



Virtual Net Metering for Public Bodies: an innovative solution for improving payment discipline

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High and long pending dues from public bodies to electricity DISCOMs have been a feature of the distribution sector in India over many years. Various past strategies to address this issue have not resulted in sustained change as most of them still depend on the respective governments ensuring strict payment discipline. Threat of disconnections simply reduces access for an essential public service thereby reducing public welfare and hence is a non-starter. We propose 'virtual net metering' be allowed for such 'public services' to overcome this problem. A low generation cost solar power plant which generates the annual equivalent of the aggregate demand from public services would be contracted by the respective government under a long term PPA, while the DISCOM would offset (virtual net-metering) the solar generation against the consumption from the public services.

Electricity is a critical input for the efficient and reliable delivery of public services provided by local, state and national governments. Public services by their very nature are not revenue generating activities and are sustained by budgetary support of the appropriate/respective governments. It is a well-established fact that various public bodies are unable to clear their dues with electricity distribution companies (DISCOMs) mainly due to the delay in government disbursements. These delays reduce the overall revenue collection efficiencies of DISCOMs, strain the working capital requirement of these cash-strapped utilities and affect their ability to provide reliable supply to such entities. Taking advantage of low-cost solar power available today at a fixed price over 25-year period, this article discusses the adoption of virtual net metering approach to meet the twin challenge of providing reliable, affordable power supply to essential public services and alleviating the financial strain on DISCOMs. This article is Part 1 of a three-part series to discuss financially viable ideas to improve electricity service delivery for meeting India's developmental goals in a post-covid world.

1. The challenge of power supply to public bodies

The broad range of public bodies which require reliable power supply include essential services such as hospitals, primary health care centers, schools & colleges, police stations, streetlights, public water supply schemes, sewage treatment facilities, government offices, post offices, fire service stations, jails, prisons, courts, defence establishments, libraries and public transport hubs etc.

Trade receivables (mostly dues from consumers) for DISCOMs were as high as Rs.1.82 lakh crores in FY19². This is close to 30% of the revenue billed by DISCOMs. The contribution of public bodies to such arrears is quite substantial as shown in Table 1.

Such dues from government and public service consumers contributes to reducing collection efficiency of the DISCOMs. This further affects the working capital requirement and strains the finances of the DISCOM. This is significant as DISCOMs resort to short-term borrowing to tide over strained finances and build-up of such short-term liabilities was the trigger for bailouts such as UDAY.

Table 1. Share of total pending dues due to public bodies in few states

State owned DISCOMs in:	Data reported for:	% of total pending dues attributable to public bodies
Andhra Pradesh	FY20	75%
Uttar Pradesh	FY19	50%
Rajasthan	FY20	18%
Maharashtra	FY20	11%

Source: Prayas (Energy Group) compilation from various regulatory filings and audit reports of DISCOMs

Various strategies and solutions (as noted in Table 2) have been proposed and tried in the past, but none have led to sustained change as most of them still depend on the respective governments ensuring strict payment discipline which is increasingly challenging with competing fiscal requirements. Further, unlike other consumers, the threat of disconnections for non-payment for such public services is not really a sustainable/practical solution since it reduces access for an essential public service thereby reducing public welfare and impacting public at large. For example, last year, electricity supply to hundreds of public schools in Pune district were disconnected over non-payment of bills³. Such actions do not address the core issue and affect our developmental goals.

Table 2. Existing solutions do not address core challenge

Potential strategies	Why this alone may not be effective for public bodies
Nudge Governments to clear dues.	High existing fiscal pressure which will increase in the coming years with the consequences of the COVID-19 pandemic.
Disconnections for non-payment.	Reduces access for an essential public service, reduces public welfare. Not a sustainable/practical solution.
Pre-paid metering.	Denial of service due to delays. Efficacy still depends on Govt. payment discipline.
Direct Benefit Transfer (DBT) for bill payments.	DISCOMs working capital affected with delayed payment.

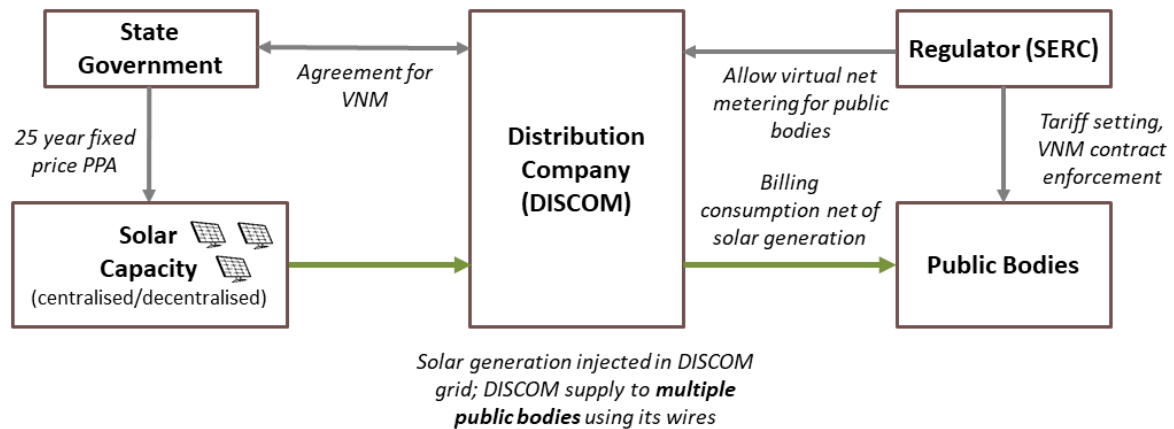
2. Proposed Solution: Virtual Net Metering to provide reliable power without financial impact

To sustainably address this problem, we propose that 'virtual net metering' be allowed for such 'public services'. Under this scheme, the central or state or local government providing the public service should first aggregate demand from all such 'government / public service consumers' for which it is responsible. Secondly, a large solar power plant⁴ which would generate the equivalent annual consumption (incl. transmission and distribution losses) of these public services would be commissioned through a transparent competitive bidding process or could even be mandated by the respective government to be commissioned by ESSL/State PSU/SECI. As an example, the State Government could aggregate demand from all public services in that state and procure the equivalent annual solar energy through long term (25 year) fixed cost PPAs with solar developers. The respective government would directly pay for the power procurement from such a solar plant to the developer or contracting agency and the respective public service consumer could be given credit for their consumption through a virtual net metering accounting framework.

Virtual net metering would be restricted only to identified public services specifically to address the issue of timely revenue recovery and ensure reliable supply for these services. The mechanism can further help

to provide power for these public services at a fixed rate over a long term (25 years) and also help meet the DISCOMs' solar RPO requirement. A schematic representation of the proposal is shown in the figure below.

Figure 2. Schematic representation of Virtual Net-Metering



The tariff could be further brought down with capital grants from the appropriate government like the central government grants under KUSUM-C scheme for solarisation of agricultural demand. This solar capacity could be established as one centralised plant or across various locations in a decentralised manner. To operationalise such a framework, the state regulator should approve of a virtual net metering accounting framework subsequent to which the respective government and DISCOM would sign an agreement to operationalise the framework. This agreement would specify the installed capacity, minimum generation levels and the share of each public body (based on sales/ contracted demand) amongst other things. State governments should have the flexibility to modify allocation to beneficiaries on a periodic basis. The solar plant(s) would inject their generation into the DISCOM grid and abide by all required safety and other regulations such as forecasting and scheduling regulations. The DISCOM would adjust the consumption from such public bodies against the generation from the captive solar plant/s and raise bills only for the net consumption.

While this arrangement, essentially provides free annual energy banking services for these public bodies/services, it should be allowed by the regulator since the quantum would be small and free banking services is anyway provided for roof-top solar prosumers. Further, to reduce the need for energy banking and reduce the balancing needs of the DISCOMs, ToD tariff structures (penalties and incentives) should be revised such that a large part of the load which is amenable for shifting could be nudged to move to the solar day-time hours.

While a form of virtual net metering accounting framework for some consumer categories has already been approved and adopted by the Delhi Electricity Regulatory Commission⁵ it can be adopted in other states based on their ground realities. However, as a first step, based on the Delhi experience, appropriate metering and billing systems could be developed and used for furthering mechanisms such as virtual net metering for public bodies as suggested above.

To kick-start this process, the National Electricity Policy could be amended to encourage adoption of this approach. Further, MoP can develop a scheme on the lines of PM-KUSUM to promote such virtual net metering for public bodies by states.

Over the next 2-3 years, central, state and local governments should aim to bring at least 75% of such public services electricity use under the proposed virtual net metering. Such a commitment and sustained action towards it, will ease the financial strain on DISCOMs and also enable fulfilment of conditionalities

(required reduction of government dues) under the Central Government's Revamped Distribution Sector Scheme launched in July 2021 with an outlay of Rs.1.5 lakh crores for distribution capital investment works.

¹ This article is part of an ongoing series called Power Perspectives which provides brief commentaries and analyses of important developments in the Indian power sector, in various states and at the national level. The portal with all the articles can be accessed here: <https://prayaspune.org/peg/resources/power-perspective-portal.html>. Comments and suggestions on the series are welcome and can be addressed to powerperspectives@prayaspune.org.

² Report on Performance of State Power Utilities 2018-19, August 2020, Power Finance Corporation; [https://www.pfcindia.com/DocumentRepository/ckfinder/files/Operations/Performance Reports of State Power Utilities/Report%20on%20Performance%20of%20State%20Power%20Utilities%202018-19.pdf](https://www.pfcindia.com/DocumentRepository/ckfinder/files/Operations/Performance%20Reports%20of%20State%20Power%20Utilities/Report%20on%20Performance%20of%20State%20Power%20Utilities%202018-19.pdf)

³ <https://energy.economictimes.indiatimes.com/news/power/over-700-zp-schools-in-pune-district-with-unpaid-bills-have-no-electricity/79079237>

⁴ Different arrangements such as group captive projects, direct PPA with State Government Department can be considered.

⁵ The DERC Group Net Metering and Virtual Net Metering for Renewable Energy) Guidelines, 2019 define "Virtual Net Metering" as an arrangement whereby entire energy generated/injected from a Renewable Energy System or Battery Energy Storage System (BESS) charged through Renewable Energy System is exported to the grid from renewable energy meter/ gross meter and the energy exported is adjusted in more than one electricity service connection(s) of participating consumers located within the same distribution licensee's area of supply

<http://www.derc.gov.in/sites/default/files/DERC%28Group%20Net%20Metering%20and%20Virtual%20Net%20Metering%20for%20Renewable%20Energy%29%20Guidelines%2C%202019.pdf>

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