



REPA
Renewable Energy
Promotion Association
CIN: U93030MH2011NPL223288

FORUM



'RUSM 400 GW'
Rashtriya Urja Sourya Mission
INDIA A Solar SuperPower
Mission
400 GW Solar by 2025

Adopted First at



Incorporating: Make-in-INDIA for Solar

100 GW Solar by 2022

(1st Published & Released in Surat, Gujarat, April 2013 for 100GW by 2022 Research Outcome CIRCA EnPower Solar 2009 - Conclave Chaired by Ambassador Shyam Saran, then Principal Advisor to PM on Climate Change & later Chairman, National Security Advisory Board, Gov. of India & RIS - Research & Information Systems for Developing Countries. The Study leading to "White Paper on Solar - RUSM" was later endorsed by Dr. D. J. Pandian, Former Chief Secy & Principal Secy Energy & Petro, Gov. of Gujarat & Now VP & India Chair at AIIB (Asian Infrastructure Investment Bank) @ the 4th EnPower Solar 2012 held in Ahmedabad). REPA's 100 GW Solar advocacy of 2013 was adopted by the Gov. of INDIA in August / September 2014 after a Series of Deliberations via the MNRE (Ministry of New & Renewable Energy). Later under the Chair of Dr. Upendra Tripathy, DG, ISA (International Solar Alliance), it become INDIA's Global pitch. Dr. Tripathy was the former Secretary, MNRE and the first 20 GW Solar Achievement under NSM (National Solar Mission) credit goes to Tarun Kapoor, Ex. Jt. Secretary, MNRE as INDIA poised to cross 40 GW of SOLAR Installed by mid 2020 as predicted by REPA & ENERTIA journal.
Now Expanded to 400 GW for 2025 at "10th EnPower Solar 2019"



Mission - 'PUJYA'
Pawan Urja Jagat Yukt Abhiyaan
150-200GW Wind Energy
by 2025 (includes Off-Shore)

Wind Energy Forum of India

ENERGY
FUTURES
2047

Investment for Inclusion (I²),
Mitigating "ENERGY POVERTY"
via Sustainable Engagement,
Employment & Deployment

INDIA's Apex Non-Profit Umbrella Association & PPP
(Public-Private Participation) Body for Renewable Energy (RE) &
Sustainable Sourcing
Promote, Encourage, Manage, Assist and Organize an integrated and Efficient
Development of Solar Energy, Wind Energy, Nuclear Energy,
Bio-Energy, Energy from Waste (EFW), Geothermal Energy & Tidal Energy
Energy Generated from Renewable Energy & Natural Resources in India
and Globally for a Sustainable Clean & Green Future of the Planet



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'RUSM 400 GW'
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INDIA A Solar SuperPower
Mission
400 GW Solar by 2025



Incorporating: Make-in-INDIA for Solar

Some Key Achievements of REPA

Renewable Energy Promotion Association (REPA) is India's First Ever and only professional (public-private) Not-for-Profit Body Corporate Umbrella Association for Renewable Energy established U/s 25 of Companies Act 1956 and today REPA is at the forefront of Renewable Energy (RE) Policy construct & Mission objectives based on the "Renewable Energy Promotion Association – ENERTIA Foundation White Paper on Solar for achieving RUSM (Rashtriya Urja Sourya Mission) - INDIA – A Solar Superpower" - Mission 2022, 100GW solar by 2022 (RE portfolio of 175 GW by 2032).

On 9th March 2016, "2nd REPA STATE Awards 2016" – *State Excellence in Renewable Energy & Carbon Defrayment, Energy Security, Energy Access & Sustainability in Governance*, were instituted.

REPA has also instituted "SOURYA Urja Puraskar" – *India's Premier Awards for Solar Power* in 2014. Also REPA has been organizing the "EnPower Solar" Summit & Conclave since 2009 and the 10th EnPower Solar was held in 2019.

"Renewable Energy Promotion Association (REPA)" members have committed the maximum to the "PMO's Green Energy Commitment" (GEC) across REPA forum "RPO Conclave" held as a prelude to Gol, MNRE "RE-Invest" Circa 2015.

REPA has been closely working and assisting policy construct with MNRE (Ministry of New & Renewable Energy), Government of India & State / Federal Nodal agencies for RE (Renewable Energy), (Indian Renewable Energy Development Agency) IREDA & Solar Energy Corporation of India (SECI) etc. since inception.

INDIA's Apex Non-Profit Umbrella Association & PPP (Public-Private Participation) Body for Renewable Energy (RE) & Sustainable Sourcing
Promote, Encourage, Manage, Assist and Organize an integrated and Efficient Development of Solar Energy, Wind Energy, Nuclear Energy, Bio-Energy, Energy from Waste (EFW), Geothermal Energy & Tidal Energy
Energy Generated from Renewable Energy & Natural Resources in India and Globally for a Sustainable Clean & Green Future of the Planet



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"KUSUM - Kisan Urja Suraksha evam Utthaan Mahabhiyan"
& "SAUBHAGYA - Pradhan Mantri Sahaj Bijli Har Ghar Yojana" for Last Mile Rural Electricity Access
A Clear Step in the direction to adopt REPA recommendations of 'Pro-Bono Solar Infra for Rural INDIA'
ENERTIA - Asia's Premier Journal on Sustainable, Energy, Power & Renewables
Official Publication of REPA Editorial December 2015 was the First to Report the
IPDS - Integrated Power Development Scheme which has led to 'KUSUM' & 'SAUBHAGYA' schemes

For the 'Green Energy Commitment (GEC)' target achievements,
 REPA has potential plans that could move 30-40GW of Solar of the total 100GW
 targeted under the initiative by Hon'ble Prime Minister of India, Narendra Modi
 as a commitment from India across the International Solar Alliance (ISA) founded by
 INDIA, FRANCE & 150 odd countries starting at COP21 Climate Change Summit held in Paris - CIRCA Dec 2015
 and initiated by Prime Minister Narendra Modi and then French President, Francois Hollande
 leading to the establishment of the ISA Headquarters at Gurugram - 25th Jan 2016 in the National Capital Region (NCR),
 New Delhi where REPA was the Apex India based RE Chamber that was the part of the proceedings of the ISA Launch



Dr. D. J. PANDIAN
 VP & Chief Investment Officer,
 Asian Infrastructure Investment Bank (AIIB);
 & Former Chief Secretary &
 Ex. Principal Secretary
 Energy & Petrochemicals
 Gov. of Gujarat
 has also been the recipient of
 Hall of Fame Award for
 Best Bureaucrat Affecting
 Transformation - Power & Energy
 for His Yeomen Contribution
 ENERTIA Awards are Partnered by REPA



Dr. UPENDRA TRIPATHY
 Former Secretary, Ministry of
 New & Renewable Energy (MNRE) Gov. of India
 who received the Prestigious "10th ENERTIA Awards 2016" for
 "Life -Time Achievement" 'VAJRA' Trophy' on 29th December 2016,
 Dr. Tripathy went on to become the 'First Interim DG of ISA'



‘25 GW FREE Solar Power - One time Infra’ for Rural INDIA

Letter Petition and Representation sent to Hon'ble Prime Minister Narendra Modi
by REPA Forum - SEFI (Solar Energy Forum of India) dated 5th April 2016

The Government of INDIA has a great opportunity to bring a "Ray of Hope for our Rural India" with 60% + India's population living in rural areas consuming only 28% of its electricity. This hope comes from his fantastic visionary pitch of "100 GW Solar for 2022", which "Renewable Energy Promotion Association (REPA)", has coined as "Rashtriya Urja Sourya Mission (RUSM)" for making "INDIA - A Solar SuperPower by 2022". REPA has expanded this SOLAR target to 400GW by 2025. In the same time the Wind Energy target potential are 60GW by 2022 and 200GW by 2025 (including Off-Shore and Wind-Solar hybrids)

In fact, under the "RUSM", we can do wonders if in "Union Budget", the Government could tweak "FARM CREDIT" which is a figure of Rs. 1.4 Lac Crores (US \$ 200 Billion per annum) by just providing a fraction of it for SOLAR Infrastructure (9% of the annual budgetary outlay).

****Now, Here is the Solution for the Government, for sending & achieving "Free Solar Electricity" to the "Farm Sector / Rural Economy in India" for 6-hours a day with a One-Time Investment of Rs. 1,25,000 Crores (US \$ 17.85 Billion) via Farm / Rural Credit for 25 GW+ of Solar Power Generation (SPG) Infrastructure for Rural India -- A Sure-Shot Politico-Economic Winner Strategy for the Government to Adopt.

Mark it that this 25 GW with Rs. 1,25,000 Crores of the Rural or Farm Credit as a onetime defrayment from the Union Budget will trigger massive economic upheavals as follows :

1. Will give Continuous and Sustainable 6-hours of Solar Power to the entire Rural Sector of India covering 60% of India's population, thereby fulfilling major objective of the idea of "Power for All". This can be achieved well ahead of 2022.
2. Will bring Massive Manufacturing Upheaval for execution of 25 GW within 18 – 24 months across Solar PV triggering internal capacities of manufacturing of 12 – 15 GW (12,000 – 15,000 MW) for Solar PV Systems making India the leading Solar Manufacturing Country / HUB, along with China. This will ensure that we go to the cycle of "SILICON to Power Generation" for indigenization and local build up of Solar manufacturing for raw material to electricity within INDIA.
3. Will bring 50 Lac jobs / employment in this Solar Sector via this upheaval in manufacturing and project build-up as well as Operations & Maintenance (O&M) services with 40% of these jobs going to the Rural Economy.
4. Will Save Equivalent Quantum of Electricity i.e. "45 Billion Units (Kwh)" (which is presently going scot-free every year to cover the Rural subsistence), thereby releasing the Power for Urban Centres and making them Energy Sustainable under this plan.
5. Will Prevent massive Rural migration to Urban areas and bringing that to 20% of present levels.
6. Will bring "6-Hours of Free Power Perpetually and in a Sustainable Way" to the Rural Economy through a "One Time Defrayment Model" setting up a Unique and Global example for Welfare State Democracies – The INDIA Way.
7. This will trigger Rural Productivity Upheaval that will add 10% to India's GDP making its Growth Sustainable.
8. Due to reasonable availability of electricity using the Solar Renewable, the Village Economy, its Education and Health sectors will also see substantial improvement and growth, not to mention the overall positive impact on Rural life and its Quality.
9. Then post such step and its successful commencement, we can go for a Stage 2 Project – Battery back-up for Solar in the Rural Sector along with distributed and decentralized Micro Grids for "Smart, Self Sufficient & Sustainable Village Economy ". This will need budgetary allocation of an additional Rs. 2 Lac Crores (US \$ 28.5 Billion), which the government could further allocate in Farm Credit Priority Lending (FCPL) across "Union Budgets" that will result-in completely rendering the Rural India economy achieving "Freedom From Dependence".



Our Forums



President



President & Promoter Director,
REPA
Prof. A. G. IYER
Editor-in-Chief & Founder Publisher
ENERTIA, Falcon Media

Jt. President



Hon. Jt. President &
Co-Promoter Director, REPA
HETAL MEHTA
Hon. Regional Director,
ENERTIA - Gujarat

Late Co-Founder & Ex. Sec. General



Late Sri A. PRAKASH IYER
Former Executive Publisher & Editor
ENERTIA journal

REPA - National Advisory Committee (NAC)



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& Former VP, IHA
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Former DG, CPRI



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Former Director-Technical,
NTPC Ltd.
& Advisor - Power,
NLC India Ltd.



S. K. SHUKLA
Former Director - THDC



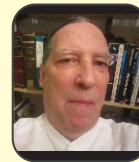
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CEO
Adani Power



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Silver Member, REPA;
Director & CEO
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Director & Dy. SG, REPA;
Exec. Editor & Project Director
ENERTIA

Co-ordination Markets



GANESH IYER
CEO & Director - Markets
MARKENOMY



FORUM



&



(1st Published & Released in Surat, Gujarat, April 2013 for 100GW by 2022
Research Outcome CIRCA EnPower Solar 2009 - Conclave Chaired by
Ambassador Shyam Saran, then Principal Advisor to PM on Climate Change
& Now Chairman, National Security Advisory Board,
Gov. of India & RIS - Research & Information Systems for Developing Countries.
The Study leading to "White Paper on Solar - RUSM" was later endorsed by
Dr. D. J. Pandian, Former Chief Secy & Principal Secy Energy & Petro,
Gov. of Gujarat & Now VP & India Chair at
AIIB (Asian Infrastructure Investment Bank)
@ the 4th EnPower Solar 2012 held in Ahmedabad)

Now Expanded to 400 GW for 2025 at "10th EnPower Solar 2019"

'RUSM 400 GW' - Rashtriya Urja Sourya Mission INDIA A Solar SuperPower Mission 400 GW Solar by 2025

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Prof A. G. Iyer &
Late Shri A. Prakash Iyer

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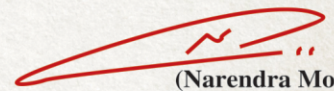


Date: 01-02-2014

MESSAGE

Energy in present scenario can be defined as E-entire, N-natural, E-elements, R-run for G-good, Y-yardstick. It's a creation by GOD, used for the protection and welfare of mankind and every living being. Different kinds of energy have their own identity and belief, explained in holy books of all religions. Now a days the misuse of energy have resulted in global warming and ecological imbalance. The good governance of energy, with intent to protect environment and all human being, is most important.

I wish that "ENERTIA Foundation - 2nd IPE Conclave 2014" and discussions of "6th Enpower Solar 2014" and "4th Grid Smart 2014" in association with REPA will throw light on the vital subjects, to be discussed. I congratulate organizers and all participants.


(Narendra Modi)

To,
Shree A. Prakash Iyer, Executive Publisher & Editor,
Falcon Media,
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Shantaram Tower, Shivaji Path,
Ganesh Nagar, Dombivli West,
Thane-421202, Maharashtra
Email: enertia.falcon@gmail.com

Narendra Modi
Chief Minister, Gujarat State



Late Sri A. 'PRAKASH' Iyer

Enlightening, Illuminating & Empowering LIFE....

Former Executive Publisher & Editor, ENERTIA

*Co-Founder VP & Trustee Secretary,
ENERTIA Foundation*

Co-Founder, Sr. VP & Secretary General, REPA

Let us Commit to His Vision for
“PRAKASHmay Rashtra
Ujjwal Bharat - Ujjwal Bhavishya”
*Bringing Last Mile Access & Connectivity to
Empower India & Its Economy by 2022*
Renewable, Clean, Green &
Sustainable Energy & Infrastructure

Hon. Narendra Modi, His Excellency then Chief Minister of Gujarat
addressing the massive gathering at the
214MW "Gujarat Solar Park" (then Asia's Largest Solar Park) at Charanka Village,
Dist. Patan, Kutchh Region,
Gujarat (19.04.2012)



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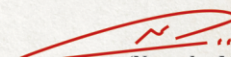
Date: 18-09-2013

MESSAGE

Energy, as accepted, welcomed and rejoiced by the Indian culture, is having pious place in our daily lives. All the forms of vital energy and life forces are an intricate part of our scriptures. They are better known to us as "पंच महाभूत", the five elements of life.

In India, as we have always respected all the forms of energy, we can see that all the architecture of temples are energy efficient and are well aligned with the natural forces. Nowadays, the direction of innovation and research on energy is getting diverted to renewable energy, which happens to be the need of the time.

I wish that "Maha Enfra Conclave 2013" and "6th Decent Energy 2013" being held on 26th - 27th September 2013, throws light on the vital subjects to be discussed and also congratulate all those for "Markenomy Awards" for Sustainable Infrastructure.


(Narendra Modi)

To,
Prof. A. Prakash Iyer, Secretary,
ENERTIA Foundation
218, Gopi Cine Mall, Nana Shankar Sheth Road,
Dombivli West, Thane-421202, Maharashtra
Email: enertiafoundation@in.com

Narendra Modi
Chief Minister, Gujarat State



Date: 10-04-2013

MESSAGE

Every tunnel has light at the rear end. The gloomy condition prevailing in energy sector also has light of renewable energy option. Natural abundance of wind and solar energy are still to be tapped to its fullest by mankind. The multisectoral multidimensional approach of generating energy with natural resources combined with technology can bring "Power Surplus".

It is equally important to save energy in terms of stoppage of wastage of energy consumption. Gujarat has carved the niche in terms of becoming energy surplus state. Gujarat is first amongst other in implementing solar parks and wind parks. The Narmada canal solar roof top project is one combination which depicts multisectoral gains in terms of energy and economy.

I wish 'ENERTIA', 'ENERTIA foundation in association with 'Renewable Energy Promotion Association' for Organizing "India Power and Energy (IPE) Conclave 2013" at Surat on 26th and 27th April 2013 all the best.

I hope that this discussion forum would provide platform for energetic experience sharing and best practices in power sector.


(Narendra Modi)

To,
Shri A. Prakash
Secretary, ENERTIA Foundation
Executive Editor & Director Marketing-ENERTIA journal, "Falcon Media"
Sr. VP & Secretary General, Renewable Energy Promotion Association, REPA
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Narendra Modi
Chief Minister, Gujarat State

held in SURAT, GUJARAT on 26th & 27th April 2013



ENPOWER SOLAR

Glimpses from 2009-2015



Under the Aegis of

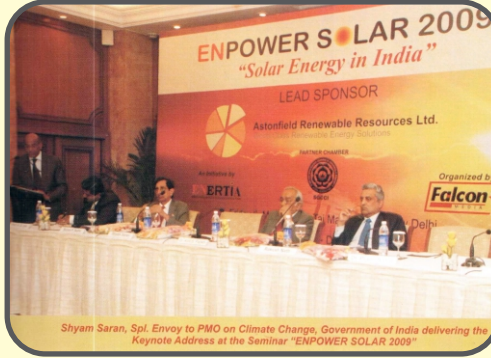
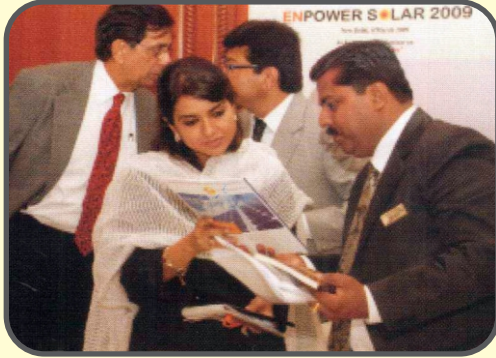


In Co-operation with



SOURYA URJA Puraskaar

India's Premier Awards for SolarPower Sector





REPA – Board and Industry representatives, recorded the following 10 Points of “Additional Representation” post the MNRE meeting with Manufacturers of Solar Cells, Modules, Inverters etc. held on 3rd June 2014 at MNRE.

- 1) Incentivise Manufacturing of Solar in India through providing “Working Capital” availability at 5-7% from banks and Financial Institutions to Solar PV and other Solar Manufacturing System. This can be extended to the entire Renewable Energy (RE) Portfolio subsequently after successfully implementing it in the Solar domain. In the same way, Banks and Financial Institutions in India must provide Low Interest Loans and Debt Financing to the Solar Industry at 5 to 7% to later on extend to the entire Renewable Energy (RE) Portfolio with RBI back-up or through a secured ECB mechanism. The reason for this interest rate intervention being essential is that this will stop the dependence on FIT (Feed-in Tariffs) regimes and make the Solar and Renewable Industry self-sustaining. This will also incentivize both the Manufacturing Industry of Solar and also the EPC & Developers of Solar Power and also the Renewable Energy (RE) in the future. This in REPA's opinion is a “Necessitating Policy Intervention” to encourage “Clean & Green development” as in the case of “Sustainable RE”.
- 2) Create separate Equity and Debt funds for Solar for the above purpose. Government must direct RBI to come-up with a special lending rate for Green Energy Financing called Green Energy Lending Rate (GELR) specifically aimed at competitive rate lending on long term (20-25 years) for all Non-Carbon based Green & Renewable Energy Projects in India (Hydropower, Solar, Wind etc.).
- 3) Create multiple Green Energy & Renewable Energy Funds specifically directed for promotion of Green Energy Ventures in India including Green Buildings, Green Enclaves and Green Estates driven by Zero Carbon Energy & Power. The Multiple Funds for the purpose can be established through (PPP) Public Private Participation Mode with allowance for Foreign Direct Investments (FDI) and Overseas Private Equity (PE) Tie-ups.
- 4) That the “Anti Dumping Duty (ADD)” should be only applied to the “Solar PV Assembly” imports so that industry of Solar PV Assemblers or Solar Panel Makers do not face the threat from Cheap and Low-grade Chinese Imports. Hence the “Anti Dumping Duty”, which we at REPA label as “LT-ADD” [Low Technology – “Anti Dumping Duty”] must be limited and imposed on import of Panel Assembly from Overseas markets. Such a step, will help India's own Solar Panel Manufacturers to expand to Giga-Watt scale, while allowing for import of basic raw materials (*Ingots, Solar PV Cells and Wafers etc.*) at low cost especially in the Monocrystalline and Polycrystalline segments, which is the most cost competitive technology for the Solar Photovoltaic (SPV) Power Plants.
- 5) All Solar Manufacturing in India be extended deemed export benefits irrespective of location being SEZ or otherwise. Special Incentives to be given to R & D (Research & Development) Technology Innovation and encourage Indigenous development of “Market Disruptive Technologies (MRTs)”.
- 6) Allow Insurance Funds to have exposure to Solar & other Green Energy Financing. Incentivise community roof tops via ESCOS to popularize insurance linked long term solar investment plans for Rooftop Solar-Grid connected systems.
- 7) Encourage Rural Solar via community decentralized Solar Power Systems.

8) REPA recommends that it will be better if the MNRE proposes instead of an FIT regime in the future, a 20 GW of one-time Investment in the rural economy for Solar Roof-tops and Standalone decentralized Micro-Grids. Budgetary Allocation for this purpose is essential as that will empower and energize the rural economy of India with an investment of US \$ 25 Bn at today's cost or Rs. 1,50,000 crores. This will be a onetime investment that will trigger the rural economy and enhance its contribution to the GDP while bringing positive Socio-economic impact to Rural India and realizing the goals of "RELSII (Remote Location of Strategic Infrastructure & Industry)" as mentioned by the authors of 'India Brandished – The Branding of a Nation' (Prof. A. Gopalakrishnan Iyer & Shri A. Prakash Iyer). This is also commonly the goals of "Rurbanisation" as popularly mentioned and used in the "Gujarat Model of Development". Subsequently, the Solar and Bio-methanisation Hybrid Model based Power Generation (Gobar Gas Power) can make a long time sustainable model of Rural Power

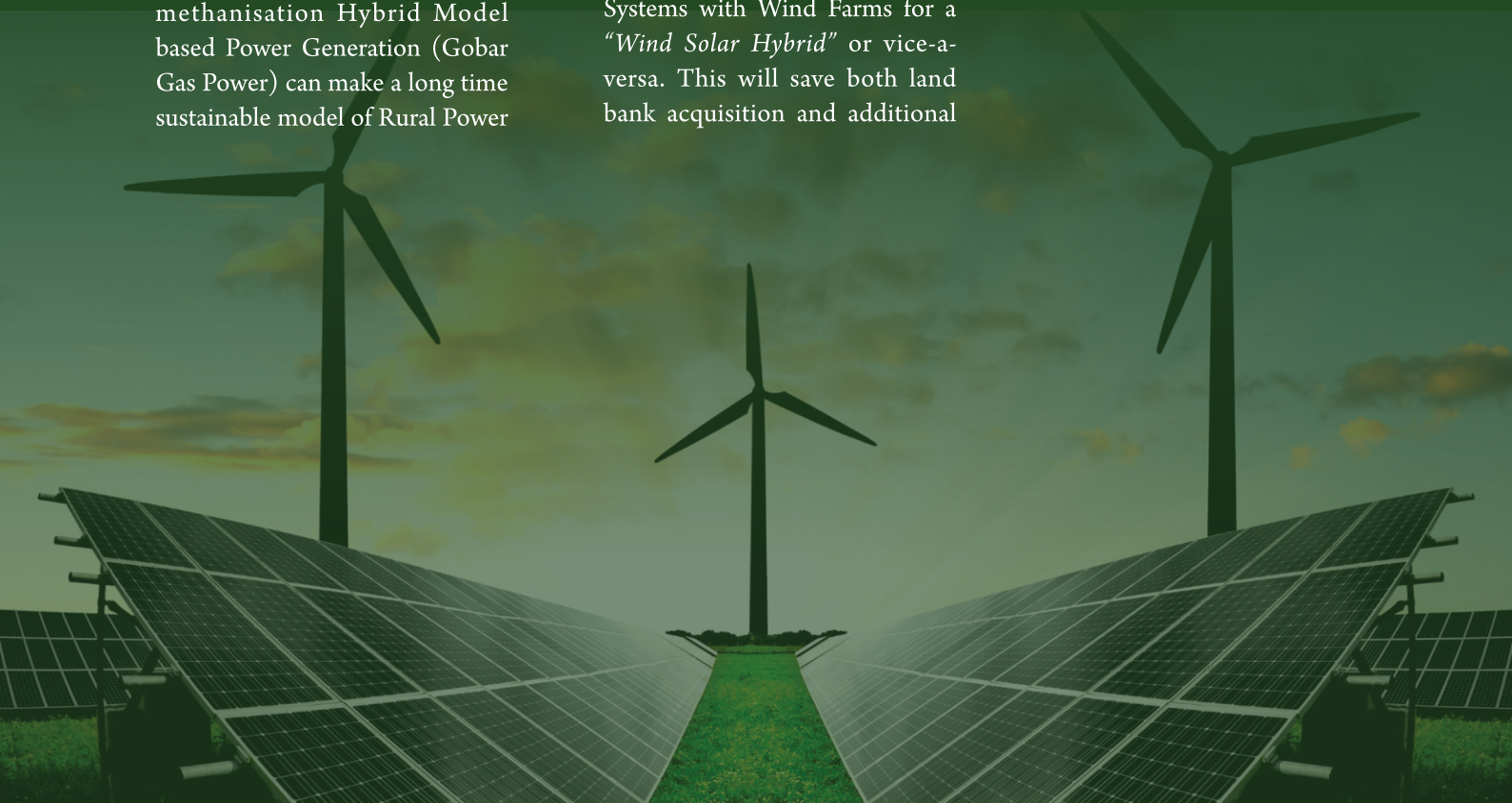
Generation, delivering even without the Battery Back-up, minimum of 12 hours of sustained electricity for the rural economy. This decentralized model will phenomenally bring down / defray cost of investment in large transmission corridor and Investment in transmission infrastructure and other allied Distribution & Sub-Distribution system while ensuring Carbon Defrayment or Mitigation.

- 9) Convert all telecom towers to Solar adaptability and save on the diesel subsidy. This will also enable Rural penetration of the Telecommunication, which has failed to happen in the absence of the same owing to heavy subsidization of diesel which makes the remote operation of telecom infrastructure unviable. Solar & Bio-energy hybrid for telecom provides transformation potentials for rural telecom.
- 10) Encourage Solar & Wind Hybrid so that the Land bank available with Wind Power Operators, Developers and IPPs are released for retro-fitting of Solar PV Systems with Wind Farms for a "Wind Solar Hybrid" or vice-versa. This will save both land bank acquisition and additional

land bank requirement while unleashing Giga-Watt Scale development of "Wind Solar Hybrid" and consequent tariff rationalization. It is important to have special policy construct for such "Renewable Energy Hybrid Power Plant" as this will give bankers the comfort to fund these projects and resulting in unleashing of Renewable and Sustainable Energy Markets imminently.

The above are the Core 10 Points represented with **MNRE** by "Renewable Energy Promotion Association (REPA)" which is India's First Ever and only professional (public-private) Not-for-Profit Body Corporate Umbrella Association for Renewable Energy established U/s 25 of Companies Act 1956.

****** Note : REPA's DCR (Domestic Content Requirement Model) recommendation had been favorably adopted as a Strategic Alternative to Anti-Dumping Duty by the MNRE until the advent of Safe-Guard Duty (SGD).**





India's Solar FIT (Feed-in-Tariff) policy has potential scope for expansion into SAARC

“Bhutan & Nepal can be First beneficiaries as Hydropower & Solar make the perfect hybrid power trading portfolio for Himalayan region especially Bhutan and Nepal” says Prof. A. G. Iyer, President, Renewable Energy Promotion Association (REPA) at “7th Hydro Vision Conclave 2014 – An Indo-Bhutan Discussion Forum

Wednesday, 27th August 2014 –
Thimphu, Bhutan.

While, Hydropower offers great potential scope for expansion of the economic contribution to Bhutan, it will be critical that the fledgling economy of Bhutan refrains from putting all its eggs into one basket in order to ensure a sustainable and balanced GDP growth.

Hydropower will continue to remain the main-stay in Bhutan's economy over the next decade of growth of its

GDP, with tourism forming the next big contributor. The expansion of Energy Co-operation portfolio to “Solar” with India has equally great potentials, with India poised to expand and double its *National Solar Mission (NSM)* from current levels of 20GW to a new level of 40-50GW by 2022 under a competitive FIT (*Feed-in-Tariff*) regime.

The scope of expansion of this FIT (*Feed-in-Tariff*) regime to Bhutan and Nepal is an area that can be quickly established with far reaching impact for these countries, whose



private sector can benefit phenomenally from India's own Solar expansion. Taking the case of Bhutan as an example, the current India FIT (*Feed-in-Tariff*) has a discovered Tariff range of Rs 6.50 Per kWh – Rs 7 Per kWh as per the last NVVN (*NTPC Vidyut Vypar Nigam Limited*) tender and can be extended to Bhutan. NVVN is a subsidiary nodal company of India's Power sector leader NTPC, with mandate for “Solar Power Portfolio (SPPo)” expansion, absorption, purchase and trading as the same can be extended to a 25MW of Solar Power purchase from Bhutan over 1-year in capacity terms.

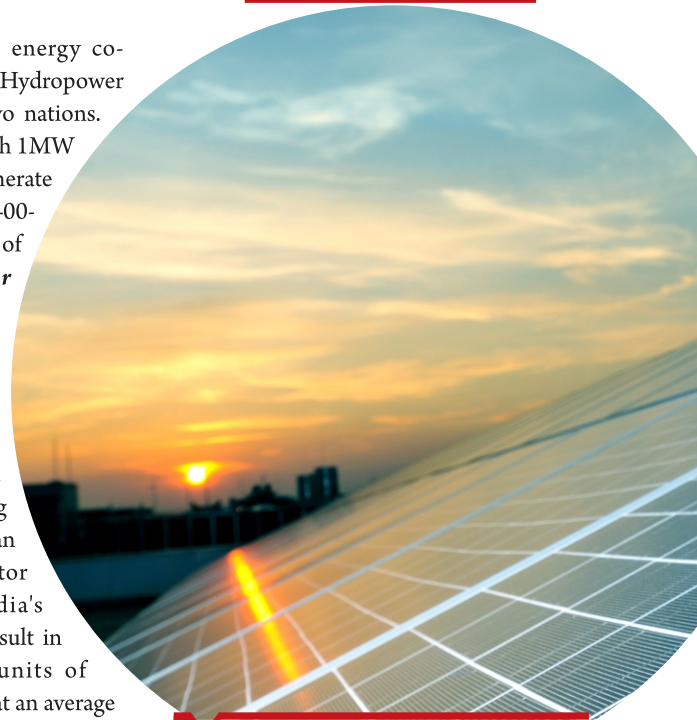
What this can do for Bhutanese economy and private sector in Bhutan is phenomenal with far reaching impact for an Indo-Bhutan Entrepreneurial Co-operation. If this 25MW proposed for 2015-16 execution with extension of India's FIT (*Feed-in-Tariff*) via NVVN for cross border trade, and export of Solar from Bhutan to India is established – then this “**25MW Bhutan Mini Solar Park**” in Bhutan for exclusive export to India with dedicated metering could have 25 operators from the Bhutan's private sector each owning 1MW of Solar.

These private sector operators can then have JVs with Indian Solar Power companies namely *Solar PV module manufacturers, solar EPC companies etc.* to deliver and develop this 25MW of Solar quickly in a years' time in Bhutan and generate revenue thereof from Solar for Bhutan under the FIT extension regime. This will be another feather in the cap of the

Indo-Bhutan joint bi-lateral energy co-operation post the success of Hydropower co-operation between our two nations. Further, such 25 operators with 1MW Solar power plant each will generate an employment of roughly 400-500 people via these facilities of such a “**Bhutan Mini Solar Park**”.

We must not forget that the “*1020 MW Tata Hydroelectric Project*” employs 800+ Bhutanese Engineers and technicians today. Comparing that with the proposed “Bhutan Mini Solar” as a joint-sector bilateral model under India's extended FIT regime, will result in generation of 40 Million units of electricity for export to India at an average tariff of Rs. 6.50 per KWH or Unit Solar generating a gross annual revenue of Rs. 260 million and generate greater employment opportunities even with this small or mini 25MW capacity and that too in quick time of a year or so. Solar Power Project establishment costs are @Rs 7 crore/MW at present.

It must not be forgotten here that compared to the 7-8 years of gestation of hydropower projects, Solar power from 25MW-500MW capacity can be built in 1-Year flat. Although, the efficiency of conversion from solar at 19% in light energy terms to electricity is far lower of that of Hydropower that has a conversion factor of 55-58% of hydro potential-kinetic energy combine to



such 25 operators with 1MW Solar power plant each will generate an employment of roughly 400-500 people via these facilities of such a “**Bhutan Mini Solar Park**”





electricity for output of power generation. This notwithstanding, *Solar Power Project (SPP)* under an “Extended India FIT regime” will benefit the Indo-Bhutan bilateral co-operation far more than the hydropower from point view of *Employment generation in Bhutan*; *Quicker revenue generation via time-to-market due to a lower generation period*; *more environment friendly and involving far easier and less complicated construction techniques*; *offers greater scope of indigenization and private sector participation in Bhutan etc.* to name a few which in my view will alter the economic scope of co-operation over the next decade in energy terms more towards Solar than even Hydropower in the Indo-Bhutan context. India's own expansion of its National Solar Mission (NSM) is the perfect point of strategy for emulation for Bhutan.

However, the consumer of presently the higher solar tariff will not be there in Bhutan but is in India, where the “Solar Power” will be bundled with the cheaper *Thermal-Hydro-Nuclear* combine--what we call in India as the *Tariff Pooling-in*. This helps as the relatively costlier Solar power encounters marginal tariff revision in real terms at the point of distribution to end-consumers when bundled with the conventional power.

NTPC with 43GW of installed capacity of conventional power with its Nodal company NVVN for bundling and delivery of Solar and other renewables and acting as a power trading and purchasing entity is very much in a position to affect cross-border absorption of Solar.

Capacity expansion in Bhutan of even 1000MW of Solar via an India extended FIT will only marginally alter NTPC's

Capacity expansion in Bhutan of even 1000MW of Solar via an India extended FIT will only marginally alter NTPC's overall tariff under the present situation for mandatory Renewable Energy Portfolio (RPOo) expansion planned by NTPC as a PSE (Public Sector Enterprise) and other large private operators in Reliance Power, Adani, Tata Power etc.

overall tariff under the present situation for mandatory Renewable Energy Portfolio (RPOo) expansion planned by NTPC as a PSE (Public Sector Enterprise) and other large private operators in Reliance Power, Adani, Tata Power etc.

This can completely alter the Indo-Bhutan relationship and there-of the Indo-Nepal as well, as “Solar” has great potential to cement the friendship further between our neighbors and India if the above REPA view is quickly acted upon by MNRE (Ministry of New & Renewable Energy), Government of India in particular, who must initiate this cross-border potential winner of the solar FIT (Feed-in-Tariff).

At First suggestion by REPA recently Joint Secretary (Solar) at MNRE, Tarun Kapur felt that this was a potential expansion area and could be explored for implementation quickly. REPA will be soon representing the same with MNRE, Power Ministry and Hon. PM of India on the basis of this article for further movement in this direction. ■

(Prof. A. Gopalakrishnan Iyer, President, Renewable Energy Promotion Association, REPA; President, ENERTIA Foundation – Chairperson, Indo-Bhutan Entrepreneurs Alliance-IBEA)



'PRAKASH DIVAS'



Inaugural "PRAKASH DIVAS" organized in Fond Memory of a Brave 'Karma Yogi' Late A Prakash Iyer, Former Executive Publisher & Editor - ENERTIA

"Prakash Divas" commemorating the Yeomen contribution of **Late Shri A. Prakash Iyer**, Former Executive Publisher & Editor, ENERTIA; Co-Author of the Books 'INDIA BRANDished - SuperPowering Brand INDIA', 'POWERING-in-CRISIS' - A Strategic Direction for India's Energy Security, Energy Sustainability & Power Access for all by 2022 and Compendium/Book Brief-'ATAL-SHASTRA' - Saga of India's Best PM, Tallest Parliamentarian Ever and a Champion of Liberalism & Pluralism was held in New Delhi on Friday, 29th January 2016.

The Theme for "Prakash Divas" was "PRAKASHmay Rashtra- Ujjwal Bharat Ujjwal Bhavishya" - Bringing Last Mile Access & Connectivity to Empower India & Its Economy by 2022 - Renewable, Clean, Green & Sustainable Energy & Infrastructure.

Late Shri A. Prakash Iyer (17th July 1970 - 29th December 2015) had envisioned as

follows:

- "Our Vision for Sustainability on Planet Earth must be driven by the Ultimate Goal of Last-mile Access and the Strategic Development must Impact the Remotest Corners of the World."
- "A Global Economy for Inclusive Growth needs to be the Vision of Governments Worldwide. In this direction Energy Security, Energy Sustainability, Infrastructure Access & Environmental Equity for All is the Key" Late Shri A. Prakash Iyer

To achieve the above objectives India cannot neglect the issue of "Hydropower" which is the key factor to the development of Sustainable Power Infrastructure, Water Infrastructure, Energy & Water Security, Energy & Water Sustainability and ensuring Agricultural Sustainability and Food Security all synchronously. Not-to-mention the ability of Hydropower as a resource to

achieve Flood control & Irrigation on a sustainable and perpetual basis

"Prakash Divas" discussions were Moderated by **Prof A. G. Iyer**, Editor-in-Chief & Publisher, ENERTIA; President, ENERTIA Foundation & Renewable Energy Promotion Association (REPA). **Rakesh Nath**, Ex. Member - Appellant Tribunal for Electricity (ATE), Former Chairman - Central Electricity Authority (CEA) & Former Chairman, BBMB (Bhakra Beas Management Board) was the 'Chief Guest of Honour'.

The 'Theme Address' was made by **A. B. Agarwal**, Former Chairman, Bhakra Beas Management Board (BBMB) & ED - NHPC Limited. While the Other Dignitaries on the dais included **Prakhyat Sharma**, Hon. Executive Patron Observer, ENERTIA - Editorial Advisory Board (EAB) & CEO, SK Consulting; **Hetal Mehta**, Jt. President, REPA & ASMEI and President, SEVA;



'PRAKASH DIVAS'

Dr. V.K. Garg, Former CMD, Power Finance Corporation (PFC Ltd) & Former Chairman - Joint Electricity Regulatory Commission (JERC); **PVSN Murty**, Hon. Associate Director, REPA & Former VP, VOITH Hydro; **Aishwani Dhar**, Hon. Associate DG, REPA & Former GM, BHEL; **S. K. Shukla**, Former Director Technical, THDC Ltd.; **G. N. Mathur**, Consultant, NHPC Limited; **V. S. Verma**, Former Member Planning, CEA; Former Member CERC; Distinguished Prof. CPRI-Bangalore; Prof. Adjunct-IIT Kanpur

Rakesh Nath stressed the importance of Hydropower and endorsed the forum view initiated by **Prof Iyer** that India must work on war footing to bring the hydropower share back to 25%+ of the Power Generation Mix from its decadent fall to 15% over the past 10-years of callous neglect and mismanagement. At the same time all the speakers also agreed to the wisdom of the forum on the analysis of the great contribution made by "**Storage Projects of National Importance (SoPNI)**" namely **Bhakra Beas Hydroelectric Project** and **Sardar Sarovar Narmada Hydroelectric Project**.

While, Bhakra Beas Hydroelectric Project (HEP) provided electricity and water resources to the states of Punjab, Haryana, Himachal Pradesh, Rajasthan and even Delhi. Sardar Sarovar Narmada Hydroelectric Project helped in the water electricity support to the states of Gujarat, Maharashtra, Madhya Pradesh and Rajasthan.

In Memorium of Late Shri A. Prakash Iyer

One can clearly see the double digit agricultural growth rates of Gujarat and that of Punjab and Haryana as a far reaching economic impact, which also can be measured across their State GDP terms. While, speaking on the Bhakra Beas Hydroelectric Project both of its *Former Distinguished Chairmen*, **Rakesh Nath** and **A. B. Agarwal** eloquently explained how the project was a World Class set-up and a National Asset Power Excellence (NAPE) in Economic terms.

S. K. Shukla, *Former Executive Director Technical of Tehri Hydroelectric Project (THDC Ltd.)* in Uttarakhand explained clearly how Tehri Storage project saved several parts of Uttar Pradesh and National Capital Region (NCR) from flooding during the worst even floods that hit the states of Uttarakhand in June 2013.

It must be remembered here, there have been tremendous floods in China in May-June 2015 that affected the city of Guiyang and central Province of Hunan and put the regional government of Guangxi in quandary. This happened in spite of the 3 - Gorges Dam and Hydro Project, which largely was able to contain the Yangtze flooding.

G. N. Mathur, *Consultant, NHPC Limited and Former Secretary, CBIP* was of the view that unless the project management issues and treating contractors as partners in the project development process is achieved, hydro projects will continue to falter. He was further of the view that combining these approaches with scientific **R & R (Rehabilitation and Resettlement)** of

Project Affected People (PAP) along with "**Political Will**" can go a long way to sort out the mess in the sector.

The forum "**Prakash Divas**" also highlighted and reiterated importance of **Lower Subansiri Hydroelectric Project** of **2000MW** in the State of Assam as a low hanging fruit, which the Government of India could easily execute and bring the Power on the grid by 2018-19 as a World class Project and indeed the "**TAJ MAHAL of Hydroelectric Projects in India**" as visualized and emphasized by **undersigned** and my former colleague **Late A. Prakash Iyer**

Last but not the least, it was also highlighted that the neglect of hugely potential **90,000MW+** of Pumped storage Hydroelectric schemes has spelt doom for the country in the absence of any "**Spinning - Reserve**", which is available only from such schemes or alternatively from Gas Based Power Plants, which are suffering from non-availability of Natural Gas and its limited access in India at this point along with pricing imbroglio.

In the long-term Energy Security Strategy (ESS) for India, Pumped Storage Hydroelectric Projects are a must do. The forum "**Prakash Divas**" concluded that while it was in full Praise of **Honourable Prime Minister Narendra Modi's** fantastic initiative of targeting 100GW by 2022 for Solar capacities, it was equally Important to "**Up-the-Ante**" of **Hydroelectric Project Development** as a parallel strategy to mitigate India's crisis in both Power & Water Sectors.





Theme :

60%

RPO Necessary
for Powering

**INDIA to
US\$ 6 TRILLION**

Economy by 2025

Renewable Energy (RE) Portfolio

SOLAR WIND HYBRIDS BIO-ENERGY HYDRO STORAGE NUCLEAR TIDAL



BIO CAR

EV ◀ **RE & SMART Mobility** ▶ REMRTS

HYBRIDS

PACE
Positive Action for Climate Equity

(+) RENEWABLE ENERGY & CSR

RE Skill Development
Partner

Institutional Partner

Official Publication

Supporting REPA Forums

Sustainability Partner

Research Partner

Media Partner



(+) RENEWABLE ENERGY & CSR

Renewable Energy (RE) comprises of the following as per the standard reference of RE scientifically evaluated by REPA – India's only and pioneering Not-for-Profit association for all RE Promotion in the PPP domain include **Solar, Wind, Bio-Energy, Nuclear Energy & Hydrogen Energy in the Renewable Energy (RE) sector and Off-shore Wind & Tidal Energy in the (Marine Renewable Energy) MRE sector.** *The potential for this combo for 2025 is a whopping 400 GW and with Investment Opportunity of Rs. 50 Lakh Crores (US \$ 750 Bn) if properly structured as per joint research inputs of REPA & ENERTIA Foundation*

RPO Conclave and REPA State Awards are established for the purpose. 5th RPO Conclave and 5th REPA State Awards were held in New Delhi on 20th September 2019.





Photo Feature - In Retrospect





PAST WINNERS (2015 - 2019)



STATE Awards
State Excellence in
Renewable Energy & Carbon De-frayment,
Energy Security, Energy Access
& Sustainability in Governance
REPA Renewable Energy Promotion Association

- Karnataka
- Telangana
- Tamil Nadu
- Maharashtra
- Andhra Pradesh
- Gujarat
- Rajasthan
- Madhya Pradesh
- Punjab
- Chhattisgarh
- Haryana
- Himachal Pradesh
- Sikkim
- West Bengal
- Uttarakhand
- Uttar Pradesh



SNAPSHOTS - In Retrospect



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our Sun produces enough
Energy to meet the current
needs of the entire Earth for
5,00,000 Years**



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IKRATOS Solargie has signed an MoUs with State (Provincial) Governments in **INDIA, Dept. of Renewable Energy** for **1500 MWp** Solar Energy Projects to be powered with State-of-the-Art advanced **SPV (Solar Photovoltaic)** System & Technology using German Engineering and know how. The company is also planning to demonstrate large-scale (GW Scale) Solar + Battery Backup Grid Integrated Hybrid Pilot Power Plants for Sustainable Grid Supply.

Additionally, **IKRATOS** is also in discussion for establishing mega projects MoUs / Mandate(s) with competitive PPA's ranging from **@ US \$ 4.5 cents - US \$ 5 cents per Kwh** (Most competitive & aggressive tariffs on levelized basis in the country) with various Indian Provincial (State) governments for developing MW scale **State-of-the-Art Technology Solar PV & Solar Thermal Power Plants** - to be among the Largest such project in Asia. The project is backed by World Class Technologies with an aim to provide long term positive disruption for delivering affordable competitive power as envisioned by the government of India's theme of **'Power Access for All by 2022'** with Solar and Renewable Energy in the lead. **IKRATOS** is committed to deliver 'Competitive Solar' in the most Challenging Market Environments

IKRATOS Solargie Pvt. Ltd. (ISPL) is founded by a leading group of technology initiative experts and visionaries with the Best and proven experiences in the Solar and Renewable Energy Sector Project Conception, Development and Implementation.

Golden Corporate Member



REPA

Renewable Energy
Promotion Association

Technology Partner



IA Tech GmbH
Germany

FW/IKRATOS-2018/ENERTIA

IKRATOS SOLARGIE is proud to have been selected for EPC and Supply of State-of-the-Art Community Solar Project for **Australian Government** for Supply of Solar Power to **NAVAL** Establishment by Renowned Australian Consultants & Consortia for **GW Scale** Developments

India Embraces "Rastriya Urja Sourya Mission (RUSM)"
100GW Solar by 2022 - 'IKRATOS Partners'



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GLIMPSES IN RETROSPECT





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Sustaining Energy Economy for Doubling GDP of INDIA to US \$6 Trillion

Needs Doubling of Power Generation to 750 GW & Renewable Energy (RE) to 450 GW by 2025



Mitigating "Energy Poverty" via Investment for Inclusion (I²)

Sustainable Engagement, Employment & Deployment

Official Publication



Research



RE Portfolio Mission 2027-32:50-60%

Creating 50 Mn New Jobs through Sectoral Targets;

Reaching Per Capita Electricity Access of 4000 Kwh by 2027 & 7500 Kwh by 2032

Friday, 29th May 2020 New Delhi, INDIA



GLIMPSES IN RETROSPECT



REPA – NDIM CENTRE OF EXCELLENCE IN RENEWABLE ENERGY (RE)

RE-CERT | EMPRESS + EMWET | PGDRE

present

**10th ENPOWER
SOLAR
2019**

**4th SOURYA URJA
PURASKAAR 2019**
INDIA's Premier Awards for Excellence in SOLAR

NREDCAP (New and Renewable Energy Development Corporation of Andhra Pradesh) Wins 'Best NODAL Agency – SOLAR' Award

CleanMax Energy Wins the Award for 'Best-in-Class SOLAR Co. – DeCentralized & Distributed SOLAR'

Rabindra Kumar Satpathy, Director – SOLAR Business, **JAKSON Group** Wins the Prestigious 'SOURYA URJA RATNA' Award

Dr. Arun K Tripathi, Director General, **NISE** (National Institute of Solar Energy) Wins the Prestigious 'SOURYA URJA VIBHUSHAN' Award

"10th EnPower SOLAR 2019 & 4th SOURYA URJA Puraskaar 2019" were held in **SCOPE**. The Prestigious "SOURYA URJA Puraskaar – India's Premier Awards for Solar Power Sector" cover Awards for *Solar Excellence in Enterprises* as well as *Individual Leadership Excellence*.

New and Renewable Energy Development Corporation of Andhra Pradesh (NREDCAP) was adjudicated **WINNER** for "Best NODAL Agency – SOLAR" Award, for the agency's work in expanding 'SOLAR ENERGY' in the State of 'ANDHRA PRADESH'.

CleanMax Energy – WON the Award for "Best-in-Class SOLAR Co. – DeCentralized & Distributed Solar" for its pioneering "OPEX Model" with 500 MW+ of such installations.

"10th EnPower SOLAR" proposes 400GW by 2025 RUSM – Rashtriya Urja Sourya Mission Targets enhanced by REPA - SEFI"

Concurrent "4th SOURYA URJA Puraskaar 2019" announced



Rabindra Kumar Satpathy, Director – SOLAR Business, **JAKSON Group**, was adjudicated **WINNER** by the Eminent Jury for the Prestigious '**SOURYA URJA RATNA**' Award, for his *Yeomen Contribution to SOLAR ENERGY Sector in India*.

Dr. Arun K Tripathi, Director General, **NISE** (National Institute of Solar Energy) was the **WINNER** of the Prestigious '**SOURYA URJA VIBHUSHAN**' Award, for his *Yeomen Contribution and Work in development of the National Solar Mission (NSM) at MNRE and continuing the effort to promote SOLAR at NISE*. **REPA Honorary GFRE** (Global Fellowship in RE) was conferred on **Shyam Narain**, Founder, **Rural Marts**.

At the “**10th EnPower SOLAR & 4th SOURYA URJA Puraskar 2019**”, held at **New Delhi, SCOPE**, it was a great occasion when the Renewable Energy Experts at the forum recognized the following path-breaking work of **ENERTIA** and **REPA** (Renewable Energy Promotion Association) combined:

1. The first breakthrough for **Gigawatt (GW) Skill Development** was made at the first “**EnPower SOLAR 2009**” where, **Ambassador, Shyam Saran** was the *Chief Guest of Honour* and **Shaina NC**, Eminent Woman Leader of **BJP**, was the *Special Guest of Honour*. The meeting held under the aegis of **ENERTIA** and moderated by **Prof. A. G. Iyer**, Editor-in-Chief & Publisher, **ENERTIA** and Founder President, **REPA** and Co-Chaired and enabled by **T. C. Arora**, Former Director, **Toshiba India** and Ex. Director, **Astonfield Renewable** and now MD, **Accunergy**, that resulted in the **1200 MW** plan later enhanced to



20 GW of **NSM** (aka **JNNSM**). However, it may be noted that, **ENERTIA** recommendation was for **40-50 GW** and only half of that became the target for **2020**.

2. Then, after **REPA** was founded in **2011** and visit by **Prof. A. G. Iyer** and **Hetal Mehta**, Founders of **REPA** to the “**Gujarat Solar Park**” in **April 2012**, the initiative taken by **Dr. D. J. Pandian**, based on **REPA** pitch for **RUSM**, to minimum double the **Solar Mission**, for which a meeting was held in **Ahmedabad** under the aegis of **REPA-SEFI** (Solar Energy Forum International) at the “**4th EnPower SOLAR 2012**” (Circa – August 2012), when the **40-50 GW** of Mission Up-gradation was brought into focus.
3. At the inaugural **IPEC** (INDIA Power & Energy Conclave) of **2013**, held in **Surat** in April that year, the **RUSM** for **100-150 GW Solar** was first proposed for “**Mission INDIA – A Solar SuperPower by 2022**” and released.
4. On **22nd August 2014**, it was presented to **Piyush Goyal**, the then Minister for Power, New and Renewable Energy **MNRE** (MoPNRE), at the first ever “**Conclave of Developers**” held by the Government of **INDIA** at **NDMC Convention Centre**.

Now, this has been repositioned by **REPA-SEFI** and for a target of **400 GW by 2025** at the “**10th EnPower SOLAR**” held on **Friday, 22nd February 2019**. Presently **INDIA** has crossed **25 GW** and exceeded the initial **NSM** target of **20GW** by **2020** by additional **5GW** as of February 2019. **ENERTIA** and **REPA** continue to lead the '**Policy Advocacy for Renewable Energy (RE)**' with now the Vision Roadmap for

“**400 GW of Solar by 2025**” and greater Power Generation Share for **RE** to achieve **40-45%** in the **NPGM** (National Power Generation Mix) – **Hydro** (including **SHPs**) + **Solar** + **Wind** + **Bio-Energy** and **Nuclear** to tango.

Background for '100 GW SOLAR by 2022' (Post 2013 Release of RUSM)

REPA – ENERTIA Foundation Report – White Paper RUSM – INDIA A Solar SuperPower – Mission 2022 (Expanded to **100GW** by **2022** as adopted by **NaMo** in **2014** – handed over report to **Piyush Goyal** on **22nd August 2014** in **Delhi** at **NDMC Convention Hall Solar Meet** – **NaMo** already was in the know and under representation by **REPA – ENERTIA**) – **RUSM** was First released in **Surat, Gujarat** in **2013** as **50GW** Minimum plan more than doubling on **NSM** (National Solar Mission) of **20 GW** – Poor target for **2020**.

RUSM – INDIA A Solar SuperPower, was prior to this, released by **Renewable Energy Promotion Association (REPA) – SEFI** (Solar Energy Forum International) in Association with **ENERTIA Foundation** in April 2013 at the “**INDIA Power & Energy Conclave (IPEC) 2013**” held in **Surat, Gujarat**, under the Encouragement and Support of then *Principal Secretary, Energy & Petrochemicals*, Government of Gujarat, **Dr. D. J. Pandian**, (an *IAS Officer of Repute*), who later on became the *Chief Secretary* of Gujarat when **Hon. Prime Minister, Narendra Modi**, was then **CM, Gujarat**.

It may be noted that, he (**Narendra Modi**) was declared *Prime Minister Candidate* of the **NDA & BJP** in **September 2013** and went on his election campaign with the state of **Gujarat**, de-facto and de-jure under the able



administration of Dr. D. J. Pandian. It is pertinent to remind here, that Dr. Pandian, by all means pioneered under PM, Modi (who was then Chief Minister of the State) the Gujarat Solar Park of 214 MW, then the first and largest of its kind in Asia located at Charanka, Dist. Patan, Kutchh Region on 19th of April 2012. Dr. Pandian is now, the Vice President and Chief Investment Officer at Asian Infrastructure Investment Bank (AIIB), Beijing, China, who must be credited in real terms for Power reforms in Gujarat and also the Solar Upheaval.

Another Officer, who took it forward for the 25 GW it has achieved on the ground and solely credited for the same in implementation is Tarun Kapoor, Former Joint Secretary at MNRE (Ministry of New and Renewable Energy), Government of INDIA (GoI), who is now serving as Vice Chairman, DDA (Delhi Development Authority) and was the Chief Guest at the “10th EnPower SOLAR and concurrent 4th SOURYA URJA Puraskar” 2019. It may also be noted here that, Dr. Upendra

Tripathy, First Director General, ISA (International Solar Alliance) and Former Secretary, MNRE, received the 'LIFE-TIME Achievement Award' at the “10th ENERTIA Awards 2016” (PRAKASHmay ENERTIA Awards) on 29th December 2016. Now, as India crossed 25 GW of Solar as per last reports of January 2019 while China reached a whopping 175 GW of Solar installations. Thereby, China is ahead of time in achieving all its Positive Action versus Climate Change (PACC) commitments.

Both Nations, INDIA and CHINA together Upped-the-Ante for Solar in the year 2017-18. While our neighbour, China is moving at Break-Neck Speed implementing solar and renewable energy, we have to catch up with comparable targets and '400 GW by 2025' is a reasonable one, especially in the backdrop of 750 GW of known potential assessed on the basis of bare 3% use of barren / unproductive land available in the country, Rooftops being the other opportunity for De-Centralized and Distributed Solar. It

is pertinent to state here that, through certain foreign agencies, owing allegiance to the Chinese Government, China's authorities got a hang of REPA and ENERTIA Foundation White Paper “RUSM” already adopted by that time by Hon. PM of India, as 100GW Solar Target by 2022 and Renewable Energy 175GW by 2022, which formed the foundation theme of the subsequent establishment of ISA in December 2015 – January 2016 (REPA was the official invitee to the ISA Headquarter Inauguration in Gurugram on 25th January 2016, launched by Hon. PM of India, Narendra Modi and then Hon. PM of France, Francois Hollande).

So, the historical truth is that, China, made it a point to target the 100 GW+ which was crossed in January 2018. While, India has been able to pre-achieve the old target under NSM (National Solar Mission) of '20 GW by 2020' by crossing 25 GW as of January 2019. We are however far behind the 'China Solar storming of the World Energy Economy' already crossing 175 GW as of January 2019 as per REPA-SEFI. It is



important to note again that, it was **ENERTIA** as a publication, which set up the “**EnPOWER Solar**” Conclave under **SEFI** (Solar Energy Forum International) objectives in 2009, when Ambassador, **Shyam Saran**, then *Principal Advisor on Climate Change to PMO*, had come up with the idea driven by the then Government, of barely **1200MW** as the National Solar Mission (NSM). **SEFI**, is now a forum under **REPA**, since 2011, championing the **SOLAR** cause and advocated “**100 GW SOLAR by 2022 – INDIA A SOLAR SuperPower**” for **RUSM** via **REPA-SEFI**. It may also be on record that, it was **ENERTIA** that had clearly highlighted to Ambassador **Shyam Saran**, that this was no mission target and we must really move from **MWs to GWs** and in substantial terms. **ENERTIA** proposed to Ambassador **Shyam Saran** at the *Inaugural “EnPOWER Solar”* on **6th March 2009** in New Delhi, that the Nation will need minimum **40-50 GW** of Solar Target for **2020**. Subsequently, on **31st August 2012** in Ahmedabad, under the auspices of **Dr. D. J. Pandian**, then *Principal Secretary*

Energy, Government of Gujarat, who was the **Chief Guest**, at the “**4th EnPOWER Solar 2012**”, the **50 GW Target by 2022** was said to be achievable and even expandable to ‘**75-100 GW by 2022**’. It must be noted here again that, Gujarat Solar Park was already operating **214 MW of Installed Capacity** delivering into the state grid in April 2012.

So, the new target of “**400 GW Solar by 2022 – INDIA A SOLAR SuperPower**” under **RUSM** (Rashtriya Urja Sourya Mission), proposed by **REPA-SEFI**, is a fairly achievable task. It is here that for once, the Competitive ‘**Renewable Energy (RE) – Sustainable War by Peaceful Means**’ (read **SOLAR**) to **Save the Planet** is expandable to the entire **Renewable Energy Portfolio – REPo** (HydroPower, Solar, Wind, Bio-Energy, etc.) and must be set in between **India and China** or ‘**CHINDIA**’ to be precise for a ‘**Better Asia**’ and for a ‘**Better World**’.

The deliberations at the “**10th EnPower SOLAR 2019**” were led and moderate by

Prof. A. G. Iyer, *Chairman, EnPower SOLAR & SOURYA URJA Puraskaar; President, REPA* (Renewable Energy Promotion Association) and its **SEFI** (Solar Energy Forum International); *President, ENERTIA Foundation; Editor-in-Chief, ENERTIA*.

Other Eminent dignitaries included **Tarun Kapoor**, *IAS, Vice Chairman, DDA* (Delhi Development Authority) as the **CHIEF Guest**; **Dr. U. D. Choubey**, *Director General, SCOPE* (Standing Conference of Public Enterprises) as the **PRESIDING Guest**; **Dr. Vishwa Mohan Bansal**, *Chairman, NDIM* (New Delhi Institute of Management); **Dr. V. K. Garg**, *Former CMD, PFC Ltd. & Former Chairperson, JERC* (Goa & UTs); **A. B. Agrawal**, *Former Chairman, BBMB & Former Executive Director, NHPC Limited*; **T. C. Arora**, *Former Director, Toshiba India and MD, Accunergy* were the **SPECIAL Guests**.

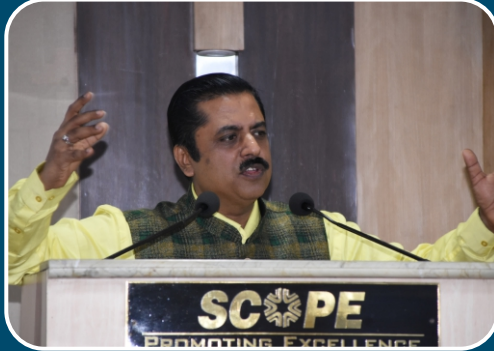
(An Exclusive **ENERTIA** coverage with inputs from **REPA-SEFI**)



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10th ENPOWER SOLAR 2019

4th SOURYA URJA PURASKAAR 2019
INDIA'S Premier Awards for Excellence in SOLAR





'25GW FREE Solar Power – One time Infra' for Rural INDIA, Letter Petitioned and Representation sent to Hon'ble Prime Minister, **Narendra Modi** by **REPA, Forum – SEFI** (Solar Energy Forum International, formerly, Solar Energy Forum of India) dated **5th April 2016**, rejoinder to first representation of **26th February** post **Union Budget 2016**.

REPA (Renewable Energy Promotion Association) – India's Apex Umbrella Organization and Sole Non-Profit body for Promotion of Renewable Energy in India, SAARC and Asia at large, our Sub Council and Forum **SEFI** and also our Official Publication **"ENERTIA – Asia's Premier Journal on Sustainable Energy, Power & Renewables"**, advocated **"Free Solar Infra for Farm Sector under Credit Policy"** to PM **Narendra Modi**, to bring to his kind attention the fact that, the **"Rural Economy of India"** that has been reeling

REPA Original Advocacy for RURAL that precluded "KUSUM":

In fact, under this **"RUSM"**, we can do wonders if in NDA's "Union Budget", the PM could tweak **"FARM CREDIT"** which reads as follows: *"Farm Credit underpins the efforts of our hard working farmers. I have, therefore, set up an ambitious target of Rs. 8.5 Lac Crore of credit during the year 2015-16, which I am sure the banks will surpass... Circa UB 2015."* This was Finance Minister Arun Jaitley's pitch in Indian Parliament, which expanded to **Rs. 11 lac Crores** (US\$ 170bn) under **"FARM CREDIT"**.

**** Now, Herewas the Solution for the NDA Government, for sending and achieving **"Free Solar Electricity"** to the **"Farm Sector/ Rural Economy in India"** for **6-hours a day** with a **One-Time Investment of Rs. 1,25,000 Crores via**

thereby achieving it 3 years in advance within your 1st Term as India's Prime Minister." ... Period.

- Will bring Massive Manufacturing Upheaval for execution of **25GW** within **18-24 months** across Solar PV triggering internal capacities of manufacturing of **12-15GW** (12,000 – 15,000MW) for Solar PV Systems making India, the leading Solar Manufacturing Country / HUB, along with China.
- Will bring 50 Lac jobs/ employment in this Solar Sector via this upheaval in manufacturing and project build-up as well as *Operations & Maintenance (O&M) services* with **40%** of these jobs going to the Rural Economy.
- Will Save Equivalent Quantum of Electricity i.e. **"45 Billion Units (KwH)"** (which is presently going scot-free every year to cover the Rural subsistence), thereby releasing the

KUSUM

(Kisan Urja Suraksha evam Utthaan Mahabhiyan)

PM Narendra Modi led NDA II Government adopts REPA-SEFI Advocacy of 25GW+ SOLAR for RURAL INDIA

Petitioned on 5th April 2016 as Rejoinder of REPA-SEFI representation of 26th February 2016

under severe electricity crisis has been sent to the dark corners over the last decade with majority villages of India having negligible or sparse supply of electricity. *Many villages in Uttar Pradesh and Bihar, and for that matter even in State of Madhya Pradesh, receive electricity for only few hours a day (8-12 hours). In 30% of remote villages, electricity does not even come for several days like in the States of Bihar and Uttar Pradesh.*

Prime Minister **Narendra Modi** has a great opportunity to bring a **"Ray of Hope for our Rural India"** with **60% +** India's population living in rural areas consuming only **28%** of its electricity. This hope comes from his fantastic pitch of **"100GW Solar for 2022"** which, **"Renewable Energy Promotion Association (REPA)"**, has coined as **"Rashtriya Urja Sourya Mission (RUSM)"** for making **"INDIA – A SOLAR SuperPower by 2022"**.

Farm/ Rural Credit for 25GW of Solar Power Generation (SPG) Infrastructure for Rural India in 2016-17 – A Sure-Shot Politico-Economic Winner Strategy for Your Government to Adpot.

Mark it that this **25GW** with **Rs. 1,25,000 Crores (US\$ 20 bn)** of the Rural or Farm Credit as a onetime defrayment from the Union Budget 2016 (**Bench Mark**) will trigger massive economic upheavals as follows:

- Will give Continuous and Sustainable 6-hours of Solar Power to the entire Rural Sector of India covering **60%** of India's population, thereby fulfilling major objective of the idea of **"Power for All"** of the NDA. This will be achieved well ahead of 2022, in fact, by 2018 and you can go for next election with this pitch that *"NDA achieved Power for All by 2018-19 after promising conservative by 2022 –*

Power for Urban Centers and making them Energy Sustainable under this plan.

- Will Prevent massive Rural migration to Urban areas and bringing that to **20%** of present levels.
- Will bring **"6-Hours of Free Power Perpetually and in a Sustainable Way"** to the Rural Economy through a **"One Time Defrayment Model"** setting up a Unique and Global example for Welfare State Democracies – The INDIA Way – You of course being the Champion of the Cause.
- This will trigger Rural Productivity Upheaval that will add **10%** to India's GDP making its Growth Sustainable.
- Due to reasonable availability of electricity using the Solar Renewable, the Village Economy, its Education and Health Sectors will also see substantial improvement and growth,

not to mention the overall positive impact on Rural life and its Quality.

9. Then post such step and its successful commencement, you can go for a Stage 2 Project – Battery back-up for Solar in the Rural Sector along with distributed and decentralized Micro Grids for “Small Village”. This will need budgetary allocation of another **Rs. 2 Lac Crores**, which you could further allocate in Farm Credit priority lending across “Union Budgets 2017 & 2018” that will result in completely rendering the Rural India Economy achieving “**Freedom From Dependence**”.

The **Ministry of New and Renewable Energy** has now in February 2019, formulated a Scheme '**Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM)**'. The scheme is currently under the process of seeking approval.

The proposal on KUSUM Scheme provides for:-

1. Installation of grid-connected Solar Power Plants each of Capacity upto 2MW in the rural areas;

2. Installation of standalone off-grid solar water pumps to fulfill irrigation needs of Farmers not connected to grid; and
3. Solarisation of existing grid-connected agriculture pumps to make farmers independent of grid supply and also enable them to sell surplus solar power generated to DISCOM and get extra income.

(This information was given by Minister of State of Agriculture & Farmers Welfare, Shri Parshottam Rupala in Lok Sabha, SOURCE – PIB)

KUSUM is a farmer-oriented solar power scheme that will allow setting up grid-connected solar plants in rural areas and off-grid solar pumps. It involves decentralized solar power production of up to **25.75GW (25,750 MW)** over five years. It aims at boosting farmer's income by allowing them to sell additional power to the grid through solar plants. Under the scheme, the government plans to incentivize farmers to run solar farm water pumps and use barren land for generating power for extra income up to Rs. 60,000 per acre every year. It will also have

provisions for Solarisation of tube wells and lift irrigation projects. It is implemented by Ministry of New and Renewable Energy.

Various components of the Scheme are as follows:-

1. Utilisation of barren land by farmers to generate 10,000 MW of solar energy and sell it to grid.
2. Providing incentives to DISCOMS to purchase the electricity produced.
3. Subsidy to farmers for buying 17.5 lakh offgrid solar farm pumps.
4. Solarisation of grid-connected farm pumps involving 7,250 MW capacity.
5. Solarisation of government departments' grid connected water pumps involving 8250 MW capacity.

The other benefits of the scheme include:-

1. Reduction in transmission losses.
2. Support the financial health of DISCOMS by cutting the burden of agricultural subsidy.
3. Supporting states in meeting their Renewable Purchase Obligation (RPO) targets.



4. Promotion of energy efficiency and providing water security to farmers.

The KUSUM Scheme aims at an outlay of approximately **Rs. 1,15,000 Crores (US\$ 18Bn) – Rs. 1,25,000 Crores (US\$ 20Bn)** for **25.75GW** by 2022.

The **Cabinet Committee on Economic Affairs (CCEA)** approved the **KUSUM Scheme** on **19th February 2019** with a total support provided from a **Central Government Grant Assistance of Rs. 34,422 Crores.**

The Centre has planned to provide **27.5 lakh Solar Pumps (17.50 lakh standalone + 10 lakh grid-connected)** under the Scheme.

It will help Farmers install total **10GW** of Solar Power Plants of intermediate capacity of **0.5 to 2MW** each. It also envisages **50,000** grid-connected tube-wells / lift irrigation and drinking water projects.

“The Scheme will have substantial environmental impact in terms of savings of carbon dioxide emissions. The Scheme combined together is likely to result in saving of about 27 million tonnes of carbon dioxide emission per annum. Further, standalone solar pumps may result in saving 1.2 billion litre of diesel per annum and associated savings in the foreign exchange due to reduction of import of crude oil”, said a government statement of Tuesday (19th February 2019).

However, Government needs to tackle the full scope of **REPA-SEFI** and **ENERTIA** advocacy with a review of the following:

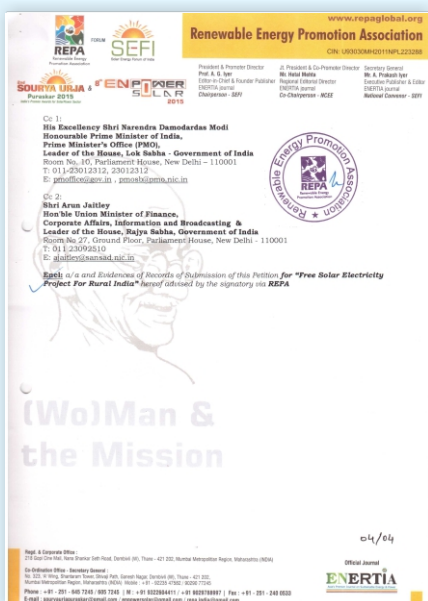
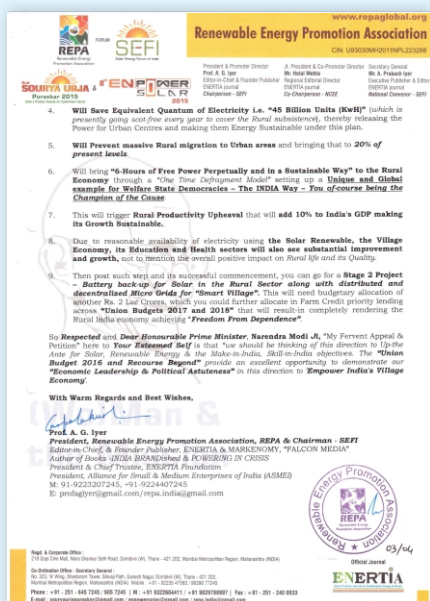
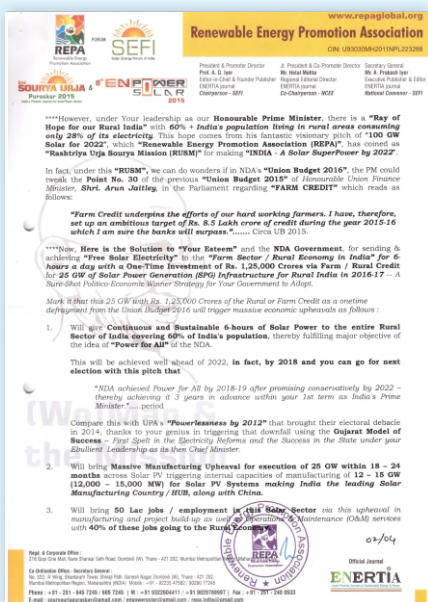
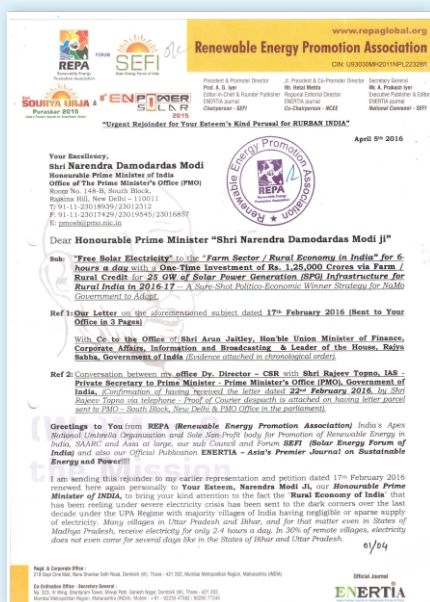
1. That the **State Government** has to provide an equivalent of **Rs. 34,422 Crores.**
2. The **Bank Finances** of another **Rs. 34,422 Crores** equivalent has to be allotted.
3. The last **10% of roughly Rs. 12,000 Crores** has to be put as equity by the Farmers opting for the Scheme. This part, the 10% equity is difficult for the Farmers and the Bank financing part cannot be done without a **Nodal Agency** in picture. While, the DISCOMS can purchase power, to involve the State Governments in a Federal Structure, KUSUM Scheme must modify to the extent that, the State Government financing must happen via the Nodal Agency appointed by the State and the Bank financing to be coordinated by the Nodal Agency for all the Schemes creating a dedicated fund for KUSUM.

The farmers who adopt pump-sets and the **2MW** Capacity grid-connected solar power in micro grids cannot have the 10% investment as the *Farmers/ Village Panchayat* landbank should be simply put up as the equity, avoiding any physical or monetary investment by the Farm Sector which is reeling under heavy financial crisis / duress.

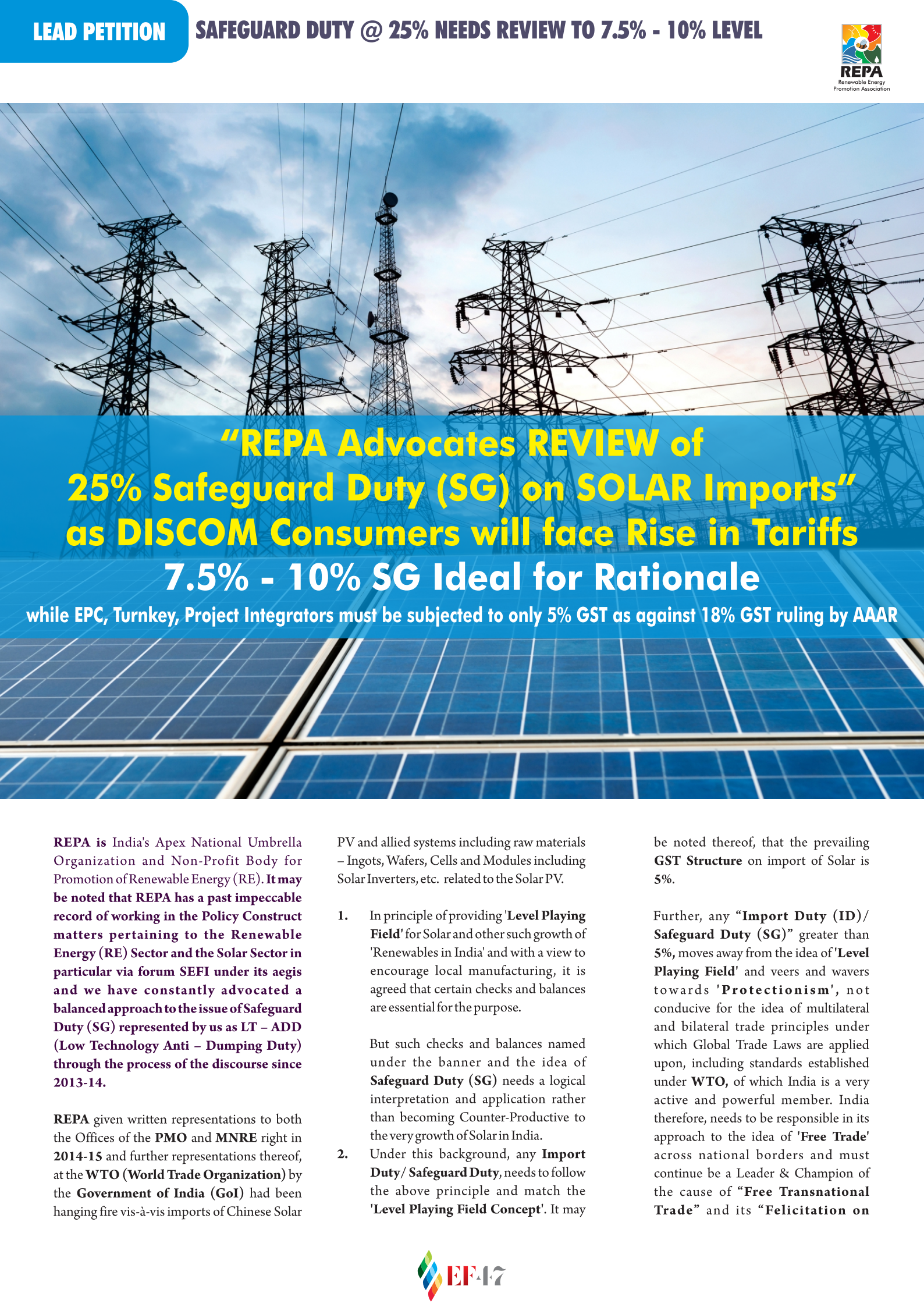
Implementation of the **KUSUM Scheme** is another victory for the **REPA** led Association and its Forum **SEFI** Supported by **“ENERTIA – Asia's Premier Journal on Sustainable Energy, Power & Renewables”**. So, **Respected and Dear Honourable Prime Minister, Narendra Modi**, should be thinking of this direction to up the ante for **Solar, Renewable Energy** and his **Make-in-India, Skill-in-India** objectives.

The **Union Budget 2019** and Recourse Beyond provide an opportunity to show economic leadership and political astuteness in this direction to **'Empower India's Village Economy'**.

(An ENERTIA Special Report for REPA-SEFI)







“REPA Advocates REVIEW of 25% Safeguard Duty (SG) on SOLAR Imports” as DISCOM Consumers will face Rise in Tariffs 7.5% - 10% SG Ideal for Rationale

while EPC, Turnkey, Project Integrators must be subjected to only 5% GST as against 18% GST ruling by AAAR

REPA is India's Apex National Umbrella Organization and Non-Profit Body for Promotion of Renewable Energy (RE). It may be noted that REPA has a past impeccable record of working in the Policy Construct matters pertaining to the Renewable Energy (RE) Sector and the Solar Sector in particular via forum SEFI under its aegis and we have constantly advocated a balanced approach to the issue of Safeguard Duty (SG) represented by us as LT – ADD (Low Technology Anti – Dumping Duty) through the process of the discourse since 2013-14.

REPA given written representations to both the Offices of the PMO and MNRE right in 2014-15 and further representations thereof, at the WTO (World Trade Organization) by the Government of India (GoI) had been hanging fire vis-à-vis imports of Chinese Solar

PV and allied systems including raw materials – Ingots, Wafers, Cells and Modules including Solar Inverters, etc. related to the Solar PV.

1. In principle of providing 'Level Playing Field' for Solar and other such growth of 'Renewables in India' and with a view to encourage local manufacturing, it is agreed that certain checks and balances are essential for the purpose.

But such checks and balances named under the banner and the idea of **Safeguard Duty (SG)** needs a logical interpretation and application rather than becoming Counter-Productive to the very growth of Solar in India.

2. Under this background, any **Import Duty/ Safeguard Duty**, needs to follow the above principle and match the 'Level Playing Field Concept'. It may

be noted thereof, that the prevailing **GST Structure** on import of Solar is 5%.

Further, any “**Import Duty (ID)/ Safeguard Duty (SG)**” greater than 5%, moves away from the idea of 'Level Playing Field' and veers and wavers towards 'Protectionism', not conducive for the idea of multilateral and bilateral trade principles under which Global Trade Laws are applied upon, including standards established under **WTO**, of which India is a very active and powerful member. India therefore, needs to be responsible in its approach to the idea of 'Free Trade' across national borders and must continue to be a Leader & Champion of the cause of “**Free Transnational Trade**” and its “**Felicitations on**

Worldwide Multilaterally in the international domain for **“Tariff Barrier Free Movement of Goods and Services”** across the global markets.

India must never be seen towing the US line in a Trade-War Era ensuing between US & CHINA.

3. Hence, if any **SG** is to be recommended for Solar, the basic **Import Duty** cannot be more than **5%**. In case of factoring for lower rates of Working Capital and any other Financial Subsidies provided by Governments like in **People's Republic of China**, the **REPA** research is clear, it cannot exceed another **2.5%** factor of an additional **Counter-Veiling Duty (CV)**. It must be noted here clearly, that inefficiencies of manufacturing cannot be protected, as it will be detrimental to the growth of Innovation and R&D in India, and will encourage poor grade of products and services which affect domestic Consumer/ Customer markets that are putting-up with these Solar PV Systems from local suppliers and assemblers of Solar PV Modules and Solar PV Systems.

4. So, while on one hand, we need to guard **Low Technology Dumping (LTD)** into India in Solar and other industries as well, limiting our case here for **Renewable Energy (RE)**, we cannot encourage at the same time mediocrity and poor quality in our own domain, especially in the background that **'Solar Testing Labs'** in India are inadequate in numbers and we need at least a dozen such facilities spread across North,

South, East, West and Central India to ascertain, whether the life of the **Solar PV Panels and Systems** manufactured in India or imported from China or elsewhere (Developing Countries) are in line with the standards of performance aimed at deploying Solar PV based Power Plants and generating facilities for a **“Life-Cycle Costs”** or investment benefit, spread over **25 years** of tenure of standard **PPAs**, while allowing for standard derating of the **Solar PV Panels** in high temperature **Tropical Environments** that prevails across India geographically.

REPA, position here still has not applied the argument for fitments pertaining to Climate Change, as we must make our Solar PV Panels and Systems exportable worldwide, to operate in Middle-East desert temperatures of **50° C+** and at the same time be suitable for other developed markets in EU, US and North America, in addition to competing with the Chinese made panels in the whole of Asia and Africa.

**** It must be clearly understood, that applying **“Ad Hoc SAFEGUARD DUTY”** may stop the import from a certain country directly for short time, but is no guarantee for building our own capacities, efficiencies and productivity of manufacturing overnight (Chinese Manufacturers do have large factories in Vietnam, Philippines, etc. and can shift production volumes to circumvent any SG Structure in spite of its application).

Hence, our Prayer and Case to the Honourable Office of PMO, concerned Honourable Ministry of Finance and also the Honourable Ministry of Commerce and Industry under whom the **DGTR** operates and other Stakeholder Ministries, Government Departments, Agencies, Regulatory Bodies, etc. is as follows:-

- Ia) Kindly withdraw with immediate effect, **THE GAZETTE OF INDIA : EXTRAORDINARY dated 30th July 2018 No.01/2018-Customs (SG) – F. No. 354/31/2018-TRU** as **25% SG** will kill the Indian Solar PV Industry per se, especially the **10GW** Solar PV module manufacturing which has enabled to at least drive **50%** of the capacity of **23GW** in India.
- Ib) Albeit it is a fact that **50%** of the market belongs to Solar PV Modules built via imports of raw materials like Solar PV Wafers and Solar PV Cells from China, it cannot be independent or devoid of our understanding that **75%** of the volume of production of Solar PV raw materials of Solar PV Wafers and or Solar PV Cells are coming from **Chinese Factories** on a worldwide analysis, these are absorbed in Solar PV Modules made in developed nations including US, Germany and rest of Europe. The quality norms and systems of the Developed Nations are strong enough to ensure **“Asset Life-Cycle”** of these **Solar PV Power Plants**.
- Ic) Hence, any Solar PV Module manufacturing in India cannot absorb the inefficiency of Solar PV Cell and Solar PV Wafer Manufacturers and their Lobbies in India, who are also suspect of supplying low efficiency products, as these factories were established **4-7 years** ago on an average and are operating at less than **40%** of their full capacities which are at **3GW** for cell manufacturing in India (Effectively only 2GW thereof due to poor loading of the manufacturing set-ups).
- Id) From the above it is clear, that these **“Local Cell/ Wafer Manufacturers”** will now demand even higher prices for sourcing from their Indian Factories for raw material input of **Solar Module Makers** who are final suppliers to **Developers, IPPs** (Independent Power Producers) and **Rooftop Integrators**, increasing the Solar PV Module price



phenomenally, and will also stop all Credit, thereby starting the business of Cash and Takeaway, Advances, Local LCs of their costly and inefficient input, which will immediately “**Derail the Competitive Tariffs of Solar**” which are now at a discovered average of less than ₹3/KWh on a 'Zero SG' basis.

Hence, not only it kills **Unexecuted PPAs & MoUs worth 25GW** as per REPA assessment, but also debilitates the **MAKE-in-INDIA Factories of 10GW** of Solar PV Module manufacturing – A cascading effect we can ill-afford in our '100GW Solar Pitch for 2022'. It may be noted that in the meantime, neighbouring **China** crossed **100GW** in 2017 itself and has the largest **Solar Power Project of Tengger** at a Capacity of **1,547MW**, while India has **2000 MW at Pavagada**, Target Mission – **Karnataka**. China is poised to more than double its original target of '**105GW by 2020**' to '**213GW by 2020**'. At the end of **2017**, China was at **105GW** and by **2018** and is poised to add another **50GW** to cross upwards of **150GW**. **India**, in the same period may cross **35GW**.

II. REVIEW, CONSIDER and quickly ISSUE **Fresh Gazette Order** via Ministry of Finance, **Department of Revenue** for reduced SG at preferably **7.5%** or a maximum of **10%** thereof, for the **1st Year** and **7.5%** for the next **6 months** and **5%** for the next **6 months** leading until the year **September 2020**. This may impact the tariffs, but marginally in proportion bringing the tariffs in the **PPA** to the level of **₹3.50-₹4.0/KWh** in the max depending on the Solar Power Plant location and capacities for larger Power Plants.

Rooftops and Community Ground mounted Power Plant tariffs may go up to **₹5/KWh**.

NB: It may be noted that, if SG is sustained at 25%, the rooftop tariffs will jump to **₹6/KWh** and that of the large Power Plants will cross the **₹4.5/KWh** barrier making the choice of Solar uncompetitive and matching with carbon-emitting Thermal Power Plants. The incentive to put Solar under 25% SG regime goes away and it brings a grinding halt to our Solar movement in India. Hence, this very urgent REVIEW be applied and implemented for limiting the SG to **7.5%-10%** in the Year One and reduce thereof, in a Half Yearly further reduction in the Revised/ Reviewed Order advocated by REPA in this Representation to the **Government of India (GoI)** via “**ENERTIA – Asia's Premier Journal on Sustainable Energy, Power & Renewables**”.

III. For all PPAs tendered by the Central Government and all PPAs and MoUs signed by the State Governments and accepted pricings under 'Alternative Tender Mechanisms' like “**Swiss Challenge**” discovered pricing, the SG order dated **30th July 2018** cannot apply in retrospect as the in principle MoUs are sufficient cause for allowing '**Zero Duty Import**' of Solar PV Systems (Solar PV Cells, Solar PV Wafers, Solar PV Modules, Solar PV Inverters, etc.) under the arrangement.

NB: It may be noted that, if it is not allowed, then all such agreements amounting to **25GW+** will '**Come a Cropper**' as Solar developers are in no position to absorb **25% SG** simply because the tariffs

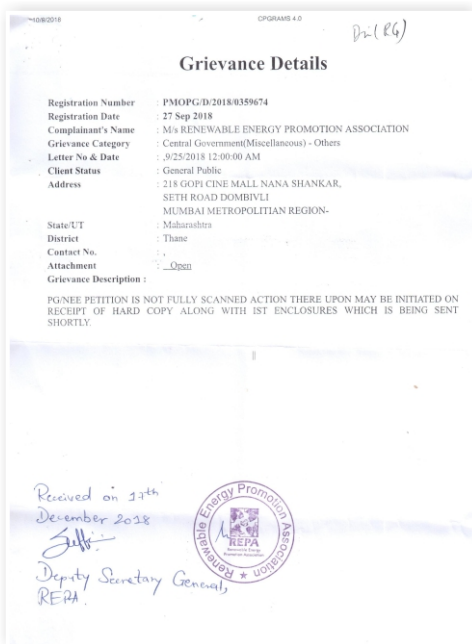
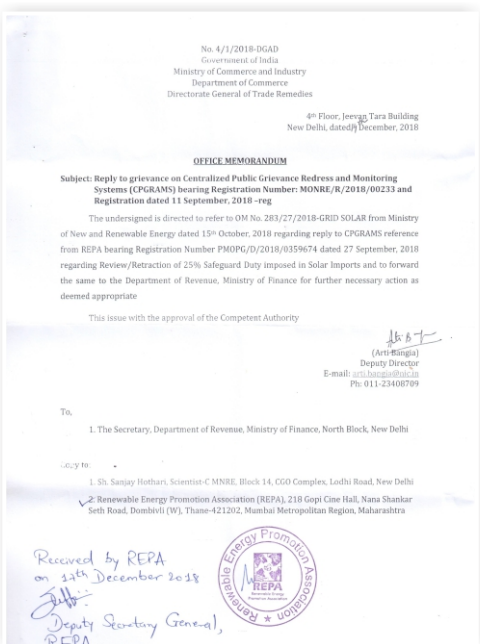
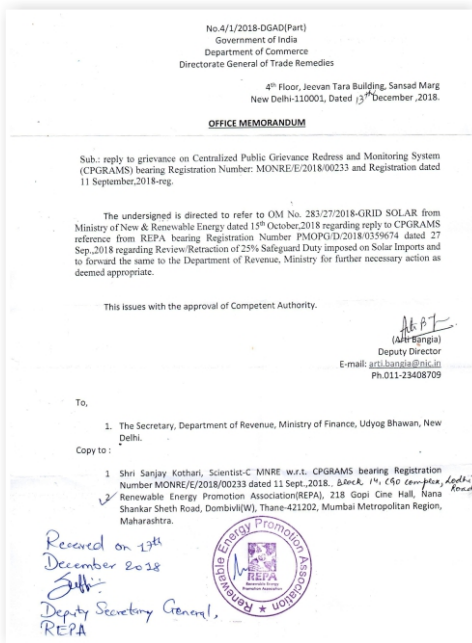
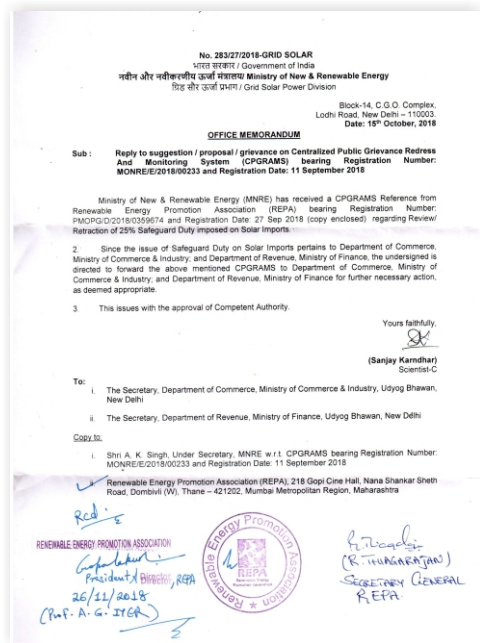
quoted factored for **ROI** (Return On Investment) & **IRR** (Internal Rate of Return) are based on the '**Zero Duty Import Regime**' prevailing until date **29th July 2020**. It will be unfair therefore, under the Federal Structure on all the State Governments to put up a suo motu, Central Government moved **SG**, that stalls progress of all approved and signed off projects and MoUs, which will finally hurt the Central Government and its National Solar Capacity movement and commitment.

It directly decelerates the Mission to build the “**100GW by 2022** – A quintessential self-goal being scored in a scenario where Solar was the only visible success in the Power Sector, where other areas like Thermal and Hydro are struggling to move with maximal contribution in the NPA scenario”. Not to mention, that over **15GW** of moving **PPAs & MoUs**, where Banks have sanctioned the funds and imports are waiting to happen for Solar PV will enter NPA Zone.

IVa) Hence, **Our Prayer** thereof, vide this “**REPA REVIEW PETITION**” to the Highest Offices of the Hon'ble PMO and Offices of the various Stakeholders, **Government of India (GoI)** to “**NOT APPLY SAFEGUARD DUTY IN RETROSPECT**” dated **30th July 2018** and give exemption to all Projects – **PPAs & MoUs** signed before that date and allow them the '**Zero Duty Import**'.

IVb) In order to move “**MAKE-in-INDIA**”, declare all Solar manufacturing in India to have **No GST** or go **Tax-Free** at least for the next **5 Years** to double our capacity of Solar PV Module





Dumping Duty on Clean RenewTech of SOLAR.

IVc) Ensure that such Test & Research Facilities are also allowed to be built by campuses of the NITs & IITs, increasing the opportunity to commercialize our Patent-Regime and movement towards advanced more efficient Solar PV and other Renewable Energy Technologies. The **HEFA (Higher Education Financing Agency)** loans currently being proposed for institutions are a starting point, but must be combined with the **AIM (Atal Innovation Mission)** and **NSDM (National Skill Development Mission)** to provide a variety of “**Low Interest Funding Schemes (LIFS)**” with defrayment of Principle Repayment, which must be treated as a Conditional Grant to Institutions and Industry for deploying the funds for Innovation, Research and Development and Advanced Futuristic Technology Build-Up.

Only such a move sans “**PROTECTIONISM**” can help **INDIA Achieve Leadership in SOLAR and Renewable Energy Technologies (RETs)** and move us towards a great future for the “**MAKE-in-INDIA & MAKE-for-WORLD**” market manufacturing scenario. Not to mention, the potential of the **Renewable Energy (RE) Industry** to create quickly over the next **3-4 Years, 10-15 Mn Employment/ Engagement/ Deployment Opportunities** in this Sector alone that has a great future with the **Climate Change and Earth Sciences Industry** as an add-on to this.

manufacturing to **20GW+** and incentivize the “Ingot to Cell” factories by providing them Working Capital at **5%-7%** for putting up World-Class Factories, R&D Centers, Research & Test Facilities, etc. or at least give relief from the ideas like **Appellate Authority for Advance Relief (AAAR)** who have put liability of **18% GST** on Solar EPC, Assemblers, Turnkey Service Providers, Sighting Works Contract (SWC). It should be limited to **5% GST**.

We must here learn from our experiences from **UMPP Supercritical Thermal** manufacturing “**MAKE-in-INDIA**” situation, where in spite of

BHEL + JVs of Toshiba-JSW, L&T-Mitsubishi, BGR-Hitachi, etc. the order booking of these companies and also several boiler manufacturers in India like **Thermax Thyssenkrupp, ISGEC**, etc. are no where near even **40% levels**, while the imports from **China** of poor grade **BTGs (Boiler, Turbine, Generator)** continue with “**Zero Duty Regime**”. The Irony of the situation is that, instead of putting **Anti-Dumping Duty** on **Dongfang Electric, Shanghai Electric**, etc. for Coal-based Supercritical Thermal Power Plant Equipment Imports is definitely not **Zero Emission**, we are now deploying **SG (Safeguard Duty)**, a sort of Anti-

V. The **Safeguard Duty** must be seen in the above larger perspective and reviewed thereof in an ‘**Emergency Situation**’ of sorts, as **25%** level will surely bring the progress to a prolonged stand-still which is not conducive for **SOLAR Future**.

VI. **Last but not the least, '100GW Solar by 2022'** is a PMO Mission, which can even reach **150GW** provided we apply sensible and reasonable ‘**Level Playing Field**’ ideas which means **levelized Safeguard Duty of 7.5%-10%** for competitive levelized tariffs in Solar for India

(An Exclusive report & representation by **REPA** Republished with Updates)


प्रधान मंत्री कार्यालय
Prime Minister's Office
 नई दिल्ली- 110011
 New Delhi- 110011

Sub-Petition of M/S RENEWABLE ENERGY PROMOTION ASSOCIATION
 218 GOPI CINE MALL, NANA SHANKAR
 SETH ROAD DOMBIVLI
 MUMBAI METROPOLITAN REGION
 THANE
 MAHARASHTRA

A letter/gist of oral representation dated 25/09/2018 received in this office from M/S RENEWABLE ENERGY PROMOTION ASSOCIATION is forwarded herewith for action as appropriate. Reply may be sent to the Petitioner and a copy of the same may be uploaded on the portal.

[MUKUL DIXIT]
SECTION OFFICER

SECRETARY, MINISTRY OF NEW AND RENEWABLE ENERGY

PMO ID No.: PMOPG/D/2018/0359674 Dated: 03/10/2018

Copy for information to :
 M/S RENEWABLE ENERGY PROMOTION ASSOCIATION
 218 GOPI CINE MALL, NANA SHANKAR
 SETH ROAD DOMBIVLI
 MUMBAI METROPOLITAN REGION
 THANE
 MAHARASHTRA

Note: Status of the grievance can be tracked through internet at <https://pgportal.gov.in/status> by entering registration no. PMOPG/D/2018/0359674


 Recd. 12/10/2018
 (R. INJANAGARAN) (Secy)
 SECRETARY GENERAL
 REPA

www.repaglobal.org
CIN: U93030MH2011NPL223288




Renewable Energy Promotion Association
 President & Promoter Director
 Prof. A. G. Iyer
 Editor-in-Chief & Founder Publisher
 ENERTIA Journal
 Co-Chairperson - SEFI

Jt. President & Co-Promoter Director
 Mr. Hetal Mehta
 Regional Editorial Director
 ENERTIA Journal
 Co-Chairperson - NCEE

Secretary General
 Mr. A. Prakash Iyer
 Executive Publisher & Editor
 ENERTIA Journal
 National Convener - SEFI

"REPA REVIEW PETITION v/s SAFEGUARD DUTY ON SOLAR"
 25th September 2018

His Excellency Shri Narendra Damodardas Modi
 Honourable Prime Minister of India
 Prime Minister's Office (PMO)
 Government of India
 Office Add: Room No. 148-B,
 South Block, Raisina Hill,
 New Delhi - 110 011, INDIA
 T: 011 - 2301 8939 / 23012312
 E: pmoffice@gov.in, pmoffice@pmo.nic.in

Dear Hon'ble Prime Minister Narendra Modi ji,

Sub: REPA advocates REVIEW/ RETRACTION of 25% Safeguard Duty (SG) imposed on SOLAR Imports.

Ref: Government gazetted order issued by the Ministry of Finance, Department of Revenue, Government of India post DGTR recommendations via Ministry of Commerce and Industry on the matter (Enclosed with this Letter) - THE GAZETTE OF INDIA: EXTRAORDINARY dated 30th July 2018 No. 01/2018-Customs (SG) - F, No. 354/31/2018-TRU via the office of Mohit Tewari, the Under Secretary.

GREETINGS from REPA (Renewable Energy Promotion Association) and our forum SEFI (Solar Energy Forum of India).

As you are aware, REPA is India's Apex National Umbrella Organization and Non-Profit Body for Promotion of Renewable Energy (RE). It may be noted that REPA has a past impeccable record of working in the Policy Construct matters pertaining to the Renewable Energy (RE) Sector and the Solar Sector in particular via forum SEFI under its aegis and we have constantly advocated a balanced approach to the issue of Safeguard Duty (SG) represented by us as LT - ADD (Low Technology Anti - Dumping Duty) through the process of the discourse since 2013-14.

REPA has given written representations to both the Offices of the PMO and MNRE right in 2014-15 and further representations thereof, at the WTO (World Trade Organization) by the Government of India (GoI) had been hanging the vis-a-vis imports of Chinese Solar PV and allied systems including raw materials - Ingots, Wafers, Cells and Modules including Solar Inverters, etc. related to the Solar PV.

1. In principle of providing 'Level Playing Field' for "Solar" and other such growth of "Renewables in India" and with a view to encourage local manufacturing, it is agreed that certain checks and balances are essential for the purpose.

But such checks and balances named under the banner and the idea of Safeguard Duty (SG) needs a logical interpretation and application rather than becoming Counter-Productive to the very growth of Solar in India.


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2. Under this background, any Import Duty/ Safeguard Duty, needs to follow the above principle and match the 'Level Playing Field Concept'. It may be noted thereof, that the prevailing GST Structure on import of Solar is 5%.

Further, any "Import Duty (ID)/ Safeguard Duty (SG)" greater than 5%, moves away from the idea of 'Level Playing Field' and veers and wavers towards 'Protectionism', not conducive for the idea of multilateral and bilateral trade principles under which Global Trade Laws are applied upon, including standards established under WTO, of which India is a very active and powerful member. India therefore, needs to be responsible in its approach to the idea of 'Free Trade' across national borders and must continue to be a Leader & Champion of the cause of 'Free Transnational Trade' and its 'Felicitation on Worldwide Multilaterally' in the international domain for "Tariff Barrier Free Movement of Goods and Services" across the global markets.

India must never be seen towing the US line in a Trade-War Era ensuing between US & CHINA.

3. Hence, if any SG is to be recommended for Solar, the basic Import Duty cannot be more than 5%. In case of factoring for lower rates of Working Capital and any other Financial Subsidies provided by Governments like in People's Republic of China, the REPA research is clear, it cannot exceed another 2.5% factor of an additional Counter-Veiling Duty (CV). It must be noted here clearly, that inefficiencies of manufacturing cannot be protected, as it will be detrimental to the growth of Innovation and R&D in India, and will encourage poor grade of products and services which affect domestic Consumer/ Customer markets that are putting-up with these Solar PV Systems from local suppliers and assemblers of Solar PV Modules and Solar PV Systems.

4. So, while on one hand, we need to guard Low Technology Dumping (LTD) into India in Solar and other industries as well, limiting our case here for Renewable Energy (RE), we cannot encourage at the same time mediocrity and poor quality in our own domain, especially in the background that 'Solar Testing Labs' in India are inadequate in numbers and we need at least a dozen such facilities spread across North, South, East, West and Central India to ascertain, whether the life of the Solar PV Panels and Systems manufactured in India or imported from China or elsewhere (Developing Countries) are in line with the standards of performance aimed at deploying Solar PV based Power Plants and generating facilities for "Life-Cycle Costs" or investment benefit, spread over 25 years of tenure of standard PPAs, while allowing for standard derating of the Solar PV Panels in high temperature Tropical Environment that prevails across India geographically.

REPA position here, still has not applied the argument for fitments pertaining to Climate Change, as we must make our Solar PV Panels and Systems exportable worldwide, to operate in Middle-East desert temperatures of 50° C+ and at the same time be suitable for other developed markets in EU, US and North America, in addition to competing with the Chinese made panels in the whole of Asia and Africa.


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*** It must be clearly understood, that applying "Ad Hoc SAFEGUARD DUTY" may stop the import from a certain country directly for short time, but is no guarantee for building our own capacities, efficiencies and productivity of manufacturing overnight (Chinese Manufacturers do have large factories in Vietnam, Philippines, etc. and can shift production volumes to circumvent any SG Structure in spite of its application).

Hence, our Prayer and Case to your Honourable Office of PMO, concerned Honourable Ministry of Finance and also the Honourable Ministry of Commerce and Industry under whom the DGTR operates and other Stakeholder Ministries, Government Departments, Agencies, Regulatory Bodies, etc. is as follows:-

1. Kindly withdraw with immediate effect, THE GAZETTE OF INDIA: EXTRAORDINARY dated 30th July 2018 No. 01/2018-Customs (SG) - F, No. 354/31/2018-TRU as 25% SG will kill the Indian Solar PV Industry per se, especially the 10GW Solar PV module manufacturing which has enabled to at least drive 50% of the capacity of 23GW in India.

1b) Albeit, it is a fact that, 50% of the market belongs to Solar PV Modules built via imports of raw materials like Solar PV Wafers and Solar PV Cells from China. It cannot be independent or devoid of our understanding that 75% of the volume of production of Solar PV raw materials of Solar PV Wafers and Solar PV Cells are coming from Chinese Factories on a worldwide analysis, these are absorbed in Solar PV Modules made in developed nations including US, Germany and rest of Europe. The quality norms and systems of the Developed Nations are strong enough to ensure "Asset Life-Cycle" of these Solar PV Power Plants.

1c) Hence, any Solar PV Module manufacturing in India cannot absorb the inefficiency of Solar PV Cell and Solar PV Wafer Manufacturers and their Lobbies in India, who are also suspect of supplying low efficiency products, as these factories were established 4-7 years ago on an average and are operating at less than 40% of their full capacities which are at 3GW for cell manufacturing in India (Effectively only 2GW thereof due to poor loading of the manufacturing set-ups).

1d) From the above it is clear, that these "Local Cell/ Wafer Manufacturers" will now demand even higher prices for sourcing from their Indian Factories for raw material input of Solar Module Makers who are final suppliers to Developers, IPPs (Independent Power Producers) and Rooftop Integrators, increasing the Solar PV Module price phenomenally, and will also stop all credit, thereby starting the business of Cash and Takeaway, Advisees, Local LCs of their costly and inefficient input, which will immediately "Derail the Competitive Tariffs of Solar" which are now at a discovered average of less than ₹3/KWh on a 'Zero SG' basis.

Hence, not only it kills Unexecuted PPAs & MoU's worth 23GW as per REPA assessment, but also debilitates the MAKE-IN-INDIA Factories of 10GW of Solar PV Module manufacturing - A cascading effect we can ill-afford in our '100GW Solar Pitch for 2022'. It may be noted that in the meantime, neighbouring China crossed 100GW in 2017 itself and has the largest Solar Power Project of Tengger at a Capacity of 1,547MW, while India has 2000 MW at Pavagada, Target Mission - Karnataka, China is poised to more than double its original target of '105GW by 2020' to '213GW by 2020'. At the end of 2017, China was at 105GW and by 2018 and is poised to add another 50GW to cross upwards of 150GW. India, in the same period may cross 23GW.


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II. REVIEW, CONSIDER and quickly ISSUE Fresh Gazette Order via Ministry of Finance, Department of Revenue for reduced SG at preferably 7.5% or a maximum of 10% thereof, for the 1st Year and 7.5% for the next 6 months and 5% for the next 6 months leading until the year September 2020. This may impact the tariffs, but marginally in proportion bringing the tariffs in the PPA to the level of ₹3.50-4.0/KWh in the max depending on the Solar Power Plant location and capacities for larger Power Plants. Rooftops and Community Ground mounted Power Plant tariffs may go up to ₹5/KWh.

NB: It may be noted that, if SG is sustained at 25%, the rooftop tariffs will jump to ₹6/KWh and that of the large Power Plants will cross the ₹4.5/KWh barrier making the choice of Solar uncompetitive and matching with carbon-emitting Thermal Power Plants. The incentive to put Solar under 25% SG regime goes away and it brings a grinding halt to our Solar movement in India. Hence, this very urgent REVIEW be applied and implemented for limiting the SG to 7.5%-10% in the Year One and reduce thereof, in a Half Yearly further reduction in the Revised/ Review Order advocated by REPA in this Representation/ Petition.

III. For all PPAs tendered by the Central Government and all PPAs and MoUs signed by the State Governments and accepted pricings under 'Alternative Tender Mechanisms' like 'Swiss Challenge' discovered pricing, the SG order dated 30th July 2018 cannot apply in retrospect as the in principle MoUs are sufficient cause for allowing 'Zero Duty Import' of Solar PV Systems (Solar PV Cells, Solar PV Wafers, Solar PV Modules, Solar PV Inverters, etc.) under the arrangement.

NB: It may be noted that, if it is not allowed, then all such agreements amounting to 25GW+ will 'Come a Cropper' as Solar developers are in no position to absorb 25% SG simply because the tariffs quoted factored for ROI (Return On Investment) & IRR (Internal Rate of Return) are based on the 'Zero Duty Import Regime' prevailing until date 29th July 2020. It will be unfair therefore, under the Federal Structure on all the State Governments to put up a suo motu, Central Government moved SG, that stalls progress of all approved and signed off projects and MoUs, which will finally hurt the Central Government and its National Solar Capacity movement and commitment.

It directly decelerates the Mission to build the "100GW by 2022 - A quintessential self-goal being scored in a scenario where Solar was the only visible success in the Power Sector, where other areas like Thermal and Hydro are struggling to move with maximal contribution in the NPA scenario". Not to mention, that over 15GW of moving PPAs & MoUs, where Banks have sanctioned the funds and imports are waiting to happen for Solar PV will enter NPA Zone.

IV.
IV a) Hence, Our Prayer thereof, vide this "REPA REVIEW PETITION" to the Highest Offices of your Hon'ble PMO and Offices of the various Stakeholders, Government of India (GOI) to "NOT APPLY SAFEGUARD DUTY IN RETROSPECT" dated 30th July 2018 and give exemption to all Projects - PPAs & MoUs signed before that date including them the 'Zero Duty Import'.

Handwritten signature: Prof. A. G. Iyer, 25/07/2019

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IV b) In order to move "MAKE-IN-INDIA", declare all Solar manufacturing in India to have No GST or go Tax-Free at least for the next 5 Years to double our capacity of Solar PV Module manufacturing to 20GW+ and incentivize the "Ingot to Cell" factories by providing them Working Capital at 5%-7% range for putting up World-Class Factories, R&D Centers, Research & Test Facilities, etc. or at least give relief from the ideas like Appellate Authority for Advance Relief (AAR) who have put liability of 18% GST on Solar EPC, Assemblers, Turnkey Service Providers, Sighting Works Contract (SWC). It should be limited to 5% GST.

We must here learn from our experiences from UMPPs Supercritical Thermal manufacturing "MAKE-IN-INDIA" situation, where in spite of BHEL + JVs of Toshiba-JSW, L&T-Mitsubishi, BGR-Hitachi, etc. the order booking of these companies and also several boiler manufacturers in India like Thermo Thyssenkrupp, ISGEC, etc. are no where near even 40% levels, while the imports from China of poor grade BTGs (Boiler, Turbine, Generator) continue with "Zero Duty Regime". The irony of the situation is that, instead of putting Anti-Dumping Duty on Dongfang Electric, Shanghai Electric, etc. for Coal-based Supercritical Thermal Power Plant Equipment Imports is definitely not Zero Emission, we are now deploying SG (Safeguard Duty), a sort of Anti-Dumping Duty on Clean RenewTech of SOLAR.

IV c) Ensure that such Test & Research Facilities are also allowed to be built by campuses of the NITs & IITs, increasing the opportunity to commercialize our Patent-Regime and movement towards advanced more efficient Solar PV and other Renewable Energy Technologies (RETs). The HEPA (Higher Education Financing Agency) loans currently being proposed for institutions are a starting point, but must be combined with the AIM (Atal Innovation Mission) and NSDM (National Skill Development Mission) to provide a variety of "Low Interest Funding Schemes (LIFS)" with defrayment of Principle Repayment, which must be treated as a Conditional Grant to Institutions and Industry for deploying the funds for Innovation, Research and Development and Advanced Futuristic Technology Build-Up.

Only such a move sans "PROTECTIONISM" can help INDIA Achieve Leadership in SOLAR and RETs and move us towards a great future for the "MAKE-IN-INDIA & MAKE-for-WORLD" market manufacturing scenario. Not to mention, the potential of the Renewable Energy (RE) industry to create quickly over the next 3-4 Years, 10-15 Mn Employment/Engagement/Deployment Opportunities in this Sector alone that has a great future with the Climate Change and Earth Sciences Industry as an add-on to this.

V. The Safeguard Duty must be seen in the above larger perspective and reviewed thereof in an "Emergency Situation" of sorts, as 25% level will surely bring the progress to a prolonged stand-still which is not conducive for SOLAR Future.

VI. Last but not the least, "100GW Solar by 2022" is a PMO Mission, which can even reach 150GW provided we apply sensible and reasonable "Level Playing Field" ideas which means levelized Safeguard Duty of 7.5%-10% for competitive levelized tariffs for Solar in India.

Handwritten signature: Prof. A. G. Iyer, 25/07/2019

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With Warm Regards & Best Wishes,

Handwritten signature: Prof. A. G. Iyer, 25/07/2019

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