

# RGGVY - PROGRESS UNLIMITED

Policy Brief

Decentralised Renewable Energy = Energy Equity



The policy brief is a critique of Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) - a Central Government programme of Rural Electricity Infrastructure development and Household Electrification

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**Report produced by** Greenpeace India Society, March 2011

**For more information, please contact:**

Maitree Dasgupta, Campaigner Climate & Energy, Greenpeace India  
Mobile: +91 9900145422 Email: maitree.dasgupta@greenpeace.org

Ramapati Kumar, Campaign Manager, Greenpeace India  
Mobile: +91 9845535414 Email: ramapati.kumar@greenpeace.org

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## INTRODUCTION

Access to energy is a cornerstone for development and essential for a better quality of life. When this access doesn't exist or is very poor, it has negative impacts on everything from education, to health, employment and irrigation - touching all aspects of life and livelihood. According to a recent United Nations Development Programme (UNDP) supported study<sup>1</sup>, energy insecurity and allied poverty is critically undermining the achievement of the Millennium Development Goals (MDGs).

In India today 56% of rural households (approximately 78 million), do not have access to electricity<sup>2</sup>. Rural electrification has been identified as a critical programme for the development of rural areas. The stated aims of the electrification programme is to ensure economic development by providing electricity access to all the villages and households in order to improve the quality of life and livelihood opportunities in the rural areas.

Currently, India relies heavily on fossil fuel based energy resources, that fuel climate change and will impact the least developed the most. Furthermore, it is apparent that the current centralised delivery mechanism has failed to reach the rural masses. Even if the grid has reached a village, it doesn't mean that electricity has reached the village as they are the first to be taken off the grid.

The Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) is a flagship programme of the Government of India which began in April 2005 and aimed to accelerate the pace of village electrification programme in the country. The Ministry of Power is the nodal agency implementing the scheme with a mandate on attainment of the National Common Minimum Programme (NCMP) goal of providing access of electricity to all households by 2010.

It has been taken as one of the " Bharat Nirman" programme by Planning Commission and the timeline of the scheme had been extended by another two years. However looking at the implementation pace Government is planning to take it up in the 12th Five Year Plan (2012-17).

The policy brief analyses the RGGVY scheme as well other rural electrification schemes run by Central Government.

<sup>1</sup><http://practicalaction.org/docs/energy/poor-peoples-energy-outlook.pdf>

<sup>2</sup>[http://www.powermin.nic.in/whats\\_new/pdf/ENERGY%20MARKETS%20&%20TECHNOLOGIES-REVISED1.pdf](http://www.powermin.nic.in/whats_new/pdf/ENERGY%20MARKETS%20&%20TECHNOLOGIES-REVISED1.pdf)



## RURAL ELECTRIFICATION: CENTRALISED APPROACH

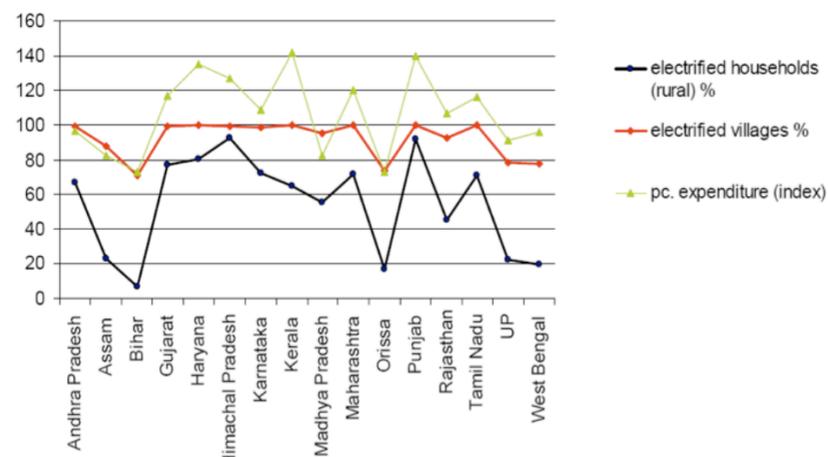
The concept of rural electrification in India has undergone various restructuring programmes. Initially, until 1997, the main focus was on “electrification for irrigation” to increase the agricultural production of the country. Later this changed to a more focused approach, recognising the importance of reaching electricity to rural areas.

The Indian energy system is concentrated around the conventional system of centralised electricity generation relying heavily on coal based thermal power plants and large dams. However, there is a large body of evidence to show that the centralised system has not been able to balance demand and supply, and has resulted in inequities and environmental degradation which has left more than 40% of the Indian rural population in the dark ( Kaudinya, Balachandra and Ravindranath, 2009).

The priority in terms of electricity has always gone to the rich in India. The tier one cities have always been given the best power at the expense of smaller cities and villages in India. A good example would be while Mumbai has uninterrupted good quality power, tier b and smaller cities / villages suffer power outages to the range of 3-12 hours / day<sup>3</sup>. What is also clear is that it is the poorest that suffer the most from this inequality.

However, the poor in India are the one who had to pay the price for India’s massive power infrastructure of 169749 MW<sup>4</sup> (as on 31.12.2010) in terms of displacement, economic loss and health impacts. Almost all big thermal power plants, dams or nuclear power plants are located in either rural areas or semi-urban parts of the country. Even with this sacrifice, access to quality power and in many cases electricity connection remained a dream for them.

Figure 1: State of Rural Electrification in India<sup>5</sup>



<sup>3</sup>[http://62.121.14.21/Files/Tasks/Task%20XV%20-%20Network%20Driven%20DSM/Workshops/DSM%20-%20Regulatory%20Approach%20in%20Maharashtra\\_Palaniappan%20M.pdf](http://62.121.14.21/Files/Tasks/Task%20XV%20-%20Network%20Driven%20DSM/Workshops/DSM%20-%20Regulatory%20Approach%20in%20Maharashtra_Palaniappan%20M.pdf)

<sup>4</sup><http://www.cea.nic.in/>

<sup>5</sup>[http://www.cepe.ethz.ch/publications/workingPapers/CEPE\\_WP51.pdf](http://www.cepe.ethz.ch/publications/workingPapers/CEPE_WP51.pdf)

The nation-wide RGGVY scheme has focused mainly on the development and extension of the centralised grid system to rural areas to **provide quality and reliable power to rural areas**. This has however been far from successful.

Though the scheme set a mandate of electrifying all households, a faulty definition of “village electrification” diluted the aim significantly. According to state-wise data, on the RGGVY website<sup>6</sup>, providing all below poverty line (BPL) households free electricity connection have not materialised in most states of the country (Figure 1).

The main reason behind the scheme not delivering its mandate is the rigidity in approach. It has only taken up distributed decentralised generation (DDG) for places where grid extension is not feasible or cost-effective. It neither encourages the sustainable renewable energy technologies in areas with potential of quality power generation nor a bottom up approach where cluster of villages becomes independent generators and feed back into the grid.

<sup>6</sup>[http://rggvv.gov.in/rggvv/rggvvportal/plgsheet\\_frame3.jsp](http://rggvv.gov.in/rggvv/rggvvportal/plgsheet_frame3.jsp)



## CENTRAL GOVERNMENT SCHEMES ON RURAL ELECTRIFICATION

Listed below are the schemes for rural electrification that the Government of India has run from time to time.

### 1) Rajiv Gandhi Grameen Viduytikaran Yojana (RGGVY)

The scheme launched in 2005, has been given flagship status and a total budgetary allocation of **Rs. 32314 Crore**<sup>7</sup> under 10th and 11th Five Year Plans. The scheme, implemented through **Rural Electrification Corporation**, provides ninety per cent of the capital cost of the programme through a Central Government grant.

**Goal of the flagship scheme is to – Bridge the urban-rural divide & provide reliable and quality power supply to rural areas.**

**By 2010 the scheme was supposed to -** Electrify all villages and habitations, provide electricity access to all households and give electricity connections to Below Poverty Line (BPL) families free of charge.

This is achieved through the implementation of

- A. Rural Electricity Distribution Backbone (REDB) with at least one 33/11 KV (or 66/11 KV) substation in each block;
- B. Village Electrification Infrastructure (VEI) with at least one distribution transformer in village/habitation and
- C. Decentralised Distributed Generation (DDG) systems where grid supply is not feasible or cost-effective

The hope is that this energy access would indirectly support development of Irrigation, Small scale industries (Village and khadi industries), Cold chains, Healthcare & Education and IT<sup>8</sup> and thereby **accelerate rural development, generate employment and eliminate poverty.**

### 2) Remote Village Electrification Programme (RVEP)<sup>9</sup>

The programme was initiated by the Ministry of New and Renewable Energy (MNRE) for electrification of un-electrified remote villages (identified as such in the census) and remote unelectrified hamlets in electrified villages where grid connectivity is either not feasible or not cost effective. These are the villages not covered in RGGVY scheme.

Around 5259 un-electrified census villages and 1468 un-electrified hamlets in electrified villages were selected to provide basic electricity facilities. In the Financial Year 2009-10 Rs. 80 crore had been allocated for the same<sup>10</sup> within a total budget of Rs. 303 crore for 11th plan period.

The Ministry provides a subsidy of upto 90% of the costs of various renewable energy devices/systems subject to pre-specified limits.

<sup>7</sup>[http://rggvv.gov.in/rggvv/rggvvportal/plgsheet\\_frame3.jsp](http://rggvv.gov.in/rggvv/rggvvportal/plgsheet_frame3.jsp) as on 15.01.2011

<sup>8</sup>Source: RGGVY brochure from Rural Electrification Corporation [http://www.recindia.nic.in/download/rggvv\\_brochure.pdf](http://www.recindia.nic.in/download/rggvv_brochure.pdf)

<sup>9</sup><http://www.mnre.gov.in/> under section Programmes/Schemes – Renewable Energy for Rural Application

<sup>10</sup>[http://mnre.gov.in/annualreport/2009-10EN/Chapter%204/chapter%204\\_1.htm](http://mnre.gov.in/annualreport/2009-10EN/Chapter%204/chapter%204_1.htm)

### 3) Village Energy Security test Projects (VESP)<sup>11</sup>

Since the 10th Plan period, MNRE has taken up a limited number of 'test projects' on Village Energy Security in very remote villages and hamlets that are unlikely to be electrified through conventional means. The scheme operates by deploying various biomass-based systems to meet total energy requirements of villages in an efficient, reliable and cost-effective manner. Since its commencement, 54 test projects have so far been commissioned. During the mid-term appraisal of the 11th Plan in September 2009, a decision was made to concentrate on consolidating the VESP projects already taken up for implementation, during remaining plan period<sup>12</sup>. The original proposal was to cover 1,000 villages with a total outlay of INR 225 crore during the Plan period . However, a bulk of it has remained unspent.

### 4) Special Packages (SP)

In the 2010-11 budget speech, the Finance Minister had proposed the setting up of solar, small hydro and micro power projects at a cost of about Rs.500 crore for the Ladakh region of Jammu and Kashmir<sup>13</sup>. The Ministry had allocated 10% of the budgetary support (**56 crore for 2009-10**) for the deployment of biogas plants, solar thermal systems, solar photovoltaic systems, remote village electrification, small hydro projects, wind energy systems, village energy security projects and energy parks for the **8 states of North Eastern region**<sup>14</sup>.

### 5) Jawaharlal Nehru National Solar Mission (JNNSM)

Under the guidelines for off-grid and decentralised solar application<sup>15</sup> in the Mission, the focus is on decentralised systems to meet the target of Phase 1 (until 2013). Along with its main objective of installation of 1000 MW solar grid connected systems, a modest 200 MW has been kept for off-grid and decentralised systems. A budget allocation of Rs. 227 Crore has been made for the financial year 2010-11 (for phase 1) mainly for rural areas<sup>16</sup>.

Under Phase 1 of the programme, mini-grids for rural electrification up to a maximum capacity of 250 kw per site, are supported. Capital subsidy of 90% of the benchmark cost would be made available for special category states, viz. North East, Sikkim, J&K, Himachal Pradesh and Uttarakhand. In addition, the scheme also supports setting up stand alone rural solar power plants/ packs (both PV and thermal) in remote and difficult areas such as Lakshadweep, Andaman & Nicobar Islands, and districts on India's international borders. However, for funding solar thermal systems in these areas, the subsidy is limited to 60% for all categories of beneficiaries.

<sup>11</sup>bid

<sup>12</sup><http://www.solarishi.com/>

<sup>13</sup><http://indiabudget.nic.in/ub2010-11/bs/speecha.htm>

<sup>14</sup>[http://mnre.gov.in/annualreport/2009-10EN/Chapter%204/chapter%204\\_1.htm](http://mnre.gov.in/annualreport/2009-10EN/Chapter%204/chapter%204_1.htm)

<sup>15</sup><http://www.mnre.gov.in/pdf/jnnsn-g170610.pdf>

<sup>16</sup><http://mnre.gov.in/adm-approvals/aa-jnnsn-2010-11.pdf>

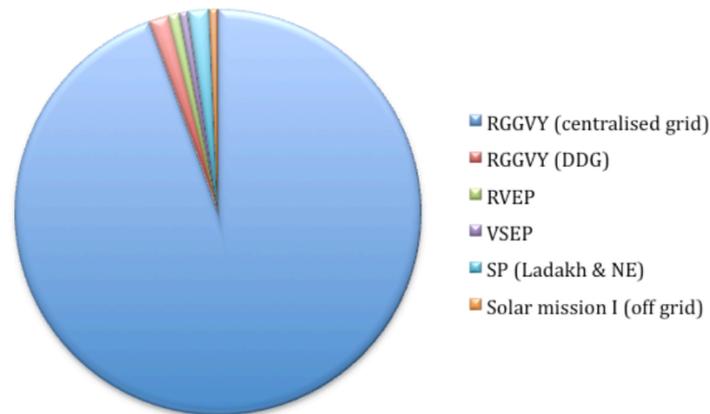


## COMPARATIVE ANALYSIS

## WAY FORWARD

The following pie-chart (Figure 2) illustrates the budgetary allocations by the Central Government on its rural electrification programmes since its inception. Despite the fact that an overwhelming 94.5% of the funds have been allocated to the RGGVY scheme for electrification through the centralised model, this has not translated into quality electricity access. Total allocation for renewable energy projects has been small and lacking ambition. Only remote areas have been covered under different renewable energy programmes. Within RGGVY only a total budget of Rs. 540 crore has been allocated as capital subsidy under the 11th plan period for distributed decentralised generation (DDG) systems where grid supply is not feasible or cost-effective.

Figure 2 : Budget allocation to rural electrification schemes in India



The Ministry of New and Renewable Energy has compiled a report, 'Access to Clean Energy'<sup>17</sup>, that highlights success stories across the country where renewable energy is successfully providing quality power in rural areas. Despite these achievements, the funding for rural electrification focuses only on extending the central grid rather than building a "decentralised 'smart' grid".

None of the schemes have taken initiative to harness the renewable energy (RE) potential of areas already covered by the grid. Apart from adding to India's climate protection initiatives, trapping RE will help to achieve energy security for rural India and thus spur rural development.

In the ultimate analysis, the major government investment for centralised rural energy service has shown that it is not effective in delivering quality power and serious re-think on the approach is needed and this is the time for it.

<sup>17</sup><http://www.direc2010.gov.in/pdf/ACE.pdf>

To provide equitable energy access through Central Government schemes, particularly through Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY), it is necessary to mainstream the decentralised renewable energy (DRE) in a significant way and make a major shift from the current centralised approach.

Technologically, the DRE systems are advanced to deliver reliable quality power to meet village energy demands. While continuation of the RGGVY scheme is necessary in the 12th plan period, measures have to be reworked.

Support for DRE is currently scattered in small parts in various government schemes on rural electrification, the need is to consolidate and enhance the initiatives under the RGGVY scheme. In order to overcome the existing flaws in current process as well as sharpen the accountability.

### Prima facie rural electrification scheme should –

- A. Take up a target of small scale renewable energy generation (mix of mini-grid & off-grid) infrastructure development in the 12th plan period
- B. Incorporate supplementary guidelines for distributed generation through renewable sources for non -remote areas under the Guidelines for Franchisee Development prepared by the Rural Electrification Corporation (REC) Ltd
- C. Take long-term economic approach while deciding on the cost-effectiveness of the Decentralised Renewable Energy (DRE) projects
- D. Provide finances, incentives and subsidies for DRE infrastructure development to public & private entrepreneurs. The State Renewable Energy Development Authority should be the nodal agency for the implementation of projects (Policy recommendation from Greenpeace report on Providing Energy Access to Rural Bihar)
- E. Embed the social audit component in the scheme to enhance accountability of the system
- F. Include guidelines for energy infrastructure for irrigation and medium & small scale industries as part of rural energy programme



## ENERGY [R]EVOLUTION: GREENPEACE VISION

The Energy [R]evolution Scenario provides a practical blueprint for the world's renewable energy future, and was developed in conjunction with specialists from the Institute of Technical Thermodynamics at the German Aerospace Centre (DLR) and more than 30 scientists and engineers from universities, institutes and the renewable energy industry around the world. The report demonstrates how the world can get from where we are now, to where we need to be in terms of phasing out fossil fuels, cutting CO2 while ensuring energy security.

- The long-term goal for Energy [r]evolution is to create energy equity via renewable energy
- To successfully combat climate change, we urgently need a revolution in the way we produce, consume and distribute energy. Cutting CO2 emissions does not mean cutting economic growth – rapid economic growth in India has been accepted and taken in account
- The Energy [R]evolution Scenario believes in decoupling growth from fossil fuel use and in implementing renewable solutions & decentralise energy systems
- To achieve the energy revolution India slowly needs to phase out dirty, unsustainable energy like coal and nuclear energy
- Exploitation of the existing large energy efficiency potentials will ensure that primary energy demand grows much slower despite a very high GDP growth of 10% per year assumed in the Energy R]evolution Scenario for India
- The Indian electricity sector will be the pioneer of renewable energy utilisation. By 2050, around 69% of electricity will be produced from renewable energy sources (including only existing large hydro). A capacity of 1,659 GW will produce 3,860 TWh/A renewable electricity in 2050



Greenpeace is a global organisation that uses non-violent direct action to tackle the most crucial threats to our planet's biodiversity and environment. Greenpeace is a non-profit organisation, present in 40 countries across Europe, The Americas, Asia and the Pacific.

It speaks for 2.8 million supporters worldwide, and inspires many millions more to take action every day. To maintain its independence, Greenpeace does not accept donations from governments or corporations but relies on contributions from individual supporters and foundation grants.

Greenpeace has been campaigning against environmental degradation since 1971 when a small boat of volunteers and journalists sailed into Amchitka, an area north of Alaska, where the US Government was conducting underground nuclear tests. This tradition of 'bearing witness' in a non-violent manner continues today, and ships are an important part of all its campaign work.

**GREENPEACE**  
ग्रीनपीस

Greenpeace India Society  
#60, Wellington Street, Richmond Town,  
Bengaluru 560025, India.  
T: +91 80 41154861/42821010 F: +91 80 41154862  
E: supporter.services.in@greenpeace.org  
www.greenpeaceindia.org

