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# Manoeuvres for a Low-Carbon State in India

## Identifying Agency, Authority and Accountability in Governance of Clean Energy Development

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## Abstract

*More recently, India has been claiming to undertake a transition to a low carbon electricity sector. This alleged transition comes as a response to a range of competing agendas and simultaneous constraints in energising development without compromising the climate. The transition is based on two strategies involving renewable energy development and promotion of energy efficiency. India has been following a 'market-plus' approach based on the narrative of co-benefit. Consequently, a set of new actors have emerged to implement these strategies and gain from it. These actors are not confined to lobbying and advising national government in creation and implementation of rules; rather, they frequently become agents of change in that they substantively participate in and/or set their own rules related to clean energy development.*

*This paper identifies these agents of change and their authority and accountability within the clean energy governance structure. It aims to find out the level of influence exerted by these agents on India's strategy and action on clean energy development and thus its capacity to reduce GHG emission. By focusing on the role of agency, authority and accountability in governance of clean energy, this paper unpacks the neglected question of what forms of state capacity and political strategy are needed to low-carbon development within Indian electricity sector.*


## I. Introduction

The debate about responses to climate change has tended to focused on the difficulties in reaching at binding national targets for emission reductions, and hence on the question of how to achieve an equitable response to climate change.[1] By focusing on the obstacles to reach at an international agreement, the current debate tends to obscure the question of what enables states to bring about emissions reductions or constrains them from doing so. With the assumption that the main obstacle to climate mitigation lies in the inability to reach at a global agreement, the current debate takes for granted that national governments would be able to deliver emission reductions if only they could agree on credible binding targets. Yet, emission reduction is far from a straightforward goal; it challenges the capacity of traditional state structure of governance; and it requires creative manoeuvres at local level. These manoeuvres include strategies to create, relocate and align actors and agencies within energy-climate governance structure and ensure mechanisms of accountability between them.

Global climate change governance structure is populated with various state and non-state actors from local, domestic and transnational level. But there is less clarity on their authority and legitimacy and to whom and to what extent these actors are accountable for their action on climate mitigation. This paper is an attempt to identify agency, authority and accountability in governance of clean energy[2]

[1] Roberts, J. T. & Parks, B. C. (2007): *A Climate Injustice: Global Inequality, North-South Politics, and Climate Policy*, Cambridge: MIT Press; Held, D. & Hervey, A. F. (2011): *Democracy, Climate Change and Global Governance: Democratic Agency and the Policy Menu Ahead*, in D. Held, A. Hervey & M. Theros (eds.) *The Governance of Climate Change: Science, Politics and Ethics*, Cambridge: Polity Press.

[2] In this paper, 'energy' is used as a synonym for 'electricity', unless otherwise stated. Electricity production is a major source of GHG emission in India, accounting for about 40 per cent of the emission in the country. If we add to this the

development in India and how they affect state capacity to respond to climate change. By focusing on the role of agency, authority and accountability in governance of clean energy development, this paper unpacks the neglected question of what forms of state capacity and political strategy are needed to pursue low-carbon development within energy sector.

More recently, India has been claiming to undertake a transition to a low carbon electricity sector. This alleged transition comes as a response to a range of competing agendas and simultaneous constraints in energising development without compromising the climate. The transition is based on two strategies involving renewable energy development and promotion of energy efficiency. Consequently, a set of new actors (both state and non-state) are created and/or emerged to implement these strategies and gain from it. These actors are not confined to lobbying and advising national government in creation and implementation of rules; rather, they frequently become agents of change in that they substantively participate in and/or set their own rules related to clean energy development and its benefits. This paper identifies these agents of change and their authority and accountability within the governance structure for clean energy development.

The paper is organised as follows. Section II offers a brief analysis of the shifting pattern of electricity governance in India to understand emergence of institutions, actors and agencies in Indian electricity sector. The current phase of electricity governance is discussed in detail in the Section III, to present a detail account of clean energy development in India. The following section discusses agency, authority and accountability in governance of clean energy development in India and how they, in their current form, shape India's policy and action on clean energy. The final section provides concluding thoughts and, based on the findings, suggests what form of state capacity and political strategy are needed to pursue climate mitigation goals within energy sector and how to strengthen the existing state capacity and political strategy.

## II. Shifting Patterns of Electricity Governance in India

At the time of independence, India inherited a nascent electricity sector, largely organised around small private companies, concentrated in a few urban pockets. Yet, following the global trend, informed by a perception of underperformance and with a desire to bridge the rural-urban gap, the nation chose a nationalised electricity sector. The Constituent Assembly of India made a strategic decision to put electricity under public control through the Electricity (Supply) Act 1948, by creating autonomous State Electricity Boards (SEBs), even while allowing the few private utilities in existence to continue.[3] The result was not all adverse; state-owned utilities and public electrification produced good results during initial few decades. The newly formed SEBs did reasonably well at providing electricity for industrialisation, extending rural electrification, and increasing capacity at nine per cent a year for several decades till 1991.[4]

emission caused by use of other energy sources, total emissions from the broader energy sector would be higher than two-third of GHG emission in India. All of these emissions can be mitigated by shifting to clean energy production and consumption, while ensuring much needed energy security. Consequently, clean energy development is prioritised in India under its low-carbon development strategy. Therefore, the paper focuses on emerging governance challenges and opportunities in the sector to analyse its impacts on development and mitigation aspirations of India.

[3] Kale, S. S. (2004): 'Current Reforms: The Politics of Policy Change in India's Electricity Sector', *Pacific Affairs*, 77, 467-491; Swain, A. K. (2006): *Political Economy of Public Policy Making in the Indian Electricity Sector: A Study of Orissa and Andhra Pradesh*, MPhil Dissertation, New Delhi: Jawaharlal Nehru University.

[4] Dubash, N. K. & Rajan, S. C. (2001): 'Power Politics: Process of Power Sector Reform in India', *Economic and Political Weekly*, 36, 3367-3390.

However, the outcomes also included some lock-in effects and perverse governance structures.

Over time, the SEBs lost their autonomy, as the sector increasingly became an instrument of political process and populist policies.[5] Successive amendments to the 1948 Act eroded SEB autonomy by gradually diminishing the SEBs' freedom to set tariffs and by imposing greater political oversight in personnel decision. Over the period of 1970s and 1980s, the SEBs were used for political considerations by governments, political parties and politicians.[6]

State control over the sector and monopoly provision of electricity service resulted in a distorted tariff pattern that was substantially delinked from the cost of supply and thus from global practice.[7] Consequently, the SEBs plunged into financial crisis and their performance declined.

By early 1990s, there was a consensus that Indian electricity sector was in 'dire straits' and major policy changes were required to come out of the crisis. At the moment, the international current was in favour of restructuring and privatisation as many developed countries had started restructuring.

In response to a severe crisis in the sector, the Central Government announced in 1991 that it would open up the generation segment for private investment. This change altered the existing policies in favour of public sector led development in the sector. Reforms in electricity sector began in October 1991, when the Power Ministry of the Government of India began to publish a series of notifications seeking to encourage the entry of private generating companies into the electricity sector. To attract global wave of private investment into electricity, India's new Independent Power Producer (IPP) policy made provisions for allowing private sector to set up local, gas or liquid fuel-based thermal projects, hydel projects and wind or solar projects of any size; allowing foreign investors up to 100 per cent ownership of power projects subject to government approval; setting new price structure; new power projects are eligible for a five-year tax holiday; and duties on the import of equipment for power projects have been reduced considerably.

However, within a few years of its implementation, the IPP policy turned out to be a nightmare. For all the enthusiasms with which it was launched, the IPP programme significantly under-performed. By the mid-1990s, it could not ensure significant private presence in the business and was also realised

[5] Badiani, R., Jessoe, K. K. & Plant, S. (2012): 'Development and the Environment: The Implications of Agricultural Electricity Subsidies in India', *The Journal of Environment & Development*, 21(2), 244-262.

[6] There were two forms of political interference in SEBs' functioning: first, through 'policy directions' issued by governments that was legally allowed by the Section 78A of the 1948 Act; second, through executive instructions issued by politicians, which worked through an informal nexus between the employees of the SEBs and politicians that was based on a relationship of fear (of being transferred) (Swain, 2006).

[7] Globally, retail electricity tariff is largely based on load factor and economics of distribution cost, where the industrial consumers pay less and domestic consumers pay more owing to low load and high distribution cost. Nevertheless, some countries have subsidised the domestic consumers through cross-subsidisation from commercial consumers, but have kept the industrial tariff close to marginal cost. However, in India, agricultural consumers form a unique category that seeks significantly higher subsidies. Agricultural consumers pay the lowest tariff and domestic consumers pay a little more. While the tariffs for domestic and agricultural consumers are far below the cost to serve, the industrial and commercial consumers are charged significantly more to cross-subsidise. Consequently, agricultural consumers, accounting for about a quarter of total consumption, contribute less than five per cent of total revenue, while the industrial consumers contribute half of the revenue even when they consume one-third of total electricity. Swain, A. K. (2011): *Macro Implications of Micro-Participation: Participatory Management of Electricity Distribution in Eastern India*, PhD Thesis, York: Department of Politics, University of York.

that private presence in generation would not solve the problems in Indian electricity. In response to the failure of IPP policy, the second phase of reform began with a focus on restructuring and privatisation of the loss making distribution business. At this stage, these reforms, implemented at the state level, were clearly drawn from the World Bank policies on private participation in electricity sector, which was rewritten in 1993. Initially the Bank was successful to propagate the model of reform through its global reach and cheap capital. While many states experimented the reforms, most of unbundled the sector, only two could privatise the distribution business. Another important measure taken during the period was establishment of Central electricity Regulatory Commission and State Electricity Regulatory Commissions. While the major objective of establishing the regulatory commissions was to depoliticise the sector by transferring the tariff setting power to the 'independent' regulators, it is still doubted whether the regulators are really independent or not. The states established regulatory commissions within a few years, while restructuring and privatisation proceeded very slowly, keeping the sector far from the expected result.

In response to the hesitant reforms at the state level, the Central Government passed the Electricity Act 2003 in May 2003, after a push and pull for two years among the policy makers on what to retain from the draft bill and what to change. Drawing on the prevailing global trend, the central government somewhat belatedly stepped in to introduce the omnibus Act, replacing the legal framework introduced 55 years earlier. The Act aimed to develop an electricity market dominated by private players, with the hope that profit motive of private players would unwind the sector from perverse incentives. However, it failed to address the poor infrastructure, lack of transparency and the political economy context that led to the power crisis. In the absence of much needed political reforms, corporatisation and privatisation have failed to transform the sector and achieve the reform objectives.[8]

As the hands-off and market-first approach has proved to be inadequate to address the power crisis, there seems to be a shift towards a partnership model, i.e. public-private partnership, to smoothen the path of electrical development. After two decades of reform experiments, the quest for market-based and private-centric electricity sector has somewhat diminished. The current approach seeks to incentivise private investment by striking a balance between public and private sector responsibilities, while reducing the price bids through competitive bidding. While the rhetoric remains that of market reformism, there is a growing recognition of need for improved state capacity.[9] The state needs to set

Through the course of the 2000s, another, more proactive, argument for the state to come back in has been gaining strength – energy supply security. To begin with, this was led by internal introspection, but over time these internal preoccupations have increasingly coincided with global concerns around climate mitigation. Concerns over energy security have led to some important domestic actions, notably the passing of an Energy Conservation Act in 2001 and the subsequent establishment of a Bureau of Energy Efficiency in 2002. And these realisations further propelled an effort to develop an Integrated Energy Policy (IEP) under the aegis of India's Planning Commission.

Since about 2007, a second driver, climate change, has increasingly entered the narrative. While climate change has remained in a subsidiary role to energy security, it has

[8] Dubash, N. K. & Singh, D. (2005): 'Of Rocks and Hard Places: A Critical Overview of Recent Global Experience with Electricity Restructuring', *Economic and Political Weekly*, 40, 5249-5259.

[9] Dubash, N. K. (2011): 'From Norm Takers to Norm Makers? Indian Energy Governance in Global Context', Global *Policy*, 2, 66-79.

had intriguing effects on how energy is discussed and on how policy is institutionalised. Prior to about 2007/08, India's official international negotiating position was centred on staving off international mitigation commitments, while preserving the space to grow economically using the cheapest possible fuels, particularly cheap coal. With international political pressure building on India, particularly through the G8/G20 process, it became increasingly useful to make explicit the link between measures originally aimed at domestic energy security concerns and their global climate benefits. A deliberate national process was put in place to craft a National Action Plan on Climate Change (NAPCC), coordinated by a Special Envoy for Climate Change working within the Prime Minister's Office. The Action Plan process was to go beyond a technocratic list of options, and forge a 'vision of sustainable development'. Although initially driven by global pressures, this was not simply a marketing exercise. Although this is work in progress, there have been shifts both in terms of narrative and new institutional opportunities.

Looking ahead, developing energy policy to manage satisfactorily the multiple objectives of energy security, clean energy, poverty alleviation and reliable energy for growth will be a steep challenge. The new narrative combining energy security and clean energy has begun to open doors, notably to energy efficiency and to potentially new sources such as solar power. And the institutionalisation of this narrative through the NAPCC has created productive new institutional opportunities, although the longevity of these opportunities is questionable. However, the narrative is insufficiently fleshed out to provide clear indications of how to manage the trade-offs that will inevitably arise, particularly with regard to competing aspirations of inclusive growth, and institutional weaknesses may continue to hamper its operationalisation.

## III. Governance of Clean Energy Development: Biases, Challenges & Opportunities

The IEP and the NAPCC define two approaches to low carbon electricity. The first one focuses on clean electricity production by utilising renewable potential, while the second is based on more efficient consumption of the available electricity. In addition to existing institutional mechanisms for promotion of renewable energies and energy efficiency, two specific missions- Jawaharlal Nehru National Solar Mission (JNNSM) and National Mission for Enhanced Energy Efficiency (NMEEE) - have been set up by the federal government to implement India's plan for clean electricity development. While India aims to raise its renewable capacity from 17,000 MW to 74,000 MW by 2022, it has set a target to install 20,000 MW solar capacities through JNNSM by the same year. At the same time, India aims to save 10,000 MW by 2014-15 through NMEEE, which should avoid the installation of 19,000 MW generation capacity, a substantial part of India's rising energy demand in next five years. This clearly shows that India does have a plan for clean energy development. Yet, we discuss here the potential of these two approaches, as well as biases in design and implementation.

Though renewable energy has been a part of the Indian electricity sector since the 1980s, it has gained an increased importance in the last decade. The country has made several important efforts to promote these new energy sources. Quite symbolically, India was the first country in the world to establish (in 1992) a separate ministry to promote renewable energies. In the last ten years, installed capacity additions from renewables comprise nearly a quarter of total additions in the Indian power sector. As a result, India has one of the highest shares in the world of renewable sources of electricity: 10.42 per cent of its total installed generation capacity. Though there is uncertainty about the overall potential, India definitely has high potential owing to its vast renewable resources like consistent sunshine, wind and various

biomasses. The country aims to generate 15 per cent of its consumable electricity from renewable sources by 2020. The government has enacted several policies to support this expansion, including the 2003 Electricity Act, the 2005 National Electricity Policy, the 2006 National Tariff Policy, the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) in 2005, the Eleventh Five Year Plan (2007-2012) and the JNNSM.

The current policy structure has set a time-bound target and provides a range of mandatory, enabling, and incentivising provisions for renewable energy development. The State Electricity Regulatory Commissions (SERCs) are mandated to specify a renewable purchase obligation (RPO) for the utilities in a time-bound manner with purchases to be made through a competitive bidding process. They are also allowed to set a preferential tariff for renewable electricity. Existing policies have made provisions for single-window clearances, simplified regulation (particularly for the smaller projects), central, state and regional capital subsidies and tax incentives to accelerate renewable energy development. The Eleventh Five Year Plan has set a target of 10 per cent of generating capacity from renewable by 2012, a target already achieved by 2010. However, it promotes the phasing out of investment subsidies in favour of performance-based incentives.

India has been arguably aggressive in renewable energy development, as demonstrated by its strong legal, policy and regulatory frameworks and their relatively strong implementation records. Most of the SERCs have issued orders for RPO varying from 1 per cent to 15 per cent of total electricity sales. The Renewable Energy Certificate (REC) Programme is implemented to reward utilities that go beyond the set RPO and provides renewable generators with a choice to trade electricity at a preferential tariff or trade the environmental attributes of renewable electricity. On the other hand, utilities that fail to meet the RPO have to compensate by purchasing these renewable energy certificates. This creates an incentive structure where good performers are rewarded for their achievement, while poor performers are penalised.

India has thus been quite serious about renewable energy. Yet, there are some governance issues and scepticism about its development. First, one of the most controversial issues in renewable energy development is tariff setting. While the tariff is set on the basis of cost-plus approach, both the capital cost and the variable costs of these projects are based on inadequate data and ambiguous claims of project developers. [10]This has frequently led to high renewable energy tariff that translates into an unjustifiable burden on the consumers. Second major problem lies in the lack of transparency and civil society participation in its various processes. Knowledge and information related to renewable energy development is kept confined to developers and public agencies. There is no public engagement in regulatory and policy processes. Thirdly, mechanisms are inadequate to monitor actual performance of renewable energy projects. Though the state level renewable energy development agencies are expected to monitor performance of renewable energy projects, it seems, they give primacy to promotion of new projects than monitoring the existing projects. Fourthly, the social and environmental impacts of renewable energy generation are almost completely ignored. While the renewable projects are exempted from environmental impact assessment, some of these projects have caused local strife owing to land acquisition, use of common property resources and fuel procurement. Developers and state agencies have done little to overcome these problems.[11] Finally, lack of coordination between various state programs and incentives make it difficult to adopt an

[10] PEG (2010): *Clean Energy Regulation and Civil Society in India: Need and Challenges to Effective Participation*, Pune: Prayas Energy Group.

[11] PEG (2010): *Clean Energy Regulation and Civil Society in India: Need and Challenges to Effective Participation*, Pune: Prayas Energy Group.

economics-based least-cost development approach to tapping India's renewable energy potential.[12] In future, these problems may well stall the growth of renewable energy in India.

If we just consider past experiences in Indian electricity sector, there is every reason to doubt India's ambitious renewable energy target for 2020, i.e. 15 per cent renewable in its energy mix, as it has frequently failed to achieve its goals. But there are a few good reasons to believe that India may achieve indeed its ambitious renewable energy growth rate. Firstly, the country has a vast potential, of which a little has been tapped and the set target is much below the potential. Secondly, with energy security being a key concern, renewable energy is one of the best solutions for alleviating energy import dependency and meeting the growing energy demand.[13] Thirdly, India aspires to be a renewable energy technology manufacturing hub, which requires and pushes for an increased demand within the country. Indian companies already have a presence in wind turbine industry globally, and India aspires to promote industries in solar energy. Finally, India seems to bundle promotion of renewable energy with various other developmental objectives like energy security, industrial development, regional economic development, employment generation and raising state income. This policy bundling, when it is implemented successfully, has potential to foster sustained renewable energy development in India.

India's aim to reduce the carbon intensity of its economy by 25 per cent by 2020 (by unit of GPD) would certainly require aggressive promotion of renewable energy. Considering the severity and complexity this challenge and India's energy scenario, however, renewable energy alone will not address the problem adequately. There is also an immense need for energy saving through energy efficiency. India again has a huge potential for energy saving, which is estimated between 15 to 25 per cent of total consumption by different studies. In many ways, energy efficiency should be looked at as a "low hanging fruit", as it can be accessed with far less investment compared to renewable energy.

Although an energy efficiency strategy has developed in India over the past four decades, it is only in the last one that it has gained prominence. Since 2001, the federal government has taken several initiatives to promote energy efficiency, which include enactment of a specific Act, set up of a dedicated agency as well as a national mission. The nodal agency, the Bureau of Energy Efficiency (BEE), has taken a range of initiatives which have resulted in demand savings of 2,000 MW in 2007-08 and 2008-09.[14] Under the National Mission for Enhanced Energy Efficiency, India targets to save 10,000 MW by 2015, which should avoid the installation of 19,000 MW of generation capacities. These are ambitious goals.

However, the policy and actual practice of promotion of energy efficiency is not at par with the efforts devoted to renewable energies. While there are mandatory policy provisions regarding the latter, like Renewable Purchase Obligation, there is no such mandatory provision for energy efficiency implementation. Many of the energy services companies (ESCOs) find it difficult to motivate clients to implement energy efficiency measures in the absence of such mandatory provisions. Similarly,

[12] World Bank (2010): *Unleashing the Potential of Renewable Energy in India*, New Delhi: South Asia Energy Unit, Sustainable Development Department, The World Bank.

[13] Dubash, N. K. & Bardley, R. (2005): 'Pathways to Rural Electrification in India: Are National Goals also an International Opportunity', in Bardley, R. & K. A. Baumert (eds.) *Growing in the Greenhouse: Protecting the Climate by Putting Development First*, Washington DC: World Resources Institute.

[14] NPC (2009): *Verified Energy Saving Related with the Activities of Bureau of Energy Efficiency for the Year 2008-09*, New Delhi: Bureau of Energy Efficiency and National Productivity Council.

electricity regulatory commissions have been proactive in promoting new incentive structures in favour of renewable energies. Though regulators have capability to create such incentives for energy efficiency, proactiveness is clearly missing in this case. As a member of an NGO involved in energy governance declared: "the regulators have treated energy efficiency as a stepchild". While national targets for both approaches are equally ambitious on paper, state level action for them varies and is largely biased in favour of renewable energy development.

Yet, renewable energy and energy efficiency are complementary agendas laying environmental benefits and contributing to energy security. It may even be said that energy efficiency enjoys a marginal advantage over renewables given lower levels of investment usually required, as well as immediate and reliable returns for both consumers and the utilities. Table xx summarises the key implications of renewable energy development and energy efficiency for different stakeholders. Having strong energy efficiency policies in place would also make renewable energy development more effective. As the demand for energy reduces or at least grows slower, as a consequence of energy efficiency practice, renewable energy plants may cater for a higher number of consumers and the share of renewable in further capacity addition may go up. If one follows this line of reasoning, then energy efficiency should be prioritised. Yet, reality goes right counter to this. Utilities are mandated to purchase significant amounts of renewable energy at a high premium, even under highly resource strained situations; meanwhile, energy efficiency measures that would cost much less to utilities are largely ignored.[15]

What explains this paradoxical situation? Why there is low attention to energy efficiency while there are strong rationales? Here we do not claim to have found definitive answers to this puzzling question. Yet, we classify and discuss here some possible explanations based on insights gained from a wide range of interviews.

First, there is the issue of the number of stakeholders involved in implementation and thus the ease with which decisions and coordination may take place. Renewable energy development is a top-down approach to clean energy development where generating plants are connected to the grid at the top (supply) end. Meanwhile, energy efficiency is a more bottom-up approach that requires action on the part of the consumers at the bottom (demand) level. Theoretically, even though bottom-up approaches are typically more sustainable, it is much easier to implement top-down approaches through the investment decisions of a central or local government. Setting up a renewable energy plant and connecting it to the grid is a decision taken by public authorities and does not require consent of consumers. On the contrary, energy efficiency measures require the consent and contribution of all the consumers affected.

Secondly, following many interviewees it seems that the biasness in India's clean energy development is, to a large extent, explained by the presence of "concentrated interests" in the renewable energy landscape while there are only "diffuse interests" when it comes to energy efficiency measures. The immediate benefits of renewable energy development is concentrated among few players including manufacturers, project developers, generators and the state, while the immediate benefits of energy efficiency is diffused and much more fragmented across all of the consumers, utilities, manufacturers as well as the state. As a consequence, there is a concentrated support and push for renewable energy development, which is missing in the case of energy efficiency. The existence of large industries in renewable technology production has greatly worked in favour of renewable energy development.

Thirdly, the institutional architecture for implementing renewable energy and energy

[15] PEG (2010): *Clean Energy Regulation and Civil Society in India: Need and Challenges to Effective Participation*, Pune: Prayas Energy Group.

efficiency are different, and it is stronger in case of the former. While the nodal agency for promotion renewable energy is an independent ministry, the nodal agency for promotion of energy efficiency remains under the administrative control of the Ministry of Power (MoP), whose chief priority and mandate is to expand energy generation capacities. In the same line, there is a dedicated financing institution at the federal level (i.e. IREDA) to promote renewable energies, as well as state level renewable energy development agencies are established in all the states. Though there is provision for state level designated agencies for energy efficiency, there is in practice no independent agency for this stake. In most cases, state level renewable energy development agencies are selected as the designated agencies for energy efficiency. These agencies, evolving from organisations set up to address earlier policy priorities, consider promotion of energy efficiency as a secondary function and often lack the capacity to promote energy efficiency strategies throughout their states. As a consequence, implementation of renewable energy projects is way better in states compared to energy efficiency projects.

Fourthly, the development of renewable energy is widely perceived as carrying higher developmental benefit compared to energy efficiency. It is expected to increase employment opportunities and revenue in India. It is also expected to spur regional economic development, particularly for many underdeveloped states, some of which have the greatest potential for developing renewable resources.[16] At the same time, even though less exploited, decentralised renewable energy development is expected to accelerate rural electrification and improve access to electricity.

Fifthly, given its diffuse incentives, there appears to be missing vested interests pushing for energy efficiency. Given the lack of government's receptiveness to the benefits of energy efficiency and given the high perceived benefit from renewable energy development, the political will to support energy efficiency is missing. The government seems to be ignoring its high collective return in the form of avoided capacity addition, although it would carry simultaneous individual return in the form of reduced electricity bills. Moreover, low per capita electricity consumption in India is sometimes taken as a justification for lower action on energy efficiency, while growing energy demand makes a strong justification for aggressive renewable energy development. However, the latter could be an equally valid justification for promotion of energy efficiency.[17]

Finally, energy efficiency is lacking a global governance framework, which could help promote, mandate, motivate and monitor energy efficiency initiatives at global and national levels. Whereas, such a global governance framework is building up for renewable energy with the formation of the International Renewable Energy Agency, the Renewable Energy Policy Network for the 21st Century and regular inter-ministerial international renewable energy conference.

## IV. Agency, Authority and Accountability in Clean Energy Governance

In the era of new energy governance, that seeks to achieve multiple objectives of energy security, climate mitigation, poverty alleviation and reliable energy for growth, a range of new institutions and actors been created and/or emerged to take over the responsibilities. These new actors in energy governance, primarily non-state, are not confined to lobbying and advising governments on policy-making and implementation. Rather, they seek a greater

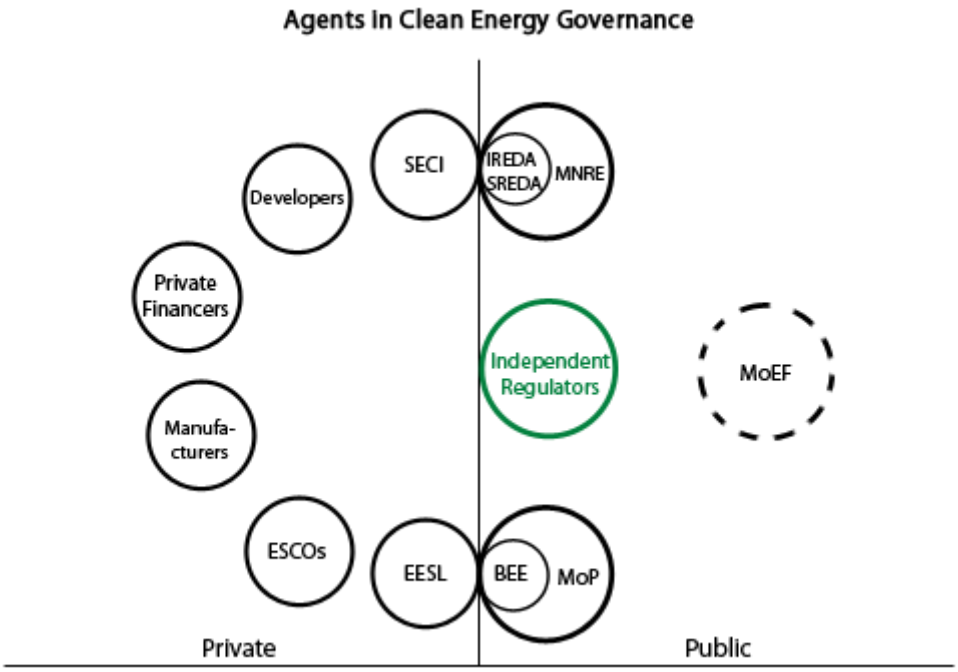
[16] World Bank (2010): *Unleashing the Potential of Renewable Energy in India*, New Delhi: South Asia Energy Unit, Sustainable Development Department, The World Bank.

[17] Charnoz, O. & Swain, A. K. (2012): 'High Returns, Low Attention, Slow Implementation: The Policy Paradoxes in Clean Energy Development in India', *AFD Working Paper 125*, Paris: Agence Française de Développement.

role in the clean energy governance by substantive engagement and setting rules for clean energy development. As the Earth System Governance framework suggests, a credible, stable, adaptive and inclusive governance system requires active involvement of these non-state actors.[18] In this section, I discuss who these new actors are, their emergence and engagement in energy governance, what level of authority they hold and whom they are accountable.

These new actors include several public institutions created to perform specific mandates related to clean energy development. For renewable energy development, the state has established an independent ministry (MNRE) and a public agency (IREDA) at national level, and State Renewable Development Agencies (SREDAs) at subnational level to implement mandates forwarded by national agencies. Similarly, for energy efficiency, the state has set up an independent agency (BEE) at the national level to assist the government in developing policies and strategies and coordinate with designated consumers and agencies. However, there is no dedicated agency at the subnational level to implement BEE's mandates, which is as yet being done by the SREDAs.

[18] Biermann, F., Betsill, M. M., Gupta, J., Kanie, N., Lebel, L., Liverman, D., Schroeder, H., Siebenhuner, B., Conca, K., Ferreira, L. D. C., Desai, B., Tay, S. & Zondervan, R. (2009): *Earth System Governance: People, Places and the Planet- Science and Implementation Plan of the Earth System Governance Project*, Earth System Governance Report 1, IHDP Report 20. Bonn, IHDP: The Earth System Governance Project.




Even in the presence of these public agencies, a set of non-state actor have been emerged and promoted, primarily for two reasons. First, it comes from the realisation that the elite institutions at the national (and at some subnational) level remain sound and functional, but they have less control over their field agents.[19] As a consequence, national agencies in India are less confident that national policies will be implemented effectively at the local level. In response, the state has taken up a 'market-plus' approach to clean energy development: while clean energy is promoted on market principles, the state has been intensively involved in seeking to build the players and rules that enable these market mechanism to operate (Kostka and Harrison, 2011). Second, the private actors have seen this development as a business opportunity, who have come forward to take up new responsibilities within energy sector. This has been facilitated by India's shift towards a partnership model, pairing the public sector with the private sector, for energy development.

These non-state actors in clean energy governance include manufacturers, project developers, financing institutions, proactive consumer groups and a handful of energy NGOs. While the manufacturers, project developers and financing institutions have been encouraged (by the state) to take up the business opportunity in clean energy development, the proactive consumers are the direct clients of clean energy and energy NGOs have been trying to keep a watch on the process. What is distinct about the emergence of these non-state actors is that they do not confine to lobbying and implementing mandates of public agencies. Rather, they seek a greater role in clean energy governance by setting the rules for their operation and influencing national policy by providing local inputs. This has been partly possible due to absence of a stringent state policy on the role and responsibilities of these new actors.

However, the proliferation of non-state actors and their involvement have not undermined the relevance of the state in clean energy development. Rather, it has created and sought a great role from the state in setting

[19] Pritchett, L. (2009): 'Is India a Flailing State? Detours on the Four Lane Highway to Modernisation', *HKS Faculty Research Working Paper Series RWP09-013*, John F. Kennedy School of Government, Harvard University.

the rules for these non-state actors as well as monitoring them. Besides, when it comes to a public service like electricity, citizens expect the state to deliver and hold it accountable. It is evident in the fact that several elections are own and lost on the grounds of electricity service and price. At the other hand, it is the state agencies who have the authority to make decisions. Though the non-state actors are capable of and often engaged in manipulating state mandated, being relatively new in energy governance they do not have the authority to set norms. The non-state actors can certainly gain the authority through continued engagement in the process over time and across contexts.

Lack of authority in part of the non-state actors is partly an outcome of absence of a proper accountability mechanism. In a pluralised governance system, like the one in Indian energy sector, accountability and legitimacy of the actors are key to sustainability of the governance system. However, as with many other countries [20], Indian energy governance is byzantine and fragmented. The sector is controlled by two independent ministries (MoP & MNRE) and a number of state-owned enterprises engaged in everything from generation to financing to marketing of energy. That not only impairs coordination among these state agencies, but also weakens their capability to hold the non-state actors accountable. To make the problem worse, lack of a proper monitoring mechanism provides the opportunity for perverse incentives. For example, recently it was revealed by an NGO study that one of the Indian Solar manufacturing companies has illegally captured most of the projects under National Solar Mission.[21] In a range of interviews conducted with energy service companies in India, I have observed that the primary objective of these actors is to get business, in an increasingly competitive sector, even sometimes undermining the key cause of energy efficiency.

## V. Conclusion: Need for Regulatory Proactiveness

Clean energy governance in India is certainly at an evolving stage. How it evolves in coming years will determine not only India's capability to reduce carbon emission, but also India's energy future and its global stand in climate debates. So, Indian state needs to be cautious in including different actors and interests in clean energy governance and setting rules for their functioning. The proliferation of non-state actors in energy governance and state encouragement is unquestionably useful, particularly when the state agencies are not capable of taking up the daunting task of clean energy development. But it has its share of dangers. It might lead to control by perverse interests making the sector vulnerable to rent-seeking, as it has happened in past.

In that context, the state needs to prioritise certain issues. There is need to signal clear mandates for the non-state actors with defined role and responsibility. The current mechanisms of monitoring and evaluation are inadequate and allow manipulation. The state needs to strengthen mechanisms of monitoring and evaluation. This can be achieved by strengthening state agencies as well as engaging the civil society and consumers in the process. At the same time, there is a need for ensuring accountability between different actors engaged in the sector. This can bring in coherence in clean energy governance in India.

[20] Dubash, N. K. & Florini, A. (2011): 'Mapping Global Energy Governance', *Global Policy*, 2, 6-18.

[21] Bhushan, C. & Hamberg, J. (2012): 'The Truth about Solar Mission', *Down to Earth*, Feb 15.

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