IESO_MAN_0078

MARKET MANUAL

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Market Manual 9: Day-Ahead Commitment Process

Part 9.3: Operation of the Day-Ahead Commitment Process

Issue 11.0

This document provides guidance to Market Participants on the operation of the Day-Ahead Commitment Process.

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Issue	Reason for Issue	Date
For changes prior to 2015, refer to versions 7.0 and prior		
5.0	Issue released in advance of Baseline 33.1 to update *IESO* logo	March 31, 2015
6.0	Issue released for Baseline 34.1	December 2, 2015
7.0	Issue released for Baseline 36.0	September 14, 2016
8.0	Issue released in advance of Baseline 41.1	April 30, 2019
9.0	Issue released in advance of Baseline 44.0	June 29, 2020
10.0	Updated to meet accessibility requirements pursuant to the *Accessibility for Ontarians with Disabilities Act.*	December 2, 2020
11.0	Issue released in advance of Baseline 45.0. Updated to include electricity storage participation.	February 26, 2021

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Reference (Paragraph and Section)	Description of Change
Throughout	Added references to electricity storage where applicable

1. Market Manuals

The *market manuals* consolidate the market procedures and associated forms, standards, and policies that define certain elements relating to the operation of the *IESO-administered markets*. Market procedures provide more detailed descriptions of the requirements for various activities than is specified in the "Market Rules". Where there is a discrepancy between the requirements in a document within a *market manual* and the *market rules*, the *market rules* shall prevail. Standards and policies appended to, or referenced in, these procedures provide a supporting framework.

– End of Section –

2. About this Manual

The "Day-Ahead Commitment Process" is Volume 9 of the *market manuals*, and this document forms "Part 9.3: Operation of the Day-Ahead Commitment Process".

The "Day-Ahead Commitment Process Manual" is composed of the following document set**:**

Table 2-1: Table of Contents—Market Manual 9.0

Document ID	Part No.	Name of Procedure Document
IESO_MAN_0041	9.0	Day-Ahead Commitment Process Overview
IESO_MAN_0077	9.2	Submitting Operational and Market Data for the Day-Ahead Commitment Process
IESO_MAN_0078	9.3	Operation of the Day-Ahead Commitment Process
IESO_MAN_0079	9.4	Real-Time Integration of the Day-Ahead Commitment Process
IESO_MAN_0080	9.5	Settlement for the Day-Ahead Commitment Process

For information on submitting registration data for the Day-Ahead Commitment Process, refer to Market Manual 1.5: Market Registration Procedures.

2.1 Conventions

The *market manual* standard conventions are as defined in "Part 9.0: Day-Ahead Commitment Process, Section 2.4 – Conventions".

– End of Section –

3. Introduction

3.1 Purpose

This document provides you with the procedures associated with the operation of the Day-Ahead Commitment Process (DACP).

3.2 Scope

This *market manual* is intended to provide a summary of the steps and interfaces between you and the *IESO* during the operation of the DACP. The procedural workflows and steps described in this document serve as a roadmap for you and the *IESO*, and reflect the requirements set out in the *market rules* and applicable *IESO* policies and standards.

The overview information in Section 4 is provided for context purposes only, highlighting the main actions that comprise the procedures as set out in Section 5.

This procedure describes the steps required to retrieve DACP reports and notifications and to receive notification of *reliability* commitments.

– End of Section –

4. Overview of the Operation of the DACP

This section provides an overview of the operation of the Day-Ahead Commitment Process (DACP) including:

- Initial scheduling assumptions
- Optimization process overview
- Scheduling the Day-Ahead Calculation Engine (DACE) runs
- Summary of DACP reports

4.1 Initial Scheduling Assumptions

The majority of inputs required to initialize the DACE are identical to those required for the *pre-dispatch schedule*. This section describes the additional inputs which are specific to the initialization of DACP.

4.1.1 Initial Hours of Operation

Initial Hours of Operation (IHO) is defined as the number of consecutive hours a dispatchable *generation facility* is in operation at the end of the current *dispatch day*. We use the IHO to determine whether to process the *offer start-up cost* for a *generation facility* scheduled at the beginning of the next day and to facilitate the treatment of *minimum generation block run-time* **(***MGBRT*) over midnight.

The IHO is determined only for non *quick start* dispatchable *generators*[1] and is based on:

- The schedules from the most recent Pre-*dispatch* run for the current *dispatch day*
- The previous day's DACP constraints used for the current *dispatch day* at the time that the most recent Pre-*dispatch* run results are *published*

See '0Appendix A: Detailed IHO Calculation' for details on how IHO is calculated.

4.1.2 Start-up Offer Treatment for the First Hour

When the DACE determines the schedule for the first hour of the next day, it does not take into account the start-up *offers* for dispatchable *generation facilities* that are already in operation in the last hour of the current *dispatch day* as determined by the IHO.

'Table 4-1: Treatment of Hour Ending 1 Start-up Offers and MGBRT over Midnight' shows the conditions under which start-up *offers* for Hour Ending 1 are considered by the DACE.

[1] The IHO for pseudo units (PSU) is determined based on the combustion turbine (CT) associated with the PSU. The IHO will not be calculated for the physical *generation units* associated with a PSU.

4.1.3 Treatment of Ramp Rate over Midnight

Resource Initial Schedule (RIS) is computed as part of each DACE run and represents the dispatchable resource's schedule in HE24 as determined by the most recent *pre-dispatch schedule* results for the current *dispatch day*. RIS is determined only for dispatchable *generation facilities,* dispatchable *electricity storage facilities,* and *dispatchable loads*.

The DACE uses the RIS to ensure the resource's hourly ramp rate is respected for the first hour of the next day. RIS is computed as part of each DACE run and requires the most recent *pre-dispatch schedule* results for the current *dispatch day*.

4.1.4 Treatment of MGBRT over Midnight

The DACE commits a *generation facility* at the beginning of the next day for a minimum number of hours to satisfy its *MGBRT* from the previous day's PCG commitment (see Figure 4-1 below). It uses the daily generation data (DGD) *MGBRT* effective for the next day to calculate the remaining *MGBRT* that must be satisfied. If a unit is scheduled in HE24 for any reason other than PCG, the DACE assumes that the unit's MGBRT has already been satisfied.

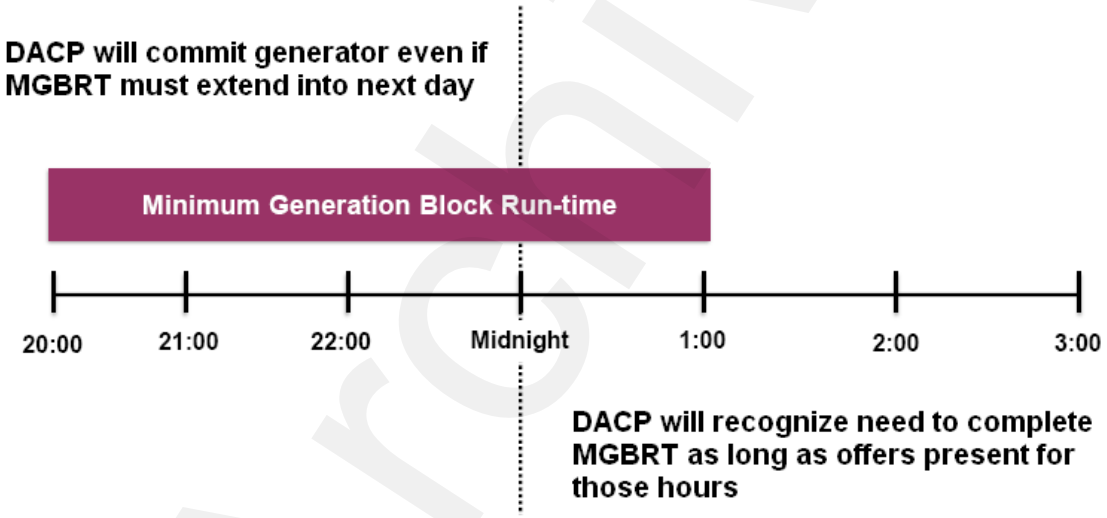

Figure 4-1: Satisfy Generator's *MGBRT* over Midnight

A *generation facility* will have its *MGBRT* honoured over midnight if it satisfies the following conditions:

- It is a dispatchable *generation facility.*
- It has valid *offers* for all the hours required to satisfy its remaining *MGBRT* in the next day.
- DGD *MGBRT* – IHO => 1.

In order to satisfy the remaining hours of *MGBRT*, a *generator* must have offered to at least the DGD *minimum loading point* (*MLP*) for every remaining hour. A Day-Ahead Price Cost Guarantee (DA-PCG) eligible *generator* with valid *offers* is committed up to the DGD *MLP* regardless of the *offer* price.

Table 4-1 below shows the conditions under which *MGBRT* is satisfied by the DACE.

Table 4-1: Treatment of Hour Ending 1 Start-up Offers and MGBRT over Midnight

Constraint Status HE24 Day 0 (as determined by DACP Schedule of Record from Day-1)	**Pre-dispatch Initial Schedule HE24 in Day 0**	**Initial Hours of Operations *(IHO)***	**Consider Start-Up Offer For HE1 Day 1**	**Satisfy MGBRT over Midnight**
YES = Constraint **NO** = No constraint	**≠ 0** = In Operation 0 = Not in Operation		**YES** = Start-up *Offer* is Considered **NO** = Start-up *Offer* is NOT Considered	**YES** = MGBRT is Satisfied **NO** = MGBRT is NOT Satisfied
YES	**≠ 0**	**0 < *IHO* ≤ 24**	**NO**	**YES**
NO	**≠ 0**	**24**	**NO**	**NO**
YES	**0**	**0**	**YES**	**NO**
NO	**0**	**0**	**YES**	**NO**
Input Data		Calculated Value	Treatment by Day-Ahead Calculation Engine (DACE)	

Note: See Appendix A: Detailed IHO Calculation for details on how IHO is calculated

4.1.5 Treatment of MGBDT over Midnight

The DACE does not respect *MGBDT* over midnight and will commit a DA-PCG eligible *generation facility* that was scheduled off in the previous day, but has not been offline for the specified number of hours, for the next day. To prevent a commitment that violates MGBDT over midnight, *market participants* must manage their *offers* in a manner that prevents scheduling for the hours which are required to complete the MGBDT.

4.2 Use of Three-Part Offers in the DACE

The DACE optimizes using the three-part *offers* of non *quick start facilities* to determine day-ahead commitments and schedules. Since the engine will only schedule a non *quick start facility* to at least its *MLP*, it needs to know the minimum generation costs for the *generation facility*. The engine will determine the minimum generation costs as the *generation facility's speed no-load* cost and the incremental *energy offer* up to its *MLP*. Three part offers are not used in the pre-dispatch or real-time dispatch sequences.

How the engine interprets each of the three parts of a *generation facility's offer* is shown in Figure 4-2 below.

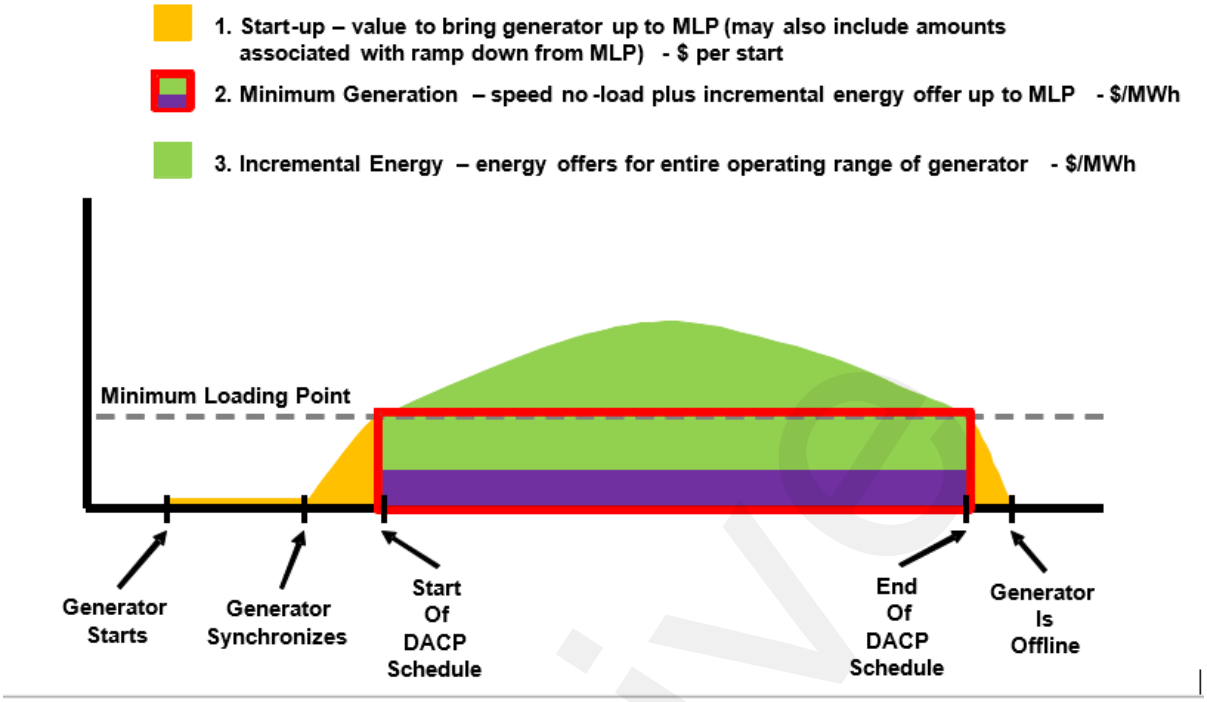

Figure 4-2: Components of Three-Part Offer Recognized by DACE

4.3 Optimization Process Overview

The DACE performs two functions: commitment and scheduling. In the DACP, commitment refers to the economic scheduling of non *quick start facilities* and imports. Commitment has financial connotations that represent a status for DA-PCG eligible *generation facilities* and imports that are eligible for day-ahead guarantees if they:

1. Operate according to DACP rules; and
2. Receive insufficient real-time revenues to cover their day-ahead as-offered costs.

For day-ahead scheduling, the engine produces constrained schedules for all economic resources from the day-ahead submitted *bids* and *offers*. These day-ahead schedules indicate the most efficient set of resources required to meet the forecast *demand* of the next day. *Market participants* with day-ahead schedules may use them to plan their next day's operations. For committed resources, day-ahead guarantees are calculated based on these schedules.

The DACE performs day-ahead commitment and scheduling by maximizing the economic gain from trade. The objective function representing this gain from trade is the same as that used in the real-time *dispatch algorithm*. The engine co-optimizes *energy* and *operating reserve* over the entire 24 hours of the next day while ensuring that *security* constraints such as transmission limits are not violated.

Every DACE run uses three passes. Each pass has a specific purpose and is explained in detail in subsequent sections:

- Pass 1 is Commitment
- Pass 2 is Reliability
- Pass 3 is Scheduling

The final outputs of the DACE are schedules for all committed resources (DA-PCG eligible *generation facilities* and imports), *quick start facilities*, *dispatchable loads, electricity storage facilities,* and exports, to meet average forecast *demand*. It co-optimizes *energy* and *operating reserve* over 24 hours of the next day.

A complete run of the DACE is shown in the diagram below.

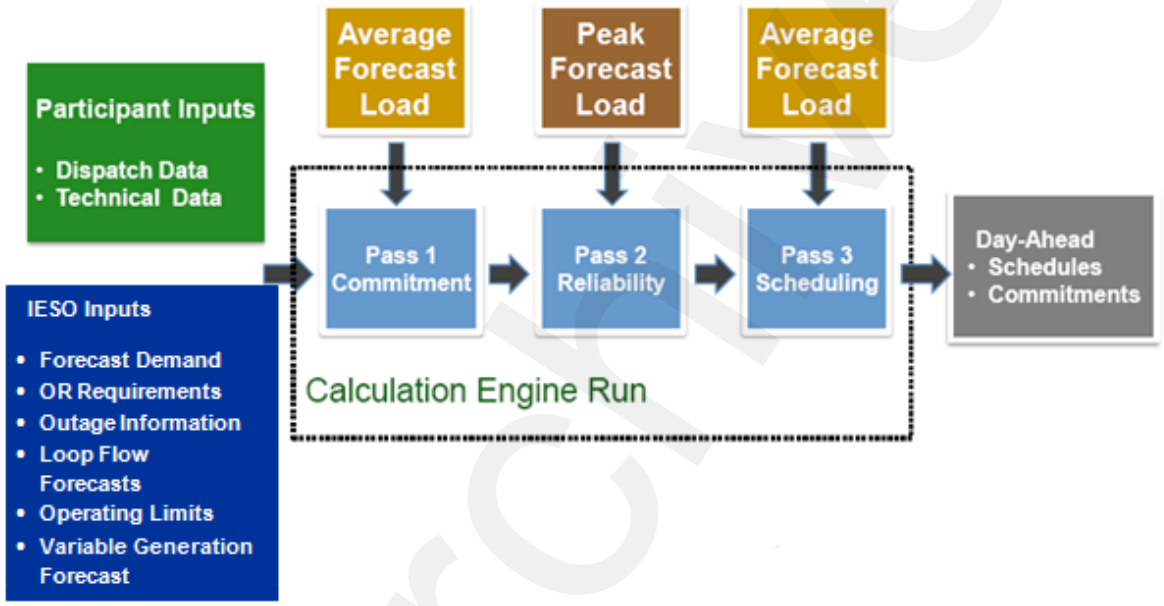

Figure 4-3: Passes = 1 Run

4.3.1 Pass 1—Commitment Pass

For the commitment pass, the DACE performs least-cost[2] (from submitted *bids and offers*) security constrained commitment and scheduling to meet average forecast *demand* and *operating reserve* requirements.

[2] A reminder that the term 'cost' refers to the as-*bid* and as-*offered* amounts to consume and produce *energy* in the market respectively. It does not represent the actual expenditure to maintain or generate an electricity-related product.

4.3.2 Pass 2—Reliability Pass

Pass 1 only commits enough resources to meet the average forecast *demand* in any given hour of the next day. A *reliability* pass is required to ensure that these resources are sufficient to meet the peak *demand* of each hour. If required, additional PCG-eligible *generation facilities* and/or imports are committed.

The goal of Pass 2 is to ensure that if additional commitments are made to meet peak *demand*, minimal commitment costs are incurred.

4.3.3 Pass 3—Scheduling Pass

For the third and final pass, the DACE determines the least cost, security constrained schedule to meet average *demand* and *operating reserve* requirements for each hour of the next day. Pass 3 performs this optimization to minimize the total costs to serve average *demand* for the next day while considering the following:

- Committed PCG-eligible *generation facilities* from passes 1 and 2 are scheduled to at least their *MLP*. Since the goal of pass 3 optimization is to satisfy average *demand*, pass 3 schedules may be less than pass 2 schedules, which were calculated to meet peak *demand*. Pass 3 schedules would not be less than their *MLP*s.
- Committed imports are scheduled to at least their schedules in pass 2.
- Exports are scheduled to no greater than their pass 2 schedules.
- *Dispatchable loads* and *electricity storage units* proposing to withdraw are scheduled to no greater than their pass 1 schedules.
- *Energy* from PCG-eligible *generation facilities* ramping up to their *MLP*s is also considered.

4.4 Scheduling the DACE Runs

The DACP will normally consist of two runs of the DACE - an initial run and an Eligible Energy Limited Resource (EELR) *optimization* run. If conditions change and time permits, an additional run may be initiated. The norm is that two runs will be completed, however, when contingencies occur we may only have time for one run. If this occurs, and the run is successful, we will consider the DACP to be successful and the DACP Schedule of Record will be based on these results.

Each DACP run uses the newest *variable generation* forecast. If the newest *variable generation* forecast is not available for any run, we will use an older, valid, *variable generation* forecast; if no *variable generation* forecast is available, we will begin the process without a forecast.

4.4.1 Initial DACE Run

The optimization process begins with the initial DACE run at 10:30. After the run completes, we validate the results. If the results are valid, they are *published* and the EELR resubmission window is open until 12:30. If the results are invalid, they are not *published*. If there is time, the initial run is rescheduled and the EELR resubmission window is extended.

Invalid Results:

- The results include commitment of *generators* that are not required, or exclude *generation facilities* that are required, because of incorrect inputs.
- The results are incorrect, with commitment of *generation facilities* that are not required, excluding *generation facilities* that are required, or both, because of an incorrect calculation.
- A correct calculation providing unacceptable results due to the inability of the DACE to resolve a binding constraint as a result of an unacceptable condition on the power system in the forecast day (e.g., a conflict between *planned outages* and *forced outages* that has yet to be resolved.) This would be a condition that cannot be resolved by the market, but can be solved by implementing control action(s), such as cancelling a *planned outage*.

The resubmission window for EELRs is normally open until 12:30. We accept revised *offers* from EELRs if they made an *offer* with a daily *energy* limit before 10:00.

4.4.2 EELR Optimization Run

If there is no delay from a failed initial run, the EELR optimization run starts at 12:30. After the run completes, we validate the results. Valid results are published, while invalid results are not published.

If the EELR optimization run fails and there is sufficient time for another run, the EELR optimization run will be re-scheduled.

4.4.3 Subsequent DACE Run for Rerun Criteria

In some cases, if there is enough time, we complete a subsequent DACE run after the initial and EELR optimization runs. This may be required due to changing system conditions known to impact the next day. In order to be included in any subsequent DACE run, the necessary changes to your data must be received, processed, and available to our systems prior to the latest time possible to initiate a DACE run and still *publish* DACP results by 15:00.

We will manually initiate an additional DACE run if it is apparent that a rerun could change the commitment and if the change meets the following criteria:

- Results of the previous run show a capacity or *energy* shortfall for the *IESO-administered market*.
- Any *outage* submission(s) or *outage* revision(s) (i.e., start-time or end-time) for a *generation facility* or *electricity storage unit* proposing to inject that results in a change in available capacity of 400 MW or more. This includes *planned outages* with planned, opportunity or information Priority Codes and *forced outages* with forced or urgent Priority Codes and deratings.
- An increase or decrease of an operating *security limit* >= 400 MW on a limiting interface.
- An increase or decrease of an *intertie* scheduling limit >= 400 MW.
- An increase or decrease in *demand* forecast >= 400 MW.
- An increase or decrease in *operating reserve* requirements >= 400 MW.
- An increase or decrease in system wide *variable generation* forecast >= 400 MW in any hour.

4.5 Completion of the DACP and the DACP Schedule of Record

We *publish* reports when they are available after each run of the DACP. The normal completion time of the DACP should be 13:30[3]. No subsequent run (due to rescheduling of rerun criteria) will be started after 14:00[4] to ensure that the DACP *Schedule of Record* will be *published* no later than 15:00. You will be advised of a DACP failure as soon as we know, but no later than 15:00.

The DACP *Schedule of Record* is the last set of valid results *published* for the next day. If we have not notified you of delayed results (past 14:00), and no additional runs due to rerun criteria by 14:00, then the last set of *published* results is the DACP *Schedule of Record*. If we have notified you of delayed results, and the results are due after 14:00, then the last set of *published* results as of 15:00 is the DACP *Schedule of Record*.

The following conditions will result in a DACP failure for the day:

- No valid results can be produced after multiple attempts. There will be no DACP *Schedule of Record*. You will be notified of the DACP failure.
- We inadvertently *publish* invalid results and there is no time to re-run the DACE.

If the EELR optimization run does not produce valid results, or if there is insufficient time for an EELR optimization run, the results of the initial run will be the basis of the DACP Schedule of Record. DACP will not be declared a failure if the EELR Optimization run is not successful or if its results are not valid, providing the initial run was successful.

4.6 IESO Reliability Commitment Actions

If we know that *reliability* constraints will be required the next day or if the DACP runs do not produce a solution that satisfies the next day's *reliability* requirements, we may intervene to constrain your resources to ensure they are scheduled to required levels in the DACP Schedule of Record, and all the way through to real time.

4.6.1 Principles for Applying Reliability Commitments

We will implement DACP *reliability* commitment actions only if we consider that our intervention during or after the DACP is necessary to ensure or maintain *reliability*[5]. This means that we will give market mechanisms priority in scheduling resources, but we will intervene and constrain a resource that is critical for meeting the next day's *reliability* needs when:

[3] All times and durations shown in this document are subject to change based on the performance of the solution delivered.

[4] The latest time to initiate a DACE run and still *publish* DACP results by 15:00. This is nominally 14:00 and will be finalized during testing. This footnote will be removed at that time.

[5] *Reliability* means *security* and *adequacy* (both local and global).

- There is a clear indication that the market mechanisms will not economically schedule the resource during the DACP, in pre-*dispatch* or in real-time[6].
- Specific constraints, such as *minimum shut-down time* or *MGBRT*, require us to constrain the resource during the DACP for real-time operation.

When more than one resource can satisfy our *reliability* needs for tomorrow, we will perform, to the extent possible, a least-cost evaluation to determine the resource(s) that we should commit during the DACP.

4.6.2 Process for Applying Reliability Commitments

We will commit a dispatchable *generation facility* by applying minimum constraints to ensure that the *generation facility* is scheduled to at least its DGD *MLP* and for at least its DGD *MGBRT*. Commitment action for *reliability* may also include constraints applied to *energy* limited resources.

If we apply constraints during the DACP, they will appear in the DACP schedule and in the constrained sequence of subsequent constrained pre-*dispatch* runs until real time. These constraints will not affect any of the unconstrained (market) schedules. Therefore, resources committed during DACP will be eligible for the DA-PCG and/or Congestion Management Settlement Credit (CMSC) in real time.

We will not implement any constraints without discussing the impact of our *reliability* commitment actions with you and considering other options available. Before committing any of your resources, we will call you to confer about any commitment actions we are contemplating during the DACP.

We will *publish* the *reliability* commitments in a DACP Commitments Report that lists the constraints applied to each of your resources. This report also includes both constraints applied for *reliability* during the DACP and constraints applied for the DA-PCG.

4.7 Principles for Applying DACP Commitment Actions

When your DA-PCG eligible *generation facility* is scheduled in the DACP *Schedule of Record* to at least its DGD *MLP* and DGD *MGBRT,* we will implement the necessary constraints on your *generation facility*. These constraints ensure that your *generation facility* is not scheduled below its DGD *MLP* or for less than the DACP scheduled hours in the subsequent pre-*dispatch* runs through to real time. However, it is up to you to plan the time you start and synchronize your unit. How you operate in real time may affect your eligibility for the DA-PCG.

4.7.1 Process for Applying DACP Commitments

Based on DACP *Schedule of Record*, we apply constraints on your *generation facility* so that it is not scheduled below its registered *MLP* or for less than the DACP scheduled hours in the next pre-*dispatch* runs up until real time. When we apply a day-ahead constraint on your *generation facility*, we use the DGD value of the *MLP* that was used in the DACP *Schedule of Record*. We will apply these constraints after the publication of the DACP *Schedule of Record*.

[6] Constraints for must run *generators* or for ongoing *reliability* issues that we know will not be solved by the DACP or Pre-*dispatch* will be applied day-ahead.

The constraints applied for the DA-PCG commitment actions will only appear in the constrained sequence of the subsequent constrained pre-*dispatch* runs through to real time. These constraints will not affect any of the unconstrained (*market*) *schedules*. Therefore, subject to the limitations identified in Market Manual 9.5, Settlement of the DACP, resources committed during DACP will be eligible for the congestion management settlement credit (CMSC) in real time.

To review the constraints applied on any of your resources, you must access the DACP Commitments Report, described in Section 4.8. This report provides a summary for each of your dispatchable generation resources of all DACP constraints applied either for *reliability* reasons or as a result of the DACP.

4.8 DACP Reports

This section describes the reports that we *publish* between 10:30 and 15:00 day-ahead, which provide you with specific information relating to the DACP. For the *publishing* time and frequency of each report as well as the data definitions, please see the corresponding technical reference documents posted on our website.

Reporting refers to the general creation of documents related to the operation of *IESO-administered markets*. Publishing refers to the specific preparation of public and private documents made available on our website.

Public reports detailing the operating state of the *IESO-controlled grid* (ICG) are *published* prior to closure of the day-ahead *bid/offer* window at 10:00, to aid *market participants* in making market and operational decisions.

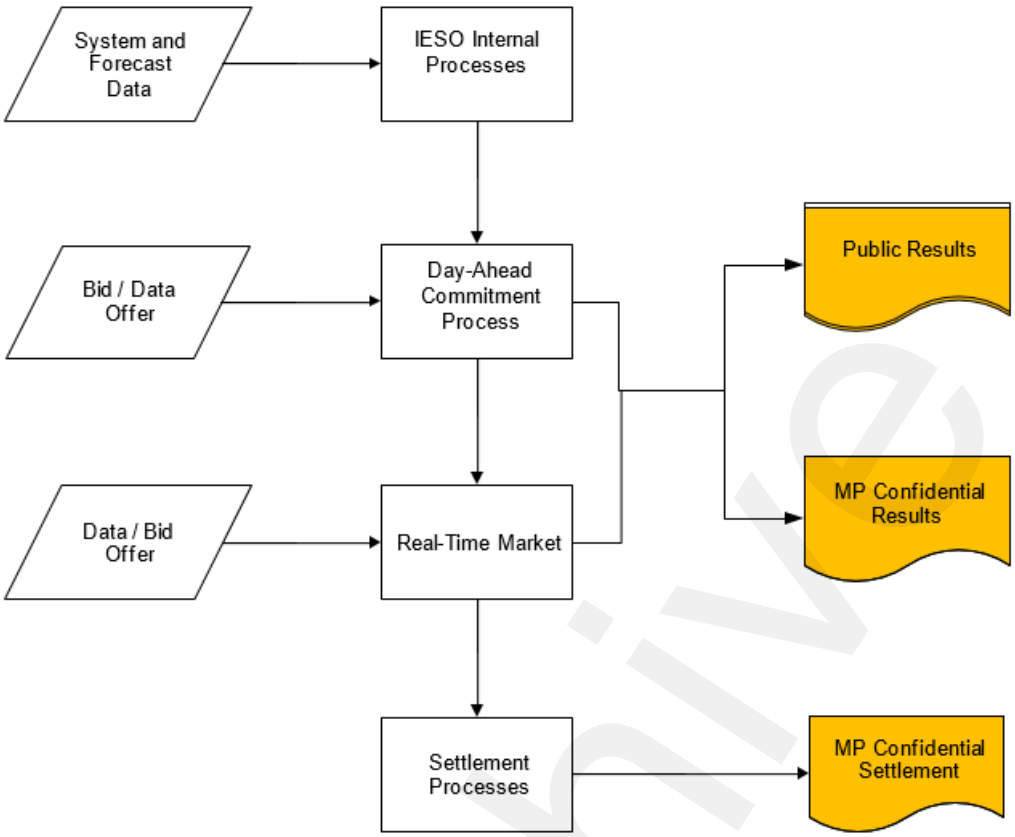

Figure 4-4: Publishing and Reporting Processes

4.8.1 Outage Reports

The *outage* reports *published* for the *real-time market* are not impacted by the DACP.

4.8.2 Pre-dispatch Reports

The pre-*dispatch* process that runs between 00:07 and 14:07 on any given day will only include pre-*dispatch* data for all hours of the current *dispatch day*.

The inclusion of the DACP results in the pre-*dispatch* process for the next day will be implemented in the pre-*dispatch* run that begins at 15:07. This pre-*dispatch* run *publishes* results for HE 17 to HE 24 of the current *dispatch day* and all hours of the next day.

Subsequent pre-*dispatch* processes between 15:07 and 23:07 will continue to *publish* pre-*dispatch* data for the remaining hours of the current *dispatch day* and all hours of the next day.

The pre-*dispatch* publishing schedule is shown below in Figure 4-5.

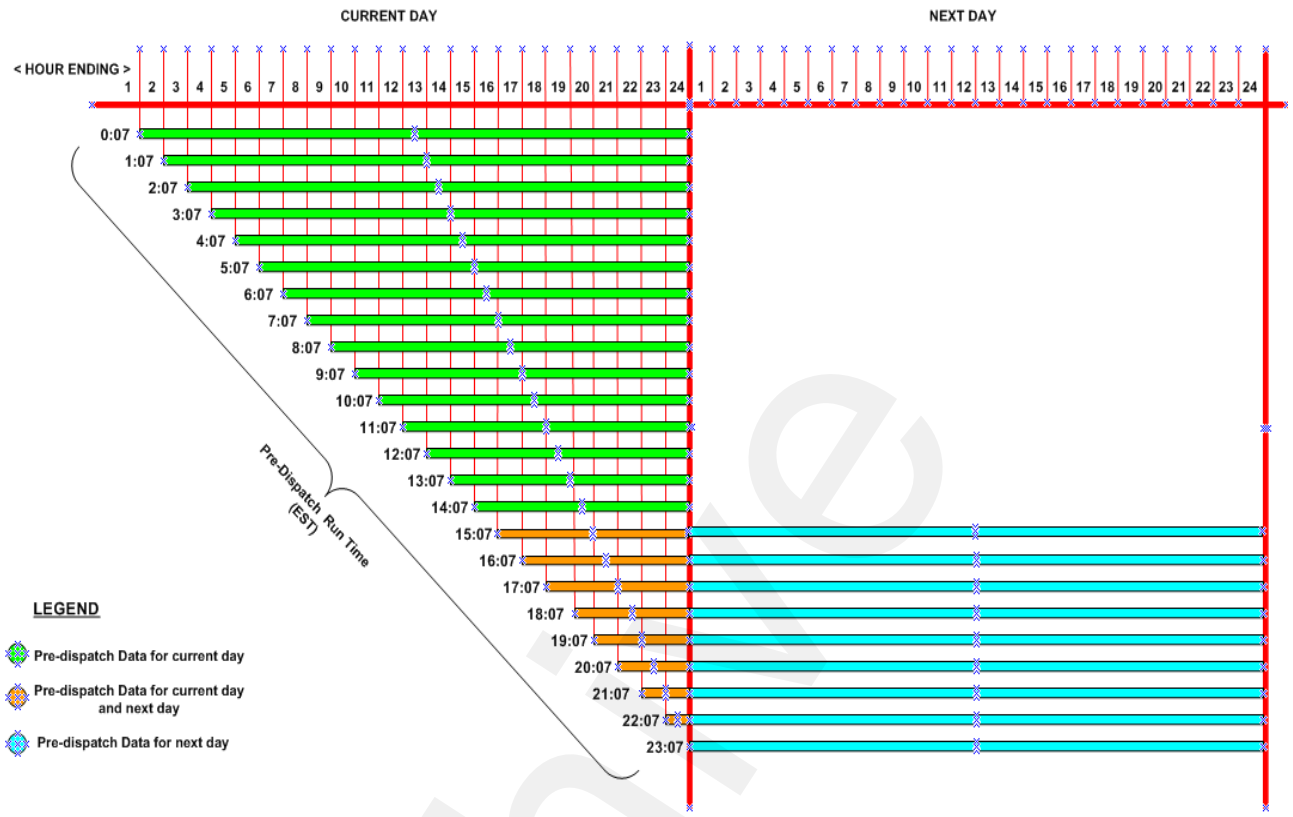

Figure 4-5: Publishing Timelines for Pre-dispatch Data

4.8.3 DACP Report Descriptions

Table 4-2 lists all of the DACP reports and provides a brief description of each.

Table 4-2: DACP Report Descriptions

Report / Display Name	Report Description
Day-Ahead Shadow Prices Report	This report contains shadow prices for *energy* and *operating reserve* at selected nodes within and external to Ontario, as calculated by the DACE during the DACP. The report is intended for the public use of *market participants* as a resource for making their business decisions (*offer* strategy for real time) when planning day-ahead. If the day-ahead operator (DAO) verifies that the DACP results are valid, this report is *published*. The report will be available after each successful run of the DACE.
Day-Ahead Adequacy Report	This report provides a summary of any projected shortfall or surplus of *energy* for the next day and is intended for the public use of all *market participants*. The report also calculates the hourly supply cushion, which drives the notifications required for the DR3 *demand* response program. (The report content is the same for both internal and public use therefore, only one report is required). The report is used by *market participants* as a resource for making their business decisions when planning day-ahead. The report shows how tight a day it is forecasted to be. If the DAO verifies that the DACE results are valid, this report is *published*. The report will be available after each successful run of the DACE. This report replaces existing DACP report IESO_SPEC_0176 “DACP Adequacy” (shown on the *IESO* report web site as ‘DACPAdequacy’).
Day-Ahead Area Operating Reserve Shortfall Report	This report contains the *operating reserve* scheduled and any shortfalls in each hour, by *dispatch* area, for day-ahead, as calculated by the DACE, and is intended for the public use of *market participants*. The report is used by *market participants* as a resource for making their business decisions when planning day-ahead. If the DAO verifies that the DACE results are valid, this report is *published*. The report will be available after each successful run of the DACE.
Day-Ahead Area Reserve Constraints Report	This report contains hourly maximum and minimum constraints for the area reserve regions used as inputs for the DACE and is intended for the public use of *market participants*. The report indicates regions where reserve supply may present an issue and is used by *market participants* as a resource for making their business decisions when planning for real time. If the DAO verifies that the DACE results are valid, this report is *published*. The report will be available after each successful run of the DACE.

Report / Display Name	Report Description
Day-Ahead Constrained Totals Report	This report contains hourly MW totals (i.e., total *energy*, total losses, total load, and total *operating reserve*) and is intended for the public use of *market participants*. The report is used by *market participants* as a resource for making their business decisions when planning day-ahead. If the DAO verifies that the DACE results are valid, this report is *published*. The report will be available after each successful run of the DACE.
Day-Ahead Intertie Scheduling Limits Report	This report contains hourly *intertie* scheduling limits and is intended for the public use of the *market participants*. The report provides guidance when the *market participant* is considering submitting import and export *dispatch data* for real time. If the DAO verifies that the DACE results are valid, this report is *published*. The report will be available after each successful run of the DACE.
Day-Ahead Security Constraints Report	This report contains binding security constraints, as determined by the DACE, and is intended for the public use of *market participants*. The report provides information to *market participants* that may give visibility as to why a particular resource received the schedule that it did due to binding security constraints applied by the DACE during DACP. If the DAO verifies that the DACP results are valid, this report is *published*. The report will be available after each successful run of the DACE.
Private Reports	
PSU DGD Computed Values Report (Private)	This report provides the values used by the DACE for pseudo units (PSUs), as of 10:00. These values are computed from the *market participant* DGD submission for physical units (PUs). The report is intended for the private use of *market participants* and is available after 10:00.
Daily Generator Data Report (Private)	This report provides the 10:00 snapshot of the DGD used in DACP and is intended for the private use of *market participants*. The report also includes the *MLP* and *MGBRT* limits. It provides confirmation to the *market participant* of the DGD that was recorded to use as input to the DACE and is available after 10:00.
Day-Ahead Check Source /ADE Report (Private)	This report provides a confirmation of the *dispatch data* used for a resource included in the DACP Schedule of Record (SOR) and its Availability Declaration Envelope (ADE). The report is intended for the private use of *market participants*. The report is a confirmation of the *dispatch data* submitted by *market participants* and used by the DACE to establish a resource's SOR and ADE. If the DAO verifies that the DACE results are valid, this report is *published*. The report will be available after each successful run of the DACE. This report replaces existing DACP report IESO_SPEC_0196 "DACP Check Source / ADE" (Alternately identified as 'DACPCheckSourceADE').

Report / Display Name	Report Description
Day-Ahead Scheduled Energy and Operating Reserve Report (Private)	This report provides *energy* and *operating reserve* schedules for each hour of the next day, as established by the DACE, and is intended for the private use of *market participants*. The report provides *market participants* with schedules for their resources, as determined by the DACE. If the DAO verifies that the DACE results are valid, this report is *published*. The report will be available after each successful run of the DACE. For *market participants* subscribing to the PSU model, the report will include *energy* and *operating reserve* schedules for both PUs and PSUs. This report replaces existing DACP report IESO_SPEC_0174 "DACP Predispatch Energy" (Alternately identified as 'DACPPredispEnergy').
Day-Ahead Commitments Report (Private)	This report is provided to eligible *market participants* and lists their committed PCG-eligible *generators* along with their day-ahead constraints. This report is intended for the private use of *market participants*. The report is a confirmation that PCG-eligible resources receiving a schedule in the SOR have a corresponding commitment applied in the *IESO's* Contract Manager application. The report will be available after day-ahead constraints are loaded into the *IESO's* Contract Manager application. This report replaces existing DACP report IESO_SPEC_0178 "DACP Commitments" (Alternately identified as 'DACPCommit').
IOG Settlement Details Report	This report provides *market participants* with all supporting information so they can reconcile the Intertie Offer Guarantee (IOG) *settlement s*. This confidential report is issued for each trade date, *market participant* (MP, and for both preliminary and final *settlements* statements. The report is provided daily for the same trade dates as the other statements, after 19:00 when the commercial reconciliation system (CRS) statement batch is completed.

4.9 DACP Failure Reports

When a DACP failure is declared before 15:00 and reports were previously *published*, the *IESO* will *publish* DACP failure reports. The reports that make up the Schedule of Record (the Day-Ahead Scheduled Energy and Operating Reserve Reports and the Day-Ahead Check/Source ADE Reports), as well as the Day-Ahead Adequacy Report will be *published* with blank values to indicate that there were no valid DACP results. These reports will also include a DACP Status flag that will indicate "DACP Failure".

Where a DACP failure is declared and no reports were previously issued, the *IESO* will notify you of the failure. In this situation, we will not issue the DACP failure reports.

4.10 DACP Schedule of Record

The DACP *Schedule of Record (SOR)* is *published* after the successful completion of the DACP. The SOR is made up of two sets of private reports - the Day-Ahead Scheduled Energy and Operating Reserve Reports and the Day-Ahead Check/Source ADE Reports. If either of these sets of reports

fails to *publish*, the DACP is declared a failure for that day. On a successful day, the *SOR* will always be published by 15:00 and will always be based on the last set of *published* results. The *SOR* is the official record of day-ahead schedules. In instances where the *SOR* differs from other reports, the *SOR* will be considered correct.

4.11 Reporting and Notifications

The initial DACP run results are usually available by 11:30, and results of the EELR Optimization run are usually available by 13:30. There may be one or more subsequent DACP runs if time permits (i.e., if the run can be completed prior to 15:00). The marketplace must be notified of any additional DACP runs by 14:00. The last set of reports is used for *IESO* settlement purposes and constitutes the Schedule of Record (SOR).

During the execution of the DACP, contingencies may occur that require us to communicate the nature of the contingency and any impact to the marketplace. We make these notifications publically available as required.

Table 4-3 defines the possible scenarios associated with initial and subsequent DACP runs and the issuing of reports and notifications.

Table 4-3: DACP Reporting and Notifications

Scenario	If	Then
1	The initial DACP run is successful	The initial version of the DACP reports (as defined in section 4.10) are published.
	The EELR Optimization run is successful	New versions of the DACP reports are published. (These reports are usually the SOR.)
	Any subsequent DACP runs are successful	The DACP reports resulting from the last successful DACP run are published and are to be used as the basis for the SOR.
2	The initial DACP run is delayed, or must be re-run	1. The EELR resubmission window (usually running from 11:30 to 12:30) is extended to allow time for revised offers to be accepted after the initial DACP run has completed. 2. We issue an 'Initial Results Delayed' and 'EELR Window Extended' notification, which includes: • The time to expect results, • The time to which the window will remain open (a minimum of 60 minutes), • An indication that EELR Optimization Results will also be delayed, AND • The end time of the extended EELR resubmission window (the same as the start time for the EELR Optimization run).

Scenario	If	Then
		Once the initial DACP run is successful, the initial version of the DACP reports are published.
3	The initial DACP run is successful	The initial version of the DACP reports are published.
	The EELR Optimization run is delayed, or must be re-run	We issue an 'EELR Results Delayed' notification, which includes an instruction NOT to use the initial DACP reports as the basis for the SOR until otherwise instructed.
	The EELR Optimization is run (or re-run) successfully	New versions of the DACP reports are published and are to be used as the basis for SOR.
	The EELR Optimization run failed and cannot be re-run	We issue a notification to use the initial version of the reports as the basis for the SOR.
4	The initial DACP run is successful	The initial version of the DACP reports are published.
	The EELR Optimization results in the publishing of SOR reports with invalid data	If time permits, we will attempt another EELR Optimization run, in which case we issue a notification that the EELR Optimization reports are invalid and are being re-run.
	The EELR Optimization is re-run with valid results	New versions of the DACP reports are published and are to be used as the basis for SOR.
	• The EELR Optimization cannot be successfully re-run, OR • The results remain invalid.	1. We issue a 'DACP Failure' notification. 2. We re-publish the DACP reports with blank values as the SOR (see section 4.9, 'DACP Failure Reports').
5	The initial DACP run cannot be completed prior to 15:00	We issue a 'DACP Failure' notification and no DACP reports are published, so there is no SOR.

Note: *Publication* of the *SOR* and notification of DACP failure both serve as notice of completion of DACP for the day.

If the newest *variable generation* forecast is not available for a run (normally, the *variable generation* forecast time stamped 9:40 will be used for the initial run and 11:40 for the EELR optimization run; this may change if the respective run was rescheduled) we will include a notification indicating the status of the *variable generation* forecast used by the run (missing, obsolete, disabled, etc.). The *variable generation* forecast status does not impact the validity of any of the runs.

4.11.1 Retrieving DACP Reports and Notifications

You can receive *IESO* notifications by accessing "DACP Notifications" either:

- On *IESO*'s public website,
- By logging onto the Market Operation System - Market Participant Graphical User Interface (MPI), or

- By using the Application Programmers Interface (API).

DACP SOR reports are published on the *IESO* public website and private reports site..

4.11.2 Standby Notices and Reports for Hourly Demand Response Resources

All *hourly demand response (HDR)* resources receive one Standby Report for each business day, which they may receive anytime between 14:00 on the *pre-dispatch day* and 07:00 on the *dispatch day*. The Standby Report may or may not include a Standby Notice.

An *HDR* resource receiving a Standby Report that includes a Standby Notice is required to be available to reduce its *energy* withdrawal during the *dispatch day* availability window. If the *HDR* resource is then required to reduce its *energy* withdrawal, it will receive an Activation Notice approximately 2 hours and 30 minutes in advance (but no later than 2 hours in advance) of the first *dispatch hour*. For more information, refer to Market Manual 4.2: Submission of Dispatch Data in the Real-Time Energy and Operating Reserve Markets.

Between 14:00 and 15:00 on the *pre-dispatch day*, the *IESO* issues a Standby Report with Standby Notice to *HDR* resources that have a day-ahead *Schedule of Record (SOR)* that is less than the resource's total *bid* quantity for at least one hour of the availability window on the *dispatch day*, or when the applicable pre-dispatch shadow price for an HDR resource is equal to or greater than the price threshold of $200[7] for at least one hour of the availability window.

After each pre-*dispatch* run, beginning at 15:07 of the *pre-dispatch day* and continuing through 06:07 on the *dispatch day*, the *IESO* issues a Standby Report with Standby Notice to *HDR* resources that have a *pre-dispatch schedule* that is less than the resource's total *bid* quantity for at least one hour of the availability window on the *dispatch day,* or when the applicable pre-dispatch shadow price for an HDR resource is equal to or greater than the price threshold of $200[7] for at least one hour of the availability window.

By 07:00 on the *dispatch day*, the *IESO* issues a Standby Report to *HDR* resources that did not previously receive a Standby Report and Notice to confirm that they are not required on standby.

The timeline for the *IESO* issue of Standby Reports and Notices to *HDR* resources is further detailed in Table 4-4 and Figure 4-6.

Table 4-4: Publication of Standby Reports and Notices to HDR Resources

Time	Event	Description
14:00 to 15:00	*IESO* publishes *Day-ahead Schedule of Record (SOR)*	The first opportunity for *HDR* resources determined to be required on standby to receive a Standby Report and Notice.
15:07	First pre-*dispatch* run for *dispatch day*	*HDR* resources that did not receive a Standby Report and Notice resulting from the day-ahead *SOR* are assessed during the first pre-*dispatch* run to determine if they are required to be on standby. *HDR* resources required on standby receive a Standby Report and Notice within that hour.

[7] Effective April 30, 2020, the pre-dispatch shadow price threshold will change to $100.

Time	Event	Description
Hourly 16:07 through 06:07	Subsequent pre-*dispatch* runs for *dispatch day*	For each pre-*dispatch* run, *HDR* resources that have not yet received a Standby Report and Notice are assessed to determine if they are required to be on standby. *HDR* resources required on standby receive a Standby Report and Notice within that hour.
07:00	Final issue of Standby Reports	*HDR* resources that have not received a Standby Report and Notice receive a Standby Report confirming that they are not required on standby.

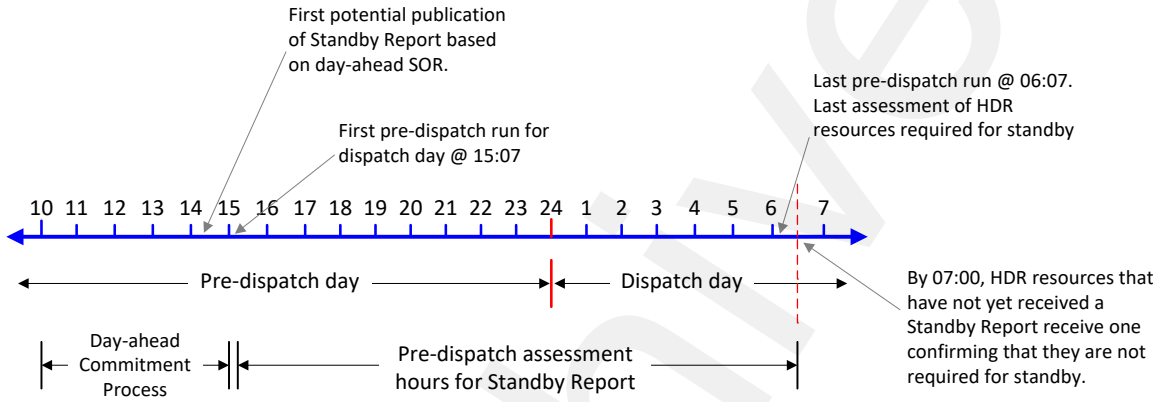

Figure 4-6: Timeline for Publication of Standby Reports

4.12 Notification of Reliability Commitments

4.12.1 Notification of Reliability Commitments - Procedure

This procedure is initiated when we call you to confer about any commitment actions we are contemplating during the DACP.

We will apply *reliability* constraints only with your agreement, and will *publish* them in a DACP Commitments Report that lists the constraints applied to each of your resources. This report includes both constraints applied for *reliability* during the DACP and constraints applied for the Day-Ahead Production Cost Guarantee (DA-PCG).

4.12.2 Workflow for Notification of Reliability Commitments

The diagrams in this section represent the flow of work and information related to your communication of *reliability* commitments in the DACP.

Table 4-5 describes the shapes used in the workflow diagram below.

Table 4-5: Workflow Diagram Legend

Legend	Description
Oval	An event that triggers a task or that completes a task. Trigger events and completion events are numbered sequentially within procedure (01 to 99).
Rectangular Task Box	Shows reference number and task name or brief summary of the task. Reference number (e.g., 1A.02) indicates the procedure number within the current *market manual* (1), sub-procedure identifier (if applicable) (A), and task number (02). Sometimes present, the colour bar and coloured lines are used to identify the process flows that relate to a single completion event.
Solid Horizontal Line	Shows information flow between the *IESO* and you.
Solid Vertical Line	Shows linkage between tasks.
Broken Line	Links trigger events and completion events to preceding or succeeding task.

Table 4-6 describes the fields used in the table of procedural steps.

Table 4-6: Procedural Steps Legend

Legend	Description
Ref #	The numerical reference to the task
Action	Detail about the specific task including: • A description of the events that can trigger commencement of the task, and • A list of the information flows that may or must result from the task.
Tools	The format and method for each information flow are specified.

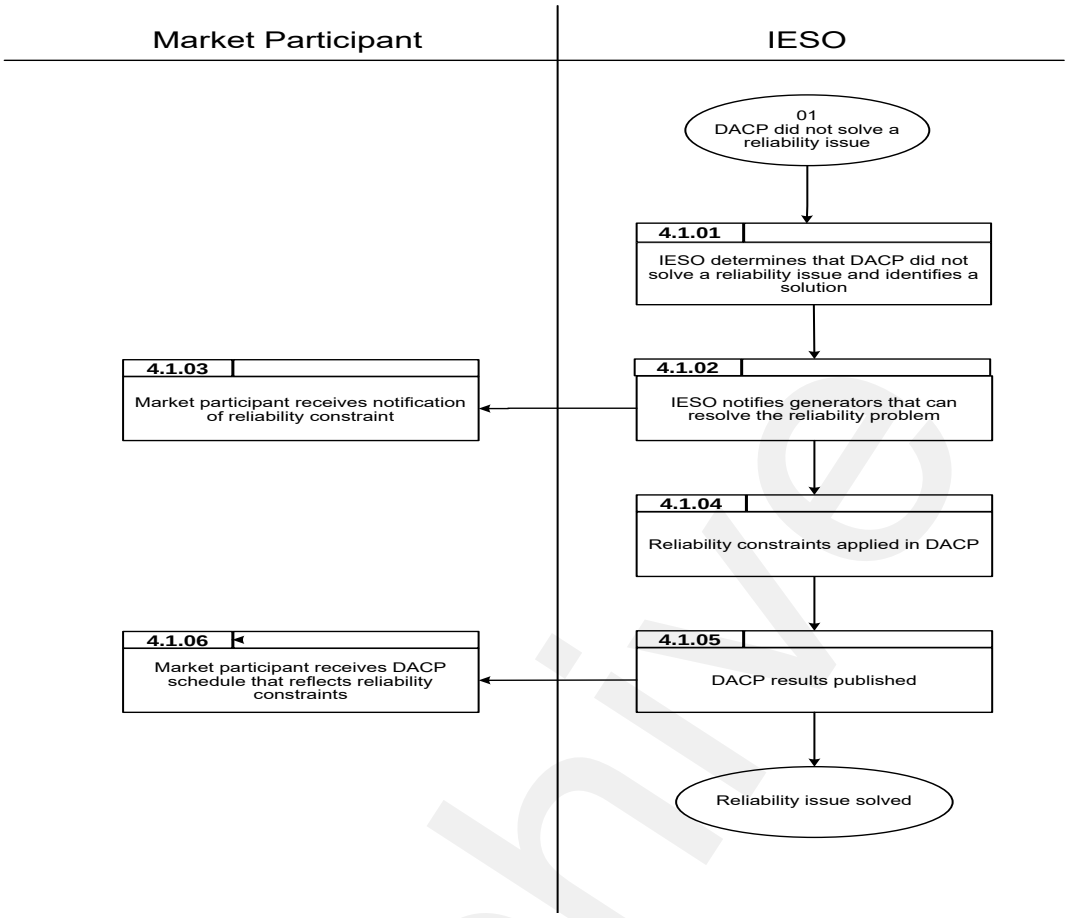

Figure 4-7: Workflow for Notification of Reliability Commitments

4.12.3 Procedural Steps for Notification of Reliability Commitments

This section describes the steps required when *reliability* commitments are required by the *IESO*.

Table 4-7: Procedural Steps for Notification of Reliability Commitments

Ref #	Action	Tools
01	The *IESO* DACP Operator reviews the results of the DACP and determines that the DACP did not solve a *reliability* issue.	DACP results
4.1.01	The *IESO* DACP Operator identifies the *generators* that can solve the *reliability* issue.	DACP results
4.1.02	*IESO* DACP Operator notifies the *generators* that can resolve the *reliability* issue.	Telephone
4.1.03	You receive notification of the requirement for a *reliability* commitment.	Telephone
4.1.04	The *IESO* DACP Operator applies *reliability* constraint and reruns the DACE.	Contract Manager DACE
4.1.05	The *IESO* DACP Operator completes DACE rerun and *publishes* the results.	DACE
4.1.06	You receive DACP schedule that reflects *reliability* constraints.	*IESO* public website and private reports
02	The *reliability* issue identified by the DACP Operator is solved.	

Table 4-8 shows how the procedures in sections 4.11 and 4.12 apply to specific resources.

Table 4-8: Applicability of Procedures

Resource Type	DACP Reporting and Notifications	Notification of Reliability Commitments
Non Quick Start	X	X
Pseudo Unit	X	
Quick Start[8]	X	X
Transitional Scheduling Generator (TSG), Intermittent, Self Scheduling[9]	X	
Dispatchable Load[10]	X	
Importer	X	
Exporter	X	
Hourly Demand Response **Resources**	X	

Note: The procedures for the submission of *dispatch data* and daily generation data (DGD) during the operation of the DACP are covered in Part 9.2 of this manual.

- End of Section -

[8] This includes the injecting component of *electricity storage units.*

[9] This includes *self-scheduling electricity storage facilities.*

[10] This includes the withdrawing component *electricity storage units.*

Appendix A: Detailed IHO Calculation

Initial Hour of Operation (IHO) is used to process start-up *offers* for *generators* for input to the DACE and facilitate the treatment of *MGBRT* over midnight. The DACE will not consider start-up *offers* for dispatchable *generation facilities* that are already in operation in the last hour of the current day to determine the first hour of the day-ahead schedule. The DACE will determine the number of hours the *generation facility* must run to satisfy any *MGBRT* requirement remaining from the previous day's DACP commitment.

Determining IHO will be triggered by the calculation of Resource Initial Schedule (RIS*).* RIS is computed as part of each DACE run, and represents the dispatchable resource's schedule in HE24 as determined by the most recent *pre-dispatch schedule* results for the current *dispatch day*. RIS is determined only for dispatchable *generators* and loads.

The calculation of IHO will use:

- The results of the most recent Pre-*dispatch* DSO run for Day 0.
- The EDAC Day 0 'constrained on' status in the *IESO*'s Contract Manager application from the most recent Pre-*dispatch* DSO run for Day 0. This value was determined by the DACP Day-Ahead *Schedule of Record* from Day 1.

For *PSUs*, this determination is based on the combustion turbine (CT) associated with the *PSU*, not the ST.

For the n[th] resource IHO is determined by:

$$IHO_n = \begin{cases} \mathbf{24}, & \textbf{if } RIS_n \neq 0 \text{ and } CMCS24_n = \text{"No"} \\ \min(PDIHO_n, CMIHO_n), & \text{otherwise.} \end{cases}$$

WHERE,

IHO	Value
IHO_n	= A non-negative integer representing the consecutive hours of operation of a resource before the end of the current day (Day 0)
RIS_n	= Dispatchable *generation facility n* initial resource schedule
$CMCS24_n$	= Dispatchable *generation facility n* Contract Manager *constrained on* status in HE24 of Day 0 as determined by the DACP SOR from Day -1: ➢ Yes – denotes *constrained on* ➢ No – denotes no constraint
$PDIHO_n$	= The number of consecutive hours the dispatchable *generation facility n* has a schedule greater than zero at the end of Day 0 as determined by the most recent *Pre-Dispatch* DSO run for Day 0
$CMIHO_n$	= The number of consecutive hours the dispatchable *generation facility n* is *constrained* on in the *IESO*'s Contract Manager application at the end of Day 0 as determined by the DACP *SOR* from Day -1

From the above calculation, IHO can have the following values:

IHO	Value
IHO = 0	The dispatchable *generation facility* is not in operation in HE24 of Day 0 (i.e., RIS = 0)
0 < *IHO* ≤ 24	The dispatchable *generation facility* is in operation in HE24 of Day 0 (i.e., RIS ≠ 0), and The dispatchable *generation facility* has a constraint in HE24 of Day 0 in the *IESO*'s Contract Manager application as determined by the DACP *Schedule of Record* from Day -1
IHO = 24	The dispatchable *generation facility* is in operation in HE24 of Day 0 (i.e., RIS ≠ 0), and The dispatchable *generation facility* **does not have** a constraint in HE24 of Day 0 in the *IESO's* Contract Manager application as determined by the DACP *SOR* from Day -1

Note: Day -1 (Yesterday's) DACP creates the Day 0 (Today's) constraints in the *IESO's* Contract Manager application, which are used as inputs to this calculation.

Note: To satisfy the generator *MGBRT* over midnight, the DACE uses IHO and Day 1 *MGBRT* (not Day 0 *MGBRT*). A dispatchable *generation facility* may receive a DACP schedule at the end of a DACP day even if *MGBRT* has not been completed within the DACP day. The next DACP day (Day 1), the DACE will commit the dispatchable *generation facility* at the beginning of the day to satisfy its incomplete *MGBRT* from the previous day (Day 0).

– End of Document –