

# ISO 50001 Energy Management System Case Study

2020

China

## Linqu Shanshui Cement Co. , Ltd.



Linqu Shanshui Cement Co. , Ltd. has two new dry-process Rotary Kiln clinker production lines with a daily output of 4000 tons and a 16.5 mw pure low-temperature waste heat power plant and a cement grinding production line with an annual output of 1 million tons

### Organization Profile & Business Case

Linqu Shanshui Cement Co. , Ltd. is a joint venture funded by Shandong Shanshui Cement Group Co. , Ltd. and China Pioneer Cement (Hong Kong) Co. , Ltd. . The company was established in July 2008, and was completed and put into production at the end of 2009, fixed assets 1 billion yuan, covers an area of 500 acres. At present, there are two new dry-process rotary kiln clinker production lines with a daily output of 4000 tons and a 16.5 mw pure low-temperature waste heat power plant and a cement grinding production line with an annual output of 100 million tons. Linqu Shanshui Cement Co. , Ltd. has obtained the state-approved production license, and passed ISO9001 quality

management system, ISO14001 Environmental Management System, ISO50001 energy management system and OHSAS28001 Occupational Health and Safety Management System Certification, the company attaches great importance to the construction work in the energy field, and has set up an energy-saving work leading group and an energy-saving office to study and deploy energy-saving work, follow up and promote the implementation in a timely manner, and constantly improve the construction of the energy management system, continuously strengthen management and technological innovation, tap the potential, reduce consumption, improve energy efficiency, so that the enterprise healthy and rapid development. The company conscientiously abide by the energy-saving laws and regulations and standard requirements, through the implementation of the Energy Management System within the company, strictly in accordance with the requirements of the energy management system procedures, scientific management of the work of all departments. Continuously adopt new technology, new technology and new equipment to improve or replace high energy consumption technology and equipment, continuously improve energy management, realize energy saving and emission reduction, comprehensive utilization of resources, reduce costs and increase benefits, and create green and low carbon enterprises together.

*"Linqu County Landscape Cement Co. , Ltd. will continue to strengthen the construction of energy management and improve the level of energy management"*

--Liu Shuqing, general manager

### Business Benefits

The company earnestly implements and implements the spirit and documents of energy conservation and emission reduction of its superior departments, Strengthens Energy Conservation work, promotes energy conservation technology progress, reduces energy consumption per unit of output value and per unit of product, and starts from various aspects of energy consumption, the person-in-charge of each unit should take the lead in defining the tasks and responsibilities of each post for energy conservation, strengthening the construction, development and promotion of energy management by breaking down the objectives into posts and individuals, and realizing the refinement of energy conservation management, we will rationally adjust the company's energy use and distribution, carry out targeted energy-saving publicity, education and training, improve the personnel's business level and awareness of energy management, and through management innovation, to carry out such activities as "mass innovation, cost reduction and efficiency increase", "labor competition" and "cost index control and examination", so as to create more than 100 economic benefits for enterprises, actively learn external experience through technological innovation, the activities and measures have made great contributions to optimizing the level of enterprise equipment, reducing the energy consumption of enterprises and increasing the economic benefits of enterprises by introducing and using for reference advanced production equipment in accordance with local conditions and applying new energy-saving products, in the history of the world. 2018,2019 energy saving 217188.70Gj, carbon dioxide emission reduction 109153.39 metric tons.

Case Study Snapshot	
<b>Industry</b>	Building material
<b>Product/Service</b>	Clinker cement
<b>Location</b>	Weifang, Shandong, China
<b>Energy management system</b>	ISO 50001
<b>Energy performance improvement period, in years</b>	Expedition Period 2018-2019
<b>Energy Performance Improvement (%) over improvement period</b>	1.97%
<b>Total energy cost savings over improvement period</b>	1702746 \$USD
<b>Cost to implement EnMS</b>	438286 \$USD
<b>Total Energy Savings over improvement period</b>	217188.70(GJ)
<b>Total CO<sub>2</sub>-e emission reduction over improvement period</b>	109153.39(Metric tons)

### Plan

In order to successfully implement energy management and achieve the goal of energy conservation, the company has vigorously promoted the construction of the energy management system. The parent company Shandong Shanshui Cement Group Co. , Ltd. has set up an energy management and control center, three-level energy network including group, regional and company has been established. To ensure effective monitoring of energy indicators in the production process, a digital system is installed in the system to accurately monitor and feedback the coal and electricity consumption of various parts of the system. Statistical analysis of the daily feedback energy consumption indicators, and according to the results of the analysis in a timely manner to take appropriate measures. The company

has built a digital system, all kinds of energy measurement media through the network data communication, the realization of energy power equipment real-time monitoring and energy measurement data unified management information platform, the company has set up a leading group of energy-saving work of Linqu County Landscape Cement Co. , Ltd. . According to the actual situation, the group will be adjusted in time to ensure strong and strong leadership of the leading organization. The General Manager of the company will act as the group leader and set up an organization office, to formulate systems applicable to the company, Hold Regular Meetings on energy management, define responsibilities, strictly assess and check targets and responsibilities, improve the measurement network, and promote energy conservation and emission reduction in an all-round way by drawing up and implementing energy conservation planning targets and annual plans, based on the existing production capacity, we will speed up the adjustment of product mix, increase the pace of introducing energy-saving technologies and upgrading energy-saving technologies, increase and strengthen the utilization ratio of energy and resources, carry out technological upgrading or upgrading of major equipment, optimize the process system, and stabilize product quality, further reduce the system energy consumption, improve enterprise efficiency, promote sustainable development of enterprises. In order to further enhance and strengthen the work of energy management, to lay a solid foundation for energy management, the leading group at each stage in accordance with the overall budget, the development of corresponding management objectives, and the development of related systems to ensure the completion of targets. Through the Energy Audit, find out the shortage, find the gap, formulate and implement corrective measures to improve the efficiency of energy use in each link.

### Do, Check, Act

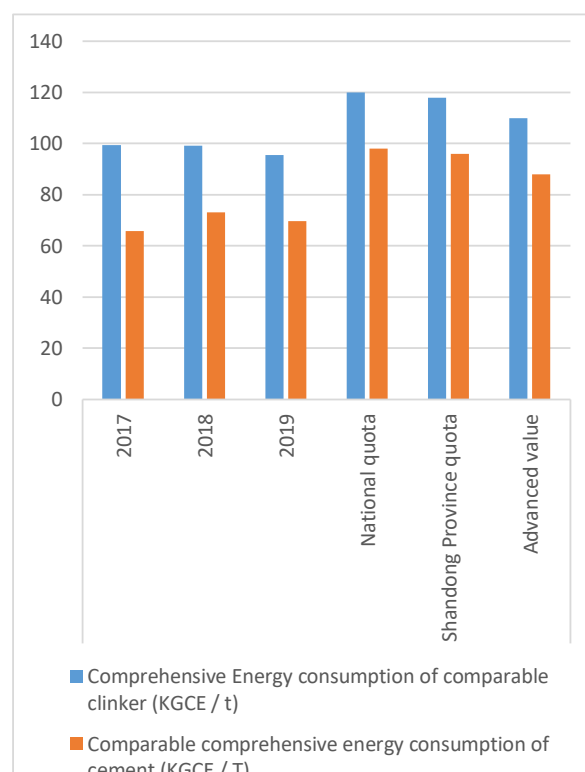
Taking the digital system as the main one, upgrading the measurement network as the auxiliary one, and taking the system construction as the grasp, through the three-level network management and control, the equipment energy-saving upgrade, the application innovation management and other measures, the energy consumption is constantly reduced, to achieve the energy-saving targets required by government departments, the company has set up a leading group for energy-saving work, which is responsible for the implementation and promotion of Energy Management in the company, and the general manager is responsible for committing to support the energy management system and continuously improve the effectiveness of energy management, develop the company energy policy to ensure the achievement of the company's energy targets. The department heads are the members of the department's Energy Management System to ensure the achievement of the company's energy targets. Each department has an energy management team headed by a team leader, with workshop and section leaders as members, to ensure that the company meets Level 1 energy targets; and a company-workshop-team, level 1 to Level 1 management. Set Up Energy Special Fund and draw up incentive plan. The company's Energy Management Office has one registered energy manager and two energy managers who define energy-saving goals, work directions and develop monthly energy performance parameters. The Energy Management Office shall set up a special person to issue daily analysis report, analyze and formulate the energy consumption safeguard measures of the relevant person in charge; Monthly summary, annual monthly summary, ring comparison, internal group, the same industry and domestic advanced level benchmarking. Responsible Person Analysis and formulate the corresponding day, month energy consumption safeguard measures. According to the

actual situation of the company, the Energy Management Office makes the energy consumption plan every month and every year, and sends it to the relevant workshop department, and strictly carries on the reward and punishment analysis to the current situation: through the enterprise production process, equipment and products, to determine the target system of energy efficiency indicators, carry out statistical analysis, energy audit, energy balance, testing and other basic data of the target system of energy efficiency; to determine the target: to collect advanced energy efficiency indicators within the group and in the domestic industry, determine the final target; develop a plan: Establish a database to compare. Target matching, analysis of their own actual situation, find out the gap, analyze the reasons, determine the program of energy efficiency target matching, according to the program of energy efficiency target matching, research and demonstration, determine the best target improvement program; target matching practice: According to the best target improvement program, formulate programs to carry out the work of energy efficiency benchmarking, implement related responsibilities, complete the phased progress, form the report of the effectiveness of the implementation of energy efficiency benchmarking. EVALUATION CRITERIA: to formulate the evaluation methods, standards and implementation rules of energy efficiency to the target, timely evaluation; continuous improvement: optimize the management process of the target organization, improve the rules and regulations, to achieve the daily management of the target. According to the monthly energy performance parameters and the actual production situation, the Energy Management Office analyzes and evaluates whether the index value of energy performance parameters is reasonable or not through year-to-year comparison.

### Transparency

According to the Third Party Energy Audit report, our comparable clinker electricity consumption is 55.21 kwh

/ ton, comparable clinker coal consumption is 92.29 kg / ton, comparable clinker energy consumption is 99.08 kg / ton, and comparable cement electricity consumption is 61.95 kwh / ton, the energy consumption of comparable cement is 65.67 kg / ton, which is lower than the limit value of energy consumption per unit product. The National Standard GB / t 16780-2012"limit value of energy consumption of cement products" meets the domestic advanced level.



### Lessons Learned

The first is the use of energy (coal) for a comprehensive analysis of coal and raw materials, car-by-car inspection, car-by-car testing. Take the process adjustment as the grasp, the promotion and the optimization plan, thus reduces the energy consumption. The second is through management innovation, improve thinking, vigorously carry out energy-saving technology transformation, equipment upgrading, so as to reduce energy consumption and energy costs. Thirdly, by means of internal promotion,

external recruitment and the talent strategy of the parent company's construction, attention should be paid to the existing talent training work, the introduction of talent should be strengthened, the attractiveness of enterprises should be enhanced, and the overall quality level should be raised, in order to solve the existing shortage of high-quality talent status.



Through the Energy Management Working Group (EMWG), government officials worldwide share best practices and leverage their collective knowledge and experience to create high-impact national programs that accelerate the use of energy management systems in industry and commercial buildings. The EMWG was launched in 2010 by the Clean Energy Ministerial (CEM) and International Partnership for Energy Efficiency Cooperation (IPEEC).

For more information, please visit [www.cleanenergyministerial.org/energymanagement](http://www.cleanenergyministerial.org/energymanagement).





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