Review of the Functioning of Round the Clock Intraday/Contingency Market (Extended Market Session) on Power Exchanges

Background

The Commission in its order dated 8.4.2015 in Petition No. 006/SM//2015 directed the power exchanges in respect of operation of 24x7 intraday/contingency market as under:

"9. The Commission directs the following:

a. Power Exchanges should commence operation of round the clock intraday/contingency market within three (3) months from the date of issue of this order after undertaking all requisite modifications, formulation of appropriate risk management practices considering banking hours and testing and validations of the software application of the trading system, clearing and settlement system and any other applications needed. The features of the intraday/contingency market shall be as under:-

i. The existing products for day ahead contingency and intraday markets would continue to be operated by the exchanges. As a principle, the timeline for these products is being extended so that trading window is open for periods as mentioned below:

1. Same day Delivery (upto 2400 hours): The trading window is open round the clock for delivery of power on the same day (minimum delivery period - 3 hours after contract execution subject to corridor availability).

2. Next day Delivery (0000- 2400 hours): The trading window opens after declaration of day ahead results and remains open till end of day.

ii. Price discovery mechanism remains as is for the respective products.

b. Power Exchanges are directed to submit for approval of the Commission the proposed amendments, if any, to Rules, Bye-laws or Business Rules along with views of the stakeholders on the modifications and responses of the Power Exchanges on each of the views within one (1) month from the date of issue of this order.

c. The Commission may review the functioning of round the clock intraday/contingency market after six (6) months from the date of operation of the market.

d. POSOCO shall communicate approval/rejection of scheduling of bilateral transactions for intraday/contingency contracts and inform the Power Exchanges and the applicant within one (1) hour of receipt of such application.

e. The staff paper mentioned that creation of open access registry, information of TTC/ATC and reduction of time between intraday trading and delivery are critical success factors for this market. The Commission is of the view that with tightening of the frequency band and deviation settlement mechanism coming into force, the market participants need other avenues to meet their contingency requirement of purchasing/selling the power at short notice. The resolution of the issues mentioned shall be taken up simultaneously with the introduction of 24x7 intraday/contingency market.

f. The evening market based on collective transactions is kept in abeyance at present for reasons mentioned above."

2. Following the above directions, the two power exchanges i.e. Indian Energy Exchange (IEX) and Power Exchange India Ltd (PXIL) have started their operations on extended market session on 20th July 2015. Keeping in view one of the directions of the Commission (review after six months of operation of the market), a review has been made on the functioning of round the clock intraday/contingency market with the following objectives:

(i) To observe the trends in the total volume of electricity transacted through intraday and day ahead contingency contracts after introduction of 24x7 intraday/contingency market;

(ii) To see the volume and price of electricity transacted through intraday and day ahead contingency contracts separately during normal hours and extended hours; and

(iii) To analyse the impact of introduction of 24x7 intraday/contingency market on Power System Operation Corporation Limited (POSOCO), Power Exchanges and all participants of the market.

Analysis of the Data

3. Though the review period is July to December 2015, the review has been made using the data on the volume of electricity transacted through intra-day and day ahead contingency

contracts for the period from January 2014 to January 2016 (See Table-1 and Table-2). The trends in the data have been shown in Figure-1 and Figure-2. It is observed from the figures that there is no constant increase or decrease in the volume of electricity transacted through intra-day and day ahead contingency contracts during January 2014 to January 2016. This is mainly due to seasonal variations in the demand for/supply of electricity.

4. The growth in the volume of electricity transacted through intra-day and day ahead contingency contracts in both power exchanges has been computed from the period July 2014 to January 2015 to the period July 2015 to January 2016 and observed that there is a negative growth of about -5% in the volume. It is also observed that there is an increase of about 32% in the volume of electricity transacted through IEX, whereas a decrease of about -18% in the volume of electricity transacted through PXIL during the period. (See Table-3)

5. To observe the seasonal variations, a comparative analysis has been made using the data on the volume of electricity transacted through intra-day and day ahead contingency contracts in 2014 and 2015 (See Figure-3 and Figure-4).

6. The data on the volume of electricity transacted during the normal hours and extended hours has been provided in Table-4. Before introduction of the extended market session, the trading hours were between 10 AM to 5 PM and these hours have been considered as normal hours. The trading hours beyond 5 PM are considered as extended hours. It is observed from the table that of the total volume of electricity transacted through intraday and day ahead contingency contracts, 65% of the volume was transacted in extended hours and the rest 35% of the volume was transacted in normal hours during July 2015 to January 2016.

7. The weighted average price of electricity transacted through intraday and day ahead contingency contracts during the normal hours and extended hours has been provided in Table-5. It is observed from the table that in both the power exchanges the price in extended hours was relatively low (₹3.20/kWh in IEX and ₹2.67/kWh in PXIL) when compared with the price in normal hours (₹3.47/kWh in IEX and ₹2.78/kWh in PXIL) during July 2015 to January 2016.

8. The impact of introduction of extended market session on POSOCO, Power Exchanges and all participants of the market has been analysed. Introduction of extended market session may not impact POSOCO because it has to function 24x7 even otherwise. Since there is no increase in the overall volume it may not be beneficial to the power exchanges. Instead the power exchanges have to incur expenditure towards deployment of more manpower for working in extended hours. More volume was transacted at lower price during extended hours when compared with normal hours which is certainly beneficial to the market participants. Extended market session is an additional opportunity to the market participants for undertaking transactions during extended hours in addition to the normal hours.

Conclusions

(i) As directed in its order dated 8.4.2015, the Commission, may review the functioning of round the clock intraday/contingency market after six (6) months from the date of operation of the market. The extended market session has been operational since 20th July 2015 in both the power exchanges.

(ii) It is observed from the data that there is no constant increase or decrease in the volume of electricity transacted through intraday and day ahead contingency contracts during January 2014 to January 2016. This is mainly due to seasonal variations in the demand for/supply of electricity.

(iii) There is a negative growth of -5% in the volume of electricity transacted through intraday and day ahead contingency contracts in both power exchanges from the period July 2014 to January 2015 to the period July 2015 to January 2016.

(iv) Of the total volume of electricity transacted through intraday and day ahead contingency contracts, 65% of the volume was transacted in extended hours and the rest 35% of the volume was transacted in normal hours during July 2015 to January 2016.

(v) The price of electricity transacted through intraday and day ahead contingency contracts was relatively low during extended hours when compared with normal hours during July 2015 to January 2016.

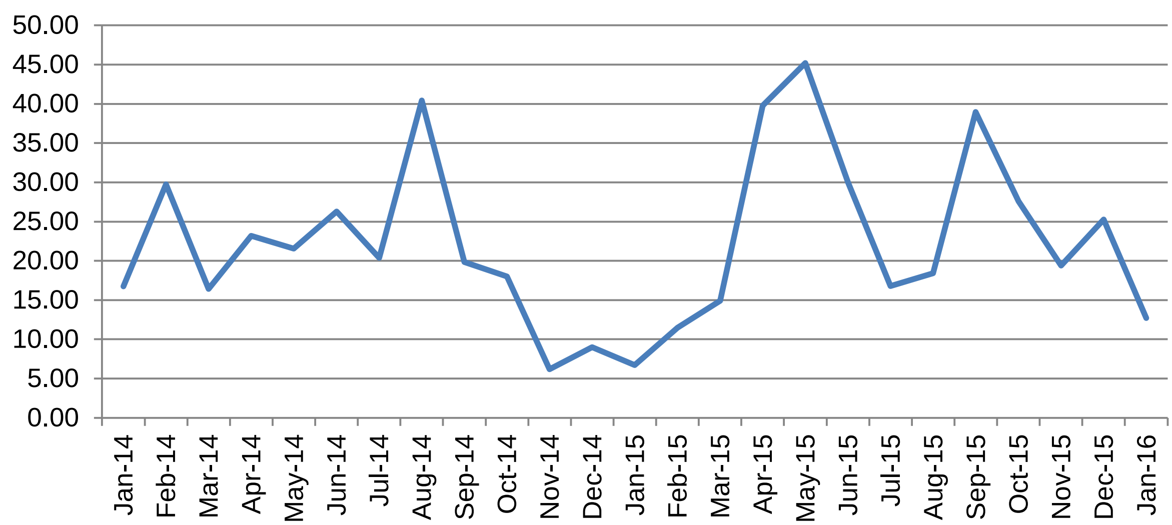
(vi) Introduction of extended market session may not impact POSOCO because it has to function 24x7 even otherwise. Since there is no increase in the volume of electricity transacted through intraday and day ahead contingency contracts, it may not be beneficial to the power exchanges. More volume was transacted at lower price during extended hours when compared with normal hours which is certainly beneficial to the market participants.

Table-1: Volume of Elelctricity Transacted through Intra-Day and Day Ahead Contingency Contracts at IEX							
Month	**Intra-Day Contracts (MU)**			**Day Ahead Contingency Contracts (MU)**			**Grand Total (MU)**
	Normal Hours	**Extended Hours***	**Total**	**Normal Hours**	**Extended Hours***	**Total**	
Jan-14			10.40			6.34	16.73
Feb-14			5.54			24.21	29.75
Mar-14			4.92			11.51	16.43
Apr-14			18.97			4.20	23.17
May-14			16.69			4.87	21.56
Jun-14			23.99			2.30	26.29
Jul-14			14.53			5.84	20.37
Aug-14			17.95			22.48	40.43
Sep-14			17.75			2.08	19.83
Oct-14			17.07			0.94	18.01
Nov-14			6.17			0.00	6.17
Dec-14			7.60			1.39	8.99
Jan-15			5.90			0.80	6.70
Feb-15			11.51			0.00	11.51
Mar-15			14.93			0.00	14.93
Apr-15			39.38			0.40	39.78
May-15			44.23			0.96	45.19
Jun-15			30.05			0.00	30.05
Jul-15	6.59	0.01	6.60	0.50	9.68	10.18	16.78
Aug-15	12.46	2.80	15.26	0.00	3.14	3.14	18.40
Sep-15	20.77	4.30	25.06	1.28	12.62	13.90	38.96
Oct-15	19.47	1.42	20.88	0.00	6.72	6.72	27.60
Nov-15	13.16	0.60	13.76	0.00	5.65	5.65	19.41
Dec-15	19.72	0.28	20.00	0.00	5.26	5.26	25.25
Jan-16	7.94	0.00	7.94	0.26	4.53	4.79	12.73
**Extended Hours are trades cleared between 5:00 PM to 10:00 AM Next day*							

Table-2: Volume of Elelctricity Transacted through Intra-Day and Day Ahead Contingency Contracts at PXIL							
Month	**Intra-Day Contracts (MU)**			**Day Ahead Contingency Contracts (MU)**			**Grand Total (MU)**
	Normal Hours	**Extended Hours***	**Total**	**Normal Hours**	**Extended Hours***	**Total**	
Jan-14			2.46			1.97	4.43
Feb-14			23.81			9.54	33.35
Mar-14			4.40			0.90	5.30

Apr-14			6.08			5.44	11.52
May-14			5.03			16.50	21.53
Jun-14			19.25			11.82	31.07
Jul-14			22.18			32.73	54.91
Aug-14			33.91			46.43	80.34
Sep-14			23.85			34.50	58.34
Oct-14			12.39			27.58	39.97
Nov-14			0.22			14.40	14.62
Dec-14			17.34			16.40	33.74
Jan-15			17.93			32.88	50.81
Feb-15			4.08			1.13	5.21
Mar-15			17.93			32.88	50.81
Apr-15			4.10				4.10
May-15			7.41				7.41
Jun-15			9.77				9.77
Jul-15	0.00	5.35	5.35				5.35
Aug-15	20.00	49.83	69.83	2.73	0.00	2.73	72.56
Sep-15	6.65	34.42	41.07				41.07
Oct-15	9.40	51.07	60.47				60.47
Nov-15	4.05	31.14	35.19				35.19
Dec-15	2.69	21.99	24.68				24.68
Jan-16	2.53	30.10	32.63				32.63
**Extended Hours are trades cleared between 5:00 PM to 10:00 AM Next day*							

Figure-1: Volume of Electricity transacted through Intra-day and Day Ahead Contingency Contracts in IEX, Jan 2014 to Jan 2016



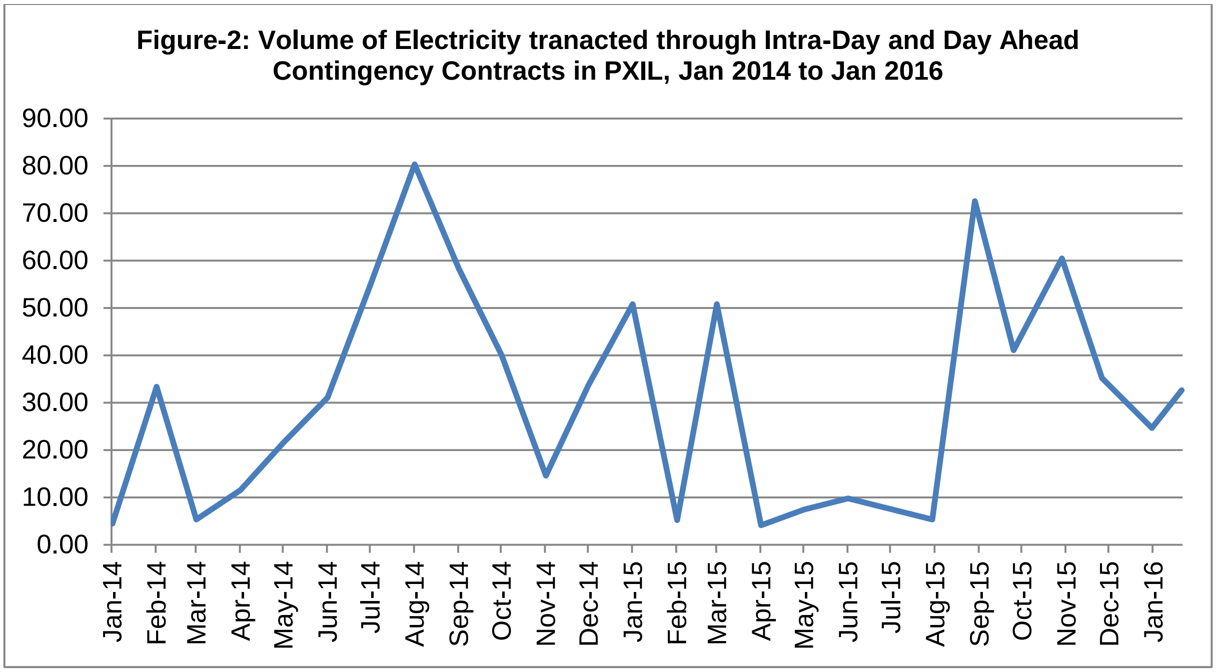


Table-3: Volume of Electricity Transacted through Intra-day and Day Ahead Contingency Contracts in Power Exchanges

Power Exchange	**Volume from July 14 to Jan 15 (MU)**	**Volume from July 15 to Jan 16 (MU)**
IEX	120.51	159.13
% increase	-	32%
PXIL	332.74	271.93
% increase	-	-18%
Total	**453.24**	**431.06**
% increase	**-**	**-5%**

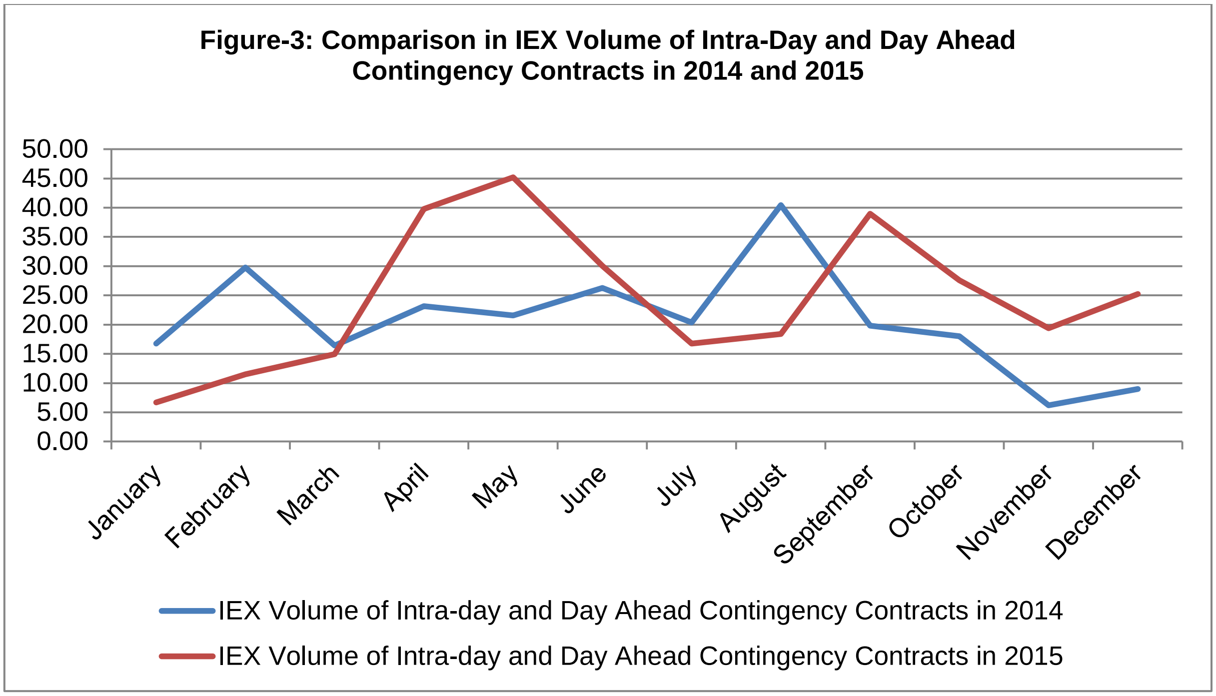


Figure-3: Comparison in IEX Volume of Intra-Day and Day Ahead Contingency Contracts in 2014 and 2015
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
January
February
March
April
May
June
July
August
September
October
November
December
IEX Volume of Intra-day and Day Ahead Contingency Contracts in 2014
IEX Volume of Intra-day and Day Ahead Contingency Contracts in 2015

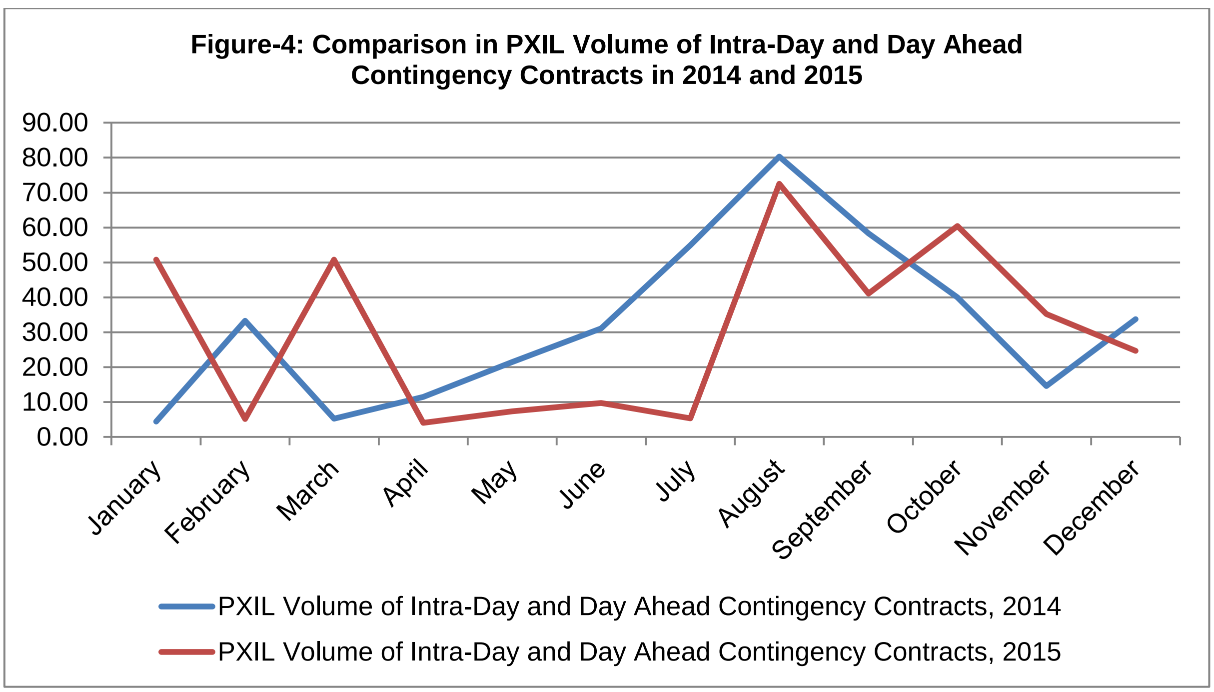


Figure-4: Comparison in PXIL Volume of Intra-Day and Day Ahead Contingency Contracts in 2014 and 2015
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
January
February
March
April
May
June
July
August
September
October
November
December
PXIL Volume of Intra-Day and Day Ahead Contingency Contracts, 2014
PXIL Volume of Intra-Day and Day Ahead Contingency Contracts, 2015

Table-4: Volume of Electricity Transacted through intra-day and Day Ahead Contingency contracts during Normal Hours and Extended Hours in Power Exchanges, July 2015 to January 2016			
Power Exchange	**Volume in Normal Hours (MU)**	**Volume in Extended Hours* (MU)**	**Total (MU)**
IEX	102.14	56.99	159.13
% to total	64%	36%	
PXIL	48.04	223.90	271.93
% to total	18%	82%	
Total of IEX and PXIL	150.18	280.89	431.06
% to total of IEX and PXIL	**35%**	**65%**	
**Extended Hours are trades cleared between 5:00 PM to 10:00 AM Next day*			

Table-5: Price of Electricity Transacted through intra-day and Day Ahead Contingency contracts during Normal Hours and Extended Hours in Power Exchanges, July 2015 to January 2016		
Power Exchange	**Price in Normal Hours (₹/kWh)**	**Price in Extended Hours* (₹/kWh)**
IEX	3.47	3.20
PXIL	2.78	2.67
**Extended Hours are trades cleared between 5:00 PM to 10:00 AM Next day*		