



Green Vision

For a Green Future

Issue 3, July 2012

Dear Reader,

This is the third issue of the '**Green Vision**', a combined effort by **Green Building Academy** and **EcoMENA**. You are reading this newsletter either because you are a visitor to the Green Building Academy Website www.learning-green.com or to the EcoMENA website www.ecomena.org. We thank you for your support.

The objective of this news letter is to create awareness and spread knowledge on environmental issues in particular to Middle East & North Africa.

We hope it will be very useful to you and we welcome your feedback on the same.

Expecting your continued patronage.

Best Wishes,
Editor
Green Vision Newsletter

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Trigeneration – Maximizing Energy Efficiency

Salman Zafar, EcoMENA

Trigeneration refers to the simultaneous generation of electricity and useful heating and cooling from the combustion of a biomass fuel or a solar heat collector. Conventional coal or nuclear-powered power stations convert only about 33% of their input heat to electricity. The remaining 67% emerges from the turbines as low-grade waste heat with no significant local uses so it is usually rejected to the environment. In a trigeneration system, the supply of high-temperature heat first drives a gas or steam turbine powered generator and the resulting low-temperature waste heat is then used for water or space heating. Such systems can attain higher overall efficiencies than cogeneration or traditional power plants, and provide significant financial and environmental benefits.

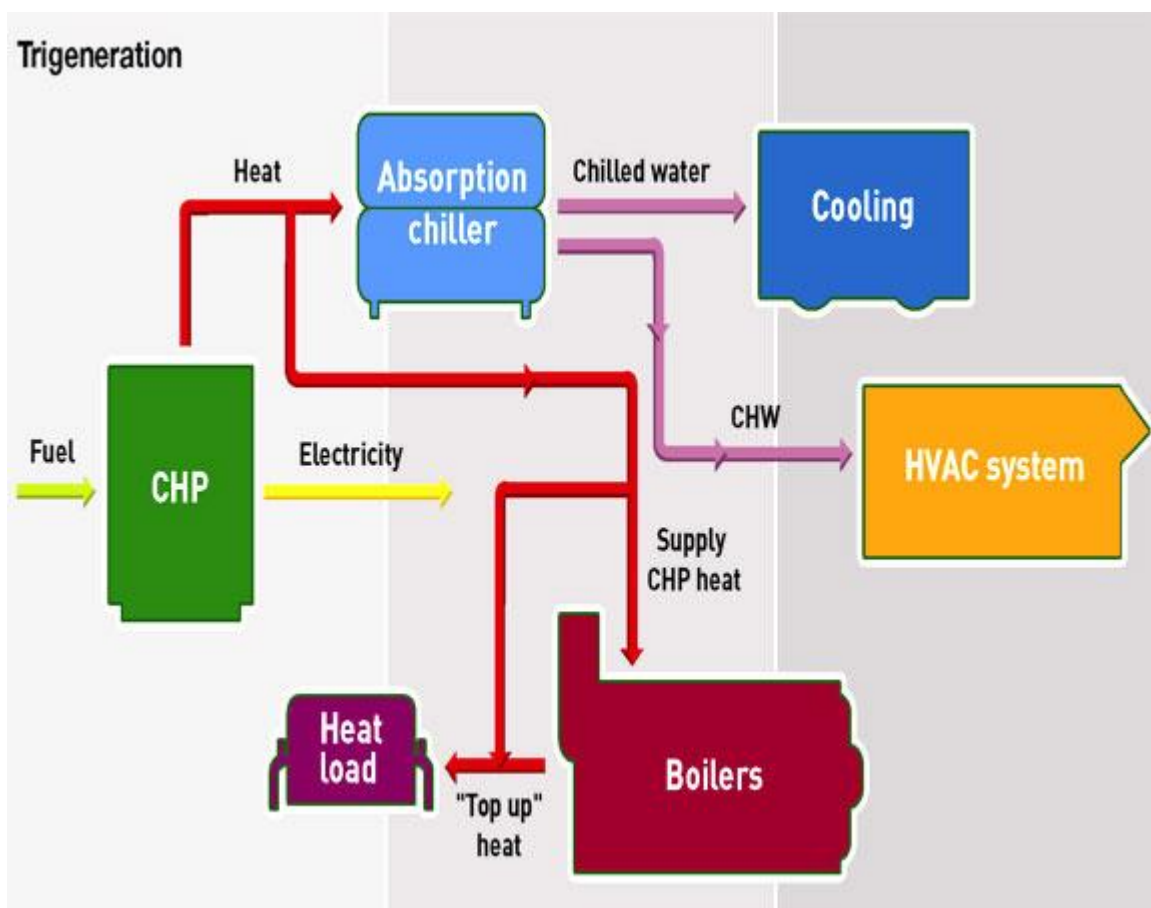


Photo Credit: www.ecomena.org

Trigeneration is one step ahead of cogeneration that is the residual heat available from a cogeneration system is further utilized to operate a vapor absorption refrigeration system to produce cooling; the resulting device thus facilitates combined heat power and cooling from a





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single fuel input. The heat produced by cogeneration can be delivered through various mediums, including warm water (e.g., for space heating and hot water systems), steam or hot air (e.g., for commercial and industrial uses). It is also possible to do trigeneration, the production of electricity, heat and cooling (through an absorption chiller) in one single process.

Trigeneration is an attractive option in situations where all three needs exist, such as in production processes with cooling requirements. Trigeneration has its greatest benefits when scaled to fit buildings or complexes of buildings where electricity, heating and cooling are perpetually needed. Such installations include but are not limited to: data centers, manufacturing facilities, universities, hospitals, military complexes and colleges. Localized trigeneration has additional benefits as described by distributed generation. Redundancy of power in mission critical applications, lower power usage costs and the ability to sell electrical power back to the local utility are a few of the major benefits.

Most industrial countries generate the majority of their electrical power needs in large centralized facilities with capacity for large electrical power output. These plants have excellent economies of scale, but usually transmit electricity long distances resulting in sizable losses, negatively affect the environment. Large power plants can use cogeneration or trigeneration systems only when sufficient need exists in immediate geographic vicinity for an industrial complex, additional power plant or a city. An example of cogeneration with trigeneration applications in a major city is the New York City steam system.

One of the technologies that have the best performance for being integrated into a trigeneration system is the fuel cell. Systems working on fuel cell technology can transform the energy of a chemical reaction into electrical energy, heat and water. Its main practical applications range from bulk production of electricity and heat to its use in sectors such as aerospace, maritime or surface transport and portable devices.



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Interview with the Paper Bag Boy of Abu Dhabi

Salman Zafar, EcoMENA



Photo Credit: Gulf News www.gulfnews.com

Abdul Muqet, also known as the Paper Bag Boy, has risen from being just another ordinary boy to an extraordinary environmentalist spearheading the fight against climate change in United Arab Emirates. Ten-year old Abdul Muqet has demonstrated remarkable commitment to saving the environment and has won numerous awards including the prestigious Abu Dhabi Award. Here he talks to Salman Zafar about various aspects of waste management scenario in UAE:

SZ: You are considered as the 'recycling face' of Abu Dhabi because of your wonderful achievements. Can you give an idea of the prevalent waste management scenario in Abu Dhabi?

AM: As far as waste management is concerned, winds of change are sweeping across Abu Dhabi. Centre for Waste Management is making commendable efforts in improving waste collection and disposal situation in Abu Dhabi. Separate collection bins for plastic, paper and general waste can now be seen at strategic locations. An underground pneumatic waste collection system is also being designed for Abu Dhabi which would help a lot in dealing with the problem of urban wastes.

SZ: What are the major factors responsible for tremendous increase in waste generation in GCC countries?





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AM: High standards of living, increasing population and consumerism are the major factors responsible for increase in waste generation across the Middle East region. Fortunately, people are doing their best to do away with this problem and everybody is working together for a better environment.

SZ: GCC countries have the highest per capita waste generation in the world. What basic measures can be taken to reduce solid waste generation in the region?

AM: Source-segregation and mass awareness can be instrumental in reducing waste generation in GCC. Segregated bins is already helping in waste management and educating people to buy less quantity of things and recycling would help as well.

SZ: What is attitude of common people towards waste recycling in the Emirates?

AM: A major problem is that people are usually unaware about harmful effects and benefits of waste recycling. The government, NGOs, environmentalist etc are making constant efforts to educate the masses, and I must say that things are beginning to look up.

SZ: Keeping in view your first-hand experience in waste management projects, what future do you foresee for recycling projects in the region? Is the government providing enough support in solving the waste management problem?

AM: The government has been very supportive, to say the least. It is formulating effective laws, providing funding, organizing community initiatives and motivating the general public to solve the waste management problem.

SZ: What is the awareness and interest-level of masses towards waste recycling?

AM: Slowly but steadily, people are becoming increasingly aware about the harmful effects of urban wastes and importance of waste recycling. Many schools are taking measures for educating children on how to implement recycling in day-to-day life. Shopping malls and other commercial establishments are also taking measures to minimize waste generation.

SZ: What is your idea of 'clean and green world'?

AM: Making changes to our daily lives to decrease waste generation, reduce global warming and minimizing the use of chemicals that deplete the protective ozone layer. We all must do our share to take care of our planet and not overusing the resources that we all share.

SZ: You are a true inspiration for millions of youngsters all over the world. What message/advice you would like to give to students and entrepreneurs?

AM: I would like to tell them that plant more trees, recycle papers and plastic, because you need to remember everything on earth can be recycled but not time, so take your action fast and do your part on saving the environment. If you want to make a difference, the best way to start is to follow three principles of Reduce, Reuse and Recycle.





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Methods for Tire Recycling

Mohammed Abdulaziz Khalil, EcoMENA

Management of waste tires is a challenging task because tires have a long life and are non-biodegradable. The traditional method of waste tires management have been stockpiling or illegally dumping or landfilling, all of which are short-term solution. Stockpiled tires provide perfect breeding grounds for mosquitoes, vermin and snakes. Accidental fires caused in tire dumps can rage for months releasing toxic fumes. Landfilling of tires is a major problem as tires come up to the top of landfill and can damage caps and liners. Many countries in North America and Europe have banned landfilling of whole tires and made recycling mandatory.



Photo Credit: www.cleantechloops.com

There are three major technologies for recycling of waste tires - ambient mechanical grinding, cryogenic grinding and pyrolysis.

Ambient mechanical grinding

In ambient mechanical grinding process, the breaking up of a scrap tire happens at ambient temperature. Tires are passed through a shredder, which breaks the tires into chips. The chips are fed into a granulator that breaks them into small pieces while removing steel and fiber in the





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process. Any remaining steel is removed magnetically and fiber through a combination of shaking screens and wind sifters. Finer rubber particles can be obtained through further grinding in secondary granulators and high-speed rotary mills.

Cryogenic grinding

Cryogenic grinding refers to the grinding of scrap tires at temperatures near minus 80°C using liquid nitrogen or commercial refrigerants. Cryogenic processing generally uses pre-treated car or truck tires as feedstock, most often in the form of chips or ambiently produced granulate. When the tires are exposed to such low temperatures, they become brittle and can be easily crushed and broken. It can be a four-phase system which includes initial size reduction, cooling, separation, and milling. This process requires less energy than others and produces rubber crumb of much finer quality.

Rubber crumbs, the product obtained from ambient/cryogenic grinding of scrap tires, is used for manufacture of new tires or in a variety of landscaping applications including path paving projects, playground surface cover, running tracks, and athletic field turfs.

Pyrolysis

Pyrolysis refers to the thermal decomposition of scrap tires either in the absence or lack of oxygen. Pyrolysis uses pre-treated car or truck tire chips as the principal feedstock. It is a two-phase treatment which uses thermal decomposition to heat the rubber in the absence of oxygen to break it into its constituent parts, e.g., tire-derived fuel (TDF), synthetic gas and carbon. The use of TDF in cement kilns, paper mills or power plants is one of the best uses of scrap tires.



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Green in the news Green Building Academy

Beach clean up at Al Wakrah, Qatar



Photo Credit: www.gulf-times.com

On the occasion of “World Environment Day”, Employees of Larsen & Toubro Ltd organized a beach cleaning campaign at Al Wakrah, Qatar and had also organized tree plantation. All participants in the campaign took a pledge to minimize environmental impact from their activities, keep their sites clean, minimize wastage, maximize energy efficiency and to contribute to the development of the natural environment. Quizzes and environmental slogan competition are among the various competitions organized to promote awareness of the environment.

Companies sign environmental agreement



Photo Credit: www.tradearabia.com

According to the United Real Estate Company (URC), a leading real estate firm in Kuwait, an agreement had been signed by the Kuwait United Facilities Management (KUFM) and environmental solutions firm Istdamah. The partnership is aimed in developing and upgrading





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environmental services offered at URC's commercial centers and office towers in Kuwait, a statement from the company said.

Istidamah will provide market-leading environmental benefits including the collection, disposal, and recycling of paper, cardboard, and plastic waste and aims to involve the public through the availability of recycling bins at three commercial centers - Marina Mall, Souk Al Maseel, and Souk Al Muttaheda, in addition to two of its office buildings located in Kuwait City, Al Madinah Tower and Al Shaheed Tower. Recycling of paper and plastic materials reduces the emission of toxic gases from decomposition in traditional landfills which leads to a decrease in health and environmental issues caused by these emissions. Recycling is a popular global movement that helps reduce the use of paper, limit deforestation, and protect green areas around the world.

Building on green reputation



Architect's renditions of Eco Villa

Photo Credit: www.gulf-times.com

An Eco Villa will be constructed in Qatar as part of the (GORD) Gulf Organization for Research and Development's aim to position Qatar as the capital of Green Building. The Eco Villa will serve as an example of a sustainable, smart and healthy living environment.

On-site renewable energy generation system, energy reduction, indoor lighting design, water-efficient plumbing fixtures and irrigation system, and intelligent building control system are among the sustainable features of The Green Villa.

The Eco Villa will be constructed using sustainable and recycled eco-friendly building materials that have low Volatile Organic Compounds emission rates. Indoor and outdoor gardens, water features, wind towers, wood paneling, smart use of daylight to provide indoor illumination through latticework and skylights, and a high roof to reduce the impact of heat are among the features of the Eco Villa.





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Gulf Organization for Research and Development (GORD) has already selected three consulting firms namely: LSI Architects, MYAA Architects & RHML Architects to design the “Eco Villa” on a public space. Also a committee had been formed with representatives from Qatar Museums Authority, Ministry of Culture, Arts & Heritage, Qatar University, Private Office of Emiri Diwan, and regional experts.

Once the Eco Villa is ready, members of the public would be able to visit the facility and learn about the sustainable, smart and healthy living environment. The open-to-the-public landmark project will reinforce Qatar’s reputation as a leading advocate of sustainable development.



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About Us

Green Building Academy

Green Building Academy is an online portal that acts as a gate way to LEED Credentials. The objective of this institution is to create awareness on Green Buildings and Green Building rating systems especially LEED. Green Building Academy strives to help construction professionals in the Middle East by providing them with basic information, free resources and comprehensive training on Green Buildings and LEED.

Please visit www.learning-green.com for more information.

EcoMENA

EcoMENA is a cleantech resource portal with a mission to disseminate information on renewable energy systems, waste management practices and energy efficiency measures in the Middle East and North Africa (MENA) region. It is an online information powerhouse freely accessible to anyone having an interest in renewable energy and waste management.

Please visit www.ecomena.org for more information.



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What do you think?

Please share with us any thoughts or comments that you may have about this edition of the Green Vision newsletter. Hopefully, you enjoyed it and found it informative and easy to read.

What did you like most about it?

What features would you like to see included in future issues?

Please send your comments.

Share your ideas, pictures and events with us. We will feature them in our upcoming issues.

The editor of this newsletter can be contacted at editor@learning-green.com

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