The main energy resource for the plant comes in the form of natural gas. It is estimated that natural gas accounts for 70% of the total cost for production. Also, 46% of the gas in the ammonia plant is used for Process Heating.

Like all well run business it is important to employ a sustainable approach. This makes economic sense for every business to maximise profits while complying with legislation.

Implementing EnMS System

The process of Energy Management development for PT. Pupuk Kujang is supported by the United Nations Industrial Development Organisation (UNIDO). The programme helps developing countries to utilise and save energy realised through an Energy Management System (EnMS).
Implications of EnMS

Some improvements since the introduction of EnMS include:

* Energy policy has been put in place
* The company has a baseline for energy performance which can be measured
* Annual energy efficiency training is held for staff and have had 3 (three) Certified Energy Manager and 4 (four) Certified Energy Auditor.
* The company monitors and verifies performance of implemented energy efficiency projects monthly
* There are documented critical operating parameters for its significant energy uses
* The company uses Life Cycle Cost analysis for energy related procurement and investment. Energy audit had been done by certified energy auditor, conducted by Pupuk Indonesia (Holding Company)
* The trend of energy consumption shows that there are saving 114,000 MMBTU (equivalent $684,000) for ammonia plant and 151,365 MMBTU for urea plant (equivalent $908,190), equal to $1,592,190, compare between before energy program implementation in Turn Around (TA) November 2015 and after TA until July 2016 (based on Energy Audit 2016).

The Benefits of Understanding the Process

A number of benefits reaped by Pupuk Kujang need particular attention.

The Right Team

Selecting the right team to get a performance improvement is crucial and Pupuk Kujang has given themselves a strong advantage by selecting the General Manager for Production as the Management Representative for the EnMS. By doing this, it means that Production is central to energy efficiency and the chances of making change are improved as Production decisions typically have the greatest effect on energy use. Gradually, member of team shall need to be trained regarding to energy issues for improvement competencies of the team purpose.

Lesson Learned

The process also allowed Pupuk Kujang to unearth some issues and learn from them. For example, during the energy review, while there was extensive data available on energy use for the metering system, a number of metering accuracy issues came to light and these could then be pursued and resolved to ensure all metered data was reliable.

Also, better understanding of production parameters such as the steam to carbon ratio and its effect on energy use could be used to improve energy efficiency while maintaining the highest safety standards.

Long Term Strategy

Because of the importance of energy use to the business, the company has prepared a five-year energy strategy. This excellent development includes a range of measures - projects proposed include interconnecting CO2 compressors, steam, electrical supplies etc. to allow more use of the most efficient selections of plant and building on savings already made by selecting which plant (1A or 1B) depending on volume of production needed.

Operational Controls

Operating new plant (1B) at maximum capacity and old at optimised capacity has proved to deliver excellent savings. This entailed identifying the energy performance of various items of plant and equipment within plant 1A and 1B and distributing production volume between the plants at an appropriate level to maximise energy efficiency. The previous approach had been to split the production evenly between the plants. This was a clear demonstration of the savings possible with good understanding and effective operational controls.

Overall, the EnMS implementation has been a very useful and strategically important step for Pupuk Kujang, helping to deliver measured energy performance improvement.

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