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Title : 60th Anniversary Souvenir

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Publisher : Penang Electrical Merchants'

Association

Title : ACCCIM Bulletin,

December 2008

Publisher : The Associated Chinese

Chambers of Commerce and

Industry of Malaysia

Title : Annual Report 2007 Publisher : Tenaga Nasional Berhad

Title : Annual Report 2007 Publisher : SIRIM Berhad

Title : Berita FMM.

November – December 2008

& January – February 2009

Publisher : Federation of Malaysian Manufacturers

Title : Berita KLSCCCI,

October - December 2008

Publisher: The Chinese Chamber of Commerce & Industry of

Kuala Lumpur and Selangor

Title : Berita MFPA.

Second Issue 2008

Publisher : Malaysian Fire Protection

Association

Title : Buletin Suruhanjaya Tenaga,

August 2008

Publisher : Energy Commission, Malaysia

Title : Code of Ethics for Contractors

Publisher : Ministry of Works

Title : Construction Project

Registration, November 2008

Publisher : Construction Industry

Development Board, Malaysia

Title : Economic Report 2008/2009

Publisher : Ministry of Finance Malaysia

Title : Efficient Management of

Electrical Energy Regulations 2008

Publisher : Suruhanjaya Tenaga

Title : EU-Malaysia Business Directory, 2008/2009

Publisher : European Union-Malaysia

Chamber of Commerce and

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Title : EUMCCI Review,

October 2008

Publisher : European Union-Malaysia

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Title : FMM-MATRADE Industry

Directory, Electrical & Electronics 2007/2008

Publisher : Federation of Malaysian

Manufacturers

Title : Guide Book

Publisher : Japan Power Cable

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Title : HKECA Newsletter,

January 2009

Publisher : Hong Kong Electrical

Contractors' Association

Title : IEEMA Journal,

December 2008 &

January 2009

Publisher: Indian Electrical & Electronics

Manufacturers' Association

Title : Indian Engineering Exports,

October – November 2008

Publisher : EEPC India

Title : Kenshu, No. 185, 2009 Publisher : Association for Overseas

Technical Scholarship, Japan

Title : Malaysian Construction

Industry Directory, 2008–2009

Publisher : Construction Industry

Development Board, Malaysia

Title : MASSA News,

September 2008

Publisher : Malaysia South-South

Association

Title : Master Builders Journal,

3rd Quarter 2008

Publisher : Master Builders Association

Malaysia

Title : MGCC Quarterly,

November/December 2008 &

January/February 2009

Publisher : Malaysian-German Chamber

of Commerce and Industry

Title : Power-Gen Asia Conference

& Exhibition 2008, Show

Guide

Publisher : PennWell Corporation

Title : PTM Energy Smart,

Issue 0023/08

Publisher : Malaysia Energy Centre

Title : Productivity Report 2007

Publisher : Malaysia Productivity

Corporation

Title : Report on INDEE

Kuala Lumpur 2008

Publisher : EEPC India

Title : Standards & Quality News

No. 1/2009

Publisher : SIRIM Berhad

Title : Suara KLSICCI,

April – June 2008

Publisher : Kuala Lumpur & Selangor

Indian Chamber of Commerce & Industry

Title : SUARA Perunding,

September 2008

Publisher : Association of Consulting

Engineers Malaysia

Title : Tenaga Link, Vol. 02/08

Publisher : Tenaga Nasional Berhad

Title : The Ingenieur,

September - November 2008

Publisher : Board of Engineers Malaysia

Title : Trade and Economic Digest,

July/August 2008

Publisher: The Associated Chinese

Chambers of Commerce and Industry of Malaysia

Title : TradeMart.

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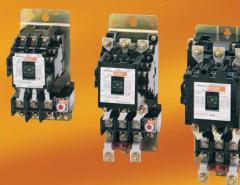




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**The Example 2** The Hills of th

TEEAM 53rd ISSUE

# Solar Photovoltaic: Sunny Solution for Tomorrow

This article is published with the generous permission from the writer, Ms Chen Wei-Nee of Pusat Tenaga Malaysia.

The article was first published in BEM's The Ingenieur, Dec 2008 - Feb 2009 Issue.

the the ever fluctuating costs of fuel and rising electricity tariffs, households and businesses would need to consider ways to reduce their energy consumption. There are a few ways to do so. Firstly, improve the energy efficiency of your appliances used. This typically involves simple measures such as changing to energy efficient air conditioning, energy saving lightings, 5 star-rated refrigerators and living a lifestyle which inculcates practising energy savings. Besides using energy efficient appliances, the owner should consider ways of increasing energy efficiency of the building. If the owner is planning to build a new house, then energy efficiency should be incorporated into the design of the house which would be more effective. If the house already exists, then the owner can retrofit some energy efficient measures to the house.

# Solar Energy-the Next Step

Once the energy efficiency of appliances and building is taken care of, the next step for the owner to consider is to replace part of the electricity bill by using alternative energy. The use of solar energy is most suitable for urban application. Solar energy can be utilised in at least three ways. The owner can design the building to maximise the use of natural day lighting. Malaysia being in the equatorial, receives consistent amount of sunshine every day of the year. Office buildings can easily tap into the sunlight for natural day lighting. The Zero Energy Office (ZEO) of Pusat Tenaga Malaysia is exemplary of such application.

The second use of solar energy will be as heating system. The use of solar thermal system for water will help to reduce electricity bill required for heating. Under the recent Budget 2009 announcement, energy efficient appliances (eg air-conditioners, lightings, fans and televisions) and solar heating system equipment that are manufactured locally are exempted from sales tax import duty and sales tax on intermediate goods such as insulation materials are also exempted, thus bringing down the cost of energy efficiency measures for buildings.

While solar thermal system is widely known in the country, many are unaware that electricity can also be generated from the sun. Solar technologies are divided into solar thermal and solar photovoltaic. While solar thermal uses the heat component of the sun, solar photovoltaic uses the light component of the sun to generate electricity. Both technologies are readily available in Malaysia, however, solar photovoltaic (PV) for urban application is still relatively new compared to the solar thermal heater.

# **Solar Photovoltaic Applications**

Most people would associate the use of solar PV system for rural applications whereby there is no access to grid electricity. Most people would also be familiar with PV applications for simple consumable goods such as solar calculator. In the urban areas, solar-powered parking meters and hazard road signs can also be seen. But not many would realise that solar PV can also be used for the household and office. In urban applications, the solar PV system is grid-connected as opposed to off-grid PV systems for rural applications. When the solar PV system is connected to the grid, it means that the building has two power sources; one from solar PV system and the other from the grid. The grid essentially acts as a "giant battery". This means owner does not have to invest in any battery system and this will lower his capital investment. The electricity generated by solar PV system is consumed



In PTM ZEO, the use of natural day lighting is maximised to reduce electricity consumption.

in situ and the net result is a reduction in electricity bill at the end of the month. This is termed as net-metering and TNB has agreed in principle with this arrangement of net billing.

According to a report on IEA (International Energy Agency) PVPS (Photovoltaic Power Systems) Trends 2007, grid-connected PV applications dominated in the OECD (Organisation for Economic Cooperation and Development) countries (about 94 % of the 2007 market) but the largely unsubsidised off-grid markets continued to grow worldwide, albeit less vigorously than the publicly funded grid-connected PV markets. The graph on the following page indicates the trend of proportion of grid-connected and off-grid PV applications for OECD countries from 1992 to 2007. Grid-connected PV applications gain dominance over the off-grid since year 2000.

By 2007, the total installed PV capacity for countries under OECD is 7,800 MW. Countries having the largest urban PV installations in houses are found in Germany, Japan and US. Germany alone contributed nearly 48% of the total installed PV capacity reported by IEA PVPS.

Solar PV systems for urban applications are normally incorporated into the buildings. For existing buildings, the solar PV systems can be retrofitted on to existing roofs. For new buildings, the solar PV can be integrated into the building without requiring secondary roofs. This is called building integrated photovoltaic (BIPV) system and such installations help to reduce material cost as PV acts as roof as well as generating electricity for the building owners.



The use of solar thermal system to heat water is common in Malaysia.



Solar-powered parking meters are a common sight in Malaysia.

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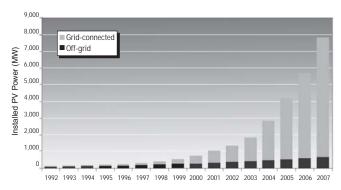




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..... Continue Solar Photovoltaic: Sunny Solution for Tomorrow

# Cumulative installed grid-connected and off-grid PV power in the reporting countries – Year 1992-2007



Source: IEA PVPS Trends Report 2007

# **PV Financial Incentives in Malaysia**

Although Malaysia is blessed with abundant sunlight, the use of solar photovoltaic is still very minimal. One of the barriers is the high capital investment required for solar PV systems. The range of unit cost of solar PV system is RM24,000 - RM28,000 per kWp. For a bungalow, the recommended PV capacity is on average 5 kWp which means the capital investment is RM120,000 - RM140,000. If a house is energy efficient, then the portion of PV electricity generated for the same 5 kWp will contribute more significantly to the household electricity demand. For larger installations (say in commercial buildings), the economies of scale will bring the average cost of solar PV system to as low as RM23,000 per kWp (> 70 kWp).

Under the 9th Malaysia Plan, Malaysia Building Integrated Photovoltaic (MBIPV) Project was launched to promote widespread use of solar PV systems in the urban area. The characteristics of renewable energies often involved high capital investment cost with minimal running cost. Solar PV is the prima donna of renewable energies. The cost of solar PV has dropped by more than 50% from 2000 to 2006. The prices of solar PV will continue to drop when the market achieves economics of scale. The strategy for bringing the price of solar PV down is therefore to create a market but unless the price drops, the market is unlikely to move. This creates a chicken and egg situation and the only way to break the deadlock is for government to intervene.

Under the MBIPV Project, we have several capital financial incentives available to the public. They are the SURIA 1000, demonstration and SURIA for Developers. Detailed information regarding each incentive can be found in http://www.mbipv.net.my/. The incentives are in the forms of direct discounts to members of the public.

# To apply for any of the PV financial incentive

Quality of PV installation is very important to MBIPV Project. For this reason, the financial incentives will only be awarded to those applications who applied through the Approved PV Service Provider. You can find the list of these approved PV service providers from http://www.mbipv.net.my/APVPS.html. The Approved PV Service Provider provides a one-stop service who will advise and provide quotation based on agreed design of the PV system. They are also familiar with the incentives administered by MBIPV Project.

# Other government incentive to encourage the use of ${\bf PV}$

The recent Budget 2009 announcement has extended import duty and sales tax exemption on PV systems to PV system importers and PV service providers approved by Suruhanjaya Tenaga, for products they import for supply to their clients. Commercial applications can continue to claim Investment Tax Allowance (ITA) in addition to the normal



Commercial rooftop application of BIPV, Putrajaya.



Domestic application of PV retrofitted over existing roof.

Capital Allowance (CA) on investment as was approved under Budget 2008. Please visit http://www.mbipv.net.my/C3GI.html for more information on these incentives.

# Why BIPV homes?

A survey was carried out in Malaysia to find out the reasons why building owners install

solar PV systems in their house/office buildings. The survey showed that these owners do so for the following reasons:

- i) Leverage on existing government incentives for solar PV;
- For retirees, having a BIPV house will help to hedge against future electricity price increase;
- iii) Environmental conscious;
- iv) For home buyers, having a BIPV house will help create a point of differentiation by being a clean micro IPP (independent power producer);
- v) For commercial entities, the installation of PV systems in the buildings help create an image of social responsibility.

# The Way Forward

In countries where solar PV have flourished (eg Germany, Spain, South Korea), their governments have conducive PV policies which stimulates the market to develop. One of such proven and effective PV policies is the feed-in tariff in which the solar PV owner is able to sell PV electricity to the utility at a much higher rate than the utility is selling to the people. Effectively, the solar PV system's owner is able to recover his/her investment in solar PV in a much shorter time frame. In Malaysia, the Ministry of Energy, Water and Communications is studying into the possibility of adopting feed-in tariff for the use of renewable energies (RE). This is one of the strategies to mitigate the energy crisis issue which country will one day face. The secondary issue is to mitigate climate change through carbon reduction in the use of RE.

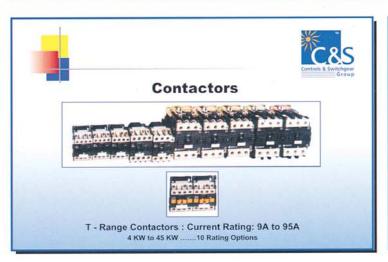
Ms Chen Wei-Nee is the Technical Adviser (Strategic Communications) of MBIPV Project at Pusat Tenaga Malaysia. She can be contacted at weinee@mbipv.net.my. To gain a better insight to solar PV, please visit www.mbipv.net.my.



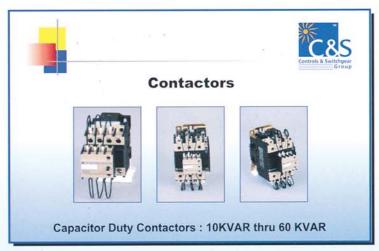
















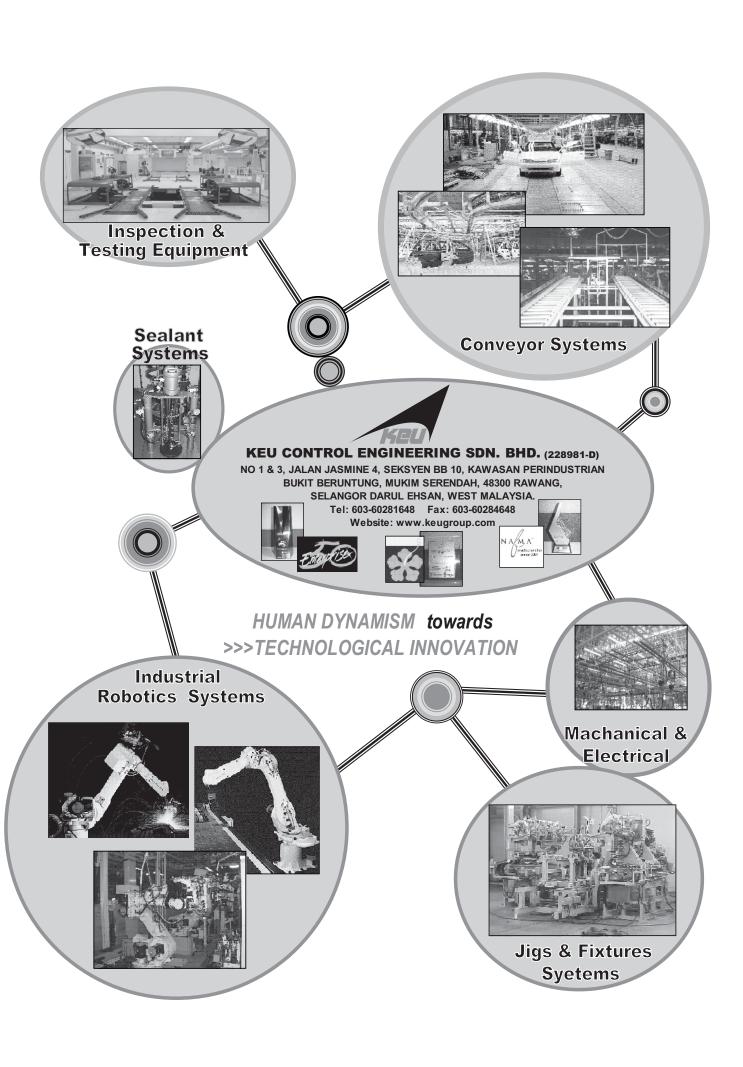




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# Popular Chinese Herbs and Tonic Products

This article is extracted with courtesy of "Health Discovery" magazine published by Life Publishers Berhad.

# Hai Dai (Sea Weed)

A type of broad-leaf sea weed. Literally meaning the 'belts in the sea'. This sea weed is common in the sea of China. It



is rich in lodine and protein, with the functions of ridding excessive water in the body. It is available in the market in the dried form.

Food for thought: Fried Hai Dai



Soak the dried Hai Dai overnight until it is soft. Dip it in wheat flour paste (flavoured with eggs and salt) and deep fried over slow heat. A tasty titbit which helps to reduce high blood pressure.

### Bird's nest

The preciousness of the bird's nest need no elaboration. The nest of saliva of certain species of coastal swifts found in Southeast Asia, it comes in the form of many grades of product in the market, with markedly different prices. It is good for those with a weak constitution, and those suffering from respiratory problems. It is believed to do wonders to the complexion too.



Food for thought: Bird's nest soup

Double boil bird's nest in minimal amount of water for three hours. Add rock sugar to taste. Some red dates can be added to enhance the flavour.

# Antelope's horn

Taken from the antelopes in northwestern China. It reduces the internal heat, and helps remove toxins in the body. However, it is not advisable to be consumed by those with heart, kidney and liver problems.

Food for thought: Antelope's horn soup

Double boil antelope's horn (in the form of shreds) and lean meat for three hours. Add salt and red dates to taste.

### Celery

The culinary goodness of the herb (or vegetable) is well established. As a medicine, however, its efficacy is less known.

The goodness: Beside improving the blood circulation, it can strenghten the stomach and get rid of the 'wind' in the digestive system.



Food for thought: Add some to your normal food or salad regularly to enjoy its goodness.

# Cordyceps

This herb carries a very interesting Chinese name, literally meaning 'Winter Worm Summer Grass'.

Biologically, it is the remain of a type of moth caterpillars which are the home of a

type of parasitic fungus during the Winter. When the caterpillars die in Summer, the body will be overtaken by the parasites and transformed into a root-like structure, as sold in the medicine shop.

The goodness: Strengthening of body systems and pacifying the mind, besides benefiting the respiratory and digestive organs.

### Food for thought: Cordysep and chicken soup

First double-boil the deskinned chicken meat, for at least two hours. Remove the meat and add in Cordycep. Double-boil for another two hours. An excellent and tasty soup to improve the mental state.

# Lingzhi (Ganoderma)

Once considered a mystical herb accessible only to the heavenly beings or to the very few privileged people, this herb is now widely cultivated. Its efficacies have been proven beyond doubts by clinical studies.

A rare fungus, it has a rich composition of soluble proteins,

amino acids, organic acids, glucose and polysaccharides, alkaloids which made it one of the most popular Chinese herbs today.

The goodness: Strengthening of body constitution, improve digestion, reduce fatigue, insomnia, indigestion and respiratory irregularity.

Food for thought: The lingzhi can be stewed with pig lung slices, with the addition of some ginger and dried dates to ehhance the taste. Good for strengthening the respiratory system.

#### Du Jiao Jin

Grown well in temperate countries, this herb is harvested in Summer when it is mature and its medicinal value strongest.



The goodness: Contain a rich amount of amino acids and organic acids which are good for relieving heat and thirst. Also harmonising the liver, pancreas and kidneys. An appetiser for growing children.

#### Food for thought: Du Jiao Jin fish porridge

For improving children's appetite, this porridge can be prepared by the normal way.







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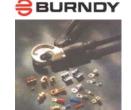




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..... Continue Popular Chinese Herbs and Tonic Products

# Fermented bean

Fermented from soy beans, it is available in two forms - the salted form as a food flavour, and the non-salted one to be used as a medicine. Beside being rich in nutrients, it helps reducing internal heat and freshens up a person's mood.



#### Food for thought: Steamed fish with fermented beans

Fried fermented beans, meshed garlic and ginger over slow heat. Spread them over a fresh fish. Steam until done. Add sauce, sugar and wine to taste. A delicacy which helps to improve your mood.

#### **Black Bean**

A common food among the Chinese, the black bean is available in grocery stores as well as the medical outlets. Like other seeds, it is rich in minerals, especially iron. The black bean is a convenient way to improve the circulatory system and general healthcare.



#### Food for thought: Black bean and black chicken soup

Slow boil black bean and black chicken meat for three hours. Add black dates and salt to taste. A delicious family soup (dark colour) to improve general health.

# Pu Gong Ying (Dandelion)

It is beneficial to the gall and stomach, other than being a blood cleansing agent and an effective suppressant of inflammation.



Food for thought: Dandelion tea

Boil dandelion and add minimal amount of rock sugar to enhance the taste. Drink frequently for blood cleansing and strengthening the excretion system.

# **Lalang Root**

Lalang is found throughout the world, including Malaysia. Its root, taken raw, is sweet. Once dried, it is a cheap and tasty herb for the preparation of 'cooling drink' to quench the internal heat.



# The goodness: **Heat dissipating, improve blood clotting (healing)** and urination.

*Food for thought*: A good heat quenching family drink can be prepared by boiling dried Lalang Root alone (add some rock sugar to enchance the taste), or boil with sugar cane (the thin type) for 2-3 hours.

## Green bean

Another favourite bean consumed by the Chinese, it contains a rich amount of carbohydrates, proteins and many vitamins and minerals. It has the properties of removing toxins and helps lower blood pressure.



#### Food for thought: Green bean paste

Soak green bean and Hai Dai (a type of seaweed) for several hours until soft. Boil mixture in water over high heat followed by medium heat until the beans burst. Add rock sugar to taste.

# Qi Zi (Chinese Wolfberry)

One of the most common ingredients in culinary and medical food preparation among the Chinese, the relatively cheap herb is both tasty and nutritional. The dried form of the fruits is rich in minerals and it has the benefits of lowering the



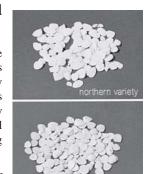
blood sugar and blood pressure, besides strengthening the visions. The dried fruits can be eaten fresh from the packets.

#### Food for thought: Qi Zi meat soup

Slow boil a handful of Qi Zi, lean meat and old cucumber (the brownish type) for three hours. Add some dried oyster and salt to taste. A family soup that improves general health, especially the eyesight.

# Almond seeds (northern and southern varieties)

They are actually the kernels of the almond seeds. The northern variety is slight bitter and the southern variety slightly sweet. Both are rich in proteins and nutrients. Their extract is currently used for food preparations and medical applications, especially for treating coughs.



# Food for thought: Almond seeds and lung soup

Boil lung until it is hardened. Cut into thin slices and boil with crushed almond seeds for two hours. Add ginger and salt to taste. Good for improving the respiratory system and treating existing lung problems.

### Qian Shi

Found in China, India and Korea, this plant which belongs to the lotus family grows easily in marshes. Its seeds are used, and it contains a high level of carbohydrates, proteins, fats and vitamins. It strengthens the digestive



system, especially the pancreas, and is beneficial to the excretory organs. Can be consumed regularly for general healthcare.

## Food for thought: Qian Shi fish soup

Boil whole fish and Qian Shi for one hour. Add ginger and pepper to enhance the taste. Salt to taste.

Good for the brain and physique.

# Yi Mi (or Yi Ren)

In Malaysia, this herb is commonly called 'barley' as in the case of 'barley water' served in the restaurants. Its real name is 'the seed of job's tear', a type of cereal of high nutritional value, such as vitamin B and amino acids. It is a very common herb to treat urine problem, such as when its colour is too yellowish,



and need to be normalised to light yellow. Besides being a diuretic, it also benefits the stomach and cancer patients.

#### Food for thought: Yi Mi sweetened wax gourd soup

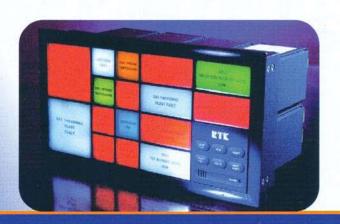
Boil Yi Mi, sweetened dried wax gourd (available in packets in grocery stores and medical shops) for one hour. Add rock sugar to taste. Stir an egg into the soup and ready to serve while hot.







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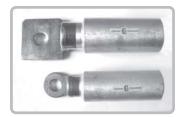


SPECIFICATION FOR THE MATERIAL, MARKING AND DIMENSIONS OF CRIMP TYPE CABLE LUGS FOR USE WITH COPPER CONDUCTORS IN LOW VOLTAGE APPLICATIONS

Importance of using Cable Lug compliant with MS 1540:2002

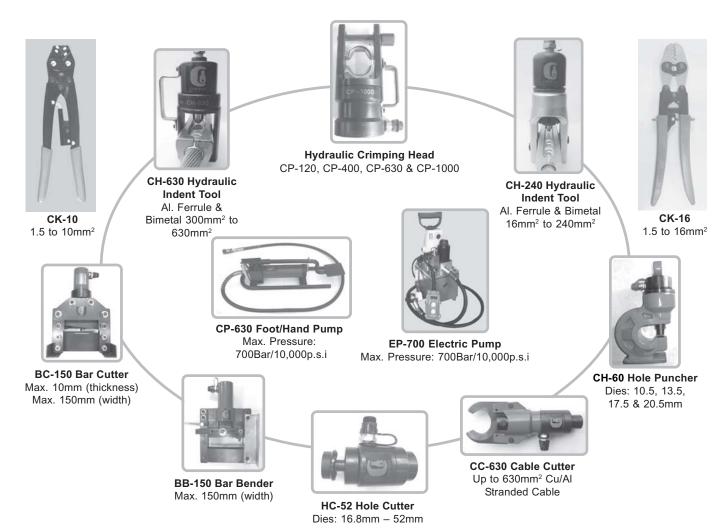
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- To prevent inferior, sub-standard and questionable quality cable lugs to be used in the electrical installation
- To have standardized cable lugs to suite the crimping die
- Suitable for cable compliant with IEC 228

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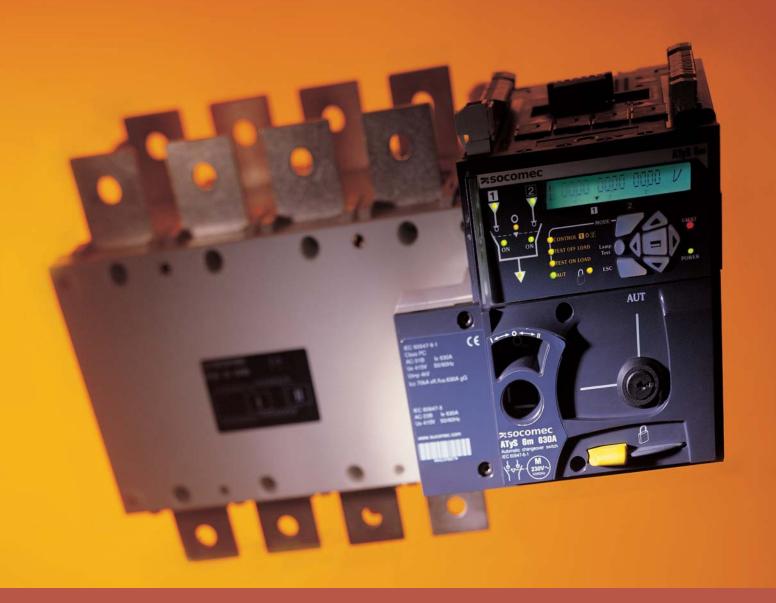
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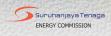
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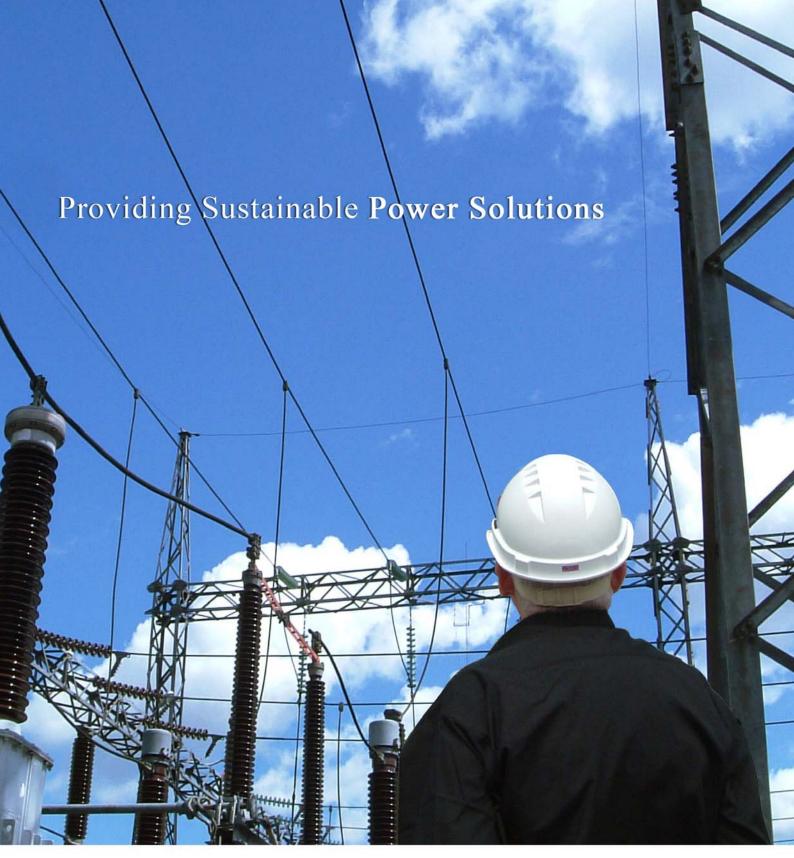
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