From: "Abhijeet Rajendra" <Abhijeet.Rajendra@statkraft.com> To: "Harpreet Singh Pruthi" <secy@cercind.gov.in>, "Shilpa Agarwal" <shilpa@cercind.gov.in> Cc: "Sanjeev Mehra" <Sanjeev.Mehra@statkraft.com>, "Aveek Banerjee" <Aveek.Banerjee@statkraft.com>, "Navdeep Gupta" <Navdeep.Gupta@statkraft.com>, "BharathKumar Thotakura" <BharathKumar.Thotakura@statkraft.com>, "Umesh Saini" <Umesh.Saini@statkraft.com> Sent: Monday, October 31, 2022 9:56:06 AM Subject: Statkraft Comments on Draft Control Electricity Begulatery Commission (Indian

Subject: Statkraft Comments on Draft Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2022

Dear Sir/Maam,

Please find enclosed our comments on Draft Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2022 for your consideration.

Thanks & Regards

Abhijeet Rajendra

Senior Manager – Regulatory & Market Analysis

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Statkraft Market Private Limited



<u>Comments of Statkraft Markets Private Limited on Central Electricity</u> <u>Regulatory Commission (Indian Electricity Grid Code) Regulations, 2022</u>

Requested Suggestion 1. Clause 5 (2) (i) Following is suggested: a. Availability of data in public domain will give correct investment (i) Each distribution licensee within a State shall estimate the demand in its control area including the demand of open access consumers and factoring in captive generating plants, energy efficiency measures, distributed generation, demand response, for the next five (5) years starting from 1st April of the next year and submit the same to the STU by 31st July every year. D. The granularity of demand forecast shall at least be on hourly basis b. With increasing planters, participants in financial market) 2. Clause 5 (3) Generation Resource Adequacy Planning a. The result of Generation Adequacy Planning should be made available on the stakeholders (traders, transmission system planners, participants in financial market) b. With increasing penetration of renewable technologies in the grid the load curve of country is changing which is being reflected in hourly prices in power exchanges. Hourly demand forecast will help DISCOMs in taking better decisions when they plan for Generation Resource Procurement 2. Clause 5 (3) Generation Resource Adequacy Planning a. The result of Generation Adequacy Planning should be made available on the a. Availability of data in public domain will give correct investment	S.No.	Clause No & Details	Su	ggestion/Clarification	Ra	tionale for
Demand Forecasting: (i) Each distribution licensee within a State shall estimate the demand in its control area including the demand of open access consumers and factoring in captive generating plants, energy efficiency measures, distributed generation, demand response, for the next five (5) years starting from 1st April of the next year and submit the same to the STU by 31st July every year.a. The forecasted demand forecast shall at least be on hourly basispublic domain will give correct investment signal for generators and will serve as an important signal for other power market stakeholders (traders, transmission system planners, participants in financial market)0.The ore and five (5) years starting from 1st April of the next year and submit the same to the STU by 31st July every year.b. The granularity of country is changing which is being reflected in hourly prices in power exchanges. Hourly demand forecast will help DISCOMs in taking better decisions when they plan for Generation Resource Adequacy Planninga. The result of Generation Adequacy Planning should be made available on thea. Availability of data in public domain will give correct investment signal for generators			Re	quested	Su	ggestion
 (i) Each distribution licensee within a State shall estimate the demand in its control area including the demand of open access consumers and factoring in captive generating plants, energy efficiency measures, distributed generation, demand response, for the next five (5) years starting from 1st April of the next year and submit the same to the STU by 31st July every year. 2. Clause 5 (3) Generation Resource Adequacy Planning 2. Clause 5 (3) Generation Resource Adequacy Planning 4. The result of Generation Adequacy Planning should be made available on the signal for generators and will serve as an important signal for other power market stakeholders (traders, transmission system planners, participants in financial market) b. With increasing penetration of renewable technologies in the grid the load curve of country is changing which is being reflected in hourly prices in power exchanges. Hourly demand forecast will help DISCOMs in taking better decisions when they plan for Generation Resource Adequacy Planning should be made available on the 	1.	Clause 5 (2) (i)	Fo	llowing is suggested:	a.	Availability of data in
within a State shall estimate the demand in its control area including the demand of open access consumers and factoring in captive generating plants, energy efficiency measures, distributed generation, demand response, for the next five (5) years starting from 1st April of the next year and submit the same to the STU by 31st July every year.made available on the 		Demand Forecasting:	a.	The forecasted		public domain will give
demand in its control area including the demand of open access consumers and factoring in captive generating plants, energy efficiency measures, distributed generation, demand response, for the next five (5) years starting from 1st April of the next year and submit the same to the STU by 31st July every year.website of respective SLDCs/RLDCs b. The granularity of demand forecast shall at least be on hourly basisand will serve as an important signal for other power market stakeholders (traders, transmission system planners, participants in financial market)b. The granularity of to the next five (5) years starting from 1st April of the next year and submit the same to the STU by 31st July every year.b. With increasing penetration of renewable technologies in the grid the load curve of country is changing which is being reflected in hourly prices in power exchanges. Hourly demand forecast will help DISCOMs in taking better decisions when they plan for Generation Resource Procurement2.Clause 5 (3) Generation Resource Adequacy Planninga. The result of Generation Adequacy Planning should be made available on thea. Availability of data in public domain will give correct investment signal for generators		(i) Each distribution licensee		demand should be		correct investment
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plants, energy efficiency measures, distributed generation, demand response, for the next five (5) years starting from 1st April of the next year and submit the same to the STU by 31st July every year.at least be on hourly basistransmission system planners, participants in financial market)b. With increasing penetrationof renewableb. With increasing penetrationof renewableto the STU by 31st July every year.year.of renewabletechnologies in the grid the load curve of country is changing which is being reflected in hourly prices in power exchanges. Hourly demand forecast will help DISCOMs in taking better decisions when they plan for Generation Resource Procurement2.Clause 5 (3) Generation Resource Adequacy Planninga. The result of Generation Adequacy Planning should be made available on thea. Availability of data in public domain will give correct investment signal for generators		access consumers and	b.	The granularity of		other power market
measures, generation, demand response, for the next five (5) years starting from 1st April of the next year and submit the same to the STU by 31st July every year.basisplanners, participants in financial market)b. With next year and submit the same to the STU by 31st July every year.basisb. With increasing penetration of renewable technologies in the grid the load curve of country is changing which is being reflected in hourly prices in power exchanges. Hourly demand forecast will help DISCOMs in taking better decisions when they plan for Generation Resource2.Clause 5 (3) Generation Resource Adequacy Planninga. The result of Generation Adequacy Planning should be made available on thea. Availability of data in public domain will give correct investment signal for generators		factoring in captive generating		demand forecast shall		stakeholders (traders,
generation, demand response, for the next five (5) years starting from 1st April of the next year and submit the same to the STU by 31st July every year.b. With increasing penetration of renewable technologies in the grid the load curve of country is changing which is being reflected in hourly prices in power exchanges. Hourly demand forecast will help DISCOMs in taking better decisions when they plan for Generation Resource Adequacy Planninga. The result of Generation Adequacy Planning should be made available on thea. Availability of data in public domain will give correct investment signal for generators		plants, energy efficiency		at least be on hourly		transmission system
for the next five (5) years starting from 1st April of the next year and submit the same to the STU by 31st July every year.b. With increasing penetrationincreasing year.increasing penetrationincreasing grid the STU by 31st July every year.increasing renewableincreasing grid the load curve of country is changing which is being reflected in hourly prices in power exchanges. Hourly demand forecast will help DISCOMs in taking better decisions when they plan for Generation Resource Procurement2.Clause 5 (3) Generation Resource Adequacy Planninga. The result of Generation Adequacy Planning should be made available on the signal for generatorsa. Availability of data in signal for generators		measures, distributed		basis		planners, participants
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2. Clause 5 (3) Clause 5 (3)		to the STU by 31 st July every				technologies in the
2. Clause 5 (3) Generation Resource Adequacy Planning		year.				grid the load curve of
2. Clause 5 (3) Generation Resource Adequacy Planning 2. Clause 7 (3) Adequacy Planning 2. Clause 5 (3) Clause 5 (3) Cl						country is changing
2. Clause 5 (3) Generation Resource Adequacy Planning a. The result of Generation Adequacy Planning should be made available on the signal for generators						which is being
2. Clause 5 (3) Generation Resource Adequacy Planning Adequacy P						reflected in hourly
2. Clause 5 (3) Generation Resource Adequacy Planning A dequacy Plan						prices in power
2.Clause 5 (3) Generation Resource Adequacy Planninga.The result of Generation Adequacy Planning should be made available on the signal for generatorsa.						exchanges. Hourly
2. Clause 5 (3) a. The result of Generation Adequacy a. Availability of data in Generation Adequacy Adequacy Planning Planning should be made available on the generators public domain will give signal for generators						demand forecast will
2.Clause 5 (3) Generation Resource Adequacy Planninga.The result of Generation Adequacy Planning should be made available on thea.Availability of data in public domain will give signal for generators						help DISCOMs in
2. Clause 5 (3) a. The result of Generation Adequacy a. Availability of data in public domain will give Adequacy Planning Planning should be made available on the signal for generators correct investment signal for generators						taking better
Adequacy Planning a. The result of generation Adequacy a. Availability of data in public domain will give public domain will give for generators						decisions when they
Clause 5 (3) a. The result of Generation Resource a. Adequacy Planning built of data in public domain will give or correct investment made available on the signal for generators						plan for Generation
2. Clause 5 (3) a. The result of a. Availability of data in Generation Resource Generation Adequacy public domain will give Adequacy Planning Planning should be correct investment made available on the signal for generators						Resource
Generation Resource Generation Adequacy public domain will give Adequacy Planning Planning should be correct investment made available on the signal for generators						Procurement
Adequacy Planning Planning should be correct investment made available on the signal for generators	2.	Clause 5 (3)	a.	The result of	a.	Availability of data in
made available on the signal for generators		Generation Resource		Generation Adequacy		public domain will give
made available on the signal for generators		Adequacy Planning		Planning should be		correct investment
				made available on the		signal for generators



S.No.	Clause No & Details	Suggestion/Clarification	Rationale for	
		Requested	Suggestion	
		website of respective	important signal for	
		SLDCs/RLDCs	other power market	
		b. It is suggested that	stakeholders (traders,	
		Energy Storage	transmission system	
		System (battery and	planners, participants	
		Pump Storage Hydro)	in financial market)	
		should also be	b. With greater	
		considered	integration of	
		separately while	Renewable Energy	
		doing generation	resources in the Grid,	
		resource adequacy	it is important that	
		planning. Planning	Energy Storage	
		should ensure that	Requirement is also	
		requirement of	considered during	
		Energy Storage is	Generation Resource	
		correctly forecasted	Adequacy Planning.	
			Draft National	
			Electricity Plan	
			(Generation) issued	
			by CEA highlights the	
			requirement for ESS	
3.	Clause Chapter 5	May be modified as		
	Clause 26 2 (b)	below:		
	(b) The certificates as required	(b) The certificates as		
	under clause (a) of this	required under clause (a)		
	Regulation shall be signed by	of this Regulation shall be		
	the authorized signatory not	signed by the authorized		
	below the rank of CMD or CEO	signatory not below the		
	or MD of the generating	rank of CMD or CEO or		
	company and shall be	MD or Company		
	submitted to the concerned	secretary or person		
	RLDC and to the Member	Authorized by Board of		
	Secretary of the concerned	Director of the generating		
	RPC before declaration of COD	company and shall be		
		submitted to the		



S.No.	Clause No & Details	Suggestion/Clarification	Rationale for
		Requested	Suggestion
		concerned RLDC and to	
		the Member Secretary of	
		the concerned RPC	
		before declaration of COD	
4.	Clause 30 (10) (h)	May be modified as	It may be noted that
	All generating stations	below:	generation from hydro &
	mentioned in Table-4 (under	All generating stations	renewable projects cannot
	clause (g) of this Regulation)	mentioned in Table-4	be increased in absence
	shall have the capability of	(under clause (g) of this	of water, Solar insolation,
	instantaneously picking up to a	Regulation) shall have the	Wind.
	minimum 105% of their	capability of	
	operating level and up to 105%	instantaneously picking	
	or 110% of their MCR, as the	up to a minimum 105% of	
	case maybe, when the	their operating level and	
	frequency falls suddenly and	up to 105% or 110% of	
	shall provide primary response.	their MCR, as the case	
	Any generating station not	maybe, when the	
	complying with the above	frequency falls suddenly	
	requirements shall be kept in	and shall provide primary	
	operation (synchronized with	response. Any generating	
	the regional grid) only after	station not complying with	
	obtaining the permission of the	the above requirements	
	concerned RLDC	shall be kept in operation	
		(synchronized with the	
		regional grid) only after	
		obtaining the permission	
		of the concerned RLDC	
		Provided that for hydro,	
		wind, solar, hybrid (
		based on renewable	
		energy) generators this	
		requirement is subject	
		to availability of water,	
		wind, solar insolation,	
		as the case may be.	



S.No.	Clause No & Details	Suggestion/Clarification	Rationale for
		Requested	Suggestion
		Further, during high	
		inflow season hydro	
		plant operates on	
		overload capacity and it	
		will not have additional	
		capability to increase	
		the generation	
5.	Clause 45 (4) (b)	Please clarify (through	
	(4) Entitlement of a buyer	an example) how	
	and beneficiary:	scheduling will happen for	
	(a)	cases covered under 45	
	(b) For all other cases not	(4) (b) – Suppose a 1000	
	covered under Clause (a),	MW plant has has 3	
	the buyer shall be entitled for	buyers having PPAs of (i)	
		Buyer-1: 300 MW (ii)	
		Buyer -2: 200 MW & (iii)	
	declared capacity of regional	Buyer-3: 500 MW. The	
	entity generating station as	tariff for all three buyers is	
	per its contracts.	different. Further, the	
		plant has declared	
		availability of 500 MW.	
		Will each Buyer get	
		scheduled in proportion to	
		their contracted capacity	
		or the generator will have	
		the flexibility to schedule	
		more power under PPA	
		which has higher tariff	
6.	Clause 45 (5) (a) (i)	May be modified as	Generators have to apply
	(5) Requirement for	below:	only for Connectivity
	Commencement of	(5) Requirement for	under CERC GNA
	Scheduling:	Commencement of	Regulations
	(a) The following documents	Scheduling:	
	shall be submitted to the	(a) The following	
	respective RLDC before	documents shall be	



S.No.	Clause No & Details	Suggestion/Clarification	Rationale for
		Requested	Suggestion
	commencement of scheduling	submitted to the	
	of transactions under GNA or	respective RLDC before	
	T-GNA, as the case may be:	commencement of	
	(i) Grant of GNA with effective	scheduling of transactions	
	date, by the sellers and the	under GNA or T-GNA, as	
	buyers;	the case may be:	
		(i) Grant of GNA and/or	
		Connectivity with	
		effective date, by the	
l		sellers and the buyers;	
7.	Clause 45 (10) (a)	May be modified as	Due to inherent machine
	Optimum Utilization of Hydro	below:	capability (as certified by
	Energy	(a) During high inflow and	manufacturer) some of
	(a) During high inflow and water	water spillage conditions,	the hydro projects have
	spillage conditions, for Storage	for Storage type	an overload capacity of
	type generating station and	generating station and	20% (which can be used
	Run–of-River Generating	Run-of-River Generating	only during peak season).
	Station with Pondage, the	Station with Pondage, the	Such overload capacity
	declared capacity for the day	declared capacity for the	shall be allowed to be
	may be upto the installed	day may be upto the	injected.
	capacity plus overload	installed capacity plus	As per Regulation 32(2)
	capability (upto 10%) minus	overload capability (upto	of Central Electricity
	auxiliary consumption,	20% -10%) minus auxiliary	Authority (Technical
	corrected for the reservoir level.	consumption, corrected	
		for the reservoir level	Construction of Electrical
			Plants and Electrical
			Lines) Regulations 2010
			"The maximum
			continuous overload
			capacity of the unit at the
			generator terminal during
			the high head conditions
			or high discharge
			conditions or both as
			guaranteed by the



S.No.	Clause No & Details	Suggestion/Clarification	Rationale for
		Requested	Suggestion
			manufacturer shall be
			based on the hydraulic
			parameters of the
			Station."
			Hence, hydro generators
			should be permitted to
			generate up to overload
			of 20%
8.	Clause 45 (10) (b)	May be modified as	Due to inherent machine
	Optimum Utilization of Hydro	below:	capability (as certified by
	Energy	(b) During high inflow and	manufacturer) some of
	(b) During high inflow and water	water spillage conditions,	the hydro projects have
	spillage conditions, the	the concerned RLDC shall	an overload capacity of
	concerned RLDC shall allow	allow scheduling of power	20% (which can be used
	scheduling of power from hydro	from hydro generating	only during peak season).
	generating stations for the	stations for the overload	Such overload capacity
	overload capability upto 10% of	capability upto 20% 10%	shall be allowed to be
	Installed capacity without the	of Installed capacity	injected
	requirement of additional GNA	without the requirement of	
	for such overload capacity,	additional GNA for such	
	subject to availability of	overload capacity, subject	
	margins in the transmission	to availability of margins in	
	system.	the transmission system.	
9.	Additional Comment	Definition for Auxiliary	While the draft IEGC
		Consumption should be	Regulations uses
		added	Auxiliary Consumption at
			various places, the term
			has not been defined
10.	Additional Comment	In case a renewable	The generation from
		energy generator or a	renewable sources and
		hydro generator forecasts	hydro is inherently
		that its generation would	variable. Permitting such
		not be equal to its	generators to buy power
		schedule, such	will help in grid balancing



S.No.	Clause No & Details	Suggestion/Clarification	Rationale for
		Requested	Suggestion
		Generators should be	and also help such
		permitted to buy power by	generators to avoid high
		entering into a contract(s)	DSM penalties. The Grid
		covered under the Power	Code in any case is
		Market Regulation or by	permitting generators to
		arranging supply from any	buy power under forced
		other generating station,	shutdown and Unit
		to balance their positions	Shutdown.