

Introduction to the Green Lights Program of Beijing

Beijing Energy Conservation and
Environmental Protection Center

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I. Background

➤ High-efficient light



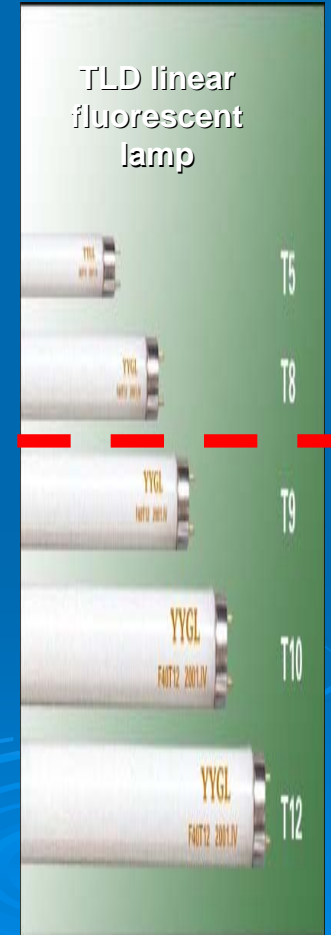
Auto-ballast
fluorescent lamp



Metal halide lamp



HV sodium lamp



➤ Low-efficient light



HV mercury
spectrum lamp



Incandescent
lamp

I. Background

- It is well known that the goal of energy conservation and emission reduction is not only a strategic practice to pursue the sustainable economic development in the world, but also an important duty that nations all over the world shall shoulder. All of us must work together to realize the goal. The electricity for lighting is 12% of the total electricity consumption in China, which apparently proves that energy-efficient lighting enjoys a great potential in China.
- For the purpose of fulfilling the objectives of energy conservation and emission reduction and improving the global environment, the government of China has increased its efforts in energy-efficient lighting and proposed the plan for encouraging the widespread use of 150 million energy-efficient lights all over the country between 2008 and 2010.

I. Background

- In virtue of an early start and good results, the “Green Lights Program of Beijing” is enrolled as one of ten energy-conservation programs in China. It is stated in the *Plan for Boosting the Development of a Circular Economy and Building an Energy-Efficient and Environment-Friendly Society between 2006 and 2008* promulgated by Beijing Municipal Government to implement the green lights program in many different fields. According to the plan, the green lights program has been carried out in stages and groups, including:
 - “Millions of Green Lights Program of Beijing”;
 - “Green Lights Program for Nursing Houses and Child Welfare Institutions in Beijing”;
 - “Green Lights Program of Beijing in 2008” .

II. General information

- Over 50 municipal governmental authorities in Beijing have utilized energy-efficient lights;
- The lamps of some hotels, shopping malls, hospitals, colleges and universities are replaced with energy-efficient lights, and others have utilized current saving units for lighting;
- Green lights are installed at 70 stations, in Line 1, 2 and 13 of Beijing metro as well as 114km tunnels of Beijing Batong Line;
- 1263 public lavatories within the range of the circle of the 2nd ring road after reconstructed are all installed with energy-efficient lights;
- More than 2000 primary and middle schools in Beijing are installed with high-efficient lights which have benefited over 1.2 million teachers and students.
- Over 200 nursing houses and child welfare institutions in Beijing will use green lights.
- Green lights are applied to all utilities and facilities related with the Olympic Games, including the households in Dongcheng, Xicheng, Chongwen and Xuanwu Districts, the municipal and district offices and public institutions, culture and sports facilities, medical establishments, light boxes at bus stations, gardens and green belts, major retail firms, the Olympic contractor hotels and restaurants, as well as roads adjacent to the Olympic venues.



No.301 Hospital of the PLA



PARKSON



Canteen of the Public Security Bureau



Jian Hypermarket



Residential quarter



III. Practices

- **1. Encouraging all walks of life by the governmental investment :**
- **Beijing Municipal Commission of Development and Reform will categorize the green lights program as one of energy conservation plans financially supported by the government, and approximately 40 million yuan will be invested as initiation funds, which obviously reflect the requirements for public finance, and our governmental policies for rural development and public services.**
- **To fulfill the green lights program, the enterprises and public institutions are to be financed 30% subsidies by the government, and the rest of 70% by users;**
- **The government will finance 60% subsidies to about 900 primary and middle schools in eight suburban districts, and the remaining 40% by those districts;**
- **All funds required by more than 1100 primary and middle schools, nursing houses and child welfare institutions in counties and districts in the outer suburbs in Beijing will be financed by the government.**
- **Households will be financed 50% by the State, 30% from the municipal financial revenue and 10% from the district financial revenue, and the rest of 10% by residents themselves.**

III. Practices

➤ 2. Programs developed by the Municipal Commission of Development and Reform:

➤ Uniform programs in market operation

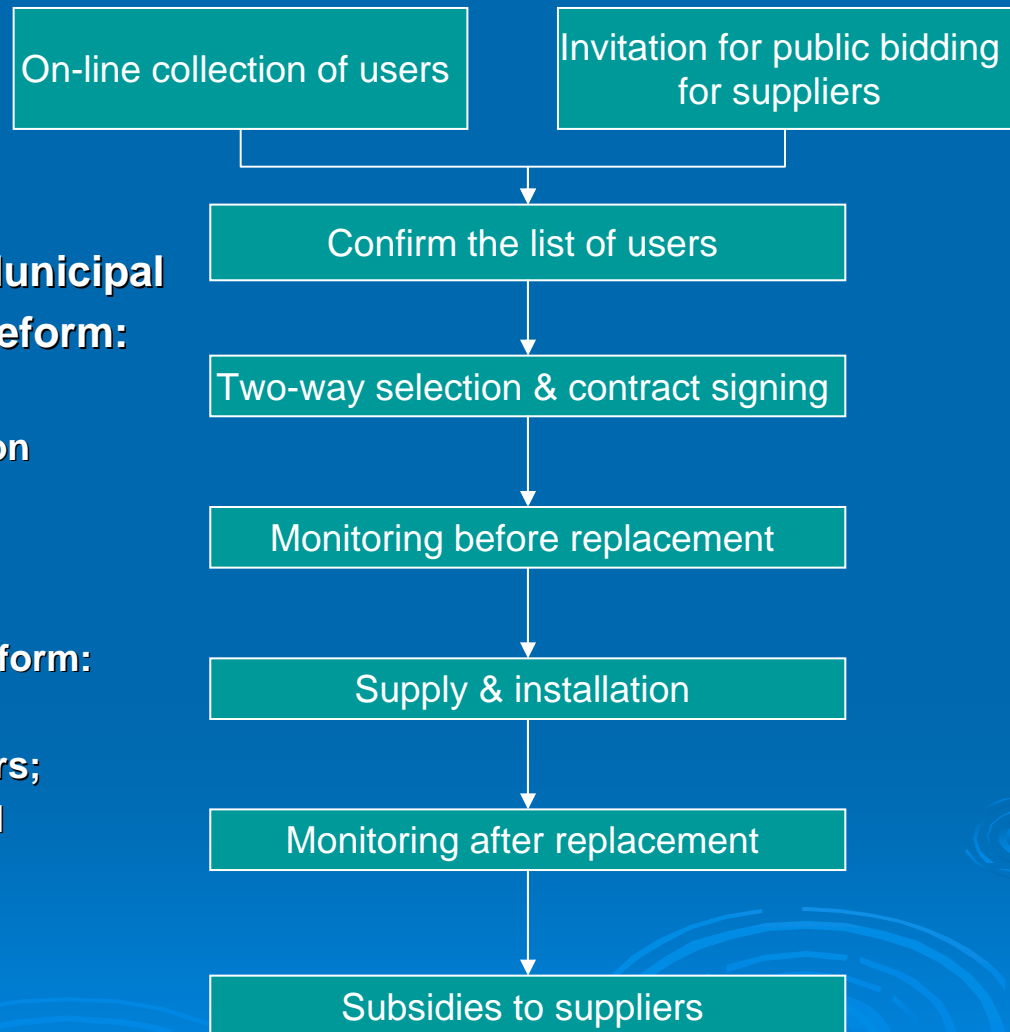
➤ 30% to be financed by the Municipal Commission of Development and Reform:

➤ 1. The government will invite public bidding for selecting eligible suppliers;

➤ 2. Two-way selection by the user and the supplier to sign the contract;

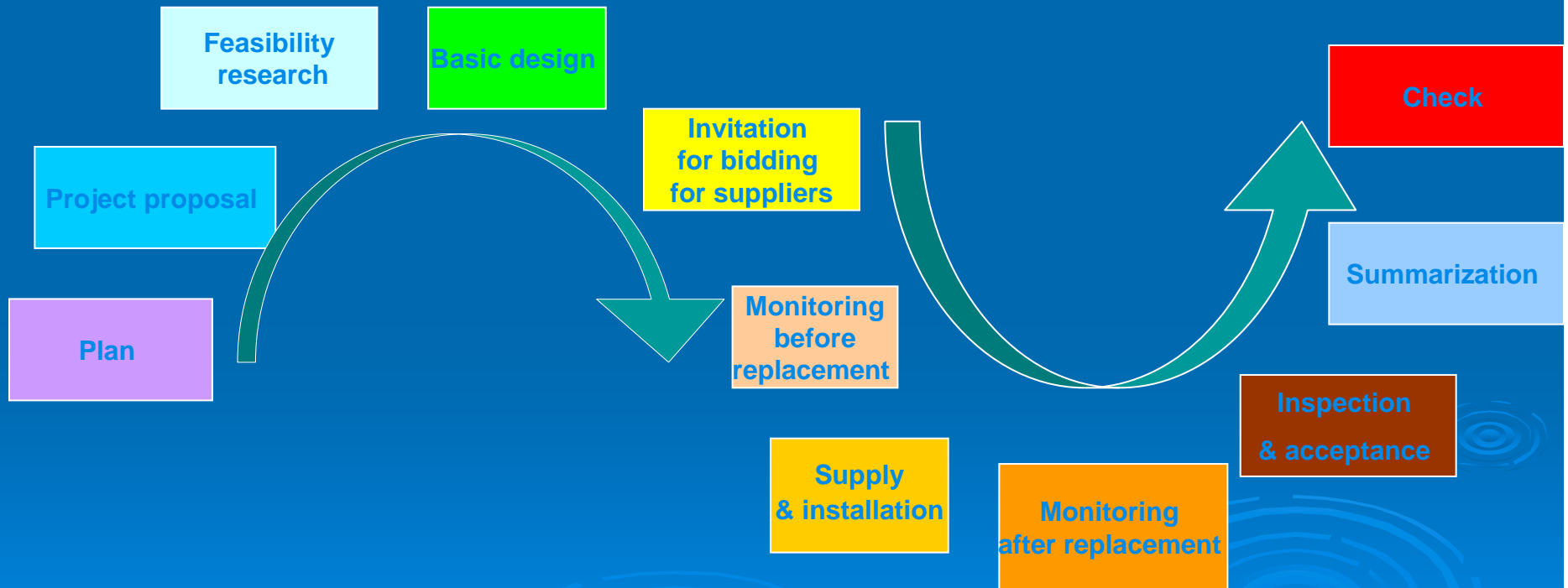
➤ 4. Funds to be financed by users;

➤ 5. Suppliers to be financed 30% by the government.



III. Practices

➤ 100% subsidies:



III. Practices

- Depend on the funds of the State:
- 1. Define the demand and the areas of demand by means of research and investigation
- 2. Prepare the general execution plan
- 3. Fulfill organization and execution by cooperating with suppliers selected through public bidding by the State
- 4. Contract signing
- 5. Subsidies of the central and municipal financing

III. Practices

- **3. Uniform administration, invitation for bidding, monitoring, inspection and acceptance, and summarization by the Municipal Commission of Development and Reform for the purpose of ensuring the quality in the whole process :**
 - **1. Product quality: select quality products by means of uniform invitation for bidding, inspect and monitor the quality of lights before and after replacement.**
 - **2. Installation quality: carry out spot-check for the installation of suppliers during the installation period, and organize relevant departments for inspection and acceptance.**
 - **3. Service quality: guarantee the quality of after-sales services by signing work agreements with suppliers as well as commercial contracts between users and suppliers.**

IV. Experience and achievements

- In virtue of the government's instructions on financing and policies, as well as its **uniform bidding, procurement, monitoring, inspection and acceptance**, we have successfully guaranteed the progress, quality and effects during execution of the project. The government has taken **an indirect way to provide subsidies for the suppliers**, which apparently guarantees the security in the use of the governmental funds.
- The program of encouraging the widespread use of energy-efficient lights by the government in 2008 is not only an important part in **realizing the concept of the green Olympics**, but proves a **favorable policy** of Beijing Municipal Government **for the people**. Meanwhile, in this way **the power supply tension also has been eased**, and **the people's awareness of energy conservation and emission reduction has been improved effectively**. The governmental subsidy of this kind has brought new insight to the widespread use of energy-efficient products in the future.

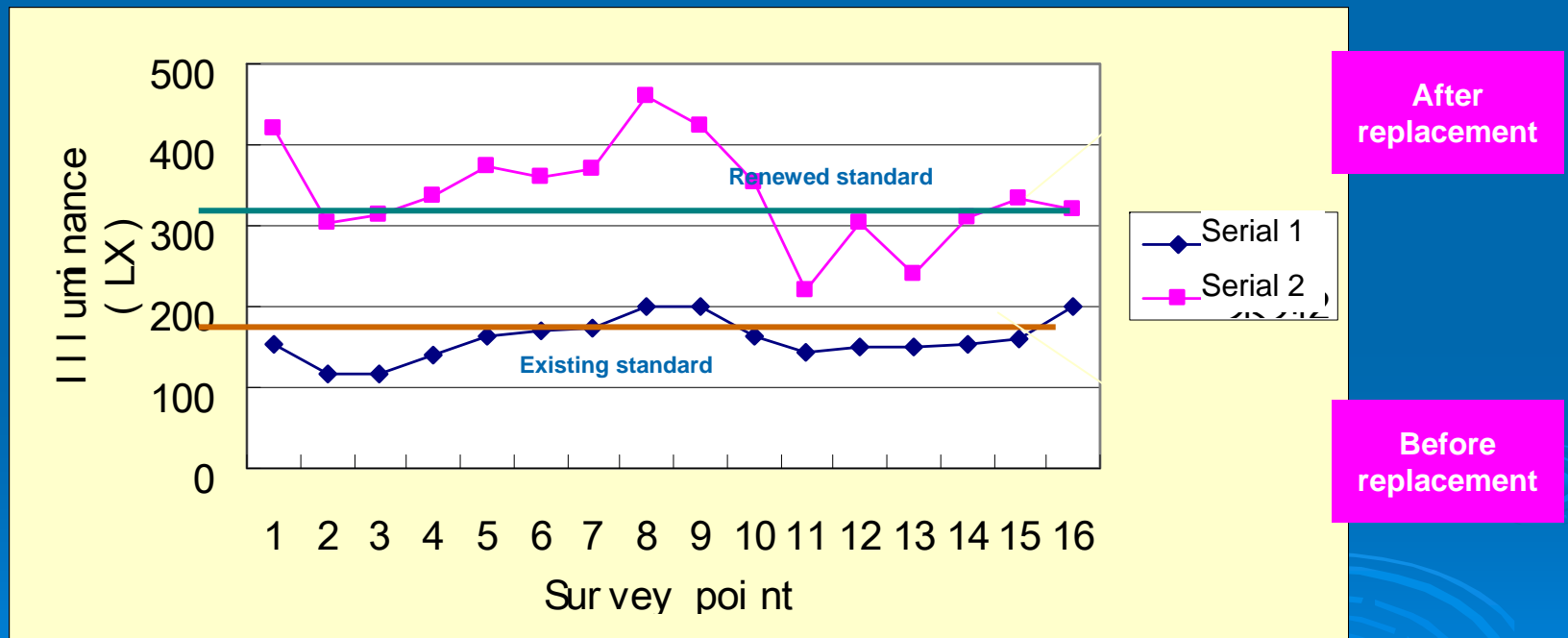
IV. Experience and achievements

- **A. Economic benefits**
- **So far, seven million energy-efficient lights have been used. According to our calculation of saved energy, 259 million kWh can be saved every year, with the electricity bills of 138 million yuan saved at the same time.**
- **B. Environmental benefits**
- **Emission reduction: 264,600t carbon dioxide, 8,000t sulfur dioxide and 5,100t nitrogen oxide can be reduced.**

IV. Experience and achievements

C. Improvement of lighting environment

The illumination intensity can obviously be improved by replacing with high-efficient lights, and especially in primary and middle schools, it can close or reach the value stated in the renewed standard.



Comparison Diagram of Illumination Intensities on Desk before Replacement of High-Efficient Lights in Class 1, Grade 1 of Daxing No.2 Primary School

IV. Experience and achievements

➤ D. Social benefits

- 1. In virtue of the government's active guidance and widespread media operation, especially that the users participating in the "Green Lights Program" advise others by using their own experience, more and more citizens are gradually made to understand the advantages of high-efficient lighting products compared with traditional incandescent lamps, and pay attention to and accept the concept of "Green Lights". Their awareness of energy conservation and "Green Consumerism" are intensified thereby. By promoting the green lights and carrying out widespread use activities in primary and middle schools, children and their parents' awareness of energy conservation is also enhanced at the same time.
- 2. Suppose the traditional lamps in the four major districts are all replaced with five million high-efficient lights, the task of light replacement for approximately one fifth households in Beijing can be fulfilled, which obviously will establish a good beginning for completely achieving high-efficient lighting in Beijing in the following three years.
- 3. By using green lights in the fields related to the Olympics and the core functional regions in our capital city, we can lay a solid foundation for comprehensively achieving the objective of "Green Olympics, Hi-tech Olympics and People's Olympics".

V. Plan for implementation of the green lights program during the late period of the “11th Five Years” plan

- We plan to encourage the widespread use of 100 million high-efficient lights in China between 2009 and 2010. In virtue of the power of the State, the “energy-efficient light of one yuan” will be widely distributed in Beijing in three years. The government will continue to play the key role in the future promotion, which proves a useful governmental subsidy policy favorable for our people. The promotion of energy-efficient lights will commence in Chaoyang, Haidian, Fengtai and Shijingshan Districts in 2009 and be finished the same year. Meanwhile, all old-fashioned lights in public, such as hotels, restaurants, shopping malls, office buildings, schools, hospitals, airdromes and bus stations in Beijing, will be replaced. Generally, by the end of 2010, the objective of green lights will be achieved in Beijing.

VI. Introduction to LED pilot in Beijing

- **Good rendering and penetrating properties, no heat or radiation, less glare, recyclable wastes, mercury-free and no pollution are all characteristics of LED light, so it is one of typical green lights. Its light utilization ratio is relatively high. To achieve the same energy consumption and illumination effects, it can save 80% energy compared with traditional lights. Its service life ranges from 60,000 to 100,000 hours. As all features abovementioned, we will encourage the widespread use of LED light in Beijing.**
- **At present, we have started LED street light pilot project in Beijing and defined four pilot sections in light of the principles of “characteristic, demonstration and radiation”. And the existing 100 HV sodium lights of 400W and 250W are all replaced with high-efficient LED lights of 182W.**

VI. Introduction to LED pilot in Beijing

- **By using 100 high-efficient LED street lights, we can save 50,400kWh electricity every year, equivalent to 20.16t standard coals. The emission of 13.71t carbon dust, 50.25t carbon dioxide, 1.51t sulfur dioxide and 0.76t nitrogen oxide can be reduced every year. Therefore, the environmental benefits produced by LED lights are outstanding.**



VII. Introduction to solar energy street lights used in the rural areas in Beijing

- Since the second half of 2006, the project focused on “Light the country, heat the country and recycle the agricultural resources” has been implemented in Beijing for two years according to the rural conditions. “Light the country” is to lighten the lamps on key tourist routines in rural areas and some villages by means of transformation of solar energy into electricity, so as to eliminate the difficulty in lighting on village road. So far, over 80 thousand solar energy street lights have been installed in suburb, which benefits approximately 800 thousand villagers. And another 30 thousand ones will have been installed by 2008.

Lets' hand in hand to highlight the Olympic theme of "One World, One Dream" and carry out the program of energy conservation and emission reduction! And lets' embrace our wonderful life in the beautiful sky and water!

—Thank you all!

