

EnMS under China's Top-10,000 Program

Program Summary

China's mandatory energy conservation target-setting policy for large energy users, known as the Top-10,000 Program (*1), was introduced in 2011. One of the key requirements laid out in the Program is the establishment of energy management systems. In November 2012, China's government officially mandated provinces to implement energy management programs (EnMPs) targeting companies that are covered in the Top-10,000 Program. Provincial energy conservation authorities are required to make plans to advance EnMS adoption in Top 10,000 enterprises in their respective jurisdictions and encourage Top-10,000 Enterprises to either establish or improve their EnMSs for plants with existing EnMSs.

The nationwide EnMP builds on the updated China's energy management standard (*GB/T 23331*), which was revised in 2012 to be in line with the international ISO 50001 standard for energy management systems (EnMS), as well as on an EnMS certification pilot program initiated by the Certification and Accreditation Administration (CNCA) in selected enterprises and an EnMS implementation pilot in the Shandong Province with support of the Energy Foundation.

Program Information	
Program Title	Energy management system requirements under the Top-10,000 Program
Type of Program	Energy Management
Target Group	<p>Size</p> <ul style="list-style-type: none"> Large (>10,000 tce per year) <p>Industry focus</p> <ul style="list-style-type: none"> All industry Other: large transport enterprises, public buildings, hotels and commercial enterprises using more than 5,000 tce per year.
Start and End Date	2012 - 2015.
Geographic Coverage	China
GHG emission source covered	All energy sources.
Objective(s)	<p>The goal of China's energy management program (EnMP) is to improve overall energy conservation and management, and energy efficiency through the development and implementation of EnMSs in the Top 10,000 enterprises in line with the Chinese standard (<i>GB/T 23331</i>) by the end of the 12th Five-Year Plan, and ensure there are long-term energy conservation management mechanisms in place in these enterprises.</p> <p>Introducing EnMSs will help these enterprises:</p> <ul style="list-style-type: none"> meet energy conservation policies and standards encourage the adoption of advanced energy conservation management



	<p>methods and technologies</p> <ul style="list-style-type: none"> • manage energy use throughout the whole production process • emphasize the importance of building an energy conservation culture [1].
Program Funding Source	Not available. Decided at the provincial level.
Total Program Funding	Not available. Local governments are encouraged to set aside specific budgets. No specific funding from the central government is expected at this stage.

Implementation Details

Operating Mechanism	<p>The NDRC and CNCA announced in November 2012 that:</p> <ul style="list-style-type: none"> • Provincial energy conservation authorities should make plans to advance EnMS adoption in the Top 10,000 enterprises in their respective jurisdictions and encourage them to either establish or improve EnMSs. • Energy conservation authorities at various levels should also: <ul style="list-style-type: none"> ○ Organize qualified consulting agencies to provide training, guidance, and consultative services on EnMSs to enterprises. Consulting agencies should have competent professionals with good technical skills in order to provide enterprises with services such as training and guidance related to EnMSs [1]. ○ Summarize best practices and case studies, and organize activities to exchange experiences, such as onsite meetings and seminars. Industrial associations should also play a role by providing enterprises with technical support for EnMS implementation. • Top 10,000 enterprises should closely consider the implementation of EnMSs. They should see EnMSs as a strategic choice, and should set up an energy management team that is led by a senior member of staff, and ensure that the adequate funds and working conditions are provided. They should carefully examine their energy management practices, formulate work plans for developing EnMSs, and set out responsibilities, tasks, measures and timelines. Training should be organized to help relevant staff grasp the methods for establishing, implementing and improving EnMSs. These enterprises should develop documents detailing their EnMS and release them to staff so they can learn from them. They should monitor their EnMS and improve control measures for energy utilization processes to ensure continuous and effective operation. In addition, regular checks and assessments should be conducted to identify and analyze any problems in EnMS operation, and they should evaluate the attainment of EnMS goals, and verify whether relevant management measures are in place. Enterprises should adopt corrective and preventive measures for any problems identified, and work to improve the EnMS in order to optimize energy management and increase energy efficiency. • The central government has developed an institutional structure for EnMS certification where accredited certification agencies shall be responsible for the validity of EnMS certification and to continuously improve the quality of their services to enterprises at a reasonable cost [1]. The central government has left provinces with the flexibility to make EnMS certification voluntary or mandatory. If Provinces do not make certification mandatory, local energy conservation authorities must develop frameworks for EnMS performance evaluation, which can be verified, including by third parties [1].
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Energy management System	<p>EnMS standard: GB/T 23331</p> <p>The national EnMS standard (GB/T 23331) was revised in 2012 to be in line with the international energy management standard ISO 50001.</p>
Program Offerings for Industry	<p>Program offerings include:</p> <ul style="list-style-type: none"> • Energy Management System standard (GB/T23331) • Implementation guideline for EnMS (GB/T 29456) [4] • Sector-based implementation guidelines of EnMS, which cover: plate glass, cement, iron and steel (for release in 2013), thermal power, coking, coal, public institutions (for release in 2014), and paper and petrochemicals (for release in 2015). [4] • CNCA and NDRC are establishing institutional and market structures for EnMS certification and implementation support for companies seeking external EnMS expertise. •
Supervising Agency	<ul style="list-style-type: none"> • National Development and Reform Commission (NDRC) for overall Top 10,000 program • Certification and Accreditation Administration (CNCA) of People’s Republic of China (PRC) for certification and accreditation
Implementing Agency	Local energy conservation authorities
Implementing Agency Type	Public entities
M&V requirements on industry	<p>The central government has left provinces with the flexibility to make EnMS certification voluntary or mandatory. For those provinces who don’t adopt EnMS certification, local energy conservation authorities should develop clear and consistent evaluation standards, and ensure that these standards are being followed by relevant agencies or experts conducting evaluations of EnMS performance [1]. Local energy conservation supervision and/or technical centers will play an important role in monitoring and verification for EnMS implementation [5].</p> <p>For those provinces that make certification mandatory, CNCA, together with NDRC, are jointly establishing institutional mechanisms to effectively improve the professional competence of EnMS certification institutions and personnel, strengthen the administration of qualifications of the EnMS certification agencies, and publish the list of government-accredited certification agencies [1] [2]. To this effect:</p> <ul style="list-style-type: none"> • CNCA and NDRC are developing specifications and rules for EnMS certification and accreditation requirements to ensure that they are consistent and provide quality control for agencies wishing to conduct EnMS. Accredited certification agencies shall be responsible for the validity of EnMS certification as well as continuously improve the quality of their services to enterprises at a reasonable cost [1]. • CNCA is developing an EnMS Certification Technical Specification for 13 sectors, and these specifications will be used as sector standards to provide guidance for EnMS certification. By end of April, 2013, these 13 specifications will be released officially to support implementation of certification processes [1]. <p>Local energy conservation authorities and local certification regulatory departments are responsible for strengthening the supervision and inspection of EnMS implementation in the Top 10,000 enterprises as well as the quality of work of consulting and certification agencies.</p>
Evaluation of program	Provincial energy conservation authorities are required to include EnMS implementation in the energy conservation targets of Top 10,000 enterprises and evaluate their



	<p>performance.</p> <p>Provincial energy conservation authorities are requested to report to NDRC every year on the progress of EnMS implementation and EnMS certification in Top 10,000 enterprises [1].</p> <ul style="list-style-type: none"> • CNCA and NDRC will punish, or even disqualify, those consulting and certification agencies that conduct illegal or irregular activities, in accordance with the Energy Conservation Law, Certification and Accreditation Regulations, and the Measures for the Administration of Certification Agencies [1].
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Program Flow Chart

Entity	Role and Responsibilities
Central government (NDRC)	Overall oversight of Top-10,000 program and Provinces' implementation of energy management program and 12 th FYP targets
Local government	<ul style="list-style-type: none"> • Ensure implementation of Top-10,000 program • Decision on whether to make EnMS certification voluntary or mandatory
Local energy conservation centers (ECCs)	<ul style="list-style-type: none"> • Ensure Top-10,000 Enterprises are adopting EnMS • If certification is voluntary, develop evaluation performance standards for EnMS and undertake evaluations of EnMS performance of Top-10,000 Enterprises • Organize qualified consulting agencies to provide training, guidance, and advisory services on EnMSs to enterprises • Provide access to best practices and case studies
Top-10,000 Enterprises	<ul style="list-style-type: none"> • Implement EnMS (monitor, document and improve EnMS adoption) • Seek certification or meet provincial EnMS performance standards
Certification and Accreditation Administration (CNCA)	<ul style="list-style-type: none"> • Develop institutional + market structures to ensure quality accredited certification agencies. • Develop sectoral EnMS Certification Technical Specifications.
Certification bodies	<ul style="list-style-type: none"> • Certify EnMS standard adoption (GB/T 23331)
China National Institute for Standardization (CNIS)	<ul style="list-style-type: none"> • EnMS standards development (GB/T 23331) and participate in ISO working groups for additional standards development • Development of EnMS and sector specific EnMS implementation guidelines.

Impacts and Results

Metric	Number of certified plants or evaluations of EnMS performance. Energy savings measured in million tons of standard coal (Mtce).
Target/goal	The goal is to help enterprises and provinces achieve their energy-saving targets under the Top-10,000 Program, amounting to a saving of 250 Mtce over the 12 th Five Year Plan period 2011-2015.
Analytic base for target (or target setting mechanism)	<p>Targets under the Top-10,000 program are disaggregated to local provinces and cities. The target setting process is said to be the following:</p> <ul style="list-style-type: none"> • Companies report their estimated energy-saving potentials to the local government • Provinces estimate total energy-saving targets for their provinces and submit their proposed targets to the central government • The central government reviews the proposed target.



	<ul style="list-style-type: none"> Provincial and central governments negotiate the targets before final targets are determined. [3]
Savings (recent year)	Not available for the whole program since nationwide implementation is beginning in 2013.
Savings (program total)	<p>Not available for the whole program since nationwide implementation is beginning in 2013.</p> <p>To support the introduction of a national EnMP, an EnMS certification pilot was initiated by the Certification and Accreditation Administration (CNCA) in selected enterprises in May 2010. As at November 2012, there were 37 institutions in 13 industries that conduct EnMS certification pilots [2].</p> <ul style="list-style-type: none"> The initial audit found that total energy saving exceeds 114 million tons of standard coal, equivalent to 3.03 million tons of carbon dioxide emission reduction [2].
Savings (Share of overall demand)	Not available for the whole program since nationwide implementation is beginning in 2013.
Average unit cost of energy saved	<p>Not available for the whole program since nationwide implementation is beginning in 2013.</p> <p>Results for the EnMS certification pilot:</p> <ul style="list-style-type: none"> Saving 570 million RMB (1 ton of standard coal costs 500RMB) [2].
Non-energy benefits (co-benefits)	<p>Not available for the whole program since nationwide implementation began in 2013.</p> <p>Results for the EnMS certification pilot:</p> <ul style="list-style-type: none"> Over 130 enterprises established EnMS 77 enterprises obtained the EnMS certificate (as at June 2012) Seven auditor training courses, with over 1300 trainers and 772 people registered auditors [2].

Other Information	
Footnotes	<p>(*1) The Top 10,000 Program, which is a mandatory program in the 12th Five-Year Plan period (2011-2015), expanded from the Top 1,000 Program of the 11th Five-Year Plan (FYP) and now covers two thirds of China's total energy consumption. Approximately 15,000 industrial enterprises that use more than 10,000 tonnes of coal equivalent (tce) per year, around 160 large transportation enterprises, and public buildings (including schools and universities), hotels and commercial enterprises that use more than 5,000 tce per year are included in the program. The target of the Top 10,000 Program is to save 250 million tce by 2015.</p>
Links and References	<p>[1] Notice of the National Development and Reform Commission (NDRC) and the Certification and Accreditation Administration (CNCA) of People's Republic of China (PRC) (2012). Strengthening energy management system implementation in Top 10,000 enterprises NDRC File No. FGHZ [2012] 3787. November 28, 2012. Translation by the Institute for Industrial Productivity, January 2013. http://www.iipnetwork.org/notice-enms-china</p> <p>[2] Certification and Accreditation Administration of the People's Republic of China (CNCA) (2012). Introduction to CNCA Energy Management System (EnMS) Certification Pilot Work. Powerpoint presentation on 19 November 2012, Dezhou, Shandong.</p> <p>[3] Institute for Industrial Productivity (2012). Top-10,000 Energy-Consuming Enterprises Program. Industrial Efficiency Policy Database. Available at http://iepd.iipnetwork.org/policy/top-10000-energy-consuming-enterprises-program</p> <p>[4] China National Institute of Standardization (CNIS) (2012). Progress on EnMS standards.</p>



	Presentation by Wang Geng on 19 November 2012, Dezhou, Shandong. [5] China National Institute of Standardization (CNIS) (2012). EnMS Progress in China. Presentation by Wang Geng on 4 May 2012, Dublin, Ireland. [6] Institute for Industrial Productivity (2012). EnMS Mitigation Potentials in Shanxi. Unpublished.
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