



INTERVAL PRICE LIMIT FUNCTIONALITY

With IPL levels as of August 2019

IPL functionality acts as a temporary circuit breaker feature on the electronic platform, to diminish the likelihood and extent of short-term price spikes or aberrant market moves. While it is designed to be in force throughout each trading day, it is expected that the protections will be actively triggered only in the case of extreme price moves over very short periods of time. The IPL regime uses three customizable parameters for each futures product:

1. **IPL Recalculation Time:** A pre-set length of time during which the price of a contract month may not move up or down more than the IPL Amount (defined below) from the contract price at the start of the period. This starting price is referred to as the “anchor price”. The IPL Recalculation Time continuously resets for the length of time applicable to the particular futures contract.
2. **IPL Amount:** The maximum number of points that a contract month is permitted to move up or down during each IPL Recalculation Time for the contract. The anchor price plus/minus the IPL amount effectively creates an IPL range for the contract for the IPL Recalculation Time.
3. **IPL Hold Period:** When the platform determines that the next trade in the contract month will be at a price that is outside the active IPL range, the platform triggers a Hold Period, during which the price of the contract is not permitted to trade outside the IPL range that was in place at the start of the IPL Hold Period. The length of the Hold Period is pre-set. When a Hold Period is triggered, the platform will issue an alert notifying users that a Hold Period has begun and specifying the time the Hold Period will end.

IPL parameters can be changed over time based on market conditions; more information on IPL functionality can be found at:

https://www.theice.com/publicdocs/technology/IPL_Circuit_Breaker.pdf.

Current IPL Recalculation Times, Amounts and Hold Period for all IFUS products are shown below:

Agricultural, Metal and Financial Index contracts:

FUTURES CONTRACT	IPL Amount (in points)	Recalc Time (in secs)	Hold Period (in secs)
Sugar No. 11 (SB)	60	15	30
Cotton No. 2 (CT) and Coffee "C" (KC)	400	15	30
Cocoa (CC)	100	15	30
FCOJ (OJ)	500	15	30
Sugar No. 16 (SF)	750	15	30
Canola (RS)	900	10	30
Daily (AUD), Mini (YG) and 100 oz. Gold (ZG)	1000	15	30
Daily (HIO), Mini (YI) and 5000 oz. Silver (ZI)	400	15	30
MSCI EAFE Index (MFS) and World Index (MWL)	4800	5	5
MSCI EAFE NTR Index (MFU)	14400	5	5
MSCI Emerging Markets Index (MME)	3000	5	5
MSCI Emerging Markets NTR Index (MMN), EM Asia NTR Index (ASN), and ACWI Index (MAW)	1200	5	5
MSCI EM Latin America Index (MLE) and USA Growth Index (MRG)	6000	5	5
MSCI EM Asia Index (ASE), EM LatAM NTR Index (MML) and NYSE Arca Gold Miners Index (GDF)	1400	5	5
MSCI ACWI NTR Index (MMW), ACWI Ex-US NTR Index (AWN), EM NTR (EUR) Index and EMEA NTR Index (MMM)	600	5	5
MSCI ACWI ex-US Index (AWE)	800	5	5
MSCI Canada Index (MCL) and USA Index (MUN)	3600	5	5
MSCI Pan-Euro Index (MPP)	2200	5	5
MSCI Euro Index (MEU)	2000	5	5
MSCI Europe Index (MCE), Europe Growth Index (MGE) and Europe Value Index (MPU)	250	5	5
NYSE FANG+™ Index (FNG) and MSCI USA Value Index (MCU)	4000	5	5
MSCI USA Small Cap Index (MUS)	2500	5	5
MSCI China Free NTR Index (\$50) (MCX) and India NTR Index (MIN)	1000	5	5
MSCI Mexico NTR Index (MXM) and Asia ex-Japan NTR Index (ASI)	1500	5	5
MSCI Pacific NTR Index (MPA), Europe NTR Index (EU9) and Pacific ex-Japan NTR Index (PAC)	15000	5	5
MSCI USA GTR Index (USS)	30000	5	5
MSCI North America NTR Index (NAA) and Canada GTR Index (CAD)	18000	5	5

MSCI World NTR Index (MWS)	12000	5	5
ERIS CDX HY (HY5)	10000	5	5
ERIS CDX IG (IG5)	5000	5	5

Digital Currency contracts:

Futures Contract	IPL Amount (in \$)	Recalc Time (in secs)	Hold Period (in secs)
Bakkt™ Bitcoin (USD) Monthly (BTM) and Daily (BTC)	\$300	5	5

USD[®] and Currency Pair contracts:

Futures Contract	IPL Amount (in points)	Recalc Time (in secs)	Hold Period (in secs)
USD [®] (DX)	500	5	2
Sterling-US dollar (MP)	750	5	5
Yen-US dollar(KSN) and Russian Ruble-US dollar(KRU)	3000	5	5
Zloty-US dollar (PLN), Zloty-euro (PLE), Turkish lira-US dollar (TRM) and Turkish lira-euro (ETR)	1500	5	5
Col. peso-US dollar (KCU)	9000	5	5
Sterling-Norway (PK), Sterling-SA Rand (PZ), Sterling-Sweden (PS), Euro-Sweden (KRK), Euro-Norway KOL), Euro-SA Rand (YZ), US dollar-SA Rand (ZR), Norway-Yen (KY), Sweden-Yen (KJ) and Mex. peso-US Dollar (KMP)	37500	5	5
All Other Currency Pairs	7500	5	5

Power and Emissions contracts:

Futures Contract	IPL Amount (in \$ terms)	IPL Exceptions (in \$ terms)	Recalc Time (secs)	Hold Period (secs)
Financial Power	\$30.00	N/A	3	5
Capacity Responsive Reserve	\$30.00	N/A	3	5
In-City or Rest of State Cap.	\$30.00	N/A	3	5
Non-Spinning Reserve	\$30.00	N/A	3	5
Regulation	\$30.00	N/A	3	5
All Daily Power Contracts	\$120.00	N/A	3	5
All Daily Load Forecast	50,000 MW	N/A	3	5
All ERCOT Contracts	\$100.00	All ERCOT Daily contracts - \$120.00 ERCOT North 345KV Real-Time Peak Daily Fixed Price (END) and ERCOT North 345KV Real-Time Peak Daily Mini Fixed Price (ERA) - \$300.00	3	5
RGGI	\$1.00	N/A	3	5

CAR-CRT, CFI-US, REC-NJ, CCA, TX REC, PJM TRI-QEC, MD REC, PA AEC, CCO	\$2.50	N/A	3	5
CCA Trade At Auction Settlement Contracts	\$0.75	N/A	3	5
SFI	\$5.00	N/A	3	5
CT & MA REC, MD & PA SAEC, NEPOOL REC	\$10.00	N/A	3	5
CSAPR SO2 & NOX	\$60.00	N/A	3	5
MA & NJ SREC, MA SREC Carve Out, CAIR NOX (Annual and Ozone), LCFS	\$30.00	N/A	3	5

Nat Gas contracts:

Futures Contract	IPL Amount (in \$ terms)	IPL Exceptions (in \$ terms)	Recalc Time (secs)	Hold Period (secs)
Henry Hub	\$0.20	<u>N/A</u>	3	5
UK Natural Gas	\$0.12	<u>N/A</u>	3	5
EIA Financial Weekly Index	75 BCF	<u>N/A</u>	3	5
EIA End of Draw/Storage Index	2,500 BCF	<u>N/A</u>	3	5
Financial LNG	\$0.60	<u>N/A</u>	3	5
Fixed Price (excluding Henry)	\$4.00	<u>IPL Amount: \$10.00</u> Dominion South Swing (DSS) Lebanon Swing (LBN) <u>IPL Amount: \$12.00</u> Algonquin Citygates Swing (ALS) Chicago Swing (CSS) NNG Demarc Swing (DES) Iroquois (Into) Swing (Platts) (IRS) Iroquois-Z2 Swing (Platts) (IZS) NNG Ventura Swing (NNS) PG&E Citygate Swing (PIG) Transco Zone 6 (non NY) Swing (TPS) TETCO M3 Swing (TSS) Transco Zone 6 (NY) Swing (ZSS)	3	5

Basis	\$4.00	<u>IPL Amount: \$10.00</u> Dominion South Basis (DOM) <u>IPL Amount: \$12.00</u> Algonquin Citygates Basis (ALQ) NNG Demarc Basis (DEM) Chicago Basis (DGD) Union Dawn Basis (DWN) Iroquois (Into) Basis (Platts) (IRB) Iroquois-Z2 Basis (Platts) (IZB) PG&E Citygate Basis (PGE) TETCO M3 Basis (TMT) Transco Zone 6 (non NY) Basis (TPB) Transco Zone 6 (NY) Basis (TZS)	3	5
Index	\$0.20	<u>IPL Amount: \$12.00</u> AB NIT Index (AIS) Algonquin Citygates Index (ALI) ANR SW (Oklahoma) Index (AOI) ANR SE (Louisiana) Index (API) CG-Mainline Index (CGI) Chicago Index (CIS) CIG Rockies Index (CRC) Enable Gas Index (CTI) NNG Demarc Index (DEI) Dominion South Index (DIS) PG&E Citygate Index (EIS) Florida Gas Zone 3 Index (FTI) Henry Index (HIS) Iroquois (Into) Index (Platts)(IRI) Iroquois-Z2 Index (Platts) (IZI) NGPL Midcont Index (MCI) Malin Index (MIS) TETCO M3 Index (MTI) NWP Sumas Index (NIS) Michcon Index (NMI) NNG Ventura Index (NNI) Transco Zone 6 (NY) Index (NSI) NGPL TXOK Index (NTI) NGPL STX Index (NXI) ONEOK Gas Transportation Index (ONI) Southern Star TX OK KS Index (OUI) EP Permian Index (PEI) Panhandle Index (PIS) NWP Rockies Index (RSI) Social Citygate Index (SCI) HSC Index (SHS) Transco Station 65 (Zone 3) Index (SIA)	3	5

		Social Border Index (SIS) EP San Juan Index (SNI) Sonat Index (SOI) TETCO STX Index (SXI) TETCO ELA Index (TEI) Tennessee 500L Index (TFI) TGT Zone 1 Index (TGI) TCO Index (TIS) Transco Zone 6 (non NY) Index (TPI) Transco Station 85 (Zone 4) Index (TRI) TETCO WLA Index (TWI) Tennessee Zone 0 Index (TZI) Waha Index (WAI)		
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Oil and NGL Products	Commodity Code	Unit	IPL Amount (in \$ Terms)	Recalc Time (seconds)	Hold Period (seconds)
Crude Diff – Argus LLS vs WTI 1st Line Future	ARK	bbl	\$6.00	3	5
Argus Mars vs WTI Trade Month Future	ARW	bbl	\$6.00	3	5
Crude Diff – Argus WTS vs WTI Trade Month Future	AVT	bbl	\$6.00	3	5
Crude Diff – WTI 1st Line vs Brent 1st Line Future	BTD	bbl	\$6.00	3	5
Fuel Oil Diff – New York 1% Fuel Oil (Platts) vs USGC HSFO (Platts) Future	FOD	bbl	\$4.00	3	5
Fuel Oil Outright – New York 1% Fuel Oil Future	FOW	bbl	\$4.00	3	5
Fuel Oil Crack – USGC HSFO (Platts) vs Brent 1st Line Future	GCS	bbl	\$1.50	3	5
Gasoline Diff – Group 3 Sub-octane Gasoline (Platts) vs RBOB Gasoline 1st Line Future	GDL	gal	\$0.10	3	5
Gasoline Diff – Gulf Coast CBOB 87 Gasoline Prompt Pipeline (Platts) vs RBOB Gasoline 1st Line Future	GDM	gal	\$0.10	3	5
Gasoline Diff – RBOB Gasoline 1st Line vs Argus Eurobob Oxy FOB Rotterdam Barge Future	GDO	MT	\$10.00	3	5
Gasoline Diff – RBOB Gasoline 1st Line vs Argus Eurobob Oxy FOB Rotterdam Barges Mini Future	GDQ	MT	\$10.00	3	5
Fuel Oil Diff – USGC HSFO (Platts) vs Fuel Oil 3.5% FOB Rotterdam Barges (Platts) Future (in Bbls)	GOE	bbl	\$1.00	3	5
Diesel Diff – Gulf Coast ULSD vs Heating Oil 1st Line Future	GOH	gal	\$0.04	3	5
Fuel Oil Crack – USGC HSFO (Platts) vs WTI 1st Line Future	GUF	bbl	\$1.50	3	5
Heating Oil Crack – Heating Oil 1st Line vs Brent 1st Line Future (in Bbls)	HBT	bbl	\$1.50	3	5
Jet Fuel Diff – Gulf Coast Jet Fuel vs Heating Oil 1st Line Future	JHO	gal	\$0.04	3	5
Crude Diff – Argus WTI Midland vs WTI 1st Line Future	MLT	bbl	\$1.00	3	5
Fuel Oil Diff – USGC HSFO (Platts) vs Fuel Oil 3.5% FOB Rotterdam Barges (Platts) Future (in MTs)	NVV	MT	\$2.00	3	5
Crude Outright – WTI 1st Line Future	R	bbl	\$1.50	3	5
Fuel Oil Outright – USGC HSFO (Platts) Future	RBO	bbl	\$4.00	3	5
Gasoline Crack – RBOB Gasoline 1st Line vs Brent 1st Line Future (in Bbls)	RBR	bbl	\$1.50	3	5
Heating Oil Arb – Heating Oil 1st Line vs Low Sulphur Gasoil 1st Line Future (in Bbls)	ULM	bbl	\$0.04	3	5
Gasoline Diff – Gulf Coast Unl 87 Gasoline Prompt Pipeline (Platts) vs RBOB Gasoline 1st Line Future	UM1	bbl	\$0.10	3	5
Natural Gasoline, OPIS Mt. Belvieu Non-TET vs WTI 1st Line Future	NGW	Bbl	\$4.00	3	5

For any Oil Futures contracts not listed in the above table the following IPL Levels are applied:

Oil Products	IPL Amount (in \$ Terms)	Recalc Time (seconds)	Hold Period (seconds)
All Oil (Barrels or lbs) Contracts	\$6.25	3	5
All Oil (MT) Contracts	\$18.75	3	5
All Oil (Gallons) Contracts	\$0.25	3	5
All Oil (RIN) Contracts	\$0.0600	3	5
NGL (North American) (Gallons)	\$0.125	3	5
Olefins	\$0.125	3	5
Aromatics	\$0.250	3	5
LPG (International) (MT)	\$125.00	3	5