International Copper Promotion Council (India)

Beat the Heat this Summer with Energy Efficient Air-Conditioners

Manas Kundu, Associate Director – Technical, ICPCI explains the adverse impact of Air-Conditioners on environment amounting to high power usage and the resultant - Global Warming

Global Warming

Here are some of the grim aspects of climate change. Sea levels are expected to rise by at least 40 cm by 2100, inundating vast areas, including some of the most densely populated cities. Bombay – July 26, temperature rising. Rising temperatures will pull down crop yields; the poor, who already suffer from low calorie intake, will be the worst hit as food becomes ever more expensive.

In the last quarter of the 20th century, the average atmospheric temperature rose by about 1 degree Fahrenheit.[1] By 2000, that increase was responsible for the annual loss of about 160,000 lives and the loss of 5.5 million years of healthy life, according to estimates by the World Health Organization. The toll is expected to double to about 300,000 lives and 11 million years of healthy life by 2020.

A recent Nicholas Stern report says that global warming could shrink global economy by 20 per cent. The worst affected will be the world's poor, India included. But acting now will cost less than 1 per cent of India's GDP.[2]

India in the year 2006-07 produced 662.5 billion KWh [3] of electricity falling short by about 15% of the annual electrical energy demand. Global warming would result in higher temperature and with better affording capacities more and more people will opt for air-conditioned environments. In the reference scenario, Indian power generation capacity increased about nine times from 96 GW to 912 GW between 1995-2100. As a result of the impact of climate change, there will be an additional power generation capacity requirement of about 1.5%[4]

Domination of coal-based generation continues due to reliance on domestic resources for energy supply and a major share of this added generation requirement is taken up by the coal-based generation. The economic linkages with coal are also very strong due to large infrastructure associated to mining industry, coal transportation network, generation equipment manufacturers, etc., and coal remains competitive in the long run.

Without dramatic action over the next half century, we face the threat of rising sea levels and massive economic disruption. Substantial costs cannot be avoided without a dramatic effort to reduce the emission of greenhouse gases.

Air-conditioner contributions

Air conditioning takes indoor heat and pushes it outdoors. To do this, it uses energy, thus contributing to the production of greenhouse gases, in turn warming the atmosphere. We're cooking our planet to refrigerate the diminishing part that's still habitable. The market for comfort air-conditioning is growing at the rate of 15% plus in the country today with disposable income for urban population on rise. This is likely to contribute additional demand of 30000 MW by 2012 at the current[5] growth rate. Air-conditioners benefit us by providing cleaner and safer fresh-air and are able to prevent the growth and spread of harmful micro organisms. Individuals who suffer from allergies and asthma are especially thankful for the better atmosphere an air-conditioned

room provides, as less dust and dander are present. However one must be mindful of the shortfall in electricity supply leading to load shedding, rising energy costs and subsequent climate changes due to use of these conditioners.

All over the country, power consumption is breaking records, and air conditioning is a huge contributor. To get the electricity, we burn oil and coal. We also run air conditioners in our cars, which reduces urban fuel efficiency. More burning of oil and coal means more greenhouse gases. The hotter it gets, the more energy we burn. Unless we become concerned about the efficiency in our use of energy for air-conditioning, it would have an adverse effect on our economy and environment as well. This is escalated when inefficient Air-conditioners with lower energy efficiency ratios are being pressed into operation. EER or Energy Efficiency Ratio is a measure of how efficient a particular air conditioning unit is. The higher the number, the more efficient the unit and the less it will cost each year to run. Thus the initial high investment is offset in the long run with reducing energy bills. In-order to enjoy its benefits while using our current energy levels optimally, consumers are encouraged to use Energy efficient Air-conditioners. Hence consumers are encouraged to use Energy efficient Air-conditioners.

NEVER BASE YOUR PURCHASE DECISION ON 'LOOKS & FIRST PRICE'

Because, you are buying Air conditioner for a service life of 7-10 years. A poor efficiency AC is an energy guzzler. In any case it is you who pay the monthly energy bill that is ever increasing! Premium paid on high EER AC will be recovered within a short span.

In order to aid in making the right and informed choice, Bureau of Energy Efficiency (BEE) has introduced star rating label on Air-Conditioners. BEE has rated air conditioners of various manufacturers from one star at the lowest and 5 at the highest. This rating measures the energy efficiency Ratio (EER) of each Air Conditioner. A higher EER results in the system being more efficient i.e it is able to give the same amount of cooling while consuming lower levels of energy. Consumers can make an informed choice of opting for higher star rated Air-conditioners, thus reducing the energy consumption and saving money on energy bills.

Tips to ensure efficient working of room conditioners

1. **Size**

Consider unit size. A bigger unit, which is too large will not cool an area uniformly. Also, an oversized unit will cool an area too quickly, causing the air conditioner to frequently turn on and off. This wastes electricity and money. On the other hand, you should avoid purchasing too small a unit. An insufficiently sized unit will run constantly on hot days and still not be able to cool the area adequately. Find out your need by speaking to an experienced sales rep or by visiting www.saveenergy.com

2. **Efficiency**

When choosing between units with similar prices, capacities and features, energy efficiency should be the deciding factor. Even though an energy efficient unit may be higher priced, it may the best buy. High efficiency appliances cost less to operate and can pay back the extra initial cost many times over during their lifetimes.

3. **Installation**

An improperly installed unit, even one with a very high efficiency rating, will waste energy. Remember that each unit has specific installation requirements. Therefore, follow the manufacturer's instructions carefully.
Additionally, it is important to install the unit in a shaded spot on the house's north side or east side because direct sunshine on the unit's outdoor heat exchanger decreases efficiency.
Plenty of air circulation is mandatory. Room air conditioners must be installed on a flat, even surface so that the inside drainage system and other mechanisms operate efficiently.

4. **Maintenance and Operation**

A dusty filter reduces air flow. Examine your unit's air filters once a month and clean or replace filters when necessary. Keeping your filters clean can cut energy consumption 5 to 15%.

Room units should be covered or removed and stored in the winter.

Clogged drain channels prevent a unit from reducing humidity and the resulting excess moisture may discolor walls and carpet. Channels usually can be cleaned by passing a stiff wire through them.

Holes in the seal between the air conditioner and the window frame allow cool air to escape from your home. Moisture can damage this seal so inspect it annually to see that it makes contact with the unit's metal case.

Call the manufacturers service agent on a regular basis to ensure your Air-conditioner is running optimally

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About International Copper Promotion Council (India):

The International Copper Promotion Council (India), (ICPCI) is the Indian centre of the International Copper Association, Limited, the leading organization for the promotion and defense of copper worldwide. ICPCI is driven by the same objective as its parent organization, which is to promote the beneficial usage of copper for safety, health, environment and energy savings. ICPCI's activities focus on helping end-users to better understand and appreciate the positive attributes of Copper. ICPCI actively promotes copper through seminars, workshops and training programs throughout India, in collaboration with other organizations, institutions and trade bodies.

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