iBusiness, 2013, 5, 86-94
http://dx.doi.org/10.4236/ib.2013.53011 Published Online September 2013 (http://www.scirp.org/journal/ib)

Pre-Evaluation Index System Research of Urban Energy-Saving Emission Reduction Policies*

Lili Fan[1], Lingxi Cai[1#], Yanghong Xie[2]

[1]School of Economics and Management, Southwest Jiaotong University, Chengdu, China; [2]School of Economics, Sichuan University, Chengdu, China.
Email: #172102181@qq.com

Received June 5th, 2013; revised July 29th, 2013; accepted August 10th, 2013

Copyright © 2013 Lili Fan *et al*. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Energy-saving is an important aspect of sustainable development in China. It affects the realization of China's sustainable economic development strategy. Cities are important units of the country's economic development and the effect of cities' energy saving work will affect national strategic planning. Urban energy saving policy evaluation system is an important tool to measure a city's energy saving work. It can be divided into pre-implementation evaluation, ongoing evaluation and post-implementation evaluation according to the implementation phase of the evaluation. This paper builds a pre-evaluation index system of urban energy conservation policy using energy saving policy classification and multi-angle evaluation of the integrated program of National 11th and 12th Five-Year Plan for Energy Saving.

Keywords: Energy Conservation; Evaluation Index System

1. Introduction

China's economic growth rate averaged around 9% in the last 3 decades at the cost of rapid consumption of natural resources and pollution to the environment. This becomes to restrict the sustainability of economic growth [1]. Therefore, the energy-saving emission reduction has become an important way to adjust the economic structure. It's also an important means to realize the transformation of economic growth mode [2]. Since the city is the basic unit of national economy, overall economic transition in China cannot be achieved without city economic transformation.

There are quite some domestic and international academic studies on energy-saving emission reduction policies. These studies fall into three categories: one is the basic research in energy-saving emission reduction policies. These studies are the theoretical core of energy-saving emission reduction policies, such as Adam Smith's resource utility theory, energy-saving emission reduction policies in the external environment, such as energy consumption and pollution emissions and the macroscopic and microscopic field factors. The second one is the study of energy-saving emission reduction policies. Researches in this area mainly involve determining the nature and characteristics of energy-saving emission reduction policies, etc. The third area focuses on the evaluation of energy-saving emission reduction policies. Research content in this area is widespread, but evaluations are mainly done after the energy-saving emission reduction policies are implemented.

With the advance of China's energy-saving emission reduction effort, the cities have established a large number of energy-saving emission reduction policies. We need to find scientific evaluation methods to evaluate the policy system regarding city's energy-saving emission reduction. According to the implementation stage evaluation of view, it can be divided into ex-ante evaluation, evaluation and post-evaluation in the matter. This paper introduced the idea of ex-ante evaluation, evaluation of the city's energy-saving emission reduction policies, that can avoid obstacles in implementing a policy and those undermines its maneuverability, integrity, objectivity and validity due to the introduction of the policy hastily. Therefore, this paper takes a city as an object and analyses index system of evaluation for energy-saving emission reduction policies.

*Fund project: Research on low carbon competitiveness system in the perspective of intangible assets evaluation of carbon enterprises under the National Natural Science Fund Project (71271177).
#Corresponding author.

2. Review of the Literature

There are a lot of academic studies in the area of evaluation on policies though researches on pre-evaluation are much scarce. Dai min [3] proposed pre-evaluation model for the information system using uncertain multiple attribute decision making theory. It tries to express the fuzzy and uncertain of the mind of decision makers through the definition of linguistic variables. Liang Yun [4] took the theory of AHP and fuzzy comprehensive evaluation method from the Balanced Scorecard theory and studied the pre-evaluation of enterprise information. Gong Yanbing [5] provided a new idea for the ex-ante evaluation using fuzzy relative potential model on management information system.

In the evaluation of energy-saving emission reduction policies research field, many scholars studied various aspects and life-cycle of production from both the perspective of government and of enterprises. Lin J. [6] studied the administrative policy of energy saving and emission reduction and its influence. G. C. Nwaobi [7] studied the effect of greenhouse gas emission reduction policies for economic development in Nigeria using dynamic CGE model, suggested for energy-saving emission reduction policies in other countries is presented. Wang Yanpeng [8] set up our country's overall energy-saving emission reduction target system and put forward 39 indexes in five aspects and all of which are quantifiable. Chu Sha, Chen Lai [9] used the method of variation coefficient to evaluate the energy saving and emission reduction situation in Anhui Province. Li Hong, Li Xiyun [10] evaluated the comprehensive effects of energy-saving emission reduction of coal resource type city using random simulation angle method for comprehensive evaluation. Shen Cheng [11] constructed three dimensions system with a total of 15 indicators to study the enterprise energy-saving emission reduction effect from the perspective of resources and environment. Liu Yuanming [12] proposed the construction of a evaluation system in six categories of a total of 27 indicators in energy consumption index, index of pollutant emission reduction, ecological protection index which gave a comprehensive evaluation of energy saving and emission reduction of coal enterprises. Chen Wen [13] evaluated performance of provincial industrial energy conservation and emission reduction in China using the TOPSIS comprehensive evaluation method, a new evaluation method. Duan Wanchun [14] presented a model that evaluated the performance of energy-saving emission reduction of telecom enterprises using fuzzy comprehensive evaluation.

Throughout all these domestic and international researches on evaluation, most of them concentrated in the evaluation of energy-saving emission reduction situation level. We hardly see any research that uses city as object of study and with a focus on pre-evaluation on energy-saving emission reduction policy system.

3. To Establish the Evaluation Space

There are multiple-dimension effects of city energy-saving emission reduction policies such as environmental protection, industrial restructuring, economic growth, social stability, sustainable development etc. It is not sufficient if we take just one dimension to evaluate energy-saving emission reduction policies. For example, evaluation simply from the environmental point of view—no matter how strong a policy is on environmental protection, if the policy restricts economic growth, it cannot support economic sustainable growth. Simply focus on economic growth, do not pay attention to energy saving and environmental protection, economic growth will be tied down; Even if the policy effect on energy saving and environmental protection, economic growth, but if the transformation, industrial upgrading has little effect on the technology, which can make economic growth gradually slow, energy saving and environmental protection without relying on; On the contrary, only attach importance to energy security, laying the foundation for sustainable development, ignoring the existing economic growth, it may has great staying power, but economic support to its advantage fully, there are questions. Therefore, how to evaluate the energy-saving emission reduction policies from multiple dimensions is a problem to be studied. This paper attempts to evaluate the system energy-saving emission reduction policies for the city by building a multi-dimensional evaluation space.

To establish the evaluation space need to find the right dimensions, this paper intends to construct three dimensions that can reflect the characteristics of the energy-saving emission reduction policies, economic growth, structural adjustment, innovation and development, and construct the spatial dimensions of the evaluation and the establishment of the city's energy-saving emission reduction policies. Three evaluation dimensions for ideas as shown in **Figure 1**.

The first step: This research collect 2007-2012 years more than 80 articles about energy saving and emission reduction in an academic paper through the keyword "energy-saving emission reduction policy research" and "energy-saving emission reduction evaluation".

The second step: Through comparative study research

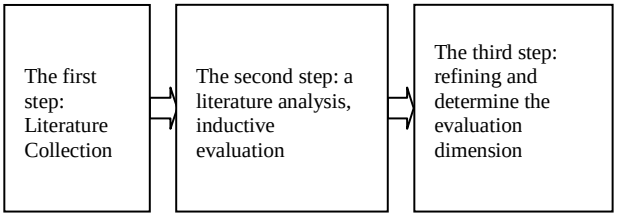

Figure 1. Approaches for evaluation.

Copyright © 2013 SciRes.

and evaluation system of policy documents, the research contents were collected according to the analysis of five aspects of author, title, year, literature and evaluation dimensions related content, dimension.

The third step: according to the second step organize content, choice involves a broader, more pervasive evaluation dimensions of integration, can be summarized as the three dimensions of economic growth, structural adjustment, innovation development.

According to the literature on the three dimensions of meaning, the descriptions are as follows:

First, economic growth evaluation dimension refers to energy-saving emission reduction policies in the city within the scope of certain time and area, will promote the sustained increase of per capita production.

Second, structural adjustment evaluation dimension refers to whether the energy-saving emission reduction policies influence on city energy production, consumption structure and industrial mode.

Third, innovation development evaluation dimension refers to energy-saving emission reduction policies of city management, innovation management method, or to the technology, the application process to produce innovative.

Therefore, this paper uses the economic growth, structural adjustment, innovation and development of the three dimensions of space.

4. Design of the Evaluation Indexing System

4.1. Constructing Thinking of the Evaluation Indexing System

Because the city is an important basic unit of national economic development, the introduction of the various energy-saving emission reduction policies should be formulated in the national energy-saving emission reduction policy guidance. The representation of national energy-saving emission reduction policy is the 11th & 12th Five-Year Plan for Energy Saving and Emission Reduction by State Council. Therefore, this paper will design the evaluation indexing system with the 11th & 12th Five-Year Plan for Energy Saving and Emission Reduction by State Council. Specific design ideas as shown in **Figure 2**.

Step 1: To analysis the 11th & 12th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council. It's a wide range is very wide in a Integrated view, involving energy-saving emission reduction targets, fiscal support, the adjustment of industrial structure, many aspects of the development of circular economy. The whole analysis process in addition to the adjustment of industrial structure, vigorously develop the circular economy, has obvious classification features, such as strengthen energy-saving emission reduction management, based on its content presents production and life

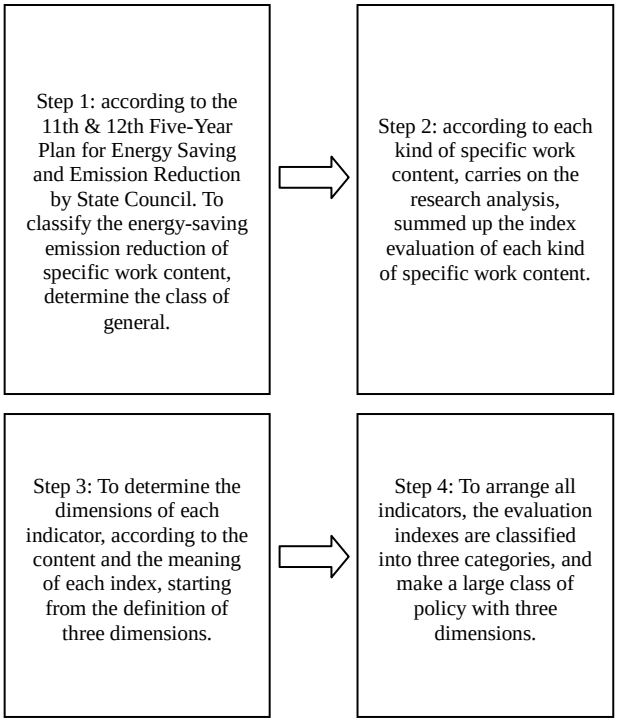

Figure 2. Design ideas of evaluation indexing system.

saving energy and reducing class row, covering the implementation of key projects, strengthening of industrial energy-saving emission reduction, etc. This paper summarized the whole content, ultimately determine energy-saving emission reduction policies corresponding city into seven categories, specifically: the adjustment of industrial structure, production and life of energy-saving emission reduction, development of circular economy, development and application of new technology, economic support, market mechanism is established and the whole society to participate in action.

Step 2: Research and analysis each kind of specific work contents, Sum up the index evaluation of each kind of specific work content. To adjust the industrial structure as an example, through the study of China's energy-saving emission reduction program of work plan on the adjustment and optimization of industrial structure in terms of content, such as: sort out the effect of high energy consumption, high emission industries excessive growth, adjusting the energy structure, and the details of the sort merge, finally get the evaluation index and its comprehensive coverage of the content of the content, in particular: advanced technology, traditional energy development, the development of emerging industries, strict control of service industry in new projects, the development of renewable energy, development, backward production capacity, to establish the responsibility system of the project out of a total of 8 indexes.

Step 3: The research content and the meaning of each index, to determine the dimensions of each indicator. The

Copyright © 2013 SciRes.

industrial structure adjustment indexes—for example, the advanced technology of index is an indicator on the expansion of production capacity, reduce energy consumption and reduce emissions. The introduction of advanced technology leads to enhanced productivity and it promotes economic growth. From the general situation which belongs to the economic growth dimension. Strict control of new projects is a pointer to the high energy consumption, high emission projects. Whether or not bring much economic benefits, always calls for strict examination and approval. So the nature of such indicator belongs to the structure adjustment dimension according to its essence.

Step 4: Finishing all the indicators, the evaluation index to each kind of policy to economic growth, structural adjustment, innovation and development of the three dimensions, and finally finishing the formation of the city's energy-saving emission reduction policy evaluation index system.

4.2. Design of the Evaluation Indexing System

According to the idea of constructing the evaluation index is introduced, this paper constructs the seven categories, three-dimensional city energy-saving emission reduction policy evaluation index system, a total of 61 items, the following are introduced in detail to each kind of policy.

1) Policies targeted on industrial structural adjustment:

Policies targeted on industrial structural adjustment focus on adoption of new technology, improving efficient resource consumption in production to achieve energy saving and pollution reduction and promote transformation in economic growth. They include those that control expansion of industry with high energy consumption and high prolusion, eliminate outdated industrial capacity and those related to adjustment of energy structure etc. in the 11th & 12th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council. These 8 industrial structural adjustment policies fall on all three dimensions. They are listed in **Table 1**.

2) Manufacturing operation and consumer activity indicators:

Indicators in the area of manufacturing operations and consumer activities cover those in manufacturing, agriculture, construction, transportation. These are the major areas to achieve goals in energy conservation and emission reduction and thus have more related policies, according to the Energy Saving and Emission Reduction issued by State Council. In this research we have the elimination of old agricultural implements, organic agriculture development, etc, altogether 17 indicators through 3 dimensions that described in **Table 2**.

3) Indicators in cyclic economic growth:

Indicators for cyclic economy refers to those polices that realize economy growth through utilization of sustainable resources in manufacturing, consumption and resource investment. According to the 11th & 12th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council, comprehensive indicators include implementation of major cyclic economic projects,

Table 1. Policies targeted on industrial structural adjustment.

Policy Classification	Evaluation Dimension	Indicator Indexed	Area Covered by the Indicator
Industrial structural adjustment	Economic Growth	Advanced Technology Transformation	Use advanced technology to transform and upgrade traditional industry, key project. Relocate enterprises that are heavy polluters. Promote the transformation and upgrading of the processing trade.
		Tradition Energy resource Development	Use and develop tradition energy resource with higher efficiency. Reduce the proportion of energy consumption coming from traditional energy resource.
		Emerging industry development	Strategic emerging industry to reach higher percentage in GDP.
		strict control of new projects	Strict control on new projects with high energy consumption, high emission. Implement audit on energy conservation evaluation, environment impact evaluation, and approving loads.
	Infrastructure Adjustment	Renewable energy resource development	Devote major effort to develop renewable energy resources.
		Service industry development	Promote faster development of the service sector, increase its share in the economy.
		Elimination of outdated production capacity	Establish procedure to retire outdated production capacity.
	Innovation Development	Implement responsibility system for projects	Implement efficient project responsibility system including auditing, confirmation and approval, and registration system.

Source: The 12th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council. The 11th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council.

Copyright © 2013 SciRes.

Table 2. Indicators targeting manufacturing operation and consumer activity.

Policy Classification	Evaluation Dimension	Indicator Indexed	Area Covered by the Indicator
Manufacturing operation and consumer activity	Economic Growth	Retire outdated agricultural machines and implements	Retire outdated agricultural machines and implements. Expansion in adapting energy saving equipment.
		Promote greener farming practice	Expand soil testing to determine appropriate fertilizer formulas, usage of more effective pesticide. Promote organic farming practice.
	Infrastructure Adjustment	Energy saving and emission reduction in major industry	Advance Energy saving and emission reduction in major industry such as power, coal, steel etc.
		Transportation equipment management	Expansion in usage of energy consumption labeling in motor vehicle. Adopt the fourth and the fifth phase Automobile emission standard.
		Biogas utilization	Biogas utilization in large and medium scale. Enhancement in operation and maintenance services.
		environmental pollution control	Control the area pollution in agriculture. Implement clean countryside project.
		Energy saving and emission reduction in business services	Energy saving and emission reduction practice in business services, renovate energy saving equipment.
		Pollution control in town and city	Urban pollutant treatment facilities and supporting pipe network construction. Strengthen the focus on the regional integrated pollution control.
		Air pollution control	Atmospheric pollution remediation focus on region.
	Innovation Development	Green building planning	Establish Green building implementation plan. Enhance monitoring system on public buildings.
		New energy saving building material	Promote building-integrated renewable energy source and innovative energy-saving construction material.
		Urban lighting system management	Implement Urban lighting system management. Reducing overuse of decorative lighting and *over-lighting.*
		Construct comprehensive transportation system	Construct comprehensive transportation system and structure. Develop urban public transportation system and urban rail traffic system.
		Build low carbon emission transportation system	Build pilot low carbon emission transportation system.
		Energy saving campaign in consumer products	Promote application of highly efficient, energy-conserving lighting product. Incentive on environment friendly vehicles.
		Create showcase Implementation	Create showcase implementation of energy efficient building.
		Regulations on Energy Conservation of Public Institutions	Establish energy auditing on pubic institute, announcement on energy efficiency, quota control of energy consumption.

Source: The 12th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council. The 11th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council.

clean manufacturing projects, comprehensive utilization of resources, recycled resource utilization,. There are 10 indicators in 3 dimensions described in **Table 3**.

4) New technology development and application indicators:

New technology development and application indicators are those policies targeting energy saving and emission reduction that take advantage of new and advanced technology to achieve economic growth as well as reducing energy consumption and emission. It includes policies to promote new technology adaption in industry, to promote technology innovation and to promote application of new technology and innovation in energy saving and emission reduction in the 11th & 12th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council. There are 5 indicators described in **Table 4**.

5) Financial support policy:

Economic support policy is mainly refers to the city's energy-saving emission reduction policies, for the work of energy-saving emission reduction, involving financial, insurance industry in financing, resource products pricing, etc., According to the 11th & 12th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council, research content of a comprehensive energy reduction program of work of the 9 indexes, economic support policy in three dimensions: the choice of energy-saving products of financial subsidies, special funds to support, the government green procurement in **Table 5**.

6) Market Mechanism indicators:

The market mechanism index refers to the energy-saving emission reduction areas, the development of en-

Copyright © 2013 SciRes.

Table 3. Indicators in cyclic economic growth.

Policy Classification	Evaluation Dimension	Indicator Indexed	Area Covered by the Indicator
Circular Economy Development	Economic Growth	Renewable resource utilization	Promote renewable resource utilization. Improve post-consumer recycling system and testing standards for remanufactured product.
		Mineral Resource utilization	Mineral Resource management and comprehensive utilization.
		Production waste recycle	Comprehensive utilization of production waste, construction waste and waste slag, as well as crop straw.
		Waste-to-energy	Waste processing monitoring, Enable facilities that burn in a furnace to generate heat, electricity.
	Infrastructure Adjustment	Clean manufacturing process	Promote green process showcase in agriculture, manufacture, etc. Pollution and emission Control, reduce resource consumption.
		Water management	Establish red line over water resources development and utilization. Implement quota management of water consumption for water.
		Non-traditional water resource utilization	Promote the usage non-traditional water resource such as recycled water, mine water, seawater. Build pilot projects for seawater desalination and integrated application.
	Innovation Development	Cleaner Production Plan	Implement cleaner production execution plan. Establish and improve evaluation system for cleaner production.
		Cleaner Production Audit	Publish cleaner production audit report. Publish list of enterprises that are required to pass mandatory cleaner production audit.
		Recycling system	Establish and improve integrated Recycling system—collection station for recyclables for urban community, villages, sorting center and market place for recycled resources.
		trash classification recycling	Improve urban trash recycling system. Improve trash classification recycling bylaws. airtight transportation and centralized processing.

Source: The 12th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council. The 11th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council.

Table 4. New technology development and application indicators.

Policy Classification	Evaluation Dimension	Indicator Indexed	Area Covered by the Indicator
New technology development and application	Economic Growth	Wide adaption of energy saving and emission reduction technology	Energy saving and emission reduction technology such as low-temperature waste heat power generation, Membrane biological reactor, Selective catalytic reduction.
		industrial application of new technology	Implement projects for energy saving and emission reduction key technology application in equipment industry to speed up establishing industrialized bases.
	Infrastructure Adjustment	science and technology development project	Fund special project in new technology in energy saving, reusable resource, and distributed sewage processing, agriculture non-point source pollution control.
	Innovation Development	Improve technology innovation system	Improve technology innovation system. Build national labs on national energy saving and emission reduction project.
		energy saving and emission reduction technology management	Establish system to select, evaluate and for wide-spread adoption of energy saving and emission reduction technology. Strengthening International Cooperation and Exchanges, the introduction of foreign advanced energy-saving environmental protection technology.

Source: The 12th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council. The 11th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council.

ergy saving mechanism is established to the operation of the market means of regulation of supply and demand, is involved in economic operation, control means the interaction mechanism between the price and other elements of the role of conditions. In this paper, according to the 11th & 12th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council, choose new energy power generation scheduling, energy efficiency logo certification management, energy saving and environmental product certification, where a total of 7 indicators in **Table 6**.

7) The whole society to participate in actions:

The whole society to participate in the action class index mainly refers to the city in the whole society to par-

Copyright © 2013 SciRes.

Table 5. Financial support policy.

Policy Classification	Evaluation Dimension	Indicator Indexed	Area covered by the indicator
Financial support policy	Economic Growth	financial energy subsidies	The fiscal subsidies to promote energy efficient appliances, lighting products, strengthen financial guidance.
	Infrastructure Adjustment	Special funding	Special funding on projects for energy saving and emission reduction. Invest on major energy saving and emission reduction projects.
		Government green purchase	Promote government green purchase. Improve system of mandatory and preferred purchase list.
		Resource products pricing	Establish price of resources scientifically. Promote tiered prices for household consumption of electricity and water.
		Sewage treatment fee set	Establish all the sewage disposal and treatment fee policy, reform of waste disposal charges, increased collection efforts.
	Innovation Development	Energy-saving emission reduction tax concessions	The implementation of energy-saving emission reduction of income tax, value-added tax and other preferential policies.
		Import and export tax incentives	To curb high energy consumption, high emission products export. To increase imports of manufacturing large-scale environmental protection.
		Investment credit support	Credit management mode to develop energy-saving emission reduction projects.
		The financial industry regulatory	Environmental illegal information into the financial information disclosure system, Construction Bank green rating system, the green credit effect tube financial enterprise management hook.

Source: The 12th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council. The 11th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council.

Table 6. Market mechanism indicators.

Policy Classification	Evaluation Dimension	Indicator Indexed	Area covered by the indicator
Establish market mechanism	Economic Growth	Energy efficiency logo certification management	Determination of terminal energy efficiency product identification scope of implementation, guide the use of efficient energy-saving products.
		Energy saving and environmental protection product certification	The implementation of energy-saving products, environmental labeling products, environmental protection equipment certification, Establish the coordination mechanism of international mutual recognition.
	Infrastructure Adjustment	New energy power generation scheduling	Priority scheduling of clean energy generation, renewable energy power generation.
		The establishment of energy management contract	Establishment of contract energy management projects energy audit and trading system, to cultivate the third party audit assessment agencies.
	Innovation Development	Provide professional services	Large energy-using units build professional energy Service Corporation. Support all kinds of financing guarantee institutions to provide risk sharing service.
		A pilot emissions trading	The main pollutant emission trading pilot compensation for the use and, the establishment of emissions trading market.
		Carbon emissions trading pilot	Carry out carbon emissions trading pilot, promote the construction of carbon emission right trade market.

Source: The 12th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council. The 11th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council.

ticipate in energy-saving emission reduction work in the strength and breadth, whether the policy provisions before releasing is the focus of this study, according to the 11th & 12th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council, This paper chooses energy-saving emission reduction special action, the theme of propaganda etc, altogether 4 indicators in **Table 7**.

5. Conclusions

This article constructed 3-dimentional energy conservation and emission reduction evaluation system that covers economic growth, infrastructure adjustment and innovation. From the city's perspective, it puts the policies in 7 categories based on the characteristic of the current economic climate and the national strategic plan in en-

Copyright © 2013 SciRes.

Table 7. The whole society to participate in actions.

Policy Classification	Evaluation Dimension	Indicator Indexed	Area Covered by the Indicator
The whole society to participate	Economic Growth	The whole society to energy-saving emission reduction activities	Through a typical demonstration, special events, exhibitions, job creation, rationalization proposals and other forms, mobilize the whole society to participate in energy-saving emission reduction.
	Infrastructure Adjustment	Energy-saving emission reduction special action	It have 10 energy-saving emission reduction special action such as family and community, youth, enterprises, schools, barracks, rural, government agencies, technology, science and the media.
	Innovation Development	The theme of propaganda	To organize energy saving publicity week, World Environment Day theme for promotion energy-saving emission reduction.
		The government model	Government agencies to establish conservation awareness, set an example for energy-saving emission reduction.

Source: The 12th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council. The 11th Five-Year Plan for Energy Saving and Emission Reduction issued by State Council.

ergy saving and emission reduction: Industrial structural adjustment; Manufacturing operation and consumer activity; Cyclic economic growth; Those that are for new technology development and application; Financial support policy; Those that establish a market mechanism; The whole society to participate in actions. And this paper established the index system of city energy-saving emission reduction policy evaluation, altogether 61 indicators.

There are deficiencies in this paper: because pre-evaluation and post-evaluation are different, post-evaluation is constructed by effect of policy implementation index and evaluated by result data. But pre-evaluation index system should reveal the authoritative, the operational policy, comprehensive, systematic, objective and rational of policy. When the index system of city energy-saving emission reduction policies was built, we based on the 11th & 12th Five-Year Plan for Energy Saving and Emission Reduction issued by the State Council, but it isn't the whole. The range is narrow, and it should have some omissive aspects.

In this paper, the city energy-saving emission reduction policy index data should be assigned through various policies frequency, issued department authority level, city policy degree of subdivision, short and long term policy supporting of several typical cities. This needs to find the city in accordance with the index system of the corresponding policies, and summarize and classify. This is a systematic analysis and comparison process, and it will be further expanded in the follow-up study.

REFERENCES

[1] H. M. Zhao and Wang Yang, "Research of Evaluation Index System for Energy Conservation and Emission Reduction in Resource-Oriented Regions," *Journal of Inner Mongolia Finance and Economics College*, Vol. 5, No. 1, 2010, pp. 42-45.

[2] J. Y. Xie, "Relationship between Energy Saving and Emission Refuction and the Mode of Economic Development," *Energy Saving of Non-Ferrous Metallurgy*, Vol. 6, No. 1, 2009, pp. 7-10.

[3] M. Dai, X. Zhang and Y. X. Chen, "Ex-Ante Evaluation Method of Information System Based on Fuzzy Linguistic Information," *Computer Engineering and Design*, Vol. 28, No. 13, 2007, pp. 3036-3038.

[4] Y. Liang, S. P. Yi, S. Q. Xiong and Z. F. Li, "Application of Fuzzy Comprehensive Evaluation for Pre-Evaluation in the Enterprise Informatization," *Industrial Engineering Journal*, Vol. 10, No. 4, 2007, pp. 125-127.

[5] Y. B. Gong and J. G. Zhang, "Ex-Ante Evaluation Method of MIS Based on Fuzzy Relative Potential," *Journal of Intelligence*, Vol. 1, No. 1, 2009, pp. 72-73, 82.

[6] J. Lin, "A Light Diet for a Giant Appetite: An Assessment of China's Fluorescent Lamp Standard," *Energy*, Vol. 30, No. 10, 2005, pp. 1837-1887. doi:10.1016/j.energy.2004.09.008

[7] G. C. Nwaobi, "Emission Policies and the Nigerian Economy: Simulations from a Dynamic Applied General Equilibrium Mode," *Energy Economics*, Vol. 26, No. 5, 2004, pp. 921-936. doi:10.1016/j.eneco.2004.04.003

[8] Y. P. Wang, "Study on Index System of Energy-Saving Emission Reduction in China," *Coal Economic Research*, Vol. 2, No. 2009, pp. 31-32, 39.

[9] S. Chu and L. Chen, "Evaluation of Energy Saving and Emission Reduction of Anhui Based on Variance Coefficient Approach," *China Population·Resources and Environment*, Vol. 21, No. 3, 2011, pp. 512-516.

[10] H. Li and X. Y. Li, "Evaluation of Energy Saving and Emission Reduction in China's Coal Resource Type City," *Coal Economic Research*, Vol. 31, No. 8, 2011, pp. 46-48, 57.

[11] C. Shen, M. R. Deng and Y. J. Chu, "Research on the Enterprise Energy Saving and Emission Reduction Measurement System for the Resource and Environment," *Journal of Wuhan University of Technology*, Vol. 32, No. 4, 2010, pp. 49-52.

[12] Y. M. Liu, S. L. Shan and P. Z. Gao, "Evaluation System and Modeling Construction of Coal Companies and Energy Saving," *Economic Research Guide*, Vol. 25, 2011, pp. 34-35.

[13] W. Chen, "China's Provincial Industrial Energy-Saving

Copyright © 2013 SciRes.

Emission Reduction Performance Evaluation," *Journal of Changchun University of Science and Technology* (*Social Sciences Edition*), Vol. 25, No. 1, 2012, pp. 54-56.

[14] W. C. Duan, Y. Q. Li and Y. W. Du, "Model of the Performance Evaluation of Telecom Energy-Saving and Emission Reduction Based on Fuzzy Comprehensive Evaluation," *Science and Technology Management Research*, Vol. 21, No. 1, 2011, pp. 43-46.

Copyright © 2013 SciRes.