(Draft)

Policy issues of Scaling up RE in India

CEFF WG-4

*Long-term viability and growth of RE will come from the combination of project and system viability, which inherently must factor in the RE-rich states. Non-government and non-utility capital for RE projects still depends on the (state) utilities who are either buyers of said power (grid scale) or remain deeply impacted due to operational reasons, e.g., from Roof-top Solar PV.*

# Recommendations (both Enablers and Support)

1. Reduce Risks to developers and states
	1. Selected states face burdens due to RE – these have to be spread across the nation and all consumers
		1. Meaningful (yet realistic!) RPOs, with mechanisms such as RECs or other means to operationalize the transfers (where physical RE may be unrealistic for some states).
	2. Create risk mitigation techniques to handle the stochasticity and uncertainty of RE to the states – this is different than the variance of RE. Have a pool/fund available for short-term (operational) needs, different from financing needs.
		1. Consider escrow and other mechanisms to insulate RE from other utility risks.
2. Enable greatest utilization of RE
	1. Improve inter-state norms for transfer of power (in terms of transfer limits, scheduling, permissions, etc.) that balance RE with grid stability
	2. Enable meaningful Open Access, and let those who are willing to pay increase their use of RE
		1. Carriage and Content separation may create a framework for greater diversity of supply options, including more RE. However, it needs careful and explicit treatment.
	3. Build up operational changes to grid operations that can enable great variability (RE) and secure operations, including but not limited to Time of Day pricing, wholesale markets, ancillary services, peaking power, storage, smart grids/demand response, etc.
3. Simplify and Streamline; iterate and evolve
	1. Standardize bidding and other documents, to reduce transactions costs (esp. helpful for smaller-scale and roof-top projects)
		1. Utilize the variances across states and utilities to avail better financing (e.g., CRISIL’s ratings)
	2. Separate roof-top and grid scale solar in terms of support mechanisms and selected policies, including for their monitoring and verification
		1. Enhance all monitoring to understand what works, and what doesn’t. Allow for iteration and evolution of policies without creating uncertainty.
	3. Make sure people get paid on time

# Background and Context

1. Govt. has expressed limitations on support, let alone direct subsidies. The expectation is that the “private”sector must continue to fund RE projects (this might include public sector commercial entities).
2. States are losing money in the power sector, and their appetite for RE may be short-lived (as it scales). They are already losing money (on average) per unit sold, and this is why there are no takers even for “cheap” power on the power exchanges about Rs. 3/kWh (that is a liquidity issue as well).
	1. Concepts such as “grid parity” need more nuance given marginal impacts on the grid, by Time of Day and more.
	2. Pricing mechanisms like pooling help solve a liquidity issue, but do not address a solvency issue.
3. The so-called “paying customers” who may be willing to pay are premium for RE are also the ones who cross-subsidize other users in the current system.
	1. Indian electricity costs for selected users are not globally cost-competitive, especially when we factor in quality and reliability.
	2. Proposals in the Electricity Act 2003 Amendments for enhanced RE include giving teeth for Renewable Obligations, but also “freebies” not available to other power (such as waivers on cross-subsidy charges, banking of power, etc.) While important for support, these also exacerbate the stress on utilities who lose “paying customers”.
4. Many thermal plants have slack capacity (perhaps not at the peak, but RE isn’t often available at the peak either). Increases in coal production also mean coal and other alternatives to RE will be available to states in the coming years.
	1. There is already significant backing down of RE in some periods due to grid and/or financial constraints. This is despite a “must run” status for RE (which has the lowest marginal costs – use it or lose it).
5. Globally, the biggest constraints to *sustained* RE growth has probably been uncertainty. Policies that come and go create risks and confusion, and it is better to have medium but continuous support than episodic heroic support, unless the latter has been chosen with a particular niche effect in mind (e.g., barriers to entry for a new innovation, import issues, etc.)

# Details and Discussion– mapping to the above recommendations

1. Risks
	1. It is interesting that RECs today help the generators, but do not help the states, whose grids face challenges. First and foremost, there must be granular analysis on the impacts of RE for the states – average numbers are NOT good enough since the impacts are at the margin, seasonal, etc.
	2. To handle very short term grid issues, states have to either procure so-called costly (including peaking) power, or disconnect RE. While some amount of scheduling and planning can and must be done, there will remain a delta at the end which needs special support, and a pooled financing mechanism for the same will be important. Secondly, even if a state recognizes and wants to get very short term power, it often faces a liquidity problem (solvency problem notwithstanding). Power exchanges cannot wait for the end of the month or other timeframe that today applies to RECs and their settlement. Hence, a bridge-gap funding mechanism can help smooth out the differences in timescales.
2. Maximize utilization of RE
	1. Enhance physical (and not just paper) inter-state power flows
		1. Update scheduling and transfer norms, including the Deviation Settlement Mechanism (DSM), in a way that is fair to the grid yet achievable by RE power producers.
		2. Ensure sufficient evacuation capacity is built for RE projects, not just to the first point of contact, but upstream as well.
		3. Help developers where required with either establishing or facilitating Renewable Energy Monitoring Centers, which can help bridge the gap of forecasting to scheduling.
	2. If said consumption is to be supported by waivers of (current) cross-subsidy surcharges, then there needs to be a mechanism to adjust if not compensate utilities for the same. It is vital to understand that traditional cross-subsidy calculations do not sufficiently describe the scenario of RE “self-generation” (whether distributed or grid-scale). This is because most such RE is opportunistic (non-despatchable), and still requires supplementing at low RE periods, which are often the peak periods such as the evening. In the absence of such mechanisms, utilities will face a “death spiral” already witnessed in Germany and elsewhere.
	3. The need for and value of such services goes far beyond RE, helping improve optimal operations and well as reduce load-shedding. However, these are non-trivial exercises, and staging/sequencing these needs urgent effort. Suggestions for the same include:
		1. Multi-stakeholder engagements (instead of the “usual suspects”). Combine center/state. Different generators. Public/private. Etc.
		2. Simulation
		3. Roll-out in phases (by feature and/or geography)
3. Frameworks
	1. Transaction costs are especially important for smaller transactions. Due diligence is only one part – any means to insulate project risks (supply side) from consumer side (utility) will be useful.
		1. Even many operational norms vary for roof-top solar. There must be more harmonization across states, or clarification as to what differences are useful, and why.
	2. The gaps in terms of small-scale projects are very different, ranging from skilled manpower, training, maintenance, etc.
	3. Getting paid on time hits finances, for everyone from a small roof-top owner to a large farm-scale developer. Political pressure should not be a criteria or mechanism for timely payments (or non-payments).

# Broader Discussion (Q&As)

Q: Why special or support for RE? Why not for other energy?

There are several clear drivers for RE, including its sustainability and energy security benefits. More than these, from a finance perspective no future hedges/risks/etc. like with fuel, imports, etc. Thus, global capital is more likely to be forthcoming than with other power like from a coal plant, or even nuclear power (where fuel costs are lower but fuel logistics, let alone imports, are far more complex). Global money may also be increasingly available for RE simply because it is sustainable (green) energy.

Also, RE is moving down the learning curve very rapidly, and hence there is justification for public support for the initial “dead weight loss” period, as we move from the high cost low volume world across the chasm into the high volume low cost world.

Q: Are the challenges ones of design or of implementation/execution?

They are both! GoI must consider and even embrace the heterogeneity of states and utilities in terms of their fuel mix, legacy needs, grid stability, pricing, consumer mix, regulatory maturity, etc. At a national level, a minimum policy can be there, but this can be supplemented or extended through state and utility centric measures. Stated another way, if a state wants to do more or go further, they should not be held back to the “lowest common denominator” phenomenon. There also should be flexibility, as one-size-fits-all clearly isn’t at play here.