
UNIT 5 RURAL ELECTRIFICATION AND ENERGY

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5.0 OBJECTIVES

After reading this unit, you should be able to:

- outline the energy needs of the rural people;
- explain: i) the initiatives taken by the Government for implementing country-wide rural electrification programme(s), ii) the issues related to rural energy planning and the implementation of energy programmes and iii) the efforts put in by the Government to ensure access to energy by all the people for their basic needs;
- analyze critically the importance of integrating rural energy plans for purposes of sustaining the energy programmes in the long run; and
- describe the role of energy in the all round development of the rural areas.

5.1 INTRODUCTION

Rural Electrification was taken up in India as a planned programme as early as 1951, in the First Five Year Plan itself. Since then, a large section of the rural population has received the benefit of electricity both for domestic and farming activities. A large number of villages and households in the country, however, are yet to be electrified. This unit aims at giving you a broad overview of the energy plans and the different energy related programmes using both the conventional and the non-conventional energy resources with special emphasis on meeting the energy needs of the vast majority of the population living in rural areas. The first section following the *introduction* presents details about the growth and progress of the Rural Electrification Programme in India and the issues facing the programme in meeting the objective of providing “**Electricity for All**” in the country. The next section gives you the details of the role of non-conventional energy programmes, especially in rural areas. The subsequent section, presents an analysis of the people’s participation in the programme through the involvement of village level local bodies like panchayats, rural co-operatives etc. and that of the integration of different rural energy programmes. With the beginning of the Tenth Plan, the rural electrification programme was taken up under the Pradhan Mantri Gramodaya Yojana (PMGY) along with the other basic minimum services like drinking water, shelter, health, nutrition, elementary education, etc. The unit also discusses details of the funding available for and the other aspects concerning the rural energy programme.

5.2 RURAL ELECTRIFICATION: PROGRAMMES, COVERAGE AND PRESENT STATUS

Energy is the basic input both for subsistence and productive activities in rural areas. Basic activities like cooking, lighting and heating require efficient and eco-friendly energy supply sources in rural households so as to ensure the availability of a clean and convenient form of energy. The energy supply programmes should be sustainable in the long run as well as affordable by the poorest of the poor. Electricity is one such major source, the availability of which can bring tremendous changes in the quality of life in rural areas. That is why the programme of Rural Electrification assumes significant importance all over the world, both in the developed and developing countries. Electricity in rural areas covers both household and “productive” uses. Minor irrigation through the exploitation of ground water using electric pump-sets is one such productive application of electricity in rural areas. To meet the basic needs like cooking, lighting, etc. it is important to harness energy from the locally available energy sources like biomass, crop residue, firewood, etc. by employing suitable energy conversion techniques in the most efficient and environment friendly manner. The abundant solar energy available in the country can be suitably converted to heat and electricity to meet the end-use applications such as cooking, heating and lighting. The small hydro potential available in rivers, canal drops and hilly terrains is highly suitable for conversion to electrical and mechanical energy.

The rural electrification programme is viewed as a prime mover for rural development. Electricity is not only the basic pre-requisite for industrialization, but it also contributes significantly to increasing the agricultural productivity and other job and income generation activities, besides enhancing the quality of life in rural areas and controlling migration from rural to urban areas. Electricity, therefore, is classified as a basic amenity along with housing, drinking water, health and education. All the rural infrastructure programmes, which pertain to these basic amenities, have been brought together under one umbrella called Pradhan Mantri Gramodaya Yojana (PMGY). The time-span in which the objective of “Electricity to All” can be achieved will depend on the priority assigned to this objective, the resource allocation, political will, the administrative skill and active interest of all the agencies concerned and the people associated with the economic development of the nation.

As per the 2001 census, there are 587258 villages in the country, of which 514545 villages (about 86%) were electrified by the end of March 2003. As many as 11 states in the country have completed 100% village electrification and another 6 to 8 states are on the verge of achieving complete electrification. These achievements, however, are to be viewed in the light of the earlier definition of village electrification— ‘a village was declared electrified if electricity was used for any purpose *within the revenue boundary* of that village’. This definition was modified subsequently, and now a village is deemed to be electrified if electricity is used in the inhabited locality, within the *revenue boundary* of the village, for any purpose whatsoever. The above two definitions have been further modified to bring in clarity. According to the latest definition, *unless 10% of the households in a village are electrified*, the village can not be declared as electrified. In the context of overall economic development of the country, the above definition too needs modification. Efforts are on to include some other criteria, like a certain minimum percentage of the households being electrified, generation of gainful economic activities in the area, etc., as the necessary conditions on the fulfillment of which a village would be considered electrified. As per 2001 Census, the all India average of rural households electrified is only 43.5%. A significant proportion of the rural households depend on the use of kerosene as the source for lighting in their homes. The Table below gives the details about the distribution of households by the source of lighting.

Table 5.1: Distribution of households by the source of lighting

Source of Lighting	Total Households	%	Rural Households	%	Urban Households	%
Electricity	107,209,054	55.8	60,180,685	43.5	47,028,369	87.6
Kerosene	83,127,739	43.3	76,896,701	55.6	6,231,038	11.6
Solar energy	522,561	0.3	394,425	0.3	128,136	0.2
Other oils	184,424	0.1	146,165	0.1	38,259	0.1
Any other	305,308	0.2	227,210	0.2	78,098	0.1
No lighting	614,849	0.3	426,373	0.3	188,476	0.4
Total	191,963,935	100.0	138,271,559	100.0	53,692,376	100.0

Source: Table H-9: Census of India 2001.

Earlier, the Government of India initiated a programme called Kutir Jyoti to extend electricity to the poor (Below Poverty Line) rural households and launched it in 1988-89. The programme continues till date and has covered nearly 51 lakh households so far. It envisages single point light connections to the BPL households, including the *harijan* and the *adivasi* households. The pattern of funding for Kutir Jyoti is given in section 5.5.

Widespread crop failures during the two consecutive years (1965-67) of drought, focused attention on the urgency of providing institutional credit to farmers and to achieve self-sufficiency and security with regard to food by increasing production through assured irrigation using agricultural pump-sets. This led to the establishment of the Rural Electrification Corporation (REC) as a fully Government owned Company in 1969 to finance rural electrification schemes of State Electricity Boards (SEBs). Further, its role is to promote and finance Rural Electric Cooperatives and to administer the money received periodically from the Government of India and other sources for financing rural electrification projects. The main activity of REC has been to energize pump-sets to support agricultural production. The latest estimate of pump-sets in use in the country is about 19.5 million of which around 13.8 million were energized up to the end of March 2003. There are about 4.5 million diesel pump-sets also in operation. In addition, REC finances technically sound System Improvement projects with the twin objectives of reducing energy losses and improving the quality of supply and consumer satisfaction.

The current status of village electrification indicates that even as per the prevailing definition, there are around 80,000 villages yet to be electrified and of these roughly around 18,000 are located in remote, difficult and hilly terrains including those in deserts and islands. Such remote villages cannot be electrified by extending the reach of the conventional electricity grids, because of the high cost involved as well as the difficult terrain of such remote places. Even in the case of villages electrified by conventional grids, extension of long low tension (LT) electricity distribution lines results in increasing transmission and distribution (T&D) losses leading to low voltage supply at the tail-end of the line, where the consumers' loads are connected. There are many cases of irrigation pump-set motors getting burnt due to low voltage conditions at the load end. Efforts are being made to identify and electrify those remote villages through non-conventional and locally available decentralized energy sources like solar energy, small hydro projects, biomass, etc.

Check Your Progress I

Note: a) Use the space provided for your answers.

b) Check your answers with the possible answers provided at the end of this unit.

1) State whether the following statements are true or false and correct the false ones:

- i) Although 86% of the villages in the country are electrified the rural households electrified are less than 50%.
- ii) More than 55% of the rural households in the country depend on kerosene for lighting.
- iii) Extending long distribution low tension lines would reduce the transmission and distribution losses.

2) List the main reasons for the limited use of electricity in rural areas in spite of the fact that we have already electrified 86% of our villages.

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5.3 NON-CONVENTIONAL ENERGY FOR RURAL AREAS

Non-conventional energy does not necessarily mean energy for rural purposes, as these energy sources find applications in a host of other activities including electronics, telecommunication, space science, defense, transport, industries and other urban uses. It is not wrong, however, to think that these energy sources, in view of their inherent merits to suit such needs, are more suitable to meet the local energy needs in remote rural areas far away from cities and towns. Large quantities of animal dung and crop residue available in villages would enable us to generate biogas mainly to meet cooking needs. Conversion of the available abundant sunshine into electricity would serve the purpose of lighting the rural households. Solar cookers and solar water heaters could be effectively deployed to provide energy for cooking and heating. Agricultural and municipal wastes could be scientifically processed to tap their energy content to be utilized in a variety of activities. These energy conversion and utilization devices could be manufactured not only of smaller sizes to meet the individual households, but also of larger sizes so as to meet the energy needs of the community as a whole. Further, with a proper educational and training component built into these programmes, there is enough scope to create employment opportunities, such as installation, maintenance and repair works, for the rural youth. Last, but not the least, these programmes would prevent environmental degradation, arrest deforestation, stop migration of rural people to urban areas in search of employment and also empower the local institutions like village panchayats, cooperatives, NGOs, etc. to achieve self-reliance in the rural energy sector.

Rural Energy Scene

More than 60 per cent of the Indian households depend on traditional sources of energy like fuel wood, dung and crop residues for meeting their cooking and heating needs. Of the total rural energy consumption, about 65 percent is met from fuel wood. Fuel wood consumption during 2001-02 was estimated at 223 million tones, 180 million tones of which was for household consumption and the balance for cottage industry, big hotels, etc. The consumption of animal dung and agro-waste was estimated

at 130 million tones, which does not include the wet dung used for biogas plants. It is assumed that the wet dung used as manure is being diverted to biogas plants as these plants, in addition to providing cleaner fuel, also supply enriched manure. The Table given below shows the pattern of the consumption of different fuels for cooking in the households in India.

Table 5.2: Pattern of fuel used for cooking in India

Fuel	Urban Population	Rural Population	Total Population
1. Fire-wood	22.7%	64.1%	52.5%
2. Crop residue	2.1%	13.1%	10.0%
3. Cow dung cakes	2.0%	12.8%	9.8%
4. Coal, lignite, charcoal	4.6%	1.1%	2.0%
5. Kerosene	19.2%	1.6%	6.5%
6. LPG	48.0%	5.7%	17.5%
7. Electricity	0.3%	0.1%	0.2%
8. Biogas	0.4%	0.5%	0.4%
9. Any other	0.2%	0.8%	0.6%

Source: Census of India 2001.

In 1980, the Government of India embarked on an initiative to identify and promote the use of non-conventional and renewable energy sources in a planned manner. In order to meet the initial higher costs and to ensure that the rural people can afford to obtain the benefits of the programme, fiscal/financial incentives and capital/ interest subsidies are being provided. India is the only country in the world to have an exclusive central Ministry called the Ministry of Non-Conventional Energy Sources (MNES) to implement such programmes.

Institutional Finance by Indian Renewable Energy Development Agency (IREDA)

The Indian Renewable Energy Development Agency (IREDA), a public sector financial institution under MNES, was established in 1987. IREDA plays the role of a developmental financial institution in the renewable energy sector reaching out to individual users with micro credit provided through financial intermediaries.

Table 5.3 below gives the available potential and the actual exploited potential of the major renewable energy sources till 31.03.2003.

Table 5.3: Renewable Energy Sources Potential and Achievements

Source/Technology	Units	Potential/Availability	Potential exploited (as on 31.3.2003)
Biogas Plants	Million	12	3.52
Biomass-based power	MW	19500	537.30
Efficient wood stoves	Million	120	35.20
Solar Energy	MW/Sq.m	20	2.50
Small Hydro	MW	15,000	1519.28
Wind Energy	MW	45,000	1870
Energy Recovery from Wastes	MW	1,700	25.80

Source: Annual Report 2002-03, MNES, The Government of India.

As seen from the details above, the achievements are only marginal in comparison with the potential available. There are various issues and constraints facing these programmes ranging from the higher initial cost of the renewable energy installations to the institutional setup required to implement the programmes at the grass roots level. Unless the programmes are suitably linked to the different components of rural development like housing, water supply, health, education, employment, environment, etc., energy programmes in isolation would not succeed in mobilizing the needed financial resources and improving the quality of life in rural areas. In addition, the programmes should be demand-driven, instead of being supply-driven as at present, when individuals are targeted and given different energy devices/gadgets involving significant amounts of cash subsidy. A village, a block or a district has to be treated as a single unit and based on the present energy consumption pattern, determined through energy surveys conducted for this purpose, the energy requirements for different end-uses need to be assessed. The locally available energy sources, including both the conventional and the non-conventional ones, are to be identified and micro level energy plans are to be prepared. These plans are to be appropriately dovetailed with the overall energy plan of the area concerned and that of the country as a whole. In implementing the micro level plans/programmes people's participation is to be ensured by engaging village level institutions like panchayats, cooperatives, NGOs, private entrepreneurs, etc. In other words, an integrated approach for the preparation and implementation of the rural energy plans is necessary for the success of rural energy programme.

The following section gives details about the Integrated Rural Energy Programme (IREP) and its management.

5.4 INTEGRATED RURAL ENERGY MANAGEMENT

As discussed earlier, a provision for efficient, clean and environment friendly energy supply systems to meet the energy needs of the rural people is essential in every village, so that various programmes taken up under rural development become meaningful. Energy is one of the most important ingredients of successful rural development. It not only meets the basic needs of cooking, lighting and heating, but is also instrumental in triggering economic activities, creating employment opportunities and increasing income levels of the people. Indirectly, it will help in achieving better standards in health, education, communal harmony, law and order, etc. in rural areas. To achieve this objective, the different energy programmes under implementation have to be integrated and managed at the grass roots level. If these programmes are taken up in isolation without any coordination among the agencies concerned, their implementation cannot result in any economical and sustainable solutions for the rural energy problems. Awareness should be created among the rural people about the harmful effects of indiscriminate use of the biomass available in rural areas. They should be educated about the unfavourable results of environmental degradation and health problems they face due to cooking in smoky kitchens. Women self-help groups have to be organized to discuss and find solutions for their energy problems. Village Panchayats and NGOs should play the role of grass roots level institutions to implement the government sponsored energy programmes. Rural Energy Cooperatives are to be formed to ensure people's participation in the energy programmes. Some initiatives have already been taken in certain regions of the country. For example, West Bengal Renewable Energy Development Agency (WBREDA) has set up a local cooperative model for remote villages and hamlets in the Sunderban Islands of West Bengal. This model demonstrates a matrix of relationship between a village committee, a local enterprise that is responsible for operations and maintenance and the owners of assets.

It has to be noted that the rural energy plans and programmes have to be formulated with the total involvement of the rural people. Centralized planning at the State or the

National level and implementation of programmes without the involvement of people, as it is done now, are not going to achieve the set objectives.

Integrated Rural Energy Programme (IREP) experience

With what has been said above in view, a pilot exercise was started in the Planning Commission, the Government of India, during the Sixth Plan in some selected states. The objective of this exercise envisaged development of area based rural energy plans on the basis of the studies on energy consumption pattern in these areas. Energy surveys were undertaken at the block level, since a block is smaller in size than a district, but larger than a village as it comprises a number of villages put together. Based on these surveys, rural energy plans were formulated and implemented by the State Governments concerned. Subsequently, the Integrated Rural Energy Programme (IREP) was expanded during the Seventh Plan to cover all the States and Union Territories (UTs). The Government of India provided the required financial assistance to the states for capacity building by establishing IREP cells. Support was also given to train the required staff under this programme through Regional Training Centres set up for this purpose. In 1994, during the middle of the Eighth Plan, this programme was transferred to the Ministry of Non-conventional Energy Sources (MNES) to be implemented along with the other programmes of the Ministry in all the States and UTs. Evaluation studies were carried out to assess the effectiveness of the IREP in solving the rural energy problems. What these studies have revealed is as follows:

- a) Assessing the local energy need and integrating the same with locally available energy resources to meet the local energy demand is the basic objective of any integrated rural energy initiative. IREP is a comprehensive demand-driven programme aimed at meeting the rural energy needs with an optimal mix of local and external energy resources on least cost basis. However, the program is operating in isolation with a limited budget that is spread over 860 blocks. The impact has been far less than originally envisaged. A significant part of the financial support is utilized in meeting the establishment costs.
- b) IREP should become the nucleus of all the non-conventional energy programmes of MNES, like those related with biogas, solar PV lighting, solar PV pumping, solar heating, solar cookers, biomass plants, etc. The states should be advised to allocate a specified percentage of the funds provided to them under the various programmes of the Ministry to IREP blocks to create a visible impact of what integrated rural energy programmes can deliver under distributed models. In order to encourage even greater integration, IREP should aim to leverage its scope and funding with the help of other funding schemes of State Governments under Rural Development programmes and the Central funding provided for the Rural Electrification Programme.
- c) With the primary objective of creating replicable success stories, IREP should be implemented in fewer blocks than the 860 blocks currently in its scope. It would be much easier to create success stories in a manageable number of blocks. These successes can then be replicated in other blocks to help mainstream renewable energy.

Based on the findings of the evaluation studies on IREP, this programme is being modified for implementation during the ongoing Tenth Plan. The main features of the modified IREP are going to be as follows:

District Rural Energy Plans

These plans would be based on surveys of the existing pattern of energy consumption and the assessment of various rural energy supply options with particular reference to renewable energy. These District Rural Energy Plans will be made available to all the concerned within the Ministry as well as the other Ministries concerned, such as Rural Development, etc. and also the State and District agencies.

Model Integrated Rural Energy Projects

These projects will be taken up at the micro level in 2-3 clusters of villages in each district. The model projects will attempt to integrate all the ongoing rural energy programmes of the MNES along with other rural energy programmes of other departments and agencies (e.g. Fuel-wood programme, rural electrification, various rural development programmes, etc.) and would subsequently serve as a model which can be replicated by other agencies, NGOs, private sector, etc.

5.5 FUNDING PATTERN

5.5.1 Funding for the Basic Minimum Services in Rural Areas

The Basic Minimum Services Programme (BMS) was launched in 1996 on the recommendations of the Conference of Chief Ministers held in July 1996. The strategy adopted for BMS was to concentrate efforts and resources on the BMS programmes to secure a better quality of life for people. The Government of India introduced a new budget head for providing additional funds (along with the funds provided by the States) to the BMS in the form of Additional Central Assistance (ACA). ACA for BMS was given as 70% loan and 30% grant to non-Special Category States and as 90% grant and 10% loan to Special Category States (numbering 11—7 North Eastern States, Sikkim, J&K, Himachal Pradesh and Uttaranchal). The Special Category States were given this special consideration because of the state of their present development as well as to overcome certain difficulties that are unique to hilly regions.

Rural Electrification Programme under PMGY

In order to achieve the objective of sustainable human development, a new initiative called Pradhan Mantri Gramodaya Yojana (PMGY) was introduced in 2000-01 bringing all the programmes covered under BMS under this initiative. Rural Electrification Programme has been included to be implemented as one of the components under PMGY with the beginning of the Tenth Plan, i.e. 2002-03. This shows the importance of Rural Electrification Programme, now seen as an essential component of the rural infrastructure. This initiative has enabled the Rural Electrification Programme to obtain concessionary funding as per the PMGY norms mentioned above, and the expectation is that the left out villages could be electrified before the completion of the Tenth Plan.

Liberalized funding to electrify remote villages

It has been roughly estimated that around 18,000 of the villages, not electrified so far, are located in remote locations like hilly terrains, deserts and islands, where it is not economically feasible to extend grid-based electricity because of the high cost of investment and the low density of user population. Accordingly, in order to meet the basic energy needs of the people for lighting, cooking and heating in these villages, alternative standalone systems using the locally available decentralized energy sources (like solar, biomass, small hydro and wind) are to be provided. Further, all these renewable energy systems are environment friendly. The technology needed and the manufacturing capacity for this purpose are already available in the country. However, the initial cost of these systems is quite high in spite of the absence of fuel costs and low costs of operations and maintenance. The Government of India, while getting the present status of rural electrification in the country reviewed by a Group of Ministers (GoM), has come out with a recommendation that the programme of installing renewable energy systems to electrify the remote villages could be supported by the Government of India by providing 90% of the cost of such installations as grants. This recommendation when implemented would go a long way in achieving the electrification of all the remote villages through decentralized energy sources by 2012. The necessary

budget provision has been made in the budget of MNES to electrify 5000 remote villages by the end of the Tenth Plan and complete all the remaining remote villages by the end of 2012.

Minimum Need Programme (MNP) component funds

The Government of India has continued with the MNP component of the Rural Electrification Programme since the Seventh Five Year Plan in order to electrify the left-out villages. Funds are provided by the Government directly to the States at concessionary rate of interest to be disbursed to the implementing agency of the programme.

Role of Rural Electrification Corporation (REC) in funding the RE programme

REC has recently started a scheme for funding concessionary loans to electrify the remaining villages or hamlets. The period of this loan is 13 years carrying a 3 years moratorium period. The annual rate of interest is 3% payable quarterly. However, if the scheme is successfully implemented within the stipulated time, then, even this interest would be waived and refunded to the borrower making this scheme an interest free one. There is yet another scheme for the electrification of *Dalit Bastis*. The objective of the scheme is to accelerate the process of electrifying these *Bastis* inhabited predominantly by Scheduled Caste/Tribe populations as identified by the respective State Governments. For funding this scheme, the loans carry an interest rate of only 1.00% with the same period of loan and moratorium as the main scheme. Here also, if the scheme is implemented within the stipulated time, the interest will be waived and refunded to the borrower.

In addition to the above soft loan schemes, REC continues to provide loans for the load intensification programme in electrified villages, system improvement to ensure quality and reliable electric supply and energizing of pump-set.

Funding pattern for Kutir Jyoti Programme

Under this programme, one time cost of internal wiring and service charges are provided by way of a 100% grant to the States through REC. The respective State Governments/SEBs are responsible for executing the target connections against which they receive grants from REC. After clearance by REC, 50% of the cost is released by REC to the State Governments/SEBs in advance and the balance amount is reimbursed on actual release of connections and submission of the list of beneficiaries. The size of funds under the programme has been increased, though with the proviso that all connections under the programme should be metered.

Accelerated Rural Electrification Programme

The Government of India has announced a new Interest Subsidy Scheme in the budget of 2002-03 and has approved the grant of interest subsidy of over Rs 560 crores under the Accelerated Rural Electrification Programme (AREP) during the Tenth Plan period. The AREP covers the electrification of un-electrified villages, hamlets/*dalit bastis*/tribal villages, and the poor households in villages. The interest subsidy will be provided to the State Government/Power Utilities on loans availed by it from financial institutions like REC, Power Finance Corporation (PFC), National Bank for Agriculture and Rural Development (NABARD), etc. for carrying out rural electrification programmes. Claims of interest subsidy for disbursements made during a year are submitted by the financial institutions to the Ministry of Power, which in turn reimburses the interest subsidy on the Net Present Value basis to the financial institutions.

Rural Infrastructure Development Fund

Funds for investment in rural electrification are also available under the Rural Infrastructure Development Fund (RIDF) operated by NABARD. Projects that can

be funded under the scheme include systems improvement including new transmission and distribution projects, as well as generation projects. Under this scheme, loan is provided by NABARD to the State Governments, who in turn may provide the same to the implementing body, which could be any agency including a State Government/ Public Sector entity, Private sector agencies including an Independent Power Producer (IPP), Captive Power Producer (CPP), etc. The projects must be submitted to NABARD through the State Government Finance Department. Three fourths of the outlay of the eligible items of the project can be financed by the loan under the scheme, while the balance one-fourth is to be borne by the respective State Governments. Loans are also provided by NABARD to entrepreneurs in the form of *refinance* through banks.

Funding pattern for IREP

In the budget of MNES, separate allocations are made to fund IREP. Central financial assistance of Rs. 5.00 lakh per State/UT level IREP Cell per year and Rs.10 lakhs per district level IREP Cell per year are provided regularly. For the implementation of the programmes, funds are provided in the budget of the State Plans.

5.5.2 Funding for the Programmes Implemented by MNES

MNES implements various renewable energy programmes including biogas, improved *chulhas*, solar lighting, solar cookers, solar water heaters, Solar PV water pumps, wind power, small hydro power, biomass power and cogeneration of energy from industrial and urban wastes, etc. These programmes are implemented through the state nodal agencies for energy development. The necessary budget provision is made in the Annual Plan of MNES to meet the expenditure on subsidizing the cost of the systems such that these devices are made available at affordable costs to the end users. Power generation from wind, small hydro projects, cogeneration, etc. are reaching the commercial stage, and for them the necessary promotional incentives like interest subsidy on the loans raised by the entrepreneurs are provided by MNES.

The Indian Renewable Energy Development Agency (IREDA) is a public sector financial institution under the administrative control of MNES. IREDA promotes the spread of renewable energy use in the country by providing market development outlets and soft loans on easy terms. IREDA has evolved into a unique developmental financing agency. It has sanctioned loans of more than Rs. 5,625 crores and disbursed Rs.2,964 crores so far. IREDA’s track record has helped it get lines of credit from the World Bank, the Asian Development Bank, and KfW of Germany (a German funding agency) for onward lending to the target groups to promote the deployment of renewable energy systems in India.

Check Your Progress II

Note: a) Use the space provided for your answers.

b) Check your answers with the possible answers provided at the end of this unit.

1) What benefits can be derived from the rural energy programmes?

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2) Name the innovative initiatives taken by the non-governmental sector under the rural energy programmes.

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5.6 LET US SUM UP

While going through this unit you have seen that for all-round development in the rural areas, availability of energy plays a vital role. Both subsistence and productive activities in the rural areas will not be possible without an integrated energy supply programme that can be sustained in the long run. Among various energy sources, electricity plays an important role, as it is the most versatile and convenient forms of energy to achieve different end use applications. Availability of electricity in rural areas will be instrumental in triggering economic and income generating activities leading to sustainable rural development. The per capita income level of the rural people will go up enabling them thereby to pay user charges for the different services rendered to them by the Government. Acknowledging the need for electrifying all the villages in the country, the Government of India has been supporting the implementation of the Rural Electrification Programmes since the First Five Year Plan (i.e.1951), with the ultimate objective of providing “Electricity for All”. The Government has set the goal of achieving this vision target by 2012. We have also observed that there are several issues facing the programme, ranging from financial constraints to institutional, developmental, geographical and social impediments. Concerted efforts are being made through the Rural Electricity Supply Technology (REST) Mission to identify suitable low cost generation and delivery systems for electrifying the rural areas. Also, the necessary linkages with other rural development programmes, like health, shelter, literacy, nutrition, drinking water, connectivity, etc. have been provided through the Pradhan Mantri Gramodaya Yojana (PMGY). State Governments are given the necessary authority for deciding on the allocation of funds among these programmes depending upon their priorities. Institutional loans on soft terms are also made available to the programmes. Promotional measures, to develop the locally available non-conventional and renewable energy sources like solar, wind, biomass, small hydro projects, etc. in rural areas to meet the basic energy needs, are taken by the Government in collaboration with the village level institutions like panchayats, cooperatives, NGOs, private entrepreneurs, etc. An Integrated Rural Energy initiative experimented at the Planning Commission as a pilot exercise during the Sixth Plan, and presently implemented as a plan programme by the Ministry of Non-Conventional Energy Sources is being revamped to meet the rural energy needs through the most cost effective mix of different energy sources.

You might have realized that all these measures will be successful only if the people at the grass roots level including women are involved right from the planning stage up to the stage of implementation. In other words, the energy supply programmes should follow a demand-driven approach, instead of following the present supply-driven one. For their success, the Rural Energy Programmes should be “of the people, for the people and by the people” of the rural areas.

5.7 KEY WORDS

PMGY	:	Pradhan Mantri Gramodaya Yojana
Kutir Jyoti	:	to provide single point connections for lighting in the households of people below the poverty line
IREP	:	Integrated Rural Energy Programme
REC	:	Rural Electrification Corporation
MNES	:	Ministry of Non-conventional Energy Sources
IREDA	:	Indian Renewable Energy Development Agency, a financial Institution under MNES

5.8 REFERENCES AND SUGGESTED READINGS

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Annual Report 2002-03: The Ministry of Non-Conventional Energy Sources, The Government of India, New Delhi.

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5.9 CHECK YOUR PROGRESS – POSSIBLE ANSWERS

Check Your Progress I

- 1)
 - i) True
 - ii) True
 - iii) False. Extending distribution with the help of low-tension wires/lines needs us to have longer lines and more elaborate infrastructure for carrying electricity from one place to another. Longer lines will increase rather than decrease losses.
- 2)
 - i) The definition of village electrification followed in the initial stages did not take into account the number of households electrified in a village. A village was declared electrified if electricity was used for any single application in that village.
 - ii) Absence of a proper funding pattern to ensure that households are electrified in a village that is declared electrified.
 - iii) Absence of suitable village level institutions (like panchayats, cooperatives or NGOs at the village level) to participate in the village electrification programme.

Check Your Progress II

- 1) The programmes would prevent environmental degradation, arrest deforestation, stop migration of rural people to urban areas in search of employment and also empower local institutions like panchayats, cooperatives and NGO's to achieve self-reliance in the rural energy sector.
- 2) The main effort made by NGO's under the rural energy programme include i) the market development approach of the Solar Electric Lying Company (SELCO) in South India, ii) the NGO approach of the Rama Krishna Mission in Bengal and iii) the CBO (Community Base Organisation) approach of the Social Work and Research Centre (SWRC), Tilonia.