Transmission Rights Workbook

IESO Training

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AN IESO MARKETPLACE TRAINING PUBLICATION

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1. Introduction

Transmission Rights (TRs) are a risk management tool to enable traders to hedge against the financial risks associated with uncertain congestion at the interties. The IESO sells transmission rights through an auction process. These rights provide the holder the opportunity to receive a payment in the event that congestion occurs on an intertie in the day-ahead market (DAM).

As of May 1st, 2025, intertie locational marginal prices (LMPs) are used for settlement of intertie transactions (imports and exports). Intertie LMPs are comprised of the Intertie Border Price (IBP) and the Intertie Congestion Price (ICP). The IBP is the LMP on the Ontario side of the intertie. The ICP includes two components: The cost associated with a binding Net Interchange Scheduling Limit and the cost of external congestion.

Congestion on an intertie occurs when the quantity of economic offers or bids exceeds the intertie's physical transfer capability:

- If the external congestion price is negative, the intertie is import-congested.
- If the external congestion price is positive, the intertie is export-congested.

These price differences present a risk to importers and exporters. Traders can protect themselves against real-time market intertie congestion by locking in their prices through the DAM. There is no similar mechanism for the DAM. As such, transmission rights (TR)[1] will be settled based on the external congestion component of the DAM Intertie LMP. For example:

- If the Ontario-Michigan intertie is export congested, transmission rights holders who have Ontario-Michigan path rights will receive a payment.
- Holders of Michigan-Ontario path transmission rights will not receive a payment.

Note: Transmission rights do not affect scheduling, nor do they guarantee the physical transmission of energy.

1.1 Objectives

After completing this workbook, users of this workbook will be able to:

- Describe the differences between long-term and short-term transmission rights
- Describe the criteria for determining how many rights are offered at each auction

[1] In this workbook the terms 'TR' and 'rights' are used interchangeably to mean transmission rights.

- Describe timing of market deposits and explain the impact of cash versus a letter of credit on TR participants' bid limit during an auction
- Given a set of conditions, calculate a transmission rights payout
- Describe the settlement process for transmission rights

2. Overview

2.1 Participating in the TR Market

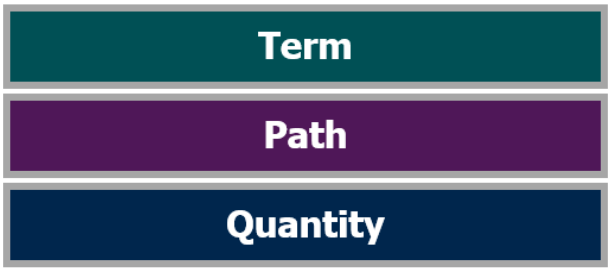
A TR participant must be an authorized market participant to participate in the transmission rights auction. There are no other requirements – it is a financial market open even to those who do not participate in the physical markets.

2.2 Ownership

The IESO settles TR participants for any rights they purchase in an auction.

2.3 Transmission Rights Elements

Transmission Rights are defined by three elements:



Term

Transmission rights are sold as either long-term or short-term:

- Long-term rights: valid for all hours of all days for one year
- Short-term rights: valid for all hours of all days for one month

Path

All transmission rights are sold on a path basis and are directional. Rights are sold only on paths that are available for physical market bids and offers (certain radial ties are not available for market transactions). The path indicates the injection and withdrawal zone, one of which is always Ontario. The IESO names paths using an abbreviation for Ontario and for each of the intertie zones, where the first term is always the injection zone, for example:

Owning this transmission right indicates that TR participants anticipate the Michigan interties to be export congested i.e., a higher energy price in the Michigan intertie zone than Ontario.

Quantity

Quantity is the number of transmission rights the TR holder has purchased through the auction. All transmission rights are sold in 1 megawatt (MW) increments: 1 TR = 1 MW on a given path.

3. Pre-Auction

3.1 How the IESO Determines the Number of Transmission Rights to Auction

The transmission rights market must be self-funding. As such, TR payouts over the term of a right must not exceed available funds. The transmission rights market is funded by the cost of the rights themselves and by congestion rents. These are accumulated into the Transmission Rights Clearing Account (TRCA). The congestion rents deposited in the account are the amount collected by the IESO resulting from DAM external congestion.

To avoid overselling transmission rights, the number of transmission rights available is based on the intertie's forecast transfer capability, reduced by a confidence level. The confidence level reflects anticipated conditions, equipment outages, and system security requirements.

The criteria the IESO uses to determine the available transmission rights for sale is different for long-term and short-term auctions, but both are based on the forecast total transfer capability of the interties.

3.2 Determining Transmission Transfer Capability (TTC)

The forecast TTC reflects the anticipated scheduling capacity of an intertie, which may be quite different for each direction (import and export) and season (winter and summer). TTC considers anticipated operating conditions, and it respects stability and voltage limits, equipment ratings, and operating practices.

- The published transfer capability normally reflects an 'all elements in service' condition – but it may be reduced for outages affecting a path for more than 2.5 for short-term auctions or 30 days for long-term TR auctions.
- Impractical or emergency modes of operation are excluded from the Quebec intertie TTC calculations.
- For interties where the thermal limits are restrictive, there are different limits for summer (May 1–Oct 31) and winter (November 1 – April 30), which is shown below.

3.3 Determining TR Base Quantity

The TR base quantity is the maximum number of cumulative rights on a path available for long-term auctions. The base quantity of each path is determined as the minimum of the summer and winter Available Transfer Capability (ATC – which is the TTC reduced by a transmission reliability margin

(TRM), so as to provide an additional safety measure when determining acceptable flows) with all elements in-service, de-rated for any expected long-term operational constraints on the path, and then dividing by a factor of 4 and rounded to the nearest multiplier of 4. For example, if a certain path's minimum of the summer and winter ATC with all elements in-service, de-rated for any expected long-term operational constraints on the path, is 1,500, then base quantity for this path is equal to 376 (1,500 divided by a factor of 4 and rounded to the nearest multiplier of 4).

3.4 Determining Financial Upper Limit (FUL)

The financial upper limit for each path for each month determines the maximum number of TRs that can be offered in the long-term and short-term auctions conducted for that month. It is calculated based on the net cumulative balance between the DAM external congestion rent collected and TR payouts on a per path basis[2].

The financial upper limit is adjusted to target a cumulative per path-based balance of zero (i.e., cumulative congestion rents collected on a specific path are sufficient to cover the cumulative TR payment obligations for the same path). Path-based adjustments to the financial upper limit will be made only when the cumulative difference between congestion rents and TR payments exceeds a specified dead-band for each path.

The financial upper limit for the upcoming month is equal to the minimum of the latest available summer and winter ATCs with all elements in-service, and the financial upper limit for the current month which is adjusted based on the following algorithm:

Table 1: Financial Upper Limit Adjustment Algorithm

Transmission Rights Clearing Account (TRCA)	Cumulative Difference between Congestion Rents Collected and TR Payments (by each TR path)	Impact on Monthly TRs (by TR path)
N/A	Between the upper and lower limits of the dead-band	No change
TRCA balance is greater than the TRCA threshold*	Exceeds upper limit of the dead-band (Congestion rent is greater than TR payout)	Increase financial upper limit by 4%
TRCA balance is less than or equal to the TRCA threshold*	Exceeds upper limit of the dead-band (Congestion rent is greater than TR payout)	No change**
N/A	Less than lower limit of the dead-band (Congestion rent is less than TR payout)	Decrease financial upper limit by 4%
* The Transmission Rights Clearing Account (TRCA) threshold is currently $20M ** Transmission Rights (TR) offered will not be increased when TRCA balance is below threshold		

[2] From March 2017 until MRP commencement date, the IESO has calculated the financial upper limit based on net cumulative balance between the congestion rents collected and TR payouts on a per path basis in the real-time market. As of May 1st, 2025, the financial upper limit will be calculated in the same way except in the day-ahead market.

3.5 Dead-band

The objective of a dead-band is to limit the number of manual interventions and to allow time for any adjustments to impact the financial balance before further adjustments are made. The dead-band can vary for each path and can be modified when a given path is not achieving a balance between congestion rents and TR payments.

3.6 Long-Term (LT) Rights

The number of transmission rights offered on each path at a long-term auction is limited to the lowest of the following:

- 25% of the established TR base quantity;
- The financial upper limit;
- Expected ATC with consideration for outages (single/multiple, internal/external, planned/foreseeable or concurrent/consecutive) that have an impact for more than 30 days;
- Expected ATC with consideration for non-timeline or operational constraints (for example, a constraint on an internal/external interface that imposes a limit on import/export).

Note: The actual number of TRs available for bidding may be further reduced in order to ensure the TR base quantity and the financial upper limit are not exceeded when accounting for the TRs sold in previous three applicable long-term auctions (refer to Figure 1 below).

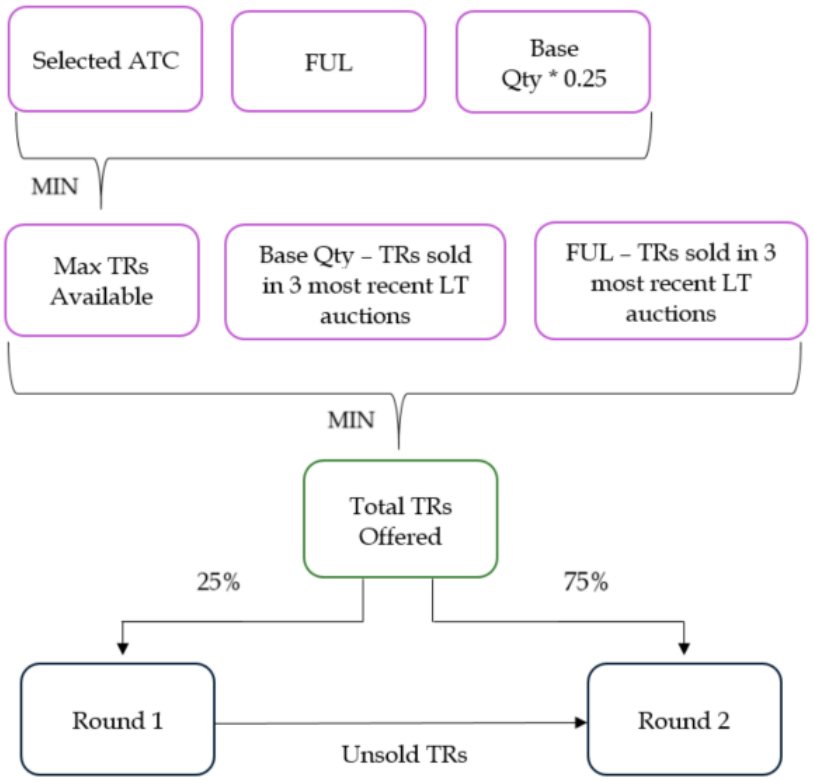


Figure 1: Determining TRs Offered for LT Auctions

3.7 Short-Term (ST) Rights

The number of transmission rights offered on each path during a short-term auction is limited to the lowest of the:

- The financial upper limit;
- Expected ATC with consideration for outages (single/multiple, internal/external, planned/ foreseeable or concurrent/consecutive) that have an impact for more than 2.5 days; or
- Expected ATC with consideration for non-timeline or operational constraints (for example, a constraint on an internal/external interface that imposes a limit on import/export).

Note: The actual number of TRs available for bidding may be further reduced in order to account for the TRs sold in the previous four applicable long-term auctions.

Figure 2 below illustrates how the quantity of TRs offered are determined for ST auctions.

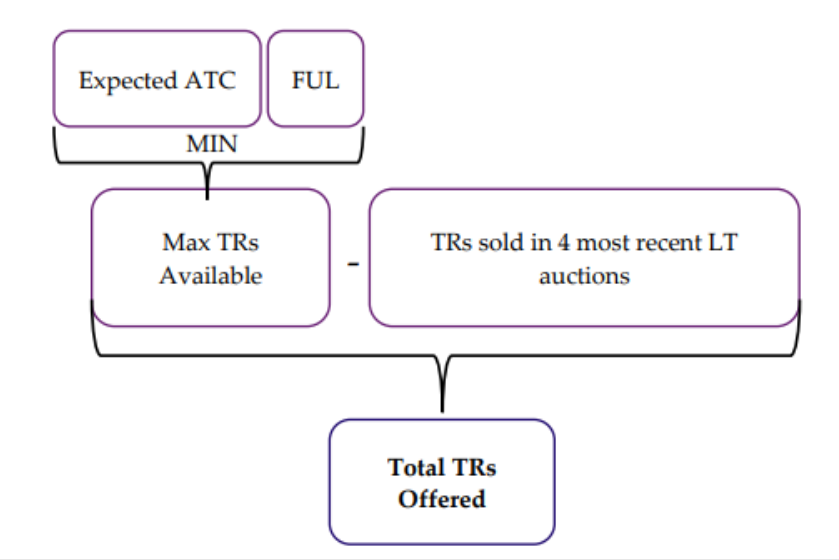


Figure 2: Determining TRs Offered for ST Auctions

Example: Assume there are no outages on the Michigan paths and the financial upper limit is at its maximum. The number of short-term rights available for the July auction equals:

- Unsold long-term (LT) rights from previous auctions covering July (up to the base amount)

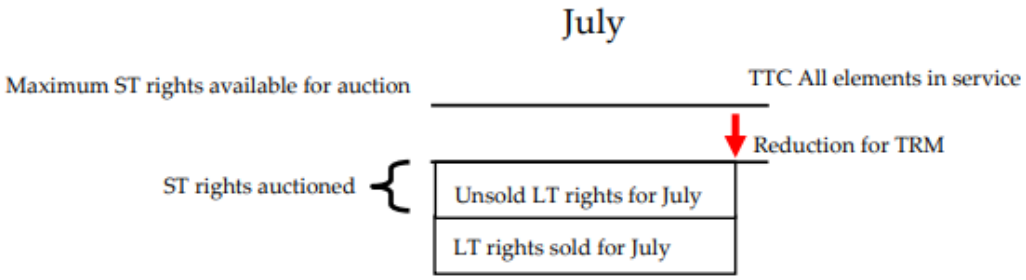


Figure 3: Unsold long-term (LT) rights from previous auctions covering July (up to the base amount)Transmission Rights Clearing Account

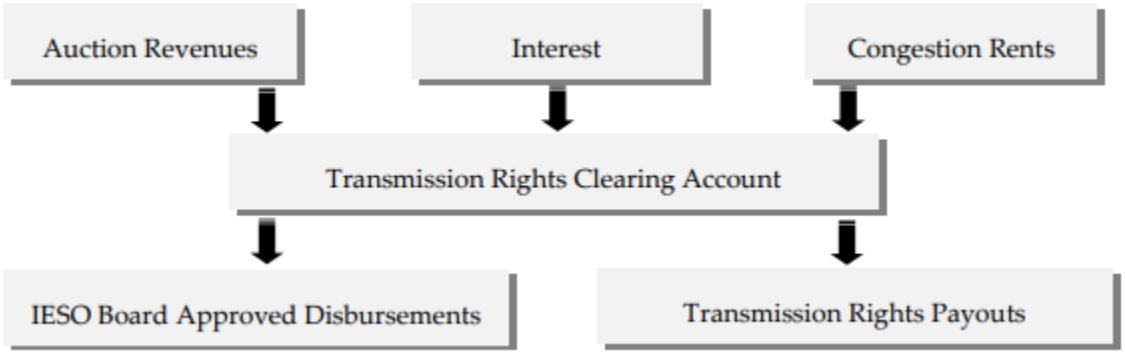


Figure 4: Transmission Rights Clearing Account

The Transmission Rights Clearing Account (TRCA) has an upper threshold set by the IESO Board ($20 million). The IESO manages fluctuations in the account's balance by adjusting the quantity of short-term transmission rights offered in the following quarter. To ensure that the congestion rents collected by the IESO are balanced against the IESO's TR payment obligations for each path, a confidence level is established on a per path basis. This is achieved by introducing a financial upper limit for the number of TRs offered in any month for each path. The financial upper limit is adjusted from one month to the next based on the most current reported balance between the congestion rents and TR payouts on a per path basis and the applicable dead-band for each path.

Example 1: Assume the TRCA currently stands at $10M. The latest financial data shows that the congestion rent collected for the MAN-ON TR path was $7,000 and the TR payout was $10,000. Since the TR payout is greater than congestion rent collected by $3,000, and assuming this amount is lower than the specified dead-band for MAN-ON TR path, the FUL will decrease by 4% from the last auction. Note that the value of the TRCA does not matter in the case of a FUL decrease.

Example 2: In this case, assume the TRCA currently stands at $40M. The latest financial data shows that the congestion rent collected for the ON-MICH TR path was $100,000 and the TR payout was $80,000. Since the TR payout is less than congestion rent collected, and if the amount is higher than the dead-band, therefore the FUL will increase by 4% from the last auction (ex. from 1000 MW to 1040 MW). However, FUL can never exceed the ATC value of a given TR path.

Example 3: Lastly, consider Example 2 but where the TRCA stands at $15M. In this case, even though the TR payout is less than congestion rent collected by $20,000, the Financial Upper Limit cannot be increased due to the TRCA being below the threshold of $20M.

4. Auction Process

4.1 How to Access the Transmission Rights Auction Application

The transmission rights auction (TRA) application is available in Online IESO.

To access the application you must first log on to the IESO Gateway. Please note that a TR participant will be prompted to change the IESO Gateway password every 90 days, upon logging in. The Applicant Representative of your organization will need to ensure that your account is configured correctly via Online IESO (https://online.ieso.ca). The Applicant Representative will need to assign the "Transmission Rights Auction" Access Role to your account (Online IESO -> Actions -> Manage System Access). If you need to reset your password, refer to the "IESO Gateway User Guide".

Once you've logged into the Gateway, select the Online IESO tile. To access the TRA application select the grid icon in the top right of the Online IESO home page and select the "Transmission Rights Auction" application. Participant specific reports can also be accessed, directly, or through a hyperlink in the TRA application, on the Reports website.

Detailed procedures on how to access the TRA application are found in the IESO Training publication "Transmission Auction System User Guide".

4.2 TR Auction Timelines Calendar

The IESO publishes the annual transmission rights calendar every fall, specifying the dates for the monthly (short-term rights) and quarterly (long-term rights) auction for the next year. The calendar also gives the TRA participant other important dates in the auction process, such as when the bid window is open and when payment is due. The calendar is available on the Market Calendars web page.

4.3 Preparing to Bid

The TR market is a financial market, so participant creditworthiness is not managed using the physical market's prudential requirements. Instead, the TRA participant must post a market deposit in the form of cash or a letter of credit.

- The IESO must receive the MP's market deposit at least five (5) business days before an auction or the MP will receive a notice of revocation (Form 1374 – Notice of Revocation of Transmission Rights) and the MP will not be able to participate.
- The MP's bid limit is normally ten times their market deposit, e.g., the MP can bid for up to $50,000 of transmission rights if their deposit is $5,000. The IESO may reduce this multiplier for participants who have previously defaulted. The MP can view their current bid limit through the TRA application just prior to an auction.

4.4 Pre-Auction Reports

Pre-auction reports are available on both the IESO Public Reports website and via hyperlink to the same site from the TRA application in Online IESO. The IESO publishes the following information at least 30 days prior to each TR auction:

- Day-Ahead Hourly Intertie Energy LMPs Report provides the energy locational marginal price (LMP) and its components for each intertie pricing location after the successful execution and validation of the DAM calculation engine run;
- The TR market clearing price for each transmission right sold during any TR auctions conducted in the preceding eighteen months;
- Day-ahead schedules over each interconnection during the preceding twelve months;
- The Monthly Day-Ahead Historical Interface Schedules, Transmission Transfer Capability Report provides the Total Transfer Capability (TTC) that was used by the DAM for determining the maximum import/export market schedules between Ontario and an intertie zone (TTC IN refers to flows from the external intertie zone into Ontario). The report provides data for the last 31 days to ensure that any schedule adjustments are captured in the report.; and
- Identification of any transmission transfer capability limits, parallel flow assumptions, outage IDs, and other applicable constraints that may limit the number of transmission rights that can be awarded in the TR auction, the operating assumptions established in respect of the TR auction pursuant to and forecasted amount of TRs available.

4.5 Bidding

- The bid window is open from 09:00 two days before the auction date until 17:00 on the day before the auction date (all times are EST).
- TR participants' bid consists of laminations with three (3) elements: path, quantity, and price ($/MW).
- All bids are time-stamped and TR participants may only have one bid per path at any time, (i.e., bids with a later time-stamp will overwrite earlier time-stamped bids).
- TR participants can view, revise and delete their bids via the TRA application.
- TR participants can submit up to 20 laminations, but at least one (1) lamination is required to submit a bid.
- Bids are accepted in real-time after pressing the "submit" button.
- Laminations can be rejected in real-time, where TR participants will be unable to submit the bid (i.e., TR participants will need to adjust their bid/lamination to be able to submit), if any of the following conditions are met:
    - The MWs of the lamination quantity exceed the maximum MWs being offered;
    - The lamination quantity is not a whole number greater than zero MWs;

- The lamination price exceeds two decimal points;
- Total cost of TR participants' highest lamination (price x quantity) exceeds their remaining bid limit;
- The lamination price is not greater than $0; or
- Laminations are not placed in monotonically increasing quantities with decreasing prices. This also prohibits duplicative laminations. For clarity, the first bid must be the lowest total quantity (each quantity will be representative of the total number of MWs/TRs that the participant is willing to purchase at the price), with the highest price (reflecting the maximum price they are willing to pay for TRs). Each subsequent bid lamination must have a higher total quantity and lower price from the previous lamination.

TR participants' bid limit is automatically adjusted throughout the auction after the submission of any bids and after Round 1 of a long-term auction to reflect their available bid limit. The sum of TR participants' largest/max laminations (price x quantity) on each path must not exceed their bid limit. For short-term auctions this is applicable for the single round. For a long-term auction this is applicable for Round 1, and will be recalculated in Round 2 based on the value of rights awarded from the first round, and will use any of the largest/max laminations (price x quantity) to continue to subtract from this new bid limit for Round 2 of a long-term auction.

4.6 Long-Term Auctions

Long-term auctions occur quarterly, with approximately 25% of the annual total TR rights offered at each auction. Since these rights are valid for an entire year, each auction is done in two rounds to allow price discovery:

- The first round is for 25% of the total available for that auction.
- The second round is for the remaining 75%, in addition to any TRs that were unsold in the first round.

The transmission rights application and related reports refer to 'round fractions'. A round fraction is the percent (in decimal form) of the rights being offered. So, for Round 1 the round fraction is 0.25 and for Round 2 the round fraction is 1 (that is, 100% of the remaining rights).

Schedule each long-term auction

Schedule each long-term auction with adherence to the following:

- Long-term auctions are conducted over two rounds. Each round has separate deadlines except with respect to issuing the invoice and final payment date.
- A round of a long-term auction must occur over two consecutive business days.
- Both rounds of a long-term auction should occur within the same week, with one day between rounds. Typically, this results as follows: round one occurs Monday-Tuesday and round two occurs Thursday-Friday. In order for the execution of this configuration, a five-day workweek (no holidays) is required.

- Long-term auctions must be conducted at least 30 days but no more than 90 days prior to the start of the next quarter (the start of the period of validity).

Example:
Assume there are 800 MW of MICH-ON long-term rights available for the year:

- 200 MW are auctioned each quarter.
- At each auction, 50 MW (round fraction = 0.25) are offered in Round 1 and if all 50 MWs of TRs were sold in Round 1, the remaining 150 MW (round fraction = 1) are offered in Round 2.
  - Round 1 Bid Deposit Due: Week 1 – Monday
  - Round 2 Bid Deposit Due: Week 1 – Thursday
  - Round 1 Bid Window: Week 2 – Monday to Tuesday
  - Round 2 Bid Window: Week 2 – Thursday to Friday

Note: Most participants post a large enough market deposit by the Round 1 deadline to meet their anticipated needs for both rounds of a long-term auction.

4.7 Short-Term Auctions

Short-term auctions occur monthly and the entire quantity available is offered in one round.

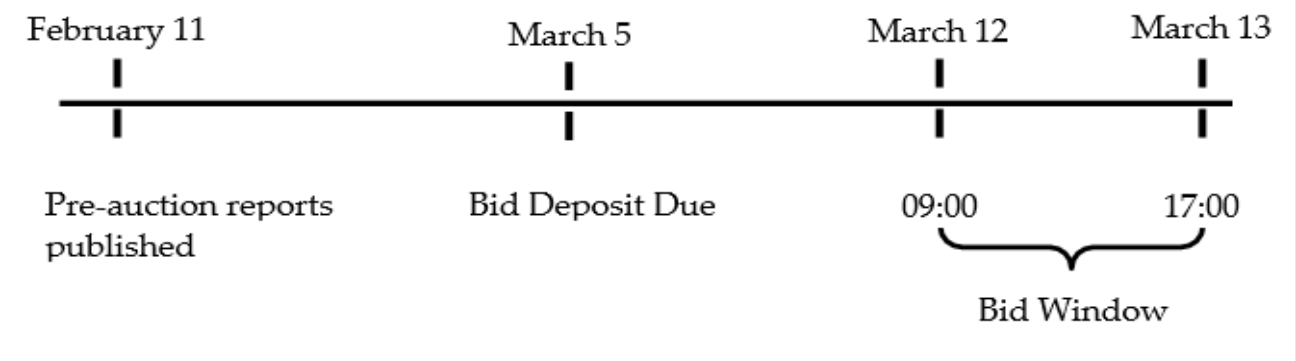


Figure 5: Example of the Timelines for a March Short-Term Auction

4.8 Treatment of Market Deposits during an Auction

TR participants' bidding limit adjustment during an auction depends on whether it is in the form of a letter of credit or cash.

4.9 Letter of Credit Market Deposit

If the TR participant's market deposit is a letter of credit, at the end of each auction the IESO will reduce their market deposit by 10% of the value of rights awarded to them, until the IESO receives payment.

Example

The TR participant enters a short-term auction with a letter of credit of $10,000. This means their bidding limit is $100,000.

If the TR participant successfully purchase $5,000 worth of TRs in this auction, their deposit is reduced by $500.00 to $9,500.00. Reducing the book value of their market deposit gives them a new bidding limit of $95,000 until they have paid the invoiced amount of $5,000.

The IESO issues invoices six business days after the end of the trade week in which the awards are made. Until the invoice is issued and paid, the market deposit remains reduced.

Table 2 shows an example of the market deposit management process for letters of credit. Looking at the figures, the TR participants will notice that the letter of credit deposit is reduced by 10% of the award amount until an issued invoice is paid.

Table 2: Letter of Credit Management Deposit

	Short- Term Auction	Market Deposit / Bid Limit Available Post-Auction	Six Business Days After Trade Week	Two Business Days After Invoice	Market Deposit / Bid Limit After Payment Received
Market Deposit	$10,000	$9,500			$10,000
Bid Limit	$10,000	$95,000			$100,000
Awards	$5,000				
Book Value of Market Deposit Balance after 10% reduction for awards	$9,500				
Invoice			$5,000		
Payment				$5,000	

4.10 Cash Deposits

The IESO deals with cash deposits in a similar manner to letter of credit market deposits. However, at the end of the auction, the IESO applies the deposit to the purchase price of the rights awarded, rather than holding it until an invoice is paid. Where the market deposit is not sufficient to cover the rights awards, the invoice shows the net amount still owing. Table 3 shows the treatment of the cash market deposit.

In the same example of a short-term auction with a starting deposit of $10,000 and an award of $5,000, the deposit is applied to the award. In this case, the resulting invoice shows a debit for the $5,000 and a credit for the same amount. The TR participant can elect to have any remaining cash deposit carry forward or be returned after auction. Use Form 1361 to indicate their preference.

Table 3: Cash Market Deposit

	Short- Term Auction	Market Deposit / Bid Limit Available Post-Auction	Six Business Days After Trade Week	Two Business Days After Invoice	Market Deposit / Bid Limit After Payment Received
Market Deposit	$10,000	$5,000		$5,000	$5,000
Bid Limit	$100,000	$50,000		$50,000	$50,000
Awards	$5,000				
Book Value of Market Deposit Balance after 10% reduction for awards	$5,000				
Invoice			$5,000		
Payment[3] (Deposit Applied)			$5,000		

Looking at the figures in the tables above, the TR participant will notice that the letter of credit deposit is reduced by 10% of the award amount until an issued invoice is paid. Contrast this to the cash situation in Table 4 where the entire award amount is deducted from the deposit at the end of the auction, reducing the bidding limit for the cash deposit below the bidding limit for the line of credit deposit.

If their initial market deposit was $10,000.75 cash and they are awarded $975.50 in an auction, their market deposit will be reduced by the amount of your award, or $975.50, for the purposes of determining the bid limit for the next auction.

That is, TR participants should expect the book value of their TR market deposit to become $10,000.75 minus $975.50 or $9,025.25 which provides a bidding limit of $90,252.50.

4.11 Contingencies

When a failure of a component of the TRA hardware, software, or communications system has occurred, the IESO will declare that the TRA has experienced a contingency through a public advisory process via the IESO website that explains the cause of the delay (if known) and the expected duration. The IESO will notify all TR participants who are affected as soon as practicable of any TRA cancellation, and/or contingency procedures, revised timelines, and revised activity schedules which may be implemented.

[3] The payment is the deposit on account being applied.

Subsequently, the IESO may, for reasons of a failure in the TR bidder's or the IESO's software, hardware, or communication systems associated with a TR auction:

- Conduct a TRA using contingency procedures; or
- Conduct a TRA and related activities along timelines other than those specified in the market rules; or
- In the event that the IESO cannot conduct an effective TRA in a commercially reasonable manner using contingency procedures and/or modified timelines, cancel all or part of a TRA.

The IESO will notify all TR participants who are affected as soon as possible of any TRA cancellation, and/or contingency procedures, revised timelines and revised activity schedules that the IESO intends to implement (the IESO must notify all TR participants before taking any of these steps). TR participants who wish to participate in a TRA being conducted under contingency procedures and/or revised timelines shall comply with any applicable contingency procedure, revised activity schedules, or revised timelines specified by the IESO. Depending upon the type of contingency (component failure or a fall-back to an alternate server), a TR participant may be requested to:

- Hold all bids;
- Submit bids through an alternative method; or
- Review and resubmit bids.

TR participants are responsible for risk assessment and preparation for contingencies on their side. This includes providing alternative communications pathways, Business Recovery Procedures (BRP) centres, etc.

5. Auction Results: Prices and Awards

5.1 Market Clearing Price

Rights are awarded according to the participant's willingness to pay. Laminations are stacked, from highest to lowest price and the clearing price is based on marginal cost. The clearing price is the lamination value of the last transmission right (MW) awarded in that auction or round. All participants pay the clearing price for the TRs they are allocated and awarded up to their lamination amount (pending lamination was not tied at the market clearing price (MCP) and there are adequate TRs to accommodate the entire lamination).

5.2 Tie-breaking

Tie breaking could be required when two or more TR participants have submitted the same lamination price that is equal to the corresponding MCP on a path and there are not enough TRs to satisfy all participants at the MCP.

There are multiple stages of tie breaking if required. For example the IESO will first award rights proportionally on their laminations at the MCP (this will be based on the full quantity if it's the participants first lamination or the incremental value between their previous lamination and the one that is tied at the MCP if it's a subsequent lamination), when two or more participants submit laminations at the same price and there are not enough TRs to satisfy all participants. Table 4 contains an example where there are 60 MWs of TRs remaining and four participants submitted a bid at $90.

Table 4: Tie-breaking Example

Available Rights	Participant	Lamination	Award
60 MW	A	60 MW @ $90	60/120 X 60 = 30 MW
	B	30 MW @ $90	30/120 X 60 = 15 MW
	C	20 MW @ $90	20/120 X 60 = 10 MW
	D	10 MW @ $90	10/120 X 60 = 5 MW

If there are still TRs unallocated from the initial tiebreak, the IESO will use the highest remainders from the proportional calculation, highest lamination quantity (this will be based on the full quantity if it's the participants first lamination or the incremental value between their previous lamination and the one that is tied at the MCP if it's a participant's subsequent lamination), and then earliest timestamp of the participant's bid in order allocate those TRs. There could be situations where TRs are unallocated if it cannot be determined who should receive them from the tie-breaking. In situations where the last awarded TR was awarded at a higher priced lamination, the MCP will be adjusted to that last awarded lamination.

5.3 Post-Auction Reports

There are two types of post-auction reports: public and participant-specific (confidential). Both are published within one business day of the auction (usually within one hour). Public reports are available on both the IESO public website and via the TRA application in Online IESO Participant- specific reports are only available via the TRA application.

5.4 Public Reports

5.4.1 TR Post Auction MCP

The quantities sold and clearing price for each of the paths sold in that auction.

5.5 Participant-specific Reports

5.5.1 Auction Results

Bid price and quantity as well as the clearing price and quantity awarded for each path successfully bid upon. This report will also indicate if there are no winning bids.

5.5.2 Bid History

Participant bid history over the last 18 months.

6. Settlement

6.1 TR Payout

Payment for TRs occurs when there is congestion on an intertie in the DAM. This congestion is reflected in the external congestion component of the DAM hourly intertie LMP. Payouts are always positive, and TR participants must hold the right that is in the same direction as the congestion to receive payment.

Export Congested:

TR Payout = MAX (0, DAM external congestion price at the injection zone × TR quantity owned)

Import Congested:

TR Payout = MAX (0, -1 x DAM external congestion price at the withdrawal zone x TR quantity owned).

Any negative results are capped at $0. Transmission rights can only be a payment, not a charge.

Assume the Michigan/Ontario interface is export congested in DAM and the external congestion component is $10:

- Participant A holds 100 TRs on the MICH – ON path
- Participant B holds 100 TRs on the ON – MICH path
- DAM external congestion component for MICH intertie is $10 indicating that the intertie is export congested

Participant A does not receive a payout since their TR hedges import congestion (from Michigan into Ontario)

TR Payout = MAX(0, -1× $10 × 100)
= -$1,000
= $0 since TR payouts can not be negative

Participant B receives a payout since their TR hedges export congestion

TR Payout = MAX(0,1× $10 × 100)
= $1,000

For a second example, assume instead that the intertie was import congested. In this example, the external congestion component is -$15.

Participant A receives a payout since their TR hedges import congestion

TR Payout = MAX(0, -1× -$15 × 100)

= $1,500

Participant B does not receive a payout since their TR hedges export congestion

TR Payout = MAX(0,1× -$15 × 100)
= -$1,500
= $0 since TR payouts can not be negative

6.2 Statements and Invoices

Transmission rights use both the financial and physical market settlement processes:

- Payment for rights purchased in an auction are settled in the financial market.
- Payouts to TR holders are settled in the physical market.

(For more information on the settlement process, refer to the Commercial Reconciliation workbook available on the Training Materials web pages).

Note: Market Participants retrieve their statements and invoices from the IESO Reports site, if their Applicant Representative has provided them with the Settlement Data Viewer, Settlement, and/or Settlement Data and file Submitter contact role in their Online IESO accounts.

Statements are published according to the schedule shown on the Financial and Physical Market Settlement Schedule and Payment Calendars on the Market Calendars web page. The settlement timelines for each of the markets is shown in Table 5.

Table 5: Settlement Timelines

Item	Physical Markets	Financial Market
Preliminary settlement statements	Issued 10 business days after trading day	Issued two (2) business days after close of auction
Final settlement statements	Issued 10 business days after preliminary statement issued	Issued four (4) business days after preliminary statement issued
Invoices	Issued 10 business days after end of billing period	Issued six (6) business days after end of billing period
Payment due to IESO	Two (2) business days after invoice issued	Two (2) business days after invoice issued
Notice of disagreement	Six (6) business days after the preliminary, final or RCSS-1 to RCSS-6 settlement statements are issued	Two (2) business days after preliminary, final or RCSS-1 settlement statements are issued

Item	Physical Markets	Financial Market
Recalculated Settlement Statements (RCSS) 1	Issued on the invoice date that occurs one (1) month after the trading day was first invoiced (Optional)	Issued on the last business day of the month following the trade month (Optional)
Recalculated Settlement Statements (RCSS) 2	Issued on the invoice date that occurs two (2) months after the trading day was first invoiced (Optional)	Not Applicable
Recalculated Settlement Statements (RCSS) 3	Issued on the invoice date that occurs five (5) months after the trading day was first invoiced (Optional)	Not Applicable
Recalculated Settlement Statements (RCSS) 4	Issued on the invoice date that occurs eight (8) months after the trading day was first invoiced (Optional)	Not Applicable
Recalculated Settlement Statements (RCSS) 5	Issued on the invoice date that occurs 11 months after the trading day was first invoiced (Optional)	Not Applicable
Recalculated Settlement Statements (RCSS) 6	Issued on the invoice date that occurs 17 months after the trading day was first invoiced (Optional)	Not Applicable
Recalculated Settlement Statements (RCSS) F	Issued on the invoice date that occurs 23 months after the trading day was first invoiced	Issued on the last business day of the month, 22 months after the trade month
Dispute resolution	<u>For any statements prior to final recalculated settlement statement:</u> File within 20 business days of either: (1) Issuance of the settlement statement containing the unsatisfactory NOD adjustment; or (2) Receipt of a decision letter in the NOD application informing you that no adjustments will be made <u>For the final recalculated settlement statement:</u> No NOD can be filed. File the notice of dispute within 20 business days of issuance of the final recalculated settlement statement.	<u>For any statements prior to final recalculated settlement statement:</u> File within 20 business days of either: (1) Issuance of the settlement statement containing the unsatisfactory NOD adjustment; or (2) Receipt of a decision letter in the NOD application informing you that no adjustments will be made <u>For the final recalculated settlement statement:</u> No NOD can be filed. File the notice of dispute within 20 business days of issuance of the final recalculated settlement statement.

Item	Physical Markets	Financial Market
Access to settlement statements and invoices	IESO confidential Reports site https://reports.ieso.ca	IESO confidential Reports site https://reports.ieso.ca

Participants who do not pay their TR invoice by the due date will lose their awarded rights and will receive a notice of revocation (Form 1374). The IESO may also require them to use cash market deposits in the future or may reduce their bid limit from 10 times the deposit to something smaller. The IESO does not award forfeited rights to the next highest bidder, but instead the IESO sells them in a future auction.

6.3 Reassignment of Transmission Rights

TR holders may reassign their TRs to another registered participant subject to IESO verification. TR holders must submit the following forms to forwardmarkets@ieso.ca to initiate the process:

- FORM-84: Application for Recognition of the Assignment of Transmission Rights. With this form a TR holder can request that the IESO recognize, for settlement purposes, an assignment of the TR holder's right to all settlement amounts to the Assignee (a TR Participant), and
- FORM-85: Agreement to Recognize the Assignment of Settlement Amounts Under a Transmission Right. With this form, the IESO recognizes, for settlement purposes, the assignment of the TR holder's right to all settlement amounts under the assigned TR to the Assignee. Once this form is signed by the TR holder, the Assignee and the IESO, the Assignee is deemed to be the TR holder in respect of the settlement amounts under the assigned TR with effect from the billing period immediately following the effective date mentioned in the agreement.

7. Additional Information

7.1 References

- Market Rules, Chapter 8, Section 4: The Transmission Rights Market
- Market Manual 4.4 Transmission Rights Auction
- Transmission Rights Auction System - Market Participant User Guide (IMO_GDE_0004)
- IESO Gateway User Guide
- Market Manual 5.5 IESO-Administered Markets Settlement Amounts
- Market Manual 5.8 - Settlement Invoicing

8. Skill Check

8.1 Skill Check Questions

1. Which of the following statements are True?
    a. Short-term rights are valid for all hours of all days for one quarter of the year.
    b. Transmission rights are sold in 10 MW increments
    c. To avoid overselling a path, the number of transmission rights available for an auction is based upon the forecast transfer capability, reduced by a confidence level.
    d. The IESO considers outages longer than one week when we derive the number of long-term transmission rights for auction

2. If the MP's market deposit is $900, which of the following would be valid individual laminations?
    a. 100 MW @ $100
    b. 100 MW @ $0
    c. 100 MW @ $80
    d. 50 MW @ $80

3. If the TR holder owns 100 MW of MICH-ON TRs, and the intertie day-ahead locational marginal prices are $100 in Ontario and $95 for the Michigan intertie zone, what is the TR holder's TR payout?

4. If the MP's market deposit is a letter of credit for $10,000 and they are awarded $5,000 of TRs, The MP's new bid limit is $95,000. What would be their new bid limit if you had a cash deposit instead?

5. Which of the following statements is False?
    a. 100% of ON-MICH TRs sold ≤ maximum ON-MICH TRs available
    b. 25% of ON-MICH TRs sold + 75% of ON-NY TRs sold ≤ maximum ON-MICH TRs available
    c. 100% of ON-NY TRs sold ≤ maximum ON-NY TRs available
    d. 25% of ON-MICH TRs sold + 75% of ON-NY TRs sold ≤ maximum ON-NY TRs available

6. How many days after an auction is the invoice posted?
    a. 6 calendar days
    b. 4 business days
    c. 6 business days
    d. 2 business days

7. If the cumulative balance for the MIN-ON path is -$428K, what would happen to the Financial Upper Limit (FUL) on this specific path for the next ST auction?
    a. The FUL will increase by 4% because the TRCA balance is above threshold.
    b. The FUL will decrease by 4% because the path's cumulative balance is negative.
    c. The FUL will decrease by 2% because the TRCA balance is below threshold.
    d. The FUL will increase by 2% because the negative cumulative balance is less than the TRCA balance.

8.2 Skill Check Answers

1. Which of the following statements are True?

   a. Short-term rights are valid for all hours of all days for one quarter of the year.

   b. Transmission rights are sold in 10 MW increments

   c. To avoid overselling a path, the number of transmission rights available for an auction is based upon the forecast transfer capability, reduced by a confidence level. √

   d. The IESO considers outages longer than one week when we derive the number of long-term transmission rights for auction

2. If the MP's market deposit is $900, which of the following would be valid individual laminations?

   a. 100 MW @ $100

   b. 100 MW @ $0

   c. 100 MW @ $80 √

   d. 50 MW @ $80 √

3. If the TR holder owns 100 MW of MICH-ON import TRs, and the intertie day-ahead locational marginal prices are $95 in Ontario and $100 for the Michigan intertie zone, what is the TR holder's TR payout? Assuming NISL is $0.

- When export congested, the TR Payment = MAX(0, DAM external congestion price at the injection zone x TR quantity owned)
- When import congested, the TR Payment = MAX(0, -1 x DAM external congestion price at the withdrawal zone x TR quantity owned)

= MAX (0, -1 x ($95 - $100) x 100)
= $500

4. If the MP's market deposit is a letter of credit for $10,000 and you are awarded $5,000 of TRs, their new bid limit is $9,500. What would be the MP's new bid limit if they had a cash deposit instead?

$50,000 √

5. Which of the following statements is False?

   a. 100% of ON-MICH TRs sold ≤ maximum ON-MICH TRs available

   b. 25% of ON-MICH TRs sold + 75% of ON-NY TRs sold ≤ maximum ON-MICH TRs available √

c. 100% of ON-NY TRs sold ≤ maximum ON-NY TRs available

d. 25% of ON-MICH TRs sold + 75% of ON-NY TRs sold ≤ maximum ON-NY TRs available

6. How many days after an auction is the invoice posted?

   a. 6 calendar days

   b. 4 business days

   c. 6 business days √

   d. 2 business days

7. If the cumulative balance for the MIN-ON path is -$428K, then what would happen to the Financial Upper Limit (FUL) on this specific path for the next ST auction?

   a. The FUL will increase by 4% because the TRCA balance is above threshold.

   b. The FUL will decrease by 4% because the path's cumulative balance is negative. √

   c. The FUL will decrease by 2% because the TRCA balance is below threshold.

   d. The FUL will increase by 2% because the negative cumulative balance is less than the TRCA balance.

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