

<https://secure.mygov.in/group-issue/inviting-suggestions-draft-national-electricity-policy-nep-2021/>

Sub: Suggestions for the National Electricity Policy 2021 (In other words, suggestions for Electricity **GENERATION**, **TRANSMISSION** and **DISTRIBUTION** in an era of 21st century Digital Governance in India)

Please kindly review this pdf document for suggestions regarding the National Electricity Policy 2021. The draft of National Electricity Policy (NEP) 2021 has 53 pages in English and I could not go through all pages within the deadline of May 15 2021. Therefore, I don't know if I'm listing any redundant suggestions already present in the draft.

Obviously to improve any system including National Electricity Policy 2021, a data-driven rational research is required (Quantitative & Qualitative analyses). I did not research but only presenting my views based on my observations as points below which may help scholars/experts carve out their own topics of research/PhDs/innovations for sustainable electricity generation, transmission and distribution as quickly as possible cost effectively and efficiently.

NEP 2021 BUZZWORDS OF 21ST CENTURY GRID:

1. Cyber security, smart-meters, reliability, scalability (robustness), accountability, controllability, observability, serviceability, reachability, profitability, durability, material standards, service-standards, disaster proof, disaster relief, skill-development, employee welfare & best HR practices, use of robots & drones, GPS(NAVIC?), Internet of Things, R&D, patents, start-up investments, indigenization/atma-nirbhartha, automation (Artificial intelligence for generation, transmission and distribution) etc. must be some of the most important parameters/features/buzz-words for deciding the national electricity policy 2021.

NEP 2021 POLICIES OF PROMOTION AND PUBLIC PARTICIPATION:

2. About this publication of invitation for suggestions on MYGOV, is a circular issued to all universities of India at the center and the state levels so that professors, scholars, other staff and students can participate and share their ideas? If not, the circular about this discussion on MYGOV may be issued by an email-list to all universities of India and a circular poster may be mailed for sticking on the noticeboards at all universities of India. That will help get genuine ideas from scholars, professors and experts related to electrical engineering fields.
3. Is this invitation for suggestions on MYGOV also advertised on all websites related to the ministries of power and their departments so that all stake-holders visiting such websites get to post their views on this discussion forum at MYGOV? If not, the circular about this invite on

MYGOV may be advertised on the front page of all such websites and also invitations may be issued by email-list to all stake-holders (via Ministry of power online newsletter?).

4. Is a circular of this invitation for suggestions on MYGOV about National Electricity Policy issued to all corporations, industry bodies (like FICCI, ISA, NASSCOM, CII, ASSOCHAM, ACMA, IEEMA, IEEE, IETE, CSIR etc.)? If not, the circular about this invitation for suggestions on MYGOV may be issued by email-list to all stake-holders at various industry bodies and R&D institutions.
5. There may be departments of government which may receive this circular for invitation for suggestions on MYGOV. For example,
 - a. departments related to agriculture may be involved in identifying how best electricity may be provided in a myriad crop type fields and different geographies of the country. (example: How to lay cables in an area with coconut trees, paddy fields, tea gardens etc.?)
 - b. departments related to urban planning may be asked for their recommendations on the best distribution methods for different parts of different cities of India.
 - c. Wherever possible, both departments of telecom and electricity must work together to reduce the cost of cable laying for both electricity and communications including internet.
 - d. There may be other such departments which are heavily dependent on electricity like railways, heavy industries etc. must be involved for their recommendations on best distribution methods and related policies.
 - e. NDRF/NDMA, fire-departments, department of Space may be involved for a manthan on training courses and tools required for disaster prevention and disaster relief. By disasters, I mean building fires, floods, earth-quakes etc. (NDMA and NDRF usually have know-how about environments of India and might give valuable inputs related to Environment Action Plan(EAP), planning, design, construction and operational aspects)
6. Budgets and policies must exist for public awareness campaigns related to renewable energies, cogeneration, conservation, partnerships, theft/kundi connections, social responsibility, corporate social responsibility etc. There may be lessons on the same from 1st class to 10th class in schools at the state and center level. The pamphlets, audio & video advertisements and trainings for consumers must be available via links on the websites of all departments of electricity at center and state levels.
7. Neighborhood watch volunteers may be trained to identify illegal connections and file online reports on the same with photo evidence. Neighborhood watch volunteers may also be trained with communication skills to help people file application to secure/repair their electric connections, educate people on the benefits of electricity conservation, smart-meter promotion, renewable energies, pay for electricity use, cogeneration, pay for electricity

generation etc. Only those with a government job or a similar private job and good standing in community will be recognized as Neighborhood watch volunteers.

8. There is a need for policies and allocation of funds for organizing international Expos on electricity generation, distribution and consumption at the universities of the 100 smart cities of India. Free passes may be given to graduate and post-graduate students and their professors to those international Expos. Circulars may be issued to national and international media to cover such events and take interviews from experts participating in such events for the sake of esteemed political leaders & their party workers who are most often busy and not able to attend such expos. That will accelerate innovations and modernization of India's power generation, power transmission and consumer distribution of electricity.

NEP 2021 POLICIES OF EMPLOYEE WELFARE & HUMAN RESOURCE DEVELOPMENT

9. Is there an Intranet (NOT INTERNET) available for all employees at the ministry of power which provides all relevant news, trainings, tutorials, video-games(interactive training) related to electric work, standards, popular electricity magazine subscriptions, events, outages, schemes, personnel contact directory, facilities at each location available to employees, tools check-out, vehicles-checkout, online time-sheets for wage workers, benefits, perks, online leave request & response system, yearly work-performance appraisals, obituaries, awards, competitions, retirement fare-wells, internal job postings, employee suggestions & feedback, union related, anonymous employee grievance redressal mechanisms etc.? If not, budget may be allocated to get it done. Every employee of departments of power must have career growth opportunities and that advice must be available on the intranet without the need to interact with bosses so as not to corrupt them for promotions.
10. Video games and Virtual reality audio & videos at all electric work training institutes and if possible through department of electricity intranet website. The video games or virtual reality shows may educate different personnel for R&R, O&M, disaster repairs and relief, optimal transmission & distribution, harassment policies, communication skills etc. etc.
11. Basically, unless hands-on training is required, all skill-development trainings must be online. Credit points may be issued online to all employees completing courses. Those credit points must also be taken into account for promotions. Some of those credit points may be transferable towards receiving diplomas, degrees at universities. (Ministry of HRD may be involved in this matter)
12. Any employee who passes JEE, JAM and other such entrance exams and secures admission at a government/public university in the branch of Electrical Engineering must be provided full fee waiver for the minimum duration of study like 4 years or 2 years whatever the course duration.

Upon successful completion of such studies, that educated ex-employee must be given an opportunity to final interview for all positions applied for at various departments of electricity under ministries of power.

13. The National Electricity Policy 2021 must include best HR practices for all employees and contractors working for the departments of electricity.
14. Wherever online systems are used, all job offer document packages with payment details, insurances, rules & regulations must be signed electronically by both employer and employee.
15. Work-related injuries and Sexual harassment policies & training must also be signed online exclusively by the employer and the employee. Wherever online systems cannot be used, both the employer and the employees must complete work-related injuries and sexual harassment policies & training materials. Then both employer and employees must sign the forms and post them back to a specific address of the Human-resource departments which manages the payroll. I think it is best the employer and the prospective employee complete the training & signing of the work-related injuries and sexual harassment policies before an interview.
16. This point is very important to apprentices/fresh-employees because they usually commit work-related mistakes early in their careers leading to work-related injuries and worse death. All incurring work related injuries or death must be given benefits by Indian Governments including but not limited to medical bills, relocation, job retraining, re-education etc. For example, in case of a work related injury resulting in limb loss, the victims may be helped to recover as best as possible and then re-education and job re-training must be provided as per their post-recovery body functionality reports. (Digressing: Laws related to Work-related injuries are not part of 'personal injuries' in many developed nations including USA, Japan, China etc. Therefore, when referring to work-related injuries, they must be called 'work-related injuries' and not 'personal injuries at work'. I think it is best Ministry of Skill Development, Ministry of Law and Justice, Ministry of Labour and employment and other concerned ministries come together to define again 'Work-related injuries' and 'personal injuries' for the sake of improving Justice and 21st century Jurisprudence in India. How can India expect to be called a Sovereign republic trying to become a world leader with a pre-independence law called '**Workmen's Compensation Act of 1923**'?)
17. **There must be a 24/7 care-taker/concierge helpline for workers on camp-duty/out-of-town duties** to help get medicines for their family members, bill payments, kids school or other such concierge services. These helplines must in turn get the help of local ASHA workers, ICDS of WCD ministry, MNREGA, police stations or NCC cadets to take care of the helpless dependents far away from worker on camp-duty. The reason for such concierge service is due to temporary nature of camp/out-of-town duties. Because the camp duties are temporary ranging from few

weeks to few months, the candidate cannot move the entire dependent family to the rental place or close to his/her work-place.

18. Jobs for disabled must be researched and listed. Disabled employees must be provided with all accessibility features or at least recommendations for the accessibility features at work-places like a ramp, standing or sitting desk, accessible toilets etc.
19. Basic physics and mathematics related to power generation, transmission and distribution must be incorporated into lessons in schools (up to 12th).
20. All schools may go through an online forum for school excursions at power generation, transmission and distribution related plants. There must be age-group, adult-child ratio (say 5 students per teacher) and the maximum visitor limit protocols for the same. There may be other rules and regulations which may be brain-stormed by authorities for tours by school children. All schools may request educational materials from the Ministry of power in DVD format besides an exclusive access to the online educational content for different age groups.
21. We must understand NEP 2021 is for a high-tech gigantic power supply investment holdings company called the Ministry of power (fossil power and renewable power). Therefore, technical members of management team must be able to have wider functions uninterrupted by the non-technical personnel in management teams. A big percentage of the team of policy-makers of NEP 2021 must be those with technical degrees and relevant experience. Those who make non-technical decisions must be small in number and must only have veto power of 'yes' or 'no' regarding the budget or other approvals but not the power to exert influence over their technical colleagues to choose a particular technology because some minister asked to do so. The non-technical colleagues may only advise their technical colleagues in most cases or constrain the implementation based on budgets, legalities, human resources, import policies and other such non-technical matters. For illustration, the non-technical colleagues may only intervene if the return on investment will be negative forever or will compromise the sovereignty of nation if their technical colleagues talk about implementing a particular technology. However, the non-technical colleagues must never force their technical counterparts to prefer one technology or company over others for feasibility studies because it seemingly improves profitability or some political leader asked to do so. The ministers come and go every few years but the employees at the departments related to power usually remain in positions for a longer time unless they are unfit to work physically, mentally or due to charges brought against them by the stake-holders (customers, employees, law-enforcement etc.). Therefore at all high-tech ventures of Indian Governments including the Ministry of Power, the technical personnel must outnumber and must hold wider execution powers than their non-technical colleagues or superiors.

22. Scientific approach is required to achieve Carbon Neutrality goals. Besides depending on select few experts at the esteemed institutions of Government and Private Enterprises, there must be collection and analysis of all PhDs and research papers produced at universities of India and around the world every year to incorporate or amend any policies related to achieve carbon neutrality goals of power generation. For that the Ministry of Power may sponsor specified number of PhDs or other such post-graduate studies at India's premier universities like IIMs, IITs, IISc, NITs etc.
23. All Indian Universities with departments related to electrical engineering must upgrade their syllabus to the latest trends in both fossil & renewable energy generation like solar energy, fuel-cells, rocket & missile fuel, engines, bullet-train related, Electro-magnetic, hydro-electric turbines, sea-wave energy, wind-energy, coal energy, bio-fuels, geo-thermal and nuclear technologies. Indian Universities specializing in fossil fuels like RGIPT, IIPE etc. must expand to include branches of chemical engineering and electrical engineering with emphasis on both fossil & renewable electrical energy generation.
24. For those who can't pursue post-graduate studies at Universities, there must be vocational colleges & trade schools teaching them 21st century job skills so they either provide their electric services or start their own trades.
25. Certification exams for private electricians by various departments of power. Even while recruiting private contractors, all employees of such contracting agency must be certified before applying for various contract jobs at the departments of electricity. Just the same way as materials/equipments are audited and certified before installation, the contractors and their employees must also be certified and thoroughly interviewed just the same way as full-time employees. Various departments of power may prepare practical syllabus for such certification exams.
26. Thorough back-ground checks for criminal records of all candidates applying for any electric job from managers to peons. A more thorough security clearance and mental health check is must for those handling critical equipment and payments at power generation, power transmission and power distribution. Contractors may also be investigated before and after the award of electricity contracts. Undercover intelligence (CVC, CBI, ED, IB, state CID or such relevant intelligence) may be involved in identifying loop-holes at all departments of India's electricity generation, transmission and distribution. Such intelligence may also have tools, methodologies and standard operation procedures (SoPs) to investigate for corruption besides the procedures/methods of departments of power to identify their own corruption in-house.

NEP 2021 POLICIES OF CUSTOMER SATISFACTION

27. A robust customer interfacing website is required for customers in India. For that, ideas may be gathered reviewing websites of best electric companies in the world like PG&E(www.pge.com) of USA for example.
28. It is not wise to force companies to reduce (curtail) their electricity usage during peak time which appears to work against the intention of PLI scheme launched by Central Government. Instead, efforts must be made to produce more electricity and also improve transmission and distribution losses using latest technologies. With latest technologies, it may be possible to effectively implement variable tariff systems for industries wherever there is seasonal surplus of electricity. If such technologies do not exist or they are expensive, Indian universities and startups may research on the same. In the months when there is surplus of electricity, the tariffs will drop. The tariffs will rise when there is scarcity of electricity. Thus industries may adjust their production capacities accordingly leading to better profits or even seasonal employment. For instance, the solar grid may generate more electricity in summer and seasonal labor could be employed by industries to increase their production. Similarly during monsoons, the industries close to hydro-electric projects may employ seasonal labor with the reduction in power tariffs during monsoon seasons.
29. NEP 2021 must advise/advocate not only cost-effective power generation technologies with better tariffs but also the quality of power received by the end consumer. NEP 2021 must include special provisions so as to provide uninterrupted electricity of highest quality to high-tech industries in electronic sector including but not limited to semiconductor manufacturing. For that, the ministries of power at the center and states may speak to Taiwan, Israel, Japan, Germany or Korea about at least some transfer of technologies if those technologies of power transmission and distribution are not available in India.
30. All issue tracking systems must be online for observability, accountability and controllability.
31. All fines and prison sentences for theft of electric properties must be updated to ensure law-abiding 21st century customers and 21st century employees. For this, ministries of power may work with ministry of justice and ministry of home-affairs. Undercover relevant intelligence (CVC, CBI?, ED?, IB?, state CID etc.) may be involved in identifying Business-to-business(B2B) corruption and Business-to-Consumer(B2C) corruption codes for electricity corruption at generation, transmission and distribution.
32. All community issues related to power generation, transmission and distribution must be promptly decided in courts as and when the need arises by both central and state governments. Cases of employee-corruption, customer-theft etc. must be promptly decided by appropriate panels and courts in a timely manner. Even civil-action lawsuits must be taken up on priority by

High courts and Supreme courts of India. For example, there is unbearable power-cut or pollution in a particular region of a city and they'd like to file a law-suit at High court. All such civil matters must be given priority by High courts & Supreme courts and such matters must be resolved in a determined time-period.

33. For Hydro-electric and nuclear projects facing difficulty of Rehabilitation & resettlement, there must be a R&R software providing controllability, observability and accountability of all actions of employees and the affected populations. The work, business, tax, school, land & other properties, criminal and CBT history of all affected populations and individuals from protesting organizations must be available to the R&R software so that bluffing protestors are effectively curtailed in time. The data and actions collected by the R&R software may also be used in the courts of law as evidence against bluffing plaintiffs. Such R&R software must also make a database of all news related to the R&R efforts published by the news media in India and around the world.
34. It is understood and widely acknowledged that India has issues generating better nuclear power and those hurdles must also be removed diligently to power high-tech industries requiring best power distribution. All hurdles must be tracked by using issue tracking softwares including the R&R efforts as listed in the point 33 above.
35. Protections, provisions, technologies, rule & regulations and in fact departments must be different for Urban consumers, Rural consumers and Industrial consumers. Then different customer bases of Urban, Rural and Industrial consumers can be serviced with equal importance simultaneously under the principle of 'One nation One grid'.
36. Nuclear power must be freed up for critical high-tech ventures like semiconductors and pharmaceuticals at short notice of establishment of such semi-conductor/microchip or pharmaceutical plants.
37. All clearances for the installation of new connections must happen online. Drones may be used where necessary to check conformity to building regulations wherever possible. All installation fees must be paid by checks, DDs, credit cards and other such online bank transfers.
38. Cashless transactions/governance at all electricity departments must be encouraged to get rid of corruption and for better visibility, accountability and controllability.
39. All departments of power may receive donations online from anyone within and/or out of the country for future projects, R&D, educational materials, employee welfare etc.
40. How about automatic electric bill and meter name transfer with online registration of house transaction from seller to buyer? The same must be true for all utilities like water, trash, sewage etc. That will avoid harassment of consumers by corrupt officials who are usually supported by the local politicians in the area.

41. Those villages that are hard to reach must be enabled by renewable small electricity generation like solar, wind, waves, geo-thermal etc. If that's not feasible, then those villages must be relocated.
42. Those villages that are hard to reach by any service like electricity, water, transportation, hospitals, post-offices, schools, cold-storages, police stations etc. must be relocated to other villages which are easier to reach. India must get away from the tribal silos mentality of a brute-force exploitative village head with few hundred subservient families living in those remote villages. Only then villagers will enjoy benefits of enhanced education, progress, wealth and happiness. For this, the Departments related to electricity, home-ministry, health & family welfare, Road transport & highways, Defense, tribal welfare, law & justice, agriculture & farmers' welfare, social justice & empowerment, food-processing, animal husbandry etc. must come together to prepare reports and devise amicable policies with benefits for the relocation of remote villagers.
43. Those customers who complain about illegalities/irregularities must be trained as neighborhood watch volunteers to identify illegal connections and file online reports on the same with photo evidence. Neighborhood watch volunteers may also be trained with communication skills to help file application to secure/repair padosi's electric connections, educate padosis on the benefits of electricity conservation, renewable energies, pay for electricity use. Only those with a government job or a similar private job and good standing in community will be recognized as Neighborhood watch volunteers.

NEP 2021 POLICY OF MODERNIZATION (MANAKS, QUALITY, R&D, EFFICIENCIES)

44. All departments of electricity (generation, transmission and distribution) may be made as paper-less as possible to improve performance, ease of audits and avoid corruption.
45. Computer data collection, audit and analysis of generation, transmission and distribution must be constantly improved every year so that the authorities and research scholars could analyze the data and make necessary modifications, adjustments and improvements if any.
46. All technical committees making National Electricity Policy 2021 must also strive to improve existing standards (manaks), review world standards for adoption and also be confident enough to create new standards. The technical committees may also recommend industries for the manufacture of such standards measuring equipment. For instance, India could create standards (a measurable minimum number or a maximum number for any product) for the manufacture of solar power grids suitable for tropical climates. Thus any company selling solar power grid equipments must adhere to Indian standards which may supersede world standards. Same goes with other types of renewable energy systems like wind, bio-gas, wave energy etc. Thus,

auditing the quality of products before installation and maintenance after installation will become simple & effective for MSMEs.

47. From point 46 above, can BEE and ECBC and other such standards be improved?
48. There must be improvement in the minimum standards of quality and performance for the manufacture of all new devices using electricity at home, offices, corporations etc. Those standards must be revised at regular interval (say every 5 years) researching on the latest trends in the international markets.
49. All indices on the quality of power supply like surpluses, interruptions, voltage fluctuations, harmonics, transformer failures, defective meters etc. must be captured automatically using Internet of things (IoT) based measuring equipment for analysis and rectification.
50. Drones & Robots, GPS(Navic?), IoTs(Internet of things) and latest wireless networks(5G?) must be actively employed for operations & maintenance (O&M) at power generation, transmission and distribution. Those technologies must be able to relay all relevant measurements, including audio and video to the central base stations.
51. Strong youth with skills must be identified for Operations and Maintenance and trained to be NDRF also. They may use helicopters for installation and maintenance wherever possible as per the requirements of the departments of electricity. Helicopters, Drones, robots and other such IoT devices will identify a faulty transformer or a electric transmission tower. Then helicopters may be used to transport personnel quickly to the spots avoiding black-outs, forest fires or other such hazards. The helicopters and boats must be provided with all tools and SoPs(Standard operation procedures) required for operations and maintenance of electric systems in the event of disasters.
52. By making all decisions related to power generation, transmission and distribution paperless (online only) at the center and state levels, it may even be possible to effectively manage the losses at the transmission and distribution levels. Modern technologies and software must be provided by center to states to check for AT&C losses and rectify the same.
53. NLDC and RLDC must be modernized with online systems as much as possible with best cyber-security. Because electricity cannot be stored on the grid, there must be drastic increase in the automation by the use of artificial intelligence (AI) for power management (generation, transmission and distribution). Laptops and Smartphones have automated power management softwares spreading power over the circuit boards and microchips. Similarly, considering each smart city as a gigantic circuit board, similar concepts of automation with smart-meters may be enacted at all the 100 smart cities of India and major industrial corridors. Thus, NEP 2021 must enable better automated/AI based feedback control system mechanisms from the distribution to the transmission to the generation for all 100 smart cities of India and major industrial corridors to effectively transfer electricity from generation to distribution with minimum losses.

54. NEP 2021 must enable latest financial management softwares and highly educated youth (from IIMs preferably) to operate those softwares giving guidance to authorities and allocating funds, materials & human resources for best Return on investments(ROI) and effectively estimating Non-recurring Engineering costs(NRE costs).
55. Cost-benefit and risk-reward analysis MODELS, Standard Operation Procedures(SOPS) and best-known methodologies for power generation, transmission and distribution must be periodically researched in collaboration with industries and universities. They must all be well-documented in a secure central location easily available to departments of center and states. Financial softwares for such MODELS must be developed and constantly improved which could be utilized by financial analysts for budgeting and different stages of project approvals. Also white-papers may be made available as summaries of advice to the powerful in state and central governments.
56. All documents available with Departments of power must be color marked as “Top Secret”, “Management Secret”, “Company Private”, “Contractors”, “Public” or other such confidentiality levels whichever best suit the Ministry of Power.
57. A preferred vendor list for all contracts must be identified every year by the Ministry of power and only those vendors must be sought for all projects related to power. Those preferred vendors may in turn find their sub-contractors. Every year, the ministries of power may announce competition for the preferred vendor list based on certain parameters of concern by all departments related to power. Thus having proper contracts with preferred vendors, they could be held accountable for all their failures including their sub-contractors’ failures. (It is like holding house butler accountable for the bad garden, unclean bathroom, crumpled clothes, smelly pillow or a horrible dish instead of cursing maids directly)
58. The biggest issue with India’s electricity generation, transmission and distribution is corruption, negligence and lack of proper escalation mechanisms within departments and to the central and state governments of India. There must be proper auditing mechanisms to check for corruption, negligence and in general the quality of service at the departments related to electricity generation, transmission and distribution. There may be auditing mechanisms/methods in place to assess each responsible manager of at least some fixed number of employees (say anyone who supervises 5 or more employees at any department). The audits and performance appraisals may be online as much as possible. Best employees must be rewarded and worst employees penalized.
59. Undercover CVC, CBI, ED, IB, state CID or such relevant intelligence departments may be involved in identifying loop-holes at all departments of India’s electricity generation, transmission and distribution. They may then recommend plugging those loop holes like payables, receivables, authorizations, transfers, corrupt, absentees, sexual harassment, use of

sub-ordinates for house-work etc. They may also advice on the matters of hazards and disaster prevention like recent chamoli glacier, forest fires, factory hazards, local brute-force politicians, tribal sensitivities etc.

60. All different types of cogeneration systems must be researched, identified and gadgets/equipments be made for those cogeneration possibilities. Some of the cogeneration systems are
- a. Household electricity production by using bio-gas and roof-top solar power.
 - b. In houses with bulls & cows, there may be possibility of electricity generation and storage using walking bulls & cows.
 - c. In all 100 smart cities, there must be programs for big apartment complexes to generate and distribute surplus electricity by roof-top solar systems and using bio-gas turbines.
 - d. All big junk yards may burn the processed waste to get gas and also generate electricity. By making all junk yards in all 100 smart cities private, it is possible to generate electricity by the power of entrepreneurship.
 - e. In all 100 smart cities, there must be programs to train landscapers to collect tree and plant waste for generating biogas and electricity.
 - f. All lumber yards in the country must be trained to burn waste to generate electricity.
 - g. Novel incinerators may be built which could generate electricity from cremating dead bodies, thus reducing the cost of incineration.
 - h. Incinerators for dead animals may be built to not only generate electricity but also useful byproducts.
 - i. All permanent Central and State Government buildings (including universities) may be mandated to have maximum roof-top solar power during work-days.
 - j. All malls, cinemas and other such huge buildings may be given incentives based on the percentage of solar, wind or other such renewable energy use compared to total electricity consumptions.
 - k. There may be many such ideas which must be researched at all esteemed universities of India. Then incubators and startups could be evolved from potential research results.
61. All Government vehicles of electricity departments of power generation, power transmission and power distribution must be fitted with GPS (NAVIC?) & Camera devices to track their movements and store the data for at least 5 years. That way, one can ensure safety of employees and also trace any corruption or negligence by officials.
62. Automate as much electricity auditing as possible by use of latest electricity distribution softwares and even by using drones and security cameras at critical points. Electricity theft must be stopped by using innovative power distribution equipments. If world does not produce any fool-proof equipments or if they are expensive, then the esteemed Indian public research

institutions must come up with latest innovations to stop illegal connections (also known as Kundi connections)

63. Urban planners and experts must come up with better cable management technological solutions for underground cabling wherever possible to reduce electricity interference due to bad-cabling, noodle/spaghetti cables, rain, dust, birds, thieves, poor maintenance etc.
64. All abbreviations and definitions used in the National Electricity policy must be tabulated and placed in a glossary at the end of the NEP 2021 policy document/gazette. For example, whoever reading the policy must not have difficulty understanding what are CTUs, STUs, CEA, CERC, REDB, NHPC, R&R, R&M, O&M, PPAs, GT/CCGT, APDRP, HEP, DDUGJY, IPDS, AT&C, RPO, HPO, REC, DISCOM, RoW, HTLS, DSO, ADMS, BEE, ECBC, SLNP, NMEEE, NAPCC, PAT, SEC, MTOE, SIDHIEE, NDC, GIS, NEMMP, EV, FAME, PCS, PFC, DPIIT, REC etc.
65. All unsigned documents of ministry of power and in fact all Indian Government documents must be searchable PDF documents (and not just scanned pdfs of paper copies).
66. All pamphlets and trainings for all stake-holders must be available online via the departments of electricity except those classified as company only, confidential or secret.

NEP 2021 POLICIES OF INCENTIVES, INVESTMENTS AND DIVESTMENTS

67. Incentives, tax-rebates and research support for private companies manufacturing all devices like solar power-banks, hydrogen-fuel cells, LED bulbs, street lamps, solar-water heaters, solar cookers, Electric vehicle charging stations, transmission lines, wind-power turbines, nuclear plant equipments, smart-meters and related softwares etc. There must also be awards for the best product of the year awards for each identified category every year from the Ministry of Power.
68. Solar tubes, Skylights, Sun tunnels, sun-vents on roof-tops must be encouraged in the construction of bungalows, malls, universities, schools, temples and other such big buildings. Incentives and proper online advertisements may help. Also, construction Technologies (with ECBC standards) must be continuously identified/developed at R&Ds of Universities and Govt & Private enterprises. Methodologies & procedures must be developed to identify and install such sun tunnels in old buildings for better sunlight and fresh air.
69. Private barren lands must be identified for sources of renewable energy. Then owners of those lands may be approached actively to install renewable electricity generation farms by enticing them with incentives. It is best to train private MSMEs (Medium, Small and Micro-enterprises) for this purpose.
70. Cost-effective logistics must be devised for the transportation and the disposal of all electrical junk. For this, at least one electricity department in each city may have a junk yard for all

different types of junk due to their work and also from consumers like wires, appliances, bulbs, batteries, plastic, poles etc. There may be contractors who'd bid for the electric junk and take it with them for recycling at periodic intervals, say every three months. May be a better system could be brain-stormed by experts for all types of junk including nuclear junk.

71. Ministries of power along with other ministries (like Finance, corporate affairs, heavy industries etc.) must have streamlined SoPs(Standard Operation Procedures) for divestment of existing enterprises.
72. Governments must come up with fool-proof policies along with private contractors for salvage/dismantling of outdated projects, installations and equipments. Panel of experts must involve researchers from universities for analysis, investigations and audits regarding the same. Right now at the departments of power there is a nostalgic habit of renovation of 'ancient installations and projects'. This mind-set of viewing projects as ancient monuments to be always renovated because they've memories MUST GO and all junk projects and installations must be DISMANTLED. (Nobody drives an ancient car or lives in their ancestral home for long. If that's the case, the resource hungry projects, tools, vehicles and installations must be just salvaged)
73. All MSMEs engaged in developing technologies of hardware and softwares for power generation, transmission and distribution must be recognized and the ministry of power may invest or divest from those organizations with fool-proof contract agreements. For example, if there is a startup manufacturing power transmission systems and ministry of power wants more those smart power transmission systems. Then ministry of power must have budget to invest in those startups separately from the existing Central Government schemes for startups.
74. Ministry of power may make clear executable agreements of investment and timely divestment upfront in private enterprises related to power generation, transmission and distribution. For instance, if the ministry of power invested 100 crores in a company in 2021 and when the private establishment goes into stock market, the ministry of power must divest from the company completely in parts over a specified period of time(say within 10 years of listing in BSE or NSE or foreign exchange). Thus, NEP 2021 must have clear executable fool-proof policies of investment and divestment in private companies even when the ruling political parties change with elections.
75. All Government funded research at Universities and within the Government's departments of power must be copyrighted and patented actively similar to how private corporations value their copyrights and patents. Then Government could derive royalties on patents from private players in the electricity business.
76. Private companies must be encouraged so as to generate more employment in the power sector and also generate more revenues for Governments to be used for last-mile electricity reach (Antyodaya). A simple algorithm may be followed as follows (listed on next page):

- a. Where there is lot of demand for electricity, let private companies do business either alone or by Public-Private Partnership
- b. Wherever the private entities do not provide electricity, the government enterprises may do business either alone or by Public-Private Partnership

(The above algorithm listed in point 76 may be adapted to other Public enterprises like transportation (by land, seas and air), petrol stations, charging stations for EVs, cold storages for agricultural produce, crematoriums, schools & universities, orphanages, disabled & old-age sanctuaries, banks & post-offices, hospitals, military spending, latest high-tech research etc. Thus, Indian Governments of center and states must aim to reach as many citizens as possible driving innovation and encouraging private enterprises also.)

My views are influenced by my observations of developed nations and their implications on globalization. Since it is in my own personal interest that India becomes a prosperous nation with more than 15 trillion dollar economy soon, I presented my suggestions, as the points above, for National Electricity Policy 2021. Most of my suggestions above are about National Electricity Policy in the era of Digital Governance of 21st century. (In other words, suggestions for Electricity generation, transmission and distribution in an era of 21st century Digital Governance in India)

The draft of National Electricity Policy (NEP) 2021 has 53 pages in English and I could not go through all pages within the deadline of May 15 2021. Therefore, I don't know if I'm listing any redundant suggestions already present in the draft. Also, please forgive my Indlish mistakes too.

Satyameva Jayathe!

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Note: I am not affiliated with any political party, any religion, caste, tribe, last name, pin code, language, region, media, NGO, business or any Government institution. I am still an ordinary Indian Citizen. I am not paid to write here and not seeking favors.