

Rural India : Energy Conservation with tools of Audit and Planning

Ravindrakumar Yadav¹
Department of Electrical Engineering
Babaria institute of Technology
Vaodara, Gujarat , India
rkyadav.bit@gmail.com

R.P. Singh²
School of Engineering and Technology
Sri Satya Sai University of Echnology and Medical Science
Bhopal, India

Abstract— This energy saved is the revenue earned which could be used in other fruitful means. So essential that rural energy which is in a critical class, be utilized efficiently. The available energy must be saved for the prospect by all possible ways. . The areas of rural India, where rural energy is wastefully used or rural energy sources go waste are to be identified and corrective measures are searched for taking up

Keywords—Energy management, Energy Audit, Energy Conservation, Rural, Distributed Generation, Restructured power System

I. INTRODUCTION

Rural energy conservation can be defined as the substitution of rural energy with resources, labor, material and time. This definition also covers the substitution of scarce type of rural energy sources with profuse type of energy sources.

II. ASSESSIBILITY

The energy must be conserved for the future by all possible ways. This energy saved is called the money earned which could be used in other productive means. Therefore, imperative that rural energy which is in a critical status, be utilized proficiently. Where the areas, rural energy is wastefully used or rural energy go throw away are to be identified and curative actions are applied for adoption. This can be carried out by Energy Audit. Rural energy audit is a technological survey of energy consumption model and an attempt to be made to equilibrium the total energy input with delivery and availability. As a result, the areas of rural energy improvidently used and to convert and save it improvements are designed and known to show corrective measures to be recommended to apply adoption on planned terms to get improved and better energy efficiency [1].

Rural energy conservation can be treated as the rural energy demand management that goals at increasing the efficiency. A rural energy - audit helps to understand different rural energy sources to be used. The rural energy audit would give a affirmative direction to reduce energy cost. These are vital for energy utility activities. Rural energy audit is

the concept used for energy management [2]. This involves procedural assessment and inclusive review of energy uses in such rural areas. Based upon this, energy audit must be treated as starting of the energy management plan.

Rural energy audit largely focuses the following aspects:

- i) Energy consumption in rural areas
- ii) Energy consuming equipments or process
- iii) Do energy consumed?
- iv) Is any chance or idea for improvements?

The rural energy audits programme will help in designing proper rural energy management scheme for accessibility and consistency of rural energy sources, appropriate rural energy sources mix, energy conservation technology. The action plan towards the reaching of energy conservation throughout energy audit may be pinched up in three phases :

- (a) Short Term Plan : In this plan aiming to avoid rural energy wastages and minimizing non-crucial energy users and improving the system efficiency,
- (b) Medium Term Plan : In this it should aim to achieve efficiency enhancement through modifications of existing equipments, and
- (c) Long Term Plan : In this plan aimed to achieve economy all the way through latest energy saving techniques and innovations.

III. SOCIO-MONETARY PRACTICABILITY

Biomass energy has the prospective to meet the energy needs of rural India. The current pattern of rural domestic energy consumption was shown to be non-sustainable, since it leads to environmental degradation, wastage, social inequality and financial problems [3]. Alternative approaches, on the other hand, may lead to retrieval of degraded lands, encouragement of biodiversity, reduction of indoor air pollution, change of food habits. Bio-energy based systems are always sustainable and equitable, with rural women benefiting the most. Use of appropriate technology in solving the rural energy predicament may bring a critical change in socio-cultural and socio fiscal status of rural areas.

Appropriate technologies may demand a higher level of innovative abilities in rural India by :

- the use of in the vicinity available resources,

- the use of rural energy to the scope doable,
 - their aptness
 - the use of confined expertise
 - the generation of local service
 - Encouraging self-reliance and self-employment
- But the technology to be proper for rural poor, cost-effective and user-friendly [4],[5].

IV. LEVEL FOR RURAL ENERGY PLANNING

Rural Energy Planning may be taken up incorporate three jointly dependent aspects as presented in Fig. 1.

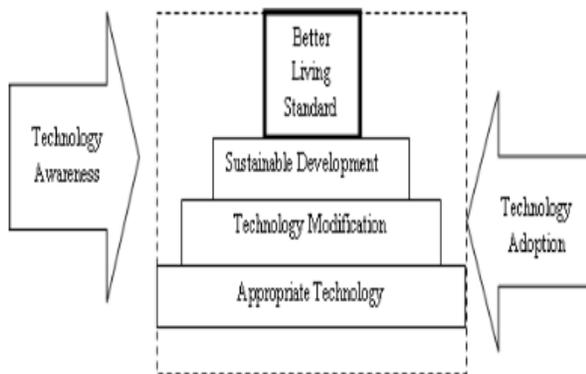


Fig. 1 Three Aspects for Rural Energy Planning

The triumphant achievement of rural energy programme may be done by using three aspects such as :

- Technology awareness
- Technology adoption
- Increased yield/income

Need-based proficient rural energy management is achievable through the generation of know-how awareness among rural people. Technical awareness is the only one key to do better indulgent regarding benefits and application of appropriate technology. This creates a positive effect as a result of technology adoption, innovations disseminate in the form of technology modification and improvement.

The rural energy programme may lead to the growth of village industries for _building biogas plants, making improved stove and briquetting of loose biomass, thereby generating the employment opportunities of the rural poor In general, consumer education may help to achieve the goals such as

- Creating awareness about the realities regarding present energy condition
- Creating awareness about the greatness which can be explored by rural individual
- Creating awareness to take up combined efforts
- Developing people's capabilities to analyse social reality, to identify cause of their poverty,
- Helping people to discover their cultural identity

- Bring about changes contributing to development through social change
- Providing relevant knowledge and skills required for economic growth
- Motivating people for planning and implementing integrated rural energy programme, and
- Creating an environment
- A powerful educational programme can play a significant role,

V. EXTENT AND SPAN OF RURAL ENERGY MANAGEMENT PLANNING

The main objectives of rural energy planning and interventions have primarily concentrated on conserving environment, demonstrating renewable energy technologies , improving quality of life through economic development.

VI. INTEGRATED RURAL ENERGY MANAGEMENT PLANNING

The confront seems to lie down in augment the energy supply using local or renewable resources. To improve quality of life or to conserve environment have to deal with existing energy systems whose cost to the user is negligible. Surrounding existing energy sources will be taken into account in energy planning to meet potential rural energy requires and rural cost-effective progress [6],[7].

Taking into account the dependence of rural energy system on bio fuels, it is the resources that are of most important to a rural society. Apart of this, little bit information available on these fuels leads to involvedness of the biomass system.. As a result, it is essential that proper tactic be devised to assess the biomass availability as a integral part of rural energy planning. When analyzing the biomass situation in the area besides its role as an energy source, its other applications such as fodder, wood, manure etc. need to be examined. The mandate of "integrated energy planning" has more often than not referred to integrating energy sources and technologies rather than integrating the energy plan with the economic development [8].

If the aim of the intrusion is to amend the energy consumption the demand should be based on existing consumption levels and patterns. Keeping in view the heavy pressure on per capita fuel wood use and necessity to proper utilization of available agricultural wastages and dung with new an alternative with the help of appropriate technology must be carried out without delay and efficiently [9].

VII. CONCLUSION

Rural energy plan should be integrated with the development planning of the area. It should address the rural economic development in an environmentally sustainable manner [10],[11]. Untapped energy sources can be used with the help of appropriate technology to meet the need and demand of fuel wood in rural areas[12]. A powerful educational programme can play a significant role in motivating the rural masses for adoption of appropriate technology. Every sector of Government and non government agencies may help in implementation or of of successful rural energy programme in India [13].

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