the environment 90% of the professionals from China answered some or great.

Figure 4: what is your company's current understanding of the impact the operation of buildings have on the environment? Chinese answers



Essentially the same result as the answers from the United States where fourteen out of fifteen or 93% responded some or great.

Figure 5: what is your company's current understanding of the impact the operation of buildings have on the environment? US answers

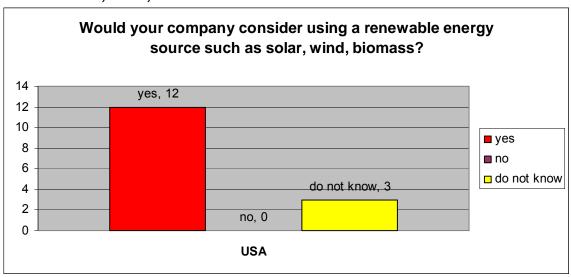


These results indicate that the level of awareness of the impact building have on the environment is equally pronounced in China and the US. This knowledge pinpoints a common potential source of pollution to both countries. In so doing common business reasons can be presented to address the shared challenge of pollution caused by the operation of buildings.

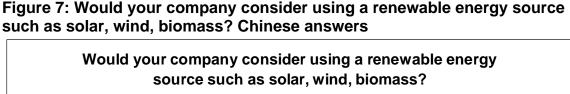
Would your company consider using a renewable energy source such as solar, wind, biomass?

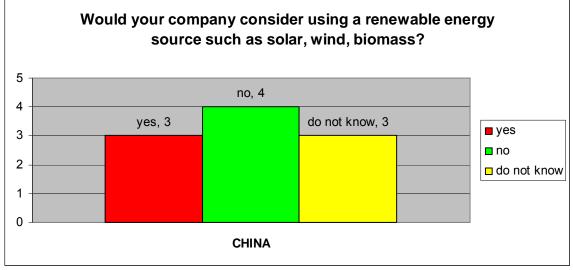
When asked if they would consider a renewable energy source none of the professionals from the United States responded negatively. Eighty percent (80%) of the responders would consider using a renewable energy source. This result seems to indicate that the responders in the United States inherently believe in the use of renewable energy.

Figure 6: Would your company consider using a renewable energy source such as solar, wind, biomass? US answers



When the Chinese professionals were asked whether their company would consider using a renewable energy source thirty percent (30%) said yes; forty percent (40%) said no and the remaining thirty (30%) said they did not know.



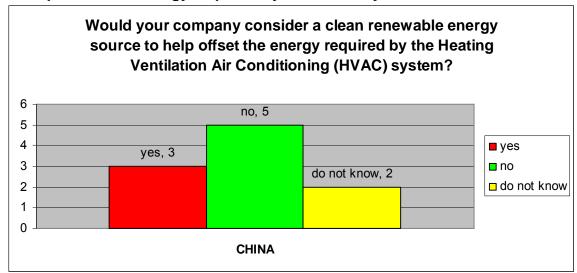


This is in sharp contrast to the responses from the United States where 80% said yes, 0% said no and 20% did not know. These results seem to indicate that the United States building industry professionals have a greater affinity for renewable energy. It should be noted however that a sizeable portion of the Chinese professionals were uncertain and are therefore open to persuasion given the proper facts. This is an interesting avenue for further study.

Would your company consider a clean renewable energy source to help offset the energy required by the Heating Ventilation Air Conditioning (HVAC) system?

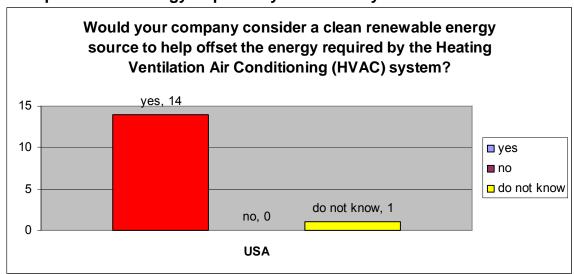
Similar responses were given when the Chinese professionals were asked if they would consider using renewable energy to offset the HVAC system. Fifty percent (50%) said no; thirty percent (30%) said yes and twenty percent (20%) did not know.

Figure 8: Would your company consider a clean renewable energy source to help offset the energy required by the HVAC system? Chinese answers



The US professionals by an overwhelming ninety three percent (93.33%) would consider a clean renewable energy source to offset the energy required to run their HVAC systems.

Figure 9: Would your company consider a clean renewable energy source to help offset the energy required by the HVAC system? US answers



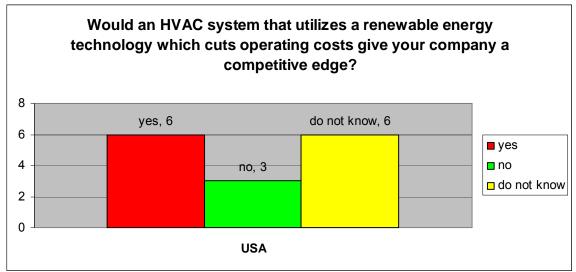
Here again these results show a noticeable difference between the Chinese and US building professionals. These conflicting answers between the US and China

may indicate that there would be different solutions developed by the two in regards to the energy demands of the HVAC system. A deeper understanding of these results is necessary as other mitigating factors such as a degraded environment not suitable for some renewable energy sources may be the underlying cause. This type of question should be asked by the planner in order to gauge the receptiveness of upper management towards a renewable energy solution.

Would an HVAC system that utilizes a renewable energy technology which cuts operating costs give your company a competitive edge?

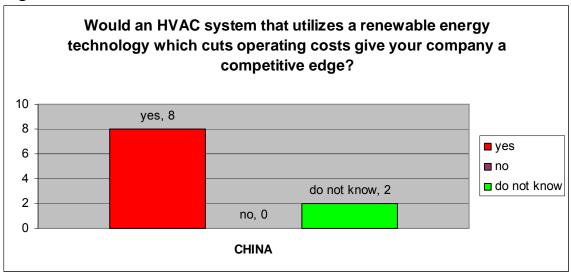
When asked if the use of a renewable energy source would give their corporations a competitive edge twenty percent (20%) of the US professionals answered negatively and forty percent (40%) were not sure. Given the answers to the previous question where 93% would use renewable energy, it seems that for the US building professionals renewable energy would be used even if it did not result in any competitive advantage.

Figure 10: Would an HVAC system that utilizes a renewable energy technology which cuts operating costs give your company a competitive edge? US answers



Given the Chinese professionals' responses to previous questions with regards to the use of renewable energy, their responses when asked if the use of renewable energy would give a competitive edge were surprising. Paradoxically eighty percent (80%) said yes, and twenty percent (20%) did not know. This is a puzzling result as only 30% would consider using renewable energy. This result may indicate a practical approach by the Chinese wherein proofs of the benefits have to be provided before renewable energy applications are considered. This result may also indicate a very competitive Chinese society.

Figure 11: Would an HVAC system that utilizes a renewable energy technology which cuts operating costs give your company a competitive edge? Chinese answers



In both the Chinese and US circumstances the topic of competitive advantage should be addressed in order to develop plausible business reasons.

What capital outlay recovery period (payback period) would your company consider for a renewable energy system as described in the previous question?

One of the major business reasons cited for the lack of utilization of renewable energy sources is the high capital cost of renewable energy technologies compared with conventional energy.<sup>13</sup>

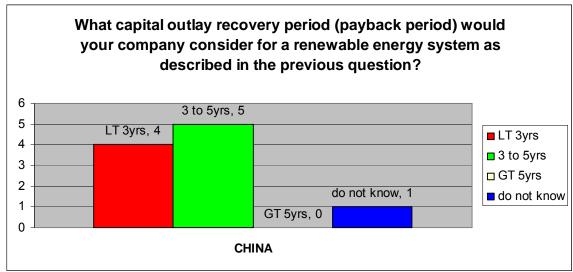
With regards to an acceptable capital recovery period the Chinese responses were somewhat similar to that of the US. Fifty percent (50%) of the Chinese

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<sup>&</sup>lt;sup>13</sup> http://www.nrel.gov/docs/fy07osti/40116.pdf retrieved 3/22/2008

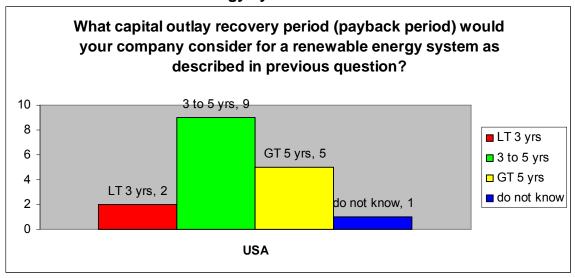
building professionals said three to five years and forty percent (40%) said less than three years.

Figure 12: What capital outlay recovery period would your company consider for a renewable energy system? Chinese answers



The US building professionals when asked about an acceptable capital recovery period eighty two percent (82.35%) answered more than three years. This suggests that these professionals took a long term view with regards to the use of renewable energy.

Figure 13: What capital outlay recovery period would your company consider for a renewable energy system? US answers

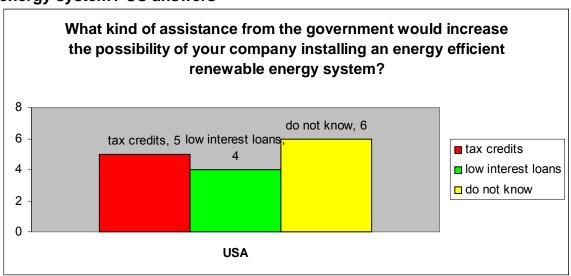


The majority of both US and Chinese professionals opted for the three to five year capital outlay recovery period. These results suggest that capital outlay recovery durations of three to five years should be quoted when developing business reasons for renewable energy applications.

What kind of assistance from the government would increase the possibility of your company installing an energy efficient renewable energy system?

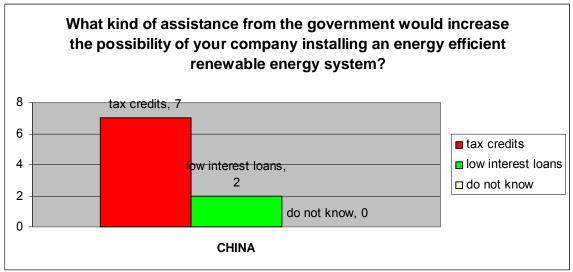
The question of government intervention with low interest guarantee or tax credit was posed in order to help determine if assistance from government was a viable business reason. Thirty three percent (33.33%) of US experts indicated tax credits and twenty seven percent (26.67%) indicated low interest loans were desirable.

Figure 14: What kind of assistance from the government would increase the possibility of your company installing an energy efficient renewable energy system? US answers



When asked what kind of government assistance would be desirable seventy eight percent (77.78%) of the Chinese professionals said tax credits; twenty two percent (22.22%) said low interest loans.

Figure 15: What kind of assistance from the government would increase the possibility of your company installing an energy efficient renewable energy system? Chinese answers

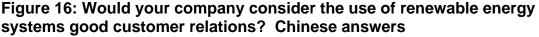


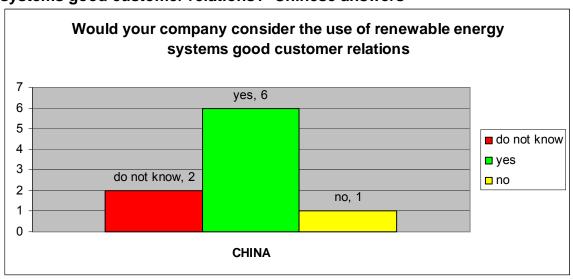
Given the difference in political systems, the difference in interaction with the government agencies and the difference in the extent of government involvement, the difference in the resulting answers were not totally unexpected. It should be noted however, that a majority of both the US and Chinese professionals saw that government intervention was necessary. Therefore business reasons can be developed stating all available government assistance.

Would your company consider the use of renewable energy system good customer relations?

In addition to economic reasons, good customer relations are essential in securing a vibrant, stable organization. Good customer relations often lead to satisfied customers and an improved business future.<sup>14</sup> Therefore projects that enhance good customer relations are well worth the effort.

When asked if the use of renewable energy source would enhance customer relations sixty seven percent (66.67%) of the Chinese professionals said yes; eleven percent (11.11%) said no and twenty two percent (22.22%) did not know.





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<sup>&</sup>lt;sup>14</sup> http://www.b-s-i.org/blog/?p=182 retrieved 3/22/2008

When asked about whether the use of renewable energy would improve customer relations sixty seven percent (66.67%) of the US professionals said yes, seven percent (6.67%) said no and twenty seven percent (26.67%) did not know.

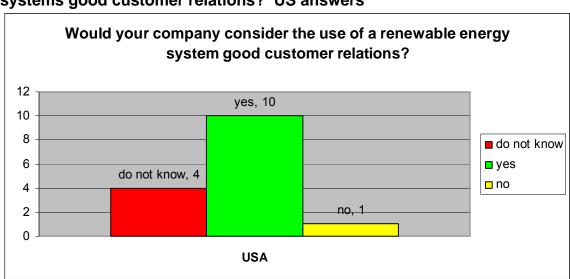


Figure 17: Would your company consider the use of renewable energy systems good customer relations? US answers

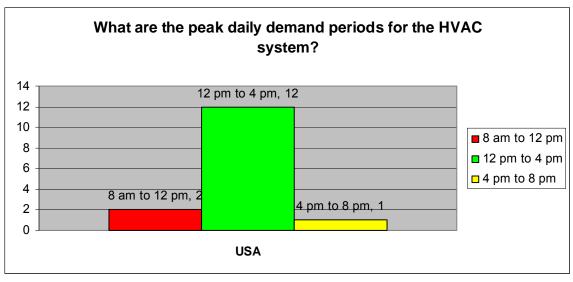
Good customer relations as a result of utilizing renewable energy seem to be a strongly held belief for both the Chinese and United States building professionals. The results from the two countries were almost identical. The possibility of improved customer relations could therefore be included as a good business reason for utilizing renewable energy.

The Chinese responses to this question also bring into question their responses to previous questions as to whether they would consider using renewable energy. This quandary needs further in depth study.

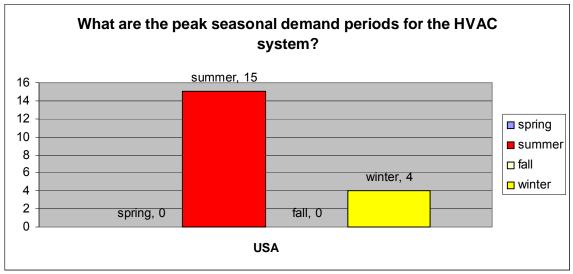
The daily and seasonal peak demand periods for HVAC usage can be targeted for energy efficiency planning and better application of renewable energy resources. These answers are important in determining size and type of renewable energy application targeted to the HVAC system.

In the United States the daily peaks are 12 to 4 p.m. and seasonal peaks are during the summer.

Figure 18: What are the peak daily demand periods for the HVAC system? US answers

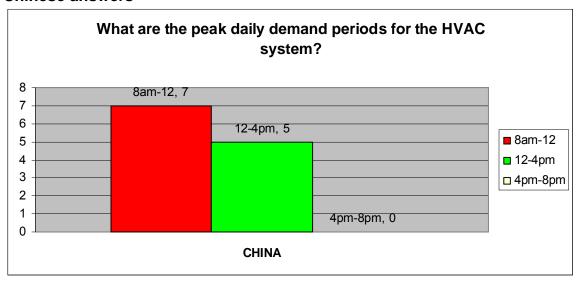


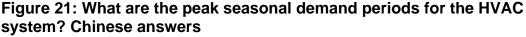


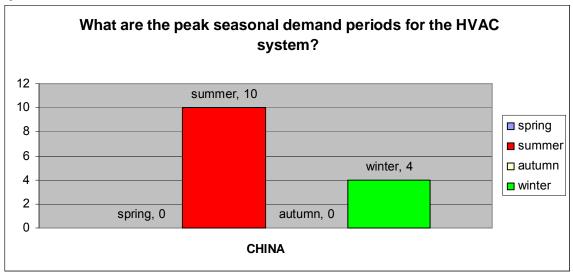


In China the daily peaks are 8 a.m. to 12 p.m. and seasonal peaks are during the summer.

Figure 20: What are the peak daily demand periods for the HVAC system? Chinese answers







These results help to plan the efficient application of auxiliary renewable energy resources. For energy supplied through the electrical grid, the renewable energy resource can be employed during the peak demand periods to help reduce the overall load on the power grid. Some of the secondary benefits include a reduction in peak demand charges and a reduction of the necessity to build more power plants to meet the peak demand periods. These are possibly some business reasons.

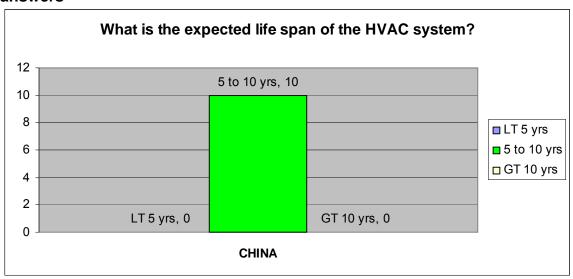
## What is the expected life span of the HVAC system?

The life expectancy of the HVAC system has a cost associated with it and is a determining factor in its planned maintenance or replacement. These costs can be used to formulate a credible financially sound proposal for the upper management of any organization. Knowing the expected life expectancy of

HVAC system and the current age of the current HVAC system, will help to derive business reasons to utilize renewable energy.

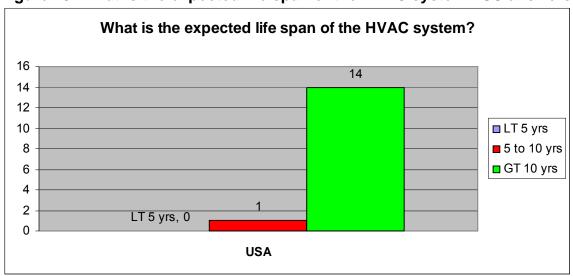
The Chinese responses were 100% in the 5 to 10 year time frame.

Figure 22: What is the expected life span of the HVAC system? Chinese answers



In the United States the responders stated overwhelmingly that the serviceable life of the HVAC system is over 10 years.

Figure 23: What is the expected life span of the HVAC system? US answers

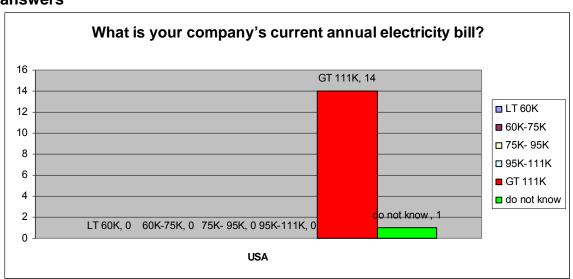


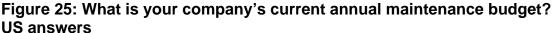
What is your company's current annual electricity bill and maintenance expenses?

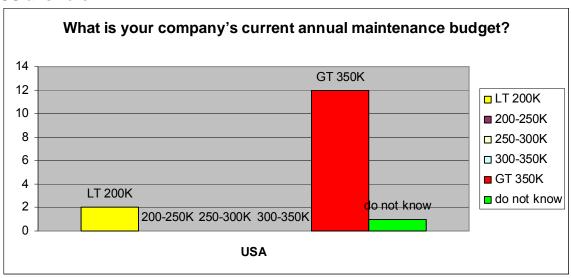
Knowing the annual energy cost is a crucial factor in crafting fiscally sound business reasons to acquire renewable energy. The annual building maintenance costs especially if the HVAC equipment can be identified puts into perspective potential capital expenditure savings that can be realized by the reduction of wear on the equipment.

The responses from the US building professionals for electric and maintenance bills are larger than expected. In this sense the numbers are instructive and can be used to garner approximate comparison figures.

Figure 24: What is your company's current annual electricity bill? US answers

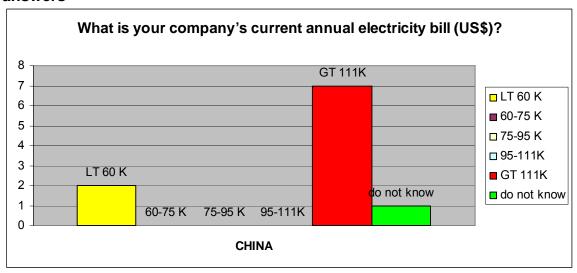






The Chinese building professionals also reported larger than expected annual energy bill but a lower than expected annual maintenance bills.

Figure 26: What is your company's current annual electricity bill? Chinese answers



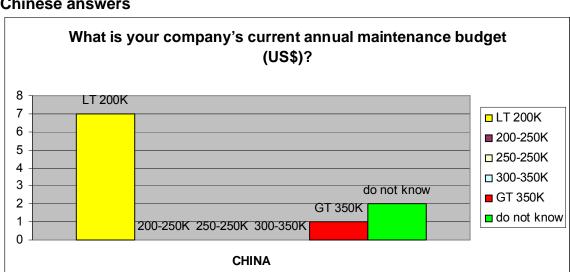


Figure 27: What is your company's current annual maintenance budget? Chinese answers

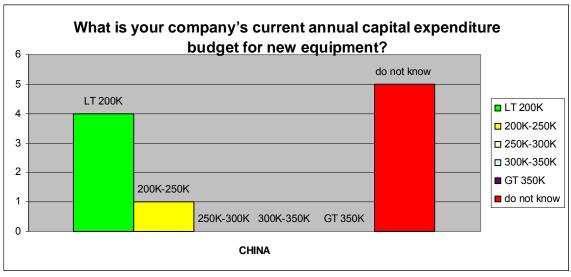
The annual energy bills results seem to indicate that huge increases have recently occurred in energy costs. These results in turn might present a business reason to utilize renewable energy.

What is your company's current annual capital expenditure budget for new equipment?

The purpose of this question is to determine the relative costs of new HVAC systems and thereby develop business reasons for funding levels with respect to renewable energy systems that assist the HVAC systems. The question as to the annual cost of new equipment is designed to determine the spending range of the responders. This spending range helps determine overall budget and gives the responders good reasons to seek alternatives to replacing the HVAC system.

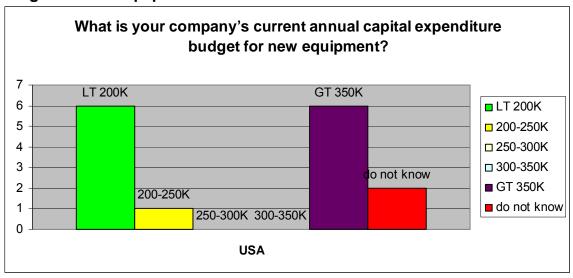
Fifty percent (50%) of the Chinese professionals did not know what their budgets were while forty percent (40%) said their budgets were less than US\$200,000.

Figure 28: What is your company's current annual capital expenditure budget for new equipment? Chinese answers



Forty percent (40%) of the US professionals reported an annual capital expenditure of less than \$200,000 and forty percent (40%) had annual expenditures greater than \$350,000.

Figure 29: What is your company's current annual capital expenditure budget for new equipment? US answers

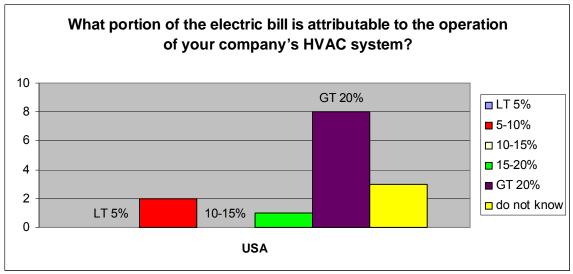


What portion of the electric bill is attributable to the operation of your company's the HVAC system?

The intent of this question is to determine the possible savings on the electric bills a renewable energy system would provide in assisting the HVAC system.

When asked about the effect of the HVAC had on the energy bills, fifty seven percent (57.14%) of the US professionals said more than 20% of the bill was attributable to the operation of the HVAC.

Figure 30: What portion of the electric bill is attributable to the operation of your company's HVAC system? US answers



When asked what percentage of the energy bill was attributable to the running of the HVAC system, the Chinese responses were evenly distributed. Thirty percent (30%) said the HVAC was responsible for more than 20% of the energy bills; 10% said less than 5%; 10% said 5 to 10%; 20% said 10 to 15%; 10% said

15 to 20% and 20% did not know. Again this question was intended to assist in setting financial parameters in order to develop fiscally sound business reasons for the utilization of a renewable energy system.

What portion of the electric bill is attributable to the operation of your company's HVAC system?

3.5
3
2.5
2
1.5
1
15-20%
GT 20%
GT 20%
GT 20%
GT 20%
GT 20%

Figure 31: What portion of the electric bill is attributable to the operation of your company's HVAC system? China answers

What portion of the annual maintenance budget is attributable to the repair of your company's HVAC system?

**CHINA** 

0.5

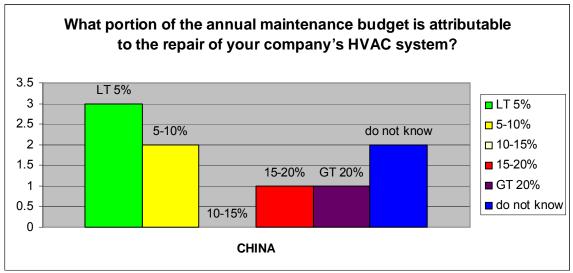
The intent of this question is to determine the possible savings on the annual maintenance repair bills a renewable energy system would provide in assisting the HVAC system.

The Chinese responses to the question on the effects the HVAC system has on the annual maintenance budget had a similarly evenly distributed result. Thirty three percent (33.33%) said less than 5%; twenty two percent (22.22%) said between 5 and 10%; eleven percent (11.11%) said between 15 and 20%; eleven

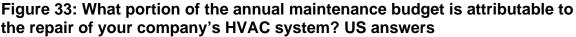
□ do not know

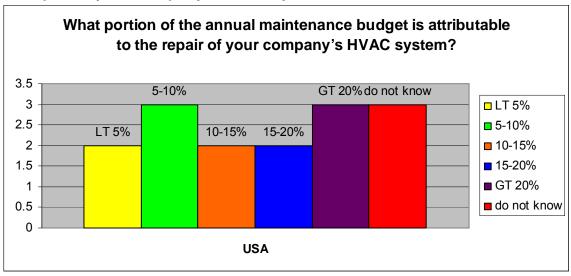
percent (11.11%) said greater than 20% and twenty two percent (22.22%) did not know. This type of question is designed to further help in defining financial parameters with regards to the HVAC systems being assisted be renewable energy sources.

Figure 32: What portion of the annual maintenance budget is attributable to the repair of your company's HVAC system? Chinese answers



When asked the question of the relative repair cost with regards to the annual maintenance budget the US responses were similarly evenly distributed.



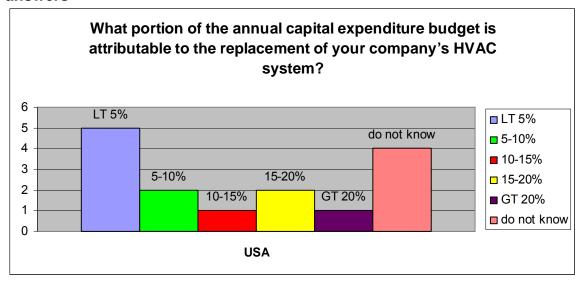


What portion of the annual capital expenditure budget is attributable to the replacement of your company's HVAC system?

The question as to the portion of the annual capital expenditure used for the HVAC system is a crucial one. If the assistance provided to the HVAC by the use of renewable energy can postpone the replacement of the HVAC then additional business reasons can be derived.

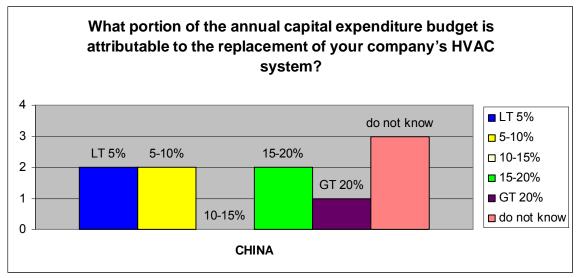
Thirty three percent (33.33%) state that HVAC replacement cost less than 5% annually. The inference that may be taken here is that if the renewable energy system cost more that 5% of the annual capital expenditure budget then 33% of the responders might consider replacing the HVAC rather than applying renewable energy technologies.

Figure 34: What portion of the annual capital expenditure budget is attributable to the replacement of your company's HVAC system? US answers



The Chinese responses as to the effect the replacement of the HVAC system on the annual capital expenditure budget were evenly distributed. Two of ten or 20% said less than 5%; 20% said 5 to 10%; 20% said 15-20%; 10% said greater than 20% and 30% did not know.

Figure 35: What portion of the annual capital expenditure budget is attributable to the replacement of your company's HVAC system? Chinese answers

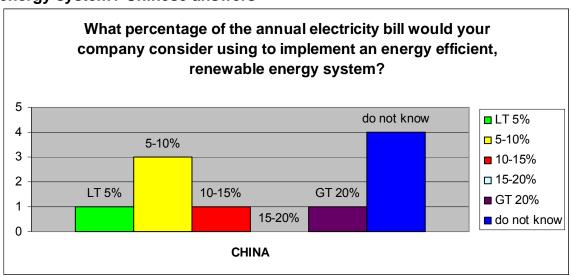


What percentage of the annual electricity bill would your company consider using to implement an energy efficient, renewable energy system?

Now that some parameters have been defined with respect to the costs of the HVAC system the cost of a renewable energy system that assists the HVAC system can be quantified. Various cost based business reasons can now be derived. The following questions attempts to present guidelines for decision makers using the responses of some of their peers. Many renewable applications use no billable energy if generated and used locally, wind and solar being two such forms. The acceptable portion of the annual energy bill will help define a budget for the renewable energy application.

When the Chinese professionals asked what percentage of their energy bills they would allocate for a renewable energy system ten percent (10%) said less than 5%; thirty percent (30%) said 5 to 10%; ten percent (10%) said 10-15%; ten percent (10%) said greater than 20% and forty percent (40%) did not know.

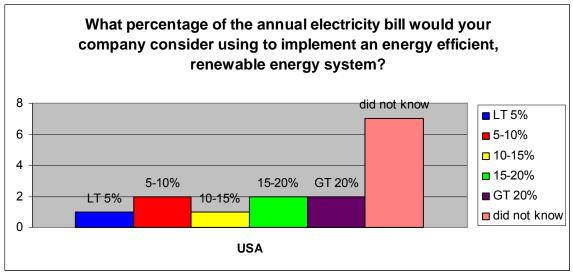
Figure 36: What percentage of the annual electricity bill would your company consider using to implement an energy efficient renewable energy system? Chinese answers



When asked how much of the annual energy bill would you use to implement a renewable energy system, Forty seven percent (46.67%) did not know.

Answering this question further present needed financial parameters necessary in developing acceptable business reasons to upper management. Fifty three percent (53%) of the US experts had some idea as to the expected costs.

Figure 37: What percentage of the annual electricity bill would your company consider using to implement an energy efficient renewable energy system? US answers

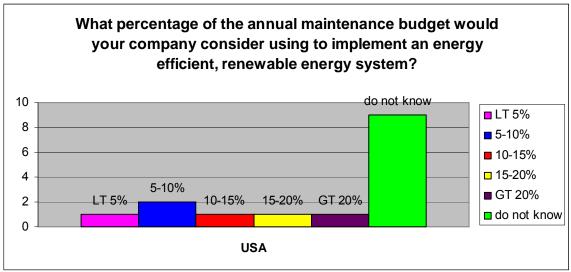


What percentage of the annual maintenance budget would your company consider using to implement an energy efficient, renewable energy system?

This again is another important question to answer as it helps in determining approximate dollar values for a budget. This question also helps to determine whether replacement or continued maintenance with assistance from an auxiliary renewable energy system is the correct financial solution.

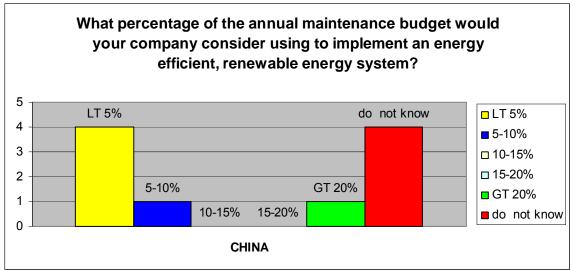
The same proportional question was asked in regards to the maintenance budget. Forty percent of the US professionals had some knowledge of the relative cost of the renewable energy system.

Figure 38: What percentage of the annual maintenance budget would your company consider using to implement an energy efficient, renewable energy system? US answers



When asked the same question with respect to the percentage of the maintenance budget that would be used for a renewable energy system sixty percent (60%) of the Chinese professionals had a definitive answer.

Figure 39: What percentage of the annual maintenance budget would your company consider using to implement an energy efficient, renewable energy system? Chinese answers

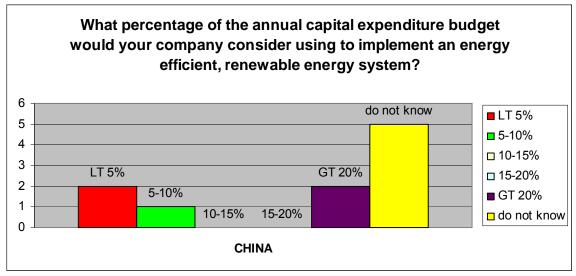


What percentage of the annual capital expenditure budget would your company consider using to implement an energy efficient, renewable energy system?

This question has probably the most direct effect on the acquisition of an HVAC auxiliary renewable energy system. While this study proposes a holistic approach in finding a solution the reality of the capital expenditure budget is a significant one.

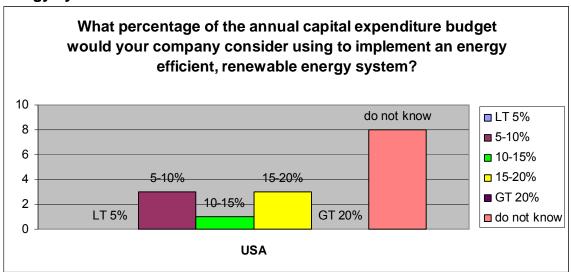
When asked what percentage of the capital expenditure budget would be utilized fifty percent (50%) of the Chinese professionals had a definite answer.

Figure 40: What percentage of the annual capital expenditure budget would your company consider using to implement an energy efficient, renewable energy system? Chinese answers



Similarly when asked about the portion of the capital budget they would consider using in acquiring a renewable energy system, forty three (42.86%) percent of the US professionals had a definite answer.

Figure 41: What percentage of the annual capital expenditure budget would your company consider using to implement an energy efficient, renewable energy system? US answers



The previous six questions attempt to put fiscal parameters on acquiring a renewable energy system to assist the HVAC. In addition they attempt to indicate business reasons for the acquisitions.

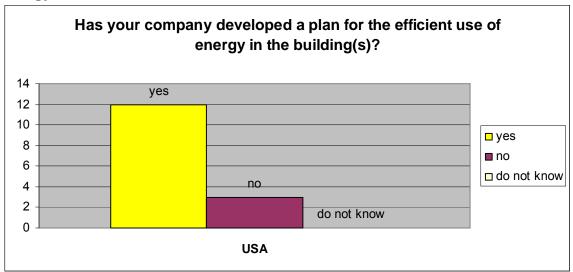
The next five questions relate to the implementing of an energy efficiency plan.

These questions are intended to encourage the professionals to consider this type of planning and make it a part of their holistic approach in their business solutions. A plan and execution of the efficient use of energy helps to properly size a renewable energy system which in turn allows budget planners to correctly assess the true cost of the system. This helps to define fiscally sound business reasons for implementing such renewable energy systems to upper management.

Has your company developed a plan for the efficient use of energy in the building(s)?

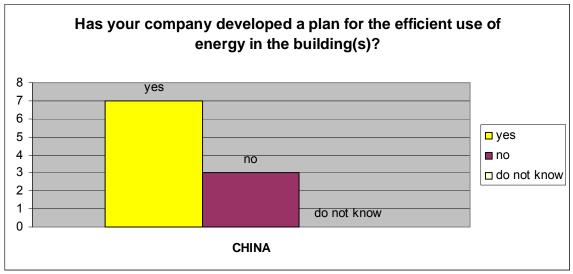
When asked if they had developed an energy efficiency plan eighty percent (80%) of the US professionals said they had. This indicates that the level of awareness of the responders in the United States as far as the efficient use of energy is high.





Seventy percent (70%) of the Chinese professionals said they had developed energy efficiency plans. This matches the 80% of US responders who have developed such plans. An energy efficiency building plan is necessary in developing efficient and fiscally sound business plans for the installation of renewable energy applications.



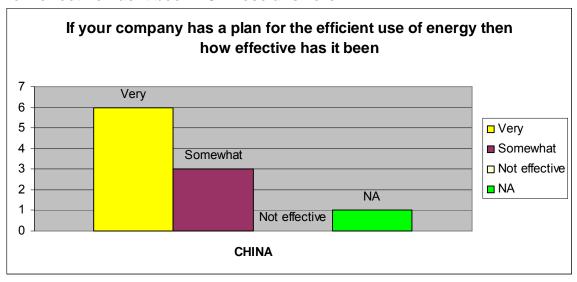


If your company has a plan for the efficient use of energy then how effective has it been?

This question is intended assist researchers in determining the effectiveness of actual renewable energy plans. This planning of course affects the financial aspect of the business reasons for utilizing a renewable energy system in order to help extend the life of the HVAC system.

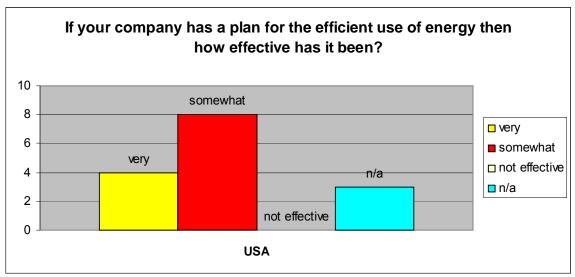
To help justify the resources needed to develop such efficiency plans the question of effectiveness was posed. Ninety percent (90%) of the Chinese professionals said the plan was very effective or somewhat effective.

Figure 44: If your company has a plan for the efficient use of energy then how effective has it been? Chinese answers



This compares with eighty percent (80%) of the US professionals who said the efficiency plans were very effective or somewhat effective.

Figure 45: If your company has a plan for the efficient use of energy then how effective has it been? US answers

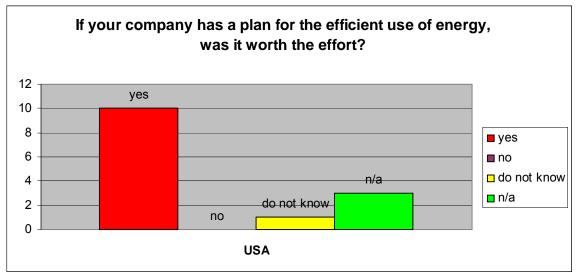


It is important to note that none of the professionals from China or the US who had energy efficiency plans, stated that it was not effective. This result should be encouraging to others contemplating energy efficiency planning.

With a holistic approach in mind, the effectiveness of the energy efficiency plan has to be tempered with the overall satisfaction delivered.

When asked if the energy efficiency planning was worth the effort ninety one percent (90.91%) of the US professionals said yes.

Figure 46: If your company has a plan for the efficient use of energy, was it worth the effort? US answers



Somewhat perplexing are the answers given by the Chinese responders to the question whether the effort in developing the efficiency plan was worth the effort. Even though ninety percent (90%) said the effort was very effective or somewhat effective, fifty percent (50%) said it was not worth the effort. This sharply contrasts with the US results. Here is another Chinese result that needs further study.

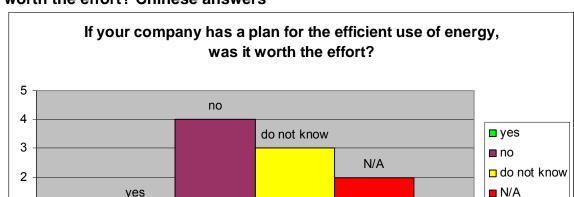


Figure 47: If your company has a plan for the efficient use of energy, was it worth the effort? Chinese answers

The following two questions are open-ended narrative questions for the edification of researchers. These answers present shared experiences that may be helpful to those interested in the creation of energy efficiency plans.

**CHINA** 

## If your company has a plan for the efficient use of energy then, what were the major problems? (USA responses)

Funding - Budget

yes

1

0

- We need a plan. Since we have 1895 buildings, it's not an easy proposition. Is there any advice you can offer to us?
- Older, less efficient T-12 fluorescent lamps and ballasts using more electricity than new lamps available for purchase
- What were the major problems?: Most HVAC control systems are driven by computer technology and are therefore subject to the problems associated with software controls. It is in this area that we experience the most problems. Our mechanical problems are statistically "normal" regarding repairs and maintenance.
- communicating to the employee population ways to Save by turning off lights, computers, etc.
- Competition for available capital
- Bringing "moth balled" systems back into use with new support or peripheral systems
- Savings not as high as expected

- The landlord does not want to upgrade the lighting systems.
- Demand of the people who use the space
- Continuing efforts to implement, track benefits, make an impact without significant costs

# If your company has a plan for the efficient use of energy then what were the major problems? ( Chinese Responses )

#### Chinese

English

- 执行力不够
- 新建筑设计中采用环保节能设计,节 省能源消耗
- 作为建筑施工企业,施工现场用电用水浪费现场严重。同时,办公室经常出现长明灯现象,人走后电脑、灯等用电设备不关。

- Lack of execution
- You can save energy, if you introduce the environment protection and save energy module in new architecture design.
- As a construction company, too much power and water were wasted in the construction site. In the meantime, the light and the computer were not turned off at the end of the work day.

# If your company has a plan for the efficient use of energy then what were the major triumphs? (Chinese Responses)

### Chinese

- 节省开支
- 从源头来降低能源消耗
- 临建房采用泡沫板,能重复使用,降低成品;同时在隔热方面起到了很好的作用

## English

- Save expenses
- Reduce the energy consumption from the source.
- Use the foam board in the temporary buildings, it can be reused and reduce cost. as well as a good performance in heat insulation

## If your company has a plan for the efficient use of energy then, what were the major triumphs? ( USA Responses )

- Has support at the top
- Replacement of the T-12 lamps and ballasts with T-8 lamps and ballasts
- There have been no major triumphs, so to speak. We have seen that computer assisted controls, despite their vagaries; lend to much more efficient operation of the HVAC systems.
- Changing when our chillers were running and changing Out light fixtures and ballasts.

- Ability to better forecast and control utility costs
- reduced costs
- Gaining efficiencies through new equipment and controls with VFD's on all major motors. New operational sequences also gained efficiencies for us
- Energy efficient mech systems
- 9-11% reduction in energy use

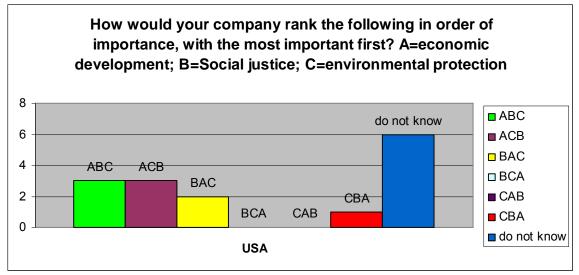
How would your company rank the following in order of importance, with the most important first? A=economic development; B=Social justice; C=environmental protection

The last question asked the experts to prioritize their organization's goals in terms of economic development, social justice or environmental protection.

These answers will assist the responders in developing their individual company's business reasons to employ clean renewable energy. Economic development, social justice and environmental protection, are all enhanced by the utilization of clean renewable energy.

Sixty percent (60%) of the US professionals were able to prioritize their organization's goals. Of those that were able to prioritize their goals sixty-seven percent (66.67%) listed economic development first. This seems to indicate that environmental protection is not a key issue when developing business reasons for the utilization of renewable energy. A key issue seems to be economic development.

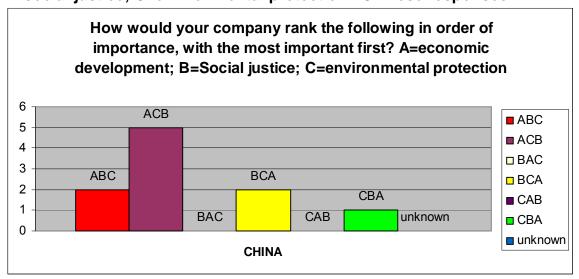
Figure 48: How would your company rank the following in order of importance, with the most important first? A=economic development; B=social justice; C=environmental protection - US responses



When asked economic development, social justice and environmental protection

70% of the Chinese experts put economic development first.

Figure 49: How would your company rank the following in order of importance, with the most important first? A=economic development; B=social justice; C=environmental protection - Chinese responses



### **Conclusions from the Data Analysis**

The research questions were designed to engender an integrated holistic approach to solving the identified problems. The assumption that there are many common business reasons for using renewable energy in China and the US was proved by the results from the data.

There were general agreement between China and the US in the following areas:

- 53% of the US experts and 40% of the Chinese experts had done research in renewable energy.
- 90% of the experts from China and 93% of the experts from the US stated the operations of buildings have some or great impact on the environment.
- Of the experts who had an answer 67% of the US experts and 100% of the Chinese experts agreed that a competitive edge can be gained by use of renewable energy.
- 67% of both the Chinese and US experts stated that the use of renewable energy was good for customer relations.
- 50% of the Chinese experts and 83% of the US experts agreed on a 3 to
   5 year capital outlay recovery period.
- 60% of the US experts and 100% of the Chinese experts agreed that government assistance through tax credits or low interest loan guarantees were helpful.
- The experts from both countries defined their peak demand periods as being during the daytime in summer.

- The experts from both countries relatively high impact the operation of the HVAC system has on the energy bills.
- 70% of the Chinese experts and 80% of the US experts had developed energy efficiency plans for their buildings.
- 70% of the Chinese experts and 67% of the US experts listed economic development as first priority over social justice and environmental protection.

With respect to the social priorities the responses by both countries were revealing. More than two thirds of the experts from both the US and China ranked economic development the highest. The above listed results tend to reinforce the hypothesis that both countries have much in common when applied to practical business reasons. This makes a sound fiscal approach to developing reasons for utilizing renewable energy an imperative for success.

#### **Validity Threats**

### Sampling of Expert Responses

A sampling of expert responses can only approximate the total population. The experts were selected based on non-probabilistic sampling and as such can not depend on the rationale of probability theory. However taken in total the sampling represent a broad range of thoughtful responses from experts as to the background business reasons for the utilization of renewable energy to assist with HVAC systems.

## Veracity of the Responses

How do we determine if the responses are truthful? In the United States the promise of confidentiality normally solicits honest answers. In China anonymity and the government's new focus on renewable energy<sup>15</sup> should elicit more honest answers. Chinese culture however, still dictates that responses to foreigners be polite and non-threatening. To overcome this cultural difference, Chinese persons were used to solicit the opinions from experts. Any other solutions for the cultural differences are not within the scope of this research.

## English Questions Correctly Translated into Chinese

There is a long standing truism that translations lose some of the essence captured within the original words. To help mitigate this threat to the survey's validity the translated questions were checked by four different independent translators.

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 $<sup>^{15}\</sup> http://english.peopledaily.com.cn/90001/90780/91345/6274841.html\ retrieved\ 11/3/2007$ 

## **Chapter 5: Conclusion**

This research of expert opinions was created to help find practical approaches to an environmental and economic problem. The literature and study shows that private industry will provide solutions to the global pollution and resource depletion if presented with economically sound business reasons.

The primary goal of this research was to determine the business reasons for utilizing renewable energy applications in heating ventilating and air conditioning systems. The secondary goal was to compare the responses between the United States and China.

The stated hypothesis has been supported by the research data. The US and China share many common business reasons to develop renewable energy solutions for their HVAC systems. The knowledge gleaned from these studies will add to the wealth of knowledge relating to business reasons to utilize a renewable energy system.

#### Recommendations

### A Suggested Renewable Energy HVAC System

It was never the intent of this research to develop a specific solution. There are however common reasons that come from the answers to the research questions. Here are some suggestions:

- A plan detailing the efficient use of energy should be designed.
- A plan to implement the energy efficiency plan satisfactorily

- Select renewable energy systems that can be integrated into the buildings
  that allow the selected systems to deliver temporary heating, ventilation or
  air conditioning during the daytime in summer.
- The selected systems should have at least a three to five year capital outlay recovery period.
- The recovery period can be determined by calculating the accumulated savings in lower maintenance costs and electric bills.

It should be remembered that renewable energy solutions are quite often limited by local conditions. An example of this would be locations that have so much air pollution that sunlight is dimmed. This area would not be the ideal location for solar panels as a renewable energy source.

## Future Research

Some responses by the Chinese professionals were puzzling. One hand the many would not consider the use of renewable energy. However they felt that the use of renewable energy would give them a competitive advantage and would improve customer relations. Also when asked about energy efficiency planning they responded that they had done this and that it was effective. They did not indicate however that the effort was worth it. These anomalies need clarification with future research.

#### **Appendixes**

#### **TIMETABLE**

- 1. Submit proposal to Professor Thomas for review Sept. 10, 2007
- 2. Review literature Sept 12 to 19, 2007
- 3. Review questions Sept 20, 2007
- Locate companies Chinese and American to send research question to or to interview. Target facilities managers and property managers. Sept 27, 2007
- 5. Submit format of questionnaire to Dr. Thomas Sept. 29, 2007
- 6. Send out research questions October 8, 2007
- 7. Submit new degree petition for Spring 2008, October 10, 2007
- 8. Follow up on research questions October 18 to 25, 2007
- 9. Submit thesis outline to Prof. Thomas Nov. 7, 2007
- 10. Begin writing thesis Nov. 14, 2007
- 11. Begin collecting data from China Dec. 3, 2007
- 12. Continue to refine theory and goals and possibly follow up questions Dec 3 to 26, 2007
- 13. Travel to China Dec. 26, 2007
- 14. Complete draft including bibliography end of mid February 2008
- 15. Submit draft to Dr. Thomas for review end of February 2008
- 16. Return to Atlanta mid-March 2008
- 17. Initial format check March 20, 2008
- 18. Submit Thesis and required forms April 2, 2008

## **RESOURCES**

- Business associates in the People's Republic of China and the United States
- Facilities managers/ property managers in both the United States and the People's Republic of China
- 3. Fundamentals of Statistical Analysis by David Cope
- 4. Statistical Analysis with Excel by Joseph Schmuller
- 5. Basic Statistical Analysis by Richard c. Sprinthall
- 6. The Craft of Research (2003) by Booth, Colomb & Wlliams
- 7. Qualitative Research Design an Interactive Approach by Joseph A. Maxwell
- 8. Research Methods for Business Students by Saunders, Lewis & Thornhill
- Green cities, growing cities, just cities?: Urban planning and the contradictions of sustainable development <u>Campbell, Scott</u>. <u>American Planning Association</u>. <u>Journal of the American Planning Association</u>. Chicago: <u>Summer 1996</u>. Vol. 62, Iss. 3; pg. 296, 17 pgs
- Literature from the various internet bases sources including libraries, databases, electronic books, professional journals, news releases, US and Chinese government research data

# RESEARCH QUESTIONS IN ENGLISH

QUESTIONS Page	1 of 6	
Name (optional):		
Title (optional):		
Organization/Company (optional):		
Date:		
1. In what country does your company own the building you are using to	answer	
the questions?		
China		
Jamaica, West Indies		
USA		
Other		
2. Has your company or organization done any research in the renewal field?	ole energy	
Yes		
No		
Do not know		
DO HOUMON		
3. What is your company's current understanding of the impact the operation of buildings have on the environment?		
Operation of buildings has no impact on the environment		
Operation of buildings has little impact on the environment		
Operation of buildings has some impact on the environment		
Operation of buildings has great impact on the environment		
Do not know		
DO HOUMON		
4. Would your company consider using a renewable energy source such as solar, wind, biomass?		
Yes		
No		
Do not know		
5. Would your company consider a clean renewable energy source to I	nelp offset	
the energy required by the Heating Ventilation Air Conditioning (HVAC)		
Yes	•	
No		
Do not know		
	1	

QUESTIONS Page 2 of 6

6. Would an HVAC system that utilizes a renewable energy technology	which
cuts operating costs give your company a competitive edge?	
Yes	
No	
Do not know	
7. What capital outlay recovery period (payback period) would your con	npany
consider for a renewable energy system as described in question 6?	
Less than three (3) years	
Three (3) to five (5) years	
Greater than five (5) years	
Do not know	
8. What kind of assistance from the government would increase the pos	ssibility of
your company installing an energy efficient renewable energy system?	-
Tax credits	
Low interest long term loan guarantee	
Do not know	
Other (please state):	
9. Would your company consider the use of a renewable energy system	n good
customer relations?	
Do not know	
Yes	
No	
Optional - If yes/no please state why:	
10. What are the peak daily demand periods for the HVAC system?	
8 a.m. to 12 noon	
12 noon to 4 p.m.	
4 p.m. to 8 p.m.	
Other (please state):	

11. What are the peak seasonal demand periods for the HVAC system?	
· · · · · · · · · · · · · · · · · · ·	
Spring	
Summer	
Autumn	
Winter	
Do not know	
12 What is the expected life open of the LIVAC system?	
12. What is the expected life span of the HVAC system?	
Less than 5 years	
5 to 10 years	
More than 10 years	
Do not know	
13. What is your company's current annual electricity bill?	
Less than US\$60,000	
US\$60,001 to US\$75,000	
US\$75,001 to US\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	
Do not know	
DO NOT MIOW	
14. What is your company's current annual maintenance budget?	
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	
15. What is your company's current annual capital expenditure budget for r	new
equipment?	
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	

QUESTIONS Page	4 of 6
16. What portion of the electric bill is attributable to the operation of you	r
company's the HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
17. What portion of the annual maintenance budget is attributable to the	repair of
your company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
18. What portion of the annual capital expenditure budget is attributable	to the
replacement of your company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
19. What percentage of the annual electricity bill would your company c	onsider
using to implement an energy efficient, renewable energy system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	

QUESTIONS Page 5 of 6		
20. What percentage of the annual maintenance budget would your company		
consider using to implement an energy efficient, renewable energy system?		
Less than 5%		
5% to 10%		
10% to 15%		
15% to 20%		
Over 20%		
Do not know		
21. What percentage of the annual capital expenditure budget would yo	our	
company consider using to implement an energy efficient, renewable el		
system?	O,	
Less than 5%		
5% to 10%		
10% to 15%		
15% to 20%		
Over 20%		
Do not know		
22. Has your company developed a plan for the efficient use of energy	in the	
building(s)?		
Yes		
No		
Do not know		
23. If your company has a plan for the efficient use of energy then:	<u> </u>	
How effective has it been?		
Very effective		
Somewhat effective		
Not effective		
Not Applicable		
F.F. T.		
24. If your company has a plan for the efficient use of energy then:	L	
What were the major problems?:		
, , , , , , , , , , , , , , , , , , ,		
25. If your company has a plan for the efficient use of energy then:		
What were the major triumphs?:		
and the stranger and the strangers and the strangers and the strangers are strangers are strangers and the strangers are strangers are strangers are strangers and the strangers are strangers and the strangers are strangers and the strangers are strangers are strangers and the strangers are strangers are strangers and the strangers are strangers are strangers are strangers are strangers are strangers and the strangers are strangers are strangers are strangers are strangers and the strangers are strangers are strangers		

QUESTIONS Page 6 of 6	
26. If your company has a plan for the efficient use of energy, was it worth the effort?	
Yes	
No	
Do not know	
Not Applicable	
27. How would your company rank the following in order of importance, with the most important first? A=economic development; B=Social justice; C=environmental protection	
A-B-C	
A-C-B	
B-A-C	
B-C-A	
C-A-B	
C-B-A	
Do not know	

## RESEARCH QUESTIONS IN CHINESE

#### 推广清洁可再生能源利用的商业动机调研

#### 鄭的女士/先生:

防着全球能原的日益紧缺,清洁可再生能原的商业竞争力也逐频增强。本次调研旨在考察使用清洁可再生能原来延长空调彩统寿命的可行性,并为行业生管部门在投资预算方面提供关税依据。本次问卷调查由美国内特兰大佐台区理工学竞争的学研究生Glendon Thompson先生统等规则与制作。如果给我是埋烧系方式我们将很乐意在调形结束后与悠分享调研成果

请完成必然卷,您定会从中受益 贵公司的信息我们会妥善和笔

#### 谢谢您的支持

Glendon Thompson 美国塔台顶里工学院整筑学院 电话 1-404-444-1372 传真: 1-770-971-6778

Email: gthompson3@gatech.edu 或者gthompson@arcomgroup.net

邮寄地: 4205 Parnell Road, Marietta, Georgia 30062, USA

姓名(非沙典项): 即位(非沙典项): 即位(非沙典项): 日期  1. 您目前IT作所由的国家是: 中国 牙对加  美国 其也  2. 你目前所由公司工作时的有册分关于可用生能原用的研究吗? 有 没有 不 示  表  不  表  不  表  表  表  表  表  表  表  表  表	调查问卷 第一页共 <sup>1</sup> 页	
取位(非必填所): 公司が約名(事必換所): 日期  1. 您目前工作所田竹国家是: 中国 牙突加 美国 其也  2. 你目前所田公司工作的构有出了关于中里指原利用的形容。 有 没有 不静整  3. 清可配公司大理教育公司自然性態利益的从理解是: 没有認明 影响限小 有一些影响 影响限大 不一整  4. 贵公司有计划使用某种青节再生能源,例如太阳能,风能,生物质能吗? 是 否 不能  5. 贵公司有计划使用某种青节再生能源和低度空源炎用电量吗?		
取位(非必填所): 公司が約名(事必換所): 日期  1. 您目前工作所田竹国家是: 中国 牙突加 美国 其也  2. 你目前所田公司工作的构有出了关于中里指原利用的形容。 有 没有 不静整  3. 清可配公司大理教育公司自然性態利益的从理解是: 没有認明 影响限小 有一些影响 影响限大 不一整  4. 贵公司有计划使用某种青节再生能源,例如太阳能,风能,生物质能吗? 是 否 不能  5. 贵公司有计划使用某种青节再生能源和低度空源炎用电量吗?		
公司材构名(非必真亦): 日期  1. 您目前工作所在的国家是: 中国		
日期  1. 您目前工作所的国家是: 中国  万汉加  美国  其地  2. 你目前所由公司工作机构有班产于可用生能原用的研究吗? 有  没有 不壽楚  3. 请可比公司对于建筑运动对自然位现现的认识事实是: 没有影响 影响很小 有一些响 影响很大 不一静差  4. 贵公司有计划使用某种青节再生能源,例如太阳能,风能,生物质能吗? 是 否 不清楚  5. 贵公司首书过使用某种青节再生能源来够低其空源炎和中量吗?		
1. 您目前工作所由的国家是: 中国 牙沙加 美国 其也  2. 你目前所由的公司工作的构有进行关于可再生能原用的研究吗? 有 沒有 不壽楚  3. 请申责公司对于建筑运动。自然对意外的认识理解是: 没有影响 影响限小 有一些彩响 影响限小 有一些彩响 影响限小 有一些彩响 影响限大 不壽楚  4. 贵公司有:划使用某种青苔,再生能源,例如太阳能,风能,生物所能吗? 是 否 不,		
中国 牙沙加 美国 其地  2. 你目前所研究可工作机构有进关于可用生能原利的研究吗? 有 孩病 不清楚  3. 请可贵公司对于建筑运动自然体影响的从识野程: 没意识响 影响限小 有一些影响 影响限大 不清楚  4. 贵公司有计划使用某种青节用生能原,例如从印能,风能,生物质能吗? 是 否 不清楚  5. 贵公司管考点使用某种青节再生能原来弹低其空源系统和电量吗?		
東邦 美国 其他  2. 你目前所出公司工作的的有进关于可性能原利用的形型? 有 沒有 不清楚  3. 请可供公司对于建筑运动自然对影响的认识	1. 您目前工作所由生家是:	
其里 其地  2. 你目前所出公司工作机构有进了关于可用生能原利用的研究吗? 有 沒有 不清楚  3. 请可供公司对于建筑运动自然对影响的认识	· 国	
其他  2. 你目前所由公司工作的构有进一关于可再生能原用的研究吗? 有 沒有 不	牙沙加	
2. 你目前所在的公司工作机构有进了关于可用生能原利的研究吗? 有 沒有 不		
有 沒有 不清楚  3. 请问责公司对于建筑区分对自然对策外的认识野程: 沒有影响 影响限小 有一些影响 影响限大 不清楚  4. 贵公司有计划使用某种青节再生能源,例如太阳能,风能,生物质能吗? 是 否 不清楚  5. 贵公司普考恩使用某种青节再生能源来降低其空调彩和中量吗?	拠	
有 沒有 不清楚  3. 请问责公司对于建筑区分对自然对策外的认识野程: 沒有影响 影响限小 有一些影响 影响限大 不清楚  4. 贵公司有计划使用某种青节再生能源,例如太阳能,风能,生物质能吗? 是 否 不清楚  5. 贵公司普考恩使用某种青节再生能源来降低其空调彩和中量吗?		
沒有 不清楚  3. 请中质公司对于建筑运动:自然对第2种的人识理程: 沒有影响 影响限小 有一些影响 影响限大 不清楚  4. 贵公司有计划使用某种青节用生能源,例如对印能,风能,生物质能吗? 是 否 不清楚  5. 贵公司普考点使用某种青节用生能源和银空调彩和电量吗?	2. 你目前所由公司工作的构有进行关于原生能原则的研究吗?	
不静整  3. 请问责公司对于建筑运动自然对意外的认识重视: 没情影响 影响很小 有一些影响 影响很大 不静整  4. 贵公司有计划使用某种青节,再生能源,例如太阳能,风能,生物质能吗? 是 否 不静整  5. 贵公司曾考虑使用某种青节,再生能源来解低其空,源彩和中量吗?		
3. 请问责公司对于建筑运动自然对意外的认识理程: 没有影响 影响很小 有一些影响 影响很大 不清楚  4. 贵公司有计划使用某种青节用生能原,例如太阳能,风能,生物质能吗? 是 否 不清楚  5. 贵公司普易使用某种青节用生能原料和低其空调彩和电量吗?		
沒有夠 影响以 有一些影响 影响以 不清楚 4. 贵公司有计划使用某种青节再生能源,例如对印能,风能,生物质能吗? 是 否 不清楚 5. 贵公司普想使用某种青节再生能源来解低其空调彩和电量吗?	不證	
沒有夠 影响以 有一些影响 影响以 不清楚 4. 贵公司有计划使用某种青节再生能源,例如对印能,风能,生物质能吗? 是 否 不清楚 5. 贵公司普想使用某种青节再生能源来解低其空调彩和电量吗?		
影响时大 不清楚  4. 贵公司有计划使用某种青节再生能源,例如对印能,风能,生物质能吗? 是 否 不清楚  5. 贵公司曾考恩使用某种青节再生能源和知过空调彩和电量吗?		
有一些影响 影响很大 不清楚  4. 贵公司有计划使用某种青节再生能源,例如对印能,风能,生物质能吗? 是 否 不清楚  5. 贵公司曾考恩使用某种青节再生能源来解低其空调彩种电量吗?		
影响民大 不清楚  4. 贵公司有计划使用某种青节再生能源,例如对印能,风能,生物质能吗? 是 否 不清楚  5. 贵公司曾考恩使用某种青节,再生能源来降低其空调彩种中量吗?		
不清楚  4. 贵公司有计划使用某种清节,再生能源,例如对印能,风能,生物质能吗? 是 否 不清楚  5. 贵公司曾考恩使用某种清节,再生能源来降低其空,即逐渐中重量吗?		
4. 贵公司有计划使用某种青节用生能源,例如从印能,风能,生物质能吗? 是 否 不清楚 5. 贵公司曾考恩使用某种青节,再生能源来降低其空调彩种中量吗?		
是 否	17月疋	1
是 否	4 贵少写有计划使用基础表表,原生能原,例如大阳能,风能,生物活能吗?	
否		
不清楚 5. 贵公司曾考恩使用某种清节,再生能源来降低其空调彩种中量吗?	<del>^_</del>   否	
5. 贵公司曾考虑使用某种清节,再生能原来增低其空调彩种用量吗?		
		1
	5. 贵公司曾考虑伊某种青节用生能原料组其空调彩研电量吗?	

否	
不證	

MELLIC.	_₩ 77 7V	
6. 如果有一种空调系统使用可降低运引费用的再生能原料技,您以为安装这种空	医统合理主要小言的产争力位2	1
E		
<u>作</u> 否		
<u>口</u> 不 <del>能</del>		
1) TRAE		
7. 多妇好资回报期会风速贵公司考虑用问题6所描述产生能原统?		
少于3年		
3到年		
多元年		
不静		
17,32		
8. 您认为政府部门应该推计化政策来提高大观察、使用可再生能原价设备的积	汲性?	
税收藏		
大学にはいます。		
不證		
其它请:明:		
, ,		
9. 您以为使用可再生能原有助于增进公司与客户之间的关系吗?		
<del>衣</del> 道		
是		
否		
非必填一 请到厄答是否的原因		
10. 贵公司空调彩相前运动的每日最大负荷发生在		
早上8点到中午12点		
中午12点到下午4点		
下午4. 無例 出点		
其他(请到):		

<b>酒港</b> 第	
11. 您从什么季节贵公司的空源系统型户的最大负荷?	
<b></b>	
野	
<b>悸</b>	
<b></b>	
不静	
12. 贵公市空源系统评约申请命是	
少于5年	
5 到 0 年	
<b>多于10年</b>	
<b>不</b>	
13. 贵公司目前的用度用地费用人概定	
少于45万元人民币	
45 万66万元之间	
56万到1万元之间   71万到83万元之间	
超級万元	
不静	
1/月足	
14. 贵公司目前每年的空调系统制多维护预算是:	
少于150万元	
150万到187.5万元之间	
187.5 万型225万元之间	
225万全263万元之间	
超过263万元	
不静	
15. 贵公司目前计划用在将来新式空间设备的年度预算是	
少于150元	
150万到187.5万元之间	
187.5 万到225万元之间	
225万到263万元之间	 
超过63万元	 
不静	

<b>酒港</b>	乳项状项	
16. 贵公司空将统用电占公司总用电量的百分比是		
低于5%		
5% 到10%		
10% 到15%		
15% 到20%		
高于20%		
不證		
17. 贵公司空调系统创数用占公司总年度的纠纷预算的百分比是		
低于5%		
5% 到10%		
10% 到15%		
15% 到20%		
哥20%		
不證		
18. 贵公司用于更新空洞设备的费用占其年度资本支出预算的百分比是		
低于5%		
5% 到10%		
10% 到15%		
15% 到20%		
超过20%		
不證		
19. 贵公司考虑用于引进高效节能,使用可再生能原设备的预算占其年度总	用电费用的百分比是:	
低于5%		
5% 到10%		
10% 到15%		
15% 到20%		
超过20%		
不證		

调查问卷 第5页共项	
20. 贵公司考虑用于,进高效节能,使用户再生能原及各价价值占其中变制的维护费用预算的百分比是	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不證	
21. 贵公司所算在3 进可持续增能原系统的资金占其年度总资金预算的百分比是	
少于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不證	
22. 贵公司目前有出台实计任何建筑计能方案、策略吗?	
是	
否	
不證	
23. 如果贵公司目前有采用任何计能策略,您认为该节能策略在帮助公司节约能原利用方面:	
非常有效	
效用一般	
茂效	
没有世能策略	
24. 如果贵公司目前有采用任何计能策略,	
该节能和各种生要问题是	
25. 如果贵公司目前有采用任何计能策略	
该节能知的主要成功之处是	

<b>心</b> 心心。	
26. 如果贵公司目前有采用任何计能策略,相比较于投入的资源叫情力,您以其成效羰意吗?	
瀧	
不識	
不證	
没有讲说那	
27. 请将下面A,B,C三项花其在您(公司)心目中的重要性排序,最重要的排第一,然后依次递减 A=经济发展	B=社会正义;
C=环 <b>境积</b> 户	
A-B-C	
A-C-B	
B-A-C	
B-C-A	
C-A-B	
C-B-A	
不證	

## Responses

# **Business Reasons for Utilizing Renewable Energy Applications**

Responses from the United States of America

QUESTIONS	e 1 of 6
Name (optional): Peter Dalva	
Title (optional): Director of Facilities	
Organization/Company (optional): Habitat for Humanity International	
Date: 10/25/07	
1. In what country does your company own the building you are using	to answer
the questions?	
China	
Jamaica, West Indies	
USA	Х
Other	
2. Has your company or organization done any research in the renewatield?	ible energy

Yes	
No	
Do not know	X
3. What is your company's current understanding of the impact the oper buildings have on the environment?	ration of
Operation of buildings has no impact on the environment	
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	X
Operation of buildings has great impact on the environment	
Do not know	
4. Would your company consider using a renewable energy source suc solar, wind, biomass?	h as
Yes	Χ
No	
Do not know	
5. Would your company consider a clean renewable energy source to he the energy required by the Heating Ventilation Air Conditioning (HVAC)	
Yes	X
No	
Do not know	

QUESTIONS Page	2 of 6
6. Would an HVAC system that utilizes a renewable energy technology	which
cuts operating costs give your company a competitive edge?	
Yes	
No	Х
Do not know	
7. What capital outlay recovery period (payback period) would your cor	npany
consider for a renewable energy system as described in question 6?	
Less than three (3) years	
Three (3) to five (5) years	X
Greater than five (5) years	
Do not know	
8. What kind of assistance from the government would increase the po	ssibility of
your company installing an energy efficient renewable energy system?	
Tax credits	X
Low interest long term loan guarantee	X
Do not know	
Other (please state):	
Being able to sell the tax credits would help as well- similar to LIHTC's	
9. Would your company consider the use of a renewable energy syster	n good
customer relations?	
Do not know	X
Yes	
No	
Optional - If yes/no please state why:	
10. What are the peak daily demand periods for the HVAC system?	
8 a.m. to 12 noon	
12 noon to 4 p.m.	X
4 p.m. to 8 p.m.	
Other (please state):	

OUESTIONS	Daga 2 of 6
QUESTIONS	Page 3 of 6
11. What are the peak seasonal demand periods for the HVAC sys	stem?
Spring	
Summer	X
Autumn	
Winter	
Do not know	
12. What is the expected life span of the HVAC system?	
Less than 5 years	
5 to 10 years	
More than 10 years	X
Do not know	
13. What is your company's current annual electricity bill?	
Less than US\$60,000	
US\$60,001 to US\$75,000	
US\$75,001 to US\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	X
Do not know	
14. What is your company's current annual maintenance budget?	
Less than US\$200,000	X
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	
15. What is your company's current annual capital expenditure but	dget for new
equipment?	
Less than US\$200,000	X
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	

QUESTIONS Page	4 of 6
16. What portion of the electric bill is attributable to the operation of you	
company's the HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	X
Do not know	
17. What portion of the annual maintenance budget is attributable to the	e repair of
your company's HVAC system?	
Less than 5%	
5% to 10%	X
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
18. What portion of the annual capital expenditure budget is attributable	e to the
replacement of your company's HVAC system?	1
Less than 5%	Χ
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
19. What percentage of the annual electricity bill would your company of	consider
using to implement an energy efficient, renewable energy system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	Χ

QUESTIONS Page	5 of 6
20. What percentage of the annual maintenance budget would your con	mpany
consider using to implement an energy efficient, renewable energy syst	tem?
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	Х
21. What percentage of the annual capital expenditure budget would yo	our
company consider using to implement an energy efficient, renewable e	nergy
system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	Х
22. Has your company developed a plan for the efficient use of energy	in the
building(s)?	
Yes	Х
No	
Do not know	
23. If your company has a plan for the efficient use of energy then:	•
How effective has it been?	
Very effective	
Somewhat effective	X
Not effective	
Not Applicable	
24. If your company has a plan for the efficient use of energy then:	
What were the major problems?: Continuing efforts to implement, track	benefits,
make an impact without significant costs	
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?:	
·	

QUESTIONS Page	6 of 6
26. If your company has a plan for the efficient use of energy, was it wo	orth the
effort?	
Yes	
No	
Do not know	x
Not Applicable	
27. How would your company rank the following in order of importance	, with the
most important first? A=economic development; B=Social justice;	
C=environmental protection	_
A-B-C	
A-C-B	
B-A-C	Х
B-C-A	
C-A-B	
C-B-A	
Do not know	

QUESTIONS Page	1 of 6
Name (optional): Glenn Bellamy	
Title (optional): Sr. Associate	
Organization/Company (optional): Heery International	
Date: 10/31/07	
1. In what country does your company own the building you are using t	o answer
the questions?	
China	
Jamaica, West Indies	
USA	X
Other	
2. Has your company or organization done any research in the renewal	ble energy
field?	_
Yes	X
No	

Do not know	
3. What is your company's current understanding of the impact the open	ration of
buildings have on the environment?	
Operation of buildings has no impact on the environment	
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	
Operation of buildings has great impact on the environment	X
Do not know	
4. Would your company consider using a renewable energy source suc	h as
solar, wind, biomass?	
Yes	X
No	
Do not know	
5. Would your company consider a clean renewable energy source to h	nelp offset
the energy required by the Heating Ventilation Air Conditioning (HVAC)	system?
Yes	Χ
No	
Do not know	

QUESTIONS Pag	e 2 of 6
6. Would an HVAC system that utilizes a renewable energy technolog	y which
cuts operating costs give your company a competitive edge?	
Yes	
No	
Do not know	X
7. What capital outlay recovery period (payback period) would your co	mpany
consider for a renewable energy system as described in question 6?	
Less than three (3) years	
Three (3) to five (5) years	X
Greater than five (5) years	
Do not know	
8. What kind of assistance from the government would increase the po	
your company installing an energy efficient renewable energy system?	
Tax credits	X
Low interest long term loan guarantee	X
Do not know	
Other (please state):	
9. Would your company consider the use of a renewable energy syste	m good
customer relations?	
Do not know	
Yes	X
No	
Optional - If yes/no please state why:	
10. What are the peak daily demand periods for the HVAC system?	
8 a.m. to 12 noon	
12 noon to 4 p.m.	X
4 p.m. to 8 p.m.	
Other (please state):	

QUESTIONS	Page 3 of 6
11. What are the peak seasonal demand periods for the HVA	AC system?
Spring	
Summer	X
Autumn	
Winter	
Do not know	
12. What is the expected life span of the HVAC system?	
Less than 5 years	
5 to 10 years	
More than 10 years	X
Do not know	
13. What is your company's current annual electricity bill?	
Less than US\$60,000	
US\$60,001 to US\$75,000	
US\$75,001 to US\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	X
Do not know	
14. What is your company's current annual maintenance bud	lget?
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	X
15. What is your company's current annual capital expenditu	re budget for new
equipment?	. 5 5 6 6 9 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	X

QUESTIONS Page	4 of 6
16. What portion of the electric bill is attributable to the operation of you	
company's the HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	X
Do not know	
17. What portion of the annual maintenance budget is attributable to the	e repair of
your company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	X
18. What portion of the annual capital expenditure budget is attributable	e to the
replacement of your company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	X
19. What percentage of the annual electricity bill would your company of	consider
using to implement an energy efficient, renewable energy system?	
Less than 5%	Χ
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	

QUESTIONS Page	e 5 of 6
20. What percentage of the annual maintenance budget would your co	mpany
consider using to implement an energy efficient, renewable energy sys	stem?
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	X
21. What percentage of the annual capital expenditure budget would y	
company consider using to implement an energy efficient, renewable e	energy
system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	X
22. Has your company developed a plan for the efficient use of energy building(s)?	in the
Yes	X
No	
Do not know	
23. If your company has a plan for the efficient use of energy then:	
How effective has it been?	
Very effective	
Somewhat effective	X
Not effective	
Not Applicable	
24. If your company has a plan for the efficient use of energy then:	
What were the major problems?:	
The landlord does not want to upgrade the lighting systems.	
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?:	
Energy efficient mech systems.	

QUESTIONS Page	6 of 6
26. If your company has a plan for the efficient use of energy, was it wo effort?	rth the
Yes	Χ
No	
Do not know	
Not Applicable	
27. How would your company rank the following in order of importance, most important first? A=economic development; B=Social justice; C=environmental protection	with the
A-B-C	
A-C-B	X
B-A-C	
B-C-A	
C-A-B	
C-B-A	
Do not know	

QUESTIONS Page	1 of 6
Name (optional): Sharon Jaye	
Title (optional): Project/Budget manager	
Organization/Company (optional): Agnes Scott College	
Date: 10-29-07	
1. In what country does your company own the building you are using to	o answer
the questions?	
China	
Jamaica, West Indies	
USA	X
Other	
2. Has your company or organization done any research in the renewal	ole energy
field?	
Yes	X
No	
Do not know	

3. What is your company's current understanding of the impact the ope	ration of
buildings have on the environment?	
Operation of buildings has no impact on the environment	
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	X
Operation of buildings has great impact on the environment	
Do not know	
4. Would your company consider using a renewable energy source suc	h as
solar, wind, biomass?	
Yes	
No	
Do not know	X
5. Would your company consider a clean renewable energy source to	•
the energy required by the Heating Ventilation Air Conditioning (HVAC)	system?
Yes	X
No	
Do not know	

QUESTIONS Page	2 of 6
6. Would an HVAC system that utilizes a renewable energy technology	which
cuts operating costs give your company a competitive edge?	
Yes	Χ
No	
Do not know	
7. What capital outlay recovery period (payback period) would your com	ipany
consider for a renewable energy system as described in question 6?	
Less than three (3) years	
Three (3) to five (5) years	Х
Greater than five (5) years	
Do not know	
8. What kind of assistance from the government would increase the pos	sibility of
your company installing an energy efficient renewable energy system?	
Tax credits	
Low interest long term loan guarantee	
Do not know	X
Other (please state):	
O Mould your company consider the use of a renewable energy evictors	a a a a d
9. Would your company consider the use of a renewable energy system customer relations?	i good
Do not know Yes	Χ
No	^
Optional - If yes/no please state why:	
Optional - II yes/110 piease state wity.	
10. What are the peak daily demand periods for the HVAC system?	
8 a.m. to 12 noon	
12 noon to 4 p.m.	X
4 p.m. to 8 p.m.	Λ.
Other (please state):	
Other (piedec state).	

QUESTIONS	Page 3 of 6
11. What are the peak seasonal demand periods for th	e HVAC system?
Spring	
Summer	X
Autumn	
Winter	
Do not know	
12. What is the expected life span of the HVAC system	12
Less than 5 years	1:
5 to 10 years	
More than 10 years	X
Do not know	
DO NOT MILOW	
13. What is your company's current annual electricity b	oill?
Less than US\$60,000	
US\$60,001 to US\$75,000	
US\$75,001 to US\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	X
Do not know	
14. What is your company's current annual maintenand	ce budget?
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	X
Do not know	
15. What is your company's current annual capital exp	enditure hudget for new
equipment?	onalitie budget for fiew
Less than US\$200,000	X
US\$200,001 to US\$250,000	/^
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	
DO HOLKHOW	

QUESTIONS Page	e 4 of 6
16. What portion of the electric bill is attributable to the operation of yo	
company's the HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	X
Do not know	
17. What portion of the annual maintenance budget is attributable to the	ne repair of
your company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	X
Do not know	
18. What portion of the annual capital expenditure budget is attributab	le to the
replacement of your company's HVAC system?	1 1/
Less than 5%	X
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
19. What percentage of the annual electricity bill would your company	consider
using to implement an energy efficient, renewable energy system?	Consider
Less than 5%	
5% to 10%	X
10% to 15%	^
15% to 20%	
Over 20%	
Do not know	
DO HOL KHOW	

QUESTIONS Page	5 of 6
20. What percentage of the annual maintenance budget would your con	mpany
consider using to implement an energy efficient, renewable energy syst	tem?
Less than 5%	
5% to 10%	X
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
21. What percentage of the annual capital expenditure budget would yo	
company consider using to implement an energy efficient, renewable e	nergy
system?	
Less than 5%	
5% to 10%	X
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
22. Has your company developed a plan for the efficient use of energy	in the
building(s)?	
Yes	X
No	
Do not know	
23. If your company has a plan for the efficient use of energy then:	
How effective has it been?	Ţ
Very effective	
Somewhat effective	X
Not effective	
Not Applicable	
24. If your company has a plan for the efficient use of energy then:	
What were the major problems?: Demand of the people who use the sp	pace
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?: 9-11% reduction in energy use	

QUESTIONS Page	e 6 of 6
26. If your company has a plan for the efficient use of energy, was it we	orth the
effort?	
Yes	X
No	
Do not know	
Not Applicable	
27. How would your company rank the following in order of importance, with the	
most important first? A=economic development; B=Social justice;	
C=environmental protection	
A-B-C	
A-C-B	
B-A-C	
B-C-A	
C-A-B	
C-B-A	
Do not know	X
	`

QUESTIONS Page	1 of 6
Name (optional): Tim Shea	
Title (optional): 2 <sup>nd</sup> Vice President Facilities, Purchasing and Contractin	g
Organization/Company (optional): National Life Group	
Date: 11/5/2007	
1. In what country does your company own the building you are using to	o answer
the questions?	
China	
Jamaica, West Indies	
USA	X
Other	
2. Has your company or organization done any research in the renewal	ole energy
field?	
Yes	X
No	
Do not know	

3. What is your company's current understanding of the impact the ope	ration of
buildings have on the environment?	
Operation of buildings has no impact on the environment	
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	
Operation of buildings has great impact on the environment	X
Do not know	
4. Would your company consider using a renewable energy source suc	h as
solar, wind, biomass?	
Yes	X
No	
Do not know	
5. Would your company consider a clean renewable energy source to l	•
the energy required by the Heating Ventilation Air Conditioning (HVAC)	system?
Yes	X
No	
Do not know	

QUESTIONS Page	2 of 6	
6. Would an HVAC system that utilizes a renewable energy technology which		
cuts operating costs give your company a competitive edge?		
Yes		
No		
Do not know	X	
7. What capital outlay recovery period (payback period) would your cor	npany	
consider for a renewable energy system as described in question 6?		
Less than three (3) years		
Three (3) to five (5) years		
Greater than five (5) years	X	
Do not know		
8. What kind of assistance from the government would increase the po	ssibility of	
your company installing an energy efficient renewable energy system?		
Tax credits	X	
Low interest long term loan guarantee		
Do not know		
Other (please state):		
9. Would your company consider the use of a renewable energy system	n good	
customer relations?		
Do not know	X	
Yes		
No		
Optional - If yes/no please state why:		
10. What are the peak daily demand periods for the HVAC system?		
8 a.m. to 12 noon		
12 noon to 4 p.m.	X	
4 p.m. to 8 p.m.		
Other (please state):		

QUESTIONS	Page 3 of 6
	g
11. What are the peak seasonal demand periods for the	HVAC system?
Spring	
Summer	X
Autumn	
Winter	
Do not know	
12. What is the expected life span of the HVAC system?	
Less than 5 years	
5 to 10 years	
More than 10 years	X
Do not know	
13. What is your company's current annual electricity bill	?
Less than US\$60,000	
US\$60,001 to US\$75,000	
US\$75,001 to US\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	Х
Do not know	
14. What is your company's current annual maintenance	budget?
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	X
Do not know	
15. What is your company's current annual capital exper	diture budget for new
equipment?	.aa.
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	X
Do not know	
טט ווטג אווטאי	

QUESTIONS Page	4 of 6	
16. What portion of the electric bill is attributable to the operation of your		
company's the HVAC system?		
Less than 5%		
5% to 10%		
10% to 15%		
15% to 20%		
Over 20%	X	
Do not know		
17. What portion of the annual maintenance budget is attributable to the your company's HVAC system?	e repair of	
Less than 5%		
5% to 10%	X	
10% to 15%		
15% to 20%		
Over 20%		
Do not know		
18. What portion of the annual capital expenditure budget is attributable to the		
replacement of your company's HVAC system?		
Less than 5%		
5% to 10%	X	
10% to 15%		
15% to 20%		
Over 20%		
Do not know		
19. What percentage of the annual electricity bill would your company of	consider	
using to implement an energy efficient, renewable energy system?	1	
Less than 5%		
5% to 10%		
10% to 15%		
15% to 20%		
Over 20%	Х	
Do not know		

QUESTIONS Page	5 of 6
20. What percentage of the annual maintenance budget would your co	mpany
consider using to implement an energy efficient, renewable energy sys	tem?
Less than 5%	
5% to 10%	
10% to 15%	X
15% to 20%	
Over 20%	
Do not know	
21. What percentage of the annual capital expenditure budget would ye	our
company consider using to implement an energy efficient, renewable e	energy
system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	X
Do not know	
22. Has your company developed a plan for the efficient use of energy	in the
building(s)?	
Yes	X
No	
Do not know	
23. If your company has a plan for the efficient use of energy then:	
How effective has it been?	
Very effective	
Somewhat effective	X
Not effective	
Not Applicable	
24. If your company has a plan for the efficient use of energy then:	
What were the major problems?: communicating to the employee popu	ılation
ways to	
Save by turning off lights, computers, etc.	
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?: changing when our chillers were runni	ng and
changing	
Out light fixtures and ballasts.	

QUESTIONS Pag	e 6 of 6
26. If your company has a plan for the efficient use of energy, was it w	orth the
effort?	
Yes	X
No	
Do not know	
Not Applicable	
27. How would your company rank the following in order of importance	e, with the
most important first? A=economic development; B=Social justice;	
C=environmental protection	
A-B-C	
A-C-B	
B-A-C	
B-C-A	
C-A-B	
C-B-A	X
Do not know	

QUESTIONS Page	1 of 6
Name (optional): Richard Gleave	
Title (optional): Regional Director of Facilities	
Organization/Company (optional): Knowledge Learning Corporation	
Date: 11-26-07	
1. In what country does your company own the building you are using to	o answer
the questions?	
China	
Jamaica, West Indies	
USA	X
Other	
2. Has your company or organization done any research in the renewal	ole energy
field?	
Yes	
No	X

Do not know	
3. What is your company's current understanding of the impact the ope	ration of
buildings have on the environment?	
Operation of buildings has no impact on the environment	
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	X
Operation of buildings has great impact on the environment	
Do not know	
4. Would your company consider using a renewable energy source such as	
solar, wind, biomass?	
Yes	X
No	
Do not know	
5. Would your company consider a clean renewable energy source to help offset	
the energy required by the Heating Ventilation Air Conditioning (HVAC)	system?
Yes	Χ
No	
Do not know	

QUESTIONS Page	2 of 6
6. Would an HVAC system that utilizes a renewable energy technology	which
cuts operating costs give your company a competitive edge?	
Yes	
No	
Do not know	X
7. What capital outlay recovery period (payback period) would your cor	npany
consider for a renewable energy system as described in question 6?	
Less than three (3) years	
Three (3) to five (5) years	X
Greater than five (5) years	
Do not know	
8. What kind of assistance from the government would increase the possibility of	
your company installing an energy efficient renewable energy system?	-
Tax credits	
Low interest long term loan guarantee	
Do not know	Х
Other (please state):	
9. Would your company consider the use of a renewable energy syster	n good
customer relations?	_
Do not know	
Yes	X
No	
Optional - If yes/no please state why:	
10. What are the peak daily demand periods for the HVAC system?	
8 a.m. to 12 noon	
12 noon to 4 p.m.	Χ
4 p.m. to 8 p.m.	
Other (please state): We have 1895 buildings or varying type. Our typic	cal load is
12 noon	
To 4pm but in the western states it stretches to 6 or 7pm at times.	

QUESTIONS	Page 3 of 6
11. What are the peak seasonal demand periods for the HVA	AC system?
Spring	
Summer	X
Autumn	
Winter	X
Do not know	
12. What is the expected life span of the HVAC system?	
Less than 5 years	
5 to 10 years	
More than 10 years	X
Do not know	
13. What is your company's current annual electricity bill?	
Less than US\$60,000	
US\$60,001 to US\$75,000	
US\$75,001 to US\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	X
Do not know	
1.1 What is your company's surrent appual maintageness had	lant?
14. What is your company's current annual maintenance bud	iget?
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	X
Do not know	
15. What is your company's current annual capital expenditu	re budget for new
equipment?	, and the second
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	X
Do not know	
20 1101 111011	

QUESTIONS  16. What portion of the electric bill is attributable to the operation of your	
company's the HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
** This varies depending on the location and size of the building. X	
17. What portion of the annual maintenance budget is attributable to the repa	ir of
your company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
** This varies depending on the location and size of the building. X	
18. What portion of the annual capital expenditure budget is attributable to the	
replacement of your company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
** This varies depending on the location and size of the building. X	
19. What percentage of the annual electricity bill would your company consid	er
using to implement an energy efficient, renewable energy system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	

<sup>\*\*</sup> This varies depending on the location and size of the building. X

QUESTIONS Page	5 of 6
20. What percentage of the annual maintenance budget would your co	mpany
consider using to implement an energy efficient, renewable energy sys	tem?
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	X
21. What percentage of the annual capital expenditure budget would you	our
company consider using to implement an energy efficient, renewable e	nergy
system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	X
22. Has your company developed a plan for the efficient use of energy	in the
building(s)?	
Yes	
No	X
Do not know	
23. If your company has a plan for the efficient use of energy then:	
How effective has it been?	
Very effective	
Somewhat effective	
Not effective	
Not Applicable	
24. If your company has a plan for the efficient use of energy then:	
What were the major problems?: We need a plan. Since we have 1895	buildings,
it's not an easy proposition. Is there any advice you can offer to us?	
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?:	

QUESTIONS Page	6 of 6
26. If your company has a plan for the efficient use of energy, was it worth the	
effort?	
Yes	
No	
Do not know	
Not Applicable	X
27. How would your company rank the following in order of importance, with the	
most important first? A=economic development; B=Social justice;	
C=environmental protection	
A-B-C	X
A-C-B	
B-A-C	
B-C-A	
C-A-B	
C-B-A	
Do not know	

QUESTIONS Page	e 1 of 6
Name (optional):Eddie Alsobrook	
Title (optional):Maintenance Director	
Organization/Company (optional):Sadie G. Mays Health & Rehab Center	
Date:November 12, 2007	
1. In what country does your company own the building you are using to answer	
the questions?	
China	
Jamaica, West Indies	
USA	X
Other	
2. Has your company or organization done any research in the renewa	able

energy field?	
Yes	
No	Χ
Do not know	
3. What is your company's current understanding of the impact the oper buildings have on the environment?	ration of
Operation of buildings has no impact on the environment	Χ
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	
Operation of buildings has great impact on the environment	
Do not know	
4. Would your company consider using a renewable energy source such as solar, wind, biomass?	
Yes	Χ
No	
Do not know	
5. Would your company consider a clean renewable energy source to help offset the energy required by the Heating Ventilation Air Conditioning (HVAC) system?	
Yes	Χ
No	
Do not know	

2 of 6
which
Χ
npany

Greater than five (5) years	Χ
Do not know	
8. What kind of assistance from the government would increase the pos	ssibility of
your company installing an energy efficient renewable energy system?	
Tax credits	
Low interest long term loan guarantee	Χ
Do not know	
Other (please state):	
9. Would your company consider the use of a renewable energy system	n good
customer relations?	
Do not know	
Yes	
No	Χ
Optional - If yes/no please state why:	
10. What are the peak daily demand periods for the HVAC system?	
8 a.m. to 12 noon	
12 noon to 4 p.m.	Χ
4 p.m. to 8 p.m.	
Other (please state):	

QUESTIONS	Page 3 of 6
11. What are the peak seasonal demand periods for the HVAC sys	stem?
Spring	
Summer	X
Autumn	
Winter	
Do not know	
12. What is the expected life span of the HVAC system?	
Less than 5 years	
5 to 10 years	X
More than 10 years	

Do not know	
13. What is your company's current annual electricity bill?	
Less than US\$60,000	
US\$60,001 to US\$75,000	
US\$75,001 to US\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	Χ
Do not know	
14. What is your company's current annual maintenance budget?	
Less than US\$200,000	Χ
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	
15. What is your company's current annual capital expenditure budget equipment?	for new
Less than US\$200,000	Χ
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	

QUESTIONS	ge 4 of 6
16. What portion of the electric bill is attributable to the operation of your	
company's the HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	X
Do not know	
17. What portion of the annual maintenance budget is attributable to the repair of your company's HVAC system?	

Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	Χ
Do not know	
18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?	to the
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	Χ
Do not know	
19. What percentage of the annual electricity bill would your company consider using to implement an energy efficient, renewable energy system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	Χ

QUESTIONS Page	5 of 6
20. What percentage of the annual maintenance budget would your company	
consider using to implement an energy efficient, renewable energy system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	Χ
21. What percentage of the annual capital expenditure budget would your company consider using to implement an energy efficient, renewable energy system?	
Less than 5%	
5% to 10%	

10% to 15%	
15% to 20%	
Over 20%	
Do not know	X
22. Has your company developed a plan for the efficient use of energy building(s)?	in the
Yes	
No	Χ
Do not know	
23. If your company has a plan for the efficient use of energy then:	
How effective has it been?	
Very effective	
Somewhat effective	
Not effective	
Not Applicable	X
24. If your company has a plan for the efficient use of energy then:	
What were the major problems?:	
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?:	

QUESTIONS Page 6 of 6	
26. If your company has a plan for the efficient use of energy, was it worth the effort?	
Yes	
No	
Do not know	
Not Applicable	X
27. How would your company rank the following in order of importance most important first? A=economic development; B=Social justice; C=environmental protection	e, with the

A-B-C	Χ
A-B-C A-C-B	
B-A-C	
B-C-A	
C-A-B	
C-B-A	
B-A-C B-C-A C-A-B C-B-A Do not know	

QUESTIONS Page	1 of 6
Name (optional): Greg Goeke	
Title (optional): Director of Property Services	
Organization/Company (optional):City of Minneapolis	
Date:11-26-2007	
1. In what country does your company own the building you are using to	o answer
the questions?	
China	
Jamaica, West Indies	
USA	X
Other	
2. Has your company or organization done any research in the renewal	ole energy
field?	
Yes	X
No	
Do not know	
3. What is your company's current understanding of the impact the ope	ration of
buildings have on the environment?	1
Operation of buildings has no impact on the environment	
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	
Operation of buildings has great impact on the environment	Χ
Do not know	
4. Would your company consider using a renewable energy source suc	h as
solar, wind, biomass?	
Yes	Х
No	

Do not know	
5. Would your company consider a clean renewable energy source to	help offset
the energy required by the Heating Ventilation Air Conditioning (HVAC)	system?
Yes	X
No	
Do not know	

QUESTIONS Page	2 of 6
6. Would an HVAC system that utilizes a renewable energy technology which	
cuts operating costs give your company a competitive edge?	T > 2
Yes	X
No	
Do not know	
7. What capital outlay recovery period (payback period) would your cor	npany
consider for a renewable energy system as described in question 6?	
Less than three (3) years	
Three (3) to five (5) years	
Greater than five (5) years	X
Do not know	
8. What kind of assistance from the government would increase the po	ssibility of
your company installing an energy efficient renewable energy system?	
Tax credits	
Low interest long term loan guarantee	X
Do not know	
Other (please state):	
9. Would your company consider the use of a renewable energy system	n good
customer relations?	
Do not know	
Yes	X
No	
Optional - If yes/no please state why: We see our role is to provide lea	dership in
the area of renewable energy development and use.	
10. What are the peak daily demand periods for the HVAC system?	
8 a.m. to 12 noon	
12 noon to 4 p.m.	X
4 p.m. to 8 p.m.	
Other (please state):	

QUESTIONS	Page 3 of 6
	g
11. What are the peak seasonal demand periods for the	HVAC system?
Spring	
Summer	X
Autumn	
Winter	
Do not know	
12. What is the expected life span of the HVAC system?	
Less than 5 years	
5 to 10 years	
More than 10 years	X
Do not know	
13. What is your company's current annual electricity bill	?
Less than US\$60,000	
US\$60,001 to US\$75,000	
US\$75,001 to US\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	Х
Do not know	
14. What is your company's current annual maintenance	budget?
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	X
Do not know	
15. What is your company's current annual capital exper	diture budget for new
equipment?	.aa.
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	X
Do not know	
טט ווטג אווטש	

QUESTIONS Page	e 4 of 6
16. What portion of the electric bill is attributable to the operation of yo	ur
company's the HVAC system?	
Less than 5%	
5% to 10%	X
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
17. What portion of the annual maintenance budget is attributable to the your company's HVAC system?  Less than 5%	ne repair of
5% to 10%	X
10% to 15%	+^
15% to 20%	
Over 20%	
Do not know	
18. What portion of the annual capital expenditure budget is attributab replacement of your company's HVAC system?	le to the
Less than 5%	
5% to 10%	X
10% to 15%	
15% to 20%	_
Over 20%	
Do not know	_
DO HOURING W	+
19. What percentage of the annual electricity bill would your company	consider
using to implement an energy efficient, renewable energy system?  Less than 5%	
5% to 10%	X
10% to 15%	
15% to 20%	+
Over 20%	+
Do not know	+
DO HOT KHOM	

QUESTIONS Page	5 of 6
20. What percentage of the annual maintenance budget would your co	mpany
consider using to implement an energy efficient, renewable energy sys	tem?
Less than 5%	X
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
21. What percentage of the annual capital expenditure budget would you	
company consider using to implement an energy efficient, renewable e	nergy
system?	
Less than 5%	
5% to 10%	X
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
22. Has your company developed a plan for the efficient use of energy	in the
building(s)?	
Yes	X
No	
Do not know	
23. If your company has a plan for the efficient use of energy then:	
How effective has it been?	1
Very effective	1
Somewhat effective	X
Not effective	
Not Applicable	
24. If your company has a plan for the efficient use of energy then:	
What were the major problems?: Funding - Budget	
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?: Has support at the top.	

26. If your company has a plan for the officient use of energy was it was	
26. If your company has a plan for the efficient use of energy, was it worth the	
effort?	
Yes	X
No	
Do not know	
Not Applicable	
27. How would your company rank the following in order of importance, with the	
most important first? A=economic development; B=Social justice;	
C=environmental protection	
A-B-C	
A-C-B	
B-A-C	
B-C-A	
C-A-B	
C-B-A	
Do not know	

OUESTIONS	1 of C
QUESTIONS Page	1 of 6
Name (optional):	
Title (optional):	
Organization/Company (optional):	
Date: 11/30/07	
1. In what country does your company own the building you are using t	o answer
the questions?	
China	
Jamaica, West Indies	
USA	X
Other	
2. Has your company or organization done any research in the renewal	ole energy
field?	
Yes	
No	Χ
Do not know	
3. What is your company's current understanding of the impact the ope	ration of
buildings have on the environment?	

Operation of buildings has no impact on the environment	
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	
Operation of buildings has great impact on the environment	X
Do not know	
4. Would your company consider using a renewable energy source suc	h as
solar, wind, biomass?	
Yes	X
No	
Do not know	
5. Would your company consider a clean renewable energy source to h	
the energy required by the Heating Ventilation Air Conditioning (HVAC)	system?
Yes	Χ
No	
Do not know	

QUESTIONS Page	2 of 6
6. Would an HVAC system that utilizes a renewable energy technology	which
cuts operating costs give your company a competitive edge?	
Yes	X
No	
Do not know	
7. What capital outlay recovery period (payback period) would your cor	npany
consider for a renewable energy system as described in question 6?	
Less than three (3) years	
Three (3) to five (5) years	X
Greater than five (5) years	
Do not know	
8. What kind of assistance from the government would increase the po	ssibility of
your company installing an energy efficient renewable energy system?	
Tax credits	
Low interest long term loan guarantee	
Do not know	X
Other (please state):	
9. Would your company consider the use of a renewable energy syster	n good
customer relations?	

Do not know	
Yes	X
No	
Optional - If yes/no please state why:	
10. What are the peak daily demand periods for the HVAC syste	em?
8 a.m. to 12 noon	
12 noon to 4 p.m.	X
4 p.m. to 8 p.m.	
Other (please state):	

QUESTIONS	Page 3 of 6
11. What are the peak seasonal demand periods for the HVA	AC system?
Spring	
Summer	X
Autumn	
Winter	
Do not know	
12. What is the expected life span of the HVAC system?	
Less than 5 years	
5 to 10 years	
More than 10 years	X
Do not know	
13. What is your company's current annual electricity bill?	
Less than US\$60,000	
US\$60,001 to US\$75,000	
US\$75,001 to US\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	X
Do not know	
44 \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	110
14. What is your company's current annual maintenance but	aget?
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	X
Do not know	
15. What is your company's current annual capital expenditu	re budget for new
equipment?	
Less than US\$200,000	
US\$200,001 to US\$250,000	X
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	

QUESTIONS Page	4 of 6
16. What portion of the electric bill is attributable to the operation of you	
company's the HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	X
Over 20%	
Do not know	
17. What portion of the annual maintenance budget is attributable to the	e repair of
your company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	X
Over 20%	
Do not know	
18. What portion of the annual capital expenditure budget is attributable	e to the
replacement of your company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	X
Over 20%	
Do not know	
19. What percentage of the annual electricity bill would your company of	consider
using to implement an energy efficient, renewable energy system?	
Less than 5%	
5% to 10%	
10% to 15%	X
15% to 20%	
Over 20%	
Do not know	

QUESTIONS Pa	ge 5 of 6
20. What percentage of the annual maintenance budget would your	
consider using to implement an energy efficient, renewable energy s	ystem?
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	X
21. What percentage of the annual capital expenditure budget would	your
company consider using to implement an energy efficient, renewable	energy
system?	
Less than 5%	
5% to 10%	
10% to 15%	X
15% to 20%	
Over 20%	
Do not know	
22. Has your company developed a plan for the efficient use of energ	gy in the
building(s)?	
Yes	X
No	
Do not know	
23. If your company has a plan for the efficient use of energy then:	
How effective has it been?	
Very effective	X
Somewhat effective	
Not effective	
Not Applicable	
24. If your company has a plan for the efficient use of energy then:	
What were the major problems?: Getting teachers to turn out lights a	nd turn off
computers	
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?: Significant savings through better n	nanagement
of HVAC systems	

QUESTIONS Pag	e 6 of 6
26. If your company has a plan for the efficient use of energy, was it w	vorth the
effort?	
Yes	X
No	
Do not know	
Not Applicable	
27. How would your company rank the following in order of importance, with the	
most important first? A=economic development; B=Social justice;	
C=environmental protection	
A-B-C	
A-C-B	X
B-A-C	
B-C-A	
C-A-B	
C-B-A	
Do not know	

QUESTIONS Page	1 of 6
Name (optional):	
Title (optional):	
Organization/Company (optional):	
Date:	
1. In what country does your company own the building you are using t	o answer
the questions?	
China	
Jamaica, West Indies	
USA	X
Other	
2. Has your company or organization done any research in the renewal	ble energy
field?	
Yes	
No	X
Do not know	

3. What is your company's current understanding of the impact the open	ration of
buildings have on the environment?	
Operation of buildings has no impact on the environment	
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	Χ
Operation of buildings has great impact on the environment	
Do not know	
4. Would your company consider using a renewable energy source such	h as
solar, wind, biomass?	
Yes	Χ
No	
Do not know	
5. Would your company consider a clean renewable energy source to h	
the energy required by the Heating Ventilation Air Conditioning (HVAC)	system?
Yes	Χ
No	
Do not know	

QUESTIONS Page	e 2 of 6
3	
6. Would an HVAC system that utilizes a renewable energy technology cuts operating costs give your company a competitive edge?	which
Yes	
No	X
Do not know	
7. What capital outlay recovery period (payback period) would your consider for a renewable energy system as described in question 6?	mpany
Less than three (3) years	
Three (3) to five (5) years	X
Greater than five (5) years	
Do not know	
8. What kind of assistance from the government would increase the poyour company installing an energy efficient renewable energy system?	_
Tax credits	
Low interest long term loan guarantee	
Do not know	
Other (please state): We are a non-profit and therefore are not driven to incentives.	by tax
We do not typically rely on government intervention in our business aff	airs.

9. Would your company consider the use of a renewable energy system	n good
customer relations?	
Do not know	
Yes	X
No	
Optional - If yes/no please state why:	•
10. What are the peak daily demand periods for the HVAC system?	
8 a.m. to 12 noon	
12 noon to 4 p.m.	Х
4 p.m. to 8 p.m.	
Other (please state):	

QUESTIONS	Page 3 of 6
	. ugo o o. o
11. What are the peak seasonal demand periods for the HVA	C system?
Spring	
Summer	X
Autumn	
Winter	X
Do not know	
12. What is the expected life span of the HVAC system?	
Less than 5 years	
5 to 10 years	
More than 10 years	X
Do not know	, , , , , , , , , , , , , , , , , , ,
13. What is your company's current annual electricity bill?	
Less than US\$60,000	
US\$60,001 to US\$75,000	
US\$75,001 to US\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	Х
Do not know	
14. What is your company's current annual maintenance bud	get?
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	X
Do not know	
15. What is your company's current annual capital expenditur	re budget for new
equipment?	
Less than US\$200,000	Х
U\$\$200,001 to U\$\$250,000	
US\$250,001 to US\$300,000	
U\$\$300,001 to U\$\$350,000	
Over US\$350,000	
Do not know	

QUESTIONS Page	4 of 6
16. What portion of the electric bill is attributable to the operation of you	
company's the HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	X
Do not know	
17. What portion of the annual maintenance budget is attributable to the	e repair of
your company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	X
15% to 20%	
Over 20%	
Do not know	
18. What portion of the annual capital expenditure budget is attributable	e to the
replacement of your company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	X
Over 20%	
Do not know	
19. What percentage of the annual electricity bill would your company of	consider
using to implement an energy efficient, renewable energy system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	X
Do not know	

QUESTIONS Page	5 of 6
20. What percentage of the annual maintenance budget would your co	mpany
consider using to implement an energy efficient, renewable energy sys	tem?
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	X
Do not know	
21. What percentage of the annual capital expenditure budget would yo	our
company consider using to implement an energy efficient, renewable e	nergy
system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	X
Over 20%	
Do not know	
22. Has your company developed a plan for the efficient use of energy	in the
building(s)?	
Yes	X
No	
Do not know	
23. If your company has a plan for the efficient use of energy then:	
How effective has it been?	
Very effective	
Somewhat effective	X
Not effective	
Not Applicable	
24. If your company has a plan for the efficient use of energy then:	
What were the major problems?: Most HVAC control systems are drive	n by
computer	
technology and are therefore subject to the problems associated with s	oftware
controls.	
It is in this area that we experience the most problems. Our mechanica	a/
problems are	
statistically "normal" regarding repairs and maintenance.	
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?: There have been no major triumphs, s	o to
speak. We	

have seen that computer assisted controls	, despite t	their v	agaries,	lend to	much
more					

efficient operation of the HVAC systems.

QUESTIONS Page	6 of 6
26. If your company has a plan for the efficient use of energy, was it wo	orth the
effort?	
Yes	X
No	
Do not know	
Not Applicable	
27. How would your company rank the following in order of importance,	, with the
most important first? A=economic development; B=Social justice;	
C=environmental protection	
A-B-C	
A-C-B	
B-A-C	
B-C-A	X
C-A-B	
C-B-A	
Do not know	

QUESTIONS Page	1 of 6
Name (optional):	
Title (optional):	
Organization/Company (optional):	
Date:	
31 – Oct - 2007	
1. In what country does your company own the building you are using to	answer
the questions?	
China	
Jamaica, West Indies	
USA	X
Other	
2. Has your company or organization done any research in the renewal	ole energy
field?	
Yes	X
No	
Do not know	
3. What is your company's current understanding of the impact the open	ration of
buildings have on the environment?	
Operation of buildings has no impact on the environment	
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	
Operation of buildings has great impact on the environment	Χ
Do not know	
4. Would your company consider using a renewable energy source suc	h as
solar, wind, biomass?	
Yes	Χ
No	
Do not know	
5. Would your company consider a clean renewable energy source to h	
the energy required by the Heating Ventilation Air Conditioning (HVAC)	system?
Yes	Χ
No	
Do not know	

QUESTIONS Page	2 of 6
6. Would an HVAC system that utilizes a renewable energy technology	which
cuts operating costs give your company a competitive edge?	
Yes	Х
No	
Do not know	
7. What capital outlay recovery period (payback period) would your con	npany
consider for a renewable energy system as described in question 6?	T
Less than three (3) years	
Three (3) to five (5) years	Х
Greater than five (5) years	
Do not know	
	<u> </u>
8. What kind of assistance from the government would increase the pos	ssibility of
your company installing an energy efficient renewable energy system?	
Tax credits	
Low interest long term loan guarantee	
Do not know	
Other (please state):	
None X	
9. Would your company consider the use of a renewable energy system	n good
customer relations?	
Do not know	
Yes	Х
No .	
Optional - If yes/no please state why:	
40. What are the real radius descend periods for the LIVAC contents	
10. What are the peak daily demand periods for the HVAC system?	
8 a.m. to 12 noon	
12 noon to 4 p.m.	X
4 p.m. to 8 p.m.	
Other (please state):	

QUESTIONS	Page 3 of 6
11. What are the peak seasonal demand periods for the HVAC	system?
Spring	
Summer	X
Autumn	
Winter	
Do not know	
12. What is the expected life span of the HVAC system?	
Less than 5 years	
5 to 10 years	
More than 10 years	X
Do not know	^
50 1101 1111011	
13. What is your company's current annual electricity bill?	
_ess than US\$60,000	
JS\$60,001 to US\$75,000	
JS\$75,001 to US\$95,000	
JS\$95,001 to US\$111,000	
Over US\$111,000	Х
Do not know	
<ol><li>14. What is your company's current annual maintenance budge</li></ol>	et?
_ess than US\$200,000	
JS\$200,001 to US\$250,000	
JS\$250,001 to US\$300,000	
JS\$300,001 to US\$350,000	
Over US\$350,000	X
Do not know	
15. What is your company's current annual capital expenditure	hudget for new
equipment?	budget for fiew
_ess than US\$200,000	
US\$200,001 to US\$250,000	
JS\$250,001 to US\$300,000 JS\$250,001 to US\$300,000	
JS\$300,001 to US\$350,000  JS\$300,001 to US\$350,000	
JS4300,001 tO US4330,000	
Over US\$350,000 Do not know	X

QUESTIONS Page	4 of 6
16. What portion of the electric bill is attributable to the operation of your	
company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	X
Do not know	
17. What portion of the annual maintenance budget is attributable to the your company's HVAC system?	e repair of
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	X
Over 20%	
Do not know	
18. What portion of the annual capital expenditure budget is attributable to the	
replacement of your company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	X
19. What percentage of the annual electricity bill would your company c	onsider
using to implement an energy efficient, renewable energy system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	Х
Over 20%	_
Do not know	

QUESTIONS Page	5 of 6
20. What percentage of the annual maintenance budget would your co	mpany
consider using to implement an energy efficient, renewable energy sys	tem?
Less than 5%	
5% to 10%	х
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
21. What percentage of the annual capital expenditure budget would yo	our
company consider using to implement an energy efficient, renewable e	nergy
system?	
Less than 5%	
5% to 10%	Х
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
22. Has your company developed a plan for the efficient use of energy building(s)?	in the
Yes	Х
No	
Do not know	
23. If your company has a plan for the efficient use of energy then:	
How effective has it been?	
Very effective	х
Somewhat effective	
Not effective	
Not Applicable	
24. If your company has a plan for the efficient use of energy then:	
What were the major problems?:	
Competition for available capital	
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?:	
Ability to better forecast and control utility costs	

26. If your company has a plan for the efficient use of energy, was it worth effort?  Yes x  No  Do not know  Not Applicable  27. How would your company rank the following in order of importance, w	th the
No Do not know Not Applicable	X
Do not know Not Applicable	
Not Applicable	
	I
27 How would your company rank the following in order of importance, w	
27 How would your company rank the following in order of importance, w	
most important first? A=economic development; B=Social justice; C=environmental protection	with the
A-B-C	
A-C-B	
B-A-C	
B-C-A	
C-A-B	
C-B-A	
Do not know x	Χ

QUESTIONS Page	1 of 6
Name (optional): Mike Destro	
Title (optional): General Manager	
Organization/Company (optional): Portman Management Company	
Date: November 5, 2007	
1. In what country does your company own the building you are using to	o answer
the questions?	,
China	
Jamaica, West Indies	
USA	X
Other	
2. Has your company or organization done any research in the renewal	ole energy
field?	
Yes	
No	X
Do not know	

3. What is your company's current understanding of the impact the operation of	
buildings have on the environment?	
Operation of buildings has no impact on the environment	
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	X
Operation of buildings has great impact on the environment	
Do not know	
4. Would your company consider using a renewable energy source such as	
solar, wind, biomass?	
Yes	X
No	
Do not know	
5. Would your company consider a clean renewable energy source to I	
the energy required by the Heating Ventilation Air Conditioning (HVAC) system?	
Yes	X
No	
Do not know	

QUESTIONS Page	2 of 6
6. Would an HVAC system that utilizes a renewable energy technology	which
cuts operating costs give your company a competitive edge?	
Yes	Χ
No	
Do not know	
7. What capital outlay recovery period (payback period) would your con	npany
consider for a renewable energy system as described in question 6?	ı
Less than three (3) years	
Three (3) to five (5) years	
Greater than five (5) years	
Do not know	Χ
WE STRIVE FOR LESS THAN 3, BUT GREATER THAN 5 MIGHT BE ACCEPTABLE IN SOME CASES.	
8. What kind of assistance from the government would increase the pos	ssibility of
your company installing an energy efficient renewable energy system?	_
Tax credits	
Low interest long term loan guarantee	
Do not know. IT DEPENDS ON WHAT THE BUILDINGS' OWNERS WANT.	X
Other (please state):	L
,	
9. Would your company consider the use of a renewable energy system	n good
customer relations?	
Do not know	
Yes	Χ
No	
Optional - If yes/no please state why: Many of the approximately 5,000	
occupants of our 2 buildings are very concerned about the increasing c	ost of
energy, the eventual depletion of fossil fuels and global warming.	
10. What are the peak daily demand periods for the HVAC system?	
8 a.m. to 12 noon	
12 noon to 4 p.m.	
4 p.m. to 8 p.m.	
Other (please state): 10 a.m. – 2 p.m.	

QUESTIONS	ge 3 of 6
11. What are the peak seasonal demand periods for the HVAC syste	m?
Spring	
Summer	X
Autumn	
Winter	
Do not know	
12. What is the expected life span of the HVAC system?	
Less than 5 years	
5 to 10 years	
More than 10 years	X
Do not know	
13. What is your company's current annual electricity bill?	
Less than US\$60,000	
U\$\$60,001 to U\$\$75,000	
US\$75,001 to US\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	X
Do not know	
Do not know	
14. What is your company's current annual maintenance budget?	
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	X
I DO NOT KNOW WHAT YOU HAVE IN MIND BY MAINTENANCE.	,
FOR EXAMPLE CHANGING LIGHT BULBS AND VACUUMING	
THE CARPET IN TENANT OFFICES IS CONSIDERED	
MAINTENANCE.	
15. What is your company's current annual capital expenditure budge	et for new
equipment?	
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	
I DO NOT KNOW WHAT YOU HAVE IN MIND BY NEW EQUIPMENT. DO YOU MEAN ONLY HVAC-RELATED EQUIPMENT OR ALL EQUIPMENT SUCH AS COMPUTERS TO	X

## MANAGE TENANT CARD ACCESS INTO THE BUILDING?

QUESTIONS Page	4 of 6
16. What portion of the electric bill is attributable to the operation of you	
company's the HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	Χ
Do not know	
17. What portion of the annual maintenance budget is attributable to the	repair of
your company's HVAC system?	•
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	Χ
INCLUDE REPLACING DIRTY FILTERS? DOES REPAIR	
INCLUDE THE COST OF STAFF WHO REPAIR BROKEN EQUIPMENT AND PERFORM PREVENTIVE MAINTENANCE?	
<b>EQUIPMENT AND PERFORM PREVENTIVE MAINTENANCE?</b> 18. What portion of the annual capital expenditure budget is attributable	to the
EQUIPMENT AND PERFORM PREVENTIVE MAINTENANCE?	to the
EQUIPMENT AND PERFORM PREVENTIVE MAINTENANCE?  18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?	to the
EQUIPMENT AND PERFORM PREVENTIVE MAINTENANCE?  18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?  Less than 5%	to the
EQUIPMENT AND PERFORM PREVENTIVE MAINTENANCE?  18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?  Less than 5%  5% to 10%	to the
EQUIPMENT AND PERFORM PREVENTIVE MAINTENANCE?  18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?  Less than 5%  5% to 10%  10% to 15%	to the
EQUIPMENT AND PERFORM PREVENTIVE MAINTENANCE?  18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?  Less than 5%  5% to 10%  10% to 15%  15% to 20%	to the
EQUIPMENT AND PERFORM PREVENTIVE MAINTENANCE?  18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?  Less than 5%  5% to 10%  10% to 15%  15% to 20%  Over 20%	
EQUIPMENT AND PERFORM PREVENTIVE MAINTENANCE?  18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?  Less than 5%  5% to 10%  10% to 15%  15% to 20%  Over 20%  Do not know  IT VARIES FROM \$0 IN SOME YEARS TO ALL OF THE ABOVE	X
EQUIPMENT AND PERFORM PREVENTIVE MAINTENANCE?  18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?  Less than 5%  5% to 10%  10% to 15%  15% to 20%  Over 20%  Do not know  IT VARIES FROM \$0 IN SOME YEARS TO ALL OF THE ABOVE %S IN OTHER YEARS.	X
EQUIPMENT AND PERFORM PREVENTIVE MAINTENANCE?  18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?  Less than 5%  5% to 10%  10% to 15%  15% to 20%  Over 20%  Do not know  IT VARIES FROM \$0 IN SOME YEARS TO ALL OF THE ABOVE %S IN OTHER YEARS.  19. What percentage of the annual electricity bill would your company com	X
18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?  Less than 5% 5% to 10% 10% to 15% 15% to 20% Over 20% Do not know  IT VARIES FROM \$0 IN SOME YEARS TO ALL OF THE ABOVE %S IN OTHER YEARS.  19. What percentage of the annual electricity bill would your company of using to implement an energy efficient, renewable energy system?	X
EQUIPMENT AND PERFORM PREVENTIVE MAINTENANCE?  18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?  Less than 5%  5% to 10%  10% to 15%  15% to 20%  Over 20%  Do not know  IT VARIES FROM \$0 IN SOME YEARS TO ALL OF THE ABOVE %S IN OTHER YEARS.  19. What percentage of the annual electricity bill would your company or using to implement an energy efficient, renewable energy system?  Less than 5%	X
18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?  Less than 5% 5% to 10% 10% to 15% 15% to 20% Over 20% Do not know IT VARIES FROM \$0 IN SOME YEARS TO ALL OF THE ABOVE %S IN OTHER YEARS.  19. What percentage of the annual electricity bill would your company cousing to implement an energy efficient, renewable energy system?  Less than 5% 5% to 10%	X
18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?  Less than 5% 5% to 10% 10% to 15% 15% to 20% Over 20% Do not know IT VARIES FROM \$0 IN SOME YEARS TO ALL OF THE ABOVE %S IN OTHER YEARS.  19. What percentage of the annual electricity bill would your company ousing to implement an energy efficient, renewable energy system?  Less than 5% 5% to 10% 10% to 15%	X

QUESTIONS Page 5 of 6

20. What percentage of the annual maintenance budget would your company	
consider using to implement an energy efficient, renewable energy sys	tem?
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	X
IT DEPENDS ON THE MEANING OF MAINTENANCE BUDGET.	
21. What percentage of the annual capital expenditure budget would yo company consider using to implement an energy efficient, renewable e system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	Х
MY ANNUAL CAPITAL BUDGET VARIES FROM A FEW HUNDRED THOUSAND DOLLARS TO SEVERAL MILLION DOLLARS.  22. Has your company developed a plan for the efficient use of energy in the	
building(s)?	V
Yes	Х
No Do not know	
THIS IS AN ONGOING PROCESS.	
23. If your company has a plan for the efficient use of energy then:  How effective has it been?	
	Χ
Very effective Somewhat effective	^
Not effective	
Not Applicable	
24. If your company has a plan for the officient use of energy then:	
24. If your company has a plan for the efficient use of energy then: What were the major problems?: <b>OLDER, LESS EFFICIENT T-12</b>	
FLORESCENT LAMPS AND BALLASTS USING MORE ELECTRICIT NEW LAMPS AVAILABLE FOR PURCHASE.	Y THAN
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?: REPLACEMENT OF THE T-12 LAMPS AND BALLASTS WITH T-8 LAMPS AND BALLASTS.	

QUESTIONS Page	6 of 6
26. If your company has a plan for the efficient use of energy, was it wo	
effort?	
Yes	X
No	
Do not know	
Not Applicable	
27. How would your company rank the following in order of importance,	with the
most important first? A=economic development; B=Social justice;	
C=environmental protection	
A-B-C	
A-C-B	
B-A-C	
B-C-A	
C-A-B	
C-B-A	
Do not know	Χ
WE NEED TO "FIX" WHICHEVER OF A, B OR C IS THE MOST "BROKEN".	
,	

QUESTIONS Page	1 of 6
Name (optional): Steve Bender	
Title (optional): Director – Facilities Management	
Organization/Company (optional): Kimberly-Clark	
Date: 10/26/2007	
1. In what country does your company own the building you are using to	answer
the questions?	
China	
Jamaica, West Indies	
USA	X
Other	
2. Has your company or organization done any research in the renewal	ole energy
field?	
Yes	Χ
No	
Do not know	

3. What is your company's current understanding of the impact the ope	ration of
buildings have on the environment?	
Operation of buildings has no impact on the environment	
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	X
Operation of buildings has great impact on the environment	
Do not know	
4. Would your company consider using a renewable energy source suc	h as
solar, wind, biomass?	
Yes	X
No	
Do not know	
5. Would your company consider a clean renewable energy source to l	•
the energy required by the Heating Ventilation Air Conditioning (HVAC)	system?
Yes	X
No	
Do not know	

QUESTIONS Page	2 of 6
6. Would an HVAC system that utilizes a renewable energy technology	which
cuts operating costs give your company a competitive edge?	
Yes	
No	X
Do not know	
7 What conital outlay recovery period (paybook period) would your con	mnon/
7. What capital outlay recovery period (payback period) would your corconsider for a renewable energy system as described in question 6?	прапу
Less than three (3) years	
Three (3) to five (5) years	Χ
Greater than five (5) years	
Do not know	
Do Hot Know	
8. What kind of assistance from the government would increase the po-	ssibility of
your company installing an energy efficient renewable energy system?	
Tax credits	Х
Low interest long term loan guarantee	
Do not know	
Other (please state):	
9. Would your company consider the use of a renewable energy system	n good
customer relations?	
Do not know	
Yes	X
No	
Optional - If yes/no please state why:	
10. What are the peak daily demand periods for the HVAC system?	
8 a.m. to 12 noon	
12 noon to 4 p.m.	
4 p.m. to 8 p.m.	X
Other (please state):	.1
VI/	

QUESTIONS	Page 3 of 6
	g
11. What are the peak seasonal demand periods for the	HVAC system?
Spring	
Summer	X
Autumn	
Winter	
Do not know	
12. What is the expected life span of the HVAC system?	
Less than 5 years	
5 to 10 years	
More than 10 years	X
Do not know	
13. What is your company's current annual electricity bill	?
Less than US\$60,000	
US\$60,001 to US\$75,000	
US\$75,001 to US\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	Х
Do not know	
14. What is your company's current annual maintenance	budget?
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	X
Do not know	
15. What is your company's current annual capital exper	diture budget for new
equipment?	.aa.o baagot for flow
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	X
Do not know	
טט ווטג אווטש	

QUESTIONS Page	4 of 6
16. What portion of the electric bill is attributable to the operation of you	
company's the HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
17. What portion of the annual maintenance budget is attributable to the	e repair of
your company's HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	X
Do not know	
18. What portion of the annual capital expenditure budget is attributable	e to the
replacement of your company's HVAC system?	1
Less than 5%	Χ
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
19. What percentage of the annual electricity bill would your company of	consider
using to implement an energy efficient, renewable energy system?	ı
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	Χ
Do not know	

QUESTIONS Page	e 5 of 6
20. What percentage of the annual maintenance budget would your co	mpany
consider using to implement an energy efficient, renewable energy sys	stem?
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	X
Over 20%	
Do not know	
21. What percentage of the annual capital expenditure budget would y	our
company consider using to implement an energy efficient, renewable e	energy
system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	X
Over 20%	
Do not know	
22. Has your company developed a plan for the efficient use of energy building(s)?	in the
Yes	X
No	
Do not know	
23. If your company has a plan for the efficient use of energy then:	
How effective has it been?	
Very effective	
Somewhat effective	X
Not effective	
Not Applicable	
24. If your company has a plan for the efficient use of energy then:	
What were the major problems?:	
Savings not as high as expected.	
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?:	

QUESTIONS Pag	e 6 of 6
26. If your company has a plan for the efficient use of energy, was it w	orth the
effort?	
Yes	X
No	
Do not know	
Not Applicable	
27. How would your company rank the following in order of importance	e, with the
most important first? A=economic development; B=Social justice;	
C=environmental protection	
A-B-C	
A-C-B	X
B-A-C	
B-C-A	
C-A-B	
C-B-A	
Do not know	

QUESTIONS Page	1 of 6
Name (optional): Shane	
Title (optional): Facilities Manager	
Organization/Company (optional):	
Date: 10/30/07	
1. In what country does your company own the building you are using to the questions?	answer
USA	
2. Has your company or organization done any research in the renewal field?	ole energy
Yes	
3. What is your company's current understanding of the impact the open buildings have on the environment?	ration of

Operation of buildings has great impact on the environment	
4. Would your company consider using a renewable energy source suc solar, wind, biomass?	h as
Do not know	
5. Would your company consider a clean renewable energy source to help offset the energy required by the Heating Ventilation Air Conditioning (HVAC) system?	
Yes	

QUESTIONS Page	2 of 6
6. Would an HVAC system that utilizes a renewable energy technology	which
cuts operating costs give your company a competitive edge?	
Do not know	
7. What capital outlay recovery period (payback period) would your corconsider for a renewable energy system as described in question 6?	npany
Do not know	
8. What kind of assistance from the government would increase the poyour company installing an energy efficient renewable energy system?	ssibility of
Do not know	
	•
9. Would your company consider the use of a renewable energy system customer relations?	n good
Yes	
10. What are the peak daily demand periods for the HVAC system?	
8 a.m. to 12 noon	

QUESTIONS Pag	e 3 of 6
11. What are the peak seasonal demand periods for the HVAC system	າ?
11. What are the peak seasonal demand periods for the 11770 system	1:
Summer	
Winter	
12. What is the expected life span of the HVAC system?	
More than 10 years	
13. What is your company's current annual electricity bill?	
Over US\$111,000	
14. What is your company's current annual maintenance budget?	
Over US\$350,000	
15. What is your company's current annual capital expenditure budget equipment?	tor new
Over US\$350,000	

QUESTIONS Page	4 of 6
16. What portion of the electric bill is attributable to the operation of you company's the HVAC system?	ır
Do not know	
<del></del>	<u> </u>
17. What portion of the annual maintenance budget is attributable to the your company's HVAC system?	e repair of
Less than 5%	
18. What portion of the annual capital expenditure budget is attributable replacement of your company's HVAC system?	e to the
- opiaiosmone your osmponiy o i i i i o o o o o o o o o o o o o o	
10% to 15%	
19. What percentage of the annual electricity bill would your company of using to implement an energy efficient, renewable energy system?	consider
Do not know	

QUESTIONS Page	5 of 6
20. What percentage of the annual maintenance budget would your con	npany
consider using to implement an energy efficient, renewable energy sys	tem?
Do not know	
DO HOURING W	1
21. What percentage of the annual capital expenditure budget would your company consider using to implement an energy efficient, renewable energy system?	
Do not know	
DO HOURING W	
22. Has your company developed a plan for the efficient use of energy building(s)?	in the
Yes	
23. If your company has a plan for the efficient use of energy then:	
Somewhat effective	
24. If your company has a plan for the efficient use of energy then:	
What were the major problems?:	
	-
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?: reduced cost	
Triat horo the major thamphor. Toddood boot	_

_ QUESTIONS Page	6 of 6
26. If your company has a plan for the efficient use of energy, was it wo effort?	rth the
Yes	
27. How would your company rank the following in order of importance, most important first? A=economic development; B=Social justice; C=environmental protection	with the
Do not know	

QUESTIONS Page	1 of 6
Name (optional):Mike Huey	
Title (optional):Building Manager	
Organization/Company (optional):	
Date:	
1. In what country does your company own the building you are using the questions?	o answer
China	
Jamaica, West Indies	
USA	Χ
Other	
2. Has your company or organization done any research in the renewal	ble energy
field?	
Yes	X
No	
Do not know	
3. What is your company's current understanding of the impact the ope buildings have on the environment?	ration of

Operation of buildings has no impact on the environment	
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	
Operation of buildings has great impact on the environment	X
Do not know	
4. Would your company consider using a renewable energy source suc	h as
solar, wind, biomass?	
Yes	X
No	
Do not know	
5. Would your company consider a clean renewable energy source to	
the energy required by the Heating Ventilation Air Conditioning (HVAC)	system?
Yes	X
No	
Do not know	
<u> </u>	

QUESTIONS Page	2 of 6
6. Would an HVAC system that utilizes a renewable energy technology which	
cuts operating costs give your company a competitive edge?	
Yes	
No	
Do not know	X
7. What capital outlay recovery period (payback period) would your cor	npany
consider for a renewable energy system as described in question 6?	
Less than three (3) years	
Three (3) to five (5) years	
Greater than five (5) years	X
Do not know	
8. What kind of assistance from the government would increase the po	ssibility of
your company installing an energy efficient renewable energy system?	
Tax credits	
Low interest long term loan guarantee	
Do not know	X
Other (please state):	
9. Would your company consider the use of a renewable energy system	n good
customer relations?	
Do not know	
Yes	X
No	
Optional - If yes/no please state why: We are an electrical utility with st	rong
commitments to the environmental impact of doing business.	
10. What are the peak daily demand periods for the HVAC system?	
8 a.m. to 12 noon	
12 noon to 4 p.m.	X
4 p.m. to 8 p.m.	
Other (please state):	

QUESTIONS	Page 3 of 6
11. What are the peak seasonal demand periods for the HVAC sy	stem?
Spring	
Summer	X
Autumn	
Winter	X
Do not know	
12. What is the expected life span of the HVAC system?	
Less than 5 years	
5 to 10 years	
More than 10 years	X
Do not know	
13. What is your company's current annual electricity bill?	
Less than US\$60,000	
US\$60,001 to US\$75,000	
US\$75,001 to US\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	
Do not know – we are an electric utility and do not charge ourselve	es. N/A
14. What is your company's current annual maintenance budget?	
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	X
Do not know	
15. What is your company's current annual conital expanditure by	dant for now
15. What is your company's current annual capital expenditure bu equipment?	aget for flew
Less than US\$200,000	X
US\$200,001 to US\$250,000	^
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	

QUESTIONS Page	e 4 of 6
16. What portion of the electric bill is attributable to the operation of you	
company's the HVAC system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	N/A
17. What portion of the annual maintenance budget is attributable to the your company's HVAC system?	e repair of
Less than 5%	
5% to 10%	
10% to 15%	Х
15% to 20%	
Over 20%	
Do not know	
18. What portion of the annual capital expenditure budget is attributable	e to the
replacement of your company's HVAC system?	
Less than 5%	Х
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know – HAVE REPLACED MAJOR EQUIPMENT OVER THE LAST 10 YEARS SO CURRENTLY IT IS LESS THAN 5%	
19. What percentage of the annual electricity bill would your company using to implement an energy efficient, renewable energy system?	consider
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	Х

QUESTIONS Page	5 of 6
20. What percentage of the annual maintenance budget would your co	mpany
consider using to implement an energy efficient, renewable energy sys	tem?
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	X
21. What percentage of the annual capital expenditure budget would you	our
company consider using to implement an energy efficient, renewable e	nergy
system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	X
22. Has your company developed a plan for the efficient use of energy	in the
building(s)?	
Yes	X
No	
Do not know	
23. If your company has a plan for the efficient use of energy then:	
How effective has it been?	
Very effective	X
Somewhat effective	
Not effective	
Not Applicable	
24. If your company has a plan for the efficient use of energy then:	
What were the major problems?: Bringing "moth balled" systems back	into use
with new support or peripheral systems	
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?: Gaining efficiencies through new equi	
and controls with VFD's on all major motors. New operational sequence	es also
gained efficiencies for us	

QUESTIONS Page	6 of 6
26. If your company has a plan for the efficient use of energy, was it wo	rth the
effort?	
Yes	X
No	
Do not know	
Not Applicable	
27. How would your company rank the following in order of importance,	with the
most important first? A=economic development; B=Social justice;	
C=environmental protection	
A-B-C	
A-C-B	
B-A-C	
B-C-A	
C-A-B	
C-B-A	
Do not know	Χ

QUESTIONS Page	1 of 6
Name (optional):Alexander (Alex) Stadler	
Title (optional):Facilities Manager	
Organization/Company (optional): Drew, Eckl & Farnham, LLP	
Date:11-1-07	
1. In what country does your company own the building you are using to the questions?	o answer
China	
Jamaica, West Indies	
USA	X
Other	
2. Has your company or organization done any research in the renewal field?	ole energy
Yes	
No	Χ

Do not know	
3. What is your company's current understanding of the impact the ope	ration of
buildings have on the environment?	
Operation of buildings has no impact on the environment	
Operation of buildings has little impact on the environment	
Operation of buildings has some impact on the environment	
Operation of buildings has great impact on the environment	X
Do not know	
4. Would your company consider using a renewable energy source suc	h as
solar, wind, biomass?	
Yes	
No	
Do not know	X
5. Would your company consider a clean renewable energy source to help offset	
the energy required by the Heating Ventilation Air Conditioning (HVAC)	system?
Yes	
No	
Do not know	X

QUESTIONS Page	2 of 6
6. Would an HVAC system that utilizes a renewable energy technology	which
cuts operating costs give your company a competitive edge?	
Yes	
No	
Do not know	X
7. What capital outlay recovery period (payback period) would your cor	npany
consider for a renewable energy system as described in question 6?	
Less than three (3) years	X
Three (3) to five (5) years	X
Greater than five (5) years	
Do not know	
8. What kind of assistance from the government would increase the pos	ssibility of
your company installing an energy efficient renewable energy system?	
Tax credits	X
Low interest long term loan guarantee	
Do not know	
Other (please state):	
9. Would your company consider the use of a renewable energy syster	n good
customer relations?	
Do not know	
Yes	X
No	
Optional - If yes/no please state why:	
10. What are the peak daily demand periods for the HVAC system?	
8 a.m. to 12 noon	X
12 noon to 4 p.m.	X
4 p.m. to 8 p.m.	
Other (please state): It is dependent on the weather. In the winter, it is	the
morning. In the summer, it is in the afternoon.	

QUESTIONS	Page 3 of 6
11. What are the peak seasonal demand periods for th	e HVAC system?
Spring	
Summer	X
Autumn	
Winter	
Do not know	
12. What is the expected life span of the HVAC system	12
Less than 5 years	1:
5 to 10 years	
More than 10 years	X
Do not know	
DO NOT MILOW	
13. What is your company's current annual electricity b	oill?
Less than US\$60,000	
US\$60,001 to US\$75,000	
US\$75,001 to US\$95,000	
US\$95,001 to US\$111,000	
Over US\$111,000	X
Do not know	
14. What is your company's current annual maintenand	ce budget?
Less than US\$200,000	
US\$200,001 to US\$250,000	
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	X
Do not know	
15. What is your company's current annual capital exp	enditure hudget for new
equipment?	onalitie budget for fiew
Less than US\$200,000	X
US\$200,001 to US\$250,000	/^
US\$250,001 to US\$300,000	
US\$300,001 to US\$350,000	
Over US\$350,000	
Do not know	
DO HOLKHOW	

QUESTIONS Page	4 of 6
16. What portion of the electric bill is attributable to the operation of you	
company's the HVAC system?	
Less than 5%	
5% to 10%	Х
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
17. What portion of the annual maintenance budget is attributable to th your company's HVAC system?	e repair of
Less than 5%	X
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
18. What portion of the annual capital expenditure budget is attributable	e to the
replacement of your company's HVAC system?	
Less than 5%	X
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	
19. What percentage of the annual electricity bill would your company	consider
using to implement an energy efficient, renewable energy system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	X

QUESTIONS Page	5 of 6
20. What percentage of the annual maintenance budget would your co	mpany
consider using to implement an energy efficient, renewable energy sys	tem?
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	X
21. What percentage of the annual capital expenditure budget would ye	
company consider using to implement an energy efficient, renewable e	energy
system?	
Less than 5%	
5% to 10%	
10% to 15%	
15% to 20%	
Over 20%	
Do not know	X
22. Has your company developed a plan for the efficient use of energy	in the
building(s)?	
Yes	
No	X
Do not know	
23. If your company has a plan for the efficient use of energy then:	
How effective has it been?	1
Very effective	
Somewhat effective	
Not effective	1
Not Applicable	X
OA If a constant because the facility of the first and for the fir	
24. If your company has a plan for the efficient use of energy then:	
What were the major problems?: N/A	
OF If your company has a plan for the afficient use of anomy them.	
25. If your company has a plan for the efficient use of energy then:	
What were the major triumphs?: N/A	

QUESTIONS Page	6 of 6
26. If your company has a plan for the efficient use of energy, was it wo	orth the
effort?	
Yes	
No	
Do not know	
Not Applicable	X
27. How would your company rank the following in order of importance	, with the
most important first? A=economic development; B=Social justice;	
C=environmental protection	
A-B-C	
A-C-B	
B-A-C	X
B-C-A	
C-A-B	
C-B-A	
Do not know	

## Responses from the People's Republic of China

<b>酒倦</b> 第一页共页	
姓名(非必填项):	
职位(非必填项:	
公司机构名(非义真项):	
E	
1. 您目前工作所由约里家是:	
椢	х
<b>羽加</b>	
<b></b>	
<b>  </b>	
2. 你目前所由公司工作的构有进产于可用生能原则用的研究吗?	
有	Х
済	
不静	
3. 请可贵公司对于建筑运动自然对影响的从识围程:	1
没情%响	
影响良小	
有一些夠	
劉响艮	Х
不静	
4. 贵公司有计划使用某种青节,再生能源,例如太阳能,风能,生物质能吗?	T
是 否	
<b>不</b>	Х
5. 贵公司曾考虑使用某种清节,再生能原来降低其空调彩、新申量吗?	I
是	
否 	Х
不静	

<b>潤光</b>	第二页 共 页
6. 如果有一种空源统使用的降低运动,用的再生能原料技,您从为安装这种	T
是	X
<u>不</u>	
不證	
7. 多到投资回报期会风速贵公司考虑进行原6所描述中生能原系统?	
少于3年	
3到年	X
<del>3</del> 75年	~
不證	
	kr-kriid o
8. 您认为政府部门应该推计化政策制度大众购买使用可用生能原价设备的	· · · · · · · · · · · · · · · · · · ·
税收费	
长期低点流和	X
不静	
其它(请当明):	
9. 您认为使用可再生能原有助于增进公司与客户之间的关系吗?	
<del></del> <del></del>	
是	X
否	
非必填一请当归答是否的原因:	·
·	
10. 贵公司空源较相前运动每日最大负荷发生在: 早上8点型中午12点	
	X
中午12点到下午4点	
下午4. 定晚上8点	
其也(请却):	

#三页共页  11. 您从什么季节最公司的空调系统图记的最大负荷?  春季  夏季
野野
野野
要       x         校季       ***         不静性       ***         12. 贵公司区略统外评划拥充是       ***         少于5年       ***         5 到10年       x         不静性       ***         13. 贵公司目前的有度用电栅大概是       ***         少于45万元人民币       ***         45 万型66万元之间       ***         56万型71万元之间       ***         71万型83万元之间       ***         超速83万元       x
秋季 冬季 不静壁  12. 贵公司空豚がが呼り使用を促生 少丁5年 5 到10年
不談性
7. 計 12. 計 2. 計 2. 計 2. 計 2. 計 3. 計 3. 計 4. 計 4. 対
12. 贵公司空源统护中均使用有品是: 少于5年 5 到 0年 x  多于10年 不静楚 13. 贵公司目前的年度用电费用人概是: 少于45万元人民币 45 万登16万元之间 56万型11万元之间 71万型83万元之间 超过83万元
少于5年       x         5 到 0年       x         多于10年
少于5年       x         5 到 0年       x         多于10年
5 到 0年       x         多于10年       ************************************
多于10年         不養達         13. 贵公司目前的年度用费用人概是:         少于45万元人民币         45 万堡16万元之间         56万型171万元之间         71万型83万元之间         超速83万元         X
不静  13. 贵公司目前的年度用电费用人概是: 少于45万元人民币  45 万度16万元之间  56万到71万元之间  71万到83万元之间  超速83万元  x
13. 贵公司目前的用度用电费用人概是: 少于45万元人民币 45 万度166万元之间 56万型17元之间 71万型83万元之间 超速83万元 x
少于45万元人民币       45 万建56万元之间       56万建了1万元之间       71万建83万元之间       超速83万元       x
少于45万元人民币       45 万建56万元之间       56万建了1万元之间       71万建83万元之间       超速83万元       x
45 万堡6万元之间 56万砂71万元之间 71万型83万元之间 超退83万元 x
56万砂1万元之间       71万型83万元之间         超速83万元       x
71万型B3万元之间 超速83万元 x
超退3万元 x
11/HD2
14. 贵公司前海中的空源系统的维护所算是
14. <u>贝</u>
150万到87.5万元之间
187.5 万型25万元之间
225万型263万元之间
超过263万元
不證
17AC
15. 贵公司目前十划用在收买新式空脚路的年度所算是
少于150元
150万到87.5万元之间
187.5 万型25万元之间
225万型263万元之间
超过263万元
不 <del>能</del> x

<b>潤光</b>	
16. 贵公市空源彩研电台公司总用电量的百分比是	
低于5%	
5% 到10%	
10% 到15%	Х
15% 到20%	
<b></b>	
不静	
17. 贵公司空调系统创药用占公司总年度的创新的算的百分比是	_
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
<u></u>	
不静	Х
18. 贵公司用于寒时产减强的费用占其中度资本支出预算的百分比是	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不静	Х
19. 贵公司考虑用于3进高效计能,使用可再生能原设备的预算占其年度总用电费用的百分比是	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不静	X

20. 贵公司考虑用于引进高效计能,使用可再生能原设备的领导占其年度。1894年的第一节第一节第一节后分比是:		
低于5%		
5% 到10%		
10% 到15%		
15% 到20%		
超过20%		
不證	Х	
21. 贵公司所算在 进可持续维护系统的资金占其年度总资金预算的百分比是		
少于5%		
5% 到10%		
10% 到15%		
15% 到20%		
超过20%		
不證	X	
22. 贵公司目前有出台'实了任何建筑节能方案(策略)?		
是	X	

否	
不證	
23. 如果贵公司目前有采用任何计能策略,您认为该节能策略在帮助公司节约能原利用方面:	
<b>非常有效</b>	X
效用一般	
滧	
没有计能策略	
24. 如果贵公司目前有采用任何计能策略,	
该节能和各种主要问题是	
25. 如果贵公司目前有采用任何计能策略	
该节能和的主要成功之处是	

<b>酒</b> 卷 第项共项	
26. 如果贵公司目前有采用任何节能策略,相比较于投入的资源时制力,您以其成效满意吗?	
<b>満</b>	
不識	Х
不静	
没有讲说那	
27. 请将下面A,B,C三项社其在您(公司)心目中的重要性排序,最重要的排第一,然后依次递减 A=经济发展	以 B=社会正义
C=环 <b>境</b> <del>和</del> 户	
A-B-C	
A-C-B	х
B-A-C	
B-C-A	
C-A-B	
C-B-A	
不證	

避過後	
姓名(非必填项):	
职位(非必填功:	
公司机构名(非义真项:	
日期	
1. 您目前工作所由的国家是	
<b>埋</b>	Х
<b>牙沙加</b>	
<b></b>	
<b>其</b> 他	
2. 你目前所由公司工作的构有进一关于可用生能原则用的研究吗?	
有	Х
<b>済</b>	
不静	
3. 请问贵公司对于建筑运动自然环境外的认识理程:	
没意响	
影响艮小	
有些夠	
影响	Х
不静	
4. 贵公司有计划使用某种青节,再生能源,例如太阳能,风能,生物质能吗?	
是	
否	Х

不證	
5. 贵公司曾考想由其种清洁,再生能原来降低其空周终部中量吗?	
是	
否	
不證	х

一 演	<u> </u>
6. 如果有一种空调系统更用可降低运了费用的再生能原料技,您以为安装这种空调系统会是	高贵公司的竞争力吗?
是	x
否	
不静	
7. 多到投资回报期会风度贵公司考虑时问题的相当的再生能原统?	
少于3年	
3到5年	x
<del>到</del> 5年	
不静	
8. 您认为政府部门应对推引人政策来提高大众将买使用可再生能原价设备的积极性?	
税收晚	X
<del>长期低息诱</del> 烟草	
不静	
其它、请组的:	
9. 您以为使用可用生能原有助于增进公司与客户之间的关系吗?	
<b>承</b> 道	
是	X
否	
非必填一 请进恒答是否的原因	
10. 贵公市空源系统目前运动每日最大负荷发生在	
早上8点部中午12点	X
中午12点到下午4点	
下午4. 辞晚上8点	
其他(请部):	

调查·卷 第三页共 <b>设</b>	
11. 您认为什么季节贵公司的空调系统经验的最大负荷?	
<b>春</b>	
<b>野</b>	Х
· たっと ・	
<b>梦</b>	Х
不證	
12. 贵公司空、豚、始中均,申用养命是:	1
少于5年	
5 到 0年	x
<b>纡10</b> 年	
不静	
13. 贵公司目前的年度用电费用人概是:	
少于45万元人民行	
45 万到56万元之间	
56万到71万元之间	
71万到83万元之间	
超速3万元	
不證	X
14. 贵公司目前每年的空源系统的维护预算是	
少于150万元	
150万到187.5万元之间	
187.5 万到225万元之间	
225万到263万元之间	
超过63万元	
不静	X
15. 贵公司目前代明由《实新文学》的年度的算是	
少于150万元	
150万到187.5万元之间	
187.5 万型225万元之间	
225万全263万元之间	
超型63万元	
不静	X

第四次	<del>以</del> 页
16. 贵公司空源统用电占公司总用电量的百分比是	
低5%	
5% 到10%	
10% 到15%	
15% 到20%	
高于20%	x
不證	
17. 贵公司空调系统制参用占公司总年度销产组修河第八百分比是	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
<u></u> 高于20%	Х
不證	
18. 贵公司用于寒时空洞设备的费用占其中度资本支出预算的百分比是	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	X
不静	
19. 贵公司考虑用于3进高效节能,使用户再生能源3全分预算占其年度总用电费用。	<b>泊分</b> 定
低于5%	
5% 到10%	
10% 到15%	X
15% 到20%	
超过20%	
不静	

脂質光	
20. 贵公司考虑开了谜高效性能,使用可用生能原络的预算占其年度:修维护费用预算的百分比是	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超寸20%	
不證	х
TIMAL	, A
21. 贵公司所算在3进可持续性能原系的资金占其年度总资金预算的百分比是	
少于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	х
不證	1
22. 贵公司目前有出台实了任何建筑节能方案策略吗?	_
是	x
否	
不證	
23. 如果贵公司目前有采用任何节能策略,您认为该节能策略在帮助公司节约能原利用方面:	
<b>非敏</b>	х
效用─般	
<b></b>	
没有详能知格	
24. 如果贵公司目前有采用任何计能等略,	
该节能和各种生要问题是	
拼行不够	
25. 如果贵公司目前有采用任何计能等略	
该节能和格住要成功之处是	
<del>背面</del>	

海 <u>港</u> 第项共项	
26. 如果贵公司目前有采用任何节能策略,相比较于投入的资源时制力,您以其成效满意吗?	
<b>満意</b>	
不識	х
不證	
没有节能策略	
27. 请将下面A,B,C三项社其在您(公司)心目中的重要性排序,最重要的排第一,然后依然递减。A=经济发展	张 B=社会正义;
C=环 <b>境</b> 积户	
A-B-C	
A-C-B	
B-A-C	
B-C-A	х
C-A-B	
C-B-A	
不證	
	·

<b>谐音</b>	第一页共一页
	3. 347V VX
姓名(非必填劢:	
职位(非凶真劢:	
公司机构名(非必填项:	
田期	
1. 您目前工作所在约里家是	
椢	X
牙如	
類	
其他	
2. 你目前所由公司工作机构有进了关于可再生能原利用的研究吗?	
有	X
海	
不静	
3. 请问贵公司对于建筑运动自然环境等的认识理程: 没有影响	
景が良い	
有些鄉	
	X
不静	
1750-	
4. 贵公司有计划使用某种清洁可再生能源,例如太阳能,风能,生物质能吗	?
是	
否	
不證	X
	•

5. 贵公司曾考恩史开某种清洁,再生能原来降低其空,既然开户量吗?	
是	X
否	
不證	

酒卷	第二页共/页	
6. 如果有一种空调系统更用可降低运了费用的再生能原料技,您以为安装这种	空调系统会提高贵公司的竞争力吗?	
是	X	
否		
不静		
7. 多国的公司报期会促使贵公司考虑使用问题6所描述的再生能原系统?		
少于3年	X	
3到5年		
多于5年		
不證		
8. 您认为政府部门应该推计人政策求提高大众购买使用可再生能源的设备的	积极生?	
税收减免		
长期低息贷款保障	X	
不證		
其文(请到):		
9. 您认为使用可再生能原有助于增进公司与客户之间的关系吗?	_	
积道	X	
是		
否		
非必填一 请		
10. 贵公司空调彩、相前运动的每日最大负荷发生在	_	
早上8点到中午12点		
中午12点到下午4点	X	
下午4. 海晚比点		
其地(请到):		

<b>避避</b>	<b></b>
11. 您以为什么季节贵公司的空洞系统还则它的最大负荷?	
春季	
夏季	X
<b>秋</b> 季	
冬季	
不静	
12. 贵公市空源系统河均进寿命是	
少于5年	
5 到 0 年	X
<b>3</b> 于10年	
不静	
13. 贵公司目前的年度开电费用人概是	
少于45万元人民行	
45 万到56万元之间	
56万到71万元之间	
71万全B3万元之间	
超過3万元	X
不静	
14. 贵公司目前每年的空間系统的多维护的算是	
少150元	
150万到187.5万元之间	
187.5 万型25万元之间	
225 万里 263 万元 2 间	
超过263万元	
不静	X
15. 贵公司目前计划用在购买新式空调场的"中度预算是"	
少150元	
150万到187.5万元之间	
187.5 万到225万元之间	
225 万里 22	
超过263万元	
不證	X

<b>潤原</b>	
16. 贵公司空调彩新用占公司总用电量的百分比是:	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
高于20%	
不證	X
17. 贵公司空调系统创物用占公司总年度的的创新的自分比是	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
<u></u> 高于20%	
不證	X
18. 贵公司用于寒时空湖及全部满州占其中度资本支出预算的百分比是	,
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不證	X
19. 贵公司考虑用于引进高效计能,使用可用生能原设备的预算占其年度总用电费用的百分比是:	T
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不静	X

<b>避倦</b>	_
20. 贵公司考虑用于3进高效性能,使用户再生能原发的领算占其年度的增护费用预算的百分比是	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不静	X
21. 贵公司的算法。进可持续生能系统的资金占其年度总资金的算的百分比是	_
少于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不静	X
22. 贵公司目前有出台实了任何建筑计能方案策略吗?	
是	X

否	
不證	
23. 如果贵公司目前有采用任何节能策略,您认为该节能策略在帮助公司节约能原利用方面:	
<b>講教</b>	
效用一般	X
滧	
没有讲说那	
24. 如果贵公司目前有采用任何节能策略,	
该节能和各种生要问题是	
25. 如果贵公司目前有采用任何节能策略	
该节能和各注要成功之处是	
VFD	

<b>潤光</b>	
26. 如果贵公司目前有采用任何节能策略,相比较于投入的资源时精力,您以其成效满意吗?	
満	
不識	
不證	X
没有计能策略	
27. 请将下面A,B,C三项农其在您(公司)心目中的重要性排序,最重要的排第一,然后依次递减。A=经济发展	张 B=社会正义;
C=环境保护	
A-B-C	
A-C-B	X
B-A-C	
B-C-A	
C-A-B	
C-B-A	·
不證	
	•

	_
<b>海</b> 一卷 第一页共分页	
姓名(非必填项):	
职位(非必填项:	
公司机构名(非必填项):	
E期	
1. 您目前工作所在的国家是:	
中国	Х
<del>双</del> 加	
<b>類</b>	
拠	
2. 你目前所在的公司工作机构有进行关于可再生能原利用的研究吗?	
有	
海	X
不證	
3. 请问贵公司对于建筑过了对自然环境等外的认识明明是:	
没意响	
影响艮小	
有些納	X
影响艮	
不證	
4. 贵公司有计划使用某种清洁,再生能源,例如太阳能,风能,生物质能吗?	
是	
否	X

不證	
5. 贵公司曾考虑使用某种青节河再生能原来降低其空周彩、拥电量吗?	
是	
否	X
不證	

6. 如果有一种空调彩苑更用了降低运了费用的再生能原料技,您以为安装这种空	
是	X
否	
不静	
7. 多短的投资回报期会因使贵公司考虑并问题6所描述的再生能原系统?	
少于3年	X
3到5年	
<del>到</del> 5年	
不静	
8. 您认为政府部门应该推了什么政策来提高大众购买使用可再生能原价设备的积	
税均晚	X
长期低急等风障	
不静	
其立、请当月:	
9. 您认为使用可再生能原有助于增进公司与客户之间的关系吗?	
<b></b>	
是	
<b>否</b>	
非必填一 请当归答别否的原因 不一定	
10. 贵公市产牌的相前运动的每日最大负荷发生在	V
早上8点型中午12点	X
中午12点到下午4点 下午4点:	
, , v. <u></u>	

<b>酒一卷</b> 第二	<b>列共</b> 项
11. 您以为什么季节贵公司的空调系统还归的最大负荷?	
<b>蓉</b>	
<b></b>	X
<b>秋</b> 季	
<b></b>	
不静	
12. 贵公市空雨彩的平均使用寿命是:	
少于5年	
5 到 0年	X
<b>3</b> 于10年	
不静	
13. 贵公司目前的年度开电费用大概是	
少于45万元人民行	
45 万到56万元之间	
56万到71万元之间	
71万983万元之间	
超退3万元	X
不静	
14. 贵公司目前每年的空源系统的多维产所算是	
少150元	X
150万到187.5万元之间	
187.5 万到225万元之间	
225万到263万元之间	
超业63万元	
不静	
15. 贵公司目前计划用在购买新式空调设备的年度预算是	
少于150元	X
150万到87.5万元之间	
187.5 万型25万元之间	
225万型263万元之间	
超空63万元	
不證	

<b>避倦</b>	
16. 贵公司空调系统用电台公司总用电量的百分比是:	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
<u></u> 高于20%	Х
不證	
17. 贵公司召职统创费用占公司总年度的创新的百分比是	·
低于5%	
5% 到10%	X
10% 到15%	
15% 到20%	
高于20%	
不證	
18. 贵公司用于更新空间设备的费用占其年度资本支出预算的百分比是	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	Х
超过20%	
不證	
19. 贵公司考虑用于引进高效节能,使用可用生能原始的价算占其年度总用电费用的百分比是	
低于5%	
5% 到10%	X
10% 到15%	
15% 到20%	
超过20%	
不静	

<b>避倦</b>	
20. 贵公司考虑用于3进高效计能,使用户再生能原发的预算占其中度11多维护费用预算的百分比是	
低于5%	
5% 到10%	X
10% 到15%	
15% 到20%	
超过20%	
不證	
21. 贵公司所算名 进可持续维护原外的资金占其年度总资金预算的百分比是	
少于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不證	X
22. 贵公司目前有出台实了任何整件指方案第4码?	
是	X

否	
不證	
23. 如果贵公司目前有采用任何计能策略,您认为该节能策略在帮助公司节约能原利用方面:	
非常有效	X
效用一般	
滧	
没有计能策略	
24. 如果贵公司目前有采用任何节能策略,	
该 <b>消耗和的主要</b> 问题是	
25. 如果贵公司目前有采用任何节能策略	
该计能和格性要成功之处是	

<b>潤光</b> 第项共页	
26. 如果贵公司目前有采用任何节能策略,相比较于投入的资源叫情力,您对其成效满意吗?	
满 <b>意</b>	X
不識	
不静	
没有节能争略	
27. 请将下面A,B,C三项社其在您(公司)心目中的重要性排序,最重要的排第一,然后依然递减 A=经济发展	张 B=社会正义;
C=环 <b>境</b> <del>和</del> 户	
A-B-C	
A-C-B	
B-A-C	
B-C-A	X
C-A-B	
C-B-A	
不證	

<b>消息</b> 第一页块页	
姓名(非必填项):	
职位(非必填项):	
公司机构名(非义填项):	
田期	
1. 您目前工作所由生家是:	
中国	X
牙如	
<b>ച</b>	
其他	
2. 你目前所在公司工作机构有进行关于可再生能原则用的研究吗?	
有	
<b>海</b>	X
不静	
3. 请问贵公司对于建筑运动自然环境外的认识理程:	
没意响	
影响良小	
有一些影响	X
影响跃	
不静	
4. 贵公司有计划使用某种青节,再生能源,例如太阳能,风能,生物质能吗?	
是	
否	X

不證	
5. 贵公司曾考虑使用某种青节河再生能原来降低其空周彩、拥电量吗?	
是	
否	X
不證	

	<b>仁</b> 页共分
6. 如果有一种空调系统使用可降低运了费用的再生能源、排技,您以为安装这种	
是	X
否	
不静	
7. 多短的投资回报期会促使贵公司考虑使用问题6所描述的再生能原系统?	
少于3年	X
3到5年	
<del>多T</del> 5年	
不静	
8. 您认为政府部门应该推计化政策来提高大众购买使用可再生能源价设备的	
税收晚	X
长期低急贷款保障	
不静	
其文 请:	
9. 您以为使用可用生能原有助于增进公司与客户之间的关系吗?	
<b></b>	.,
是	X
否 th Vite Na	
非必填一 请 却 拒 答是 否 的 原 因 :	
10. 贵公司空源较相前运动每日最大负荷发生在:	
早上8点到中午12点	X
中午12点到下午4点	
下午4.5至90.	
其也(请到):	

调查造	<b>项共</b> 项
11. 您以为什么季节贵公司的空调系统经1户的最大负荷?	
<b>香</b>	
野	X
悸	
<b></b>	
不静	
12. 贵公司空源统外平均使用寿命是	
少于5年	
5 到 0 年	X
<b>舒10年</b>	
不静	
13. 贵公司目前的年度用电费用人概是:	
少于45万元人民行	
45 万到56万元之间	
56万到71万元之间	
71万里83万元之间	
超3万元	X
不静	
14. 贵公司目前每年的空洞系统的多维产预算是	
<b>好150</b>	X
150万到187.5万元之间	
187.5 万到225万元之间	
225万全1263万元之间	
超过63万元	
不證	
15. 贵公司目前:代明在似实新式空源经的年度预算是	
好150沅	
150万到87.5万元之间	X
187.5 万型225万元之间	
225万全263万元之间	
超过263万元	
不證	

<b>海雪港</b>	页
16. 贵公市空调系统用电占公司总用电量的百分比是:	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	X
<u></u>	
不證	
17. 贵公司空调系统创约用占公司总年度的分组修须算的百分比是	
低于5%	X
5% 到10%	
10% 到15%	
15% 到20%	
哥20%	
不静	
18. 贵公司用于安全的资用占其年度资本支出预算的百分比是	<u>.</u>
低于5%	
5% 到10%	X
10% 到15%	
15% 到20%	
超过20%	
不證	
19. 贵公司考虑用于以通家对能,使用可用生能原设的预算占其年度总用电费用的百分	北是:
低于5%	
5% 到10%	X
10% 到15%	
15% 到20%	
超过20%	
不静	

<b>避倦</b> 第一页共项	
20. 贵公司考虑用于1进高效节能,使用可再生能原及各价第占其年度11的维护费用预算的百分让是	
低于5%	X
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不静	
21. 贵公司预算43 进口持续增加系统的资金占其中度总资金预算的百分比是	
少于5%	
5% 到10%	Х
10% 到15%	
15% 到20%	
超过20%	
不静	
22. 贵公司目前有出台"实了任何建筑节能方案"舞"码?	
是	
否	X
不静	
23. 如果贵公司目前有采用任何节能策略,您认为该节能策略在帮助公司节约能原利用方面:	
<b>非常</b> 效	Х
效用一般	
<b>茂</b> 效	
没有计能策略	
24. 如果贵公司目前有采用任何节能策略,	
该节能和各种主要问题是	
25. 如果贵公司目前有采用任何节能策略	
该计能策略注要成为之处是	

<b>避</b>	
26. 如果贵公司目前有采用任何节能策略,相比较于投入的资源时间,然时其成效满意吗?	
満	
不識	
不静	Χ
没有计能策略	
27. 请将下面A,B,C三项社其在您(公司)心目中的重要性排序,最重要的排第一,然后依然递减 A=经济发展 B=社会正义:	
C=环 <b>境</b> 积户	
A-B-C	
A-C-B	X
B-A-C	
B-C-A	
C-A-B	
C-B-A	
不證	

<b>遭</b> 倦 第一页共页	
姓名(非必填页:	
职位(非必填列:	
公司机构名(非必填项:	
田期	
1. 您目前工作所由的国家是	
中国	Х
牙加	
<b>羝</b>	
拠	
2. 你目前所在公司工作机构有进一关于可再生能原则用的研究吗?	
有	X
<b>濟</b>	
不證	
3. 请问贵公司对于建筑运动自然对竞争的认识事程:	
没意响	
影响良小	X
有一些影响	
影响跃	
不静	
4. 贵公司有计划使用某种清节,再生能源,例如太阳能,风能,生物质能吗?	
是	X
否	

不證	
5. 贵公司曾考慰史开某种清节,再生能原来降低其空调彩新中量吗?	
是	
否	X
不證	

调查一卷第二页共一页	
	<i>Ь</i> ₩ <b>Д 1</b>
6. 如果有一种空调彩说更用可解低运了费用的再生能源、排货、您认为安装这种空调彩统会提高贵公司	<u> </u>
是 否	
<u>日</u> 不 <del>談</del>	X
117FAE	
少于3年	
3到5年	
<del>多T5</del> 年	
不静	X
8. 您认为政府部门应对能引力区政策来提高大众将买使用户再生能源的设备的积极性?	
税收减免	X
长期低急贷款保障	
不静	
其立情部:	
9. 您以为使用可用生能原有助于增进公司与客户之间的关系吗? 不知道	
是	X
定   否	^
立   非必填- 请:排回答是:否的原因:	
早上8点到午12点	Х
中午12点到下午4点	Х
下午4点9晚上8点	
其也(请却):	<u>.</u>

<b>第一页共</b> 项	
11. 您以为什么季节贵公司的空调彩统达到它的最大负荷?	
<b>春</b>	
<b>ಶ</b>	X
<b>                                    </b>	
· 经	
- <del>7. ***********************************</del>	
11130	
12. 贵公市空源系统分平均进度合是:	
少于5年	
5 到 0 年	X
多于10年	
不静	
13. 贵公司目前的用度用电费用人概是:	
少于45万元人民行	
45 万到56万元之间	
56万到71万元之间	
71万483万元之间	
超退3万元	X
不静	
14. 贵公司目前每年的空周系统修缮的第三	
少于150元元	X
150万到87.5万元之间	
187.5 万型25万元之间	
225万到263万元之间	
超过263万元	
不證	
15. 贵公司目前计划用在外京新式空间设备的年度预算是	
少于150元	
150万到87.5万元之间	
187.5 万到225万元之间	
225万到263万元之间	
超过63万元	
不静	X

<b>避倦</b>	
16. 贵公市空源彩研电占公司总用电量的百分比是:	
低于5%	X
5% 到10%	
10% 到15%	
15% 到20%	
<u></u>	
不静	
17. 贵公司空雨系统的费用占公司总年度的维修预算的百分比是:	
低于5%	X
5% 到10%	
10% 到15%	
15% 到20%	
高于20%	
不證	
18. 贵公司用于要将空间设备的费用占其年度资本支出预算的百分比是	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不静	X
19. 贵公司考虑用于3 进高效计能,使用可再生能源分益的预算占其年度总用电费用的百分比是:	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不證	X

调查问卷	50000000000000000000000000000000000000
20. 贵公司考虑用于引进高效节能,使用可用生能原品的预算占其年度的参	部 <b>党用预算的百分比是</b>
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不證	X
17734	
21. 贵公司项单码 进可持续维护系统的资金占其年度总资金项单的百分比是	<u> </u>
少于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超寸20%	
不静	X
1112	
22. 贵公司目前有出台,实了任何建筑节能方案(策略吗?	1
是	X
否	
不證	
23. 如果贵公司目前有采用任何节能策略,您认为该节能策略在帮助公司节约能	源,用方面:
<b>非常</b>	
效用一般	X
无	
没有节能策略	
24. 如果贵公司目前有采用任何节能策略,	1
该节能和各种社会问题是	
新建筑设计中采用下保计能设计,节省能源详毛	
25. 如果贵公司目前有采用任何节能策略	
该节能和格住要成功之处是	
从源头羽纸能原鲜毛	

<b>消光</b>	
26. 如果贵公司目前有采用任何节能策略,相比较于投入的资源时制力,您以其成效满意吗?	
淵意	
不識	Χ
不静	
没有节能策略	
27. 请将下面A,B,C三项社其在您(公司)心目中的重要性排序,最重要的排第一,然后依次递减。A=经济发展	; B=社会正义;
C=环 <b>境</b> <del>和</del>	
A-B-C	
A-C-B	
B-A-C	
B-C-A	
C-A-B	
C-B-A	Χ
不證	
	•

姓名(非必真项): 取位(非必真项): 公司/机构名(非必真项): 日期  1. 您目前工作所由的国家是: 中国  X	
<ul><li>取位(非必填所:</li><li>公司机构名(非必真所:</li><li>日期</li><li>1. 您目前工作所在的国家是:</li><li>中国</li><li>X</li></ul>	
公司机构名(非改真项):         日期         1. 您目前工作所由的国家是:         中国	
公司机构名(非改真项):         日期         1. 您目前工作所由的国家是:         中国	
1. 您目前工作所由的国家是:       X	
中国X	
中国X	
<b>ച</b>	
其地	
2. 你目前所在公司工作机构有进行关于可再生能原利用的研究吗?	
有	
済X	
不證	
3. 请问贵公司对于建筑运动自然对竞争的认识期程:	
没意响	
影响良小	
有一些影响 X	
影响	
不證	
4. 贵公司有计划使用某种清节,再生能源,例如太阳能,风能,生物质能吗?	
是	
否 X	

不證	
5. 贵公司曾考慰史开某种清节,再生能原来降低其空调彩新中量吗?	
是	
否	X
不證	

<b>運動機 第二次共</b> 项	
6. 如果有一种空洞系统使用可降低运了费用的再生能原料技,您认为安装这种空洞系统会提高贵心	河的竞争力吗?
是	
否	
不静	X
7. 多组分的回报期会风度贵公司考虑使用问题6所描述的再生能原系统?	
少于3年	
3到5年	X
<b>多</b> 75年	
不静	
8. 您认为政府部门应对推引人政策对提高大众派买使用可用生能原价设备的积极性?	
税负责	X
大利に息が 大利に息が 大利に息が 大利に息が 大利に息が 大利に息が 大利に息が 大利に息が 大利に息が 大利に息が 大利に息が 大利に息が 大利に 大利に 大利に 大利に 大利に 大利に 大利に 大利に	
不静	
其它(请到用):	
9. 您认为使用中国生能原有助于增进公司与客户之间的关系吗?	
(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	
是	X
<u>作</u>	
U	
10. 贵公市空源经租前运动每日最大负荷发生在	
早上8点。中午12点	
中午12点到下4点	X
下午4. 点晚上8点	
其他(请却):	·
,	

<b>酒</b>	三页共分
W. T. 10	
11. 您以为什么季节贵公司的空调系统还到它的最大负荷?	
<b></b>	X
<b>树</b>	
·	X
不證	
12. 贵公司空源统物评约申申寿命是:	<u> </u>
少于5年	
5 到0年	X
<u>多于</u> 10年	
不證	
13. 贵公司目前的年度用电费用大概是:	·
少于45万元人民行	
45 万到56万元之间	
56万到71万元之间	
71万到83万元之间	
超退3万元	X
不證	
14. 贵公司目前每年的空間系统的多维护的算是	
少于150元	X
150万到87.5万元之间	
187.5 万到225万元之间	
225万全63万元之间	
超过263万元	
不静	
15. 贵公司目前代明在将来武空调整的年度预算是	
少于150元	X
150万到87.5万元之间	
187.5 万到225万元之间	
225万全263万元之间	
超过263万元	
不證	

<b>潤光</b>	
16. 贵公司空源较拥电占公司总用电量的百分比是:	
低于5%	
5% 到10%	X
10% 到15%	
15% 到20%	
<u></u> 高于20%	
不静	
17. 贵公司空源统制参州占公司总用变铀沪维修河第9百分比是	
低于5%	X
5% 到10%	
10% 到15%	
15% 到20%	
<b>計20%</b>	
不静	
18. 贵公司用于更新空阔设备的费用占其年度资本支出预算的百分比是	
低于5%	X
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不證	
19. 贵公司考虑用于引进高效节能,使用可再生能原设备的预算占其年度总用电费用的百分比是	;
低于5%	X
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不識	

<b>海</b> 第	
20. 贵公司考虑用于《进高效节能,使用可用生能原设备的预算占其中变储多维产费用预算的百分比是	
在于5%	X
5% 到10%	^
10% 到15%	
15% 到 20%	
超寸20%	
不静	
イン月定	
21. 贵公司项单名进中持续维护系统的资金占其年度总资金项单的百分比是	
少于5%	
シテ 5%   5% 到 10%	
10% 到10%	
15% 到 20%	
超过20%	X
不證	X
22. 贵公司目前有出台实计和建筑节能方案策略。	
是	X
古	X
不證	
23. 如果贵公司目前有采用任何节能策略,您以为该节能策略在帮助公司节约能原利用方面:	l v
非常有效 - ***B. \$10	X
対用一般	
<b></b>	
没有计能策略	
24. 如果贵公司目前有采用任何节能策略,	
该节能等的由于要问题是	
25. 如果贵公司目前有采用任何计能策略	
该节能知的主要成功之处是	

<b>海</b> 港 第项共项	
26. 如果贵公司目前有采用任何节能策略,相比较于投入的资源时制力,您以其成效满意吗?	
满意	
不識	
不證	X
没有节能和	
27. 请将下面A, B, C三项社其在您(公司)心目中的重要性排序,最重要的排第一,然后依次递减 A=经济发展	张 B=社会正义;
C=环 <b>境</b> 积户	
A-B-C	
A-C-B	X
B-A-C	
B-C-A	
C-A-B	
C-B-A	
不證	

酒造	第一页共分页	
姓名(非必填项):		
职位(非必填功:		
公司机构名(非必填顶:		
E期		
		_
1. 您目前工作用在中国家是:		
中国	X	_
牙沙加		
<b>翔</b>		
其他		_
	<u>'</u>	
2. 你目前所在公司工作机构有进行关于可再生能原则用的研究吗?		
有		
<b>済</b>	X	
不證		
3. 请问责公司对于建筑过了对自然环境深圳的认识期程:		
没有影响		
影响艮小		
有		
影响艮大	X	
不證		
4. 贵公司有计划使用某种青节用生能原,例如太阳能,风能,生物质能吗	?	
是	X	
否		

不證	
5. 贵公司曾考虑使用某种青节,再生能原来降低其空,既然用电量吗?	
是	X
否	
不證	

	第二页共分页
6. 如果有一种空调系统使用可降低运了费用的再生能原料技,您以为安全	
是	X
否	
不 <del></del>	
7. 多到投资回报期会促使贵公司考虑更用问题6所描述的再生能原	统?
少于3年	
3到5年	X
多开5年	
不静	
8. 您认为政府部门应该推计化政策来提高大众将买使用的再生能原外	<b>验的积极性</b> ?
税划域	X
长期低息贷款保障	
不 <del></del>	
其它(清部):	
9. 您认为使用可再生能原有助于增进公司与客户之间的关系吗?	
<b>飛</b> 道	X
是	
否	
非必填一 请当归答是否的原因	
10. 贵公司空源经用前运动每日最大负荷发生在	
早上8点到中午12点	X
	Winter
中午12点到下午4点	X
	Summer
下午4.每晚上8点	
其他(请到):	

海 <u>港</u> 第	三页共分页
WHICH AT	-347V <i>9</i> 4
11. 您以为什么季节贵公司的空调系统经1户的最大负荷?	
· · · · · · · · · · · · · · · · · · ·	
<b></b>	X
<b>秋</b> 季	
· 冬季	
不静	
12. 贵公司空调系统分平均进展命是	
少于5年	
5 到 0年	X
<b>3</b> 于10年	
不證	
13. 贵公司目前的年度用电费用人概是:	
少于45万元人民行	X
45 万到56万元之间	
56万到71万元之间	
71万至B3万元之间	
超退3万元	
不静	
14. 贵公司目前每年的空调系统11多维产的算是	
少150元	X
150万到87.5万元之间	
187.5 万到25万元之间	
225万型63万元之间	
超过63万元	
不静	
15. 贵公司目前计划用在购买新式空调设备的年度预算是	
少于150元	X
150万到187.5万元之间	
187.5 万到225万元之间	
225万到263万元之间	
超过263万元	
不證	

<b>避倦</b>	
16. 贵公市空源经用电台公司总用电量的百分比是:	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
哥20%	X
不静	
17. 贵公司空源统制统用占公司总年度的1组修须算的百分比是:	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	X
高于20%	
不證	
18. 贵公司用于要的产品,经验的人工,但是一个人们的人们,但是一个人们的人们的人们,但是一个人们的人们的人们的人们,但是一个人们的人们的人们的人们的人们,但是一个人们的人们的人们的人们的人们的人们的人们的人们的人们的人们的人们的人们的人们的人	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	X
超过20%	
不静	
19. 贵公司考虑用于引进高效节能,使用可再生能原设备的预算占其年度总用电费用的百分比是:	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	Х
不證	

调查记 第1页		
20. 贵公司考虑用于3进高效节能,使用户再生能原金的领算占其年度的增护费品。	<b>所算的百分</b> 提:	
低于5%		
5% 到10%		
10% 到15%		
15% 到20%		
超过20%	X	
不證		
21. 贵公司所算在3 进可转续性,原系统的资金占其年度总资金预算的百分比是		
少于5%		
5% 到10%		
10% 到15%		
15% 到20%		
超过20%	X	
不 <del></del>		
22. 贵公司目前有出台实了任何建筑节能方案、策略吗?		
是	X	
否		
不證		
23. 如果贵公司目前有采用任何节能策略,您认为该节能策略在帮助公司节约能原则用		
<b>非常</b>	X	
效用一般		
<b>_</b>		
没有节能争略		
24. 如果贵公司目前有采用任何节能策略,		
该节能和好生要问题是		
25. 如果贵公司目前有采用任何节能策略		
该节能知的注要成功之处是		

<b>海</b> 港	
26. 如果贵公司目前有采用任何节能策略,相比较于投入的资源印精力,您以其成效满意吗?	
满意	
不識	
不静	N/A
没有节能和	
27. 请将下面A,B,C三项社其在您(公司)心目中的重要性排序,最重要的排第一,然后依然递减。A=经济发展	张 B=社会正义;
C=环 <b>境</b> <del>和</del> 户	
A-B-C	Χ
A-C-B	
B-A-C	
B-C-A	
C-A-B	
C-B-A	
不證	

调查问卷	于可共分	
姓名(非必填项):		
职位(非必真劢:		
公司机构名(非必填劢:		
——————————————————————————————————————		
1. 您目前工作所由生家是:		
恒	X	
	^	
<b>牙加</b>		
<b></b>		
拠		
2. 你目前所在的公司/工作机构有进行关于可再生能原利用的研究吗?		
有		
海	X	
不證		
3. 请问贵公司对于建筑过了对自然环境外的认识明程:		
没意响		
影响良小		
有些鄉		
影响	X	
不静		
THIC		
4. 贵公司有计划使用某种清节,再生能源,例如太阳能,风能,生物质能吗?		
	X	
是	^_	
否		

不證	
5. 贵公司曾考虑使用某种青节,再生能原来降低其空,既然用电量吗?	
是	X
否	
不證	

	项块项
6. 如果有一种空调彩苑更用了降低运了费用的再生能原料技,您以为安装这种空	
是	X
否	
不静	
7. 多短的投资回报期会因使贵公司考虑并问题6所描述的再生能原系统?	
少于3年	
3到5年	X
<del>到</del> 5年	
不静	
8. 您认为政府部门应该推计公政策书提高大众购买使用可再生能原价经的积	
税收晚	X
长期低息湯保障	
不静	
其文 请:	
9. 您认为使用可再生能原有助于增进公司与客户之间的关系吗?	
<b>承道</b>	
是	X
否	
非必填一 请当归答是否的原因:	
10. 贵公市产商的独自前运动的每日最大负荷发生在	
早上8点到1974年	X
中午12点到下午4点	
下午。	<u>l</u>
其他(请到):	

<b>避避</b>	
11. 您以为什么季节贵公司的空调系统理》它的最大负荷?	
<b></b>	
<b>愛</b>	Х
秋季	
<b>季</b>	
不證	
12. 贵公市空源统州中均伊持命是	
少于5年	
5 到 0年	X
<b>舒10</b> 年	
不證	
13. 贵公司目前的年度用电费用人概是:	
少于45万元人民行	X
45 万到56万元之间	
56万到71万元之间	
71万gB3万元之间	
超退3万元	
不證	
14. 贵公司目前每年的空間系统的增生的算是	
少150元	X
150万到187.5万元之间	
187.5 万到225万元之间	
225万到263万元之间	
超过263万元	
不静	
15. 贵公司目前:代明在将来新空湖路的年度所算是	
少于150元	X
150万到187.5万元之间	
187.5 万型225万元之间	
225万到263万元之间	
超过263万元	
不證	

<b>潤雪港</b>	
16. 贵公司空调系统用电台公司总用电量的百分比是:	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
哥20%	
不静	X
17. 贵公司空调系统的费用占公司总年度的增加多项单位方法是	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
<u></u>	
不證	
18. 贵公司用于要时空间设备的费用占其中度资本支出预算的百分比是	
低于5%	
5% 到10%	X
10% 到15%	
15% 到20%	
超过20%	
不静	
19. 贵公司考虑用于3 进高效计能,使用可再生能原始的价算占其年度总用电费用的百分比	是:
低于5%	
5% 到10%	X
10% 到15%	
15% 到20%	
超过20%	
不静	

脂造	
20. 贵公司考虑用于3进高效节能,使用可再生能原金的预算占其年度的增护费用预算的百分比是	
低于5%	Х
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不静	
17 PAC	
21. 贵公司所算在3进可持续生能原系统的资金占其年度总资金预算的百分比是:	
少于5%	X
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不静	
17AC	
22. 贵公司目前有出台。实了任何建筑计能方案策略吗?	
是	
否	X
不静	^
1/FIRE	
23. 如果贵公司目前有采用任何节能策略,您以为该节能策略在帮助公司节约能原利用方面:	
#常存效	
対用一般	
没有节能策略	X
24. 如果贵公司目前有采用任何计能策略,	
该节能够的由于要问题是	
25. 如果贵公司目前有采用任何计能策略	
该节能知的主要成功之处是	

<b>酒港</b> 第项共项	
26. 如果贵公司目前有采用任何节能策略,相比较于投入的资源时间,您以其成效满意吗?	
<b>満意</b>	
不識	
不静	
没有计能策略	X
27. 请将下面A,B,C三项花其在您(公司)心目中的重要性排序,最重要的排第一,然后依然递减。A=经济发展	、B=社会正义;
C=环 <b>境</b> 积户	
A-B-C	Χ
A-C-B	
B-A-C	
B-C-A	
C-A-B	
C-B-A	
不證	

<del>谓</del> 的一般。	
姓名(非必真项:胡华荣( huaronghu)	
职位(非必填劢:施工管理人员	
公司机构名(非义填弧:中国新第三工程局第一建设工程责任有限公司(中建三局)	
日期2008年1月17日	
1. 您目前工作所由的国家是:	
中国	
<b>羽加</b>	
類	
拠	
2. 你目前所在公司工作的有进一关于可用生能原则用的研究吗?	T
有	
海 不 <del>和</del>	,
不證	√
3. 请问责公司对于建筑运动自然环境等的认识事程:	1
没情象响	
<b>影响</b>   <b>分响</b>   <b>分响</b>   <b>小</b>   <b>小</b>   <b>小</b>   <b>小</b>   <b>小</b>   <b>小</b>   <b>小</b>   <b>小</b>	
	ν
不證	
4. 贵公司有计划使用某种清节,再生能源,例如太阳能,风能,生物质能吗?	I
走   否	
<del>                                    </del>	V
*17FAC	٧

5. 贵公司曾考虑进来种青节用生能原来解纸其空调彩进中量吗?	
是	
否	
不静	$\sqrt{}$

<b>酒港</b> 第一页共 <b>项</b>	
6. 如果有一种空调系统使用可降低运动用的再生能原料,您以为安装这种空调系统会提高贵公司	的竞争力吗?
是	V
否	
不静	
7. 多到投资回报期会风度贵公司考虑进门题的所描述的再生能原统?	
少于3年	
3到5年	
<b>3</b> 75年	
不證	
8. 您认为政府部门应对推计人政策来提高大观察使用可用生能源的设备的积极性?	
税均衡	
长期(de) (sky) (print)	
不静	
其它、请到的:从技术上保证能在最强的时间对案。但很,然后给你可再生能原始经验的价格	
9. 您以为使用可再生能原有助于增进公司与客户之间的关系吗?	
<del>夜</del> 道	
是 否	
<u> </u>	√
非必填一清却厄答是否的原因:	_
   10. 贵公司空调彩·独前运动每日最大负荷发生在:	
早上8点的中午12点	
中午12点	
	V
下午点:	

海 <u>海</u>	<b>项</b>
11. 您从为什么季节贵公司的空调系统达到它的最大负荷?	
馞	
鯚	V
秋季	
<b></b>	V
不静	
12. 贵公司空调系统外平均使用寿命是:	
少于5年	
5 到 0 年	
<b>3</b> 于10年	
不證	
13. 贵公司目前的年度用电费用人概是:	
少于45万元人民行	
45 万到56万元之间	
56万到1万元之间	
71万到83万元之间	
超退3万元	
不静	V
14. 贵公司目前每年的空間緊稅的多维护所算是	
少于150元	
150万到87.5万元之间	
187.5 万全225万元之间	
225万全区63万元之间	
超过63万元	V
不静	
15. 贵公司目前十划用在外级新式空隙设备的用度所算是	
少于150万元	
150万到187.5万元之间	
187.5 万建25万元之间	
225万型63万元之间 超过63万元	
不禁	
1)用定	

<b>灣港</b>	
16. 贵公市空调彩拥电占公司总用电量的百分比是	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
訂20%	
不静	
17. 贵公司空调系统的费用占公司总年度的计组修列算的百分比是	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
哥20%	
不静	
18. 贵公司用于寒空减少路的费用占其年度资本支出预算的百分比是	
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不静	
19. 贵公司考虑用于《进高效节能,使用可再生能原设备的预算占其年度总用电费用的百分比是:	ı
低于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不静	V

`````` <del>`````</del>	_
<b>第项共</b> 项	
20. 贵公司考虑用于引进高效节能,使用可再生能原设备的预算占其中变1的维护费用预算的百分比是	
低于5%	$\sqrt{}$
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不證	
21. 贵公司所算名 进可转续维制系统的资金占其年度总资金预算的百分比是	
少于5%	
5% 到10%	
10% 到15%	
15% 到20%	
超过20%	
不證	
22. 贵公司目前有出台,实了任何建筑计能方案,策略吗?	

是		
否		
不證		
23. 如果贵公司目前有采用任何节能策略,您认为该节能策略在帮助公司节约能原利用方面:		
<b>講教</b>		
效用一般		
没有讲说那		
24. 如果贵公司目前有采用任何计能策略,		
该计能等的各种生要问题是: 作为建筑施工企业, 施工现场用电用水浪费现场"重同时, 力心室经常出现长明、现象, 人走后电脑、灯等用电设备不关。		
25. 如果贵公司目前有采用任何节能策略		
该计能和各注要成功之处是《隐建完采用包末板,能重复使用,降低成品,同时在隔层方面建设了很多的作用		

<b>潤光</b>	
如果贵公司目前有采用任何计能策略,相比较于投入的资源时制,您以其成效满意吗?	
满意	
不識	$\sqrt{}$
不證	
没有辩论解	
27. 请将下面A,B,C三项社其在您(公司)心目中的重要性排序,最重要的排第一,然后依然递减。A=经济发展	B=社会正义;
C=环 <b>境</b> <del>和</del> 户	
A-B-C	
A-C-B	$\sqrt{}$
B-A-C	
B-C-A	
C-A-B	
C-B-A	
不證	
	•

## References

<sup>&</sup>lt;sup>1</sup> http://books.nap.edu/openbook.php?record\_id=12001&page=3 Energy Futures and Urban Air Pollution: Challenges for China and the United States (2007) retrieved 11/2/2007

<sup>&</sup>lt;sup>2</sup> http://books.nap.edu/openbook.php?record\_id=9736&page=15 Cooperation in the Energy Futures of China and the United States (2000) retrieved 11/2/2007

<sup>&</sup>lt;sup>3</sup> Campbell, Scott (1996). Green cities, growing cities, just cities?: Urban planning and the contradictions of sustainable development. American Planning Association. Journal of the American Planning Association, *62*(3), 296. Retrieved August 25, 2007, from ABI/INFORM Global database. (Document ID: 9808300).

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<sup>&</sup>lt;sup>6</sup> http://buildingsdatabook.eren.doe.gov/docs/1.1.10.pdf retrieved 3/22/2008

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<sup>8</sup> http://buildingsdatabook.eren.doe.gov/docs/3.3.1.pdf retrieved 3/21/2008

<sup>&</sup>lt;sup>9</sup> http://www.chinadialogue.net/article/show/single/en/1425-Why-building-energy-efficiency-matters retrieved 11/3/2007

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