Study on Enhanceing Mechanisim and Policy on Energy Efficiency of Electrical Motor System in China

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Abstract: Motor is a kind of terminal energy-consumption equipment with the maximum power consumption in China every year; compared with international advanced level, the technical innovation of motor equipment, speed regulating system, drive system and automatic intelligent control technique in China still lag behind relatively; the standard technical service support system of motor system is not complete, the energy conserving transformation mode needs to be innovated, and the market development mechanism of motor industry is not perfect, etc. This paper analyzes the promotion mechanism and policy on energy efficiency of the motor system in China in recent years, studies the demonstration cases of successful promotion of high-efficiency motor, standard labeling, financial finance and tax policy, and puts forward suggestions on promotion of high-efficiency motor in China.

1. Introduction
Motor is a kind of terminal energy-consumption equipment with the maximum power consumption in China, with a current installation base of about 2.1 billion KW. The annual power consumption is about 3.4 trillion KWH, accounting for 64% of the total power consumption of the society, of which, the power consumption of the motor in industrial area accounts for about 75% of the industrial power consumption. Compared with the international advanced level, the overall production and utilization level of the motor in China still lags behind. More than 95% of the low-voltage motors in service are relatively inefficient, of which the operating efficiency of motor system is more than 10% below the international advanced level. In general, the technical innovation of motor, speed regulating system, drive system and automatic intelligent control technique in China still lag behind the international advanced level; the standard technical service support system of motor system is not complete, the energy conserving transformation mode needs to be innovated, and the market development mechanism of motor industry is not perfect, etc.[1,2] While motor and its drive system are the cores for most manufacturing enterprises, especially the processing enterprises, so focusing on motor system is one of the effective ways to reduce energy consumption, decrease cost, improve efficiency, and increase competitiveness of enterprises.

In recent years, relevant departments of the Chinese Government have been committed to improving motor efficiency and organizing the implementation of national motor efficiency promotion plan [3]. The departments also release limit value for motor efficiency and generate product elimination catalogue to raise the standard continually; strengthen the special supervision and inspection on production and application to eliminate the inefficient and backward motor products; identify and release the technical directory of high-efficiency mechanical and electrical products, and introduce contract energy management mode, to make the high-efficiency motor actively promoted in the energy-conserving product-based people-benefit projects and the energy conserving transformation
of motor system [4]. However, replacing with high-efficiency motor cannot improve the energy efficiency of the system significantly. The energy conserving potential of the system and return of investment are not analyzed in the energy conserving transformation decision of the motor system, so rapid market change sets higher demands for the design of motor system, the application of new technologies and the innovation of energy conserving service patterns; besides, the government fails to objectively evaluate and effectively supervise the energy efficiency of motor system, thus, there are still some problems in completely improving the energy efficiency of motor system in China.

This paper not only studies the current policy and analyzes the demonstration case of successful promotion of high-efficiency motor in China, but also dissects the effect of standard labeling, financial policy and tax policy on promoting high-efficiency motor, and puts forward suggestions on the promotion of high-efficiency motor in China, which are helpful for China to further promote high-efficiency motor and realize the goal of energy conserving and emission reduction.

2. Laws and Regulations on Energy Conserving of Motor System
The Law of the People’s Republic of China on Conserving Energy (the “Law on Conserving Energy”) was adopted at the 28th Meeting of the Standing Committee of the Eighth National People’s Congress of the People’s Republic of China on November 1, 1997 and came into force as of January 1, 1998, with two revisions respectively made in 2007 and 2016. The Law on Conserving Energy is the legal basis for implementing energy conserving work in China. According to the law, China has always required to gradually realize the economic operation of motor, fan, pump equipment and system, develop the motor speed regulation and power saving techniques, develop, produce and promote high-quality and cheap energy-efficient equipment and improve power utilization efficiency. With the gradual version updating, the Law on Conserving Energy increases new contents such as incentive measures for motor system transformation, and also encourages energy consumption units and individuals to conserve energy from the aspects of special government fund, tax, credit loan, energy price, government procurement and recognition awards, etc [5].

In addition to the Law on Conserving Energy, the Circular Economy Promotion Law is also directly related to energy conserving and emission reduction. The Circular Economy Promotion Law of the People’s Republic of China (the “Circular Economy Promotion Law”) was put forward to improve resource utilization efficiency, protect and improve environment, and realize sustainable development, which was adopted on August 29, 2008 and came into force on January 1, 2009. The law clearly points out that the country supports enterprises to carry out tyre retreading and remanufacturing of vehicle part, engineering machinery and machine tool, etc. Besides, the quality of remanufactured products and refurbished products for sale must meet the state-stipulated standards, and it is also required to mark remanufactured products or refurbished products in the prominent place and define the reuse and recycling definitely.

The Cleaner Production Promotion Law of the People’s Republic of China (the “Cleaner Production Promotion Law”) was enacted on January 1, 2003 to promote cleaner production, improve resource utilization efficiency, reduce and avoid the generation of pollutants, protect and improve environment, ensure the health of human beings and promote the sustainable development of the economy and society. Later, this law was revised respectively in 2012 and 2016. The Cleaner Production Promotion Law (version 3) executed on July 1, 2016 stipulates to implement energy conserving and optimization for motor system, perform clean production, improve the design, use clean energy and raw materials, adopt advanced process technology and equipment, improve management, utilize comprehensively, reduce pollution from the source, improve resource utilization efficiency, reduce or avoid the generation and discharge of pollutants from production, service and product use process, so as to mitigate or eliminate the harm to human health and the environment. Besides, it also stipulates to increase financial investment and plan as a whole the funds arranged by local finance for cleaner production promotion, guide social funds and support key clean production projects.
3. Energy Efficiency Promotion Plan and Implementation Scheme for Motor System

In June 2013, the Ministry of Industry and Information and the General Administration of Quality Supervision, Inspection and Quarantine of the People’s Republic of China jointly issued the Notice on Organizing the Implementation of Motor Energy Efficiency Promotion Plan (2013-2015) (the “Notice”). And it was proposed to organize and mobilize the system-wide forces in 3 years, comprehensively improve the energy efficiency of the motor and promote the transformation and upgrading of motor industry from motor production, application, recycling and remanufacturing fields via policy guidance, standard constraint, supervision and inspection, etc. And this action plan proposed to cumulatively promote high-efficiency motor of 170 million KW, eliminate inefficient motor in-use of 160 million KW and implement energy conserving transformation for motor system of 100 million KW, and eliminate motor for efficient remanufacturing of 20 million KW by 2015 [6].

Local governments at all levels have also introduced corresponding policies and regulations to ensure the smooth implementation of the energy efficiency promotion plan of the motor. Of which, Guangdong subsidized RMB 200 yuan/KW for energy conserving transformation of motor system, and Wuhan also subsidized the enterprises implementing energy conserving transformation of motor system based on 5%-10% of the motor price. Shanghai issued special policy to promote the development of efficient motor remanufacturing industry. Jiangsu and Guangdong, etc. imposed punitive electricity price for the enterprises failing to eliminate inefficient motor on time. Some provinces and cities also explicitly stipulated that enterprises failing to eliminate outdated motor on time shall not enjoy the special funds of the government for energy conserving, emission reduction and technical reform, etc. In the “13th Five-year Plan” on energy conserving, Zhejiang Province specifically proposed to accelerate the implementation of energy conserving transformation for motor system, adopt advanced technique to perform matching transformation for motor and drive equipment, and realize more than 3 million KW goal of promoting high-efficiency motor, eliminating outdated motor, and implementing motor system improvement [7, 8]. As a whole, the energy efficiency promotion plan of motor combines the incentive and constraining policies, which effectively promotes the implementation of the plan. The table below lists relevant policy documents issued by some provinces and cities.

| Released on       | Province       | City                | Reference No. | Name                                                                 |
|-------------------|----------------|---------------------|---------------|----------------------------------------------------------------------|
| October 1, 2015   | Jiangxi        | Gan Zhou            |               | Ministry of Industry and Information Technology                      |
|                   |                |                     |               | Plan of Motor Energy Efficiency Promotion for Key Energy-consuming Enterprises in Gan Zhou (2016-2020) |
| November 3, 2015  | Guangxi        | Guangxi Zhuang Autonomous Region | GGXJN [2015] No. 865 | Notice on Organizing the Declaration of Projects with Financial Funds for Transformation of Energy Conserving Technology in the Autonomous Region in 2016 |
| March 4, 2016     | Hunan          | Economic and Information | XJXJN [2016] No. | Notice of Hunan Economic and Information                              |
| Date          | Province/Region | Issuing Unit                                                                 | Document Code | Title                                                                 |
|--------------|-----------------|-------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------|
| November 19, 2015 | Shandong        | Economic and Information Technology Commission, Quality and Technology Supervision Bureau and Energy Conserving Office of the People’s Government | LJXZ [2015] No. 524 | Implementing Rules for Energy Efficiency “Pacemaker” System of Motor Product in Shandong Province and List of Energy Efficiency “Pacemaker” of Motor and Solar Thermal Products |
| December 31, 2015 | Zhejiang        | Office of the People’s Government                                             | ZZBF [2015] No. 136 | Action Plan for Zhejiang to Create National Clean Energy Demonstration Province (2016-2017) |
| September 30, 2016 | Zhejiang        | Development and Reform Commission, Economic and Information Technology Commission | ZFGGH [2016] No. 672 | Notice on Issuing the “13th Five-year Plan” on Energy Conserving in Zhejiang Province |
| August 13, 2014  | Jiangsu          | Economic and Information Technology Commission, Department of Finance         | SJXZH [2016] No. 91 | Notice on Organizing the Special Fund Project for Transformation and Upgrading of Provincial Industry and Information Industry in 2016 |
| February 3, 2016  | Shanxi           | Economic and Information Technology Commission                               | JJXTZ [2016] No. 36 | Notice on the Issuance of Implementation Plan of Industrial Transformation and Upgrading in 2016 |
| July 26,         | Hubei           | People’s Government                                                          |                | Notice of the Office                                                  |
| Year        | Location          | Authority                                                                 | Document Code     | Description                                                                 |
|------------|-------------------|---------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------|
| 2013       | Wuhan             | Government; Commission of Economy and Information Technology, Finance Bureau of Wuhan |                   | of the People’s Government of Wuhan on Transmitting the Implementation Plan of Special Transformation Action of Thousands of Motors in Injection Molding Machine Industry of Wuhan and Notice of the Commission of Economy and Information Technology and Finance Bureau of Wuhan on Issuing the Supporting Method for Motor Energy Efficiency Promotion Project |
| April 11, 2014 | Hainan             | Department of Finance, Industry and Information Technology Department | QCJ [2014] No. 431 | Implementation Plan on Fiscal Subsidies for Motor Energy Efficiency Promotion in Hainan Province |
| July 4, 2016 | Hunan              | Economic and Information Technology Commission | XIXJN [2016] No. 345 | Notice on Issuing the List of Pilot Enterprises for Motor Energy Efficiency Promotion Project in Hunan in 2016 |
| December 31, 2013 | Fujian            | Economic and Information Technology Commission | MJXHZ [2013] No. 930 | Notice on Issuing the Implementation Plan (2013-2015) for Motor Energy Efficiency Promotion in Fujian Province |
| December 25, 2015 | Jiangsu           | Economic and Information Technology Commission, Development and Reform Commission, Department of Science and | SJXJN [2015] No. 728 | Key Technical Equipment for Energy Conserving and Environmental Protection and Industrialization Promotion Plan of Product |
| Date               | Location                | Department/Commission/Office                                      | Document Code | Summary                                                                                     |
|-------------------|-------------------------|------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------------|
| March 3, 2015     | Jiangsu Zhenjiang       | Economic and Information Technology Commission                   | ZJX [2015] No.31 | Opinion on Motor Energy Efficiency Promotion Work of Zhenjiang in 2015-2016               |
| December 28, 2015 | Chongqing Chongqing     | Office of the People’s Government                                 | YFBF [2015] No.125 | Implementation Plan on Strengthening the Standardization of Energy Conserving in Chongqing |
| December 8, 2014  | Hebei                   | Department of Science and Technology                               | JKS [2014] No.10 | Implementation Opinion on Strengthening Technical Innovation in Energy Conserving and Emission Reduction |
| June 29, 2015     | Hebei                   | Industry and Information Technology Department                   | JGXJ [2015] No.216 | Notice of the Industry and Information Technology Department of Hebei Province on Implementing Special Supervision and Inspection on Motor Energy Efficiency Promotion in the Building Materials and Textile Industries |
| August 1, 2013    | Hubei Wuhan             | Office of the People’s Government; Commission of Economy and Information Technology, Finance Bureau of Wuhan |               | Notice of the Office of the People’s Government of Wuhan on Transmitting the Implementation Plan of Special Transformation Action of Thousands of Motors in Injection Molding |
| Date         | Location   | Authority                          | Document Title                                                                 |
|--------------|------------|------------------------------------|--------------------------------------------------------------------------------|
| August 7, 2013 | Sichuan    | Economic and Information Technology Commission | Notice on Issuing the Implementation Plan of Motor Energy Efficiency Promotion in Sichuan Province (2013-2015) |
| March 21, 2015 | Guangdong  | People’s Government                | Notice of the People’s Government of Guangdong Province on Issuing the 3-year Action Plan (2015-2017) for Industrial Transformation and Upgrading Fight in Guangdong |
| 2013-2015    | Guangdong  | Dongguan Economic and Information Bureau of Dongguan | Implementation Plan for Servo Energy Conserving Transformation Pilot of Injection Molding Machine in Dongguan, Scheme for Motor Energy Efficiency Promotion in Dongguan, Implementing Rules for Subsidy of Motor Energy Efficiency Promotion in Dongguan, Table of Task Decomposition for Motor Energy Efficiency Promotion in Dongguan |
The policies and measures adopted by each region are summarized as follows: (1) The provincial government set up transformation plan and determined the overall work objective. The municipal governments formulated and implemented plans in combination with local condition, and put various supporting policies into practice; (2) The promotion of public-private-partnership mode (PPP mode) shall be strengthened. PPP mode can eliminate the expense overruns, which helps reducing the financial burden of the government, meanwhile, the government and private sectors can make good for deficiency and exert their advantages. Therefore, PPP mode is highly valued by government sectors and will be widely promoted in future energy conserving transformation of the motor system. (3) Local governments showed different regional characteristics in the concrete implementation process. For example, Dongguan of Guangdong Province adopted the energy conserving management service mode of fiscal subsidy for high-efficiency motor and market participation, dominated by government management; Zhenjiang of Jiangsu Province adopted the policy-based energy conserving management service mode, focusing on the transformation of motor system and dominated by marketization. Both have their own advantages, and the motor energy efficiency promotion management model adopted by all regions of the country is summarized in the following table.

| Table 2 Motor Energy Efficiency Promotion Mode of all Regions of the Country |
|-----------------------------|-----------------------------|
| Dominated by government management, and based on market mechanism | Market-oriented operation supported by government guidance |
| Inner Mongolia, Liaoning, Heilongjiang, Jilin, Shanghai, Zhejiang, Anhui, Fujian, Jiangxi, Henan, Hubei, Hunan, Hainan, Yunnan, Ningxia, Ningbo, Shenzhen and Guangdong | Tianjin, Hebei, Shanxi, Guangxi, Tibet, Sichuan, Jiangsu, Shaanxi, Gansu, Qinghai and Dalian |

4. Labeling System of Energy Efficiency Standard
The Allowable Values of Energy Efficiency and Energy Efficiency Grades for Small and Medium Three-phase Asynchronous Motors (GB18613-2012) was formulated based on IEC Standard 60034-30 (2008). This standard is applicable to the continuous-running general-purpose motor or general-purpose explosion-proof motor with a voltage of 1000V and below, power supply of 50Hz, three-phase AC supply, a rated power of 0.75~375kW, with 2, 4 and 6 poles, singe-speed fan-cooled type and N design[9]. The grades 1, 2 and 3 energy efficiencies regulated in the standard correspond to IE4, IE3 and IE2 efficiency values respectively in IEC.

The market research data suggests that: the overall demand of China’s motor market showed a downward trend in 2015, with a total output of 385.14 million KW, down 5.3% compared with the output of 2014. The market of small and medium motor most widely used in the industry area also shrinked. The output of small and medium motor was about 181.78 million KW in 2015, down about 5.72% compared with 2014. In 2015, the proportion of product of grade 1 energy efficiency was 0.24%, such kind of product was for export; that of grade 2 was 7.30%, down about 1.79% compared with 2014; and that of grade 3 was 40.35%, there were still products below the new grade 3 standard, accounting for about 52.12%, and down about 0.12% compared with 2014. The implementation condition of energy efficiency standard is very pessimistic, with huge supervision pressure [11,12].

The Administration Regulation on Energy Efficiency Labeling (the “Administration Regulation”) jointly revised and issued by the NDRC and AQSIQ was implemented officially on June 1, 2016. The new Administration Regulation strengthens the requirements for supplementing the supervision target, specifying the illegal subject and increasing new market subject, etc., and corresponding incentives and penalties are more comprehensive and clear. Meanwhile, the “energy efficiency information code” (QR code) is introduced to the energy efficiency label, and the revision contents are consistent to the
revised Law on Conserving Energy. The revised Administration Regulation strengthens the supervision on the unlabeled and unstandardized labelling behaviors, false efficiency labelling and efficiency detection and inspection organization, supplements contents for regulating online sales of energy efficiency products, enriches the information of energy efficiency label, and cooperates with the energy efficiency “pacemaker” system.

5. Finance and Tax Policies

5.1. Energy-conserving product-based people-benefit projects

On May 31, 2010, the Ministry of Finance and National Development and Reform Commission jointly issued the Implementing Rules for Promotion of High-efficiency Motor in Energy-conserving product-based people-benefit projects (CJ [2010] No. 232), which showed the beginning of fiscal subsidies for high-efficiency motor. On August 1, 2010, China published the first batch of announcement directory, with 13 enterprises and 1,061 models selected; in March 2011, the Xiangtan High-efficiency Motor Promotion Conference was held, and the second batch of announcement directory was published in the same year; in December 2013, the use of medium and low-voltage models in the first four batches was stopped, high-voltage and permanent magnet models were used continuously, and the fifth batch of announcement directory was published. According to the statistics by the administration office of the energy-conserving product-based people-benefit projects, 33 million KW of high-efficiency motor was promoted cumulatively up to May 2014, including 16 million KW of low voltage model, 13 million KW of high voltage model and 4 million KW of permanent magnet model. Subsidy of RMB 1.4 billion yuan was applied cumulatively, and subsidy of RMB 1.7 billion yuan were distributed for pump, fan, air compressor and transformer, etc. It is expected to distribute a subsidy of about RMB 3 billion yuan for high-efficiency motor by the end of 2016 according to the experts.

| Released on          | Number of Motor Manufacturers Selected | Number of Models of Low-voltage Motor | Number of Models of High-voltage Motor | Number of Models of Permanent Magnet Motor |
|----------------------|--------------------------------------|--------------------------------------|---------------------------------------|------------------------------------------|
| 1 August 1, 2010     | 13                                    | 996                                  | 0                                     | 65                                       |
| 2 March 8, 2011      | 48                                    | 1,440                                | 6,653                                 | 343                                      |
| 3 July 26, 2011      | 34                                    | 677                                  | 8,760                                 | 459                                      |
| 4 March 21, 2012     | 29                                    | 737                                  | 10,669                                | 388                                      |
| 5 December 2, 2012   | 90                                    | 4,752                                | 14,485                                | 935                                      |
| 6 August 28, 2014    | 85                                    | 2,041                                | 10,842                                | 1,150                                    |
Table 4 Subsidy Standard for High-efficiency Motor in Energy-Conserving Product-based People-benefit Projects

| Type                                | Rated Power (KW)                  | Subsidy (RMB/KW) |
|-------------------------------------|-----------------------------------|------------------|
| Low-voltage three-phase asynchronous motor | 0.55 \leq \text{rated power} \leq 22 | 58               |
|                                     | 22 \leq \text{rated power} \leq 315 | 31               |
| High-voltage motor                  | 355 \leq \text{rated power} \leq 25,000 | 26               |
| Rare-earth permanent magnet motor    | 0.55 \leq \text{rated power} \leq 315 | 100              |

On January 23, 2017, the Ministry of Finance and NDRC jointly issued the Notice on Completing the Promotion, Subsidy and Liquidation Work of High-efficiency Motor (CJ[2017] No. 6) which clearly put forward that enterprises purchasing the high-efficiency motor products in the directory of energy-conserving product-based people-benefit projects would no longer enjoy the subsidy policy of central government from March 1, 2017, and the information of promotion enterprises shall be reported and examined, and the capital settlement shall be completed[13]. What’s more, the enterprises swindling subsidies will suffer a notice of criticism, deduction or retrieve of subsidies and public exposure, etc. according to the circumstances, and fines will also be imposed as required.

5.2. Preferential tax policy
Implement contract energy management project for eligible energy service companies, exempt the corporate income tax of the enterprises conforming to the law of corporation income tax from the first year to the third year after the tax year when the project obtains the first production and management income, and halve the corporate income tax from the fourth year to the sixth year based on 25% of the tax rate, i.e. “exemption for three years and halving for three years”. In case that the benefit sharing period agreed in the sharing contract is less than six years, enjoy the privileges based on the actual sharing period.

6. Suggestions on Energy Efficiency Promotion Policy for Motor System in China

6.1. Coordinate policies and form collective efficiency
The Industrial Green Development Planning (2016-2020) specifies the goal that the average operation efficiency of the motor system will increase by 5% by 2020, and also emphasizes the transformation of industrial energy conserving from local and independent energy conserving to full process and system energy conserving. Key power utilization industries and enterprises are important for realizing this goal. To improve the synergistic effect of the policies and form policy resultant force, the national industrial energy conserving department shall take the lead to set an energy efficiency promotion leading group of national motor system, and integrate relevant policies with the quality assurance, national development and reform, environmental protection, commerce, finance and tax departments, etc., form overall planning force and policy package, and promote these policies to local place. The leading group shall assess the implementation of the policy package regularly, collect and share the industry and regional experience, and release the implementation schedule of the plan and supervise the implementation.

6.2. Optimize stock and improve energy efficiency
Optimizing the stock market of motor system and eliminating the old and inefficient equipment are critical. The motor system may be transformed when eliminating inefficient motor, and the energy conserving benefits of the system can deduct the cost for eliminating inefficient motor. In view of the limited power saving space for replacement with efficient motor, it is required to strengthen the
technology upgrading and system optimization for the widely used cross-industry general driving equipment (including pumps, fans and compressors), so as to ensure the economical efficiency of system transformation. It is also required to establish a recovery system of waste mechanical electrical equipment for the inefficient equipment eliminated, carry out efficient remanufacturing pilot and utilize the advanced technique to make efficient equipment again. Besides, it is recommended to learn from international advanced experience, introduce supporting policies to encourage equipment manufacturers to recycle their products, reduce the replacement and service cost of the user enterprises by promoting remanufactured products, thus to realize the efficient utilization of resource in full life cycle, and the low-carbon and cyclic development of industrial users and manufacturing enterprises.

6.3. Strengthen the binding of standards
The mandatory energy efficiency standard of China has played a significant role in improving the energy efficiency of pumps, fans and compressor products of the motor system, and the categories of energy efficiency standard of our related products are the most comprehensive in the world, but still need improvement. The standard shall follow the market development and user need, so that the implementation of the standard can be closer to the industrial development trend. Besides, it is also recommended that China’s standardization authorities shall strengthen the communication with EU and America, etc., strive to reach relevant cooperation, and provide standards and technical support for promoting the construction of “the Belt and Road” and international high-quality capacity cooperation.

6.4. Properly use such economic means as finance and tax, credit loan and price for market regulation
In a bid to drive the continuous market transformation, it is suggested to study and promote the high-efficiency motor subsidy policy from production to user. Currently, the most difficult obstacle is personnel, and the government shall prioritize consciousness change of user enterprise when formulating relevant incentive policies, make the management personnel and decision-making level of the enterprise fully understand the energy conserving potential of the motor system, so as to further determine the business model and implement technical reform for energy conserving. Meanwhile, the funds of the financial sector and even the private sector may be leveraged for the energy efficiency promotion market of motor system.

6.5. Combine the energy conserving of motor system with informatization, automation and intellectualization closely
The Made in China 2025 issued by the State Council is the first ten-year action program for China to implement the strategy of manufacturing power. It is aimed at realizing informatization, automation and intellectualization of energy promotion of motor system in virtue of the development of internet, big data and Industrial-IoT, etc., and finally realizing higher manufacturing efficiency, lower cost and better quality. The most important work for improving the energy efficiency of motor system is to identify the energy conserving potential and commercial value. To explore energy conserving space, the user shall first know the energy efficiency values of the motor system, and then compare the values to identify the energy conserving potential. China shall strengthen the disclosure of energy data and power consumption data of key systems based on the construction of initial energy consumption management platform and energy monitoring center, and the user enterprises shall monitor the operating efficiency and quality of the motor system pointedly by general survey and energy efficiency benchmark, analyze the data regularly, and warn automatically in case of system error, and even perform self-learning through machine to make intelligent control and self-adapting improvement.

6.6. Strengthen international communication and cooperation, and carry out pilot demonstration
Developed economies such as Europe and America are also working on the promotion and replacement of their high-efficiency equipment, as well as the energy efficiency optimization of motor system, they have accumulated some good methods, experiences, models and tools worth learning. It is
recommended to utilize the strategic opportunity of the “Belt and Road” to facilitate more excellent products and technologies for export via exhibition and negotiation conference, etc.; strengthen the communication and cooperation in international high-efficiency motor technology, system energy conserving technology and management experience through international forum, seminar and technical seminar jointly held via bilateral and multilateral cooperation.

Introduce mature technologies and patterns, rely on localization team, carry out pilot demonstration in domestic key industries (such as cement, chemical and electric), large-scale conglomerates, specified areas and industrial parks, etc., summarize and publicize the experience.

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