

CSERC (RENEWABLE PURCHASE OBLIGATION AND REC FRAMEWORK IMPLEMENTATION) (FIRST AMENDMENT) REGULATION, 2022.

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ELECTRICITY REGULATORY COMMISSION 1. 1.1 1.2 1.3 2. 3. (RENEWABLE PURCHASE OBLIGATION AND REC FRAMEWORK IMPLEMENTATION) (FIRST AMENDMENT) REGULATIONS, 2022 Short Title, Extent and Commencement These Regulations shall be called the Chhattisgarh State Electricity Regulatory Commission (Renewable Purchase Obligation and REC framework Implementation) (First Amendment) Regulations, 2022. These Regulations shall extend to the whole of the State of Chhattisgarh. These Regulations shall come into force from date of publications in the CG Rajpafra. Substitution of last para of regulation 3 For last para of regulation 3 of the principal regulations the following shall be substituted namely: The RPO framework outlined under these Regulations shall commence from the April 01, 2021 and shall generally be applicable until March 31, 2030 (i.e., upto the financial year 2029-2030). The RPO specified for the Financial Year 2029-30 shall be continued beyond 2029-30 till any revision is effected by the Commission in this regard. Substitution of new sub regulation for sub regulation 4.2 of regulation 4 For sub regulation 4.2 of regulation 4 of the principal regulations, the following sub regulation shall be substituted namely: 4.2 All renewable energy purchase directly from generating stations or through trader or through power exchanges shall be considered for meeting the RPO; For meeting the RPO, renewable power purchases made by the obligated entities under long term Power purchase agreements with the biomass based generating plants and coal based thermal power plants co-firing bio-mass shall only be considered. Purchases made by obligated entities from renewable energy sources other than biomass coal based thermal power plants co-firing bio-mass such as small hydel, 4. large hydro, wind and solar under long-term, medium-term and short-term arrangements, will be considered for meeting the RPO. Electricity generated from coal based thermal power plants including captive and co-generation power plants co-firing bio-mass shall be considered for meeting the RPO of obligated entities such as co-located, non co-located captive users and co-located end users who do not qualify as captive users under Electricity Rules 2005. Methodology of estimation of electricity generated from biomass in biomass co- firing coal based thermal power plants, including captive and co-generation power plants co-firing biomass shall be as per Annexure A. Modification of RPO Trajectory in Table 1 in sub regulation 4.3 of regulation 4 Table 1 in sub regulation 4.3 of regulation 4 of the principal regulations shall be substituted as: Year 2021-22 Year 2022-23 2023-24 2024-25 2025-26 2026-27 2027-28 2028-29 2029-30 Solar 10.50% Wind RPO 0.81% 1.60% 2.46% 3.36% 4.29% 5.23% 6.16% 6.94% Non-Solar I-IPO 0.18% I-wo 0.35% 0.66% 1.08% 1.48% 1.80% 2.15% 2.51% 2.82% Others 10.5% Other RPO 23.44% 24.81% 26.37% 28.17% 29.86% 31.43% 32.69% 33.57% Total 21.18% Total RPO 24.61% 27.08% 29.91% 33.01% 35.95% 38.81% 41.36% 43.33% (a) (b) (c) (d) Wind RPO shall be met by energy produced from Wind Power Projects (WPPs), commissioned after 3 March 2022 and the wind energy consumed over and above 7% from WPPs commissioned till 31 st March 2022. HPO shall be met only by energy produced from Hydro Power Projects (including pumped storage projects (PSPs) and Small Hydro Projects (SHPs)), commissioned after 8th March 2019. Other RPO may be met by energy produced from any RE power project not mentioned in (a) and (b) above. Any shortfall remaining in achievement of 'Other RPO' category in a particular year can be met with either the excess energy consumed from WPPs, commissioned after 31st March 2022 beyond 'Wind RPO' for that year or with, excess energy consumed from eligible Hydro Power Projects (including PSPs and SHPs), commissioned after 8th March 2019 beyond 'HPO' for that year or partly from both. Further, any shortfall in achievement of 'Wind RPO' in a particular year can be met with excess energy consumed from Hydro Power Plants, which is in excess of 'HPO' for that year and vice versa. The following percentage of total energy consumed shall be solar/wind energy along with/through storage. 2023-24 2024-25 2025-26 2026-27 2027-28 2028-29 2029-30 Storage on Ene basis 1.0% 1.5% 2.0% 2.5% 3.0% 3.5% 4.0% 5

6. The Energy Storage Obligation in table above shall be calculated in energy terms as a percentage of total consumption of electricity and shall be treated as fulfilled only when at least 85% of the total energy stored in the Energy Storage System (ESS), on an annual basis, is procured from renewable energy sources. The Energy Storage Obligation to the extent of energy stored from RE sources shall be considered as a part of fulfilment of the "Total RPO". Substitution of first proviso of sub regulation 4.3 of regulation 4 For first proviso of sub regulation 4.3 of regulation 4 of the principal regulations, the following shall be substituted namely: Provided that RPO and energy storage obligation for the year 2022-23 & beyond shall be subject modification/amendments specified by MoP/N/NRE from time to time, if Substitution of new sub regulation for sub regulation 4.4 of regulation 4 For sub regulation 4.4 of

regulation 4 of the principal regulations, the following sub regulation shall be substituted namely: 4.4 Such power purchase shall be made at tariffs determined by the Commission from time to time for procurement of power by distribution licensees or price discovered through competitive bidding as per the guidelines prescribed by NRE. Long term purchase already contracted by the distribution licensees as per the orders of the Commission for biomass-based power plants, power generated from co firing of biomass in thermal power plants, small hydel plants or solar power plants in the State shall be reckoned for the purpose of the purchase obligation given above.

7. New Annexure to be added as Annexure-A Methodology estimation of electricity generated from biomass in biomass co- firing coal based thermal power plants, including captive and co-generation power plants co-firing biomass The methodology specified hereunder is to be followed by generating companies, State Load Dispatch Centre, State Agency for estimating electricity generated from biomass co-firing coal based thermal power plants, including captive and co- generation power plants co-firing biomass. Step-I : 1. 2

3. The electricity generated from biomass shall be estimated at generator terminal on monthly basis in accordance with the following formulae: $E_b(G) [(Q_b \times G_b) / ((Q_c \times G_c) + (Q_b \times G_b)) \times E(GT)]$
Where, $E_b(G)$ = Electrical energy generated by biomass at generator terminal during the month (kWh); Q_b = Quantity of biomass consumed during the month (kg) G_b = Weighted average Gross Calorific Value (GCV) of biomass consumed during the month (kCal/kg) as specified in the CSERC RE Tariff Regulations $E(GT)$ = Gross electrical energy generated at generator terminal during the month (kWh) Q_c = Quantity of coal burnt during the month (kg) G_c = Weighted average GCV of coal burnt during the month (kCal/kg) The product $(Q_b \times G_b)$ represents heat (in kCal) input through biomass during the month and shall be estimated on monthly basis by applying the following formulae: $Q_b \times G_b$ (kCal) = {Opening balance of biomass (kg) x weighted average GCV of opening balance of biomass (kCal/kg)} + {quantity of biomass received during the month (kg) x weighted average GCV received during the month (kCal/kg)} - {closing stock of biomass (kg) x weighted average GCV of the closing balance of biomass (kCal/kg)}. The product $(Q_c \times G_c)$ represents heat (in kCal) input through coal during the month and shall be estimated on monthly basis by applying the following formulae: $Q_c \times G_c$ (kCal) {Opening balance of coal (kg) x weighted average GCV of Opening balance of coal (kCal/kg)} + {quantity of coal received during the month (kg) x weighted average GCV of coal received during the month (kCal/kg)} - {closing Stock of coal (kg) x weighted average GCV of the closing balance of coal (kCal/kg)} Step-2: 4

5. The ex-bus electrical energy generated by using biomass shall be estimated on monthly basis by applying following formulae: $E_b(\text{ex-bus}) = E_b(G) \{1 - [E(GT) / ESO]\}$ - Where, $E_b(\text{ex-bus})$ = Electrical energy generated by biomass ex-bus during the month (kWh); $E_b(G)$ = Electrical energy generated by biomass at Generator terminal during the month arrived at Step-I (kWh); $E(GT)$ = Total electrical energy generated at generator terminal during the month (kWh); ESO = Total energy sent out (ex-bus) during the month (kWh). The generating company shall provide information to the beneficiaries and State Agency related to biomass uses and monitoring mechanism/power to get statistics for the use of biomass fuel shall be as per provisions specified in prevailing CSERC RE Tariff Regulations for biomass and co-generation plants. State Agency shall verify electricity generated from biomass co firing in power generating plants. Monthly fuel and GCV accounts as maintained by generating station shall be made available to authorized representative/s of beneficiaries and SLDC on demand.