

COGEN 3

Countries in Southeast Asia are increasingly facing two closely related problems: waste disposal and the inefficient use of energy. The cogeneration program or COGEN, launched by the European Commission in 1991, was initiated to help industries in the region ease these problems. AIT Newsletter talked to the Coordinator of the EC-ASEAN COGEN Programme, Ludovic Lacrosse, about COGEN's progress and how it helps industries in ASEAN countries.

COGEN is a program of economic cooperation aimed at promoting the efficient use of renewable energy resources through cogeneration technologies. It was initiated by the European Commission (EC) and the Association of Southeast Asian Nations (ASEAN), and is funded by the EC. AIT is the executing agency responsible for the overall execution of the Programme. AIT hosts the COGEN Program Management Unit. A European office is located at the headquarters of Sycon International AB in Malmo, Sweden.

In Southeast Asia, the COGEN program has been applied to various industries. Wood and agro industries can use biomass as a fuel, while the cement, petrochemical and textile industries often use fossil fuels for their heat requirement and the grid for their power requirement. By using cogeneration they can cover both their heat and power requirements. COGEN has passed through three phases. COGEN Phase I (1991-1994) was a technically focused identification phase, while COGEN Phase II (1995-1998) was a demonstration phase combining technical and business expertise. The third phase (2002-2004), aims to accelerate the implementation of proven, clean and efficient cogeneration projects by using biomass, coal or gas as fuel. COGEN 3 projects will be implemented through partnerships between ASEAN industrial companies and European equipment suppliers.

Indeed, the role of COGEN is to facilitate the business of these companies by advising them and also interfacing between European and Southeast Asian companies in order to help them do more business together. AIT is the ideal institution to operate such a regional program, according to Dr Lacrosse.

“We have very strong participation from industries in Southeast Asia. Recently, we organized seminars in seven Southeast Asian countries, and more than one thousand people participated. Thailand is particularly active. The seminar in Thailand was the most successful, showing that Thailand is one of the leading countries in COGEN 3,” said Dr. Lacrosse.

COGEN helps industries by organizing information seminars as well as by disseminating information about the use and benefits of cogeneration. In the first instance, a campaign of awareness is created. Once the companies are aware of the benefits, then they contact COGEN for advice and to conduct a pre-feasibility study or feasibility study. COGEN's service is free of charge. “We advise the companies on what we believe are the best solution for them. We work together with them because sometimes they know better than us what is needed in terms of energy requirements, but they don't necessarily know about what is needed in terms of technology.” Dr. Lacrosse explained.

COGEN also provides some grants to full-scale demonstration projects. Selected projects will become showcases in the region on good cogeneration practice. Around 30

projects are expected to receive grants early next year. The deadline for the submission of project proposals is February 11, 2003. The amount is for up to 15% of the total investment cost in European equipment to a maximum of 400 thousand Euro, which is about 17 million THB.”

In ASEAN, COGEN has its teams working in seven countries – Thailand, Indonesia, Singapore, Malaysia, Philippines, Vietnam and Cambodia. These teams are in contact with those who are willing to develop projects. “Regularly, people from the COGEN management unit, go and visit these countries to advise people who want to develop a cogeneration project. The team here at AIT is trying to help people analyze their problems and bring them concrete solutions.”

Dr. Lacrosse said that in this region, most industries using cogeneration have not only energy problems but also environmental problems. Growing industries, for instance, are now facing an increasingly serious waste disposal problem, which they are increasingly having to pay to solve. The use of waste as energy is an elegant way to solve both the environmental and the energy problems.

Cogeneration is not a new technology, he noted: “it has been around for many years but it is time for Southeast Asia as a whole to use more modern technologies, which are more environmentally friendly than technologies implemented in the past.”

“For instance, if we look at palm oil mills and sugar mills, they have been using cogeneration technology, but this technology is very inefficient and still very polluting. It’s time for these two industries to change and to go for much more modern and more efficient systems to be able to produce more energy from the same quantity of waste and even be able to sell excess power to the national grid. For example, in Thailand these industries are now authorized to sell excess power to EGAT.”

There are also cogenerations applications in buildings for air conditioning and power production.

“This is being done more and more here in Thailand, thanks to the use of natural gas. If natural gas is used as a fuel, small or medium-size cogeneration plants can be installed inside the buildings, and cover all the energy requirements of those buildings. This is a new application that will increasingly be implemented,” he explained.

Dr. Lacrosse concluded that as economies in the region have continued to develop during the past decade, concerns about environmental issues in Southeast Asia have become a priority, whereas in Europe, the issue has been around for a couple of decades longer. Developed countries and developing countries are now being encouraged to develop projects together.

COGEN 3: www.cogen3.net/cogeneration.html

COGEN Europe: www.cogen.org/

What is Cogeneration?

COGEN 3 has adopted a description formulated by Cogen Europe (www.cogen.org/).

Cogeneration (Combined Heat and Power, or CHP) is the most efficient way to deliver heating, cooling and electricity. It is based on the simultaneous production of electricity and heat, both of which are used. The central principle of cogeneration is that, in order to maximise the many benefits that arise from it, systems should be based according to the heat demand of the application.

A system might be an individual building, an industrial factory, or a town or city served by district heating or cooling. Through the utilisation of the heat, the efficiency of a cogeneration plant can reach 90% or more. Cogeneration therefore offers energy savings ranging between 15 and 40% when compared to the supply of electricity and heat from conventional power stations and boilers. A typical cogeneration scheme might look like this:



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