

स॒ घा॒ नो॒ दे॒वः॒ स॒वि॒ता॒ स॒हा॒वा॒ऽऽ॒ स॒वि॒ष॒ट् व॒सु॒प॒ति॒र्व॒सू॒नि॒ । वि॒श्र॒य॒मा॒णो॒ अ॒म॒ति॒मु॒रु॒चीं॒ म॒र्त॒भो॒ज॒न॒म॒ध॒ रा॒स॒ते॒ नः॒ । (ऋ॒ग्वे॒द, १०वां॒ म॒ंडल, ४५ सू॒क्त ३ ऋ॒चो)

"May be divine sun the lord of wealth, endowed with energy. Bestow treasures upon us! May he, with his far spreading lustre, Provide nourishment to all."

CORPORATE PR FILE



PETROLEUM CONSERVATION RESEARCH ASSOCIATION
www.pcra.org

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INTRODUCTION

Petroleum Conservation Research Association (PCRA), on behalf of Govt. of India, Ministry of Petroleum Natural Gas, has been working for the development and deployment of strategies for energy conservation and environment protection in the major sectors of economy i.e., Industry, Agriculture, Transport, Domestic & Commercial.

The Oil crisis of 1970s brought into sharp focus the need for conservation of petroleum products due to the enormous hike in country's import bill. The Govt. in response, set up the Petroleum Conservation Action Group (PCAG) in 1976, which was subsequently reconstituted as PCRA in 1978. Over the years, new developments have shaped and given thrust to PCRA's programs & activities.

EMERGING SCENARIO

- The demand of petroleum products in the country is growing steadily at the rate of 5-6% per annum.
- Environment concerns in the country have led to the introduction of mass emission norms from 1991. These have been made stringent leading to the adoption of Euro-II & Bharat stage II norms and introduction of cleaner fuels for vehicles.
- Govt. policy as spelt out in India Hydrocarbon Vision-2025 considers issues such as energy security, use of alternate fuels & interchangeability of technology as vital to ensure that mix of energy sources used in economy is optimal & sustainable.
- The Energy Conservation Act enacted in 2001 provides the legal & institutional framework for energy conservation activities.

In its mission for improvement of quality of life, PCRA works with the support of Public Sector Oil Companies, Government & Non-Government Organizations, Research Institutes and Laboratories, Educational Institutions, Consumer Associations and other Organizations.

PCRA'S ACTIVITIES - AN OVERVIEW

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Education Campaign

Media-Press, TV, Outdoor Publicity; Street Plays; Booklets; Educational Films; Posters & Stickers; Exhibitions.

Literature Development

Priced Booklets, Un-priced Booklets, Technical Journals, Posters, Leaflets.

Networking

Govt. Departments; Organizations, NGO's, State Transport Undertakings, Research Institutes, Laboratories, Agricultural Colleges, Action Group Meetings, Consumer & Technical Meets.

R&D

Sponsorship; Additives; Laboratory Testing; Field Trials.

Field Activities

Energy Audits; Institutional Training Programs; Driver Training Programs; Demonstration Centres; Support Schemes; Kisan Melas.

Training & Development

Development of External Faculties; Driver Trainers; Energy Auditors; NGO's; Individual Experts; Training Programs for Energy Officials.

Conservation Awards

Large, Medium & Small Industries; State & Regional Level Coordinators; State Transport Undertakings; Energy Auditors; Upstream & Refining Sector Oil Companies; State Governments; State/National Level Essay Competition Awards for Students & Teachers.

IT

Website; Internet Connectivity; Awareness Surveys.

PERFORMANCE INDICATORS

| Sl. No. | Activity | Nos. (since 1985) |
|---------|--|-------------------|
| 1. | Energy audits, Fuel Oil Studies, SSI, Follow ups | 46460 |
| 2. | Institutional Training Programs | 1910 |
| 3. | Model Depot Projects | 2393 |
| 4. | Driver Training Programs | 6912 |
| 5. | Rectification of LIPs & Footvalves | 30738 |
| 6. | Exhibitions, Seminars & Consumer Meets | 1178 |
| 7. | Action Group Meetings | 219 |
| 8. | R&D Projects (Completed) | 32 |
| 9. | Youth Programs | 11406 |
| 10. | Van Publicity | 5104 |
| 11. | OGCF' 2006 activities | 535000 |
| 12. | Films / TV Spots / Radio Programs | 82 |

FIELD ACTIVITIES

INDUSTRIAL SECTOR

PCRA programs focus on improvement in fuel use efficiency through upgradation of technologies and reducing wastages brought out through energy audit in large, medium and small scale industries. Soft loans and subsidy schemes assist the industrialists to implement conservation measures.

| Activity | End Users |
|----------------------------------|---|
| Energy Audit (EA) | Industries consuming > 1000 KL of petroleum Products or equivalent per annum |
| Fuel Oil Diagnostic Study (FODS) | Industries consuming between 250 to 1000 KL of petroleum products or equivalent per annum |
| Small Scale Industry (SSI) Study | Industries consuming < 250 KL of petroleum products or equivalent per annum |
| Follow up study | Industries where EA has been carried out |
| Institutional Training Program | Managers, supervisors & plant operators of large & medium industries |

Support Schemes

Energy auditor's empanelment : Organisations/Individuals having experience in conducting energy audit are encouraged to get empanelled as energy auditor with PCRA & work in association with it.

Soft loan for purchase of energy audit equipment & instruments : Energy auditors/organizations are provided soft loan upto Rs. 15 lacs or 75% of the total cost (whichever is lower) for purchasing energy audit instruments.

Soft loan for implementation of energy audit recommendations : Soft loan upto Rs. 15 Lacs or 75% of the total cost (whichever is lower) is available for procuring & installing energy saving devices, equipment & instruments.

TRANSPORT SECTOR

PCRA conducts variety of programs for STUs, private fleet operators, organizations in the private & public sector to promote efficient use of petrol, diesel, lubricants and greases through better maintenance practices, inculcating better driving habits, model depot studies, emission awareness programs, workshops, clinics etc.

| Activity | End Users |
|-------------------------|--|
| Driver Training Program | Institutions, Organizations |
| Model Depot Study | State Transport Undertakings & Private Fleet Operators |
| Transport Workshop | Drivers, Mechanics |

Support Schemes

Soft Loan Scheme for Upgrading the garage of State Transport Undertakings : Soft Loan upto Rs. 1 Lac or 75% of the total cost (whichever is lower) is provided for purchase of instruments & equipment to upgrade garage and carrying out repair & maintenance of vehicles in State Transport Undertakings.

AGRICULTURE SECTOR

PCRA recognises the potential and scope for conservation of petroleum products & electricity in this sector. The use of non-ISI and substandard footvalves, pumping sets and other equipment result in wastage of oil and electricity. PCRA extends assistance through need based rectification and replacement with ISI marked footvalves, pump sets etc. The other activities include demonstration centers; van publicity; participation in kisan melas; educational programmes for students of agricultural colleges.

| Activity | End Users |
|--------------------------------------|--------------------------------|
| Demonstration centre | Lift irrigation pump set users |
| Rectification of LIPs/ Footvalves | Lift irrigation pump set users |
| Agricultural workshop | Farmers, village mechanics |

Support Schemes

Soft Loan For Upgrading The Testing Facilities For Manufacturing BIS Marked Footvalves

- Replacement of non-standard, inefficient footvalves with BIS marked footvalves.
- Soft loan upto Rs. 65000/- is available for upgrading the testing facilities for manufacturing BIS marked footvalves.

DOMESTIC SECTOR

PCRA plays an educator's role in this sector to raise the awareness primarily amongst housewives and youth on conservation practices applicable for cooking and better driving habits.

Programs for Women

- Save LPG/Kerosene clinics
- Screening of video films on efficient use of LPG, Kerosene and better driving habits
- Efficient Cooking Competition
- Essay Competition

Catch Them Young

- Youth program in schools to inculcate conservation habits.
- National level Essay & Painting competition during Oil & Gas Conservation Fortnight.
- Booklets & pamphlets on oil & gas conservation for school children & housewives.
- Interactive Radio, TV programs & TV spots of educative nature.
- Quiz, Debate, Elocution competitions.

RESEARCH & DEVELOPMENT

PCRA initiates & sponsors R & D projects in Industry, Agriculture, Transport & Domestic sectors. The activities include :

- Sponsor projects to reputed institutions, CSIR LABS, technical institutions for developing energy efficient equipment, process and appliances.
- Organizing laboratory testing and evaluation of additives devices for their efficacy, fuel economy and emission reduction.
- Recommending field trials of additives, devices, equipment or appliances in the form of pilot projects.
- Commercialization of products & process after successful completion of field trials through technology transfer.
- Promoting inter fuel substitution.

SOME OF THE PROMINENT COMPLETED R&D PROJECTS

- **Development of petrol- alcohol- water micro emulsion fuel as substitute for petrol and ethanol blended petrol**
Agency- IIT, Delhi
Advantages- Usage of 90% ethanol directly for mixing with petrol, saving in energy and reduction in emission.
- **Applications of LPG & natural gas in food industry**
Agency - CFTRI, Mysore
Advantages- 10-20% fuel saving, reduction in emissions & better quality of food.
- **Design & development of an energy efficient control system for humidification plants in Textile mills**
Agency - SITRA, Coimbatore
Advantages- 20% saving of energy in Textile mills through Energy efficient automatic control system for overhead cleaners
- **Design & development of optimized energy saving control systems for overhead cleaners used in Textile mills**
Agency - SITRA, Coimbatore
Advantages - 20% saving of energy in Textile mills through Energy efficient automatic control system for humidification plants.
- **Design and development of Energy efficient tunnel kiln for white ware Industry**
Agency: RDCIS, SAIL, Ranchi
Advantages: 20- 25% fuel saving, reduction in GHG emission, better quality of product
- **Biogas fuel from Jatropha curcas seeds as an alternative to kerosene/LPG**
Agency : S R E Research Institute, Sangli (Maharashtra)

Advantages : By using digesters; bio-gas shall be produced from *Jatropha curcas* seeds. Gaseous fuels are more energy efficient than their liquid counterparts; it would act as an alternative to LPG.

- **Estimation of fuel loss at New Delhi Railway station on Paharganj side**

Agency : CRRI, Delhi

Advantages : This survey would give an insight into traffic management. City planners would be benefitted in decongesting traffic flow and fuel saving.

- **Technology up-gradation of ceramic cluster at Khurja**

Agency : CGCRI, Khurja

Advantages : 15% Saving of energy through technology upgradation

- **Energy savings through the use of roller head jigger in fabricating pottery wares at Khurja**

Agency : CGCRI, Khurja

Advantages : Reduction in fuel consumption by 5-8%, reduction in the cost of production and increase in quality of product.

- **Estimation of fuel loss during idling of vehicles at selected intersections of Delhi**

Agency : CRRI, Delhi

Advantages : This estimation of fuel-loss at select intersections would give an important input for better traffic management and fuel saving.

- **Feasibility study for constructing new rail over bridges and rail under bridges**

Agency : CRRI, Delhi

Advantages : This study would supplement the above two studies, it would suggest a way out for traffic decongestion and fuel saving.

- **Educating and reskilling of decentralized power loom Owners/workers in better lubricant handling techniques and also develop a centralised lubrication system suitable for power loom in Textile Industry**

Agency : Bombay Textile Research Association, Mumbai

Advantages : 20% saving of lubricants.

- **Development of energy efficient and multi - fuel-cooking stoves.**

Agency : IIT, Guwahati

Advantages : 10-15% saving of kerosene.

- **Installation of energy efficient durable improved cook stoves in the rural areas**

Agency : M P University of Agriculture & Technology, Udaipur

Advantages : Fuel wood saving & reduction in emissions.

EDUCATION CAMPAIGN

PCRA endeavours to sensitise people on the need for conservation of petroleum products in a number of ways. The activities of Education Campaign include :

- Development of promotional material in the form of Booklets & Leaflets in the Industrial, Transport, Agriculture and Domestic sectors developed through extensive research.
- Production of Films/TV spots & cassettes for educating Industrialists, Vehicle Users, Gram Panchayats, Housewives & School Children.
- Posters, Stickers etc. specially designed for Vehicle Users, Villages, Housewives & School Children.
- Press publicity in English, Hindi & Regional languages.
- Outdoor publicity through Kiosks, Electronic Display Boards etc.
- Education through Internet and PCRA Website.

Journals

- PCRA publishes a quarterly journal "Active Conservation Techniques" (ACT) containing articles and papers on energy efficiency improvement, environment protection, R&D initiatives, energy audit success stories, special studies for petroleum conservation, alternative fuels, renewable sources of energy, implementation efforts for new technologies and case studies. Technical experts within and outside the organization contribute the articles.
- Knowledge sharing of Energy Saving efforts by different institutions through lecture series.

OIL & GAS CONSERVATION FORTNIGHT

Since 1997, every year, PCRA organises the Oil and Gas Conservation Fortnight (earlier Oil Conservation Week till 1996) throughout the country with the support of the oil industry. During OGCF sectoral activities & mass awareness campaigns are undertaken in the industrial, transport, domestic, agriculture and commercial sectors. Awards are given to Large, Medium & Small industries, State & Regional Level Coordinators, State Transport Undertakings, Energy Auditors, Upstream & Refining oil companies for outstanding performance in oil conservation activities. The State/National level Essay Competition Awards for students & teachers are also given.

INNOVATIVE ACTIVITIES

- Constitution of Transport Advisory Committee to identify potential areas of fuel savings in transport sector
- Projects sponsored on CRRI to estimate fuel loss during idling of vehicles at selected intersection at Delhi, feasibility study for Railway over/under-bridges and a study for estimation of fuel loss at New Delhi Railway Station due to traffic congestion
- Initiating projects under urban energy management through Municipal Corporation and Traffic Department in Delhi

INTERNATIONAL NETWORKING

PCRA has established linkages with several international agencies to exchange ideas, information and share experience on energy efficient technologies. PCRA has taken several initiatives to facilitate transfer of technology particularly in the case of SMEs to help them overcome barriers that include shortage of funds, technical assistance etc.

PCRA has signed a Memorandum of Understanding with Energy Conservation Centre Japan (ECCJ) on 29.06.06 for mutual cooperation in promoting Energy Efficient Technologies in various sectors of the economy. This MoU is a result of the overall India-Japan cooperation agreement which was signed by the Ministry of Petroleum & Natural Gas of the Government of India and Ministry of Energy, Trade and Industry of Government of Japan.

STRENGTHS

- 30 years of expertise in energy audits
- Highly competent manpower
- Low cost resources both human and infrastructural
- Vast experience in creating mass awareness through electronic, print media
- Successful R&D efforts and expertise in developing products
- Experience in working with NGOs and other grass-root level agencies
- Conducting training programs in industrial, transport, agriculture, domestic and commercial sectors
- ***PCRA has received Accreditation as a Certified Energy Auditing Agency from the Bureau of Energy Efficiency in terms of the Energy Conservation Act 2001 and has several certified Energy Auditors in its team***

FUTURE THRUST AREAS

- Energy Audits, Driver Training Programs, Institutional Training Programs on chargeable basis
- Commercialisation of R&D projects
- Promotion of alternate sources of energy
- Promotion of EnCon clubs for enlisting youth participation
- Marketing expertise in the country and abroad
- Development of vocational & industrial films
- Energy efficiency practices in urban sector

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OUR VISION

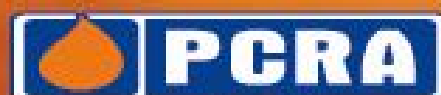
To become a centre of excellence for conservation of hydrocarbons and environment protection for sustainable development on our inherent strength

OUR MISSION

Efficient energy utilisation & environment protection leading to improvement in quality of life

OUR OBJECTIVES

- To formulate strategies and promote measures for accelerating conservation of petroleum products leading to environment protection, energy, security and sustainable development.
- To create awareness among masses about the importance, benefits and methods of conserving petroleum products and clean environment by enhancing information and capacity building.
- To promote research, development and deployment efforts aimed at petroleum conservation and environment protection, support and facilitate efforts for adoption and dissemination of fuel efficient technologies and substitution of petroleum products with alternate fuels and renewables.
- To establish synergistic institutional linkages at the national and international levels in the areas of petroleum conservation and environment protection.
- To provide training and technical advisory services, designed to achieve economy and efficiency in the use of petroleum products for cleaner environment.
- To function as a 'Think Tank' to the Government of India for proposing policies and strategies on petroleum conservation and environment protection aimed at reducing excessive dependence on oil.



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**CERTIFIED ENERGY AUDITING
AGENCY UNDER ENERGY CONSERVATION ACT 2001**