

## Shell Moerdijk Site Visit- March 28<sup>th</sup> 2014

The company visit to Shell Moerdijk on March 28th marked an early start to an eventful day. The bus with DCSC students and grid+ members were eager to visit the petrochemical site operational for over 40 years.

A welcome note from site manager Johan Verburgh gave much information about the plant's role as a valuable Shell asset that produced 4.5million tonnes of product per year and generated over 10 million euros in revenue. The main profitable products were ethylene, propylene, and styrene monomer that were base products for manufacture of car components, synthetic fibres and a myriad of products. Experienced manager Michiel Bedaux gave a glimpse at the multinational presence and opportunities at Shell.

The welcome talks were followed by a visit to the main control room guided by process technologists. The plant operations and the important role of multiple layers of control systems that co-ordinating the massive scale of operation was a delight to observe. Simple PID loops controlled majority of the operations while a predictive controller worked every few hours. Our group was divided into smaller numbers to keep the busy operators from distractions. The 20 furnaces that were controlled had many variables that had to be controlled with digital and manual inputs.

Lunch hour brought more valuable opportunities for a discussion with managers and employees. The interactive case study on the 1.6 billion euro Malampaya project introduced Shell's innovative, eco-friendly and economically beneficial approach to problems. Feasibility studies included considering various social, economic and political factors that played a vital role in major international projects. It simulated a real world problem and decision making situations.

The day concluded with bus tour of the entire site sprawling 250 acres. The complexes were astonishing with thousands of miles of pipeline taking raw material to the furnaces, and cracked end products to the separation columns only to be transported to buyers via pipeline. It was revealed that 90% of product supply was through pipeline and only 10% through road and rail. As one student spoke, it was a great opportunity to view the human face of the multibillion dollar corporation.