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Seminar

Study and Release Discussion: Untangling DISCOM Finances and Their Path to Sustainability

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INTRODUCTION

Laveesh Bhandari: I am Lavish Bhandari, President CSEP. It is a great pleasure to welcome all of you to this special event. Which is a combination of release of two studies done by Rahul, Nikhil, and Rajasekhar on DISCOMS. CSEP is I would like to believe that we are a leading independent research institute. We work on a range of important issues. Including of course, energy including climate change, on climate finance, on critical minerals, health, international relations and so on. This work that comes out of a team which has been working on these issues for many years now. It comes out of a lot of detailed data work which is something that CSEP really prides itself in, where we believe in not just independent work but credible data analysis and robust methods. Suman Bery, the Vice Chairman of NITI Aayog, will be giving a special remark, I believe. He has sent those to Rahul, right? But due to a special meeting with the PM he won't be able to join us today in person. Of course, Mr Bery is not just a noted economist but he also has a strong energy background having been the chief economist of Shell in the previous employment. The secretary of power Mr Alok Kumar also had an unavoidable meeting and we regret he will not be able to join us. But of course, we are in touch with him and he has promised to come back to us with his response. Highlight of this afternoon will be a panel discussion with Mr. Ahluwalia, the former CERC chairman and secretary power Mr P K Pujari and fellow from Prayas, Ann Josey. I don't want to get into the technical issues here. But I do want to just mention that Mr Ahluwalia was the first to look into these issues, perhaps has more than two decades back when he chaired the first committee dealing with DISCOM finances. So, this is a very old festering problem in a sense. This clearly will be a fairly interesting discussion. So, thank you again for joining us. I will not keep the interesting stuff between you and Rahul. So, please move on.

Rahul Tongia: Thank you very much Laveesh. Thank you everyone for joining us. Especially our distinguished panellists who are not just kind enough but maybe brave enough to really deliberate openly on some of these vexing challenges that aren't solvable by just right versus wrong. Because there are trade-offs in a lot of these issues. So, before I get to the panel, we do want to open with very limited highlights of our studies. Now, these two studies which are now copies up front are the culmination of a lot of work. We can give only highlights which I will request my colleagues Nikhil and Raj Shekar to give. I am Rahul Tongia, a scholar in this domain. Sorry, I didn't introduce myself. But I think this placard does the job. DISCOMS are a key part of the energy transition and in fact the entire energies ecosystem, electricity ecosystem in the country. So, figuring out their finances towards sustainability, now that word will have more than one meaning, is really what we are here to discuss. And if I could now request Nikhil and Rajasekhar to just give highlights of some of the studies and what we have found.

Nikhil Tyagi:

Thank you, Rahul. Welcome to all. So, as Rahul mentioned, this is the summary of key highlights of two of our studies. The motivation like, we know the power sector has evolved over time where generation capacity has increased, network has improved. But DISCOMS are still considered to be the weakest link and they are struggling with the energy losses, financial losses, where they have required government support and periodic bailouts. So, why DISCOM has a loss. They are basically regulated entity and they work on a cost plus return basis. So, theoretically their tariff should be enough to cover the cost. But conventional wisdom is and in theory if you understand, if there is any loss, then financial gap. So, this is due to the non performance of DISCOM. Through our studies what we have found that this is not true. There is a systemic issue which need broader fixes. Like, ATNC alone are not explaining the whole gap. So, what we have done, we have done cash based accounting unlike what we have seen in PFC and other accounts, which are accrual accounting. In recent year we have see in last two reports we have seen PFC has also started cash adjusted gap accounting which is close to the numbers what we have found. We have analysed all the public DISCOMS over 15 years from FY07 to FY21. We have tried to map their performance to their annual financial gap and then how it led to their balance sheet. So, ATNC is a performance parameter for the DISCOM. Which is a hybrid of two different losses. One, is the billing loss which is an energy loss in the system and second is collection loss which is your rupees loss. So, to understand the financial gap the performance is to be seen relative to their targets. Let us take an example, for FY 21, the target for billing loss was 12.85%. and they exceed the target by 3.53%. So, this 3.53% is actually leading to the financial gap. Same, on the collection side the target was 0.57%, where they exceed the target and it has two components. One is collection loss from the consumers directly which was 3.87%. and second non-payment of subsidy from the states which is 3.5%. So, in FY 21 the financial gap we found was 1.04 lakh crores. We apportion it across the different attributable factors. What we found that excess distribution network loss was only 18000 crores. Then excess non consumer collection was 22000 crores which has a measurable share from government users. When subsidy unpaid was 20000 crores. And there is a fourth component which is regulatory asset, 7000 crores. It is a cost acknowledged by the regulator but not given commensurate tariff to recover that cost. Adding all four factors doesn't account for the whole gap of 1.04 lakh crores. We found that there is still a gap of 36000 crores and that we have identified as residual gap. So, what is residual gap? If you understand it, in theory if a DISCOM perform by the targets and there is no subsidy non payment and there is no regulatory asset creation, there should be no gap. But what we found is still a gap, which is of tens of thousands of crores every year. And being a regulated entity why they are having a residual gap, that is a question. To understand it we analysed for FY19 that from the tariff order setting time how the

cost and revenue has shifted and what is the end position in the ex-post scenario and we found that this residual gap is an outcome of tariff setting process. Sorry, this is a complex slide. I will take some time over this. So, at the time of starting the ex-ante gap was almost zero. They were slightly surplus, so all the numbers are normalised on energy sold basis. They were slightly surplus by four paisa. There was shift increase in cost by… you can see the black columns. Then there was decrease in revenue and it led to a gross gap of 1.64 rupees per kilowatt hour. With the help of extra support from additional other incomes and additional grants, which is not visible at the time of tariff setting. It is not part of tariff setting. The gross gap reduced to 1 rupee per kilowatt hour. So, let's look at sub components. Change in cost of power is the highest shift which is 0.66 rupees per kilowatt-hour. Then your other cost. The factors which are under DISCOM purview, distribution network loss and consumer collection loss. This is 39 paisa which are like small share of total gross gap. Rest other component… we are not saying everything… but rest of the other components should come back with the post reconciliation method which the process is true-up. We found that it is not working as expected. So, in FY 19 only 7 paisa was embedded as the part of past true-up. Which is very less in compared to the ex-post gap what we have found of one rupee. So, we couldn't estimate the right number of true-up because of opacity and reasoning changes from time to time. We are not saying everything is to be allowed but still 7 paisa is very less compared to the exposed gap what we have found. Even if everything is allowed and passed by the regulator and to be recovered in the next tariff period, the process itself has a two-year lag which adds extra carrying cost to it. Now I request Rajasekhar to please share trends, implication and recommendations.

Rajasekhar Devaguptapu

We carried this cash basis gap analysis for 15 years. From 2006-07 to financial year 20-21. This chart presents this gap analysis. If you see the trend the gap is steadily increasing and this is essentially due to the increase in volumes and also the increase in prices due to inflation. But the good part is that the residual gap is decreasing both in absolute terms as well as in percentage terms. But the other components are varying depending on the relative contribution to the overall gap. However, in FY 2021 the gaps are increasing. Sorry. The components like consumer contribution or consumer non collection or distribution losses and subsidy etc they are increasing. And we may ignore because of effect of covid 19. If we add all these gap components just a plain summation, we find the cumulative gap at the level of 10 lakh crores and out of which the residual gap is the biggest one. It is not attributable to any of the four factors that are indicated down the stack like regulatory assets, subsidy and unpaid in consumer non collection, distribution network loss etc. Importantly the consumer non collection and distribution network loss which are under the DISCOMS purview together constitute just 28% of the total gap. Now, what are the implications? Some losses are gone forever just like

billing losses. And some losses like consumer non collection and regulatory asset become receivables in the balance sheet and some like subsidy unpaid is not visible at all on the balance sheets. And the fundamental issue is at the tariff level, is the tariff covering the costs. The red dots indicate the tariff shortfall versus the cost structure. And this is independent of performance… financial performance of DISCOMS like ATNC losses and this is stabilised in the range of say 13 to 15% over the last eight years. But these tariff shortfalls are moderately offset thanks to the grants and other incomes which is not part of the regulatory process at the tariff setting time. However, these losses if we add or if we factor in, the DISCOMS performance then for example for FY 20-21, the shortfall comes at the level of 14%. How the DISCOMS cope with this and the financial or cash basis losses are difficult for the distribution utilities even if they are profitable on accrual basis. So, they delay payments and they delay payments to the Gencos and other suppliers, but these are different from the debt they take from the banks and financial institutions. Of course, we cannot apportion the debt components that they have taken for the regular business needs and the need to meet their cash crunch. Apart from these two they also rely on equity infusions. Like, for five years we calculated over 39 DISCOMS from FY 13-14 to FY 18-19 we found the equity infusions 4X. This equity if used for coping, then that may not fully get the full return on it. How it impacts the balance sheet? The mounting losses erode the equity and some of the DISCOMS net worth turns negative. The residual gap can be tracked with the change in the accumulated deficits on the balance sheets. Now the DISCOMS are heterogenous. Like each DISCOM's pain points or their gap components are different from others. Hence one solution fits all does not work here. So, we tried to analyze this issue for example, taking for financial year 20 data on that basis. We found that there is no gap in respect of seven DISCOMS and if subsidies are paid then three DISCOMS will be turning positive and of course, payment of subsidies is in the jurisdiction of the state governments. And in addition to payment of subsidies if regulatory assets issue is also addressed by the regulators, two more DISCOMS will be turning positive. And in addition to subsidy and regulatory assets, if DISCOMS make efforts to bring the distribution network losses also as per the targets, then three more DISCOMS will be turning positive. In addition to the above three like subsidy, regulatory asset and distribution network losses, if DISCOMS bring about this consumer non-collection losses also as per target, 10 more DISCOMS will turn positive. But here the challenge is substantial part of the consumer non payments are from the government users like state department offices, rural and urban bodies etc. But even after turning around and working on the four components like subsidy, regulatory assets and distribution and network losses and consumer non collection losses, still 18 DISCOMS are in red, which on a macro level appear to need a tariff raise. But these 18 DISCOMS have residual gap which need to go through a regulatory process in which all stakeholders have a critical role to play. So, apart from the tariff related recommendations, there are

other fixes. Like improved processes, we need better data, we need better metering, we need to focus on the existing norms and importantly the institutional improvements are also needed for better planning and capacity building. This presentation particularly is given with a narrow limited focus. I request you all to read through the papers. In this presentation we have not covered the issues like cross-subsidy analysis, tariff design related issues and return on equity and data related issues. But we close this study with the FY 21 data. The recent efforts of the government to bring about a positive change could not be included in this study. For example, RDSS, LPS rules and mandate for carrying out timely audits, all these things emphasize and all these things facilitate to improve upon the losses, to bring in more liquidity to address the residual as another cash basis losses. But they all work towards the present problems and the future issues. But merely addressing the ATNC losses would not address the residual gap and the legacy losses. With this I close, thank you.

Rahul Tongia:

Thank you very much, Nikhil and Rajasekhar. It is a bit of a rush. 30000 or 50000 foot view that you have gotten. But we do encourage you to see the reports with the nuances in detail. I want to at the risk of oversimplification take away two main summaries from this effort. One that we have all heard aggregate technical and commercial, ATNC loss, all these DISCOMS are not behaving, not performing. That is a factor, but it is not the entire problem. Second that the processes have some things we need to rectify. So, true-ups are there. But they are not working as we need them to do. Now whether it is because there is pressure to keep tariffs low or what else is something that will be discussed with our panelists. So, that is another key takeaway from these studies. I know a lot of people including an Op-ed recently just focused on these headline numbers. I don't think we want to talk about this headline gap. These are all big numbers and different methodologies lead you to different insights. But our insight is really simple that if you go from accrual accounting to cash accounting you get a slightly different picture. Let us not worry about the numbers per se. But cash gives you a different insight. It is not how long term viable the institution or entity is, but also what are they dealing with in the present. So, cash accounting is useful and I am glad we have PFC now has been doing it recently. We have done it manually because it wasn't there for the last 15 years. In fact, I am happy to note just yesterday PFC released the data for FY22. So obviously we cannot have it in our studies. It shows quite an improvement in ATNC losses. Especially collection. And anecdotal or initial data for 23 shows a continuation of these positive trends. So, the government is doing a lot of effort, the trend is improving. But our insights through a historical forensic time analysis is on the processes and this residual gap which ATNC improvements for example and operational improvements which are vital are insufficient. So, these are the takeaways. I do request everyone to go through more details and

for those who are online you can put in questions as our panel proceeds on the chat session. We will try and get to some of that maybe through the Q&A or at least afterwards. Even in general after our panel when we have discussion questions from you, I would request everyone to focus less on a number per se, but on the larger insights and the policy issues that are worthy of deliberation with a panel like we have today. With this I want to now switch gears and we have a special address by vice chairman of NITI Aayog Sri Suman Bery. He is not able to get back. He may still be able to join us. He said that he will see his schedule. But he has shared with us some special remarks that I request you to please load.

Suman Bery: (Video recording)

Good afternoon. Let me start by congratulating CSEP and the team has done what I would consider another close to landmark study in the whole area of power and energy. I was very much looking forward to being with you in person to demonstrate solidarity with this program of work which is extremely detailed and is the kind of work that a top level think tank should be undertaking. But it is one of the hazards of my position that I am not really the master of my own program. And I say this after having specifically asked Rahul and the organizers to hold this at this time, thinking it was less subject to event risk. I have only so far seen the executive summary. So, in my remarks I apologize if I miss what is in the larger studies and I will certainly be asking NITI staff to study the full reports more carefully. But it is clear that the studies by CSEP comprehensively analyze DISCOM finances and try to untangle the root cause of the operational and financial losses. These analyses which extend to DISCOM balance sheets and income statements I imagine as well as the tariff setting processes lead to a range of recommendations that should help reinforce DISCOM sustainability. And it is evident that the sector needs and deserves new approaches to regulation including revamping the tariff setting process, especially the True-up process to close the residual gap. It is striking and important that what is directly within the control of DISCOMS turns out to be a relatively small part of the gap between ex-ante and ex-post financial outcomes. There are range of issues beyond the ambit of tariff and tariff setting which include improvements in planning, in power procurement, also in terms of expected consumer mix over time and in DISCOM management. I should perhaps add that much of the story is familiar to me because I inherited from your former president Rakesh Mohan the drafting of the electricity bill when I took over from him in 2001 and more importantly inherited from __ who has been such an important force in many aspects of the power sector and privatization more generally. I would on the basis of a cursory reading just like to make five points. I was going to join you at the end perhaps making these points at the beginning will help stimulate the discussion. The first is and this is particularly important for NITI Aayog, do the reports, the underlying reports not the executive summary, actually exploit the vast diversity of outcomes across India's states and the union

territories. Because there has been a lot of experimentation and so is there a factor analysis or regression analysis of why outcomes that different. The second question that arises, is it a really atypical and if so why, how do other countries avoid the politicization of tariffs or as it were the ex-ante and ex-post differences. And linked to that I suppose since there was so much emphasis on setting up in the initial excitement in the late 90s independent regulators, have the regulators including at the union level, have they been independent and would institutional changes in the regulators make much a difference. That is linked up with another question. The issue of trying to deal with the DISCOM losses has been with us a long time. On the panel is Montek Ahluwalia. And some of these schemes I think were developed when he was deputy chairman of the planning commission and of course, in the life of this government we have had the Uday scheme. So, what is it exactly that those reform efforts have missed? Final points if I may. One is that the issue of whether we are talking in accrual accounting or cash accounting seems to matter. And that requires its own terminology because in the executive summary there are terms like revenue and cost. Now these are to my knowledge largely accrual accounting concepts. And indeed, a profit and loss state are as it were the accrual accounting and yet I get the sense which is not absolutely clear from the executive summary that what we are really talking about is cash. So, which matters more and why it matters more, I think are issues that I hope that the discussion would illuminate. And may actually involve in a new strand of research. And finally, and perhaps most importantly a point that's been made in past CSEP papers is that as electrification becomes the heart of India's green strategy and I should add as the generation moves from what it was in the mid-90s largely public sector to a mix of public and private sector and as we try and attract global capitals, the DISCOMS will end up being a very important link in the chain. As Montek Ahluwalia and Utkarsh Patel have indicated sorting this out is really fundamental for us to realize our green aspirations. In brief, India's power sector is ripe for bold comprehensive reforms, our tariff structures are complex, there exist more than 19 kinds of categories in some states, this needs to be simplified. I have already mentioned that state electricity regulatory commissions must function as independent regulators, any dues from local government bodies overdue for more than a year maybe considered for payment from the budgetary allocation of the state directly to DISCOMS, smart metering in urban and rural areas should be an important focus for achieving that better efficiency of DISCOM. And there is also a need to separate the content and carriage business. So, with these remarks again my apologies for not being there in person, not learning from what is going to be a rich discussion. CSEP does have a tradition of posting discussions on YouTube. I don't know is this is an open discussion. I rather expect it is. In which case I will be able to catch it later. But with thanks to Rahul and his team for including me on the program I wish the event every success. Thank you.

Rahul Tongia:

If you could put the slides back. Mr. Bery has given a very elegant view sitting from a lens that starts with a historical perspective and really ties it into the future ambitions that we have as a country. And a lot of those pathways do come through the DISCOMS. And so, that is really the focus for our deliberations with a very distinguished panel. I will not in fact formally introduce them by reading their bios because all of the information has been posted and they are all well known. It is worth of course, mentioning the Mr. Pujari has had seen things from different sides, both executive and regulator. So, I think you will have some of the most unique insights into the system. Mr. Ahluwalia of course, has helped not only at the planning commission but a number of committees that have looked at infrastructure, at DISCOMS specifically. Notice I didn't use the word bailout. And we have Ann Josey, fellow at Prayas who is an expert on DISCOMS. Who is really close to me, I would think we have a small geek club where we really talk details in minutia but at the same time push each other to think big picture as well? Glad you could join us from Pune. Before I start the panel, I will just remind everyone to start keep questions ready. But hopefully keep your questions more for our panelists, not on the studies per se. because I am skeptical you have read through all of them just yet. And also, our authors will be available for more detailed sort of technical discussions on some of the findings. But it is really the DISCOMS and their sustainability that all of us are after. We know that if I just had this oversimplification as a starting point that well, we need to have better tariffs. Well, that is a motherhood sort of a statement. You won't get any arguments, but it is much more complex and nuanced than that. So, taking from the presentations I have four sets of questions or a cluster of questions for our panelists. These are of course, guides, I hope it is a very free flowing conversation. People should please push back if I say something or someone else says something that they either disagree with or want to have a new thread from. First issue is the elephant in the room. Raising tariffs. You may need to do that. The second is really about institutions and processes. And it is not just the true-ups that are there. The third set really relates to DISCOMS and the energy transition. And it is a bi-directional relationship. DISCOMS are viewed as the number one counterparty risk when you ask a solar developer what is going on. It is one side of it. But the second is the transition also changes the planning from both a supply perspective and a demand perspective for the DISCOMS would need to face which then ties directly to tariffs. You have a system today with cross subsidies, across consumers classes and we will discuss more about how that may change with our panel. Then lastly, we should really start to think outside the box maybe or out of our comfort zone in what could the future look like. Notice I didn't say the word should. Because that is a harder call. What could the future of DISCOMS look like and what are the pros and cons. At one end you have got privatization as one option. But there is also interim or in between steps that we can discuss.so, with

these sorts of threads I would now like to request Mr. Ahluwalia to share any opening thoughts if you wish to share before we get to some more specific questions and threads.

Montek Singh Ahluwalia:

Thanks Rahul. First of all, let me join Suman's pretty fulsome praise for the study. Because I do think we do need exactly this kind of detailed stuff. You have thrown us somewhat off track by saying you didn't have the most recent data and whatever they are they show a huge improvement. I sincerely hope you are right. But if that is indeed the case, you should update this study to include the most recent data.

Rahul Tongia

We will have updates.

Montek Singh Ahluwalia:

What I mean is very quickly. Because I think there is not much point in us talking about it is a mess but with a foot note but the latest data say it isn't a mess. I am not very convinced whether that is true. After all you are really talking about cash accounting. So, I don't know how that weighs. That is point number one. Point number two, I am not persuaded by the argument you make that it isn't the fault of the DISCOMS. Now, I haven't done enough work or thinking to be able to persuade people what exactly I think is wrong. But my feeling is that as long as this whole thing is wrapped up into a public sector mode of operation, everybody will be conspiring to keep tariffs low. I mean, chief ministers tell DISCOMS don't ask for too much tariff increase. You make some assumption that you will improve your efficiency, so you don't need to increase the tariffs. All this ultimately of course, goes into true-ups and then you say the true-ups are not actually implemented. And that is sort of blamed on the regulators. But the regulators are also ultimately former government servants. So, there is a conspiracy on the part of a number of well-meaning people to tolerate a system that won't actually raise tariffs. And the moment you get that I mean everybody's behavior is conditioned by it. So, for example, I think you rightly say that if it is really the case that a problem is not inefficiency of the DISCOMS then what is all this nonsense about privatizing DISCOMS which is very fair. But I feel what would happen is that if you privatize DISCOMS then many of these institutional weaknesses would be surfaced through the system what at the moment they are not. They are swept under the carpet. Now, that is again a hypothesis, it may or may not be true. But there are so many, for example, one of the most obvious things, I think it comes out in your paper, the tariffs do not observe the national tariff policy of subsidies should not be… I mean, over charging should not be more than 20%. So, there is a complete departure. In fact, you have a very nice, at least showed me a very nice

scatter of the Indian tariffs across different categories. It is much wider than any other country. I think this is really simply not being serious. I wish I had either the time or the skill, I emphasize the skill also, because you guys have that, to kind of go into it in greater depth. But I have a feeling that we are underestimating, if you like, the institutional bias which runs through the system because it is public sector dominated subject to chief minister's control. The idea that that kind of a system will actually generate the right results I am not convinced. That is why I personally always said, when I used to meet chief ministers, I used to say this to them. That, look of course, privatization is not a panacea. But it would be a good idea for every state to privatize distribution in two or three areas and then let us see if that works better or not. So, you need to give it some thought rather than simply sort of dismiss it. That is actually my main concern. That, plus the fact that the regulators do not seem to be following the national tariff policy. I don't know constitutionally whether they are bound to. I mean after all distribution is a state subject. So, I don't know whether the national tariff policy, it may be binding the central electricity regulatory commission, but does it bind the state electricity regulatory commission as much as one might think. I don't know. But I think we need to look at that also. But anyway, congratulations on… this paper raises the level at which this kind of discussion can actually take place. Thank you.

Rahul Tongia:

Thank you, Mr. Ahluwalia. I think even Mr. Pujari may have some thoughts on the jurisdictional aspects perhaps. We could request him later on to get to that. On privatization I hope we come back to it. That I agree the privatization helps the institutional and it is a helpful step, it may not address everything. Because Delhi for example has private DISCOMS and it also has some of the higher regulatory assets compared to the country's. There are many things. But fully agree with the point. I will just clarify or just restate something. I didn't mean to say it, I don't want anyone to misinterpret it. One, we are saying that not everything is the DISCOM's fault. We didn't say DISCOMS have no role, so let us be clear. It is not just about the percentage. But even in how they engage with regulators and how they do their homework and also many other layers that are in the paper in much more depth. The second, the current improvements will be very helpful. I am not saying, we are not going to look at them very rapidly. But those don't focus on the residual or legacy gaps which are a distinct thing. So, I think really strong effort the government has been putting in which has turned around certain things. And the liquidity for example, the late payments sur charges to generators if you don't pay, they have really primed that pump. Who would have thought that you would have such a bold step? And what we are seeing is states are coming on board to that. But these address parts of the problem. There is more to be done. But the trends are all great. But our study focuses on the process and the residual which is not yet directly addressed. In part because a lot of the tariff issues are state

issues. They are not directly under central purview. So, with those small clarifications, I now request Mr. Pujari to share some opening thoughts. Thank you.

P K Pujari:

Thank you and I would like to join Mr. Ahluwalia in commending the very painstaking reports. With a lot of data and over a time frame of 15 years which it has been collected. Everyone, every research student knows how difficult it is to collect data from hundreds of DISCOMS. Because they are in different formats, the books are in different formats, the interpretation is different. So, really it is highly commendable that you could put them together. And then come out with a very conclusive sort of recommendations. We will not like to really paint in whether DISCOMS are responsible or not. But what the study does is it throws highlights certain areas where action is required. If the ex-ante, the gap is zero and ex-post, the gap becomes high, then the fault could be that the assumptions or data that was put and was considered was not correct. So, either the regulator should ask proper questions depending on the past information saying that if the last three years the gap is increased when it does that the tariff setting for the next term of tariff, you should be able to ask questions why in the past it has happened and why the correct information is not coming or the assumption that the regulator made earlier it needs to introspect and find out whether those assumptions are correct or not. So, it gives a guiding or a pointer to both the regulators and DISCOMS to look at those information, assumptions and data more honestly and in an integrated manner. So, that is the outcome of this. More truly the tariff setting should be done. If the DISCOM as pointed out by Mr. Ahluwalia, if they don't come forth or give the correct information or correct data based on which the tariffs are being proposed or being accepted by the regulator, the regulator has all the right to look at it and ask the correct questions and correct information. So, if the gap increases so much ex-post, there is an indication to basically or brings highlight that both the regulators and the DISCOM didn't look at the process itself. I don't think any political interference or intervention does come in in that. Because it is basically getting the correct information. Secondly, if you look at the analysis, it says that the cost contributes in the gap, the cost or the expenses contribute about 60% and revenue contributes about 40%. And lastly the cost of power is the cost of our procurement, which is basically generation. So, that is a known factor. If you look at the trend, there is a trend for increasing cost over the years. So, if that is so, then regulator or the DISCOM should factor it straight away. If the last CIGR is about 6% every last five years or ten years, the power cost increase by 6%, you should actually factor in 6 or 7% of power cost increase. Whether the DISCOMS has asked for it or not. These are the issues that comes out from these studies. It gives a guiding sort of platform for the regulator to look at differently. Secondly the true-up. This is very interesting point that your assumptions on the basis of which you have fixed the tariff may change over the coming years. And there is a gap and the

true-up has been provided for. But true-up needs to be done quickly. It takes time because as a CERC also we realize that the true-up process takes huge amount of time not because nobody is interested. Because the petitions are filed, so many data are asked for and it has to he heard. All the parties need to be heard. So, suppose the NTPC power station there are… every power station there five or six beneficiaries and DISCOMS. So, every petition has to be heard, you just brush away and not give them the opportunity of making their cases. So, it takes time. I just mean the whole process is so complicated and since huge amount of money is involved it takes time. Now that leads to what has been said is that if the true-up takes two years or three years, in between the carrying cost really builds up. The base is higher, the carrying cost will be higher. Then how do you address that? That is inherent built gap sort of gets created. So, we need to look at whether… that is why in CERC we try to find out… whether we can have sort of normative setting. Instead of going and basically specifying every small regulation mostly you go for a normative tariff setting. And allow certain parameters to be really debated and discussed. How far it is logical, how far it is implementable that needs to be tested. I hope because the way the system is and if you look at CERC even today also about 700 petitions are pending. So, at any point of time it has 700 petitions pending, even if they do 100 petitions, they dispose of every month, 700 petitions keep pending. It takes about two three years for every petition to be disposed of. Not that we are not working but then this is how the system is. Obviously, there is a in built shortcoming in the system which creates this sort of liabilities. So, this study brings that out. Yes, it takes two to three years for the true-up and it is nobody's fault or best intention. Then automatically the cost is there and gets loaded down to somebody. So basically, the study indicates where are the action points that we need to take. Ultimately of course, as I just pointed out, tariff is a major issue. If you take the cross subsidy and the gap that needs to be filled up, tariff needs to be revised. With cross subsidies suppose you want to keep it with plus or minus 20%, then the load on the lower section, weaker sections will definitely increase. Irrespective of political parties, it is just general political unanimity as far as a tariff is concerned, nobody is basically so comfortable in hike, sharp hike in the tariff. So, there is a process, there is no solution. We have been talking about it. Maybe gradual increase every year can be done but unfortunately many states the tariffs are not even revised for five to six to seven years. Of course, last few years it has improved. But there are states which never revised the tariff for seven to eight years at a stretch. Then in one obviously it is very difficult to really hike it. So, my takeaway from this study in the very preliminary stage is that it gives a lot of directions on which we can work, look at it, including the revision of the tariff which of course, is a very difficult and it is basically a political economy area and it has its own implications. But I again congratulate the team CSEP for bringing out this report and it gives a slightly different perspective or I think the power be or the people in authority when they generally make

sweeping statements that most of issues are because of as they call it the inefficiencies of the DISCOMS. But in those inefficiencies, there are certain factors which DISCOMS probably are not directly responsible. It lands in their books of accounts because they are the last leg in the whole value chain of the power sector. Maybe they have no control. For example, the cost of power procurement absolutely they have no control. So, that needs to be recognized and I hope that there will be systemic pressure on all stakeholders including DISCOMS, regulators and others to look at it whether what they are doing is most optimum or still there is scope for improvement. And I understand that this study provides very clearly that there are scopes to improve and do things better. Thank you.

Rahul Tongia:

Thank you, Mr. Pujari. I will come back to you on some suggestions you have given and they lead to a lot of interesting ideas and suggestions but I will first turn to Ms. Josey. If you could share any opening remarks.

Ann Josey:

I think again I will join in congratulating all the authors for this study. I think it highlights many of the issues in the distribution segment and I really like the articulation of what are the root cause analysis. So, this identification of what is the contribution of subsidy, what is the contribution of regulatory assets and losses is quite important in terms of prioritizing many of the issues. I had a slightly different take on it. If 65% of the cost can be attributed to certain areas then clearly there are actions that can be taken because they are clearly identifiable. In terms of the residual kind of part, somewhere in the presentation and in the report, there is this conversation about how we really need to look at the tariff setting process differently in order to look at residual gaps. I am not looking at the numbers. How you look at cumulative cash basis accounting, I think Rahul you and I have to have a separate wonkish discussion on that. But coming back to the issue itself, this residual to me represents interest costs, disputed amounts, issues with planning, issues with power procurement and they vary across states. So, in Tamil Nadu it might be because tariffs haven't been increased for seven years or so and obviously that means that revenue is not commensurate to the cost increase. Karnataka it could be because there has been significant disallowance by the regulator on major issues to ensure efficiency of the utility. In Maharashtra I think recently some of the kind of rise in losses is also because of the dispensation under change in law. It is about 23000 crores of increase in regulatory assets just because of the kind of dispensation that happen with change in laws. There are contractual issues which also affect the distribution companies. What is really important for the conversation is problems of the distribution company are not just because of the distribution

company. It just happens to be at the end of the value chain. So, we are essentially talking about inefficiencies across the value chain. When we talk about distribution company losses and bailouts, it is the inefficiencies of the sector, right? We really need to look at inefficiencies across the value chain right from coal contracting, coal availability to collecting efficiency and how to improve that. So, definitely the conversation should not be about what the distribution company can do, but what all actors can do in order to make cost of supply better in order to rationalize tariffs and in order to prepare us for the challenges of the future. That conversation we haven't even had yet. Past and present challenges we have some idea because you have been looking at it for past 20 years. Now with renewables and storage the entire game is going to change. And we really need to think about what happens when more and more consumers reduce their dependence on the utility, they move away and what are the kind of cross subsidy implications, revenue implications. And also, how the entire role of the distribution company itself is going to change. One clear insight is the fact that right now we say 70 to 75% of the cost is because of power purchase. In the future it will be because of transmission distribution and storage. Which are all fixed costs. So, we are talking about an entirely different system which is going to emerge very soon. Therefore, we really need to think about not just past liabilities, present challenges but also how we really think about adapting to this future system that is going to come. I will just stop there for my opening remarks.

Rahul Tongia:

Thank you very much. Everyone has flagged so many things that I am tempted to tear my questions that I have pre prepared. Because I think, Mr. Pujari also started with this sort and you have expanded it. Which is, DISCOMS come at the end of the chain and yet there are all sorts of processes, systemic issues. They are not about right or wrong, or inefficient. Because there are trade offs along all of these. So, just to give an example, in the paper we do go into for example the returns on equity the DISCOMS get. Either statutory in the process or of course, effectively they are negative. Your rate of return is negative when you are loss making. But you compare that with generation or transmission, they are lower risk and yet higher returns. And then in a separate CSEP paper we compare this internationally. Just one snippet, what you referred to Montek. It is in the paper of the heterogeneity of consumer categories. So, these are absolutely the larger conversations that we hope to get into. But I will start with before we come back to the future because that is a nice place to end with, with the transition and all these big changes we have to prepare for. Let us assume, we agree that certain numbers are off. Part of it could just be that okay, it takes time to tweak them. But Mr. Pujari, you would open with an observation that why can't we have normative thing. So, for example, if a state doesn't have a tariff petition filed in time, then the regulators in theory they are allowed as per the acts, to have Suo motto tariffs declared which should have some inflation adjustment. But it is not

quite happening. Now, here this flags an important issue and we have a case example in the report. It is not just what did the DISCOMS get but also what did you ask for. So, there is a case of a DISCOM where they have filed the petition that says, oh, I am happy to take a zero percent return on equity in the name of keeping tariffs low to help consumers. That just doesn't add up. It is not a scalable solution. So, can be both at the same time one, simplify the processes, but also inject some sort of baseline cost coverage. Which then leaves less to work out through a petitions process through all these other things. How do we do it? Do we need radical overhauls of the systems to get us in that direction or can the current frameworks take us to that direction? I will just mention that my question is in general open to everyone and I request everyone to please chime in.

P K Pujari:

Every regulator it comes out with multiyear tariff regulations. That provides for various parameters and norms. It is not specified anywhere in the act that how these parameters are to be determined. Now for example, it is very simplistic. Setting the rate of return on equity. But the CERC does it, it was 11%, 12%. Today it is 12%, tomorrow it could be 9%. So, it depends on the context and the situation at which the decision is being taken. They are not specified anywhere. It is just a regulatory decision that you put in the tariff regulation which is valid for five years. So, you can have normative numbers, the only problem, we tried in many cases we have seen in many cases, simpler ones we could do it. In complicated ones we cannot do it. For example, the capital cost of a power plant. It is very easy to make it a normative number. But then it all varies from location to location. And sometimes the beneficiaries themselves come out saying that no, this is cheaper and the other one was costlier. Because you did the normative, normative could be an average number, if you have done the realistic one, then I would have even got a cheaper capital cost. So, all these issues do come. So, it has to be exercised, it has to be carried out and it is not difficult. But only thing is that you need to come out with an acceptable number and along with the stakeholders. And this exercise is on. We realize this exercise is on because with all these complications and N number of powerplants especially when renewable power plants have come, unlike those old thermal power plants with thousand megawatt capacities, you list number now I believe 100 megawatt capacities, everybody files a tariff petition. And it is getting more and more complicated. So now normative there is a group working I understand in CERC for getting a normative. It is a difficult one but I think at some point of time we need to do that. Otherwise, it is very difficult to really manage the way things are. Only issue is that that number should be acceptable. Nobody should again go and challenge those numbers and then everything gets stuck. Number two, idea is that it is much more expeditious and quicker and it is more predictable. And third is that maybe, when you revise a normative, once you pin a normative number it doesn't mean that in perpetuity it is there. You can always revise it in every three years,

four years. Maybe in the long run I think if somebody looks at in some year, they will lose some years, or gain in some years, and something like overall I think the trend will settle out. So, this needs to be debated and finalized, noted. Similarly for state regulators also when they do the tariff regulations, they can try to do this normative system. There are many groups working in forum of regulators also for depreciations, for asset valuations, these all pre-determined formulae are there which becomes very easy and you don't have to really work in detail and spend time on those numbers. So, things are happening. But then the whole… if you really do a tariff setting there are hundreds of parameters and it takes time to finalize that. But it is doable and I think we should try to move towards that.

Rahul Tongia:

Thank you. And I think that is exactly what Mr. Bery had asked this question what do other countries do. And that is exactly how some of them that we have studied end up. Which is you won't get it right exactly every year. But then you will even it out over a few years. But unfortunately, as we have seen we have got a skew in how a lot of things happen because your ex-ante to ex-post is unidirectional consistently is what is happening. But just on this process, building on this, when we went to states and talked to them and we talked to regulators, it turns into a very adversarial process. You talked about the petitions and the times and just the effort and so forth. But it is also almost like well let me ask for five, even though my true cost is three because then maybe they will give me four. There is in certain tariff petitions we have seen in states where the ask is always higher than… they know that they are going to get less than what they ask because of certain things happening in certain directions. I mean the entire process isn't necessarily using the same set of assumptions, the same set of expectations or trajectories, and one of the reasons why you don't do it this way is because you said that, look we know that for example certain costs have gone up by 6%. But then a regulator may say, no, we got to do better than that. The same thing happened with ATNC. Central government has been pushing which is a good thing states to have tighter targets, but do they go too far. If an ATNC one year it was 30, next year is it realistic to expect them to be at 20% or whatever they have agreed to through some separate negotiation process or some separate policy process. Ann, you are shaking your head.

Ann Josey:

It stirred a different thought in my mind. I will just go on that. Basically, when we think about the regulatory business itself, I think many of these tensions and challenges are inherent to a cost plus system. Because essentially you are telling utilities to declare certain costs and that game will always be there of underestimation of fait accomplice costs to make my tariffs look low and overestimation of cost that I know we will get this allowed. I think that is a game which is inherent to the design of a

cost plus system. So, maybe we could really think about what are the ways in which we can move away from a cost plus system or do we shrink the existing utility and reduce the amount where the cost plus business is actually happening. We have much more competitive pressures and more retail contracting in order to look at this. Maybe I can talk about that in another segment. I think going back to the regulatory process itself one big challenge is that regulatory accounts are not designed to really reflect the financial issues of the utility. They are basically to look at performance accountability. That is a function of a regulator. Tariff setting and performance accountability. And this whole conversation about increasing tariffs, it should also account for the fact that there has to be some way of ensuring performance accountability of utilities. So, regulators have to fulfill their role in a cost plus system where costs are disallowed when there is inefficiency. And that over time will reduce the amount of inefficiency because there is less incentive to have that. But the issue is that much of these inefficiencies is being financed by working capital borrowings which is not in the regulatory purview. That is something that you see in the DISCOM accounts and it is not even reported in any of the regulatory documents. So, I think the regulators also should track some of these financial parameters to assess the health of the utilities. What is the actual working capital borrowing of utilities? It is not even reported in any of the audited accounts in a systematic manner. What is the extent of cumulative liabilities? You know we get this number on an ad hoc basis once in a while. But I think that will help nip some of these problems in the bud and look at DISCOM inefficiencies in a different manner. But whenever we talk about tariff increase etc., we should definitely not restrict the regulator from doing their job of ensuring performance accountability. One example that I can give is Maharashtra regulatory commission very rightly did a detailed estimation of agricultural demand in the state based on looking at freedom metering data and looking at the kind of information which is there from surveys. An estimate that actually on an annual basis about 7 to 10 thousand EMUs is the over estimation of agricultural demand. Which means that losses are underestimated by that extent. So, over a seven year period that translates to about 21000 crores which is essentially DISCOM inefficiency which is passed on to consumers. Now the regulator if was just allowed… obviously this is disallowed and therefore there is a wrap on the utility to become more efficient. But if it is allowed it would lead to a tariff increase and a better financial position. But we will never be able to really isolate inefficiency. So that was the point that came to my mind.

Rahul Tongia:

So, I think clearly metering would help but smart meters could help certain ATNC measurements but they won't necessarily show up on agricultural pump sets.

Ann Josey:

I think my point was more about the role of the regulator itself in the need to increase tariffs we should balance it with the role of the regulator to really look at performance accountability. Otherwise, we will always have inefficient DISCOMS.

Rahul Tongia:

Absolutely. But now you flagged… so first is of course, I hope we are not segmented into topic areas. We can jump through. So, feel free to jump in. But raising tariffs, I will come back to this. Yes, I agree with everything you have said. Even after that, even if we push DISCOMS to perform better, there will need to be tariff increases in some cases. Now the question becomes A- we know it is political. But B- on whom or what are the processes to figure out? Like Mr. Pujari said acts and legislations just give certain norms. But the details are all chosen by the regulators. So, if I have to raise, I am making up a strawman. Let us say tariff is short by 10% and we agree that if after performance, after all these things, there is an increase of a certain percentage needed. Does that mean everyone's tariff goes up equally? Does that mean lower paying should come up more? Because this gets to the cross subsidy issue that is at the heart. And we didn't discuss cross subsidies here but it is the focus of one of the two study reports. So, the other finding we have is you cannot look at cross subsidies and subsidies in isolation. They are very much linked. How do we even get a process to figuring out as opposed to leaving it as political or adversarial or not me but anyone else?

P K Pujari:

When you talk about cost of generation, this point I have been making for last so many years in my various capacities. But somehow, I am not able to convince. We should start looking at from the top. Look at the performance of coal India, the coal pricing, and the railways. Very simple. Nobody asks anybody, there is this grade slippage in the coal. That grade slippage cost gets passed on to the DISCOMS. The coal company is responsible. Is the __ responsible. The regulatory responsible. It is very simple. Now grade slippage why should it take place. Are you so incompetent in government and coal India ministry of coal that you are not able to stop that? There are estimates what is the grade slippage is on an average it takes place and what is the cost and pass it to consumers. If you stop that we estimated that about 10 to 12 paise cost will come down. Your specific consumption of coal will come down. But we are not doing it. There is no political part in this and this is purely a central subject. How does the coal price get fixed? Is it done in a transparent manner? Who knows how it gets fixed? What is the cost of coal in India? It is a costless regime again. Whenever the demand for non-cooking coal and cooking coal changes, to make the profitability, they keep balancing the cost. They increase the cost of cooking coal and reduce the cost of cooking coal and increase the cost and so on. This all happens. So, my point is that before we start talking about tariff increase at the last end

that is regional level, we are not looking at our own internal thing which is much easier to do. States are not involved in that. They will be happy to participate. It is between three ministries and government of India. It doesn't happen. You can carry out the studies, if the grade slippage doesn't take what is the price, the tariff will come down automatically by 10 to 12% on an average across. So, we should do it. The coal supply contract and railway transport contract are dated. They are simple two-page listing without no risk. All the risk is on the buyer. The coal gets handed over at the coal mine's end. So, coal India hands over and the responsibility of coal India is finished. It is take or pay. The dump is there. You choose it, you take it or otherwise you go home. The coal is not available. These are simple things, we should start from there. Unfortunately, it doesn't happen. So, we get into a very complicated part of it and we should do that, reduce the cost. Ok, I reduce the cost by 15 paise, now you increase the cost of another 15 paise for that site. You reduce it on consumer 15 paise, you increase the cost in something and you will balance the 30 paise. It is not difficult, but it doesn't happen. So, things which are doable, which can be done quietly, without much of a thing, it doesn't get done. The moment this thing comes we straight away go to tariff revisions. It is on the last end including agriculture when everything gets derailed somewhere else. I have got very strong views on this…

Rahul Tongia:

Just correct me. I agree with what you said – if you can't solve a problem make it bigger. Go up the chain. But, if we did acknowledge grade slippage, wouldn't that reduce CIL's profit? So, there you have the example of a tradeoff.

P K Pujari:

The way the billing takes place… the coal gets billed, one bill comes in the billed coal. Coal as received and coal as fired. Because when the coal leaves the mine, it gets some particular GCB is there and billing is there at a particular rate. The coal travels 1500 kilometers through whatever happens. The quantity goes off somewhere and nobody is responsible. Railways are not responsible for loss in quantity. Very clearly agreement written there. Railway is not responsible for loss in quantity, transition loss. That is the responsibility of the buyer. That means he is supposed to carry, put people on the train and then make sure that nobody steals. That is the contract. So, you lose about 3 to 4% of the coal goes away. Then the GCB part also goes away. So, everything the coal had received, after receiving that takes about what ever seven, eight or ten days, it gets loaded, unloaded, all sorts of things happen there. It gets stored at the power plant also. And from the storage receiving end to the firing, it takes another 30 days. So, again there is some slippage there. So, you have three different parts. Earlier, the billing or the costing was done on the coal fired basis with lot of difficulties

we shifted one leg behind. Coal received basis. Best thing is to go back and take as the coal billed basis basically. Then in that case all the losses will get absorbed at the generation level. So, the NTPC or other coal plants will get hit that way. But it will not be passed on to the DISCOMS. So that is one way of doing it. It is the government of India's decision.

Rahul Tongia:

What I hear is some of these may improve through market processes for parts of the chain. But we are so far away from making CIL coal a liquid market. No pun intended. Then you get wholesale liquidity. And then you get to retail market side. So, there are discussions on DISCOMS. I will switch gears a little on sort of DISCOM structure. It is not clear neither because of the analysis but also the institutional side, that until you get a number of things to align just by saying I will let you be competitive but the rest of the constraints look similar, am I going to really achieve change? Montek, anyone?

Ann Josey:

I just wanted to connect this point also to the raising tariffs bit because I think your study has also pointed out that tariffs have actually been increasing at about 4.5% per annum over time. So, there might be tariff shocks. But if you look at 16 years, in the long run it is increasing at inflation, right? So, it is not …

Montek Singh Ahluwalia:

Remember that long period our inflation rate has been higher…

Ann Josey:

I think it depends on what inflation we are looking at. Whether it is CPI or WPI. But I think the point is more or less there has been some amount of tariff increase that is happening. So, it is not like tariffs have been stalled across and I think we need to acknowledge that tariff increase has been happening but cost has been increasing at a much faster rate. That is the crux of the issue. And I think because of the recent changes that are happening, there is also a limit to how much tariff increase can happen in the future also. I think your study has also shown that the average cost of supply is 7 rupee 91 paise per unit, right? Right now, that means 8 rupees per unit. So, anybody who goes for open access captive rooftop can get power at 5 rupees per unit. So, clearly there is a 30% saving right there. So, a lot of consumers who can afford to shift or migrate are going to do that. Even if tariffs are increased how will that recovery happen is a big question mark. So, it may not really make the situation for the DISCOMS much better. Another consequence of raising tariffs could be that actually subsidies rise

commensurate to the tariffs. What that really means and what its implications are a very important to understand. As I understand subsidy payments and delays have actually improved over the years but going forward if the subsidy quantum itself increase then we going to end up in another situation where working capital borrowings etc. of DISCOMS are much more of a challenge. And also affect the fiscal health of the state governments itself. In Karnataka right now with the new announcements we are talking about 50% of the ARR as a subsidy bill. If you look at agriculture and domestic together that is clearly unsustainable. And if more and more states head in that direction that could be one of the consequences of raising the tariffs. So, we should really think about raising tariffs more from what is the role of subsidy and cross subsidy and also with the changing market dynamics whether rising tariffs will really result in rising revenue is something that we need to consider.

Rahul Tongia:

Just one small housekeeping note. Mr. Bery is on his way and will join us. So, I will hold off on one question that may be of interest on the future side and the transition because that is a huge area of national interest. Do we have… you alluded to this in the Maharashtra study, but even on the coal, you have got this issue of grade and slippage and so forth. Do we trust the data? In general, … I don't know on the financial side between fiscal. Those books should hopefully be better. But a lot of the other books, is that a factor? And if so, what do we do about it? Because what we have seen is the terminology is different, what you get away with… just as one example, we have heard the term regulatory asset which is the creation of the receivable where the tariff was not raised enough so that it will be recovered in the future. But that is actually listed as an income by some in the P&L in some states. So, we have got all sorts of numbers, where everyone… and now I am making a over simplification… we are reverse engineering. If somebody says your ATNC target is X, because agriculture is such an unknown because it is unmetered, we can always meet certain things just by reverse engineering. Are we too much having a system that is playing to targets as opposed to playing to performance?

Montek Singh Ahluwalia:

The regulatory asset is shown as income?

Rahul Tongia:

In a P&L. But it then ends up as a receivable in your balance sheet.

Montek Singh Ahluwalia: (Audio not clear)

It is how you treat it. The important thing is you are showing it as a regulatory asset. What you are really saying is the distribution company, is that actually you are not going to get this money now. But you earn a return on it. And the return that you are earning is more than let us say the interest loss…don't you want to ask people in the audience because then Suman is turning up.

Rahul Tongia:

We had one more thread which was just towards the future. I was just looking at you alluded to it. The RE aspect. So, on one hand we are supporting renewables as we should. We have got not just the support on the renewable side, but on the tariffs, we have got green open access for example put in. So, now the cream customers are the ones like you said, they have got enough margin that they want to leave. What do you see as a viable equilibrium? The question isn't will they do it or wont they. It is what will happen to the rest of the system? Because right now you have a social welfare redistribution scheme through your tariffs of cross subsidies. And as our paper documented in FY 19 half the units sold were violating the cross subsidy norms. That was ex-ante, we are not even able to do it ex-post. Because we don't have certain breakdowns of the actual sales by category because of the slab variations. So, is green going to be the straw that breaks the camel's back?

Ann Josey:

I think green is something that is much more viable. But that is probably why it is taking competition forward. But I think what we really need to think about is what does this mean for the role of the distribution company itself and how is it changing. How do we really need to recalibrate and think about tariffs itself? So, if you are thinking about a system where there is a higher amount of renewable energy and many more consumers are moving to alternate supply options then what is the role of the DISCOMS. Is it really the supplier or is it the supplier of last resort? Is it the entity that ensures power procurement for the entire state or is it one of the entities that procures power for a smaller segment of consumers who are unable to migrate? So, role of the DISCOM will change and we really need to think about how DISCOM's pricing strategy also needs to change based on the services that it is providing. Right now, it is all bundled into one tariff. But actually, there are multiple services within that one tariff itself. How do we really think about standby services? How do we really think about banking? Can they be at cost because definitely many of these users who are looking at the DISCOM as a grid service provider or a system operator rather than a provider of supply, the entire model is very, very different. So, I think we really need to think about ways in which cost compensation for DISCOM services can be improved and how we really think about regulatory frameworks to institutionalise that, so that when the problem is there or the challenges are there, we are well prepared and we have clarity. I think that is very, very critical.

Montek Singh Ahluwalia:

You mentioned the green energy is cheap. So, guys want to take it. But that is only when it is available. So, their model is that when it is available, I will take it. And then when it is not available, I will get stuff from the grid. It creates a problem. What they do with…

Ann Josey:

I think one of the reasons is because time of day tariffs are not priced accordingly.

Montek Singh Ahluwalia:

You made that point. Isn't that the first thing we should do. You tell me what is the problem? Why is it not happening?

Rahul Tongia:

And it is a known solution.

P K Pujari:

It is a known solution. But everybody recognises and says we need to do it. In fact, when we found that the states are not doing what we tried, I think we didn't succeed much. In this 2019-24 tariff regulations we brought in at the generation level, equivalent to time of the debt tariff. Based on season and morning and evening. I said let us increase the cost of the generation. So that automatically gets reflected in the thing. But then there were so much of opposition and then of course we couldn't do it nationally because every region has their own peak time with different morning time is different, seasonally different. So, we left it to the regional committee to decide. But we tried. I think there is a time that the states regulators or the state government does it again. But the question comes ultimately the price is going to go up at the peak time. In the morning the price will go up, evening the price will go up when the maximum consumption velocity takes place. So, again same opposition. Exactly the same opposition. If you increase the price in the afternoon nobody will mind. But if you increase the price in the morning and evening, there will be much more opposition.

Ann Josey:

I would say it also encourages industrial consumers to use power when renewable is available. So, it will flatten the load curve to some extent. Not all consumers are residential, right?

P K Pujari:

In tariff increases, our mindset or generally think that you looked at those sensitive categories and then what is their response. So, everything got driven by that unfortunately. It may not be true what we think, but that is the perception anyway. So, they say that general increase is so difficult, so increase the peak time which is much more difficult, that is why nobody does it. Otherwise, it is very simple. Everybody knows about it. And not a very difficult… limitable is not the issue.

Rahul Tongia:

I will push back a little bit on that. Intellectually it is simple. But the impact on different consumer categories will be asymmetric. So, now we are back to the more fundamental question of the social welfare equilibrium. Today you have cross subsidies based just on aggregate averages. But now if I hypothetically for the future added in a TOD aspect to the cost structure, the cost to serve. Today all cross subsidies are calculated pretty much based on average cost of supply. But if I started now looking at what is your impact on the grid by you as a different type of consumers, then industry should be paying even less, if they actually align with cheaper greener power or cheaper power. So, then isn't that going to strain that equilibrium even further and create a resistance? You have said it is simple. But I see that tension is also being enormous.

Ann Josey:

I mean industries can also go for or be encouraged go for open access and therefore reduce the power procurement pressure on the DISCOM in the first place. So, that can be another way of cost reduction rather than looking at only TOD tariffs. If there are right incentives and TOD tariffs, maybe they will sign their own contracts and get their power, therefore reducing the need for the utilities to plan for their demand in the first place. Which would definitely reduce costs.

Rahul Tongia:

But again, it is going to be the cream that is doing that. So, it may reduce costs but it is the relative reduction vis-à-vis all the categories that would matter for that equilibrium that we have. Because just as one reminder, we have all or many of us may have heard of something called the duck curve. This is the famous curve where the shape of your demand after taking out RE supply which is called net demand, look like a shape of a duck. This year in California it has now been called the canyon curve. Because it has hit zero in the middle of the day. So, that is the level of… I worry that all our discussions are all incremental tweaking as opposed to these huge shifts within the next five years that or when, whether it is five years or seven years or ten years, it is a different story. But are we ready for it from a regulatory, tariff and all these other processes, I don't know.

Montek Singh Ahluwalia:

You have to make a shift. I think slowly it is easier to absorb it in due course. We make a huge shift, I mean everybody will object. But a little bit of a shift maybe you can get it through.

Rahul Tongia:

But small shifts are done within your framework. I am saying would the frameworks need to change. That is what we may need to do.

Montek Singh Ahluwalia:

Yeah. One other point and that was this whole other issue of… to promote solar energy that it would be better if we did net metering rather than a feed in tariff. Was there a very strong sort of pushback from the DISCOMS to only give a feed in tariff?

P K Pujari:

Now it is well settled, I think.

Montek Singh Ahluwalia:

In what way it is settled?

Audience 1:

There is hardly any wind power solar getting deployed, right?

Montek Singh Ahluwalia:

No, that is because you are not allowing net metering.

Audience 1:

Actually, metering the issues of DISCOMS will become much more worse because that is not… you are just supplying energy and you are getting paid for energy plus transmission plus all other costs.

Rahul Tongia:

Plus, peaking power.

Audience 1:

So, it is just not viable or sustainable.

Anil Razdan: (Audience)

I was trying to look at the future perspective. Because I have lived through all these motions through the 80s and 90s and I have seen all this happening. One has seen through almost half a century all

these things happening and you have been part of it for long time sir. I was just looking at it this way that I think ultimately the answer lies in smart metering and being able to settle accounts across whatever is your tariff. And your public system will be like a public distribution system, PDS, meeting only the emergencies. If you are really going into decentralized generation and decentralised generation to come in a very big way in a sense that all your building material, your building designs, your architectural approvals will have to say that you have to generate so much of your own power. Some strong segments like that you mean business. Where is the land in our country to put up all the solar generation that we are talking about? Hydro, yes, we have virtually exhausted I think what we have. Number two, we are talking of pumped hydro now as storage. I do not know how easy it will be to get those sites, to get that land, for pumped hydro for those locations barring a few projects in the beginning. So, I think the perspective has to be seen maybe in a 10, 20, 30-year perspective today already. We have to be future ready. If we really mean decentralisation, the central system I repeat again will probably be only serving as a PDS. And that will have to be heavily subsidised for the electoral reasons or whatever you might say. The other part if you want emergency power to make up for yourself, every 15 minutes slot or something on the grid will tell you what is the cost of the power. And you will have to jolly well buy it. We have all lived through 100 rupees a litre for petrol and when I was a school boy it was 2 rupees a gallon. So, we have seen this kind of inflation coming through. And the same will come through here if you want that assured power. Otherwise arrange for your own power. If you really mean business. A regulators job is not easy at all. But just to end I think we could talk of DISCOM and I have seen it in Haryana when we were discussing this thing. Went up from electricity board to Mr Bansilal to whom we could not argue very much and there were the gen-cos and trans-cos, but none of you asked why not Dis-cos. It was suggested Dis-cos, he said what is Disco, disco? So, disco became DISCOM. So, it has become a source of discomfiture ever after.

Rahul Tongia:

So, Mr Bery, we have had very intense deliberations which are recorded to answer your question. I think there are one or two takeaways we want to bring to your attention, that can now bring us towards the question and answer, more discussion by experts. We have some of the leading experts in India Mr Razdan and on storage and energy efficiency in many domains. We always historically have looked at it in a relatively silo mechanism that DISCOMS and within DSCOMS ATNC. But DISCOMS are just at the last leg of the chain and so there are whole host of other structural issues if not efficiency or inefficiencies that are there in generation, in coal contracting and all of the above. So, I think one of the suggestions was almost to the extent at one end if you can't solve a problem make it larger. You have got to tackle all of these things because they are deeply intertwined. And second, I am now paraphrasing what I hear from a lot of folks. Solar is now what, two and half

rupees, why is my tariff so darn high? And so, that is going to put very immense pressure. Because on one hand we are encouraging and quite frankly we are leaders in the world in our renewable ambitions. But that again puts pressure back on the equilibrium and the DISCOM structure that we have. These were two of the key sorts of points that came up amongst many others. I leave it to you. Would you like to hear some discussion from the audience or share some thoughts on just…

Suman Bery:

Remember, Meryl Streep saying at academy awards, oh no, not that lady again. So, I think I have already used up your air time. I have come for the coffee and for the fraternity. I have said what I have to say. I would love to hear the discussion as you know that had always been as it were where I wanted to come in. If I am stimulated by some of the remaining comments I may wish to react. But otherwise, to interact with people over coffee is just as much reward for being here. But ultimately, I am here to show respect and solidarity for this kind of detailed careful work. And then to take away from this what this means for NITI's interactions with the states. Ok. So, I am just coming from a meeting with the Prime minister and which is not about this. But really the issue of as it were state fiscal performance, state fiscal capacity, state fiscal management, these are central dimensions. And you can't really address those without taking a view on the DISCOM performance. but as a general as it were philosophy thinking about India 2047 or some nearer term, this is a world entire. So, how does one learn and bridge across states. Best practices, lot of variety in terms of regulators, a lot of variety even in terms of market structure. I am sure it is in there. But what that then actually means for assisting states, is really… and the importance of this, that is why I grabbed the opportunity to attend even briefly. Now back to the show.

Rahul Tongia:

Thank you so much for taking time from such a schedule, I can only imagine. We are grateful. Your questions that you posed actually got discussed some of them in this. So, thank you, for those. We played them early before our deliberations. I think, one just point before I open it up for discussion. We are at a time constraint. But we will have a few key questions. We do need a lot of new stuff. New frameworks, new ideas, new whatever instruments. But we already have a bunch of instruments which we are not using today. And Mr Ahluwalia opened up with the question that here you have a national tariff policy which is effectively being ignored by the states. They are giving half the units for example in violation of the national tariff policy when it comes to cross subsidies. Similarly, you have got there is a rule that says no regulatory assets should be created. APTEL has ruled that upon the regulatory commissions. Yet they have been created. So, now is it an enforcement problem? I am not sure we have an answer to that question. But that is just one other thread that came up. Maybe

someone has some thoughts on that. I will leave that statement there. Now request a very brief directed if appropriate questions from anyone who is here in the audience.

Anshuman Swain: (audience)

Good evening, everyone. I am Anshuman Swain deputy director central electricity authority. I just have one observation. There was lot of discussion on the regulatory issues that the DISCOMS are really facing and petitions are also pending. So, should not there be a focus on strengthening the regulators at the state level even more? By having more specialised personnel manning those posts and expanding them so that the processes of the petitions can be fast forwarded so those are the time that it takes is reduced. So, overall, that can you have an effect on the efficiency of the DISCOMS as well.

Rahul Tongia:

This is one of questions how much can the centre do? And maybe NITI has a role within this to strengthen the states. But one of the things that we flagged in the report is a regulatory cadre, one of the things, there is just one example of maybe what could be done. (Audience inaudible) but not a regulatory cadre? And these are new skills we will need with the energy transition up on us. Including markets, including so many other aspects which used to be a very engineering centric approach to the problem. I think we have to move beyond an engineering centric approach to this problem. Laveesh?

Laveesh Bhandari:

I promised myself I won't take up any of your time. But what Mr Pujari said just threw up something. I think this is a classic business dilemma. You have an upstream monopolist. You have a downstream DISCOM which is state owned. If this DISCOM becomes financially strong it is in the interest of the upstream monopolist to charge more. Given this both entities, one will charge more, the other will charge the customers less. And in this such a situation the only answer is an independent regulator. Except that, here the regulator has been taken over by both the upstream monopolist and the downstream DISCOM. Because the people from regulatory are actually coming from __. So, this is actually a fairly standard economic problem which has very well-known solutions which is completely independent regulation.

Rahul Tongia:

But even if they are independent, right now you have got structural lock-ins. Like the coal contracts that Mr. Pujari mentioned, it is from… in fact all our systems are a pass through, pass through. You

have got FSA becomes PPA, PPA becomes tariffs, etc. So, until that whole thing goes through a chain like… I am not sure how we can tackle it piecemeal.

P K Pujari:

As far as the regulatory strengthening is concerned, apart from the cadre that is not going to help. What happens is that things are so dynamic and flux and we require a new knowledge, capacity, technology, understanding and global… what is happening globally. So, if in our government system if you build a cadre then the cadre becomes… you can't do anything about it. So, it is always better to have a mix of the basic minimum and you always have you know, experts available outside and then hire them. Only thing is that you do the capacity building. Those very regulators at least in CERC we hire good people. We pay huge amount of money and hire them because if you are going to think about the market intelligence, nothing is available in India. So, we had to go to __ for it. Had MOU with them. Exchange with them. Got people from them. And develop our own internal capacity. So, this all happens. This is basically all the things are available. Is not necessary that you have your own people throughout and then very honestly, I am saying that you get, they stay with you for 30 years and beyond a point they really don't have incentive to really learn more because anyway they are reaching their top level as for the government progression. So, it is always better to have a mix. What is the ideal mix, it depends on organisation to organisation? Issues to issues. So, let us not prescribe that. Let each organisation, institution decide how to go about it.

Rahul Tongia:

Would you agree with the belief that the centre CERC is in far better position regarding compared to the SERCS?

P K Pujari:

Absolutely. I have no doubt about it. SERCS are in very difficult positions and half the time the members are not there, there are not staff enough and the people who are there are also not very trained. That is unfortunate. Not only as a regulator. The load despatch centre SDU and the SLDCs are absolutely in what stage… in primitive stage. You talk about everything in the government of India got, look at the counterpart at the state level. They have difficulties. Let us not talk about it. It is very pathetic and because that is not important for anybody. But for the system to run you have to do it. All these institutions need strengthening and you have to recognise them. These are the important areas. People probably… non glamorous sort of work. Many people don't like to be DISCOM on the field. They don't want to come back and sit in the SDU or do the planning or may be in the SLDC to the load dispatch. Because they are not visible. So, unfortunately the whole incentive system in the

government is something else that… and lack of manpower also. That is also one part of it. But we need to sensitize every institution as far as in the power sector because it is going to be more and more complicated. Once you have decentralised generation everywhere, you are going to have lot of issues. And earlier the cost was less. Today every decision you take has a huge cost. The question I was asked also raised saying that what is the real cost of renewables. It is 2 rupees 30 paise the last bid or something else. What is that? Honestly you should tell. It is not that nobody is against renewable. But the point is once you recognize that it costs seven rupees for one unit of renewable then your decision making will be correct. But you don't want to do it. So, we need to be very, very careful about costing part of it, honest about the cost and take appropriate steps.

Rahul Tongia:

Thank you. And I guess it comes back to also processes that what is your mechanism for even figuring out what is the cost of renewables. Is it through bids only, is it through an integrated plan or a centralized mechanism… there is so many questions that are yet to be answered. We have time for two more questions.

Alec: (audience)

I touched on this exactly, right. So, there is a disconnect where RE is done through bids. So, we know exactly what the cost of round the clock RE is. It is about 4 or 4 ½ depending on these latest RTC bids. You mentioned that cost plus is a structural flaw. So, co is on cost plus and RE is on bids. Right now, RE is very, very small. It is about 10% of India's wind and solar that is including hydro. That is going to grow to 20, 30, 40. So, not only are we saving, we are going from coal from 5 to 4 ½ for RE. RTC RE that is. But we are also saving, this report saying that no, no, coal is not 5, coals is actually 5.66. There is that extra 66 paise per kilowatt hour post-ante versus ex-ante if I read the report correctly.

Rahul Tongia:

Not quite. But we will discuss all that.

Alec: (Audience)

Ok. But my question for Ann and for others is, as that renewable percentage goes up from 20 to 30 to 40 to 50, if instead of just letting open access consumers do it, we actually force the DISCOMS to be more aggressive in their RE build. Does some of this problem go away?

Ann Josey:

I think even if we force open access consumers to go away, we might have potential for about 100 gigawatts. But if you are really thinking about meeting a lot of our new demand through renewable

energy and not through coal, we really need much more aggressive RE deployment. And there we need to think of different solutions, different ways of doing it, centralized, decentralized, solar parks, solar feeder, everything is required because the ambition and the requirement to meet all new demand through RE is so significant. And I think bringing that change in would also, part of it also depends on how fast storage can really accelerate. It is actually having test cases on ground, pilots, before mid-decade, operational cases to really ensure… Rahul is smiling… but I think all those things are very, very critical and therefore the next seven years are absolutely fundamental to which direction the transition is really going to go. We really need to focus on that.

Ritu: (Audience)

My question was again a little bit more on basically getting back to the entire supply chain and getting the real value and the real costs into our decision making. And coming back to the point of whether the central authorities are better facilitated or the state can manage this better, if you look at the entire transition, at some point we are going to move towards more renewables, more decentralized and in order to prepare for that at this point do we need to start looking at maybe piloting or trying to assess something at the state level while we are recognizing that the center is so much in a better position to still manage this. But in the future, you are going to have a very different mix. You are probably going to have some kind of trickle down effects of carbon pricing in some manner or the other. So, we are looking at the entire supply chain and we have brought this up in many of the discussions already. But what is it going forward that we should look at, only the national strengthening or the state planning is what I wanted to bring out?

Rahul Tongia:

Thank you. Just on that, maybe a suggestion. If NITI could encourage. Pilots have been around for a long time. But most of them end up being sort of either proven or such that there is not enough risk taking with pilots. I would love to see more than just technology pilots. Most pilots are technology but we have not had enough innovation, risk taking for other types of pilots. Because part of it may be just that nobody wants to fail. Because the risks quote – unquote of something not working. But the ambitions we have, the scale we need, nobody knows the right answer to some of what we are trying to do anywhere in the world for the energy transition. We may need very riskier, different types of pilots as well. Just a thought. Last word since you have been very patient.

Kapil Narula: (Audience)

Kapil Narula consultant with the UN and formerly with NITI Aayog as advisor energy. Looking at the study and the results of the study where you highlighted that… there are different problems with

different states. Some states are doing very well. Others have different challenges. So, in terms of solutions, should we treat DISCOMS as heterogenous and look at different solutions for different states. For example, Arunachal Pradesh would be very different and solution for that would be very different than Maharashtra or Haryana. So, should we treat everything in a homogenous way or should we have different solutions. Thank you.

Rahul Tongia:

I think you have answered your own question. But the report certainly goes into it. But if I look at central government plans and schemes, they have often… like for example, till a few years ago, we had one ATNC target across the country. That has evolved, luckily. But it is nowhere near as heterogenous as it could be. Or maybe should be.

Ann Josey:

I think regulators have different targets and trajectories and finally that is what results in the cost. So, for distribution as well as for collection efficiency at least in the tariff processes the tariffs are different. But I wanted to just go back to the comments that were coming specially with respect to center state rules and what kind of innovations can happen with different realities and in different states. I think one is of course, that we really need alignment of both center and state. No, I don't think there is a lot of learning that states have because of the experiences and the realities that they face, which also informs center sector policies. And at the same time the center can play a very good role in terms of setting broad frameworks while allowing flexibilities for states to certainly innovate and take things ahead. While recognizing that many states are different, there are definitely ideas that are scalable which come from states. So, one clear example is the Kusum program. They were essentially pilots that happened in different states, in Gujarat, in Maharashtra and in Rajasthan which kind of got scaled up and became part of the Kusum scheme. Sowbhagya is another very good example. That national scheme basically came by the program that Bihar had launched for providing connections to APL consumers. So, definitely trying to give space to states to innovate, seeing what cross-learning can take place and seeing what scaling up can take place. So, we have done some kind of documentation of some of these good case practices that are emerging from states on different aspects. About 10 different themes so to speak. I can share that also with the audience later.

Rahul Tongia:

Thank you very much. We have had a very rich discussion that went over. But I think a good flexible power system or flexibility means adaptabilities. So, we have slightly exceeded our targets. We have exceeded our targets in this particular case. But I would now like to invite and request Mr. Bery or Mr.

Ahluwalia or Mr. Pujari if they have any thoughts because I don't think we have closed the conversation hopefully. There are enough points. I mean Ritu, you threw in the word just in passing, CBAM. That itself would require another hour of discussion to handle how carbon pricing may impact the electricity sector. But we will hold that for the next event. And any thoughts or remarks?

Montek Singh Ahluwalia:

I will just mention something that Ann pointed out. In our thinking of how the power sector is going to evolve, we have to take into account the fact that if 2070 is net zero more or less, then the percentage of our electricity that has to come from renewables is going to increase massively. Now we know that renewable is also intermittent. So, if you have got a situation where supplies are going to vary, it is very unlikely that we can manage that if prices don't vary in response. So, the whole time of day pricing which was touched upon earlier, but the feeling was it is not really feasible or attractive. Somehow…

Rahul Tongia:

That is not the only… (Mr. Pujari comment inaudible)

Montek Singh Ahluwalia:

I recognize that. All I am trying to say is that when you have seven to eight percent or ten percent of your electricity coming from renewables you can always ramp up the rest of the system to provide a kind of to levelize the supply. When you got 80% coming from renewables the peaking problem is unavoidable, storage issue will be unavoidable, cost of stored power will be much higher. Hopefully not as high as it is now if technology improves. But in that environment, we might as well start now persuading states or whatever the time of day metering is a good thing. And time of day metering should map what you call the duck shape or the canyon shape or whatever it is. How you do that in a regulatory framework and what flexibility you can give to the regulators is an important issue. The other is what you said that we must think of the centralized method as only a way of providing kind of a PDS for electricity. And everybody else does their own deals with whoever is willing to supply them at whatever price. In the end that would actually affect location decisions. If electricity is cheaper here than there for whatever reasons, we don't have to go back to the steel price equalization that we used to have in the 1970s. You just have to recognize that that will be reflected in the comparative position of different states. But I don't see that at the moment… at least at the state level I don't see that even having entered the discussion. Think tanks and research institutions need to feed it in. Ideally this would be easier to feed in if they were state level institutions that were pushing the case. If you do it through a national institution it always looks like a bit of a plot and

people think something is being rammed down their throat. It is surprising how limited… there are some very distinguished institutions, you for example and others three or four in the country. But actually, you need on the whole issue of electricity pricing a lot more state based research institutions feeding stuff into both the public, the local industry, the CM and so on. Sensitization for a future challenge. Let us call it that. But it is a very big… the variability issue is massive.

Ann Josey:

I think I would like to end by saying that DISCOM challenges are complex, they are persistent, they have been there for a very long time and dealing with them is going to take a long time. The system itself is going to change. But what is really important is to see with technology, with the transition, are there ways to align some of the opportunities that are there to address some of the persistent challenges before the DISCOMS. So, can we use low cost solar in order to provide agricultural supply during the daytime which reduces the cost of supply itself. Looking at time of day pricing, actually our energy transition preparedness initiative study has clearly shown that some states have done very interesting innovations for example Kerala. They have one of the highest TOD tariffs in the country. Because most of their load is residential. It makes a big difference for them. It is about 25 to 50% of the energy charges that they have as TOD tariffs. Uttar Pradesh is a state which has TOD tariffs which vary on a seasonal basis. No other state in the country has that. So, they are already more and more aligned to the kind of variability in demand and supply that is going to happen with renewables. Delhi, is a very good example because all consumers, most consumers who are 10 kw and above have TOD applicability which is the lowest kind of threshold in the country. So, states are doing very innovative things and actions that fly or that really take off are ones that were able to align with their realities, with the challenges that they face. And in some way, if you could think of reducing the liabilities or reducing the cost, then scalability of those actions from a transition perspective can take place. Another point I wanted to make is because, so much of the conversation is around transition. It is not like states that have poor finances are lagging behind in terms of transition initiatives. Many of these states are doing very pioneering things. And that also needs to be recognized, that poor finances need not be a barrier in terms of taking up many technologies adoption issues. Storage pilots are being done in states which have poor finances for example. I think the point is that we really need to look at DISCOMS finances as an issue that is not going to go away in a year or two. It is a persistent issue and we need to live with it.

Audience:

It will just change?

Ann Josey:

Yes.

P K Pujari:

Lot of issues were discussed and many of the issues and known and of course, we debate the solutions and being a federal country and every state being unique and every DISCOM within the state being unique, the common decision making doesn't take place. But one point is very clear. Whatever we articulate our ambition for example, net zero by 2050 or 2070 or say 300 gigawatts of renewable by so and so date, very clearly we should articulate, we should recognize what are the implications of these and since the way electricity sector in structured we have to work with the states and DISCOMS. Because as in today it is a concurrent subject and we need their support and they have to go along with us. So, there is a need to articulate our ambition and translate it into what is going to happen, who is going to do what and carry all the stakeholders together. Then it gets implementable. Sometimes what happens, we articulate something and then probably in our own way you try to do and then suddenly the resistance comes and gets stuck someplace. We need to really debate and articulate and write it down very clearly and understand the implications and make everybody understand that yes, even if it is a cost to the society but then for good that you are doing, how to do? Finance that cost, how are you going to pass on that cost, who is going to bear that cost. And these are the issues it needs to be debated. If we say that the cost goes up by 5 rupees, do you want to pass on the whole thing to the consumer or you absorb part of it, pass on part of it. This debate is required so that everyone is on the same wavelength when you get implemented all these crucial decisions. Secondly, just one or two points I want to respond sir. Mr. Montek Singh Ahluwalia talked about that the time of day metering or cost when you really have high solar. Even today in the daytime the thermal power plants get backed down. And that cost is there. It is getting socialized. It doesn't get reflected in tariff. The cost gets socialized. Even today these costs are there. But they are in a very non-transparent way. That is the point that I made earlier is, unless we really make all this cost very transparent and bring them on the book and say that this is the cost, then debate will take place how you are going to apportion it, how you are going to finance it, who is going be or what. That is what the debate is. Nobody is questioning saying that you don't have renewables. But question is that if the renewable has a cost who is going to bear it. Is it government of India, or state government, consumers or DISCOMS? Who is going to bear it? That the debate is required. That debate is where the solution will lie. So, we need to be very transparent, clear cut and find out the cost implications of each of our decisions and debate with the stakeholders to see how this cost has to be apportioned. The best person who can bear it like… this is the risk has to allocated to the

person who can really mitigate the risk best. Similarly, the cost has to be allocated to the… to the agency where it can bear it. That is where my understanding and looking at it is that I think we are lagging slightly. We need to increase that debate and in a transparent manner. Bring out the cost and we need to address that cost and how to balance it.

Rahul Tongia:

Last word Mr. Bery.

Suman Bery:

My colleague Ritu Mathur is here. She did have a chance to brief me on the discussion. And of course, Rahul you always make yourself available. Just riffing on some of the stuff that has come up even in the last 10 minutes. Three or four points. We always think that India is unique and exceptional and in some ways it is. But exactly what it is about India that is unique and exceptional, that means the lessons from other countries. Forget other states, do not apply here. The market design issues that Laveesh referred to exists perhaps in other places. Are there solutions to these problems? Are they regulatory solutions, are they market design industrial organization issues? That is one thought. Second, the model that the Prime Minister has in mind is of cooperative and competitive federalism. And so, is it the case that the institutional structure does not stimulate innovation or does it stimulate innovation, which is to say that, are there payoffs and what kinds of payoffs to in a sense having more transparency in the cost structure, having more transparency or less cross subsidy. So, are there political or political economy mechanisms that should be invoked, can be invoked. I decide to come back in a sense to my first point. Which is that, is being a late comer an advantage or a disadvantage. Is there anything like leapfrogging sort of in this business. A question. I don't know. But finally, the issue of state capacity. Why is it that that capacity is so eroded as Mr. Pujari had to say? Are there again significant differences across states that we can learn from. What has come across even in as I say in my 10 minutes here, is that this is a very important topic to engage states on. There is work that has been done here that we do need to have a 20 or 30 year kind of horizon and we need to learn from the states and learn from international experience. But it should not only be about engineering or institution, it should be also about economics. I think that is in some ways where actually the whole system tends to fall down. We look to institutions but the kinds of ways in which Laveesh formulated that question, that doesn't emerge very spontaneously out of the dialogue at the state level. That perhaps is a contribution NITI can make. Thanks Rahul.

Rahul Tongia:

Thank you, Mr. Bery, Mr. Ahluwalia, Mr. Pujari, Ms. Ann Josey for very deep, rich and extended conversation which opens the door to more conversations. Thank you, everyone for joining us today online as well as in person. And before I invite you everyone to join us for refreshments and high tea, a request. Well, first thank very much to our panelists and especially Mr. Bery for coming so far back to join us. If I could just request everyone to just join us to take a quick picture with the reports. Then we will close. Thank you everyone.