

Empowered Children for Power Conservation: an Initiative to Establish Teams of Bal Urja Rakshak Dals (Children as Energy Guards) in the State of Gujarat, India

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Abstract

The *Bal Urja Rakshak Dal* Program (BURD) is an ambitious program to mobilize children as energy guards. The program is designed to help students, teachers and acquire *energy skills as life skills*. The program encourages energy guards to take on the role of energy leaders in their homes, schools and immediate community. In the initial year the program will build the capacities of 2,00,000 students in the secondary and higher secondary classes, who as young energy consultants will conduct energy audits and provide voluntary services in their school and community that can help to save energy.

Keywords school energy education, children as energy guards, capacity building, energy conservation, power theft

1. Power Scenario in Gujarat: Program Rationale

Gujarat, the western state of India, is one of the most developed and industrialized states in the country. The per capita consumption of electric power in Gujarat is 932 units as compared to the country per capita consumption, which is 400 units (Gujarat Electricity Board, GEB Diary, 2004). Though the state is 100 percent electrified, (installed capacity is 8576 MW, March 2003) (GEB, 2004) villages cannot count on a reliable and continuous electric power supply. Power deficit in the state is growing at the rate of 12-13 percent-the deficit in 2002-03 was 1297 MW (GEB, 2004).

The power consumption profile of the state has changed significantly in the last few decades; specifically noteworthy is the growing power demand for irrigation. Electric power consumption for agriculture has grown from 15 percent about two decades ago (Rural Energy Surveys, Gujarat Energy Development Agency, GEDA, Vadodara) to 49 percent (2002-03) (Ministry of Power, GOI, 2003-4), industry follows with 27 percent, the residential sector accounts for 10 percent, commercial sector consumes 3 percent and the other sectors add up to 11 percent of the total electric power consumed in the state. This power consumption profile closely ties up issues of electricity and water conservation as water tables in several dark districts in the state have sunk 1200-1500 feet below ground level (GIDB, 2002).

In the post-liberalisation era, the state has been witnessing rapid industrial growth, resulting in a quantum jump in the demand for electric power. While the State must go all out to

augment the supply of power, one has to note certain basic constraints (GEDA, 2003) that the State has to live with:

- Constraints of local fuel resources like lignite coal and hydel
- Difficulties in getting coal linkages for the power plants
- Long distances from the coal pithead
- Social obligations like large subsidies to the agriculture sector, streetlights, drinking water supply and electricity connections to urban and rural households.
- The sector has suffered chronic under investment in power infrastructure, resulting in generation shortages and an inadequate transmission and distribution grid network to ensure adequate and reliable power services.

Nearly 70 percent of the power generated in the state comes from thermal power plants that obtain the fuel coal from the eastern states of Bihar and Jharkhand -1500-1700 kilometers across the country. This makes coal a costly fuel; electricity tariffs are high in Gujarat as compared to the rest of the country (GEB, 2004).

Gujarat State Government has realized the importance of energy conservation as a major thrust of the power policy of the state. Several systems have been put into place to encourage energy conservation and provide disincentives for inefficient use of energy. Encouraging power generation through renewable sources of energy is also one of the policy initiatives, as the state has rich non-conventional energy resources.

Power theft, ‘missing units’ is another major problem in this state, as it is for the rest of India. Transmission and distribution losses in some states in India still hovers around 40 percent (Indian Infrastructure, 2004). The losses are mainly due to illegal connections, tampered meters and unlawful consumption of power. In fact much of the power theft is hidden as farming sector subsidies. Not to be left behind, many industrialists indulge in power theft by liaising with the staff of state electricity boards. Of the total electricity generated in India, only 41 percent is paid for, considering technical losses, power theft and subsidies!(TOI, 2004). While the national capital, the state of Delhi tops the ‘missing units’ charts (T&D losses 47.45 %), according to recent data, T&D losses in Gujarat for the year 2003-04 was 28.66% (Indian Infrastructure, 2004). The state utilities financial burden runs into several crore rupees. Various revenue collection programs have been enacted in states in India in an effort to curb the growing problem of energy theft – and results have generally been excellent.

These include a scheme introduced by the Gujarat Electricity Board, (GEB) which calls for voluntary declaration of power theft. Other measures include replacement of faulty meters and plans to check every meter in areas where transmission and distribution losses are more than 30%. The GEB has formed several vigilance teams to curb revenue loss. Other states have enacted anti-theft legislation, under which provisions have been made more stringent, including imprisonment of those found guilty of stealing electricity. Utility employees are included in these provisions – they can be charged with collusion with consumers (GEDA, 2003).

The program comes at a time when the power sector in the country is in the process of significant overhauls, facilitated by the Electricity Act, 2003. The act has accelerated the pace of reforms. It has enabled a market-based regime in the power sector through

progressive moves such as delicensing of generation, free captive generation and open access for transmission and distribution. Gujarat is one of the latest state forming separate generation and distribution companies (Indian Infrastructure, 2004).

2. Bal Urja Rakshak Dal: Children as Energy Guards

Gujarat State Electricity Board (GEB) and Gujarat State Energy Development Agency (GEDA), the state nodal agency for the promotion and popularization of renewable sources of energy and energy conservation have launched an ambitious program, the *Bal Urja Rakshak Dal* (BURD), literally ‘teams of child energy guards’. The objective of the program is to mobilize children as *Urja Rakshaks*, energy guards, who as energy leaders will motivate *responsible, rational, and restrained* use of energy in their homes, schools and community by encouraging *right* energy choices. Energy guards would reach out to the community to promote best practices in energy conservation, energy efficient technologies, renewable energy alternatives and ethical use of energy.

The program is designed to tap the children’s potential as persuasive and powerful agents of change in their immediate community, and builds on the fact that energy values and habits that promote a sustainable future need to be inculcated in the young through experiential learning. Appropriate learning resources, real world experiences and community action projects would broaden the students understanding of energy issues and energy choices, in the wider techno-economic, social, environmental and ethical contexts. The program experience would enable children and teachers acquire *energy skills as life skills*.

The BURD program evolved from the overwhelming response of children to a statewide “Catch -the-Culprit” Competition (November 2003) organized by GEDA and GEB as an experiment to involve children in the campaign against power theft. The competition saw the participation of 1000 schools and 10,000 children. Children participated in 4 contests: elocution, poster design, honest power consumer pledge collection drive, and ideas on strategies to check the menace of power theft. The participating children reached out 100,000 people through their ‘I promise to be an honest power consumer because...’ pledge drive. The posters designed by children visualised power theft as a venomous snake that had gripped the state of Gujarat, a monster that threatened to plunge the state in darkness.

Some of the suggestions to check power theft suggested a positive role for children as energy guards; who would ensure that the thieves could not escape the net cast by them to catch the culprits. Through their posters and their elocution they admonished power thieves, politicians and their own parents, employees of the state power utility who were suspected to be supporting illegal power connections and meter tampering. Some interesting technological suggestions included selling prepaid electricity, as is done for mobile phones and distribution lines with loud burglar alarm systems. Special courts to try power thieves and public denouncement to shame power thieves were also suggested.

This ambitious program design has evolved from more than two decades of sustained efforts by GEDA to create an energy literate citizenry in the State that included energy camps for children, educational energy fun fairs, development of scientific folk tales to make energy education culturally appropriate for tribal children, development of a mobile renewable energy demonstration van, games and activities such as simulated energy-wise

shopping, green building design, treasure hunt to ‘catch the sun’ and several educational publications for teachers and children. However most of these programs were in the nature of pilot runs with a limited outreach. The need was felt to design a mass outreach program with a sustainable impact.

3. The Program Circuit

The Bal *Urja Rakshak Dal* program launched in June 2004, has mobilized 1000 schools, each with 20 energy guard volunteers, drawn from class 7-11(secondary, higher secondary and in some instances, higher primary). Two teachers, *Urja Agevans* (*energy leaders*) and an *Urja Mitra* (*energy friend*) drawn from the community would mentor the young energy guards. The State *Urja Rakshak Dal* force now comprises 20,000 children, 2000 schoolteachers, 1000 community energy friends, and 44 *Urja Saarthis* (a nomenclature inspired by the master charioteer, *Lord Shri Krishna*, in the epic, *Mahabharata*, who drove the brave Arjuna’s chariot in the epic battle) drawn from 15 local partner agencies involved in science and environment education. The *Urja Saarthis* are being trained as champions to mentor the program at the ground level. An attempt has been made to ensure equitable distribution of the 1000 schools participating in the program across all the 25 districts of the state with an inclusive urban, rural and tribal school participation plan. As this is the launch year and program infrastructure is being put in place to facilitate the activities of the *Urja Rakshaks*, the program round will conclude in August 2005 with a felicitation of outstanding *Urja Rakshaks*. In the subsequent years it will be a one-year program running in concurrence with the school calendar (June to April). Children will however be encouraged to enroll in the program for a three-year period, with increasing levels of responsibilities and expertise. A special effort has been made to enroll girl students as energy guards. Some exceptional teams of energy guards include physically challenged children.

4. The BURD 8-point Action Plan

The BURD mission will find expression through an 8-point action plan designed to build the children’s analytic, organizational, leadership and energy skills. The program is designed to demonstrate that the power of change lies with the individual; even small and insignificant change-encouraging actions, when repeated diligently, with tireless consistency, grow into dominant trends that can transform our world with an almost effortless energy.

The program would be launched in the field with a celebration of National Energy Conservation Day (celebrated on December 14) in each of the participating schools. *Urja Rakshaks* would involve their entire schools through the celebration of *Urja Din* (energy day). Each school would design its own celebration and wherever possible involve parents and the community in the celebrations. Celebration activities could include exhibitions, learning fairs, public rallies, presentations and street theatre.

Children will be encouraged to become *energy consultants*, and conduct energy audits and draw up energy saving plans in their home, school and community as part of the *energy-wise home*, *energy-wise school* and *energy-wise community* activities. They would follow the impact of their saving plans through the year and assess the outcome of their efforts in

terms of actual energy saved. They school energy guard team would conduct energy audits in 30 homes, including their own homes and 5 energy audits in the community, which could include a small commercial establishment, a government or civic body office or even do a farm survey.

Though power theft is a legal offence, the common consumer does not consider it a serious crime. Children would raise awareness about the menace of power theft through the “*Honesty is Power*” campaign.

Energy Guards will provide *Urja Seva* - voluntary energy services in their neighborhood such as cleaning of light bulbs, defrosting neighbour's refrigerators, planting trees, teaching people how to read their energy bills and white washing their roofs pre-summer. They will tie-up with local electricians and other technicians to service old appliances such as fans, solar cookers, solar water heaters or replace washers of leaky taps. The *Urja Seva* is inspired by the Gandhian concept of *shramdan*, wherein great emphasis is given to contributing to institution/community development with one's physical labour.

Urja Rakshaks, would participate in elocution, poster design competitions and also conduct energy studies (small research projects) on local energy issues in their neighborhood. They would also maintain an energy scrapbook, wherein they would reflect on energy issues, pen down catchy slogan ideas, write essays, draw, doodle or even write poems. Several prizes and awards would be given to the participating schools, teachers and children to encourage them to excel. The year's activities would culminate in an *Urja Utsav* (energy celebration/carnival).

Media campaigns have also been planned to provide the *Rakshak Dals* recognition and support from the community. Schools participating in the program are also being encouraged to network with each other and undertake collaborative endeavours to multiply the efforts manifold.

5. Training and Capacity Building

The *Urja Rakshaks* would be groomed and mentored by their teachers. The sensitization will culminate in a pledge to the cause of save energy-save environment. On completion of their training children will be provided BURD insignia (a badge, cap, scarf and identity card) to instill a sense of belonging and recognition. Each participating school is being provided a small fund Rs.1000 (\$ 25) for petty expenses related to the program.

About 50 local sensitization programs would be conducted, throughout the state during December 2004, for 2000 teachers from participating schools. The training would be conducted at the regional Community Science Centres, (selected as local project partners because of their close association with schools in several scientific activities) by *Urja Saarthi*-master trainers, trained intensively by GEDA for the program. The capacity building is designed to achieve a mass multiplier outreach with a minimum infrastructure and a small-dedicated team of core trainers. The emphasis is on developing a replicable and affordable system that can be sustained. The *Urja Saarthi* have been groomed through a series three 4-day, capacity building modules to empower them to knowledgably interact with teachers and mentor the program at the school level. Their training has included socio-political, techno-economic, and ethical issues related to energy policies at the state level and energy choices at the individual level. They have also received inputs in leading a

group, participatory training, communication and presentation skills and program management. Our group of *Urja Saarthis* includes fresh graduates, trained teachers, science communicators, community workers and retired teachers. The greatest challenge so far has been to sustain the commitment of *Urja Saarthis*, as they are not on the pay roll of the agency or dedicated exclusively to this program.

GEDA is also supporting the students and teachers with teaching ideas, promotional resources and information and activity kits focusing on specific energy conservation, renewable energy and power theft issues. The BURD members in Gujarat will network through:

- Circuit Times, The Positive Energy Channel: Quarterly Newsletter of the *Bal Urja Rakshak Dal* program
- Urja Talk: Innovative ideas to bring energy into the classroom, annual publication targeted at teachers
- BURD Website, under construction: www.urjarakshak.com

6. Program Partners

The program has the active support and funding of all the 8 power players (utilities) in the state - State and Independent Power Providers. A project fund of INR 1 crore, (10 million rupees, which is about US \$22,000) has been provided by the funding partners, with the state utility taking the lead in providing the funds and facilitating the program. The program has the active support of the Government of Gujarat, and the personal attention of the Gujarat state Chief Minister and the Minister of Energy, who have been periodically reviewing the program progress and providing their inputs.

The program is being closely coordinated with the Education Department of the state to facilitate the cooperation of the school authorities and thereby enable the active participation of the schoolteachers leading the program. They will be provided leave on duty and travel allowances by their school for training and other activities related to the program. Inputs regarding the BURD program and related energy issues would also periodically provided to teachers in training at the PTC (Primary Teachers College) and B.Ed (Bachelor's of Education) program. This will systematically introduce energy issues and the program into the school system.

• Extended Outreach: Network with Eco Clubs

The outreach of the program will be significantly extended as the recent dialogue with 3750 schools enrolled in the National Green Corps (NGC) (MOEF, GOI, 2001) program, (initiated by the Central Ministry of Environment and Forests, Government of India) has resulted in their commitment to the BURD 8-point action plan. Almost 1,75, 000 students of the Eco-clubs formulated as part of the NGC program will work as *Urja Doots*, energy messengers, and reach out to their homes, schools and immediate community. The teachers in-charge of the school Eco-club activities will be provided necessary sensitization through the Eco-Club network of master trainers. They would also be provided a set of the information package. It is also proposed to initiate dialogues with the Girl Guides and Boy

Scouts program and enthuse them to include the BURD mission in their mandate and community activities.

8. Feedback, Monitoring and Evaluation

The energy guards would record their experiences in a specially designed *Rakshak Diary*, which will provide an intimate first-hand feedback of the program from the perspective of the participating students. A robust reporting, monitoring and evaluation system has been designed to provide feedback from all the stakeholders, and identify strengths and shortcomings of the program design including the initiatives to build local capacities. A few in depth case studies will be done of interesting team efforts by the energy guards. Local events organized by *Urja Rakshaks* will also be documented.

9. Sowing the Seeds of Energy Change Everywhere

As the program gains credibility it is proposed to target 5000 schools in the state. Greater emphasis will be given to renewable energy, environment and water conservation and energy conservation in farms and fields. Schools who have earlier participated in the program will be encouraged to mentor new entrants (schools in the vicinity) to the program. Several municipal corporation funded schools and rural and remote schools often do not have reliable and adequate energy supply or basic amenities such as adequate lighting, fans or educational equipment. Elite schools participating in the program will be encouraged to adopt such schools and help to equip/ retrofit such disadvantaged schools from the funds generated by their energy savings efforts. It is also proposed to design a basic program to involve primary school children. Initiatives to branch out the in the community with the formation of *village level power saver teams* and *Gram Deepika* teams of enlightened women energy savers are also being planned.

Acknowledgements

Project Funded by: Gujarat Electricity Board, Gujarat State Energy Generation Limited, Gujarat State Energy Corporation, Gujarat Industries Power Company Limited, Gujarat Paguthan Energy Corporation Private Limited, Essar Power Limited, Ahmedabad, Electricity Company Limited, The Surat Electricity Company Limited.

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