



**PITHAPUR RAJAH'S GOVERNMENT COLLEGE**

**KAKINADA**

An outcome-based, NAAC accredited Green Autonomous Institution

Affiliated to Adikavi Nannaya University

## **ENERGY CONSERVATION WEEK :: 16 DECEMBER 2024- 21 DECEMBER 2024**

**[ An initiation to create sustainable future through Education]**

**Theme: Today's Energy conservation for Tomorrow's Bright future**

**Coordinators: 1. Dr.P. Himakar, Director for Energy Conservation**

**2. Dr. Ch. John Samuel: N.S.S. P.O**

**Members: All other NSS POs and faculty members.**

### **PREAMBLE:**

**Dear students and staff,**

Energy is essential for agriculture, industry, service sector, mineral extraction, households, driving machines, medical sector, propel vehicles, etc., and proves to be the backbone for economic development of any nation. However, small energy-wasting habits such as Leaving the Lights, fans, computers, etc., on, using Incandescent Bulbs, Leaving Electronic appliances Plugged In, using fossil-fueled vehicles for shorter distances, etc., lead up to 25% energy -wastage. Our proactive steps to conserve energy make a long way in the economic development of the nation. We need to be more responsible in this direction and make concerted efforts to conserve energy not only in our institution but also in our homes and community, and hence this energy conservation week.

Energy Conservation Week is a great opportunity to raise awareness and promote sustainable practices that can help reduce energy consumption. There is need to create awareness both in staff, students and community on the importance of conservation of Energy (Electricity, Fossil fuel generate energy, etc.) as it contributes for the sustainable developmental practices such as resource conservation, environmental protection, etc.

Here are some effective energy conservation strategies that individuals, businesses, and communities can adopt to mark this important occasion:

## **Guidelines for staff and students both at college and home:**

### **1. 2. Unplug Devices ( Lights, fans, Computers) When Not in Use**

- Many electronics and appliances use power even when turned off, a phenomenon known as "phantom" or "vampire" energy consumption. Unplug devices like chargers, televisions, and computers when not in use, or use a smart power strip to easily disconnect multiple devices at once.
- Further, please switch off fans, tube lights, computer systems and other electronic gadgets such as printers while you leave for classes or when not required.
- Students shall switch off fans and tube lights, etc., while leaving the class rooms for another class room/ laboratories or when the rooms are being closed.
- Non-teaching staff, especially those who close the class rooms/ labs/ other spaces shall do so only after ensuring that all fans/ tube lights are switched off.

### **2. Switch to Energy-Efficient Lighting**

- **Use LED Bulbs:** Replace incandescent or CFL bulbs with energy-efficient LEDs. They consume less power and last much longer.
- **Use Motion Sensors or Timers:** Install motion-sensor lighting in areas that are not in constant use (e.g., hallways, bathrooms) to ensure lights are only on when needed.

### **3. Optimize Heating and Cooling Systems**

- **Programmable Thermostats:** Install a programmable thermostat to regulate heating and cooling. Set it to lower the temperature in winter or raise it in summer when you're not home.
- **Seal Leaks:** Insulate your home and seal any gaps or cracks in windows and doors to prevent energy loss.
- **Maintain HVAC Systems:** Clean filters and schedule regular maintenance for your heating, ventilation, and air conditioning systems (HVAC) to keep them running efficiently.

### **4. Promote Energy-Efficient Appliances**

- Upgrade to ENERGY STAR-rated appliances, which are designed to consume less electricity. This includes refrigerators, washing machines, dryers, and dishwashers.
- In addition to reducing energy use, these appliances often come with water-saving features, offering an added benefit.

## 5. Encourage Sustainable Transportation

- **Carpooling and Public Transport:** Encourage employees or community members to carpool or use public transportation instead of individual cars. This reduces fuel consumption and carbon emissions.
- **Switch to Electric Vehicles (EVs):** Promote the adoption of EVs and provide charging infrastructure where possible.
- **Bicycles or Walking:** For short distances, walking or biking can replace the need for driving, saving energy and promoting a healthier lifestyle.

## 6. Adopt Smart Home Technologies

- **Smart Thermostats:** Devices like Nest or Ecobee learn your schedule and adjust heating/cooling to optimize energy use.
- **Energy Monitoring Systems:** Use apps or smart meters to track energy usage and identify areas where consumption can be reduced.
- **Smart Plugs and Appliances:** Integrate smart plugs and appliances into your home to manage and schedule energy consumption more efficiently.

## 7. Encourage Behavioral Changes

- **Shorten Shower Times:** Reduce hot water usage by encouraging shorter showers or turning off the water while lathering.
- **Laundry Practices:** Wash clothes in cold water, use full loads, and air dry whenever possible.
- **Turn Off Lights and Appliances:** Make it a habit to turn off lights when leaving a room and unplug devices that aren't in use.

## 8. Educate and Raise Awareness

- **Workshops and Seminars:** Organize local events or webinars to teach people about energy-saving practices and their environmental impact.
- **Energy Audits:** Offer free or discounted energy audits to homes and businesses to help them understand where they can save energy.
- **Social Media Campaigns:** Use platforms like Instagram, Twitter, or Facebook to share tips on energy conservation, inspiring others to take action.

## 9. Invest in Renewable Energy

- **Solar Panels:** Consider installing solar panels to generate your own renewable energy. Solar energy is abundant and reduces reliance on nonrenewable resources.
- **Wind and Hydropower:** For businesses or larger communities, explore the possibility of investing in wind or hydropower energy sources.
- **Community Solar Projects:** Encourage local community efforts to fund solar panel installations that benefit multiple households or businesses.

## 10. Support Energy-Efficient Building Practices

- **Green Building Certifications:** Promote the use of LEED (Leadership in Energy and Environmental Design) certified buildings, which are designed to use less energy and have a lower environmental impact.
- **Passive House Design:** Advocate for the design of energy-efficient homes that use natural ventilation, insulation, and thermal mass to maintain temperature without excessive heating or cooling.

## 11. Encourage Water Conservation

- **Low-Flow Fixtures:** Install low-flow faucets, showerheads, and toilets to reduce the amount of hot water used in your home or workplace.
- **Rainwater Harvesting:** Collect rainwater for outdoor use (e.g., watering gardens) to reduce the need for pumping water from municipal systems.

## 12. Community Engagement

- **Collaborate with Local Governments:** Work with local authorities to implement city-wide energy-saving initiatives such as energy-efficient street lighting, building codes for new developments, and renewable energy incentives.
- **Incentives for Energy Conservation:** Advocate for tax credits or subsidies for energy-efficient home upgrades or renewable energy installations.

## 13. Celebrate and Share Success Stories

- During Energy Conservation Week, celebrate success stories of individuals, businesses, and communities that have significantly reduced their energy consumption.
- Share case studies or host events that highlight how energy conservation efforts are making a difference.

## 14. Green Your Workplace

- **Remote Work:** Encourage remote work when possible to reduce commuting energy costs and emissions.

- **Energy-Efficient Office Equipment:** Replace outdated office equipment with energy-efficient models (e.g., printers, computers).
- **Energy-Saving Policies:** Implement policies like "turn off lights at the end of the day," or "no idle computers."

By adopting these energy conservation strategies, we can collectively reduce energy consumption, save money, and lower our carbon footprint. Whether it's a small change at home or a larger initiative at work or in the community, every action counts toward a more sustainable future.

Day-wise strategies:

| S.No | Day  | Activity to be taken up   | Coordinating Dept  | Remarks   |
|------|--|---|--|---|
| 1    | 16 December 2024 @ 11:00 AM in each class rooms by the respective proctors/faculty members/ in staff rooms & Office (non-teaching staff) | <ol style="list-style-type: none"> <li>1. Green Pledge with students on energy conservation</li> <li>2. Replacing incandescent lamps with LED bulbs</li> <li>3. Repairs to motors, loose contact rectification, etc.</li> </ol> | Directorate of energy conservation::<br>Dr. P. Himakar & Dr. M. Somaraju | <ul style="list-style-type: none"> <li>• The pledge makes significant impact on the students and staff to protect environment. It helps students and staff save energy at home, college and working spaces in future.</li> <li>• The Directorate of energy conservation shall prepare sticking posters on energy conservation and display in each class room and on the switch boards.</li> </ul> |
| 2    | 17 December 2024 @ 12:30 PM- 1:20 PM by mentors of respective classes  | Meeting with students to create awareness on energy conservation efforts  | NSS & Mentors/ faculty of respective classes                             | Mentors shall describe need for energy conservation, common practices of energy wastage and responsibility of students in conservation of resources and sustainable development. Mentors shall prepare and present / teach in the class.  |
| 3    | 18 December 2024   | Rally in adopted villages to create   |  | NSS units shall prepare placards on Energy &  |

|   |                     |   |   |  |
|---|---------------------|---|---|--|
|   | ( 11:00 AM-1:00 PM) | awareness on conservation strategies<br>Distribution of pamphlets in the community      | NSS units<br>Dr.John Samule Ch. Shall lead the rallies  | water conservation and carry out rallies in the community.<br>Directorate of Energy & water conservation and Hygiene shall get the pamphlets printed by 17 December 2024 and make arrangements for distribution on 18 December 2024. |
| 4 | 19 December 2024    | 1.Group Discussion on Energy conservation strategies.<br>2.Painting Competition         | Centre for 21 <sup>st</sup> Century skills              | Each mentor shall conduct group discussions from 12:30 PM to 1:20 PM in the respective class rooms for all students .<br>The Coordinator for CFCS to conduct painting competition.   |
| 5 | 20 December 2024    | Visiting two high schools/ Junior colleges by students and conduct of awareness program | Directorate of Energy & water conservation and Hygiene. | Dr. Himakar shall prepare two trained teams of students and depute them to colleges/schools for creating awareness on energy conservation.   |
| 6 | 21 December 2024    | Valedictory function<br>Distribution of certificates and prizes to students             | Directorate of Energy & water conservation              | Dr. Himakar and NSS P.O Dr John Samuel shall make arrangements for the prize distribution function.  |

**ప్రతిజ్ఞ ( energy conservation Pledge) To be recited @ 11:00 AM on 16 December 2024)**

పీఠాపూర్ రాజా కళాశాల విద్యార్థులం/ అధ్యాపకులం/ స్టాఫ్ అయిన మేము విద్యుత్ మరియు శిలాజ ఇంధన శక్తి వనరులను కావలసినంత వరకు మాత్రమే వాడతామని, క్లౌస్ రూంలు, స్టాఫ్ రూంలు, లాబరేటరీ లలో నుంచి బయటకు వెళ్ళేటప్పుడు లైట్లు, ఫ్యాన్లు, కంప్యూటర్ లు, ఏ.సి లు ఆపుతామని, సహజ కాంతి ఉన్నప్పుడు లైట్ లు వాడం అని, తక్కువ దూరాలకు శిలాజ ఇంధనాలతో నడిచే వాహనాలను వాడం అని, శక్తి ని తగ్గించే ఆటోమేటిక్ మరియు సెన్సర్లతో పనిచేసే విద్యుత్ పరికరాలను వాడతామని, శక్తి పరిరక్షణ గురించి సమాజం లో అవగాహన కల్పించి, దాని ద్వారా విలువైన శక్తి వనరులను కాపాడటం తో పాటు పర్యావరణ పరిరక్షణకు కృషి చేసి, శక్తి పరిరక్షణ

ఉద్యమంలో కీలక పాత్ర పోషించి దేశ మరియు ప్రపంచ అభివృద్ధికి పాటు పడతానని ఈ ప్రతిజ్ఞ చేస్తున్నాను.

## Tips for energy conservation

### I. CONSERVATION STRATEGIES FOR Lighting System ( Tips for energy saving in class rooms, staff rooms, laboratories, homes, etc.,)

1. **Turn off lights when not required.**
2. **Use automatic sensor based devices to save energy:** Employ infrared sensors, motion sensors, automatic timers, dimmers and solar cells wherever applicable, to switch on/off lighting circuits.
3. **Employ Task lighting strategy:** Task lights focus lights such as reading lamps where it's needed. They light only reading material rather than the whole room.
4. **Dust your tube lights and lamps regularly.** Dirty tube lights and bulbs reflect less light and can absorb 50 percent of the light. This reduces luminous intensity in the class rooms, laboratories, homes, etc.
5. **Use Fluorescent tube lights and CFLs:** They convert electricity to visible light up to 5 times more efficiently than ordinary bulbs and thus save about 70% of electricity for the same lighting levels.
6. **Don't use incandescent lamps:** Ninety percent of the energy consumed by an ordinary bulb (incandescent lamp) is given off as heat rather than visible light. Replace them with Fluorescent tube lights and CFLs. Compact fluorescent lamps (CFLs) use up to 75 percent less electricity than incandescent lamps. A 15-watt compact fluorescent bulb produces the same amount of light as a 60-watt incandescent bulb.

### II. ENERGY CONSERVATION STRATEGIES FOR FANS:

Fans typically consume between 30 to 100 watts, depending on their size and speed settings.

1. Make sure that your ceiling fan is at least 10-12 inches from the ceiling. Ceiling fans also work best when the blades are 7-8 feet from the ground. Adjusting the ceiling fan to its ideal position will improve efficiency and thus save energy in the long run.

2. *Try to turn off the wall switch* at the same time when you don't use your ceiling fan for a long time and prepare to just turn off your ceiling fan with the remote control. There will still be energy waste if the wall switch is on.
3. Most ceiling fans are reversible on the market nowadays. *Try to use the right rotation of the blade to get efficient airflow*, that's to say, you can lower your energy bills at home when you *set your ceiling fan into summer mode* and your ceiling fan *blades rotate counterclockwise* to deliver more air circulation for you so that you can feel cool off *on hot days*, which helps you reduce the time to use your air conditioner. As for *cold days*, you could *set your ceiling fan into winter mode* and *the blades* of your fan will *rotate clockwise* to push down the warm air around the ceiling into the floor in your rooms, thus you keep the room warm and could use your furnace less to cut the extra cost.
4. If the blades of your ceiling fan have accumulated too much dust, then the effect of the *air circulation* that your ceiling fan push will be *greatly reduced*, but regular clean will help, so you could *keep your ceiling fan clean* and *clean your ceiling fan regularly*.
5. Extra energy will be wasted if you forget to *turn off your fan in time before you go out*. *Make a timer* or *schedule* for your fan in advance may greatly reduce this situation or use the *app control* to turn it off when you aren't at home. New aged ceiling fans like *CEME* or *Arterki* offer you *convenient control options* and *great features* that meet your demands perfectly. Of course, it will be best for you if you can remember to turn it off before you need to go out.

### III. ENERGY CONSERVATION STRATEGIES FOR COMPUTING SYSTEMS:

1. A computer that runs 24 hours a day, for instance, uses – more power than an energy-efficient refrigerator. So, Turn off your Department/ home/ office computing equipment when not in use.
2. **Monitor consumes more power:** If your computer must be left on, turn off the monitor as it alone uses more than half the system's energy.
3. **Sleep mode conserves energy:** Setting computers, monitors, and copiers to use sleep-mode when not in use helps cut energy costs by approximately 40%.
4. **Plug out chargers after full charging:** Battery chargers, such as those for laptops, cell phones and digital cameras, draw power whenever they are plugged in and are very inefficient. Pull the plug and save.
5. Screen savers save computer screens, not energy. Start-ups and shutdowns do not use any extra energy, nor are they hard on your computer components. In fact, shutting computers down when you are finished using them actually reduces system wear – and saves energy.

### IV. ENERGY CONSERVATION STRATEGIES FOR AIR CONDITIONING SYSTEMS:



- Use ceiling or table fan as first line of defence against summer heat. Ceiling fans, for instance, cost about 30 paise an hour to operate – much less than air conditioners (Rs.10.00 per hour).
- You can reduce air-conditioning energy use by as much as 40 percent by shading your home's windows and walls. Plant trees and shrubs to keep the day's hottest sun off your house.
- One will use 3 to 5 percent less energy for each degree air conditioner is set above 22°C (71.5°F), so set the thermostat of room air conditioner at 25°C (77°F) to provide the most comfort at the least cost.
- Using ceiling or room fans allows you to set the thermostat higher because the air movement will cool the room.
- A good air conditioner will cool and dehumidify a room in about 30 minutes, so use a timer and leave the unit off for some time.
- Keep doors to air-conditioned rooms closed as often as possible.
- Clean the air-conditioner filter every month. A dirty air filter reduces airflow and may damage the unit. Clean filters enable the unit to cool down quickly and use less energy.
- If room air conditioner is older and needs repair, it's likely to be very inefficient. It may work out cheaper on life cycle costing to buy a new energy-efficient air conditioner.

## **V. ENERGY CONSERVATION STRATEGIES FOR REFRIGERATION SYSTEMS.**

1. Make sure that refrigerator is kept away from all sources of heat, including direct sunlight, radiators and appliances such as the oven, and cooking range. When it's dark, place a lit flashlight inside the refrigerator and close the door. If light around the door is seen, the seals need to be replaced.
2. Refrigerator motors and compressors generate heat, so allow enough space for continuous airflow around refrigerator. If the heat can't escape, the refrigerator's cooling system will work harder and use more energy.
3. A full refrigerator is a fine thing, but be sure to allow adequate air circulation inside
4. Think about what you need before opening refrigerator door. You'll reduce the amount of time the door remains open.
5. Allow hot and warm foods to cool and cover them well before putting them in refrigerator. Refrigerator will use less energy and condensation will be reduced.
6. Make sure that refrigerator's rubber door seals are clean and tight. They should hold a slip of paper snugly. If paper slips out easily, replace the door seals.
7. When dust builds up on refrigerator's condenser coils, the motor works harder and uses more electricity. Clean the coils regularly to make sure that air can circulate freely.
8. For manual defrost refrigerator, accumulation of ice reduces the cooling power by acting as unwanted insulation. Defrost freezer compartment regularly for a manual defrost refrigerator.


## VI. ENERGY CONSERVATION STRATEGIES FOR WATER HEATING SYSTEMS

1. To help reduce heat loss, always insulate hot water pipes, especially where they run through unheated areas. Never insulate plastic pipes.
2. **Maintain 60 degrees to 50 degrees C temperature range:** By reducing the temperature setting of water heater from 60 degrees to 50 degrees C, we can save over 18 percent of the energy used at the higher setting.

## VII. ENERGY CONSERVATION STRATEGIES FOR MICROWAVE OVENS & ELECTRIC KETTLES:

1. **Ovens save 50 percent cooking energy costs :** Microwaves save energy by reducing cooking times. In fact, one can save up to 50 percent on your cooking energy costs by using a microwave oven instead of a regular oven, especially for small quantities of food.
2. Remember, microwaves cook food from the outside edge toward the centre of the dish, so if you're cooking more than one item, place larger and thicker items on the outside.
3. Use an electric kettle to heat water. It's more energy efficient than using an electric cook top element.
4. When buying a new electric kettle, choose one that has an automatic shut-off button and a heat-resistant handle.
5. It takes more energy to heat a dirty kettle. Regularly clean your electric kettle by combining boiling water and vinegar to remove mineral deposits.
6. Don't overfill the kettle for just one drink. Heat only the amount of water you need.

All the stakeholders including students, teaching and non-teaching staff are requested to follow the guidelines and put in efforts in creating awareness on energy conservation for better future and sustainable development.



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