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COMMENTS & SUGGESTIONS ON THE 2017 DRAFT NATIONAL ENERGY POLICY

At the outset, we – a collective of Civil Society Organisations, who gathered in Delhi on the 12th of July, to review, analyse, comment on and give suggestions for improvement of the draft NEP, **express our appreciation to the NITI Aayog for bringing out this important policy draft**. Looking at the rapid and drastic changes in the energy scenario – both electricity in India and the global hydrocarbons scene – it was high time that the older Integrated Energy Policy was overhauled.

Policy-wide Comments:

1. Looking at the importance of the energy issues for every group in India, there should be opportunity and time for extensive discussions in different regions of India. The time given is totally inadequate, also in the light of lack of proper channels of communication in peripheral regions, like the north-east. In this perspective, the **NITI Aayog should allow more time for public comments**, if it really wants to get valuable inputs from such a vast country.

2. **The Primary Assumption in the draft NEP, that Energy (and Electricity) inputs are directly and linearly proportional to GDP growth, human development etc, do not seem to hold true in many cases**. A clear example from our own neighbourhood is Sri Lanka, whose per capita electricity consumption at ~490 KWHr/year is just a little over half of India's per capita consumption of 900 KWHr (with per capita production od ~1100 KWHr). Its per capita total energy consumption is also much less – around 495 Kgoe to India's over 620 Kgoe. And yet, it has achieved a far higher HDI than India's, 0.715 to 0.609. Similarly, poor Bangladesh, with nearly one third of India's per capita energy consumption, has achieved a HDI which is not far behind India's.
   Thus, a fundamental shift in the energy policy is required, which directs energy services to achieving universal human development as priority, rather than create only markets for luxury consumption. The **NITI Aayog needs to do a realistic (based on current economic realities) SENSITIVITY ANALYSIS of energy input and GDP growth** and based on this, **a realistic and "GDP-efficient" recalculation of energy demands is needed** for the horizons of 2022, **(and 2030- for SDGs synchronization,)** and 2040, which would most likely be much lower than the present demand figures.
3. The NEP (as was the earlier IEP) seems to be guided by the Chinese economic model of energy-intensive manufacturing based growth, rather than India's own recent experience of much-less energy input service led growth. Also, the

underlying assumption of continuing high GDP growth seems to be invalid in the changed global macro-economic scenario. Even in the case of GDP oriented economic growth, India's own macro-economic experience shows that some sectors are far more "GDP-efficient" ie, more energy efficient in creating economic growth with lesser energy inputs. The services sector contributes over 55% of India's Gross Value Added (GVA) while consuming only 16-18% of the total energy, while the industrial sector consumes nearly 37% of the total primary energy, contributing only about 30% of GVA (out of which, more energy intensive manufacturing contributes only about 15%). And yet, the draft NEP mistakenly places more emphasis on manufacturing based growth. This lop-sided, energy-marketing oriented approach must change for India's own interest.

4. **In view of the very critical situations in the country in terms of both climate change impacts and air & water quality deterioration, all available options for lowest carbon-footprint sources of energy and those with minimal air and water pollution potential should have been prioritised**, putting more emphasis on these aspects than purely a limited financial sense.

5. **As the global and national energy scene is in a state of flux and changing fast, this policy document should be open to change /modification in every five years** or so. This will allow the maximisation / optimisation of best option in the national interest.

6. **The major emphasis in the draft NEP is on Energy Markets, or on commercial energy. This will not serve the purpose of Universal access to energy (and electricity), which is also one of the major Goals of the SDGs (Goal no 7)**. It has been shown by India's own experience that just increasing the market availability of energy do not serve the universal access objective – from around 66000 MW of installed electricity capacity in 1992, when the unconnected population was over 50%, the installed capacity in May 2017 has increased five times to 330,000 MW. Yet, over 22% of Indian people are still without electricity and another 30 odd % age of our people get miniscule amounts, not serving any productive purpose!

   The NEP should have a clearly defined and targeted Universal Access Goal and Strategy, as this is also an important factor for achieving some other essential Sustainable Development Goals like poverty eradication, and others. The lifeline-energy-for-human-welfare approach, present – even in diluted forms - in earlier policies, needs not only to be brought back, but strengthened.

7. Between the short term horizon of 2022 and the medium term one of 2040, **falls the very important deadline of 2030, when the SDGs are supposed to be achieved**. Many of the SDGs are dependent on universal and affordable clean

energy access. Thus, **it will be desirable to have an in-between horizon of 2030, particularly to match the SDGs horizon**. This is a global compact with India as a signatory, so this needs to be factored in with priority.

8. **The recent dramatic changes** – particularly in the electricity scenario in India, where both the national supply and almost all regional grids are haning surplus capacity and production for the 3rd year running -- as shown by the CEA report of December 2016 and TERI report of March 2017, calls for a review of the high power addition projections. Both the reports show the likely surplus situation to prevail for the next – at least 7-8 years. In view of this current surplus, another 92000 MW being in the pipeline, and the Indian commitment to add another 125000 MW of RE (over the existing 50000 MW) by 2022, clearly points to a situation of not requiring any more coal, nuclear or big-hydro power capacity addition. This has been completely missed out in the draft NEP.

9. **Acknowledging that all forms of Energy production, transmission and consumption has different degrees of environmental and social impacts, the NEP must more strongly emphasise on both Conservation and Efficiency**, much more than high demand projection and supply matching. Though these – conservation and energy efficiency – are mentioned in the draft NEP as objectives, serious attempts seems to be absent in maximising the benefits of these two parallel approaches. Promoting conservation will need policy level incentives, and often lifestyle changes, which **need both incentives and regulatory controls** (like high parking charges, road taxes etc to discourage private motorized transport and promoting fast-efficient-comfortable public transport as incentives to switch over). These kinds of socially desirable policies seem to be not pursued very seriously in the draft NEP.
   Keeping this serious environmental, social and health impacts of energy pathways, it might not be out of place to consider an upper cap on per capita energy consumption. Even though this might sound impractical in today's market oriented thinking, we do not question this approach for critically important resources in short supply.

10. **No energy infrastructure can or will be built without the right financial backbone and logic. The huge projected increases in the energy infrastructure will also demand similarly massive financial investments**. The draft NEP does not seem to have put enough emphasis on this crucial aspect. Can India afford to raise and invest that much finance in an already surplus energy system and dwindling global finace/ capital, or should we invest a more modest figure in more productive efficiency, conservation and life-style change endevours? We **request that a separate chapter on energy Finance be included** after proper analysis and

realistic assessments of the current and projected global and national financial scenario.

11. The **other financial reality of massive Stressed assets and NPAs (Non-Performing Assets) originating from the stressed power sector and with the banking sector (mostly from PSU banks),** has also not been addressed in the draft NEP. This NPAs are forcing the government to give unreasonable bailouts to the private sector power companies, from public finance (our, people's money). The recent happenings of over 25000 MW of coal power being put on the block but finding no buyers, the Rs.16000 crore public money bailout to the stressed hydropower sector (mostly private corporates), tens of thouands MW of coal power projects being abandoned in early project phase, the 24000 odd MW of gas based power plants running at low PLF for years – wasting huge public money ….. These are distressing signs of things being wrongly planned and executed poorly. Instead of wasting further massive amounts of public money on poorly planned energy infrastructure, investment guidelines for better suited systems need to be included in the NEP.

12. **In the NEP, clear and much more emphasis should be included on the EXTERNAL COSTS of any energy choice, as economic costs only do not reflect what the society pays for any such choice. These must include environmental, social and health costs.** Ultimately, the nation, its people and the society has to get the resources for addressing the degradations, health impacts, deforestation, water depletion….. This serious consideration seems to be missing from the draft NEP.

13. **Looking at the massive levels of biomass dependence in the poorer sections of Indian rural society, its wide-spread presence and the difficulties of providing imported gaseous cooking fuels to these sections, an aggressive policy promotion of more efficient and safer (healthier) biomass utilisation should have been a major component**. The policy-fixation with "modern" energy sources needs to be questioned, also because in India's case, most of these "modern" fuels are imported at huge cost and foreign exchange outgo. For a country which runs a big current account deficit, this is not a good policy option.

14. The **draft NEP seems to be totally oblivious of the major roles /contributions of Human Energy, Animal Energy and similar other forms of non-biomass non-mechanized energies prevalent in today's Indian society**. Right from the massive no of walking and cycling trips to work (Census data shows these to be over 50% of the total work-commutes), to rural and peri-urban dependence on these non-mechanized forms of energy, these must be accounted for and given centrality. **Given that these are also non-polluting, far less road-space-demanding and**

having co-benefits like cleaner air, healthier life-styles etc., these must get their due share in amodified NEP.

15. In **an economy starving for jobs / employment creation, types of energy deployment, where the energy services are targeted etc, has a large social role. This Job-creating focus of Energy policy seems to be largely missing from the draft NEP**. The largest numbers of jobs / livelihoods are in the agriculture and allied sectors, to the tune of 50% or more, and yet the criticality of energy inputs for job/ livelihoods creation – has not been emphasised in the draft NEP. Several studies – particularly in the UK and EU countries – have also shown that renewable energy systems, particularly decentralized ones, are far better at job creation (with cleaner and less hazardous jobs as bonus) jobs than centralized coal, nuclear, hydro etc. This needs to be seriously reviewed and corrected.

16. The **regulatory framework for compliance with other laws – like EIA, Air and Water (prevention of pollution) Acts, MoEF&CC emission and water consumption norms…. Are extremely important for a sustainable energy system/ infrastructure**, The NEP seems to be giving no priority to this, while giving lip service to Sustainability. Even the electricity industry today – globally, are waking up to these critical needs and are sometimes welcoming reasonable new regulatory frameworks, as benchmarks. The NEP must include a clear understanding and policy guidelines for environmental sustainability and social stability of energy infrastructure.

17. Every form of energy extraction-production-consumption has a land footprint. For example, increasing Coal production from the present 580 million tons to nearly 1200 million tons by 2040 – as projected by the draft NEP, would require millions of acres of land for additional coal mines. Most of the remaining coal deposits are also under thick forests, so the tremendous adverse impacts of this huge additional mining would be humongous. Similarly, each installed MW of solar PV needs about 5 Acres of land. Thus – the 60,000 MW of green field solar PV (rest 40000 MW being projected from rooftops) would require about 300,000 Acres of additional land, on top of coal mining land, coal power land, submergence land by new hydro power etc ! Whether India can afford to lose so much of arable / farm land, is a major question – not at all addressed in the draft NEP.
18. Similar to land, every form of energy generation has a particular water foot-print. Thus, every MWHr of coal power generated has a consumptive use of about 400 to 4500 litres of water, apart from thermal pollution of a much larger volume of water. In today's India – the average per capita water availability has come down to about 1150 CuM per year, from around 5000 CuM /person/year in

the 1950s. The UN defines a country as water-scarce, if the per capita per annum availability comes to 1000 CuM or below, and India is periliously close to that danger mark. With a huge increase in both Coal & Nuclear power – both are massive water guzzlers – the severe impacts on agriculture, drinking water and other essential uses – have been totally ignored by the draft NEP. This critical aspect must be taken into consideration and a separate chapter on Land and Water impacts of the projected Energy figures must be calculated and provisioned for.

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Sectoral Comments:

3.1 **Energy Conservation is rightly identified as a policy goal, but this needs both attractive incentives and strong regulatory frameworks to work**. The last three decades energy consumption growth has been led largely by wasteful or luxury demand, as also indicated by the near doubling of the share of domestic electricity consumption, from around 12.7 of the total electricity consumption in 1983-84 to over 25.2% in 2010-11. This luxury consumption by the moneyed classes has also absorbed a major part of the additional generation, increasing GDP, but creating massive inequities and social tensions due to large scale deprivations, apart from irrationally increasing class-based demand. Replacing energy consumption incentives like low electricity prices in richer urban areas, with conservation measures like white-roofs to reduce/ replace energy intensive space-cooling, passive solar heating to replace massive electric geyser use…..will help reduce demand, conserve natural resources and reduce environmental impacts.

3.3 **Policy of promoting energy consumption As Electricity cannot be universally good, as being projected in the NEP. Electricity is clean at the point of use, but not necessarily so in the entire chain.** As 68% of India's electricity comes from coal, which is the dirtiest source – both in terms of climate threatening CO2, and air & water pollution, the Policy of promoting energy consumption as electricity needs to be selectively questioned. Producing electricity at rural /forested areas and sending to major urban consuming centres also create the injustice of damaging the lives and livelihood supporting environment of those who consume little, for benefit of those who pollute the most. Clearly electricity is not always the best mode of energy consumption.

Also, the average overall efficiency of India's fleet of coal power plants is about 30% (coal's chemical energy to produced electricity), with another 22% lost in AT&C losses, thus getting only about 23-24% of coal's energy at the user point, a very poor "efficiency" for a "modern" energy source. Sometimes, direct use of the fuel, particularly oil and gas, in a clean technology system, might be much more energy efficient and have lower total impacts.

3.6 **Energy efficiency increase on a continuing basis is surely a desirable goal, but the NEP does not recognize the large differences of the result of demand side and supply side energy efficiency increases. While demand side EE has been emphasised more in the NEP (as in earlier IEP), it sometimes leads to increased energy demand – due to the Jevon's Paradox or its extreme form, Rebound effect**. The supply side EE has no such negative impact, and is often better suited for reducing environmental and social impacts also, by reducing actual extraction-production-transmission. This needs to be understood and incorporated in the NEP.

3.8 **Regulatory and legal barriers – Recognizing that energy cannot be considered just a commodity, as it has large environmental and social impacts in the entire chain, strong regulations on impact/ pollution levels of the entire chain** (as in - from mines to distribution transformer), monitoring and rectification mechanisms on ongoing basis needs strengthening.

3.10 While acknowledging the critical role of good institutions, the **contribution of capable institutions outside the govt and industrial sectors, have not been envisaged**. Over the last 2-3 decades, institutions in the CSO sectors have played a commendable role, though sometimes critical (necessary in democracy), and this needs to be integrated in the national policy framework.

Box-1 **Rural Electrification – The conclusion that "it is envisaged that the government will first endeavour to provide grid based supply to all households, and renewable based supply will be resorted only in exceptional circumstances.", is highly debatable**. Experience of the last 3-4 decades of rural electrification effort has shown the unreliability and difficulties of such an approach, with deadlines for complete rural electrifications pushed back many times. With the emergence of lower cost solar, biomass and wind based electricity in the last 5-6 years, and the government's target of 40% of Solar capacity from rooftop installations, there is a synergy and opportunity to target the incremental/ gap-filling new rural electricity to come from decentralized renewables – whether stand-alone or micro-grids or hybrids etc. In difficult rural situations, the higher reliability /availability of power from renewable have also been shown to be true, over unreliable grid power. This needs to be noted and implemented.

Box 2 Clean Cooking – **The emphasis on electricity and "modern fuels", though sounds good – is not supported by ground realities**. As described earlier (3.3 above), electricity is not really clean if a large part of it is coming from coal, neither is it efficient – coming through the thermal power route. Gas availability is always a question mark, as huge parts of this fuel is imported, from often volatile regions. **The improvement of technologies for much more efficient and safer biomass use cannot be overemphasised – both from self dependence, reliability (local energy security), wide-spread availability and cost angles.**

4.1 **The massive increase in both projected production potential and use, in both liquid and gaseous hydrocarbons – about 80% of which are imported today with actual increase in import dependence happening over the last two decades – points to a unstable, unrealistic and unreliable policy framework**. Demand side interventions mentioned are of course welcome and workable, and needs to be given higher priority. If the hydrocarbon imports go up as sharply as projected in the draft NEP, the massive amounts of foreign exchange that would be required, might have serious adverse impact on the entire Indian economy. For a country which is struggling with serious Balance of Payments problems whenever the petroleum prices staibilise, this is an un-wise policy path. We must turn more towards indigenous energy resources with least impacts – also on foreign exchange.

5.1 Coal – Even with the reality of coal being the mainstay of today's energy supply chain, the longer horizon should have looked at far less dependence on this dirtiest of energy sources. **With climate change and air & water pollution impacts already becoming critical, and deforestation due to coal mining at a high, the draft NEP should put increasingly less dependence on this fuel of the past centuries**. In case domestic coal production is actually increased (low possibility and even lower desirability) increased from less than 600 Mt to 1200-1400 Mt by 2040, the massive pollutions, land and forest degradation, and conflicts on the ground will massively increase.

It must be taken into account that coal related pollution and climate impacts are already taking a huge toll on India's economy and poorer people's lives and livelihoods. As per ASSOCHAM, the 2015 droughts sliced off a total of nearly US$100 billion from India's economy, which was close to 5% of the GDP at that time. With much increased coal use, we would face even higher, mind-boggling losses. This high Coal-dependence proposals in the NEP must be seriously reviewed and reworked. **If we have still nearlya 50% coal dependence in 2040, as projected in the draft NEP, and with other emerging economies also going the same way (how can we ex pect otherwise, if we are not ready to change), the Paris Climate Agreement targets can easily be forgotten, and people put to the catastrophic climate change gallows**. This is not a future scenario, but is already happening in our country – year after year.

6.1 Renewable Energy – While it is welcome that 175 GW by 2022 is being supported in the policy, it is somewhat regrettable that the projected 597-710 GW by 2040 are not being so favoured, and left to happen – "autonomously"! It is well known that RE has a far lower adverse impact (though not zero) on the environment and nearby communities, the other more polluting / higher impact power /energy sources seem to be getting a higher policy support, which is strange. This needs to change, and a much higher RE to meet projected energy demands should be targeted in the policy beyond 2022 and supported with other policy measures, like preferential finance and some tariff advantage. The recent schemes of Net-metering, Central and difficult area subsidies, REC etc should be strengthened in the NEP, with appropriate policy measures.

6.3 Large hydropower – This is an area which has not been deeply looked into by the NEP. Contrary to assumptions of being zero-GHG, hydropower plants do emit large amounts of methane from their reservoirs and trapped biomass – through their anoxic decomposition. Methane being over 80 times as potent as CO2 in the short term (22 times over long term), this has serious climate change potential. Apart from that, the uncertainty of water availability in the Himalayan rivers, where most of the electricity oriented hydropower projects are planned, is not evaluated with proper scientific rigour. This has the potential of locking in massive amounts of public finance in non-productive power plants, increasing stresses on the banking system and mounting NPAs further. Needs serious review and reworking based on more scientific data.

7.1 Nuclear power today supplies a miniscule percentage of India's power needs, just over 2.2%, and with about 2.05% of the installed capacity - at enormous cost and after over 57 years of commercial nuclear energy development in India. This also carries huge risks – both from possible accidents and from the massive amounts of radioactive waste products they generate – which have to be stored isolated for tens of thousands of years, at huge additional cost. The equally large costs of post-life decommissioning have not been addressed yet in India. After Fukushima and Chernobyl, the public opinion is also crystallized against taking these unmanageable risks for tiny gains in power, for which far better alternatives exist already. The cost of produced nuclear power also is high, if all the subsidies are included. In this circumstance and in the changed scenario of lower cost, safe and wide-spread RE sources - the Nuclear Power option need to be forgone.

12 & 15 Unconventional Gas and Oil – The projected new technologies and sources of Shale oil and gas, though have succeeded in changing the oil and gas availability in the global markets – their adverse impacts are only now coming into knowledge. One of the primary impacts of Hydraulic Fracturing is large scale Ground Water Contamination. Apart from this, the Fugitive Emissions of methane contributes largely to climate threatening GHGs. Any projection of high unconventional oil and gas, would have to address these questions.

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