

A Study of Constructing Energy-saving Colleges and Universities

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Abstract - To build saving and pro-environment's campus, the current situation of energy consumption and the main problems affecting the energy consumption in colleges and universities were analyzed according to the survey results. The primary problems include inefficient way to propagandize energy saving, lack of energy-saving talents, incomplete rules and regulations and low efficiency of scientific research achievements' transformation. Finally, some measures were put forward to deal with the problems on the basis of actual situation.

Index Terms - Energy-saving, Rules and regulations, Colleges and universities

1. Introduction

In recent years, with the enlargement of college enrollment extension, all colleges and universities' expenditure on public spending has been significantly improved than in the past. Especially the drastic increase of energy consumption cost leading to the situation of higher training costs and strain financial. Colleges and universities perform the function of teaching, scientific research and it is also a place to live for students. They have now turn into an important unit of energy consumption. So, it is imperative that colleges and universities must save energy and use energy effectively. Therefore, further study was conducted to explore the problems existing in colleges and universities' energy management and adopt corresponding measures.

2. Present Problems of the Energy-saving Management in Colleges and Universities

A. Inefficient Publicity of Energy-saving

Energy use in schools and other public places need not pay, resulting in resulting in weak or absent energy saving awareness of teachers and students. In the teaching building, office and living area, the phenomenon of ever-burning lamps and ever-flowing water is very serious. While the energy-saving campaigns carried out by students' association are still confined to making banners and writing slogans. These campaigns are mainly carried out among students. The limitations of this approach include narrow scope and relatively simple way to propagandize as well as a low degree of participation. The end result is that the effect brought by those campaigns cannot achieve the desired goal.

B. Lack of Energy-saving Talents

First of all, most universities do not set up a real energy-saving department. School leaders just simply incorporate energy-saving work into logistics department and neglect the importance of energy conservation which restricts the all-sided

and systematic development of energy conservation efforts. Secondly, the leaders of colleges and universities only focus on the introduction of excellent teacher resources, and show indifferent attitudes towards the selection of energy-saving personnel and the establishment of energy-saving department. The majority of employers select the staff who characterized with an administrative background to engage in energy-saving work. While, requirements for professional knowledge and educational background have been neglected. What's more, there is lack of systematic training and re-education in the follow-up work.

C. Incomplete Rules and Regulations

As a result of college expansion of enrollment and a variety of construction of universities town, the operation of the old school district has been ignored. First of all, the old campus has been used for many years. So, aged and obsolete metrology equipment cannot accurately measure the statistics of energy's use. The data collected in the way lack of methodical and objective analyses. Second, energy-saving personnel cannot analyze the monthly or quarterly data and draw a conclusion. Let alone taking timely and effective manner gives feedback to various departments and units of the school. The fundamental reason is that the rules and regulations to restrain energy's use are incomplete. On the one hand, lacking strict standards to unify energy saving work personnel's behaviour[1]. On the other hand, no rules constrain individuals and departments' energy use.

D. Low Efficency of Scientific Research Achievements' Transformation

Advanced techniques and products of high efficiency and low energy consumption are needed in order to carry out energy conservation efforts effectively. While, in order to save the cost of running a school, leaders mainly put limited funds into the teaching and scientific research work instead of energy-saving work. This is a long-term continuing commitment, which requires our sustained and persistent efforts to bear fruit. During their tenure, basically no significant results can be produced. They would rather choose to give up. At the same time, most of the results of their research and development are also difficult to apply in practice for lack of feasibility. Though it have feasible in theory, the actual application process is not certain to succeed even if spends a lot of resources.

3. Measures to Construct Saving and Pro-environment's Colleges and Universities

A. *Improve the Efficiency of Energy-saving Publicity*

First, allying energy-saving department with the publicity department attract staff and students' attention with the means of carry out energy-saving report in school newspapers and websites. Second, since the students are the main body of the school population, they are also powerful energy-saving team. Then energy-saving department can join school union, student union, the Communist Youth League and the Party branch to carry out energy-saving activities which are aimed at expanding the range of influence, increasing the engagement of faculty and students and avoiding becoming a mere formality. Finally, sci-tech departments can propagandize new technology, new products and new results and launch seminars actively to draw public attention and add their interest. During the process, learning the significance of energy saving and improving their energy-saving consciousness[2].

B. *Introduction of Professional Talents*

First of all, the present situation of lacking energy-saving department should be changed. The existence of energy-saving department is the premise of introducing specialized energy-saving talents. So, it is essential to set up an energy-saving department of specific contents and clear responsibility. At the same time, awarding specific right to make a decision for them to carry out energy-saving work. More importantly, energy-saving talents with high educational and professional background should be introduced into colleges and universities. On the one hand, preferential policies can be adopted in order to attract excellent school's graduates whose major is energy-saving. They are well aware of the basic situation of the school. As a consequence, they could develop energy-saving work effectively. On the other hand, energy-saving experts can be introduced from outside institution or colleges to assist the energy department to perform the work. At the same time, a lecture could be launched to offer some energy-saving tips in life by experts.

C. *Incomplete Rules and Regulations*

From the macro level, energy-saving job's content should be listed in comprehensive strategic planning to guide the smooth progress of the energy conservation efforts. During the process of the formulation of regulations, the department of energy-saving should be involved in the formulation process of energy saving and using. From the micro level, energy-saving work personnel should examine the service condition

of metrology facilities yearly and replace those facilities that cannot perform normally. Intelligent system can be adopted to process and analyze the data we collected in the past. At the same time, the responsibility can be explicitly given to each department and individuals by the way of assuming responsibility management. Only by combining energy saving efforts with each department and individual's benefit, can energy-saving efforts achieve success.

D. *Improve the Conversion Rate of Scientific Research Achievements*

Improving new technologies and new products which are developed by colleges and universities can reduce the conversion cost and dispel leaders' doubts of investment [3]. Incentive measures can be put into practice to encourage innovation and increase teachers and students' enthusiasm. Then a breakthrough can be made in scientific efforts. Second, introducing mature products directly from outside that have already passed test in the past. The conversion cost can be reduced in this way. Third, colleges and universities can collaborate with other schools, colleges and universities can collaborate with other schools, scientific research institutions or enterprises in strategy alliance's form[4]. As a result, members can share the research achievements.

4. Summary

In summary, it is clear that constructing energy-saving colleges and universities around the country has impacted the establishment of harmonious society is a worthwhile endeavor. There is a tremendous benefits to understanding what energy-saving colleges and universities are contributing to the society and environment, and how these positive cases may be better utilized. Armed with this meaning, we can go on to evaluate how our solutions will drive the current situation beyond the short-term and contribute to overall performance well into the future – perhaps for years.

References

- [1] Yao R, Li B, and Steemers K, "Energy policy and standard for built environment in China," *Renewable Energy*, vol. 30, no. 13, pp. 1973-1988, 2005.
- [2] Sinton, J. E., Levine, M. D., and Qingyi, W, "Energy efficiency in China: accomplishments and challenges," *Energy Policy* vol. 26, no. 11, pp. 813-829, 1998.
- [3] DeCanio S J, Watkins W E, "Investment in energy efficiency: do the characteristics of firms matter," *Review of economics and statistics*, vol. 80, no. 1, pp. 95-107, 1998.
- [4] Jiaquan, Tian, "Measures and ways for colleges and universities to build energy-saving campus," *Scientific and technological information*, no. 8, 2007.