

Myanmar Engineering Society
Energy & Renewable Energy Committee

ENERGY EFFICIENCY & CONSERVATION

Presented

By

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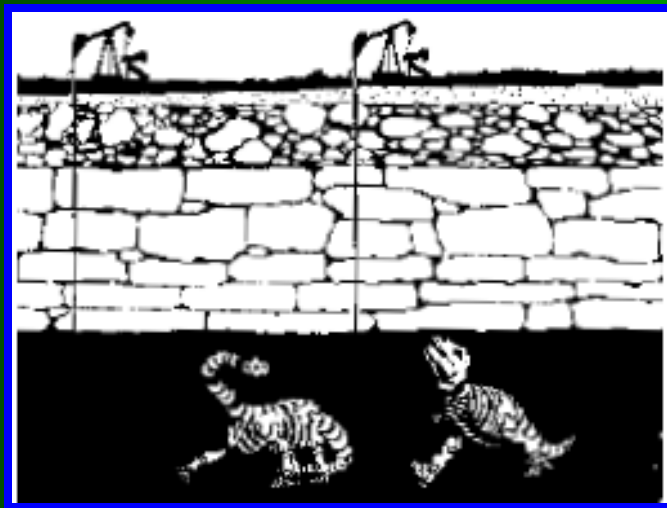
United Engineering Group of Companies

Why energy efficiency:-

- depleting fossil fuels,
- increased use of coals,
- more people buying cars,
- global warming....
- *Potential outcome-*
 - rising temperatures,
 - sea level rising,
 - droughts and floods,
 - health effects,
 - ecosystem (forests, deserts, mountains, lakes, coastal, oceans ,fisheries...)
 - food production, population migration, refugees, social-economic, political issues

What is energy:-

- ability to do work,
- working energy and stored energy,
- non-renewable energy (oil, natural gas, coal),
- renewable energy (solar, wind, hydro, biofuels, etc..)



Fossil fuels come from the remains of dead animals and plants.

How do we use energy:-

- electricity,
- run cars,
- cooling, heating,
- manufacture goods

How can we save energy:-

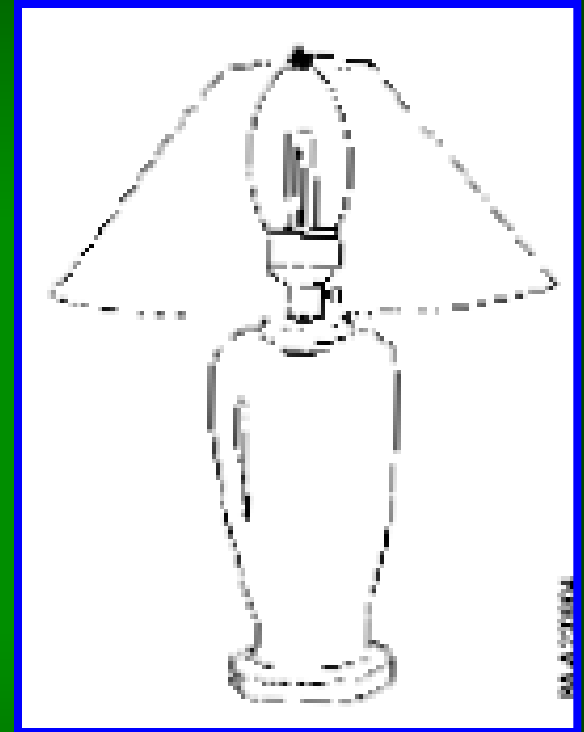
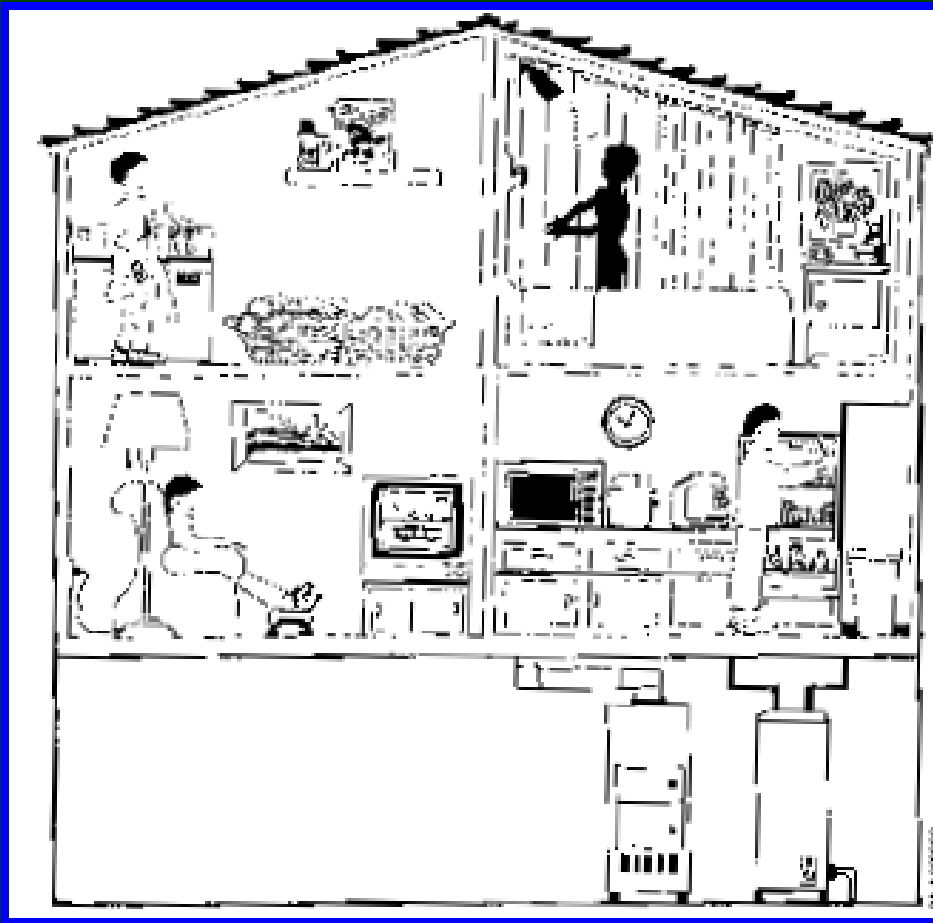
- By using less,
- save electricity,
- save gasoline,
- *reduce, reuse, recycle*

Almost everything we buy is packaged.



Recycle newspaper, aluminum, plastic, steel, and glass at home.

We use energy every day in many ways.

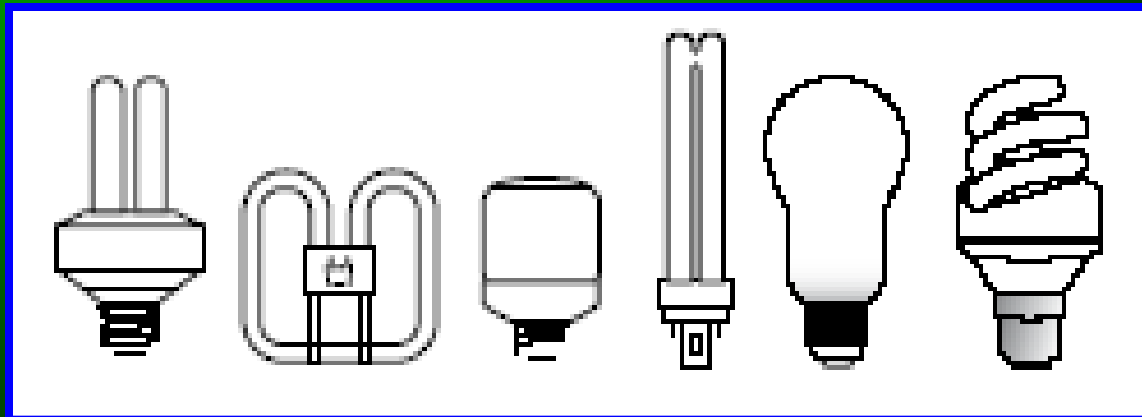


Energy-efficient compact fluorescent lights use less energy than do regular light bulbs.

Energy efficiency:-

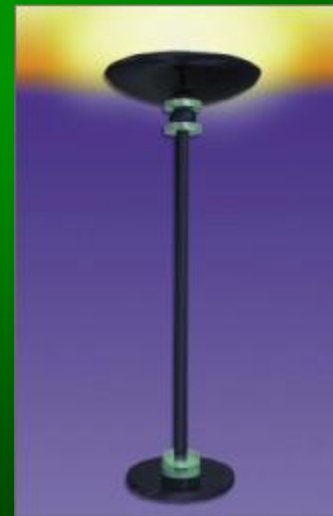
- Using technology
 - CFL lamps,
 - energy efficient appliances,
 - energy efficient building materials,
 - insulation materials,
 - variable speed drives,
 - solar heaters,
 - energy efficient vehicle,
 - energy-labelling...

Compact fluorescent lamps (CFLs)



In most homes, lighting accounts for 15- 10 per cent of the electricity bill.

Compact fluorescent lamps (CFLs)



Representative Countries & Energy Usage-2002

Country	Population in millions	Energy Consumption in quads
China	1295	43.2
India	1050	14.0
United States	288	97.4
Brazil	176	8.6
Pakistan	150	1.8
Russia	144	27.5
Bangladesh	144	0.6
Japan	128	22.0
Nigeria	121	0.9
Mexico	102	6.6
Germany	82	14.3
France	60	11.0
United Kingdom	59	9.6
Italy	58	7.6
South Korea	47	8.3
Canada	31	13.1

1 Quad = 10^{15} BTUs

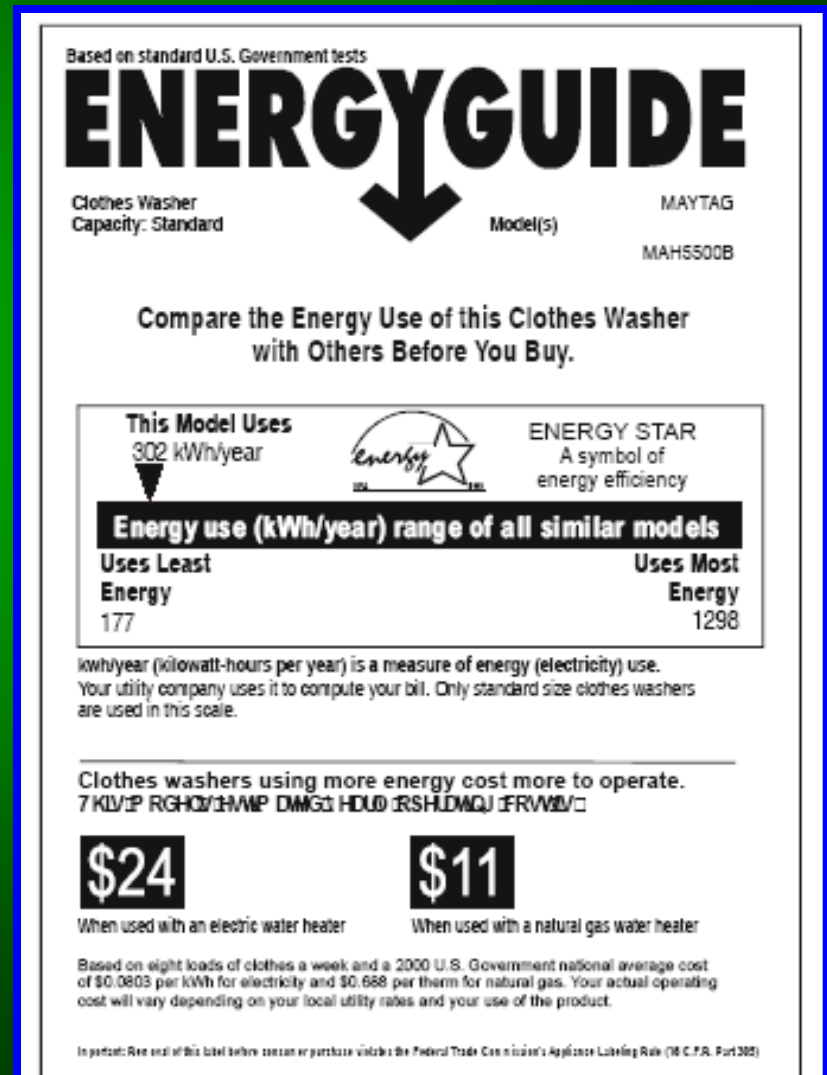
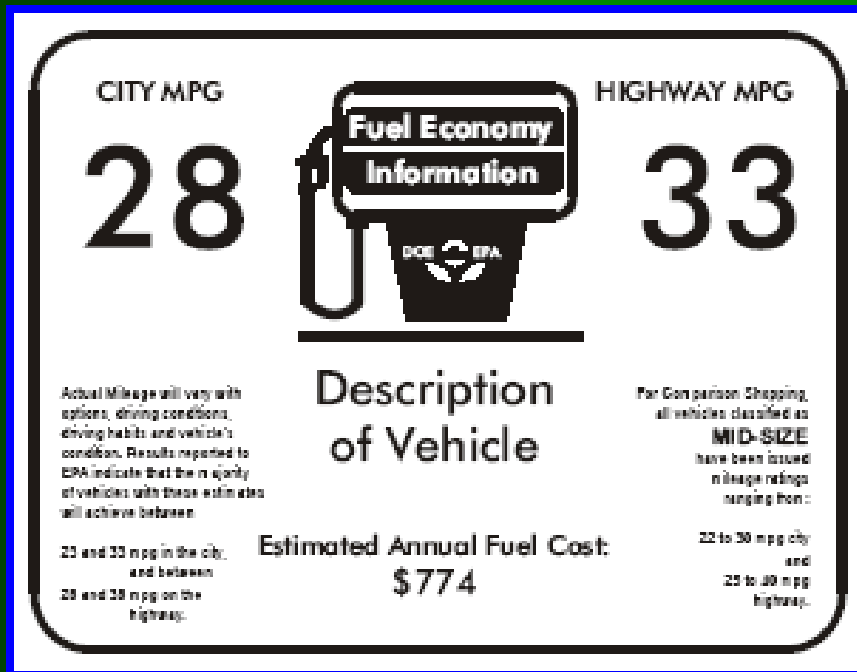
Energy conservation:-

- Turning off electricity when not in use, reduce use of cars, reduce use of packaging, reduce producing rubbish and waste, reusing, recycling...
- Household operations account for 35% of GHG and 32% of air pollution
- To reduce household energy by 10-50%-plan landscape and trees to keep houses cool, buy appliances with energy- labeling, refrigerators gaskets and seals are tight, use CFL lamps and fluorescent lamps, use solar water heaters
- Lighting-replace incandescent lamps with CFL and FL to save 30-60% of electricity



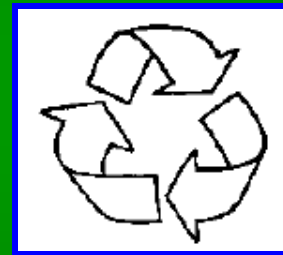
Transportation:-

- Use mass transport (buses, railway), use bike, improve driving habits, use fuel efficient cars(25 mpg to 45 mpg)



Industry:-

- Manufacturing goods consumes 50% of total energy consumed, R & D for energy efficient technologies always being developed, packaging and products no longer used consume a lot of energy, throw-away culture, disposable items, produce solid wastes,
- Average American produce 1000 pounds of rubbish each year, 3Rs... reduce, reuse, recycle



Energy sustainability:-

- Depend on energy efficiency and conservation, to meet present energy needs without compromising energy needs of future generations, government policies, R & D, promote alternative energy sources, sound environmental policies

Energy savings:-

- In homes and offices –new homes new offices before construction (work with architects),
- Design team-daylight and natural cooling, use energy –labeled appliances, energy management systems, energy efficient lighting, reduce water use and wastage, reduce solid waste...



Sample integrated design team:



Energy situation in ASEAN:-

- Primary energy consumption is 14.4 quad BTU in 2003 (3.4% of world consumption)
- USA and EU with 16% world population consumes 80% of world energy resources per year.
- Average growth in energy use for ASEAN is 5.4% per year. Major consumers are Transport and Industry sector-60% of total energy

Common Problems in ASEAN for EE & C:-

- Lack of awareness, lack of financial support. lack of technology. knowhow, expertise, insufficient human resources especially specialists, no govt. policies and implementation weak due high investment cost
- ASEAN Plan of Action-information sharing and networking, develop ASEAN energy labeling, private sector participation, capacity building, develop ESCO-Energy Services Companies.

Conclusion

- Saving energy and making efficient use of energy can be done by everyone
- Save electricity by turning out lights when you leave the room
- Save electricity by using “energy saving lamps
- Save energy by reducing the packaging
- Save energy by reusing many things many times
- Save energy by recycling many products you use daily
- Save energy by using energy-efficient appliances
- Save energy by using technology to use less energy for the same function
- Save energy by building energy efficient buildings using more sunlight and natural air
- Save energy by sensible landscaping and growing trees to reduce the heat and provide shade

Conclusion (cont.)

- Save energy by improving your driving habits and proper car maintenance
- Industries can save a lot of energy by using available technology in the market
- Save energy by reducing the use of water and proper maintenance to system
- Save energy in office buildings by planning energy efficiency with architect before building starts
- It may cost 10% more in the beginning but savings in long term are more than 50% than conventional building design
- Saving energy will also contribute to reducing the “Global Warming”
- It will save our planet “Earth” from destruction



Thank You !



Ride your bike to school.

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