

# Generator Withdrawal Charge

Design Working Group Meeting  
June 4, 2009



1. Generator Withdrawal Charge
  - Description of Formula Changes and Examples
  - Modifications to Charge Types and Equations
2. Settlement Statements

- The Generator Withdrawal Charge is assessed and applied if a generator withdraws prior to completion of its day-ahead commitment
- The Generator Withdrawal Charge is assessed for each hour of the scheduled hours withdrawn (i.e. hourly settlement)
- Added to the EDAC market design to ensure consistent treatment between generators and importers/exporters

- The Generator Withdrawal Charge is calculated for a generator if the following 2 conditions are met:
  - The withdrawal was within the participant's control;  
and
  - It fails a price test

- The Generator Withdrawal Charge is assessed and applied in 2 ways according to when the notification occurred:
  - If withdraw notification is received at or 4 hours prior to real time (PD – 4), then the lesser of the PD Ontario MCP (PD-1) or the real-time Ontario MCP is used in the calculation
  - If withdraw notification is received later than PD-4, then, the real-time Ontario MCP is used in the calculation

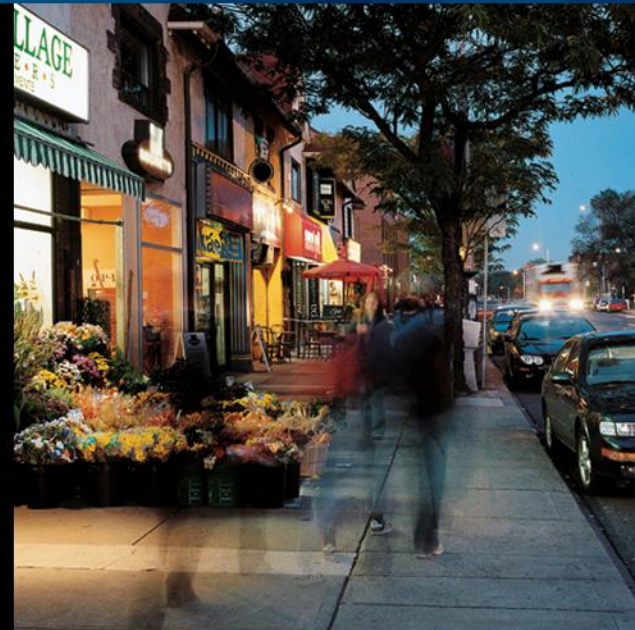
- If withdraw notification is received at or 4 hours prior to real time (PD – 4), then
  - Withdrawal Charge =  $\text{Max}[0, (\text{Min}(\text{PD Ontario MCP}, \text{RT Ontario MCP}) - \text{DA Offer}) \times \text{MLP}]$
- If withdraw notification is received later than PD-4, then
  - Withdrawal Charge =  $\text{Max}[0, (\text{RT Ontario MCP} - \text{DA Offer}) \times \text{MLP}]$

- If the participant does not notify the IESO of their intent to withdraw and does not inject for the entire day-ahead scheduled period, the real-time Ontario MCP is used in the calculation
  - $\text{Withdrawal Charge} = \text{Max}[0, (\text{RT Ontario MCP} - \text{DA Offer}) \times \text{MLP}]$

Note: For all Generator Withdrawal Charges the MLP is for the entire day-ahead scheduled period

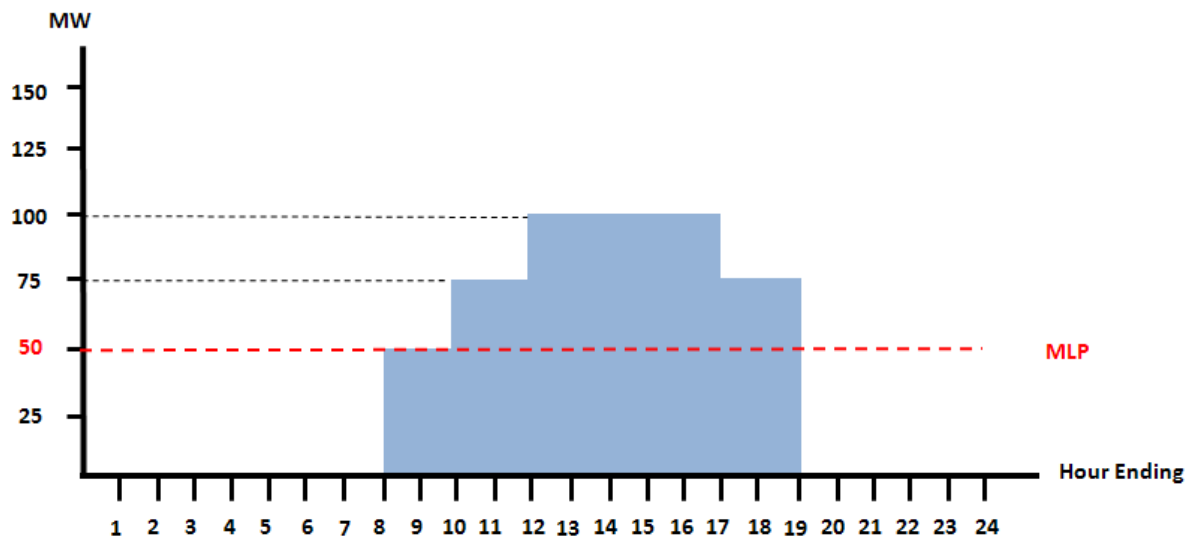
# Example 1

## Generator Withdrawal Charge



- The objective of this example is to demonstrate the Generator Withdrawal Charge calculation where:
  - The participant withdraws completely from their day-ahead schedule
  - The participant notifies the IESO of their intent to withdraw two hours prior to expected synchronization time
  - The withdrawal was not within the participant's control

		HE9	HE10	HE11	HE12	HE13	HE14	HE15	HE16	HE17	HE18	HE19
Day-Ahead Constrained Schedule	DACS	50	50	75	75	100	100	100	100	100	75	75
Minimum Loading Point	MLP	50	50	50	50	50	50	50	50	50	50	50
Day-Ahead Offer	DAO	\$5	\$10	\$15	\$10	\$20	\$10	\$5	\$15	\$10	\$5	\$5
Pre-Dispatch Price	PDP	\$6	\$7	\$5	\$10	\$4	\$15	\$20	\$5	\$10	\$15	\$20
Real-time Price	RTP	\$10	\$12	\$3	\$5	\$8	\$4	\$5	\$4	\$10	\$16	\$22



Withdrawal Notification  
Received by IESO @ 06:00

- The participant notified the IESO of their intent to withdraw 2 hours prior to synchronization and as a result:
  - Generator Withdrawal Charge is not assessed for this start as the withdraw is not within the participant's control (Generator Withdrawal Charge = \$0)
  - The participant is not eligible to receive the DA-PCG

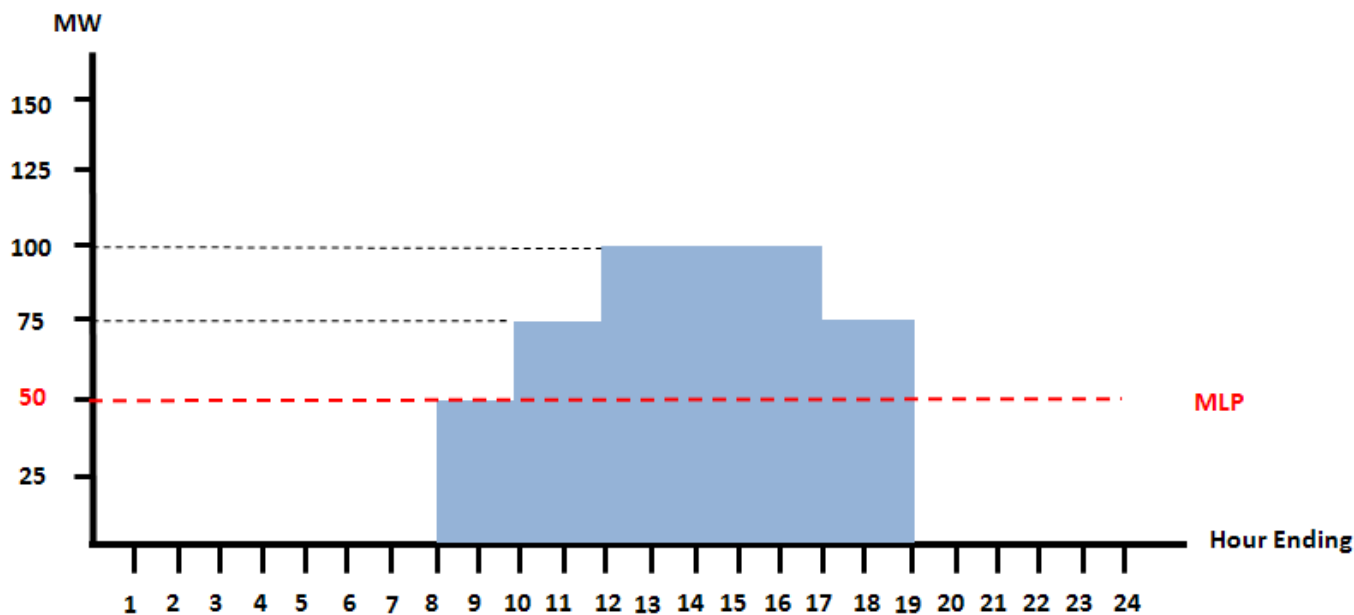
# Example 2

## Generator Withdrawal Charge



- The objective of this example is to demonstrate the Generator Withdrawal Charge calculation where:
  - The participant does not notify the IESO of their intent to withdraw and does not inject for the entire day-ahead scheduled period
  - The withdrawal was within the participant's control

		HE9	HE10	HE11	HE12	HE13	HE14	HE15	HE16	HE17	HE18	HE19
Day-Ahead Constrained Schedule	DACS	50	50	75	75	100	100	100	100	100	75	75
Minimum Loading Point	MLP	50	50	50	50	50	50	50	50	50	50	50
Day-Ahead Offer	DAO	\$5	\$10	\$15	\$10	\$20	\$10	\$5	\$15	\$10	\$5	\$5
Pre-Dispatch Price	PDP	\$6	\$7	\$5	\$10	\$4	\$15	\$20	\$5	\$10	\$15	\$20
Real-time Price	RTP	\$10	\$12	\$3	\$5	\$8	\$4	\$5	\$4	\$10	\$16	\$22



- The Generator Withdrawal Charge is assessed and applied for the entire day-ahead scheduled period
  - Withdrawal Charge =  $\text{Max}[0, (\text{RT Ontario MCP} - \text{DA Offer}) \times \text{MLP}]$

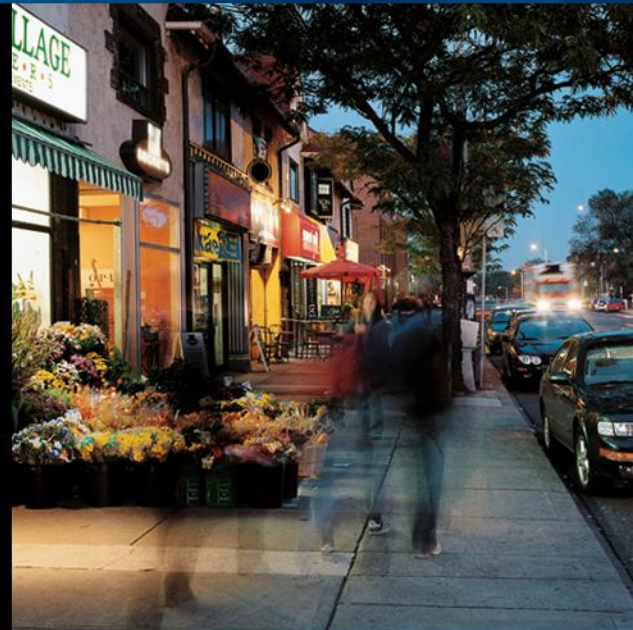
		HE9	HE10	HE11	HE12	HE13	HE14	HE15	HE16	HE17	HE18	HE19
Day-Ahead Constrained Schedule	DACS	50	50	75	75	100	100	100	100	100	75	75
Minimum Loading Point	MLP	50	50	50	50	50	50	50	50	50	50	50
Day-Ahead Offer	DAO	\$5	\$10	\$15	\$10	\$20	\$10	\$5	\$15	\$10	\$5	\$5
Pre-Dispatch Price	PDP	\$6	\$7	\$5	\$10	\$4	\$15	\$20	\$5	\$10	\$15	\$20
Real-time Price	RTP	\$10	\$12	\$3	\$5	\$8	\$4	\$5	\$4	\$10	\$16	\$22

RTP - DAO		\$5	\$2	-\$12	-\$5	-\$12	-\$6	\$0	-\$11	\$0	\$11	\$17
(RTP - DAO) x MLP		\$250	\$100	-\$600	-\$250	-\$600	-\$300	\$0	-\$550	\$0	\$550	\$850
max(0, (RTP - DAO) x MLP)		\$250	\$100	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$550	\$850
<b>Generator Withdrawal Charge</b>		\$250	\$100	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$550	\$850

Note: The participant is not eligible to receive the DA-PCG 15

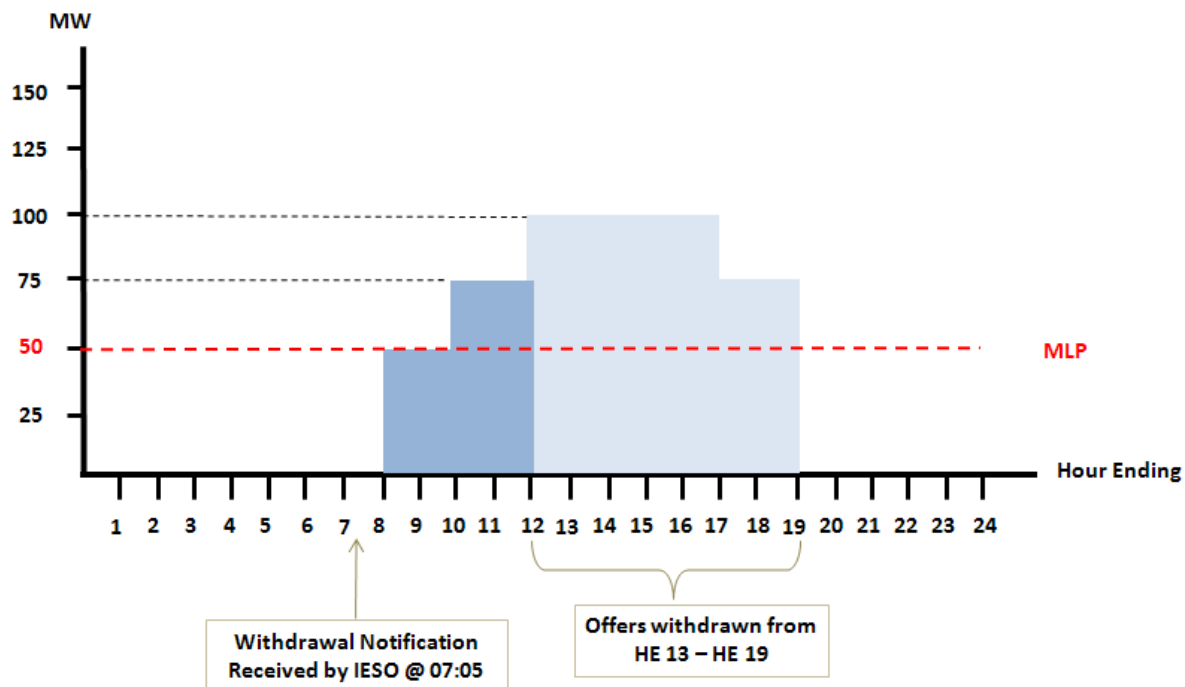
# Example 3

## Generator Withdrawal Charge



- The objective of this example is to demonstrate the Generator Withdrawal Charge calculation where:
  - The participant withdraws after synchronization but prior to completion of their day-ahead scheduled period
  - The notification to withdraw is received more than 4 hours prior to real-time (PD-4)
  - The withdrawal was within the participant's control

		HE9	HE10	HE11	HE12	HE13	HE14	HE15	HE16	HE17	HE18	HE19
Day-Ahead Constrained Schedule	DACS	50	50	75	75	100	100	100	100	100	75	75
Minimum Loading Point	MLP	50	50	50	50	50	50	50	50	50	50	50
Day-Ahead Offer	DAO	\$5	\$10	\$15	\$10	\$20	\$10	\$5	\$15	\$10	\$5	\$5
Pre-Dispatch Price	PDP	\$6	\$7	\$5	\$10	\$4	\$15	\$20	\$5	\$10	\$15	\$20
Real-time Price	RTP	\$10	\$12	\$3	\$5	\$8	\$4	\$5	\$4	\$10	\$16	\$22



- The Generator Withdrawal Charge is assessed and applied for the hours withdrawn
  - Withdrawal Charge =  $\text{Max}[0, (\text{Min}(\text{PD Ontario MCP}, \text{RT Ontario MCP}) - \text{DA Offer}) \times \text{MLP}]$

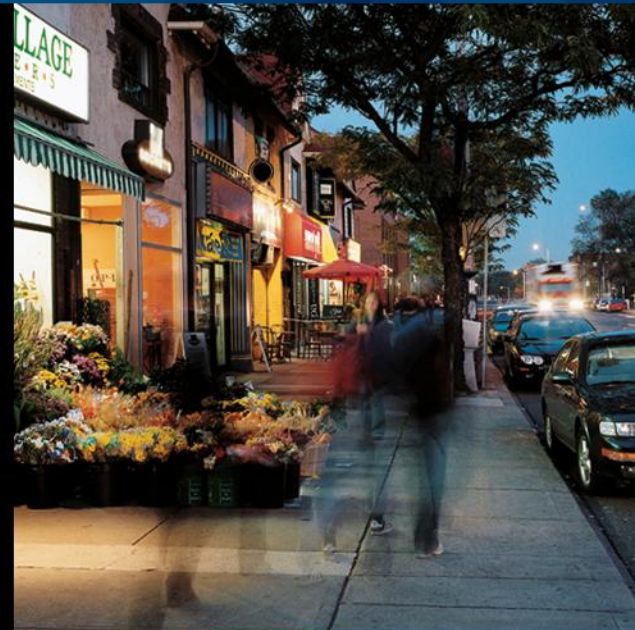
		HE9	HE10	HE11	HE12	HE13	HE14	HE15	HE16	HE17	HE18	HE19
Day-Ahead Constrained Schedule	DACS					100	100	100	100	100	75	75
Minimum Loading Point	MLP					50	50	50	50	50	50	50
Day-Ahead Offer	DAO					\$20	\$10	\$5	\$15	\$10	\$5	\$5
Pre-Dispatch Price	PDP					\$4	\$15	\$20	\$5	\$10	\$15	\$20
Real-time Price	RTP					\$8	\$4	\$5	\$4	\$10	\$16	\$22

$\text{min}(\text{PDP}, \text{RTP})$						\$4	\$4	\$5	\$4	\$10	\$15	\$20
$\text{min}(\text{PDP}, \text{RTP}) - \text{DAO}$						-\$16	-\$6	\$0	-\$11	\$0	\$10	\$15
$(\text{min}(\text{PDP}, \text{RTP}) - \text{DAO}) \times \text{MLP}$						-\$800	-\$300	\$0	-\$550	\$0	\$500	\$750
$\text{max}(0, (\text{min}(\text{PDP}, \text{RTP}) - \text{DAO}) \times \text{MLP})$						\$0	\$0	\$0	\$0	\$0	\$500	\$750
<b>Generator Withdrawal Charge</b>						\$0	\$0	\$0	\$0	\$0	\$500	\$750

Note: The participant is **not** eligible to receive the DA-PCG for the hours not withdrawn (HE9 – HE 12)

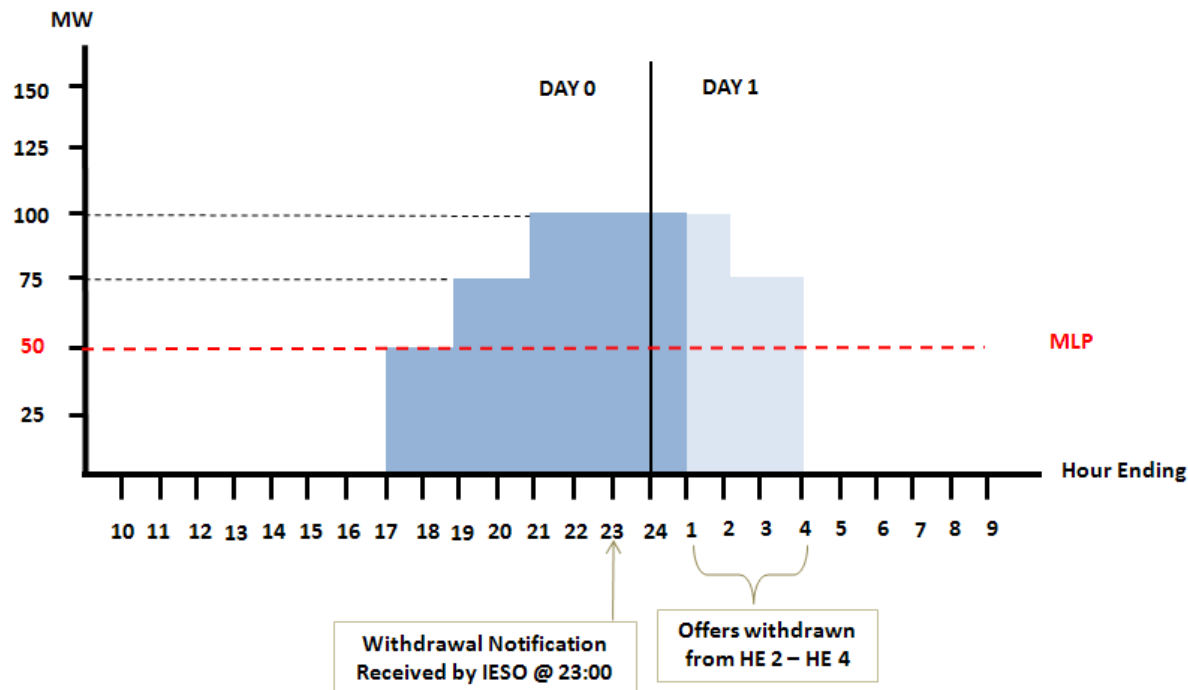
# Example 4

## Generator Withdrawal Charge



- The objective of this example is to demonstrate the Generator Withdrawal Charge calculation where:
  - The participant withdraws after synchronization but prior to completion of their day-ahead scheduled period
  - The notification to withdraw is received less than 4 hours prior to real-time
  - The participant was scheduled across the day from HE 1 – HE 4 to complete its MGBRT
  - The withdrawal was within the participant's control

		HE18	HE19	HE20	HE21	HE22	HE23	HE24	HE1	HE2	HE3	HE4
Day-Ahead Constrained Schedule	DACS	50	50	75	75	100	100	100	100	100	75	75
Minimum Loading Point	MLP	50	50	50	50	50	50	50	50	50	50	50
Day-Ahead Offer	DAO	\$5	\$10	\$15	\$10	\$20	\$10	\$5	\$15	\$10	\$5	\$5
Pre-Dispatch Price	PDP	\$6	\$7	\$5	\$10	\$4	\$15	\$20	\$5	\$10	\$15	\$20
Real-time Price	RTP	\$10	\$12	\$3	\$5	\$8	\$4	\$5	\$4	\$10	\$16	\$22



- The Generator Withdrawal Charge is assessed and applied for the hours withdrawn
  - Withdrawal Charge =  $\text{Max}[0, (\text{RT Ontario MCP} - \text{DA Offer}) \times \text{MLP}]$

		HE18	HE19	HE20	HE21	HE22	HE23	HE24	HE1	HE2	HE3	HE4
Day-Ahead Constrained Schedule	DACS									100	75	75
Minimum Loading Point	MLP									50	50	50
Day-Ahead Offer	DAO									\$10	\$5	\$5
Pre-Dispatch Price	PDP									\$10	\$15	\$20
Real-time Price	RTP									\$10	\$16	\$22

RTP - DAO										\$0	\$11	\$17
(RTP - DAO) x MLP										\$0	\$550	\$850
$\text{max}(0, (\text{RTP} - \text{DAO}) \times \text{MLP})$										\$0	\$550	\$850
<b>Generator Withdrawal Charge</b>										\$0	\$550	\$850

Note: The participant is **not** eligible to receive the DA-PCG for the hours not withdrawn (Day 0, HE18 – HE24 and Day 1, HE 1)

# Generator Withdrawal Charge

## Settlement Statements and Charge Types



- The Generator Withdrawal Charge settlement amounts will appear on the daily settlement statements using new charge types:

Settlement Name	Code	Settlement Timeframe
Generator Withdrawal Charge	NEW	Hourly