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Case Study: Dongkuk Steel

Energy efficiency analysis



TÜV SÜD was engaged by Dongkuk Steel to help realise ambitious targets for energy savings at its plant in Busan, South Korea. To help the client decrease its total annual energy consumption by 3 per cent, our experts identified 40 potential areas where energy consumption could be reduced.

Business challenges

Dongkuk Steel is one of the leading steel plate manufacturers in Korea. The company has established a strong reputation based on the quality and design of its colour-coated specialised steel products. To build on its market-leading position, the company extended the facilities at its Busan plant and shifted more operations to its core production lines from other lines. As part of these operational changes, Dongkuk Steel carefully evaluated its energy optimisation measures in the light of national energy policies.

The Korean government has targeted various sectors to achieve energy savings, particularly the industrial sector, which accounts for 52 per cent of the country's total energy consumption. National energy policies have been set to increase energy efficiency by 46 per cent by 2030.¹ In line with the national goals, Dongkuk Steel set an annual energy savings target of 3 per cent. To find solutions to its energy efficiency challenges, the company commissioned TÜV SÜD to launch an industrial energy efficiency analysis pilot project aimed at optimising production processes and related utilities at its Busan plant.

OVERVIEW

Client name	Dongkuk Steel
Industry	Steel
Profile	Hot and cold rolled steel products manufacturing
Project period	09/2015-03/2016
Key technical data	<ul style="list-style-type: none"> ▪ Pickling, Tandem coil mill, Electrolytic galvanising, Continuous galvanising, Colour coating. ▪ Production amount: 1.56M tonne (2015) ▪ Energy consumption in 2015: Electricity 364M kWh/ LNG 64M m³
Business challenge	Decrease total annual energy consumption by 3 per cent.
Our solution	<ul style="list-style-type: none"> ▪ On-site inspection, screening analysis ▪ Identify, evaluate and prioritise opportunities for energy savings. ▪ Feasibility studies, cost / benefit analysis
Business benefits	<ul style="list-style-type: none"> ▪ 40 possible savings potentials identified ▪ 14 feasible energy savings measures

TÜV SÜD's solutions

TÜV SÜD adopts a holistic approach to energy efficiency analysis that addresses the entire plant, infrastructure and production processes. To bring TÜV SÜD's specialised services to the Dongkuk Steel plant in Busan, a team of experts from TÜV SÜD Industrie Service GmbH and TÜV SÜD Korea Ltd. collaborated on this project. The three-step energy efficiency analysis comprised screening analysis, identification of opportunities for energy savings, and the determination and definition of improvement measures.

Within the scope of the energy efficiency analysis, the experts reviewed technical documentation and energy consumption data. In addition, on-site inspections covering all technical systems in both production and infrastructure were carried out.

The energy efficiency professionals then evaluated the opportunities for energy savings that had been identified. These were prioritised in line with the requirements specified by Dongkuk Steel. TÜV SÜD experts also proposed suitable actions to unlock potential energy savings and assessed them by means of cost-benefit analyses. Finally, the team developed possible solutions on how best to implement these actions and identified further analysis needs on this basis.

Business benefits

"The three-step analysis comprising screening analysis, identification of opportunities for energy savings, and the determination and definition of improvement measures has proven to be a powerful tool resulting in the identification of 40 potential areas where energy consumption could be saved for our client," noted Dr. -Ing. Michael Bunk, Head of Department Energy Systems, TÜV SÜD Industrie Service GmbH. These areas for energy savings were organised in a catalogue of proposed actions. The energy efficiency team determined the potential savings realised by each of these actions, the investment cost and the break-even time involved. The experts then used these data as a basis for a feasibility study and proposed a sequence in which to implement the actions. The team also developed conclusions on how best to proceed, including more detailed assessments, and made recommendations on the future design of energy management in the organisation.

¹Energy Policies of IEA Countries – The Republic of Korea 2012 Review



Galvanised steel sheets



Steel sheets

This case study illustrates how a comprehensive set of energy efficiency consulting services can help an organisation to identify realisable opportunities for improving the energy efficiency of its processes. TÜV SÜD's extensive technical know-how, along with its interdisciplinary team of experts, can enable your organisation to maximise energy usage and gain reliable insight into the costs and potential savings of improvement measures, allowing informed investment decisions. Our understanding of national legislations and compliance requirements in key markets will also assist you in meeting energy targets mandated by these requirements.

Add value. Inspire trust.

TÜV SÜD is a trusted partner of choice for safety, security and sustainability solutions. It specialises in testing, certification, auditing and advisory services. Since 1866, the company has remained committed to its purpose of enabling progress by protecting people, the environment and assets from technology-related risks. Through more than 24,000 employees across over 1,000 locations, it adds value to customers and partners by enabling market access and managing risks. By anticipating technological developments and facilitating change, TÜV SÜD inspires trust in a physical and digital world to create a safer and more sustainable future.