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## Sustainable Energy Development in North East of India as a Life Line for Tribals with Local Job Creation

The hilly terrains of North East India have been facing challenges of meeting its energy requirements. The proposed NICHE Design can reinforce Government's Make In India initiative in the region.

**N**orth East India terrain is a challenge to have grids to supply energy to hamlets (remote houses in hilly area), hence, many off grid solutions are propping up. However, despite giving over Rs.500 crore subsidy under RGGVY (Rajiv Gandhi Grameen Vidyut Yojna) as 90% subsidy for the off grid Solar PV with battery, many are not working nor existing, hence, proving a poor implementation, no accountability and no maintenance as the skilled labor does not exist.

Few also tried the models to own 500kw system under RGGVY and charged 2 or 3 bulb energy supply (which works out to be Rs. 35 to 49/kwh), which a poor villager can't afford and stopped paying such tariff and the battery life being low, the Investors (both social, NGOS or accelerated depreciation or tax evasion types) lost money and many are in junk status as extortion of these people, legally is not valid!!

Since, 67 years of Independence, it is a pity that Government of India did not provide electricity to these deprived villages (around 1.3 lakh villages do not have electricity out of 6.5 lakh villages is the estimate, however, Government states only 75,000 villages do not have grid electricity).

These deprived Indians don't enjoy the constitutional equality due to failed IAS system of governance, yet, the policy is being made by these IAS officers without base knowledge or expertise, hence, time has come to think of Mini grid solutions instead of off grid solutions.

Mini grid is like any of our pole and wiring system from the evacuation with metering to consumers. Since, these deprived people use either wood or kerosene or gas for lighting, all of which come at a high subsidy apart from lung disease due to gas emission, Indian Government MUST provide mini grid sustainable solutions with accountability and maintenance by promoting rural / local entrepreneurs.

In future, if a grid passes nearby, it would be easy to connect to these Mini grids as the basic infrastructure is met with.

Let Government invest Rs.8 crore /MW (Solar PV + Agriculture) + 3 crore for Mini grid to cover houses / small business establishments in the hamlet (depends on the area to be covered) and provide the funds (100% funding) to the lowest bidders. Let the bidder to do EPC and maintenance for 25 years.

Please note that in an area of 25m x 500 m, we can house 1 MW Solar PV plant with a green house like structure with PV panels located around 3 meter above the ground level to enable the scientific, precision farming with drip irrigation technique to have ionized fertilizers or even promote organic farming to ensure "Per drop More Crop"

No question of PPA as the energy generated is a free supply to these poor people, like, what Punjab politicians are doling out freebies to Rich Farmers owning Mercedes!!

The O&M, agriculture profits, briquettes selling out of agro waste shall be modeled by the Bidders and seek a minimum

maintenance charges from the Government after deducting these profits with operating expenses. Thus, there will be local jobs for unskilled local tribals as well apart from energy development and to promote agriculture below the PV panels, hence, no wastage of land and also ensure future food security to the Nation. Under the shade, the tribals know what can be grown, hence, under PV panels, there is much agriculture, vegetables, sericulture feed, Ayurvedic medicinal plants etc can be grown while maintaining the soil conditions.

One pilot project of 1 or 2 MW can be established with Local NE partner with funds from the Government before scaling up after the pilot.

Please note that these deprived people should be given more energy (not just 1 or 2 bulbs energy supply through off grid models) as they have retained our Country boundary despite being in dark, hence, to run the water pumps for house, agriculture, RO system of good quality drinking water, aata chakki running, small shops / business evolution will all happen when they find surplus energy and when the economy improves, these people can be brought on mainstream line of Economy.

Kindly note that the tax evasion by the large corporate companies by way of accelerated depreciation / other incentives are much higher than the expenses what we do on one such village development esp. North east while creating jobs to these tribals, otherwise, their lively hood will be a question and also becomes a deterrent

for terror activities due to such economic development activities.

Due to Our company's core focus and research / Innovative designs with ideas presented during B2G meeting of Vibrant Gujarat, my input to the Karnataka Government as technical committee member to the Solar Committee with our presentation made to the European Business Technology Centre in 2011 and due to the top MNRE officials of having such projects in Europe, we could convince Government of Gujarat to establish such pilot projects in Gujarat for such inherent advantages of Solar PV project and Scientific agriculture below the PV panels and we can support the North East State Governments and also other state governments of INDIA / CSR Entities or Foundations, to establish such pilot projects to create local entrepreneurs and local jobs to have Energy Security and Food Security.

#### **Proposed NICHE DESIGN will have following minimum benefits**

- Utility Scale Large or UMPP Solar PV projects Concentrated in 2 states and incurring huge expenses on Evacuation, with huge solar park related expenses or its infrastructure management will render LCOE as unsustainable in future, despite Rs.4050 Cr land buying scheme through public money to solar park developers.
- Solar Parks and waste of land below the PV panels, though LCOE (Levellised Cost of Energy) can be shown less with huge subsidies / tax evasion to few large corporate companies, but, transmission losses will make high LCOP (Landed Cost of Power) to the people of India, by creating few Crony Capitalists or only Large Corporate company, thus, no space to create New Generation Entrepreneurs.
- 1 or 2 kWp roof top systems on residences and 100kw on commercial roof top have huge maintenance challenges apart from storage – Integrated PV application costs, Time of Usage concept challenges in a poor DISCOM scene.
- Considering the 100 GW solar pv dream, we will be needing over 4.5 lakh acres of land in arid area, but, we can harness solar pv energy in a more decentralized way without wasting the

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land below the pv panels, hence, Energy Security and Food security based on Decentralized Energy Generation, through passionate, Qualified and Mentored Rural Entrepreneurs.

- Each Taluka project of 10 or 20 MW Solar PV + Agriculture below PV panels, with contract farming, with agro processing will create lot of rural entrepreneurs and provide millions of Rural Jobs with Scientific Agriculture farming techniques and also to take care of Deration of PV Energy generation of 0.5% every year.
- Inclusive growth with Energy in Each taluka feeder / grid, thus, day energy is consumed in the day, thus, very cheap LCOP to the people of INDIA due to the absence of transmission / Distribution losses. Thus, less spending by the government on evacuation infrastructure. Hence, the Correct PV technology is deployed i.e. "Consume PV energy at the point of Generation with less T & D losses"

#### **Key Objectives**

- India has 5924 Taluka places as per Revenue recognition and Millions of Engineers and Diploma holders with ITI educated Young Indians are getting graduated every year, huge human capital availability.
- Due to the Decentralized Energy generation through Renewable Energy resources in each taluka through many of these Young Indians as mentored entrepreneurs will create lot of rural jobs, increase GDP, reduce the transmission losses and also ensure Energy security & Food Security to each taluka with Sustainability.

- Creation of Rural Entrepreneurs with 100% debt as against non recoverable and Government discretion / controlled and non recoverable public funding through Capital Subsidy, Accelerated Depreciation, Viability Gap Funding, Equity padding etc. Hence, a great saving to the nation and improvement of the Economy.
- Deployment of proven technology, Studied, transparent business and finance models with Mentoring will ensure the sustainability of the Economy through such passionate rural entrepreneurs.
- Renewable Energy projects with Hybrid concepts with rural entrepreneurs as part of the reduction of Carbon foot print as part of Climate Change Initiative including the captive power plants etc with our Sweat stakes.

#### **Make / Rebuild INDIA through Small Entrepreneurs**

- Indian Industry has received an average Subsidy / Financial incentives from 1992 liberalization period at an average of Rs. 4 lakh crore to 6.5 Lakh crores/year, thus, over Rs. 60 Lakh crore subsidy or public money support was doled out, yet, no jobs, high power tariff being paid by the common man & the Engg. Industry is not competitive due to high tariff.
  - For promoting only 28 GW of Renewable energy through Capital subsidy, Viability Gap Funding, Accelerated Depreciation (only to make rich as rich and not Make In India), Government of India and State Governments have doled out over Rs. 1.36 Lakh CRORE, yet, very high energy price, ironically, no EQUITY is deployed due to such subsidy and tax evasion schemes, yet, few of these promoters not re-paying the debt.
- Govt. of Gujarat funded Tata Nano, over Rs. 5000 Crore at only 0.15% interest rate / year for 20 year term, so, if 100% debt fund is extended to the Unemployed, Qualified and Mentored Entrepreneurs, all taluka places can be converted in to Smart Cities through Rural Solar PV projects to ensure Make In India and also Made For Indians to offer low cost and affordable clean energy without subsidies and create millions of Rural Jobs ◀◀