

'VIRTUAL' POWER PURCHASE AGREEMENTS: LEGAL STATUS AND REGULATORY FRAMEWORK IN INDIA

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ABSTRACT

Power purchase agreements (PPAs) and virtual PPAs (VPPAs) have gained popularity among corporate buyers in the US and other countries who want to quickly achieve their renewable energy (RE) targets. VPPAs, in particular, have become increasingly attractive. Procuring renewables through a VPPA has also become an essential aspect of business branding worldwide, as it demonstrates a company's commitment to complying with green mandates. In India, too, recent reports suggest that VPPAs are essential to meet corporate needs and wants, particularly in the country's expanding commerce and industry ("C&I") segment, and given India's ambitious climate-related targets.

Due to the increasing demand from investors regarding environmental, social, and governance (ESG) standards, companies may want to transition completely to renewable energy (RE). However, there may be various reasons preventing them from doing so, including the inherent risks associated with RE generation. Additionally, physical power purchase agreements (PPAs) may not be feasible for smaller projects. Despite India's newly democratized 'open access' regime, commercial and industrial (C&I) consumers with lower energy requirements or inconsistent demand may not yet have an economical way to obtain renewable energy. In this regard, VPPAs may provide a perfect solution, both at a private/corporate level as well as at a public/national scale.

Nevertheless, if an entity needs/wants to acquire or generate RE at scale – the question is whether it can enter into a VPPA in India – given the country's present regulatory landscape. I argue that despite persisting uncertainties about the legal status of VPPAs, recent legislative and policy changes in India, along with a proliferation of

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‘corporate’ PPAs involving RE procurement, suggest significant promise in respect of achieving both clarity and use, commensurate with India’s power needs in the future.

Keywords – Virtual Power Purchase Agreements, Renewable Energy Certificates, Electricity, SEBI, CERC.

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I. INTRODUCTION

Power purchase agreements (PPAs) have been in existence for a considerable period. A PPA is a legal agreement between an electricity producer and a buyer, wherein the buyer agrees to procure electricity from the producer at an agreed-upon price for a specific duration whereas A Virtual PPA is a multi-year bilateral renewable energy contract that does not involve the physical delivery of energy from the vendor to the customer, it is essentially a financial agreement. A Virtual Power Purchase (VPPA), also known as Financial/ Synthetic PPA is a long-term contract – typically 10 to 20 years- between a developer of renewable energy project, and a interested energy buyer.

According to a report published last year by the International Energy Agency (“**IEA**”) in collaboration with the World Bank and the World

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Economic Forum (such report, the “**IEA Report**”),¹ in order to reach net-zero emissions on a global scale, annual investments in respect of renewable energy into developing countries need to expand sevenfold in the next eight years – from less than US\$ 150 billion (as per 2020 levels) to over US\$ 1 trillion by 2030. Further, the IEA Report highlights how countries of the Global South find themselves at an inherent disadvantage: allegedly, such disadvantage arises on account of limited access to international capital at a scale required for addressing paradigmatic policy change in response to a climate crisis. Further, the effects of such infirmity are exacerbated when developing countries need to reconcile national energy security concerns with global ones. Although financial resources are abundantly available worldwide, channeling such funds into appropriate economies, sectors, and projects remains challenging.

A different but more recent report – published by Bloomberg NEF (“**BNEF**”)² in association with the Power Foundation of India (the “**BNEF Report**”)³— claims that India will require an investment of US\$ 223 billion to meet its 2030 climate targets related to wind and solar capacity installations alone. In yet another outlook, the IEA predicts that India is poised to witness the largest increase in energy demand across nations, especially over the next two decades.⁴

¹ FINANCING CLEAN ENERGY TRANSITIONS IN EMERGING AND DEVELOPING ECONOMIES, IEA, June 2021, <https://www.iea.org/reports/financing-clean-energy-transitions-in-emerging-and-developing-economies>.

² Similar to RECAI (see above), India has consistently ranked among the top-10 emerging markets covered by Climatescope, BNEF’s flagship report analyzing market attractiveness for energy transition investment.

³ SHANTANU JAISWAL & ROHIT GADRE, FINANCING INDIA’S 2030 RENEWABLES AMBITION, WHITE PAPER, Bloomberg NEF, June 22, 2022, <https://assets.bbhub.io/professional/sites/24/BloombergNEF-Financing-India%E2%80%99s-2030-Renewables-Ambition-2022.pdf>.

⁴ “INDIA ENERGY OUTLOOK 2021” WORLD ENERGY OUTLOOK SPECIAL REPORT, IEA, February 2021, https://iea.blob.core.windows.net/assets/1de6d91e-e23f-4e02-b1fb-51fdd6283b22/India_Energy_Outlook_2021.pdf.

On their part, investors may want to (continue to) invest in India⁵ because they need a suitable ‘home’ for the trillions which have been pledged to meet the goals of the Paris Agreement.⁶ After all, going by records, Indian RE projects yield much higher equity returns (almost 15%)⁷ than those in developed markets. Foreign investors, in particular, may find India attractive for several reasons. For instance, the prospect of securing up to 100% ownership in a renewables project⁸ (unlike in China) might particularly appeal to some, along with the prospect of entering into a long-term (25-year) power purchase agreement (“PPA”) secured by sovereign guarantee via the Ministry of New and Renewable Energy

⁵ India’s RE programme, driven by private sector investment, attracted close to US\$ 65 billion between 2014 and 2019 itself, while FDI inflows in the non-conventional energy sector between April 2000 and June 2022 totaled US\$ 12.5 billion. Further, India’s extant FDI policy encourages foreign investors to enter into joint ventures (JVs) with Indian partners for financial and/or technical collaborations, as well as to establish RE-based power generation projects. At any rate, it makes sense for outside investors to partner up with local firms that are familiar with the Indian market and currently maintain operations. Irrespective, a diverse set of foreign investors have already set up shop either by going solo or joining local (and/or foreign) power producers to tap into India’s growing RE market.

⁶ The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at the 21st session of the Conference of the Parties (COP 21) held in Paris on December 12, 2015, and it entered into force on November 4, 2016. Its goal is to limit global warming to well below 2, and preferably to 1.5, degrees Celsius, compared to pre-industrial levels.

⁷ See ARJUN DUTT, LUCILA ARBOLEYA, AND PABLO GONZALEZ, CLEAN ENERGY INVESTMENT TRENDS 2020: MAPPING PROJECT-LEVEL FINANCIAL PERFORMANCE EXPECTATIONS IN INDIA, COUNCIL ON ENERGY, ENVIRONMENT AND WATER (CEEW) AND IEA, November 2020, <https://www.ceew.in/cef/solutions-factory/CEEW-CEF-clean-energy-investment-trends-2020.pdf>.

⁸ At present, up to 100% foreign direct investment (“FDI”) is allowed under the automatic route (*i.e.*, no prior government approval is required) for RE generation and distribution in India (subject to provisions of the Electricity Act, 2003, as amended from time to time (the “**Electricity Act**”)).

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(“**MNRE**”)⁹ or otherwise underwritten by government agencies such as NTPC Limited (“**NTPC**”).¹⁰

Meanwhile, a continuing rise both in India’s economy and population will lead to even higher power demand in the future. According to a separate report focusing on the electricity market,¹¹ India is already the third-largest consumer globally, accounting for 9% of global growth. Moreover, Indian solar and wind projects have among the lowest costs in the world, largely on account of increased scale and competition: indeed, at present, solar and wind power are about 50% cheaper than their coal-fired equivalent.¹²

Thus, as a matter of national interest, innovative contractual arrangements related to the RE sector might be useful in light of India’s ambitious climate targets. According to both, the IEA Report and the BNEF Report, meeting such targets will require a significant scaling up in terms of RE capacity-addition as well as procurement, including through increased private sector participation. Since political lags, socioeconomic exigencies, and democratic bottlenecks may retard state-led action, corporate and/or private initiatives in the energy markets might be necessary for securing India’s desired transition.¹³ Such initiatives may

⁹ The development and growth of RE in India are administered by the MNRE, which functions as the nodal agency of the government for all matters relating to RE developments.

¹⁰ Formerly, the National Thermal Power Corporation Limited.

¹¹ ELECTRICITY MARKET REPORT, IEA, July 2021, <https://iea.blob.core.windows.net/assets/01e1e998-8611-45d7-acab-5564bc22575a/ElectricityMarketReportJuly2021.pdf>

¹² Solar and wind power are available at Rs. 2 - 2.5/kilowatt-hour (“**kWh**”) (US\$ 26 - 32/megawatt-hour) in the market. In February 2021, India witnessed an 18% year-on-year decline to a new record low in respect of solar tariff, translating to about Rs. 1.99/kWh with zero inflation indexation. Some forecasts suggest that Indian solar will likely reach Rs. 1.00/kWh by 2030.

¹³ M. Vandenbergh, *Private Environmental Governance*, 99 CORNELL L. REV. 129 (2013). ; M. VANDENBERGH, J. GILLIGAN, *BEYOND POLITICS: THE PRIVATE GOVERNANCE RESPONSE TO CLIMATE CHANGE*, (2017); Sarah E. Light & Eric W. Orts, *Parallels in Public and Private Environmental Governance*, 5 MICH. J. ENVTL. & ADMIN. L. 1 (2015).

include institutional adoptions of RE procurement and value chain decarbonization – pursuant to which gaps in governance and state capacity are filled, especially those related to the power sector, specifically in terms of climate change.

In the United States, for instance, private governance initiatives – including in the form of corporate commitments to, and concomitant demands for, fossil fuel-free electricity derived from renewable sources, have increased RE installations both (i) directly, by driving the addition of renewable generation capacity to various parts of the US grid, as well as (ii) indirectly, by triggering a political demand for public policy and regulatory interventions that expand corporate access to RE.¹⁴ One such procurement pathway, especially common among large corporate buyers, is the ‘virtual’ power purchase agreement (“VPPA”). Through a VPPA, companies can use their purchasing power in a way that adds new renewable generation capacity in electricity markets. In a VPPA, the company agrees to purchase a portion of the energy generated by a renewable energy project, typically wind or solar, without physically receiving the electricity at its facilities. Instead, the renewable energy is sold into the grid, and the company is credited for the energy it has contracted to purchase, allowing it to offset its energy consumption and greenhouse gas emissions. VPPA is a tool used by companies to decarbonize their energy consumption while also supporting the development of renewable energy projects¹⁵.

Nevertheless, given that an entity needs/wants to acquire RE at scale – the question is: should, and *can*, it enter into a VPPA in India?

¹⁴ Tzankova Zdravka, *Public Policy Spillovers from Private Energy Governance: New Opportunities For The Political Acceleration Of Renewable Energy Transitions*, 67 ENERGY RES. & SOC. SCI. (2020).

¹⁵ RACHIT KANSAL, INTRO. TO THE VIRTUAL POWER PURCHASE AGREEMENT, ROCKY MOUNTAIN INSTITUTE, (2018), <https://rmi.org/wp-content/uploads/2018/12/rmi-brc-intro-vppa.pdf>.

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A VPPA is generally a good idea to help a company speedily scale up renewables in its power mix, not just for reasons of cost and branding, but also for compliance and reputational reasons – given expected future trends. More than 80% of all PPAs signed with corporate buyers in the United States, for example, are estimated to be ‘virtual’.¹⁶ Large Indian companies with significant exports could similarly ‘green up’ their products/services to maintain acceptability in developed, climate-conscious markets.

However, the legal status and applicable regulatory regime concerning VPPAs are still uncertain in India. While conditions are ripe for the introduction and use of these contracts, a clarificatory initiative from the government could serve as a starting point. Recent legislative changes in the Indian electricity sector, however, might be a harbinger of such future initiatives.

This article proceeds in four parts. The first part provides a background to India’s climate ambitions and the current policy landscape concerning its electricity sector, especially in connection with RE, along with new changes in the corresponding legislative regime and its appurtenant regulatory structure. Next, the second part provides a broad overview of PPAs and ‘corporate’ PPAs and then seeks to explain the rise in the use of the latter in recent times, especially in India. It also examines the implications of certain key legislative changes (as discussed in the previous part) in the context of the Indian government’s strategic attempt to create a suitably conducive environment for increased RE procurement and capacity addition. In the third part, key distinctions between ‘physical’ and ‘virtual’ PPAs are discussed. The fourth part probes the main question regarding the legal status of VPPAs in India, including in light of regulatory tussles and jurisdictional confusion concerning electricity

¹⁶ See Benjamin Grayson, *Corporate VPPAs: Risks and sensitivities*, PROJECT FINANCE, NORTON ROSE FULBRIGHT, (June 16, 2020), <https://www.projectfinance.law/publications/2020/june/corporate-vppas-risks-and-sensitivities/>.

derivatives, as well as through creative interpretive possibilities. Having found certain irreconcilable areas of overlap, it then proceeds to analyze the US position in this regard. The fifth part attempts to articulate potential lessons for India in the future about promoting clarity and precision as far as VPPAs are concerned, including via lessons from past practices, global best practices, and alternative present trends. The sixth part concludes.

II. BACKGROUND

India's climate-related targets are ambitious. At the 26th session of the Conference of the Parties (“**COP 26**”) held in Glasgow in 2021, the Indian Prime Minister promised to achieve net-zero greenhouse gas (“**GHG**”) emissions for the country by 2070 (the “**COP Statement**”).¹⁷ Among other things, India also aims to (i) reach 500 gigawatts (“**GW**”) of non-fossil energy capacity (which, when done, will be the world's largest expansion in this regard)¹⁸ and (ii) meet 50% of its energy requirements exclusively from RE – both by 2030.¹⁹ A few months ago, the Union Cabinet approved these targets as part of the country's updated Nationally Determined Contribution (“**NDC**”) under the auspices of the United Nations Framework Convention on Climate Change (“**UNFCCC**”).²⁰

A. INDIA'S PAST PERFORMANCE AND FUTURE PROSPECTS

To be sure, India appears to be on the right track regarding its pivot towards renewables. For example, in the draft National Electricity Plan

¹⁷ National Statement by Prime Minister Shri Narendra Modi at COP26 Summit in Glasgow, (November 2, 2021) (“**COP Statement**”), <https://www.mea.gov.in/Speeches-Statements.htm?dtl/34466/National+Statement+by+Prime+Minister+Shri+Narendra+Modi+at+COP26+Summit+in+Glasgow>.

¹⁸ <https://www.investindia.gov.in/sector/renewable-energy>.

¹⁹ See COP Statement.

²⁰ See Ministry of Environment, Forest and Climate Change, Press Release, (August 3, 2022), <https://pib.gov.in/PressReleasePage.aspx?PRID=1847813>.

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for 2022-2027 (“**NEP**”)²¹ released by the Central Electricity Authority (“**CEA**”) in September last year,²² the MoP estimates that solar energy will emerge as dominant in coming years,²³ even though coal will continue to remain a staple in the country’s energy mix.²⁴ Back in 2017, India started adding more renewables relative to coal within this mix, and such a trend is likely to continue well into the future. For context – while the country plans to add 35 GW of coal to its extant capacity by 2031-32, it is looking to add almost ten times that amount to solar, and three times that amount to wind, respectively, within the same period. As of May 2022, its installed capacity in RE stood at 160 GW, already representing 40% of its aggregate.²⁵ Moreover, India has continued to rank third in the world: (i) for total renewable capacity additions, as well as (ii) in respect of the Renewable Energy Country Attractiveness Index (“**RECAI**”) published biannually by EY (behind China and the US).²⁶

However, despite this accelerated pivot, India’s annual rate of RE capacity addition (going by the current record) is nowhere close to what is necessary for achieving its NDC target. The country needs to add 50 GW of RE capacity every year.²⁷ Yet, as recently as in 2021, notwithstanding its high global rank, India managed to add only about 15 GW, compared to

²¹ Electricity Act, 2003, § 3(4) stipulates that the CEA must prepare an NEP pursuant to the National Electricity Policy and notify such plan once every five years.

²² Available at: https://cea.nic.in/wp-content/uploads/irp/2022/09/DRAFT_NATIONAL_ELECTRICITY_PLAN_9_SEP_2022_2-1.pdf.

²³ According to the government, even among promising RE resources available in India, solar energy has the highest potential. In most parts of the country, 250 to 300 days every year are both clear and sunny. The annual radiation is comparable with that received in the tropical regions of the world. The equivalent energy potential is about 6,000 million GWh of energy per year. See <https://mnre.gov.in/solar/rpo/>.

²⁴ The NEP estimates a 40% increase in domestic coal requirement in 2031-32. In 2021-22, India’s domestic coal requirement was 678 million tonnes (MT). It will increase to 831.5 MT by 2026-27, and to 1018.2 MT by 2031-32. At present, a little above 50% of the total installed capacity in the Indian energy sector comes from coal.

²⁵ About 400 GW of total installed capacity.

²⁶ See https://www.ey.com/en_in/recai.

²⁷ In 2021, despite ranking third globally for total RE capacity additions, India added only about 15 GW in 2021, following China (136 GW) and the US (43 GW).

three and nine times that amount added by the US and China, respectively.²⁸ Therefore, according to the NEP, massive investments in RE²⁹ will be required over the next few years.

B. THE STANDING COMMITTEE

Happily, the Indian government appears to be thoroughly alive to the country's present climate needs and appurtenant capital requirements. Under a report on the prevailing constraints in India's RE sector – as submitted to the Indian Parliament in February last year³⁰ – a standing committee (the “**Standing Committee**”) was able to zoom in on many of the key issues involved and provided recommendations accordingly. For instance, having rightly identified the ‘huge gap’ between the required and actual investment for RE capacity addition in the country, the Standing Committee suggested, *inter alia*, that the MNRE should³¹ (i) seek alternative financing mechanisms, and (ii) prescribe ‘Renewable Finance Obligations’ (like Renewable Purchase Obligations – discussed below).³² Further, the Standing Committee commented on the tariff regime in respect of RE and issued suggestions for improvement.

²⁸ In 2021, China added 136 GW and the US added 43 GW in total renewable power capacity. See <https://www.investindia.gov.in/sector/renewable-energy>.

²⁹ Amounting to about 13 trillion INR, according to the NDC Press Release.

³⁰ STANDING COMMITTEE ON ENERGY (17th Lok Sabha), *Financial Constraints in Renewable Energy Sector*, (February 3, 2022) https://eparlib.nic.in/bitstream/123456789/835464/1/17_Energy_21.pdf.

³¹ The growth of RE in India is administered by the MNRE, which functions as the nodal agency of the government for all matters relating to RE development.

³² *Id.*

C. TARIFFS

The Electricity Act, 2003, as amended from time to time (the “**Electricity Act**”)³³ provides for two methods of tariff discovery: (i) the first is a tariff determined by the central (*i.e.*, the central electricity regulatory commissions, or the “**CERC**”) and/or state commissions, while (ii) the second is a tariff discovered through competitive bidding. Under the first method, the CERC may determine (1) a generic tariff (for certain specified categories of RE projects), or (2) on a case-by-case basis (pursuant to the specifics of a project) – subject to existing regulations that stipulate parameters and eligibility criteria.³⁴ Under the second method, the tariff may be determined through an auction. Pursuant to Section 63 of the Electricity Act,³⁵ the MNRE has issued several guidelines related to competitive bidding processes, including in respect of procuring power for solar, wind, and wind-solar hybrid projects.³⁶ In this mechanism, the final contract price is given by the lowest bid offered in

³³ Since RE is part of the electricity sector, it is governed by the Electricity Act, which provides a framework for the generation, transmission, distribution, trading, and use of electricity. The MoP administers the implementation of the Electricity Act and primarily plays a supervisory role in overseeing the development of the electricity sector in the country.

³⁴ See the Central Electricity Regulatory Commission (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations, 2020, issued by the CERC under § 61 read with § 178 (2)(s) of the Electricity Act, available at: https://cercind.gov.in/2020/regulation/159_reg.pdf. While these regulations will remain in effect until March 31, 2023, the tariff norms specified herein will continue to remain applicable until revised norms in respect of such tariff are notified pursuant to a subsequent re-enactment of these regulations.

³⁵ “*Section 63.* Determination of tariff by bidding process: Notwithstanding anything contained in Section 62, the Appropriate Commission shall adopt the tariff if such tariff has been determined through transparent process of bidding in accordance with the guidelines issued by the Central Government”.

³⁶ *For example*, the Guidelines for Tariff Based Competitive Bidding Process for Procurement of Power from Grid Connected Solar PV Power Projects, issued on August 3, 2017; the Guidelines for Tariff Based Competitive Bidding Process for procurement of RE power from 2500 MW ISTS Connected Blended Wind Power Projects, issued on June 25, 2020; etc.

the auction. Therefore, the bidders who can accept this price will be awarded the PPA.

A key reason for introducing a ‘reverse’ auction was to promote competition in the sector. This requirement reduces the overall cost of power procurement and was designed to benefit consumers. However, while these reverse auctions have been useful for discovering low tariffs (resulting in extremely low bids), several projects were adversely affected and/or became unviable – especially where developers faced the ‘winner’s curse’ with rising import prices in respect of necessary RE components (even leading to situations of unmet demand). According to recent reports, however, it appears that this mechanism may soon be done away with, or substantially modified, in light of stakeholder concerns.³⁷

D. RPOs, RECs, AND MBED

Nevertheless, an important element of support for power producers has been provided through a regime of renewable purchase obligations (“**RPOs**”). Thus, the Electricity Act requires certain categories of obligated entities (such as state-owned/licensed electricity distribution companies (“**discoms**”)) to purchase a minimum percentage of electricity from RE sources. Moreover, when such obligated entities face procurement-related issues due to variations in (i) RE quality, and/or (ii) RE potential across different states, RE certificates (“**RECs**”) may be used.

RECs are market-based tradeable instruments that represent the environmental attributes of RE (but not the actual power itself). RECs thus allow obligated entities to meet their RPOs without actual procurement. However, on account of sub-par compliance with the RPO

³⁷ See, e.g., “THE E-REVERSE AUCTION ARRANGEMENT IN RENEWABLE ENERGY SECTOR MAY END SOON: MNRE SECRETARY,” CONFEDERATION OF INDIAN INDUSTRY (CII), (July 14, 2022), <https://www.cii.in/PressreleasesDetail.aspx?enc=NaF8wVKn4KZOchZuuY8qiWGLh1dJkoP5UoJAUwhds0s=>.

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regime in the past, the CERC issued new regulations³⁸ in May 2022 in an effort to develop the RE-market through REC trading (discussed further below).

Furthermore, in a bid to develop (and integrate) the electricity market pursuant to the Union government’s vision of ‘One Nation, One Grid, One Price’, the Ministry of Power (“**MoP**”) circulated a discussion paper among key stakeholders in June 2022 with respect to a proposed framework for a ‘Market-Based Economic Dispatch’ (“**MBED**”). While various states in India, fearful of eroding autonomy, seem to be opposed to this idea (*i.e.*, a centralized model of scheduling power dispatches), the pooling of resources under MBED may potentially reduce power procurement costs and improve resource efficiency.

E. AMENDING THE ELECTRICITY ACT

In addition, a bill that seeks to amend the Electricity Act was introduced in Parliament in August 2022 (the “**Electricity Bill**”).³⁹ The Electricity Bill requires an obligated entity (*e.g.*, discoms) to ensure that their RPOs remain above a prescribed percentage, failing which a penalty may be imposed. However, while procuring electricity, financially-stressed discoms often default on, or significantly delay, payments – or even attempt to renegotiate PPAs. Such conduct has been identified by independent power producers (“**IPPs**”) and other key stakeholders as a major risk factor in the sector, leading some foreign lenders to even refuse loans where projects are contracted directly with discoms.

³⁸ The Central Electricity Regulatory Commission (Terms and Conditions for Renewable Energy Certificates for Renewable Energy Generation) Regulations, 2022, Gazette of India, pt. II sec.3(i), <https://cercind.gov.in/regulations/REC-Regulations-2022.pdf>.

³⁹ The Electricity (Amendment) Bill, 2022.

F. OPEN ACCESS

The open-access rules of 2022 in respect of ‘green energy’ (the “**Open Access Rules**”)⁴⁰ were notified by the MoP in June last year. The Open Access Rules, *inter alia*, seek to increase both the ease and scale of consumer access to green energy.⁴¹ In the pre-open access era, Indian consumers could procure power from discoms alone. Over time, the government has allowed consumers with a minimum load requirement to buy electricity directly from power producers. Importantly, the new rules now seek to further democratize the regime (where large users can pick a supplier of choice among multiple options) by enabling increased private participation in the distribution business.⁴²

G. BECOMING NET-ZERO

A few months before the COP Statement was issued in 2021, during an Independence Day address, the Prime Minister had pledged that India would achieve energy independence (*i.e.*, the country would end its coal and oil imports) by 2047.⁴³ While solar could become the biggest source of energy in the future where India is concerned – a country with almost

⁴⁰ The Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022 (the “Open Access Rules”), Gazette of India, pt. II sec.3(i).

⁴¹ See Press Release “Ministry of Power notifies ‘Green Energy Open Access’ Rules to accelerate ambitious renewable energy programmes,” PIB, New Delhi, July 19, 2022, <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1842737#:~:text=The%20Green%20Open%20Access%20is,of%20Green%20Power%20from%20Discoms.>

⁴² While a system of multiple suppliers is not new, such suppliers were previously not required to allow new participants to openly access their network. However, new distribution licensees will now be permitted to use the existing network (upon payment of applicable charges). In other words, while the extant Electricity Act already allows multiple discoms to operate in the same supply area, it still requires them to distribute electricity through their own network. Now, the Bill does away with such requirement. Instead, a discom will now need to extend access to all other discoms operating in the same area to its own network. Thus, the existing monopoly that discoms hitherto enjoyed in respect of both area and supply appears to be drawing to a close.

⁴³ *Modi Sets 2047 Target For Becoming Energy Independent*, ECON. TIMES, (August 15, 2021), [https://economictimes.indiatimes.com/industry/renewables/modi-sets-2047-target-for-becoming-energy-independent/articleshow/85342916.cms?from=mdr.](https://economictimes.indiatimes.com/industry/renewables/modi-sets-2047-target-for-becoming-energy-independent/articleshow/85342916.cms?from=mdr)

300 days of sun a year – coal-fired power plants still account for more than half of the country’s total installed capacity. As far as becoming ‘net-zero’ by 2070 is concerned, several techno-economic challenges remain, most of which will need to be addressed soon to achieve 100% RE status over the long term.

If achieving RE-related targets, and reducing GHG emissions quickly, serve as the main motivation for India’s climate goals, VPPAs might help in significant measures. Relative to other options, a VPPA may be able to provide the fastest pathway toward driving down carbon emissions. As of date, no better alternative exists in respect of securing large amounts of carbon-free electricity at scale. Further, VPPAs typically result in additionality – *i.e.*, they add new RE facilities to the grid.

III. OVERVIEW

A. PPAs

In public-private partnerships (PPP) within the energy sector, a PPA is usually the main contract between a set of public and private sector entities. A PPA enables an entity to procure electricity directly (*i.e.*, ‘offtake’) from a producer of power. Discoms are the main off-takers in India:⁴⁴ they first procure power from “**gencos**” (generating companies)⁴⁵ and then distribute such power onwards – via grid⁴⁶ transmission – to and among end-users, including across segments like commerce and industry (“**C&I**”), agriculture, households, etc.⁴⁷ Pursuant to a PPA, the genco

⁴⁴ Private utilities serve only 10% of the country’s power consumers. Globally, too, 70% of distribution utilities are publicly owned; the remaining 30% of the privately owned companies are located primarily in middle and high-income countries.

⁴⁵ Gencos, too, can be either state-owned or private. For instance, NTPC Limited and Adani Power Limited, respectively.

⁴⁶ Private discoms may also own assets on the grid, in whole or part (the distribution licensee model – as opposed to the franchisee model, where the grid assets are not owned). E.g., Tata Power Company Limited (Tata Power), New Delhi.

⁴⁷ The vast majority of consumers in India continues to be served by state-owned utilities.

raises monthly invoices for the units of power sold/supplied. In turn, discoms are obliged to meet the applicable demand in their respective supply areas. For instance, the Maharashtra State Electricity Distribution Company Limited (MSEDCL), India's largest discom, distributes power to the entire state of Maharashtra (including some parts of suburban Mumbai).⁴⁸

B. CORPORATE PPAS

However, PPAs may also be entered into between two or more private parties (“**Corporate PPAs**”), especially in jurisdictions where a competitive power market exists – such as the one increasingly emergent in India. In fact, Corporate PPAs have proliferated over the past few years, and in this country in particular. Specifically, concerning RE, India appears to have witnessed one of the largest spikes in the world, next only to the US.⁴⁹

In the context of *renewable* PPAs – *i.e.*, where parties specifically contract to procure RE – a genco will produce electricity from RE sources (e.g., solar or wind energy), and another entity (discoms or private

⁴⁸ Mumbai is served by three private distribution licensees: Adani Electricity Mumbai Limited (AEML), Tata Power Company Limited, Tata Power, and the Brihanmumbai Electricity Supply and Transport Undertaking (BEST).

⁴⁹ See PB Jayakumar, *India becomes 2nd largest market on corporate renewable power*, BUS. TODAY, (January 6, 2020), <https://www.businesstoday.in/latest/economy-politics/story/india-becomes-2nd-largest-market-on-corporate-renewable-power-241943-2020-01-06>.

parties/companies) will agree to buy it. Such a PPA might also include the purchase of renewable attributes⁵⁰ in respect of the underlying power.

A Corporate PPA differs from the traditional model (*i.e.*, ‘utility’ PPAs) – where discoms (*i.e.*, utilities) invite bids from power generators and then select a seller at the end of the bidding process through a pre-announced, templated mechanism, subject to financial and technical qualification. Instead, in a Corporate PPA, a non-utility company looks to design a bespoke power purchase arrangement with an appropriate energy producer, commensurate to the former’s appetite and commercial requirements.

C. WHY ARE SO MANY CORPORATE PPAS GETTING SIGNED IN INDIA?

To begin with, an entity may have unique consumption needs, whether sector- or company-specific, including in terms of running and/or expanding its business further. For example, companies engaged in sectors such as those related to technology, infrastructure, construction, the automotive industry, textiles, etc. – and especially those with high power requirements (like running a data center or a high-load factory in a concentrated hub) – may find it worthwhile to *secure* their power supply to reduce business disruption. More generally, however, two separate reasons have converged at this particular time, and such convergence partly explains the rise of Corporate PPAs involving RE. The reasons are as follows:

⁵⁰ Typically, Energy Attribute Certificates (EACs) represent the environmental attributes from the generation of one megawatt-hour (MWh) of energy produced by renewable sources. Consumers can use EACs to make reliable claims about their energy use. When a genco injects an electrical charge into the grid in one location and a consumer takes the same amount of charge off the grid from some other location, there is no way to track the electricity through the grid. Accordingly, the only reliable way for making claims about a specific kind of use in respect of electricity taken off the grid is to have a system that books all injected charges as unique units (in MWh). These booked units can then be traded independently from the underlying electricity.

- a) The high coal-based tariffs on the grid – coupled with the fact that non-fossil RE is now widely available in India, and that too for cheap (especially solar energy, on account of substantial gains made in photovoltaic (“**PV**”) cell/module-based technologies); as well as
- b) The new and innovative business models are now being embraced by large Indian corporate houses, particularly those with international collaborations/presence/ambitions.

Aside from these reasons, sustainability and climate sensitivity are both important goals today, due to the strong focus on Environmental, Social, and Governance (“ESG”) standards and the arrival of green taxonomies in the country. In the future, these standards may also be applied to unlisted companies. Further, even while pursuing creative eco-labelling practices (whether to impress investors and/or customers, or to distinguish one’s ‘brand’ from the rest), companies need to look out for ‘greenwashing’ laws that are expected to go beyond extant corporate governance-related disclosure and reporting standards.⁵¹ Accordingly, a demonstrable trail of direct RE procurement (through renewable PPAs) might enable such entities which are involved in environment/climate-

⁵¹ Including the extant Business Responsibility and Sustainability Reporting (“**BRSR**”) framework for the top 1,000 listed companies. The Securities and Exchange Board of India (“SEBI”), as part of its efforts to enhance disclosures on ESG standards, introduced new requirements for sustainability reporting by listed companies. The new reporting format under BRSR aims to establish links between the financial results of a business with its ESG performance. This can make it easier for regulators and investors, and allied stakeholders to obtain a fair estimate of overall business stability, growth and sustainability (hitherto based on financial disclosures alone). SEBI has mandated that the BRSR will be applicable to the top 1,000 listed entities by market capitalisation for reporting on a voluntary basis for the financial year (FY) 2021–22 and on a mandatory basis from FY 2022–23. Thus, India’s top 1,000 listed companies by market capitalisation are required to prepare and submit a report under the BRSR framework to the Ministry of Corporate Affairs (MCA) starting with FY 2022-23. The submission will be through the MCA21 portal – the e-governance application of the Ministry of Corporate Affairs (MCA).

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friendly messaging to *not* run afoul of the law, even in unforeseeable (but likely) compliance requirements of the future.

In addition, the Indian government's firm pivot towards RE – pursuant to lofty climate goals under the Paris Agreement – has produced a plethora of green policies and regulations, including the democratized open access and REC regimes, respectively. Increasingly, the government has sought to create a business environment punctuated by incentives and opportunities to go green. As a result, the number of Corporate PPAs in the RE sector has mushroomed and is likely to grow further still.

On the supply side generally, the energy market is dominated by private players (barring a few notable exceptions like NTPC).⁵² In respect of RE in particular, the power production space is getting populated quickly (including by IPPs) and a growing number of foreign gencos, duly benefiting from India's liberalized FDI policy on RE. From such gencos' perspective, a Corporate PPA makes a lot of sense. After all, a corporate buyer (*i.e.*, a private party) is much more likely to pay up (and on time) compared to cash-strapped discoms with a history of delayed or failed payments, including late attempts at contract renegotiation. Besides, discoms may refuse to buy from private gencos unless the latter bid really low (which, in turn, can make the project unviable in the long run, especially with rising costs associated with inflation, inputs, indirect tax, and imports). Thus, rather than face suboptimal situations such as those involving: (i) unmet demand (on account of project failure), or (ii) unmet supply (because of unsold capacity), private gencos can inject excess RE into the grid for corporate off-takers – especially those in the C&I segment with high(er) power requirements. In the end, the risk allocation regime under a PPA is crucial, especially with regard to the genco's ability to raise finance for its project, as well as to recover capital costs and earn a return on equity. For that matter, certain Indian states offer waivers on

⁵² NTPC Limited (formerly, the National Thermal Power Corporation Limited) is a government agency.

open access charges from time to time, which further encourage IPPs to enter into Corporate PPA arrangements.

D. WILL THIS TREND CONTINUE? WHY?

To be sure, Corporate PPAs have already been entered into by the ‘big boys’ of Indian business. The United States, however, has witnessed a number of relatively smaller companies enter this market too. To overcome the burden of long-term, high-volume commitments, smaller entities pool their power needs together, and each contract for a portion of the aggregate capacity. Additionally, the smaller participants can partner with an ‘anchor tenant’ — a larger and more experienced purchaser with a strong balance sheet, superior bargaining power, and previous accounting/legal experience in this regard. Indeed, making projects viable requires some part of the project to be hedged. One option, accordingly, is to have a larger company provide cover through a PPA.

Earlier, small and mid-sized players in the C&I segment were happy to receive power from local utilities. These buyers might now discover that the Corporate PPA model works well for them too, especially to purchase RE. Such PPAs will allow them to combine forces and purchase power at a certain price, for a given time, from a specific project. This, in turn, will enable C&I purchasers to avoid high upfront costs and provide them with access to better opportunities – relative to pursuing such opportunities alone.

In India too, this ‘group captive’ structure brings together equity from multiple off-takers, along with an IPP’s own. In particular, the structure has the advantage of routing RE-related capital from those companies in the C&I segment which otherwise might not have invested in renewables. Unfortunately, certain states where this model previously existed, have subsequently levied an additional surcharge, leading to suboptimal results.

E. ANALYSIS OF RECENT LEGISLATIVE DEVELOPMENTS

Certain legislative changes deliberated upon, and subsequently introduced, by the CERC over the last two years have been mentioned above. The following sub-sections discuss and analyze such changes in greater detail.

1. Implications of the Open Access Rules

The Open Access Rules aim to remove certain procedural obstacles related to RE procurement. These obstacles explained the scant use of open access in India in the past. Accordingly, the new rules not only enable (i) faster (and deemed) approvals, (ii) rationalization of charges/tariffs/processes, and (iii) the voluntary purchase of RE by C&I consumers – but more importantly, these rules also reduce open access transactional thresholds in respect of RE from 1 MW to 100 kW, thus paving the way for small consumers to purchase ‘green energy’⁵³ easily. In addition, captive consumers can avail of RE under the Open Access Rules with no minimum limit.⁵⁴

Earlier, as mentioned above, on account of higher eligibility thresholds in respect of load, only large C&I establishments found open access feasible. Consumers with power requirements below 1 MW could not procure RE – except through green tariffs in certain states, and that too upon payment of additional premium to discoms. Under the new relaxation, however, even small and medium-sized enterprises with modest energy requirements can procure RE via open access. Since C&I

⁵³ § 2(d) of the Open Access Rules defines “green energy” as the electrical energy from renewable sources of energy, including hydro and storage (if the storage uses renewable energy) or any other technology as may be notified by the Government of India from time to time, including any mechanism that utilizes green energy to replace fossil fuels such as the production of green hydrogen or green ammonia as per appropriate provisions under the Open Access Rules.

⁵⁴ § 2(b) of the Open Access Rules defines an ‘entity’ as “any consumer who has contracted demand or sanctioned load of 100 kW or more except for captive consumers: Provided that in case of captive consumers there shall not be any load limitation”.

consumers constitute more than 50% of the aggregate power demand (and consumption) in India, a more democratized and inclusive open access regime will significantly increase RE procurement through Corporate PPAs.

2. Implications of the RPO Regime

As discussed, the Open Access Rules, read with the Electricity Act and the National Tariff Policy, refer to a set of buying obligations (RPOs) in respect of RE. Specifically, the rules stipulate a uniform regime of RPOs for all obligated entities in respect of a particular distribution area. Thus, such purchase obligations apply across multiple categories of obligated entities – which include open access customers, along with discoms and captive power producers – all of which are obligated to purchase a minimum share of their electricity from RE sources as per their RPO targets.

Accordingly, an ‘entity’ (as defined under section 2(b) of the Open Access Rules) may set up a power plant from RE sources of whatever capacity for its consumption anywhere in India. In such cases, the generating plant may be installed by the entity itself or by a genco with which such entity enters into a PPA. In addition, an entity may procure RE through open access from any genco either directly or indirectly. Thus, the avenues and reasons for entering into a corporate PPA have both burgeoned in recent times.

IV. PHYSICAL PPAS VS. VPPAS

Broadly, a PPA for RE may be structured as (i) a regular (or ‘physical’) PPA; or (ii) a synthetic (or ‘virtual’) PPA (VPPA). VPPAs assume greater importance when a country’s electricity sector moves from a centralized model to a market-oriented one.

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A physical PPA involves the delivery of electricity from a power project to a buyer.⁵⁵ However, while the buyer receives electricity from a genco in this case, in a VPPA, it does not. Instead, the genco sells the produced power that is *notionally* the subject of such contract in the open market, including through power exchanges (collectively, the “**power pool**”). Conversely, the buyer procures the electricity *actually* required to run its business from someone else in the power pool (including from a discom, if required), through a separate transaction, independent of the VPPA.⁵⁶

So, if VPPAs themselves do not beget power, why should entities enter into them? Because, among other things, a VPPA related to RE might produce Energy Attribute Certificates (“**EACs**”) (e.g., Guarantees of Origin in the EU, or RECs in India),⁵⁷ which, in turn, can count towards RE-based procurement mandates (e.g., renewable portfolio standards in several US states, or RPOs for obligated entities in India).⁵⁸

⁵⁵ Physical PPAs can be structured as: (i) a tripartite agreement between the customer, the genco, and the discom (a ‘sleeved’ PPA, where the power produced by the genco is delivered from the grid to the customer through a discom); or (ii) an integrated bilateral agreement between the genco and the consumer.

⁵⁶ Alternative procurement options could include a discom, a power exchange, separate bilateral arrangements (signing a physical PPA with a different power producer), or even a ‘captive’ mode.

⁵⁷ RECs are a type of EACs. Globally and generally, an EAC is a contractual instrument that represents information about the origin of the energy generated. It allows markets to track RE production and permits consumers to make credible claims of RE use. Each certificate acquired and then ‘retired’ (*i.e.*, indicating that it is taken out of the marketplace) certifies the use of a specific quantity of renewable electricity (typically 1 MWh). In most markets with an EAC scheme in place, attribute certificates can be acquired “bundled” (the electricity and the certificates are sold and delivered together) or can be purchased “unbundled” (the certificates are purchased separately, independent of any specific purchase of physical electricity). The most widely used energy attribute systems are guarantees of origin (GOs) in Europe and RECs in the US. Another popular scheme for unbundled EACs is the International Renewable Energy Certificates (“**I-RECs**”) program. The Green Certificate Company Limited (“**GCC**”) issues I-RECs in India, which can be traded internationally. Thus, India-based gencos can transfer I-RECs to entities outside India.

⁵⁸ Pursuant to Section 86(1)(e) of the Electricity Act, 2003, as amended from time to time (the “**Electricity Act**”), certain categories of ‘obligated entities’ (such as discoms,

As a result, VPPAs can be useful for such entities which are required by law to meet RPOs or their equivalent, especially in locations where renewable resources are unevenly and/or intermittently available.

In addition, VPPAs provide guaranteed revenue by hedging a power project against fluctuations in electricity prices. However, unlike its physical counterpart, a VPPA, in essence, is a financial instrument: the genco produces and sells *actual* electricity in the spot market at a floating rate, while the counterparty agrees to buy a *notional* quantity of such electricity at a price which is fixed during contract inception. The fixed price that a VPPA establishes is typically called the ‘strike price’.⁵⁹ If the wholesale (floating) market price⁶⁰ exceeds the strike price, the buyer needs to be paid the difference. Conversely, if the market price is lower, the buyer must make up the difference. Thus, a VPPA might be characterized as a ‘contract for differences’ (“**CFD**”)⁶¹ – although such

open access consumers, captive power producers) are required to purchase a minimum percentage of electricity from RE sources as a percentage of their total consumption of electricity (Renewable Purchase Obligations, or “**RPOs**”). Moreover, when such obligated entities face procurement-related issues due to variations in (i) RE quality, and/or (ii) RE potential across different states, RECs may be used to meet RPOs. Such statutory RECs are market-based tradeable instruments that represent the environmental attributes of RE (but not the actual power itself). Thus, RECs allow obligated entities to meet their RPOs without actual procurement. In addition, a bill that seeks to amend the Electricity Act (the Electricity (Amendment) Bill, 2022) was introduced in Parliament this August (the “**Electricity Bill**”). The Electricity Bill imposes penalties for non-compliance with RPOs.

⁵⁹ While VPPAs are typically signed for a fixed price, there are possible variations: for example, the strike price could be floating (with a discount on the market price or not), hybrid (involving both fixed and floating components, whether in terms of percentage value of output or in respect of time/term), and/or be subject to an escalation mechanism (in nominal/percentage terms or indexed to inflation). Further, ceilings and floors can be introduced to act as an additional safeguard.

⁶⁰ Real-time prices in the power exchange.

⁶¹ As used for electricity, a CFD is an instrument/mechanism that converts the risk of a variable price into a fixed price. CFDs are legal in India, as well as in most countries of the world.

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characterization is problematic in the US – or as a fixed-for-floating swap.⁶²

In the US in particular (but elsewhere too), VPPAs have appealed to a wide variety of corporate buyers, including for the purpose of meeting renewable obligations and/or targets quickly – and especially in order to woo stakeholders via a sustainability-driven platform. Further, the VPPA model suits companies that have fragmented demand across different locations. In addition, VPPAs are not directly impacted by changing regulations and prices in the electricity sector. Instead, these contracts can be structured and adapted for a wide range of purposes: for instance, to underwrite the financing of large-scale RE projects. Further, from a buyer’s perspective, publicizing compliance with ‘green’ targets (by procuring renewables through a VPPA) has become an important element of business branding across the world.

Recent reports⁶³ related specifically to India appear to conclude that, given the country’s large (and expanding) C&I segment,⁶⁴ VPPAs are essential to meet corporate RE demands – consistent with India’s climate goals.⁶⁵ Arguably, C&I consumers can meet their RE obligations/needs through physical PPAs alone, especially under India’s newly democratized Open Access Rules. However, physical PPAs have certain limitations. For instance, if and when, on account of low RE prices relative to (high) coal-based tariffs, or in response to customer/investor demand with respect to ESG standards, a company seeks to shift completely – and quickly – to RE, it may not be able to do so for various reasons, including on account of seasonal, technological, and/or other variabilities inherent in RE generation.

⁶² CFDs that are not swaps could be illegal in the US.

⁶³ *See*, for example, WWF-INDIA, VIRTUAL POWER PURCHASE AGREEMENT FOR C&I CONSUMERS IN INDIA, JUNE 2022.

⁶⁴ Estimated to be in excess of 50% of the country’s aggregate power consumption base.

⁶⁵ India has set a target of 500 GW of RE installation by 2030 and ‘net-zero’ emissions by 2070, among other things.

Further, despite relaxed transactional thresholds pursuant to the new Open Access Rules in India,⁶⁶ physical PPAs are not viable for projects below a logistical minimum⁶⁷ due to economies of scale. Accordingly, consumers in the C&I segment with lower load requirements, and/or having fragmented demand across diverse geographies,⁶⁸ do not yet have access to a cost-effective mechanism to procure RE. On the other hand, a single VPPA may be able to aggregate demand across a diversity of consumers and locations. Further, aggregated VPPAs can help smaller buyers get together under a single contract without a specific ‘anchor tenant’ and reap the benefits of scale.

Lastly, EACs can accelerate an entity’s energy transition by adding value to the production of RE. In effect, gencos can sell the energy produced, *as well as* the EACs related to such energy. Accordingly, through the use of this complementary income stream, gencos can better secure the economic viability of RE projects.

⁶⁶ As mentioned above, the Open Access Rules have reduced transactional thresholds in respect of RE to 100 kW.

⁶⁷ Usually 5 MW.

⁶⁸ Consumers with offices, plants, factories, data centers, hubs, manufacturing facilities, etc. across different geographies are required to sign multiple (physical) PPAs.

V. CAN AN ENTITY ENTER INTO A VPPA IN INDIA?

Generally speaking, when a genco (or other eligible entity) produces/purchases RE in excess of compliance requirements, it may be issued an EAC from a designated agency (*e.g.*, the National Load Despatch Centre (“**NLDC**”)⁶⁹ in India) for each (additional) megawatt-hour (“**MWh**”) of electricity generated/purchased.⁷⁰ If such EACs are included in a VPPA, the genco (or other entity) might be contractually required to transfer those to the VPPA counterparty. In turn, the transferor can be compensated for the EACs so transferred through the fixed price that it receives from a such counterparty.

A. BUNDLED AND UNBUNDLED EACS

However, EACs may not always be included in a VPPA. Further, EACs can be traded separately,⁷¹ independent of, and apart from, a VPPA. Thus, ‘bundled’ EACs – *i.e.*, when EACs are sold together with their associated energy – are particularly useful for financing new projects, since gencos can show potential lenders guaranteed revenue streams from both ‘products’ (electricity *and* EACs). On the other hand, ‘unbundled’ EACs are not tied to the underlying power and do not lead to new RE

⁶⁹ The NLDC has been designated as the ‘Central Agency,’ pursuant to Regulations 2(b) and 3 of the Central Electricity Regulatory Commission (Terms and Conditions for Renewable Energy Certificates for Renewable Energy Generation) Regulations, 2022.

⁷⁰ For instance, pursuant to recently notified regulations in India, RECs may be issued by a central agency to RE-based gencos, captive power plants/ generating stations, distribution licensees, as well as ‘open access’ consumers, subject to eligibility and other requirements.

⁷¹ Central Electricity Regulatory Commission (Power Market) Regulations, 2021, Gazette of India, pt. III sec. 4.

being generated.⁷² Since most ‘voluntary’ purchasers (as opposed to ‘compliance’ purchasers) seek to procure additional RE because of stakeholder demand, unbundled EACs offer limited opportunity to distinguish the brand. When they are bundled, the vintage and source of EACs are clear. When unbundled, it can be more difficult to verify such factors, potentially compromising ESG-related claims.

B. RECs IN INDIA

In India, erstwhile regulations related to RECs (the “**2010 REC Regulations**”)⁷³ introduced dealing in unbundled RECs. Such dealing could only be done, however, on power exchanges approved by the CERC. In May this year, on account of perceived deficiencies in the 2010

⁷² What is known as ‘additionality,’ especially in the US. For instance, notional RE and bundled RECs, as acquired through a VPPA, are directly attributable to new ‘additional’ RE projects which add clean energy to the grid, displacing fossil equivalents: thus, in effect, such project would not have happened ‘but for’ the VPPA. Unbundled RECs are often used by large companies because they can be spread over several manufacturing locations. While unbundled RECs have the advantage of low prices, the disadvantage is that a company cannot claim any significant additionality. In fact, the use of unbundled RECs poses a potential reputational risk for large companies, including allegations of ‘greenwashing’.

⁷³ The Central Electricity Regulatory Commission (Terms and Conditions for Recognition and Issuance of Renewable Energy Certificate for Renewable Energy Generation), Regulations, 2010, Gazette of India, pt. III sec. 4 (the “**2010 REC Regulations**”).

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REC Regulations,⁷⁴ the CERC issued new ones (the “**2022 REC Regulations**”).⁷⁵ Among other changes, the 2022 REC Regulations permit the use of electricity traders by eligible entities for exchanging/selling RECs. However, the new regulations do not provide for the sale of bundled RECs through bespoke bilateral arrangements, as Indian corporate buyers (which are looking to enter into VPPAs) might seek/need.

While pursuant to the 2022 REC Regulations, RECs can be issued by the NLDC (the designated central agency in this regard) to eligible entities⁷⁶ (subject to restrictions/qualifications),⁷⁷ such centralized issuance itself may not be enough to make VPPAs viable. Commercially speaking, RECs need to be transferred by such eligible entities (or issued directly by the central agency) to private/corporate counterparties for both VPPA entities to derive maximum benefits from their contract. Therefore, the REC framework could be better articulated in light of such requirements.

⁷⁴ The 2010 REC Regulations were intended to help obligated entities fulfill their respective RPOs. However, over time, price distortions arose in respect of RECs traded on power exchanges, essentially on account of a demand-supply mismatch. Further, there was sub-par compliance with the RPO regime among obligated entities. In effect, the erstwhile REC mechanism had been designed pursuant to market conditions at a time when RE prices were higher than those from conventional sources of energy, which situation has now drastically changed. With increased RE capacity installed across the country, as well as increased market-based products and procurement options introduced over the last few years, there has arisen a clear need to reform the Indian REC mechanism. Accordingly, in order to address some of these issues and in light of such changed circumstances, pursuant to public and stakeholder consultations, the CERC issued new regulations in respect of RECs which, *inter alia*, seek to (i) introduce a market-driven pricing, including by removing the erstwhile floor and forbearance prices related to RECs; (ii) allow trading of RECs through electricity traders (in addition to trading through power exchanges); (iii) extend the validity of RECs to perpetuity (until redeemed) (earlier, these were valid for 1,095 days only); etc.

⁷⁵ The Central Electricity Regulatory Commission (Terms and Conditions for Renewable Energy Certificates for Renewable Energy Generation) Regulations, 2022, Gazette of India, pt. III sec. 4 (the “**2022 REC Regulations**”).

⁷⁶ Including to to eligible (i) gencos, (ii) captive generating plants, (iii) distribution licensees, and (iv) open access consumers.

⁷⁷ Regulation 4 (“Eligibility for Issuance of Certificates”) of the 2022 REC Regulations.

In that context, in September 2022, a detailed procedure with respect to implementing the 2022 REC Regulations (the “**Procedure**”) was published by the Power System Operation Corporation Limited (POSOCO) on the website of the Indian REC registry.⁷⁸ Like the main 2022 REC Regulations, the Procedure has been formulated pursuant to public/stakeholder consultations. Such Procedure requires electricity traders to have back-to-back arrangements with both buyers and sellers before applying for a trade request to the central agency. Thus, it is possible that bundled REC transfers will be expressly provisioned for in the future, whether through the 2022 REC Regulations and/or the Procedure (including reformulations thereof) or via separate explanatory statements.

Alternatively, (non-statutory) RECs can be obtained from other sources, such as the International REC (“**I-REC**”) Standard Foundation.⁷⁹ The advantage with I-RECs is that these certificates can be

⁷⁸ See *Step-wise Description of the Procedure for Redemption through Electricity Trader(s)* in “Procedure for Implementation of REC Mechanism in Compliance of Central Electricity Regulatory Commission (Terms and Conditions for Renewable Energy Certificates for Renewable Energy Generation) Regulations, 2022,” Power System Operation Corporation Limited (POSOCO), September 2022, pp. 99-100, pursuant to Regulations 2(g) and 16 (“Detailed Procedure”) of the 2022 REC Regulations; available at: https://www.recregistryindia.nic.in/index.php/publics/Reference_Documents.

⁷⁹ I-REC is a global standard introduced in a growing number of countries in Asia, Africa, the Middle East, and Latin America, typically where no similar scheme exists (I-RECs are currently available in over fifty countries). It is a recognized tool to document reduced greenhouse gas emissions and improve sustainability ratings. Similar to RECs and Guarantees of Origin, each I-REC represents proof that 1 MWh of RE has been produced and includes the environmental benefits which such RE has generated. The I-REC registry electronically issues I-RECs based on a genco’s output. When a company buys I-RECs as documentation for their electricity consumption, such I-RECs are cancelled in the registry. This standardized instrument makes it possible to track ownership, verify claims, and ensure that I-RECs are only sold once (*i.e.*, no double counting). An I-REC for electricity, specifically (“**I-REC(E)**”) is an exchangeable EAC that conveys information about the production of a unit of electricity – such as (i) where the electricity was produced, (ii) the capacity of the production facility, and (iii) the energy source. I-REC(E)s can be used for a variety of requirements. Further, the use of I-REC(E)s is accepted by relevant consumer claim standards including the Greenhouse Gas Protocol (GHGP), CDP (Carbon Disclosure Project), RE100, and others.

utilized by companies with international operations to appeal to global customers. The Green Certificate Company Limited (GCC) issues I-RECs in India.⁸⁰

C. SEBI vs. CERC

A year ago, the MoP issued a press release announcing the start of a new era in the Indian power market.⁸¹ The announcement stemmed from a Supreme Court (“**SC**”) order (such order, the “**SC Order**”) pursuant to which a long-standing turf battle between the Securities and Exchange Board of India (“**SEBI**”) and CERC had been finally resolved.⁸² Among other things, the dispute involved ascertaining the appropriate regulatory jurisdiction with regard to forward and derivative contracts in the electricity sector. Pursuant to the SC Order, CERC and SEBI decided that the former would regulate physical delivery-based forward contracts,⁸³

⁸⁰ In fact, GCC certifies RE generation around the world. The I-REC Standard Foundation often approves GCC as the default issuer of I-REC(E)s in case no other suitable local issuer can be identified. Registration can take place through issuance countries. See <https://www.irecstandard.org/india/>. In August 2016, Statkraft AS, one of Europe’s largest RE gencos, became the first company to offer renewable power tracked by the I-REC Standard in India, with I-RECs generated in cooperation with its Indian hydropower partner Malana Power Company Limited. See Statkraft AS, *Statkraft is the first supplier of I-RECs in India*, GLOBENEWSWIRE NEWS ROOM (2016), <https://www.globenewswire.com/news-release/2016/08/08/1833955/0/en/Statkraft-is-the-first-supplier-of-I-RECs-in-India.html>.

⁸¹ See MINISTRY OF POWER, GATE OPENED FOR THE POWER MARKET REFORMS - 10 YEARS LONG PENDING JURISDICTIONAL ISSUE RELATED TO POWER MARKET BETWEEN CERC AND SEBI RESOLVED BY HON’BLE SUPREME COURT, October 7, 2021, <https://pib.gov.in/PressReleasePage.aspx?PRID=1761701> (the “**Press Release**”).

⁸² Power Exchange of India Ltd. (through its Vice President) v. Securities and Exchange Board of India & others, CIVIL APPEAL Nos. 5290-5291 of 2011 with C.A. Nos. 6311-6314 of 2021 @ SLP(C) Nos.17300-17303/2011 C.A. Nos. 5292-5295/2011, Supreme Court of India, October 6, 2021.

⁸³ Forward contracts are referred to as term-ahead contracts under the Central Electricity Regulatory Commission (Power Market) Regulations, 2021, Gazette of India, pt. III sec. 4 (the “**2021 Power Market Regulations**”), and as Non-Transferable Specific Delivery contracts (“**NTSDs**”) under the SCRA.

while financial and commodity derivatives in electricity⁸⁴ would be regulated by the latter.

Before the SC Order was issued, the MoP had set up a committee on the 'Efficient Regulation of Electricity Derivatives' (the "**Committee**") to address such jurisdictional issues.⁸⁵ Once the Committee submitted its report (the "**Committee Report**"),⁸⁶ insofar as SEBI and CERC managed

⁸⁴ Except NTSDs as defined in the SCRA.

⁸⁵ According to the Press Release: "[The] Ministry of Power took the initiative of resolving the jurisdictional issue between SEBI and CERC with regard to various forms of contracts in electricity for Efficient Regulation of Electricity Derivatives by constituting a committee on 26th October, 2018, under the Chairmanship of the Additional Secretary, Ministry of Power with representatives from Department of Economic Affairs (Ministry of Finance), Central Electricity Authority, Central Electricity Regulatory Commission (CERC), Power System Operation Corporation Limited (POSOCO), Security Exchange Board of India (SEBI), Indian Energy Exchange, Power Exchange of India Limited and Multi Commodity Exchange to examine the technical, operational and legal framework for electricity derivatives and to give recommendation in this regard".

⁸⁶ In the Committee Report dated October 30, 2019 with respect to the regulatory jurisdiction of SEBI and CERC, respectively, the Committee had recommended as follows:

1. All Ready Delivery Contracts and Non-Transferable Specific Delivery ("**NTSD**") Contracts (as defined in the Securities Contract (Regulation) Act, 1956, as amended ("**SCRA**")) in electricity entered into by members of the power exchanges registered under CERC (Power Market) Regulations, 2010, shall be regulated by CERC subject to the following conditions:

- i. the contracts are settled only by physical delivery without netting;
- ii. the rights and liabilities of parties to the contracts are not transferable;
- iii. no such contract is performed either wholly or in part by any means whatsoever, as a result of which the actual delivery of electricity covered by the contract or payment of the full price therefor is dispensed with;
- iv. no circular trading shall be allowed and the rights and liabilities of parties to the specific delivery contracts shall not be transferred or rolled over by any other means whatsoever;
- v. the trading shall be done only by authorised grid connected entities or trading licensees on behalf of grid connected entities, as participants;
- vi. the contracts can be annulled or curtailed, without any transfer of positions, due to constraints in the transmission system or any other technical reasons, as per the principles laid down by CERC in this regard.

However, once annulled, the same contract cannot be reopened or renewed in any manner to carry forward the same transaction.

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to agree on its terms, the SC was happy to bless such terms and allowed the respective regulatory bodies to proceed as necessary.

D. ELECTRICITY DERIVATIVES

Significantly, erstwhile regulations related to the power market, as notified by the CERC in January 2010 (the “**2010 Power Market Regulations**”),⁸⁷ applied to, and included, *financially settled electricity derivatives contracts transacted in the over-the-counter market* (together, the “**Necessary Specification**”).⁸⁸ However, a Bombay High Court judgment issued in February 2011 (“**the HC Verdict**”) declared the 2010 Power Market Regulations inoperative as far as electricity futures and

vii. all information or returns relating to the trade, as and when asked for, shall be provided to CERC, who shall monitor the performance of the contracts entered into on the power exchanges.

2. Commodity derivatives in electricity, other than NTSD contracts as defined in the SCRA, shall fall under the regulatory purview of SEBI.

3. The Central Government reserves the right to impose additional conditions from time to time as it may deem necessary.

4. A Joint Working Group between SEBI and CERC may be constituted with Terms of Reference as agreed in the Committee’s report.

⁸⁷ The Central Electricity Regulatory Commission (Power Market) Regulations, 2010, Gazette of India, pt. III sec. 4 (the “**2010 Power Market Regulations**”).

⁸⁸ See Regulation 4(ii) of the 2010 Power Market Regulations: “*Financially settled electricity derivatives contracts transacted in OTC market* – It is a contract which derives its value from an underlying asset (e.g. day ahead electricity contract or other spot market contract or other reference index). The contract price is fixed at the time of transaction. The final financial settlement price is based on the spot price of the underlying asset or any other predefined reference index as agreed between the parties at the expiry of contract. These contracts can be Derivative Contracts, swap and other structured contracts etc.” Further, see Regulation 3(i) of the 2010 Power Market Regulations: “*Over the Counter Market* – Over the Counter Market is the inter-State market where buyers and sellers directly transact or transact through an Electricity Trader, and where the price and terms of the contract are determined through negotiations as agreed between the parties or through competitive bidding process or through a Electricity Trader. The risk in contracts executed in such markets is managed between the parties themselves or by the Electricity Trader, as the case may be.”

forward contracts were concerned.⁸⁹ On the other hand, while revised regulations related to the power market (the “**2021 Power Market Regulations**”)⁹⁰ now include within their scope, *inter alia*, contracts related to RECs (those transacted on power exchanges)⁹¹ and delivery-based over-the-counter (“**OTC**”) contracts,⁹² such new regulations neither mention nor presumably apply to, *financially* settled electricity derivatives contracts transacted in the OTC market (*i.e.*, the new regulations omit the language of the Necessary Specification).⁹³ Thus, it appears that the 2021 Power Market Regulations apply only to *physically* settled OTC contracts.⁹⁴

Pursuant to approval from the erstwhile Forward Market Commission (“**FMC**,” since merged with SEBI),⁹⁵ the Multi Commodity Exchange of India Limited (MCX), a commodity derivatives and stock exchange that now operates under the regulatory framework of SEBI (and was previously operating under the (now-repealed) Forward Contracts (Regulation) Act, 1952 (“**FCRA**”)), had commenced trading in electricity

⁸⁹ Multi Commodity Exchange of India v. CERC & others, W.P. Nos. 1197/2010 and 1604/2009 along with N.M. Nos. 100 and 71/2010, Bombay High Court, Judgement dated February 7, 2011

⁹⁰ The 2021 Power Market Regulations.

⁹¹ Regulation 4(1)(b) of the 2021 Power Market Regulations.

⁹² Regulation 4(2) of the 2021 Power Market Regulations.

⁹³ See Regulations 2(ao), 2(bc), and 2(bd) of the 2021 Power Market Regulations: “*Over the Counter (OTC) Market*” is a market where OTC contracts are transacted between sellers and the buyers directly or through a trading licensee as defined in the Central Electricity Regulatory Commission (Procedure, Terms and Conditions for grant of trading licence and other related matters) Regulations, 2020. Further, OTC contracts are those contracts which are transacted outside electronic platforms registered as a power exchange under the 2021 Power Market Regulations (*see* Regulations 2(an) and 2(as) of the 2021 Power Market Regulations).

⁹⁴ See Regulation 7 (“*Contracts transacted in the OTC Market*”), and particularly, Regulation 7(3) of the 2021 Power Market Regulations: “*Settlement Conditions*: The settlement of contracts transacted in the OTC Market shall be only by physical delivery of electricity”.

⁹⁵ See SEBI, FINANCE MINISTER UNVEILS MERGER OF FMC WITH SEBI, (September 28, 2015) https://www.sebi.gov.in/media/press-releases/sep-2015/finance-minister-unveils-merger-of-fmc-with-sebi_30729.html; and SEBI, DEVELOPMENTS IN COMMODITIES MARKETS - POST MERGER, (September 30, 2016), https://www.sebi.gov.in/media/press-releases/sep-2016/developments-in-commodities-markets-post-merger_33395.html.

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futures and forwards back in January 2009. Around that time, however, Power Exchange of India Limited (PXIL), a power exchange, had argued before the CERC that it was the latter that had exclusive jurisdiction in the matter. This challenge, as well as various regulatory, legislative, and judicial developments subsequent to, and connected with, such challenge, ultimately led to the HC Verdict – which, in turn, was issued a decade before the SC Order.

At present, according to the Committee Report (as approved by the SC Order), non-transferable specific delivery contracts, as defined in the Securities Contracts (Regulation) Act, 1956, as amended (the “**SCRA**,” and such contracts, “**NTSDs**”), ought to be regulated by CERC, while commodity derivatives in electricity *other than* NTSDs ought to be regulated by SEBI. The SCRA defines a ‘derivative’ to include commodity derivatives,⁹⁶ which, in turn, include CFDs that derive their value from the price of underlying goods.⁹⁷ On the other hand, NTSDs are defined as non-transferable commodity derivatives which provide for the *actual* delivery of specific goods over a specified term at a fixed price.⁹⁸ Since VPPAs do not involve the actual delivery of electricity to counterparties, it appears that if and when VPPAs are interpreted as non-NTSD commodity derivatives (pursuant to the Committee Report and the SCRA), SEBI, rather than CERC, will have regulatory jurisdiction over such contracts.

However, since VPPAs are neither intended for *trading* on exchanges (as forward contracts in the secondary market), nor are meant to be transferred to third parties – it could well be argued that VPPAs are privately settled, bespoke, and untraded OTC contracts, and hence do not fall within SEBI’s regulatory ambit either. On the other hand, under the 2021 Power Market Regulations: (i) REC contracts can be traded on

⁹⁶ SCRA, § 2(ac)(C).

⁹⁷ SCRA, § 2(bc)(ii).

⁹⁸ SCRA, § 2(ca) read with § 2(ha).

power exchanges,⁹⁹ and (ii) REC transactions can be undertaken under the Procedure related to the 2022 REC Regulations¹⁰⁰ – both of which are under CERC’s sphere of influence.

In this situation of jurisdictional overlap, it might be useful to look at foreign regulatory frameworks for guidance.

E. THE US POSITION

Global practice suggests that VPPAs are usefully governed by regulations related to the derivatives market. In the United States, for instance, a buyer under a VPPA is not required to obtain authorization from the Federal Energy Regulatory Commission (“**FERC**”) – the US equivalent of India’s CERC.¹⁰¹ Thus, in the US, a VPPA is not subject to FERC jurisdiction *per se*, since such a contract does not provide for the sale of either electricity, capacity, or ancillary services.

However, (i) *documentation* related to VPPAs is often formulated as long-form confirmations under an International Swaps and Derivatives Association (ISDA) Master Agreement (the standard contract used for OTC derivatives transactions), and (ii) *transactions* related to VPPAs are typically structured as ‘swaps’ – a type of OTC derivative regulated by the Commodity Futures Trading Commission (“**CFTC**”). Further, swaps are

⁹⁹ Regulation 4(1)(b) of the 2021 Power Market Regulations.

¹⁰⁰ Regulation 5(4) of the 2021 Power Market Regulations.

¹⁰¹ Under the Federal Power Act, the FERC regulates sales of electric energy at wholesale in interstate commerce. More specifically, FERC has exclusive jurisdiction over the transmission of electric energy in interstate commerce, and over the sale of electric energy at wholesale in interstate commerce, and all facilities for such transmission or sale of electric energy. The ‘facilities’ subject to FERC’s jurisdiction include contracts for sale at resale (wholesale) of electric energy, capacity, and ancillary services.

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subject to the Dodd-Frank Act (“**Dodd-Frank**”)¹⁰² with reporting, record-keeping, and registration requirements.¹⁰³

In the Indian context, the erstwhile FMC – now merged with, and replaced by, SEBI – corresponded somewhat with the CFTC in terms of regulatory scope. In addition, the Reserve Bank of India (“**RBI**”) deals with certain categories of OTC derivatives, including certain kinds of swaps.¹⁰⁴ The Dodd-Frank, on the other hand, has no precise equivalent in India. The erstwhile FCRA was repealed when the FMC merged with SEBI. Pursuant to such repeal and merger, respectively, regulation of the commodity derivatives market shifted (from FMC) to SEBI under the SCRA.¹⁰⁵ Thereafter, SEBI created a separate ‘Commodity Derivatives Market Regulation Department’ and amended existing regulations and laws, including the SCRA. Further, a year after the merger, in consultation with SEBI, the Central Government notified certain goods (the “**CG Notification**”)¹⁰⁶ for the purpose of, and with regard to, Section 2(bc) of the SCRA.¹⁰⁷ The language of Section 2(bc)(ii) of the SCRA read with the

¹⁰² The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (the “**Dodd-Frank Act**”). In the aftermath of the 2008 financial crisis, the Dodd-Frank Act enhanced the regulatory authority of the Commodity Futures Trading Commission (the “**CFTC**”) to oversee the swaps market.

¹⁰³ Specifically, the parties are required to, *inter alia*, report on the terms of the swap and file quarterly reports to entities designated by the CFTC in this regard. In addition, records of the swap transactions need to be maintained.

¹⁰⁴ See FINANCIAL MARKETS REGULATION DEPARTMENT, RBI, MARKET-MAKERS IN OTC DERIVATIVES DIRECTIONS, (September 16, 2021).

¹⁰⁵ With effect from September 28, 2015. See PRESS INFORMATION BUREAU, GOVERNMENT OF INDIA, MINISTRY OF FINANCE “GOVERNMENT ISSUES NOTIFICATION TO REPEAL THE FCRA, 1952 AND SHIFT THE REGULATION OF THE COMMODITY DERIVATIVES MARKET TO SEBI WITH EFFECT FROM 28TH SEPTEMBER, 2015 (September 2, 2015).

¹⁰⁶ Notification No. S.O. 3068(E) dated September 27, 2016; See also SEBI, LIST OF COMMODITIES NOTIFIED UNDER SCRA, (September 28, 2016).

¹⁰⁷ § 2(bc) of the SCRA: “commodity derivative means a contract -

(i) for the delivery of such goods, as may be notified by the Central Government in the Official Gazette, and which is not a ready delivery contract; or

(ii) for differences, which derives its value from prices or indices of prices of such underlying goods or activities, services, rights, interests and events,

CG Notification suggests that the goods so notified are in respect of (1) such commodity derivative contracts that are non-delivery and non-security-based; and thereby, relate to (2) CFDs, the value of which is derived from, *inter alia*, the price of such underlying goods as notified. Significantly, electricity is included within this list, as notified through the CG Notification.

The US Congress passed the Commodity Futures Modernization Act (“**CFMA**”) in the year 2000 to provide legal certainty for swap agreements. The CFMA explicitly prohibited the Securities Exchange Commission (the “**SEC**,” SEBI’s counterpart in the US) and the CFTC from regulating the OTC swaps markets. This limited the SEC’s ability to detect and deter fraud in the swaps markets. Title VII of Dodd-Frank, however, addresses this gap by providing a comprehensive framework for regulating such markets. Thus, Dodd-Frank divides regulatory authority in respect of swap agreements between the CFTC and SEC (although prudential regulators, such as the Federal Reserve Board, also have an important role to play for swap entities that are banks – similar to the RBI’s role in India).¹⁰⁸ While the SEC has regulatory authority over security-based swaps,¹⁰⁹ the CFTC has primary regulatory authority over all other swaps, including energy swaps.

as may be notified by the Central Government, in consultation with the Board, but does not include securities as referred to in sub-clauses (A) and (B) of clause (ac);”

¹⁰⁸ See §§ 45U(a) (definition of “derivative”) and 45V (“Transactions in derivatives”) of the RBI Act, 1934, as amended

¹⁰⁹ “Security-based swaps” are defined as swaps based on a single security or loan or a narrow-based group or index of securities (including any interest therein or the value thereof), or events relating to a single issuer or issuers of securities in a narrow-based security index. Security-based swaps are included within the definition of “security” under the Securities Exchange Act of 1934 and the Securities Act of 1933. In addition, the SEC has anti-fraud enforcement authority over swaps that are related to securities but that do not come within the definition of “security-based swap.” These are called “security-based swap agreements.” Further, Dodd-Frank provides the SEC with access to information relating to security-based swap agreements in the possession of the CFTC

VPPA transactions in the US can also be structured as commodity forward contracts (where RECs are priced at the difference between a floating and a fixed price). In this scenario, however, VPPAs are not considered swaps. The CFTC originally proposed to regulate environmental commodities – such as RECs – as swaps. Eventually, however, the CFTC found that intangible environmental commodities that are capable of physical delivery and ‘can be consumed’ qualify as ‘non-financial commodities’. Accordingly, sales of environmental commodities settled by transfer, such as RECs, are not swaps, but rather, constitute excluded forward contracts.

F. OTHER POSSIBILITIES

The right to receive EACs might be treated as a standalone contract, distinct from a VPPA.¹¹⁰ During the sale of bundled EACs, for example, a ‘hybrid’ VPPA structure (“**Hybrid VPPA**”) might be deemed to include: (i) a non-financial host contract (*i.e.*, the right to receive EACs), as well as (ii) an embedded price adjustment feature (*i.e.*, a swap derivative). However, in India, since the transfer of RECs from a genco (or other eligible entity) to a buyer (who might be a VPPA counterparty) is ultimately intended, and designed, to occur through CERC-approved platforms/persons/procedures only, such REC-related aspects of VPPA transactions may continue to remain under the purview of the CERC.

On the other hand, in the US, the power market related to RE is voluntary – essentially representing a free market economy with little regulatory oversight, driven by consumer preferences articulated via supply and demand. Certificate tracking systems account for REC issuances and transfers (rather than either FERC or CFTC). Such tracking systems are typically electronic databases that register basic information

and certain CFTC-regulated entities, such as derivatives clearing organizations, designated contract markets, and swap data repositories.

¹¹⁰ Essentially, a Forward REC Purchase Agreement.

about each MWh of RE generated in a specific region of the US. Accordingly, they issue RECs to the generator, signifying that an MWh of RE has been delivered to the grid. Thus, not one, but several U.S.-based tracking systems register and track generation from RE. The Center for Resource Solutions' Green-e Energy program certifies green power products and independently verifies such products on an annual basis.

VI. LESSONS FOR INDIA

A. REVISITING THE 2021 POWER MARKET REGULATIONS

The 2021 Power Market Regulations apply to the OTC market,¹¹¹ specifically, to contracts transacted in the OTC market.¹¹² Further, the price and other terms of such contracts can be determined, *inter alia*, through mutual agreement between the buyer and the seller directly.¹¹³ Thus, customized bilateral agreements directly between sellers and buyers (*i.e.*, outside of power exchanges) – such as VPPAs – appear to correspond with such characterization. However, the settlement of OTC-market contracts under the 2021 Power Market Regulations can only be done through the *physical* delivery of electricity.¹¹⁴

Nevertheless, the delivery of RECs (as opposed to electricity) could be expressly provided for under the 2021 Power Market Regulations, along with applicable changes made to the 2022 REC Regulations in parallel. For instance, within a Hybrid VPPA, one component of the overall contractual matrix could include a delivery-based forward contract (or a purchase agreement) in respect of RECs alone – since delivery-based contracts in the OTC market are included within the 2021 Power Market Regulations already.¹¹⁵ In addition, agreements between sellers and buyers

¹¹¹ Regulation 3(3) of the 2021 Power Market Regulations.

¹¹² See Regulations 7 and 4(2) of the 2021 Power Market Regulations.

¹¹³ Regulation 7(1) of the 2021 Power Market Regulations.

¹¹⁴ Regulation 7(3) of the 2021 Power Market Regulations.

¹¹⁵ Regulation 4(2) of the 2021 Power Market Regulations.

for the sale and purchase of RECs are included within the definition of a ‘contract’ under such regulations.¹¹⁶

However, at present, the 2021 Power Market Regulations require contract settlement for OTC transactions to be done under the physical delivery of electricity only.¹¹⁷ Nonetheless, if RECs are considered ‘electricity’ by appropriate authorities and exchanged by sellers and buyers through electricity traders (and *not* via power exchanges),¹¹⁸ such forward contracts or purchase agreements involving RECs (and RECs alone) might be possible – *i.e.*, these contracts may then fall within CERC’s jurisdiction, remaining consistent with the SC Order.

B. AN INDIAN DODD-FRANK?

In addition, the Necessary Specification contained in the 2010 Power Market Regulations (before such specification was declared inoperative) bore the necessary language to provide both precision and clarity in respect of allocating regulatory jurisdiction over financially settled electricity derivative contracts transacted in the OTC market (such as VPPAs). Pursuant to the SC Order, SEBI, as the domestic equivalent of both the CFTC and SEC, may want to issue regulations containing provisions similar to the Necessary Specification, as well as include record-keeping, registration, and reporting requirements – similar to Dodd-Frank – within such newly-issued regulations.

¹¹⁶ See Regulation 2(x) of the 2021 Power Market Regulations: “Contract” means an agreement between seller and buyer for sale and purchase of electricity or Renewable Energy Certificate or Energy Savings Certificate or any other product as may be decided by the Commission”.

¹¹⁷ Regulation 7(3) of the 2021 Power Market Regulations.

¹¹⁸ Pursuant to Regulation 2(an) of the 2021 Power Market Regulations, OTC contracts are those which are transacted outside of power exchanges.

C. VPPAS WITHOUT RECS

Notwithstanding any arguments or discussions as presented above, it is possible that the MoP will eventually decide against, or retract, a bundled REC regime in respect of the Indian power market (on account of concerns related to double counting, certification/tracking issues, ‘greenwashing’, or otherwise). Even then, however, VPPAs may be useful in light of India’s ambitious climate-related targets, pursuant to which domestic RE capacity-addition and procurement both need significant scaling up, including through increased private sector participation. In case the government wishes to retain greater oversight in respect of the entire VPPA process, it could designate and/or require state bodies/nodal agencies to act as VPPA counterparties with private RE gencos. In this model, such designated bodies/agencies can be empowered to conduct auctions to determine the strike price in respect of a proposed VPPA, while also, in parallel, requiring the selected bidder (a genco) to enter into a physical PPA with a discom. Meanwhile, consistent with VPPA dynamics, the discovery of market prices related to the sale of electricity can continue to occur on power exchanges.

Such an arrangement may produce distinct advantages, other than producing greater ‘additionality’.¹¹⁹ For example, it may help cash-strapped discoms to distribute RE more easily among retail customers (thereby promoting renewables consumption across the country, and leading to greater RPO compliance among obligated entities). At the same time, this arrangement can protect discoms against procurement, price, and supply-related risks (which are typically associated with RE) – since the state body/nodal agency will be the one bearing such risks, and not the discom. Instead, the concerned discom can remain a beneficiary (albeit *only* a beneficiary) under the VPPA.

¹¹⁹ The RE so generated is directly attributable to a new ‘additional’ RE project, which adds clean energy to the grid by displacing fossil equivalents: thus, in effect, such RE project would not have happened ‘but for’ the VPPA.

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Designated government bodies/agencies can also enter into similar arrangements with C&I customers (instead of with discoms). That way, while continuing to provide price and offtake assurance to RE gencos (*i.e.*, gencos with which VPPAs are entered into), the government bodies/agencies may transfer the benefit of the fixed price in the VPPA to a C&I customer for a fee.¹²⁰ Further, this arrangement may alleviate government concerns about VPPA-related risks, including those associated with a lack of familiarity among (smaller) C&I buyers in respect of the wholesale power market generally, as well as more specific concerns related to accounting complexities and RE variability. In addition, regulatory tussles may be more easily avoided, since it is likely that such an arrangement will be subsumed entirely within CERC's jurisdiction.

A similar arrangement has already been proposed by the CERC under its MBED¹²¹ mechanism related to the 'Day-ahead Market' ("**DAM**").¹²² At any rate, the 2021 Power Market Regulations already contemplate bilateral transactions¹²³ in respect of OTC contracts related to the *physical* delivery of electricity.¹²⁴ More specifically, a system of settlement in respect of bilateral contracts ("**BCS**"), *i.e.*, refunding the difference between the market clearing price and the contracted price – similar to CFD – has been contemplated under MBED, although the details are yet

¹²⁰ This arrangement may be somewhat similar to a 'sleeved' PPA. Other than as integrated bilateral agreements between a genco and a consumer, physical PPAs can be structured as tripartite agreements as well – between the customer, the genco, and a discom. This tripartite agreement is known as a 'sleeved' PPA, where the power produced by the genco is delivered from the grid to the customer through a discom.

¹²¹ Market Based Economic Dispatch.

¹²² See CERC, DISCUSSION PAPER ON MARKET BASED ECONOMIC DISPATCH OF ELECTRICITY: RE-DESIGNING OF DAY-AHEAD MARKET (DAM) IN INDIA, 2018, https://cercind.gov.in/2018/draft_reg/DP31.pdf (the "**MBED Discussion Paper**").

¹²³ For example, day-ahead bilateral transactions under Regulation 7(2)(i)(c), and bilateral transactions in a contingency under Regulation 7(2)(i)(d) of the 2021 Power Market Regulations.

¹²⁴ *Generally see* Regulation 7 of the 2021 Power Market Regulations.

to be finalized.¹²⁵ The discussion paper prepared by the CERC staff in this regard (the “**MBED Discussion Paper**”)¹²⁶ clarifies that BCS is: (i) a mechanism to provide hedging to both contracting parties against price volatility; and (ii) purely a non-tradable bilateral arrangement, meant to grandfather existing contracts (typically, long-term physical contracts entered into between discoms and gencos). Replacing the proposed BCS mechanism under MBED with a non-REC-based VPPA arrangement might further ensure that existing/future physical PPA counterparties derive the maximum benefit from their *inter se* power purchase/sale arrangement, while a government-designated body/agency absorbs intermediate shocks if any. Further, patching such non-REC-based VPPA arrangement with the pre-existing DAM template might help parties with respect to interval accounting under CERC’s supervision.

VII. CONCLUSION

Despite the SC Order, it remains unclear as of date whether the physical and financial aspects of VPPA-based transactions can be clearly addressed by SEBI and CERC. In light of such persisting uncertainties, the appropriate regulatory jurisdiction in respect of VPPAs could be jointly clarified by both such authorities, including through the issuance of separate regulations in this regard, if necessary.

In the future, VPPAs could also be instrumentalized through the use of ‘smart’ legal contracts.¹²⁷ For instance, blockchain technology¹²⁸ can

¹²⁵ See CERC MINUTES OF THE COMMISSION MEETING ON IMPLEMENTATION OF MARKET BASED ECONOMIC DESPATCH (MBED), Paragraph 2(vi), (August 25, 2022) <https://cercind.gov.in/2022/Minutes/MBED-Commission-Meeting-25-Aug-2022.pdf>

¹²⁶ The MBED Discussion Paper.

¹²⁷ A smart contract is usually a computer code, which, upon the occurrence of a specified condition, is capable of running automatically according to pre-specified functions. Smart contracts can be used in various contexts, but they are an integral part of blockchain and distributed ledger technologies. A smart *legal* contract is a smart contract that articulates, and is capable of self-executing, on a legally-enforceable basis, the terms of an agreement between two or more parties. See, e.g., Lu, Jing, et al. *Smart contract for distributed energy trading in virtual power plants based on blockchain*, COMPUTATIONAL INTELLIGENCE, 37.3, 1445-1455, (2021)

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assist in: (i) automating the issuance and trading of RECs based on actual energy consumption, (ii) ensuring payments using smart contracts, and (iii) streamlining energy accounting. Various initiatives in India related to a ‘smart grid’¹²⁹ in collaboration with the MoP, such as the National Smart Grid Mission (NSGM)¹³⁰ and the India Smart Grid Forum (ISGF),¹³¹ may significantly contribute towards this formulation.

¹²⁸ Blockchain technology directly connects the procurer to the seller, eliminating the need for a third party, consequently reducing transaction costs. See, e.g., Kirli, Desen, *et al.* *Smart contracts in energy systems: A systematic review of fundamental approaches and implementations*, RENEWABLE AND SUSTAINABLE ENERGY REVIEWS, 158, 112013, (2022); CENTRE FOR ENERGY FINANCE (CEF), THE COUNCIL ON ENERGY, ENVIRONMENT AND WATER (CEEW), THE ROLE OF BLOCKCHAIN TECHNOLOGY IN THE POWER SECTOR, (January 31, 2022), <https://www.ceew.in/cef/masterclass/explains/the-role-of-blockchain-technology-in-the-power-sector>

¹²⁹ A ‘smart grid’ is an electricity grid vested with automation, communication, and information technology (IT) systems that can monitor power flows from points of generation to points of consumption, as well as control the power flow or curtail the load to match generation in real time.

¹³⁰ See <https://www.nsgm.gov.in/en/smart-grid>.

¹³¹ See <https://indiasmartgrid.org/>.