

Trend Analysis of Power Exchange Prices in India: 2018-20

NTPC Vidyut Vyapar Nigam



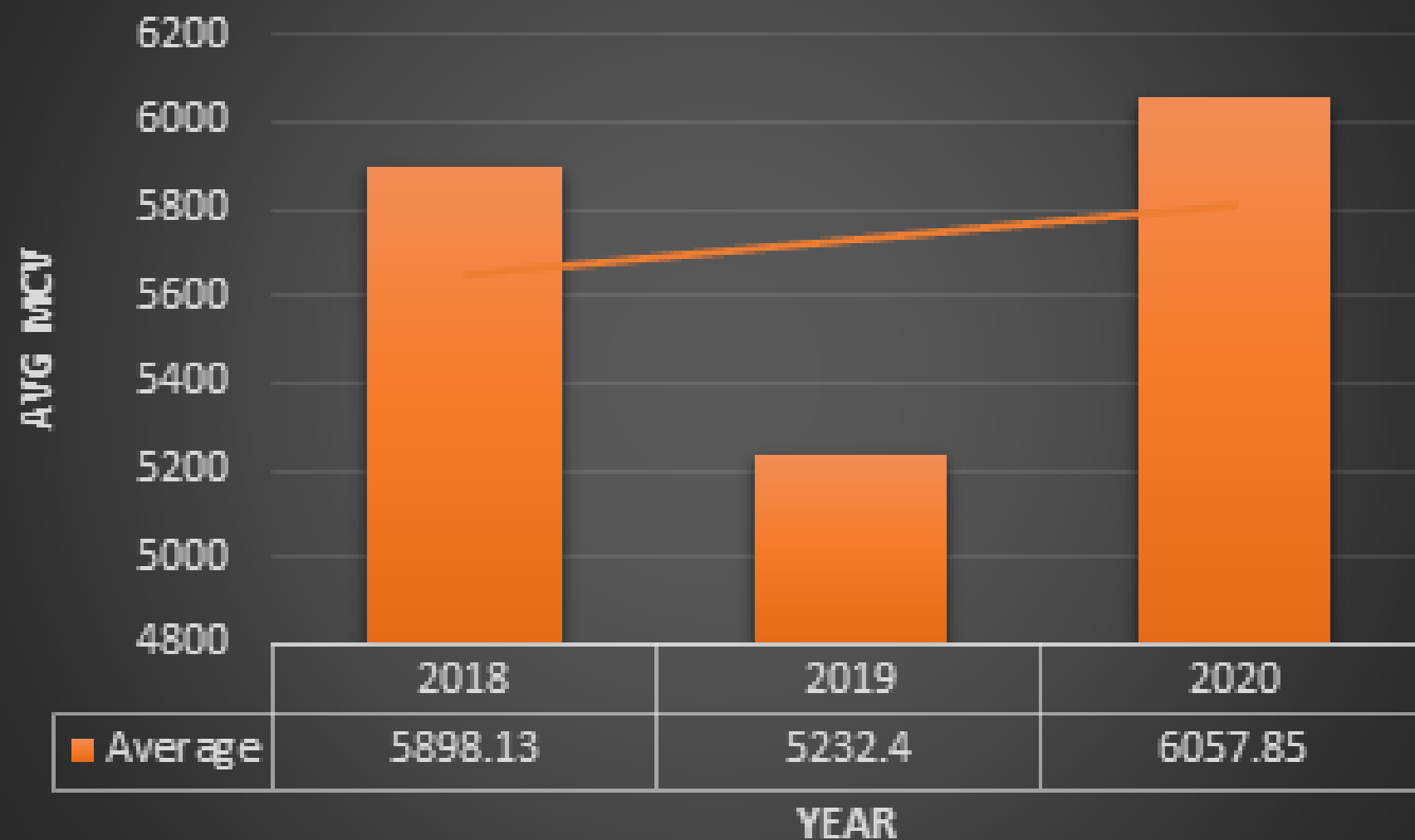
Overview

- Short term power market transaction - 12% in 2018 (9% higher than that of 2009-10 as compared to gross electricity generatio (6%)).
- Short term market volume transaction in 2018-19 - 14% higher than that of 2017-18.
- Approximately up-to 50% of short term transaction is under DAM.
- More demand through DAM of power exchanges than the bilateral transactions through traders with lesser average rate.

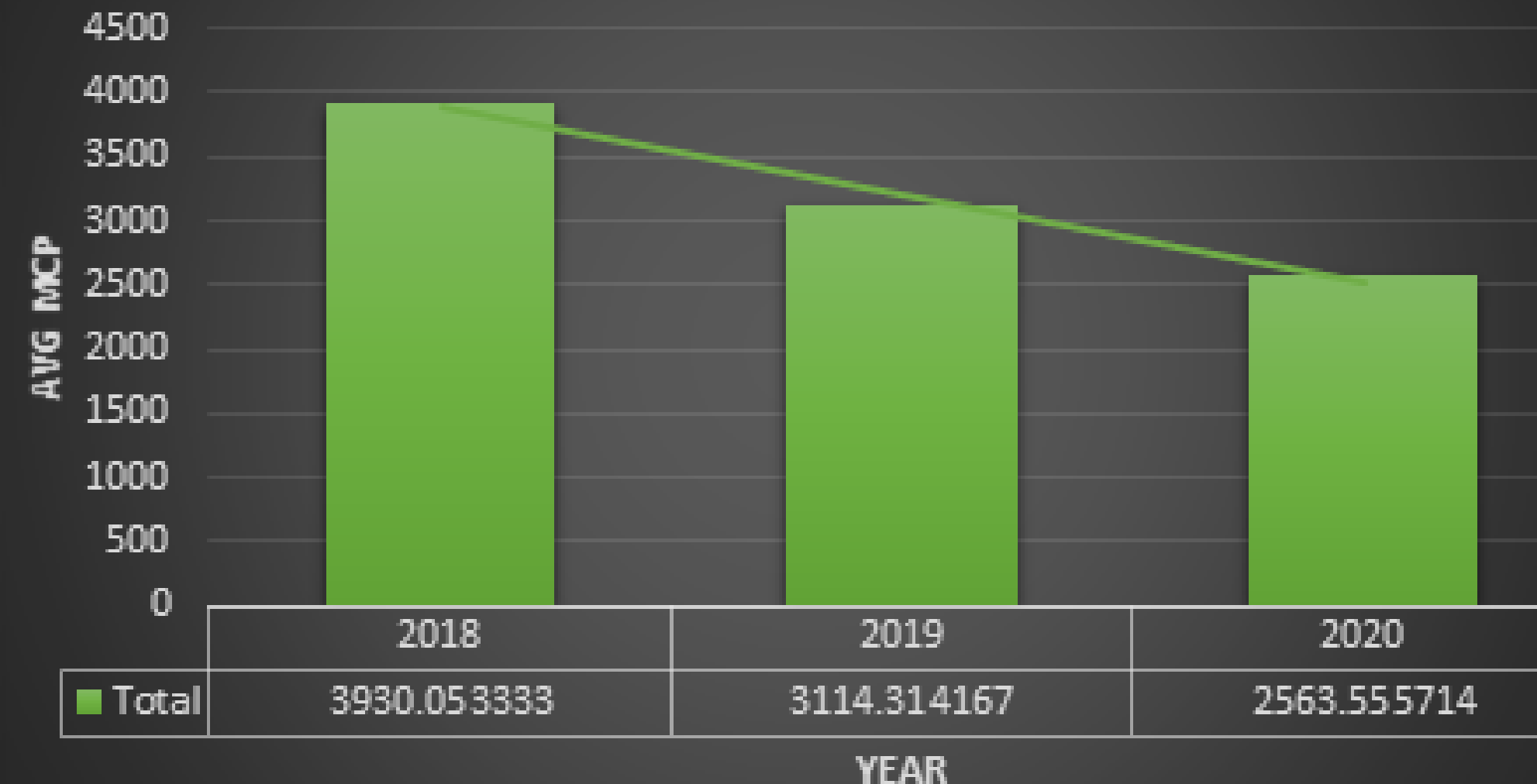


Yearly Trends in Short-term Transactions of Electricity (2018-20 through Power Exchanges)

Yearly Avg MCV Trend



Yearly Avg MCP Trend



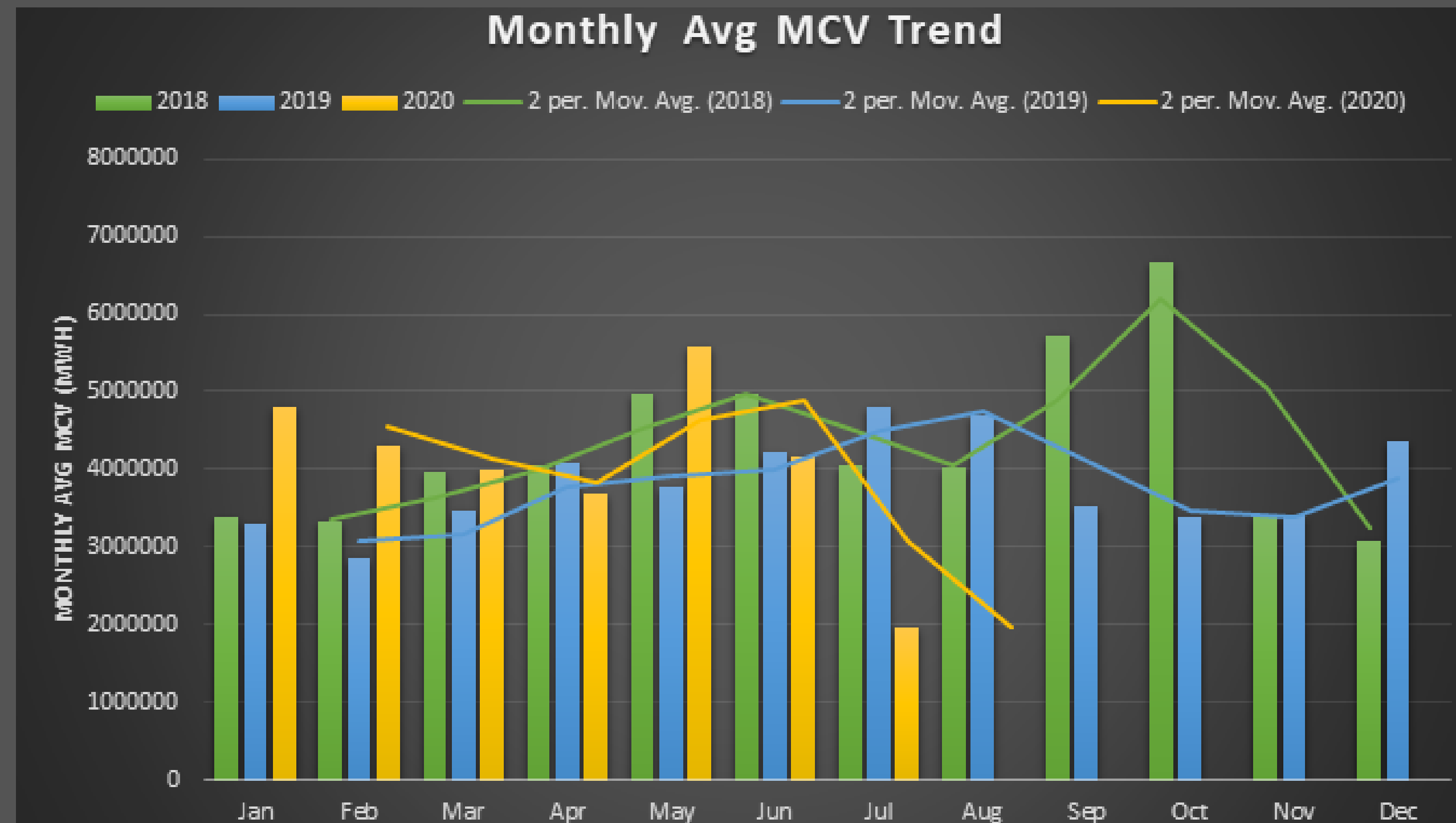
Generalized reasons behind these variations

- Demand for Electricity and , consequently price, depends
 - Weather (temperature,precipitation, wind power etc.)
 - Changes in daily and business activities (weekends and weekdays, on-peak and off-peak hours).
 - Fossil fuel prices
 - Congestion charges and changing maintenance cost of Transmission and distribution networks are some influencing factors for change in prices.
- Also, it is an usual economics concept that if the supply is in surplus and the demand is low than the prices will be low and vice-versa.

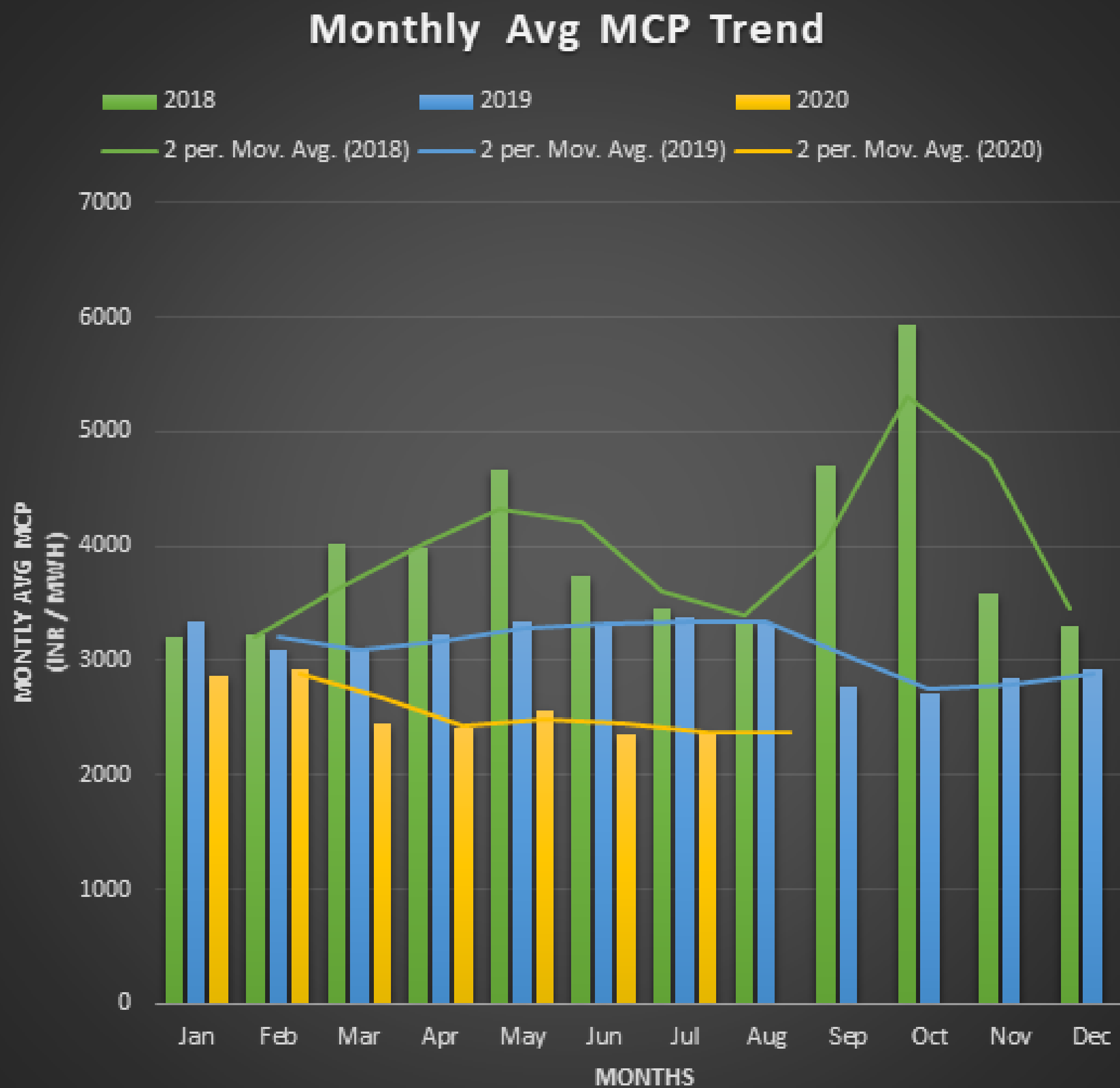


Monthly Trends in Short-term Transactions of Electricity (2018-20 through Power Exchanges)

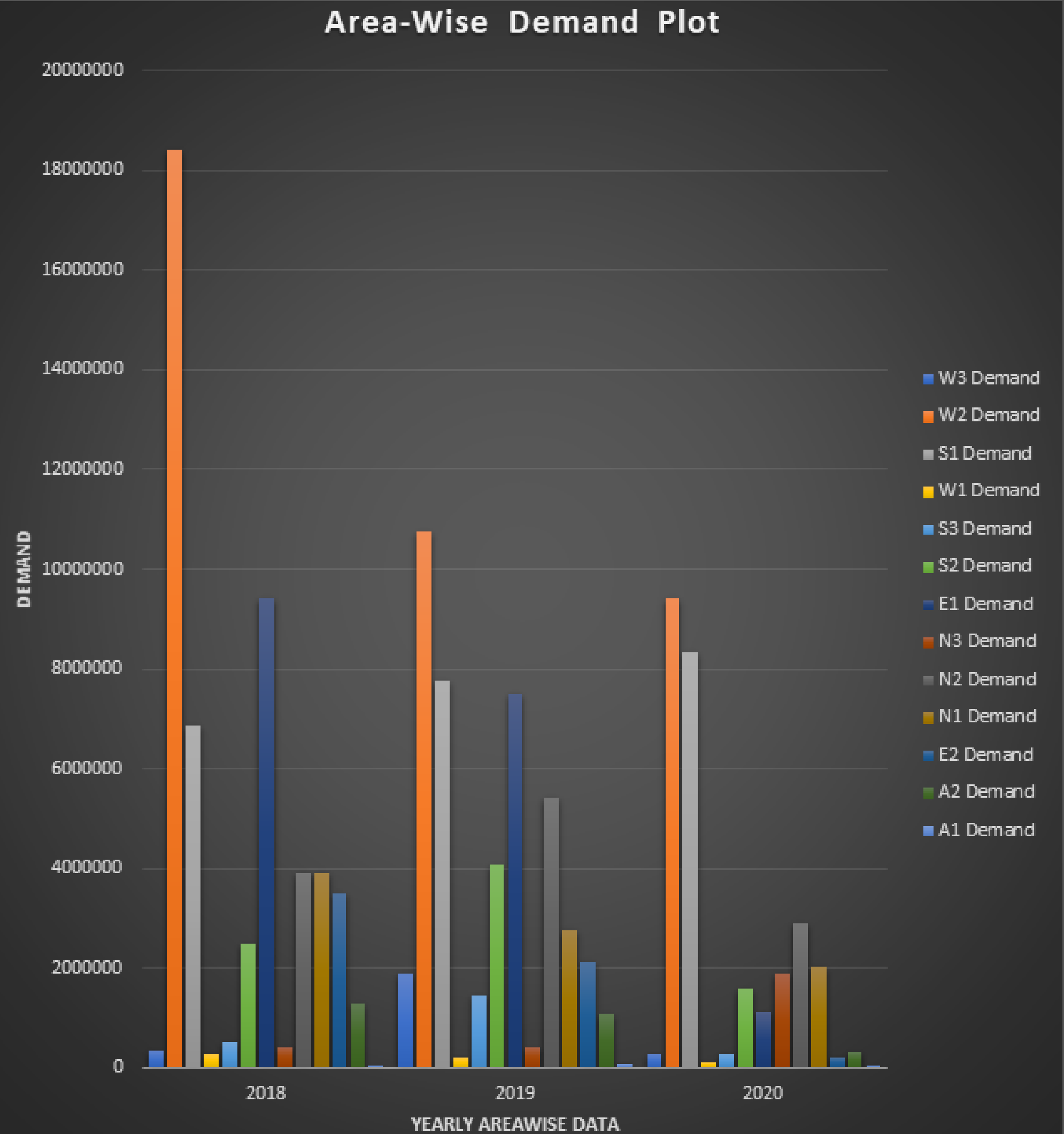
Volume of Short-term Transactions of Electricity



Average Price of Short-term Transactions of Electricity



***13 Bid Area
yearly average
demand pattern***



Topmost Buyers and Sellers

Major Sellers of 2018-19 (IEX Platform)

Teesta Urja Ltd, MPPMCL, Sembcorp, Energy India Ltd, JVVNL

For March 2020

Of the total Power Exchange transactions,

- **Sellers:** Odisha, Uttar Pradesh, GMR Chhattisgarh Energy Limited, Bihar and Himachal Pradesh.
- **Buyers:** Telangana, Gujarat, Maharashtra, Andhra Pradesh and Tamil Nadu.

Major Buyers of 2018-19 (IEX Platform)

GUVNL, BSPHCL, APCPDCL, MSEDCL, WBSEDCL

For April 2020

Of the total Power Exchange transactions,

- **Sellers:** Odisha, Uttar Pradesh, Himachal Pradesh, DGEN Mega Power Project and Teesta Stage 3 Hydro Power Project.
- **Buyers:** Maharashtra, Andhra Pradesh, Gujarat, Telangana and Punjab.

Topmost Buyers and Sellers

For Jan 2020

Of the total Power Exchange transactions,

- **Sellers:** SembCorp
- Gayatri Power Ltd., Madhya Pradesh, Gujarat, GMR Chhattisgarh Energy Ltd. And Odisha.
- **Buyers:** Telangana, Gujarat, Maharashtra, Tamil Nadu and Jammu & Kashmir.

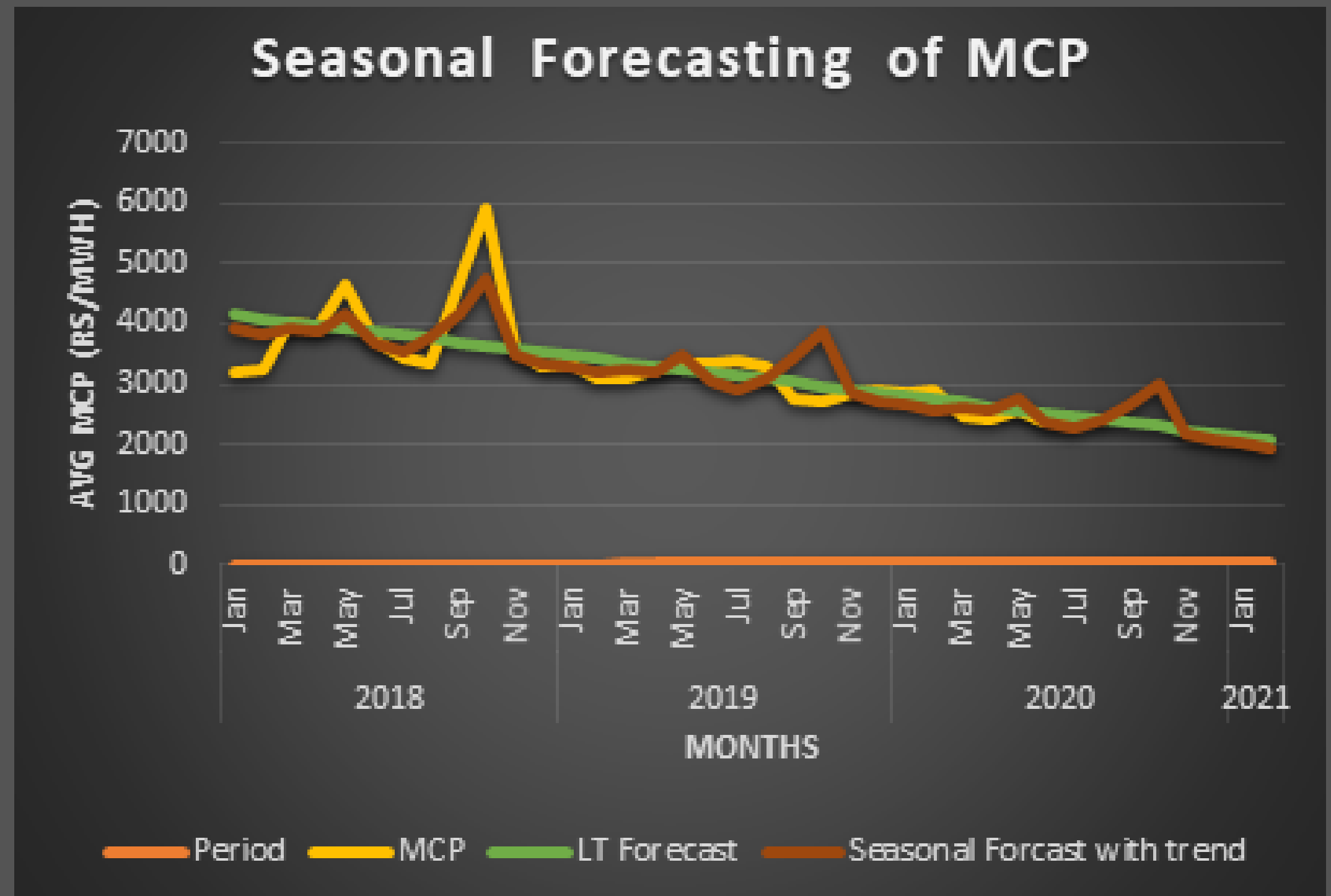
For Feb 2020

Of the total Power Exchange transactions,

- **Sellers:** Odisha, Uttar Pradesh, Himachal Pradesh, DGEN Mega Power Project and Teesta Stage 3 Hydro Power Project.
- **Buyers:** Telangana, Gujarat, Maharashtra, Jammu & Kashmir and Tamil Nadu.

Seasonal Minimum Clearing Price forecasting using Regression

Month	Seasonality Index
Jan	0.946
Feb	0.930
Mar	0.967
Apr	0.969
May	1.066
Jun	0.947
Jul	0.929
Aug	1.006
Sep	1.129
Oct	1.308
Nov	0.974
Dec	0.942



Forecasted MCP

Year	Month	Linear Trend Forecast	Seasonal Forecast with trend
2020	Aug	2409.401	2425.77
	Sep	2353.381	2658.57
	Oct	2297.361	3006.16
	Nov	2241.341	2184.84
	Dec	2185.321	2059.46
2021	Jan	2129.301	2016.09
	Feb	2073.281	1929.06

R Square 0.45

p-value < 0.05

Development of new market segment for transaction on Power Exchange platform

Real-time Market (RTM) (started on 01st June 2020)

- Comprised of over 10% of the total volume traded on IEX
- Attractive average market clearing price of Rs.2.22 per unit.
- Benefits the utilities through efficient demand management at 1-hour notice, renewable integration, utilisation of generation capacity, facilitating GENCO to purchase power and grid security.
- 237 customers participate in the new market segment in the first month.

THANK YOU

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