

**Abstract** ... *India needs a fivefold to tenfold increase in its Power Generation capacity to meet the demand matching developmental trajectory. The magnitude of the challenge at hand makes it clear that piecemeal measures will not be enough. The country needs a radically new approach that enables financial viability, accelerates the pace of capacity addition, improves operational efficiencies and augments fuel supplies. Needless to say, the Power Sector's Governance Structure and Monitoring mechanisms need to be further strengthened to ensure successful execution of such a programme.*

*Fact Sheet of any Country contains a parameter of "per capita availability of energy" - as an indicator of economic prosperity. The Economic, Social, and Environmental Impacts of demand / supply of energy are so great that only a holistic and objective consideration of these in formulation of a Sustainable and Effective national policy like 'Integrated Energy Policy (IEP)' of Planning Commission of India, which is treated as a bible from the society's perspective & which adapts the GNP/ GDP maximizing paradigm to estimate Energy requirements. Our Integrated Energy Policy has not based the document for working Energy Development, to eradicate poverty, but considered it indirectly that share of GDP will also fall into the lap of Poor . This aspect needs examination.*

*The Energy Requirements so far seem to have been worked up broadly to cover in the installed capacity through various conventional energy sources by 2031-32 ignoring the negative impacts of such a growth on our society. Unfortunately, IEP has possibly not directly based its estimates of the least amount of energy needed to wipe out poverty, and how best to meet it in a sustainable manner.*

*40 % Households are without Power / Electricity & other 60 % without quality Power even though our per capita has increased. The legitimate demand for energy for all sections of Society must be objectively considered in the correct context of greater needs of the society including clean air, & water, keeping in view the conservation and enhancement of our environment. Per Capita Energy with a huge population base with many 'have-nots' is a challenge for India.*

*The Renewable Energy covering a whole range of Solar, Hydro, Biomass sources is an answer of Power generation while working out the improvement of the energy efficiency to international best practice levels, keeping in view the local environmental issues and Global Warming impacts of fossil fuels.*

*The NGOs can help us reach the last mile of the Society to meet the power requirements of the society, who are so far deprived of Electricity. This also fits into UN's Millennium Development Goals (MDG) for ambitious anti-poverty targets adopted in 2000 to be reached by the world by 2015. Time is running out.*

*Some of the NGOs are helping society reach these goals, while the others are making a profit out of it. The Culprit (People for Profit) NGOs have to come out clean.*

**Growth:** The triple bottom line ("TBL" or "3BL"), also known as "People, Planet, and Profit" captures an expanded spectrum of values and criteria for measuring Country's, organizational (and Societal) success: Economic, Ecological and Social. With the ratification of the United Nations and ICLEI, TBL has become a standard for urban and community accounting in early 2007, this became the dominant approach of Governments'- full cost accounting, which helps in measurements required by TBL, e.g. the ecoBudget standard for reporting the ecological footprint. Similarly, in the private sector, a commitment to Corporate Social Responsibility (CSR) implies a commitment to some form of TBL reporting. This is distinct from the more limited changes required to deal only with ecological issues.

Gol is working out methods to improve our per capita consumption to a more respectable level. We will achieve the same, but what are our plans to reach the 'have nots'. The political compulsions for providing Power to Industry lobbies, urban population making the availability

increase to them by ~ 0.05 % ~ 0.15% rather than an increase from 0 to 100% to those 'have-nots' whose requirements are very small.

**Inclusive Growth:** Coal Based plants that have been envisaged by CEA in 12<sup>th</sup> & 13<sup>th</sup> Plans along with Hydel & Nuclear Plants for large scale Power Generation will surely help in India's Growth trajectory. CEA has added that Water Scarcity & Coal Requirement gaps have placed India on sourcing Coal, thus adding another challenge in India's kitty of growth scenario.

**Renewable Energy:** Renewable Energy role has taken increased importance and Min. of New & Renewable Energy (MNRE) is proactively working on the same for India's inclusive growth. The Renewable Energy projects considered are for entrepreneurs considering the viable sizes. The other projects are for Telecom Towers, Home or Industrial Water heating, Diesel abatement, Solar Home Lights, CHPs etc. etc. which are common for the community that is having the Electricity.

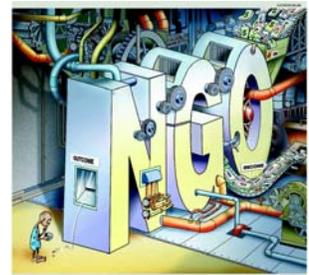
The role of Renewable energy has assumed importance for India also, as seen from European Union (EU) plan named 20/20/20 envisaging the following goals:

□ 20% cut in EU's Greenhouse Gas (GHG) emissions (or 30% as part of an international agreement); □ 20% energy share from renewable sources; and □ 20% increase in energy efficiency. These targets are to be achieved by the year 2020. The ultimate goal of the plan is to limit the average global temperature rise to 2°C.

According to the World Institute of Sustainable Energy (WISE), the grid connected renewable energy potential of India is much more than presently estimated & is of the order of:

- Wind Energy – 100,000 MW; • CSP - solar power generation – 200,000 MW;
- Solar PV - power generation – 200,000 MW (space will not be a problem considering all the available rooftops).

**NGO to help travel last Mile:** Who will help India cover the last mile of the decentralized power generation to make the electricity reach the 'have nots'? It is a grass root organization- an NGO, a term that is sometimes used interchangeably with "grassroots organizations, however NGOs are quite not the same as any of these. There are many formats available in various countries of these Grassroots organizations, which may have additionally many other objectives. NGOs may cover, INGOs (international NGOs), BINGOs (business international NGOs), ENGOs (environmental NGOs), GONGOs (Government-operated NGOs - set up by governments to look like NGOs in order to qualify for outside aid), QUANGOs (Quasi-nongovernmental organizations - i.e. those that are at least partially created or supported by states), and many others. NGOs to lift above the picture many of them have created for themselves. In an article in the Crest, it is said that more people are living on thee 'Aid for Aides' than the number of persons dying from 'Aids'.



There are good examples of NGOs. A recent study commissioned by the government put the number of such entities, accounted for till 2009, at 3.3 million. That is one NGO for less than 400 Indians, and many times the number of primary schools and primary health centers in India. Estimates from

within the sector suggest that NGOs, raise anywhere between ₹ 40,000 Crore and ₹ 80,000 Crore in funding annually. There are some harsh clauses in the introduced Direct Tax Code (DTC) about NGOs.



Some NGOs tend to dance to the tune of their international donors, instead of focusing on what is good for the constituency with which they work this trend was a source of concern & is called "flavour-of-the-month" rightly so by Ms Sunita Narain of CSE.



On a positive note, these Non-governmental organizations (NGOs) have also played a major role in many countries in pushing for a sustainable development at the National & International level. Campaigning groups have been key drivers of inter-governmental negotiations, including the eradication of Poverty & arranging Electricity to the People.

Close to 100 NGO participants from 40 countries met on December 1, 2005 at the Renewable Solutions conference to develop recommendations on how to move the global transition to renewable energy forward. And suggested ways to effectively meet climate obligations, improve energy equity, and achieve security of supply without threatening human security.

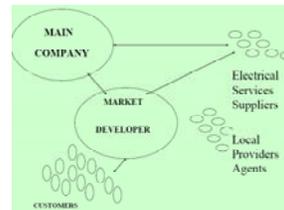
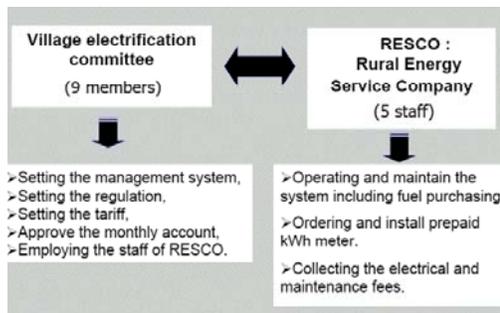


It was discussed that in order to meet Kyoto targets and achieve the deep cuts required to prevent dangerous climate change, countries have to maximize renewable energy and energy efficiency to their full potential by setting and monitoring national targets and timelines for renewable energy and sustainable development, improving technology transfer and establishing a supportive international financing framework.



### Should it be done at an individual house hold level or for a community?

These if undertaken by forming a local enterprise having sustainable, with growth and/or replication potential, through appropriate Technology affordable to its end-users. India's success in Cook stoves is known.



Water Pumping: Creating time for other economic activities for Poverty Eradication. These local organizations

have Flexibility in cost structure to operate in rural areas and are less affected by institutional and legal barriers.

**Renewable Energy Basket for Inclusive Growth** Stand alone Solar Housing has been found to be fastest in implementation & generates better millage of the making Electricity reach the remotest as depicted in pictures above, out of various options that are available.

- **Wind Generators** in Areas with Sustainable Wind Energy
- **Bio gas based** : Rice Straw based commercial Projects have been initiated.
- **Micro-Hydel** Project by Mallanadu Development Society (NGO) in Kerala, water Technology: micro hydro (two turbines installed) Application: lighting, television/radio, water pumping Sector: domestic, public, small-scale enterprises Cost of power per inhabitant: approximately ₹ 70/- per month for four 10W compact fluorescent light bulbs; extra for the 25 families owning color or black and white televisions Total power provided: 16 kW (20 kW installed capacity) Households served: 161 connections (146 domestic, 10 shops, 5 institutions). Micro Hydro costs can be met with difficult-to-value labour by the local community as "sweat equity" against Shadow Wage. Can come under Narega scheme
- **Solar**: Unlimited Project Profiles

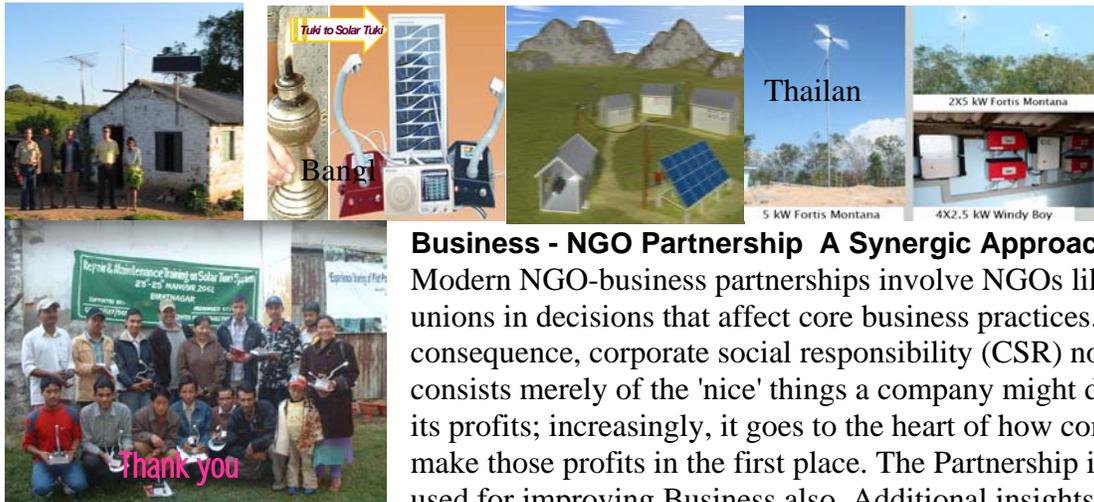


**Corporate Social Responsibility** : If Corporate donates a system it can assist only if , when there is an understanding, where will it be installed, what is it designed to achieve, who will benefit from it, who will look after it when the team pulls out , and of course why is it being donated.....,

Partnering with NGOs is becoming an attractive proposition, for NGOs bringing in unique perspectives to the boardroom table right from the ground realities. With Indian Rural Population faced with Challenges of fighting Poverty, reaching for Electricity and awaiting sustainable development, NGOs can help closing the gap.

A donated system does not create a “REAL” market for rural PV, it may be a product dumping by installing and leaving, getting the name in the press thus distorts local markets and may act as a graft only.

**DRIVER for a Community system** is the ownership of the project, it is looked, after as they can see a value which is tangible & after 3 years there has been no theft or vandalism



**Business - NGO Partnership A Synergic Approach:**

Modern NGO-business partnerships involve NGOs like trade unions in decisions that affect core business practices. As a consequence, corporate social responsibility (CSR) no longer consists merely of the 'nice' things a company might do with its profits; increasingly, it goes to the heart of how companies make those profits in the first place. The Partnership is being used for improving Business also. Additional insights

into NGOs are offered by beyond Intractability project participants.

A UK Based Solar Panel Manufacturing Company is taking Cycle tour campaign to raise funds for providing Solar Lights to Africans, thus doing their business and charity work.

**Renewable Energy: NGOs Interventions in India** Handling issues like Renewable Energy needs, a number of NGOs in India are playing a great role in offering help to the society through Renewable Energy Programs.

**NERI** - Navreet Energy Research and Information (NERI) in the field of eco-friendly energy and optimum utilization of natural resources and its management for up-gradation of livelihoods of rural community in a sustainable way through projects on Clean and Green Energy Technology a.

**TERI-SDC Partnership - Rural domestic sector policy research on promotion and adoption of cleaner technologies/fuels by low-capacity end-users under** Swiss Agency for Development and Cooperation to facilitate rapid energy transitions to better technologies by developing strategies for delivery of quality energy services for cooking and lighting in the rural areas; (b) study barriers/constraints to rapid transition to better energy services, in terms of easy access and quality services, and develop appropriate strategies to overcome these

barriers; (c) to address issues relating to the rural household energy, such as accelerating the rate of energization of households for cooking and lighting and facilitating an easy access to quality energy services.

**LOKVIKAS:** “Integrated Energy Efficiency programme in Rural Sector of North Gujarat” This project aims to help people in the rural areas adopt energy saving practices and to suggest alternatives to more eco-friendly and healthier fuels

**BAIF** - Bharatiya Agro Industries Foundation – Under Renewable Energy and Environment: The community biogas plants at two Karnataka locations managed by the local women groups. Electricity generated from biogas for village water distribution and eliminates the street lamps.

**NCHSE -National Centre for Human settlements and Environment:** Augmentation of Energy needs through Biogas and Afforestation for Tribals.

**The Renewable Energy and Energy Efficiency Partnership (REEEP)-** a Vienna based non-government organization engaged in promoting renewable energy, to accelerate the clean energy market in the developing world.

**THE RIGHT MIX & THE RIGHT FIX:** Credibility Alliance - a consortium of NGOs that has been trying since its formation in 2004 to enhance accountability and transparency in the voluntary sector by setting of minimum good governance norms, endorsed by the Planning Commission as a "starting point" for the proposed National Accreditation Council, envisaged as the nodal agency for NGOs. The norms highlight the gaps and loopholes that have allowed bad eggs in the sector to flourish unchecked

A hallmark of a developed democracy is the vibrancy of its voluntary sector and the role it plays as a watchdog and a vehicle for social transformation. With the expansion and maturing of the sector in India, NGO leaders feel that it's high time the government put in place mechanisms to protect the independent character of civil society organizations and give them space to perform the function they are supposed to perform. Some suggestions:

Plans for NGOs are well laid. The problem is in the implementation and corruption is the roadblock. Clean up and modernize the legislative framework to give NGOs a distinct identity. After all, a religious organization cannot be equated with a civil society organization. Yet today, both are registered under the same laws. There are at least five different central laws and a multitude of state and even district-level laws that govern charities, trusts and societies. The government must bring them in line with the needs of a maturing democracy.

### **NGOs to be adequately equipped**

#### **Snap Shots of Studies on Acceptance of Electricity by Non Electrified**

Non-electrified households show strongest multi-fuel dependence • Similarities in fuel use & preference ,– Solar House Scheme (SHS) and Grid households use wood for thermal end uses, and elect for lighting and audiovisual applications – SHS and Non-electrified households want grid electricity for virtually all end uses • Grid-electrified households have least desire to switch .The poor are generally not catered for, PV subsidies benefit the wealthiest rural households • PV systems do not meaningfully enhance productive activities yet often require regular fees • No impact on fuel wood use and incomplete replacement of other lighting fuels • Disposal of Pb and Hg become issues in large scale dissemination for Batteries

- Standards have been variable and long-term maintenance problematic
- Other options have tended to be overshadowed by PV dissemination, eg energisation initiative in South Africa.



Community involvement and ownership is required to ensure long-term maintenance. Projects have not generally provided long-term maintenance arrangements, communities need to be empowered to maintain SHSs. • Community participation to engender sense of ownership and improve security of installations, esp. at public facilities. Thefts of household modules have been less than of modules at public facilities where ownership is less clear. Communities have assisted recovery of stolen modules in Community projects and donated water pump.

Better focus on the poorer households through better targeted subsidies and appropriate incentives • Improving collection of payments in rural areas using local resources and systems. This has worked well in the ESCO project in South Africa where local technicians collect and bank fees locally and payment schedules are flexible. • Financing support for existing, faulty SHSs from new project budgets. The large number of partially functional SHSs damages the image of PV technology • Caution - project tied subsidies and incentives. The GEF solar project had special concessions that distorted the local market. The power level of SHSs is unsuited for productive use. • More realistic assessment of the environmental impacts of solar PV systems. Also consider project motoring, Mercury and Lead risks.



**Caveat** Ensuring availability of spares for the sustained operation of SHSs. In Zimbabwe spares availability is currently constrained by shortage of imports. It is preferable to maximize use of local components as was tried by projects besides the donations.

**DEVELOPMENT MISMATCH:** In Tentulikhanta, a village in Kalahandi Kerala, a crèche, which people sorely needed, had to be closed down for lack of funds. Ironically, a microfinance scheme, which really wasn't a priority there, was implemented. Not surprisingly, those who availed of the loans have been unable to repay

### **Micro Finance is be be ready for a Macro Role in achieving the above**

**Auditing** – Internal Audit for NGOs - a very critical function in the overall risk management system of handling through NGOs. Develop a process of accountability to bolster the credibility of the sector

India's development reports card other wise shows fuzzy priorities. This is the time for New India to rise.



In the face of Fuel Security & Environmental concerns is to partially continue status quo , carbon reduction targets would be met by expanding the use of both large-scale renewable- energy as well as conventional technologies such as Nuclear Power in addition to Carbon Capture and storage enabling continuous use of Coal burning for Power Generation.

The regulatory landscape is also evolving rapidly. With Political will& MNRE standing behind Renewable energy targets, the portfolios of Power Generators will change soon including Distributed- Generation Plants

Renewable Energy when connected through Grid will act as a balancing mechanism to manage troughs and peaks of Power Supply & Demand through Smart Grids with advent of today's IT – infrastructure & optimization software. Thus day time Renewable Energy Generators (Producers) will be consumers in the night thus called "Prosumers". This will also help in promoting combined heat & power

**Conclude- It is recommended that:**

**Targets** - The setting of binding national targets for the production of renewable energy is one of the most effective mechanisms to accelerate their introduction.

- All State governments set and achieve State wise binding short- and long-term renewable energy targets.
- In supporting access to energy in developing countries, international funding agencies and Overseas Development Assistance (ODA) give priority to renewable energy projects that support National targets, Greater Energy Security, Capacity Building, and Poverty Reduction and Maximize Local Benefits. GoI to take it up appropriately.

**Enabling International Financing Framework** - Given that an active political commitment to renewable energy with adequate financing mechanisms has multiple benefits such as economic development, job creation, energy security and reliability, GoI to take up at appropriate forums:

- International Financial Institutions and Export Credit Agencies set meaningful and ambitious renewable energy targets. Part of the funding should be geared toward the development of energy commodities export markets in least developing countries.
- A new Global Renewable Energy Investment Bank is established at International level & one similar in India . The grant capacity of the Global Environmental Facility (GEF) to finance environmental and other benefits of renewable energy should be increased and be added to the new Investment Bank.
- Governments actively participate in and finance partnerships that promote the financing of renewable energy and energy efficiency (including REEEP and GVEP), technology transfer and collaboration.
- All subsidies and tax credits for fossil fuel and nuclear power are phased out and support redirected to efficiency and renewable energy development. In order for a just transition, a parallel supply of renewable energy must be made available, particularly to those end-users facing hardship.
- The World Bank led Framework for Clean Energy and Sustainable Development must introduce substantial new money for renewable energy and energy efficiency and exclude support for coal or nuclear projects.

**Enabling Technology Transfer and Capacity Development** - Better technology transfer initiatives and enhanced international collaboration are needed to maximize renewable energy development. GoI to take up appropriately.

- Improve the technology transfer mechanism of the UNFCCC (Article 4.5) to facilitate and increase the adoption of renewable energy projects in developing countries.
- Design and implement new international, regional, national and community collaboration efforts focused on training, education, and local capacity development.
- Provide incentives to set up manufacturing plants of renewable energy equipment in developing countries, the goal of which is to build up local capital, engineers and technicians and thereby personnel capable of installing and maintaining equipment.

*Once the Power Generation reaches the Rural India ,the Technology of Smart Grids can help the Rural India to feed Solar Power or Biomass Power to the National Grid for a small Electrical Lighting Load in the night . For Non Grid connected areas, NGOs can help store energy for the night lighting through Micro finance offers. GoI is thus required to generate higher confidence in Renewable Energy*

*NGO to act as entrepreneurs. Play in multiple parts of the value chain but predominantly work in a few geographies. Such companies will create value by developing a deep understanding of conditions in the region and leveraging their strong relationships with stakeholders, and get access to privileged resources.*

**Renewable & Smart Grids will reshape the Energy Sector towards a Distributed – Power World and help India for an Inclusive Growth**



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