

Work Stream	Design Element	Options	Options Overview	Common Practice	Considerations	Interdependent Elements	Preliminary Decision	Rationale	Slide Reference	Overview of Options not selected
Energy - DAM	Offer Obligation (formerly Reference Quantity)	1) Retain existing DACP offer obligations (all internal resources must offer into the DAM in order to participate in real-time). 2) No offer obligations for the DAM.	Options initially proposed for this element were focused on mitigating the risk of physical withholding through an offer obligation. Stakeholder feedback suggested that this would be impractical and that a test for physical withholding would better be managed after the fact. See Market Power Mitigation design element for details.	Option 2	There are no further high level design decisions for this element.	DE5: Virtual Transactions DE10: Market Power Mitigation	2) No offer obligations for the DAM. Unless a resource has an offer obligation through the ICA, DAM participation will be voluntary for all resources.	Financially binding DAM will incentivize greater and more efficient participation from all resources through price certainty. DAM reliability measures will ensure sufficient physical resources are committed to meet forecast conditions in real-time. Exercise of market power through physical withholding can be effectively managed after-the-fact.		1) Retaining an ADE under DAM could be less efficient as participants could simply circumvent the ADE through higher offer prices or use virtual transactions to hedge their physical positions. July, 19, 2018: 15
Energy - DAM	Load Participation	1) Provide non-dispatchable load (NDL) the option of becoming a PRL. The IESO continues to bid on behalf of all remaining NDL that are not registered as PRL. A) IESO continues to forecast remaining NDL globally and manages forecast accuracy on a zonal basis. B) IESO moves to zonal forecasting for NDL and manages forecast accuracy on a zonal basis.	The time, introduction of a DAM provides an opportunity for NDLs to become price responsive in the DAM without changing their NDL status in real-time. PRLs could submit their own bids into the DAM and be eligible to receive financially binding schedules, but continue to be non-dispatchable in real The granularity of the NDL load forecast can impact the accuracy of the load distribution. Increasing the granularity of the load forecast can: - Improve DAM to real-time price convergence and encourage efficient DAM participation - Reduce out-of-market payments through more efficient DAM scheduling	Option 2	There are no further high level design decisions for this element.	DE13: Two Settlement for Load	1) Provide non-dispatchable load (NDL) the option of becoming a PRL. The IESO continues to bid on behalf of all remaining NDL that are not registered as PRL. While the PRL design will not preclude any NDL from becoming a PRL, the IESO expects the initial uptake of PRL status will come from industrial transmission connected or embedded loads that satisfy existing registration requirements. As the market and sector continue to evolve, load distributors and aggregators may also become PRL. B) IESO moves to zonal forecasting for NDL and manages forecast accuracy on a zonal basis.	1) Providing opportunities for NDL to participate in the DAM can increase the efficiency of scheduling and unit commitments if day ahead bids are consistent with their intentions in real-time. B) Zonal forecasting provides a more accurate load distribution which increases price convergence and efficiency of DAM scheduling.		1A) This option was not selected as a less accurate load distribution may reduce price convergence and the efficiency of DAM scheduling. Sept 20, 2018: 12
Energy - DAM	Supply Participation: Variable Generation	1) IESO assumes responsibility for submitting offers into the DAM on behalf of VG resources. 2) VG assumes responsibility for submitting their own offers into the DAM.	Maintaining Option 1 under a DAM can be less efficient since deviations from day ahead forecast quantities would need to be managed through uplift. Greater efficiencies can be realized if variable generation resources are exposed to two settlement and choose to submit their own forecast quantity into the DAM.	Option 2	There are no further high level decisions for this design element	N/A	2) VG assumes responsibility for submitting their own offers into the DAM if they choose to participate in the DAM. If VG resources choose to participate in the DAM, they will have the option of electing the IESO's centralized forecast quantity as their own offer quantity on an hourly basis. How this option is implemented will be determined during detailed design once a software vendor is known. A) Changes to other existing VG-related submission processes are not required in transitioning to a DAM: - VG resources will continue to ensure their available capacity is up to date via the existing outage management process to support the accuracy of the IESO centralized VG forecast. - The IESO's centralized VG forecast will continue to be used to test if additional resources need to be committed in the DAM reliability pass. - VG resources will continue to submit offer quantities and prices up to their available capacity after the DAM clears so the IESO's centralized VG forecast can continue to be used to support pre-dispatch scheduling and real-time dispatch.	Given the significant penetration of wind and solar in Ontario, a design in which variable generation resources take financial responsibility for offering their supply in the DAM provides efficient incentives for them to meet existing and future system needs.	January 31, 2018: 98-100	1) This option was not selected because it would be less efficient for the IESO to bear the responsibility of submitting offers into the DAM on behalf of VG since uplift would be required to manage the cost or benefit of real-time deviations from DAM schedules. January 31, 2018: 28
Energy - DAM	Reliability Input Parameters	1) Use existing DACP parameters 2) Introduce new parameters and/or modify existing DACP parameters	Reliability input parameters are required for the DAM so that resources can be scheduled to satisfy projected ancillary service and reliability requirements Existing DACP reliability input parameters were reviewed to ensure they are compatible with a DAM and are consistent with parameters and IESO operating practices in real-time		There are no further high level design decisions for this element.	DE5: Virtual Transactions	Option 1 [pending detailed design]	There are no reliability input parameters unique to DAM that are not already considered by DACP. The potential for any new reliability parameters will be considered during detailed design.	January 31, 2018: 98-100	2) This was option was not chosen since new parameters or modifications to existing parameters are not required. January 31, 2018: 100
Energy - DAM	Virtual Transactions	1) Include virtual transactions in the initial design and implementation of DAM. 2) Include the capability for virtual transactions in the DAM design but enable them after the initial implementation of DAM.	Virtual transactions provide efficiency and disciplinary benefits in other jurisdictions. However, their need in the initial implementation of DAM will depend on the extent to which market participants are strategically under or overbidding in the DAM.	Option 1	There are no further high level decisions for this design element	DE4: Reliability Input Parameters DE10: Market Power Mitigation	1) Virtual transactions will be implemented on Day 1 of DAM. 1a) Implement virtual transactions at aggregate nodes. 1b) Limit the implementation and modelling of virtual transactions to settlement nodes. 1bii) Virtual transactions will not be allowed at intertie zones. 1biii) An admin fee will be applied to each virtual transaction submitted and/or cleared in the DAM. 1biv) A minimum bid/offer imposed on virtual transactions. 1b) Nodal limits will be used to limit the net power injection or withdrawal cleared at each node.	1) Support price convergence and a more efficient unit commitment by addressing strategic under or over bidding by physical participants. 1a) Mitigates the potential for virtual transactions to: - Profit from modeling differences between DAM and RTM without increasing overall market efficiency; - Generate unreliable DAM results; and - Cause delays/failures in the posting of DAM results 1b) Ensures virtual transactions are participating at locations that would increase overall market efficiency and to help reduce impact on DAM software and solution time. 1bii) Intertie transactions are already in effect virtual transactions and would therefore provide unnecessary functionality or liquidity to the DAM at the interties. 1biii & 1biv) To discourage 'fishing' activities that provide little market value and have a significant impact on DAM software performance. 1bv) To prevent an infeasible amount of virtual transactions from clearing at a particular location and overbidding by physical participants.	July 18, 2018: 22-29	2) This option has not been selected as it will not support price convergence at the start of DAM July 19, 2018: 22
Energy - DAM	Functional Passes	1) Apply Market Power Mitigation Perform a RUC within the DAM Calculate Settlement Ready Prices 2) Apply Market Power Mitigation Calculate Settlement Ready Prices Perform a RUC after DAM	While most jurisdictions carry out their reliability unit commitment (RUC) process after DAM in the event load forecasts significantly change, they have experienced issues with gas resources being committed afterwards and having to procure fuel and transport later in the day.		There are no further high level design decisions for this element.	N/A	1) Apply Market Power Mitigation Perform a RUC within the DAM Calculate Settlement Ready Prices A) The objectives for each of the functional passes will be similar to those already used in DACP today. Input changes will only reflect design decisions for VG, PRL and virtual transactions: Pass 1 will be subject to market power mitigation however will continue to determine unit commitments needed to meet bid load. New inputs include a VG elected forecast and PRL bids since both VG and PRL will be responsible for submitting their own forecasts and bids into the DAM. Virtual bids and offers will also be included if virtual transactions are included in the initial implementation of DAM. Pass 2 will continue to perform a RUC to determine whether additional unit commitments are need to meet IESO forecasts. No input changes from current DACP required. Pass 3 will continue to determine final resources schedules however at settlement ready prices. As in Pass 1, new inputs include VG forecasts, PRL bids and virtual transactions.	1) Market power mitigation must be performed before setting final schedules and prices in markets with locational pricing. Running a RUC within DAM allows reliability based commitments to be reflected in DAM schedules and prices, increasing operational certainty and supporting day-ahead to real-time price convergence. Settlement ready prices need to be determined in order to provide participants with accurate financially binding schedules.	January 31, 2018: 27-32 May 23, 2018: 10-17	2) Performing a RUC after DAM was not selected since committing gas resources after DAM may create reliability issues if gas resources have issues procuring fuel and transport later in the day. January 31, 2018: 48
Energy - DAM	Optimization of ELRs (Formerly Offer Resubmission for ELRs)	1) Do not retain the current DACP resubmission window for cascade hydro resources under DAM.	Cascade hydro systems have complex intertemporal relationships that are difficult for ISOs to model because relationships vary between systems. A resubmission process was incorporated into DACP so that eligible resources could revise their offers prior to a second run of DACP for final scheduling. Retaining the resubmission window under a financially binding DAM would provide one group of participants the potential to improve their financial positions but harm others'. In lieu of a resubmission window, additional operating characteristics may need to be respected in the DAM to increase the likelihood of dispatchable cascade hydro resources receiving a feasible day-ahead schedule		There are no further high level design decisions for this element	SSM DE12: Price Setting Eligibility SSM DE 18: Make Whole Payments SSM DE15: Reference Levels	1) Do not retain the current DACP resubmission window for cascade hydro resources. In lieu of a resubmission window, the DAM and predispach engines should be able to meet the following software requirements that aim to capture additional hydro-electric operating characteristics: 1A) Ability to manage must run conditions 1B) Ability to limit the number of resource starts 1C) Ability to respect intertemporal dependencies between two or more resources on a cascade system 1D) Ability to specify multiple daily energy limits to represent quantities of water with different opportunity costs 1E) Ability to respect forbidden regions Vendor consultation will be required to determine the best way to meet these additional requirements during detailed design. The design should also maintain the ability for hydro-resources to represent their hourly offers using monotonically increasing price-quantity pairs and continue to be scheduled for energy and operating reserve above any minimum or below any maximum operating restrictions imposed by the new software requirements.	1) Not retaining the existing resubmission window supports a fair and competitive DAM process and eliminates additional opportunities for the exercise of market power. Respecting additional hydro-electric operating parameters in the DAM and predispach will increase the likelihood of dispatchable cascade hydro resources receiving a feasible day-ahead schedule and improve the optimization of all resources.		N/A
Energy - DAM	Submission and Posting Deadlines	1) Execute DAM between 09:00 and 12:30 EST 2) Execute DAM between 10:00 and 13:30 EPT	DAM submission and posting deadlines typically consider the timing of neighboring electricity markets and natural gas markets.		There are no further high level design decisions for this element.	DE12: Reporting Obligations	2A) Execute DAM between 10:00 EPT and 13:30 EPT 2B) Submission window will open at 06:00 EPT and close at 10:00 EPT.	2A) Ensures the posting deadline of DAM schedules is aligned with the gas nomination deadline of 14:00 EPT all year long, also provides participants more time to inform their dispatch data during normal business hours which are also in EPT. 2B) Maintains existing DACP window which provides sufficient time for participants to inform and submit offers before the DAM starts execution at 10:00 EPT.	July 18, 2018: 34	1) This option was not selected as gas nomination deadline and normal business hour alignment would not be maximized for the entire year considering EST and EPT are equal from November through March.
Energy - DAM	Initiation of Operational Commitments	1) Guarantee NQS resources will be dispatched to at least their MLP in real-time for all DAM scheduled hours (current approach under DACP). 2) Guarantee NQS resources will be dispatched to at least their MLP in real-time for only their DAM scheduled MGBRT hours. 3) Do not guarantee NQS resources will be dispatched in real-time for any of their DAM scheduled hours (i.e. defer all decisions to ERUC)	Day-ahead commitments for NQS resources provide a higher degree of certainty of when they can expect to be dispatched in real-time. They are used to: - Inform the IESO and participants when NQS resources will be signalled to start in real-time, and - Inform ERUC of the hours a NQS resource must be scheduled to at least it's MLP	Option 2	There are no further high level design decisions for this element	N/A	2) NQS resources with DAM schedules will be guaranteed a dispatch in real-time to at least their MLP for the duration of their MGBRT starting with the first hour they are scheduled in DAM.	- Is more efficient for ERUC to determine whether incremental commitment decisions are required as real-time approaches. - Strikes a balance between providing market participants and the IESO with sufficient operational certainty while minimizing the risk of additional uplift for potential day ahead over-commitments.	January 31, 2018: 59-66	1) This option was not selected as it would be a less efficient mechanism for managing intraday changes to DAM schedules as real-time approaches. January 31, 2018: 65 3) This option was not selected as it would reduce operational certainty for all market participants and the IESO. January 31, 2018: 65

Work Stream	Design Element	Options	Options Overview	Common Practice	Considerations	Interdependent Elements	Preliminary Decision	Rationale	Slide Reference	Overview of Options not selected
Energy - DAM	Market Power Mitigation	Determine elements of market power mitigation for the DAM: 1) Use day ahead source data to inform DAM reference levels where they differ from those used in real-time. 2) Implement a mitigation design for post-DAM uneconomic production. 3) Implement a mitigation design for physical withholding.	1) The data sources for reference prices used to mitigate energy offers in the real- All time market may not be suitable for use in the DAM. 2) The two settlement system introduces the potential for participants to increase two-settlement margins with uneconomic offers when they have the ability to influence constraints in real-time. 3) Participants can exercise market power by physically withholding all or some of their supply in order to raise DAM prices and profits for other resources within their portfolio.		There are no further high level design decisions for this element	SSM DE13: Mitigation Process SSM DE14: Timing of Application SSM DE15: Reference Levels ERUC DE9: Commitment Cost Mitigation	Apply all of the identified mitigation elements in the DAM: A) The IESO will perform ex-post mitigation for instances where virtual transactions have been used for divergence of prices between day-ahead and real-time. B) Offers will be mitigated for uneconomic production when the resource is contributing to congestion and the applicable conduct and impact thresholds are met. C) Physical withholding for both energy and operating reserve will be tested after the fact based on a resource's reference quantity for both products. Reference quantities will be determined after-the-fact in consultation with the market participant, will vary for different resource technologies and account for fuel source uncertainty. This approach ensures that participants can effectively manage their offer strategies under the two-settlement system within an acceptable level of risk. Energy Reference Quantity = Installed Capacity less the most restrictive of Reportable Outages or Non Outage Reportable Operating Restrictions Operating Reserve Reference Quantity = Most Restrictive Ramp Rate Capability x the Operating Reserve Product (10 min or 30 min); Cannot be greater than the established Energy Reference Quantity. A settlement adjustment will apply if determined that physical withholding was used to exercise market power: Settlement Adjustment = Energy or Operating Reserve Quantity Withheld x Locational Price Earned by the Quantity Withheld x Multiplier for # of occurrences within a period of time. Multiplier has yet to be determined. The following resources parameters will be ineligible to set DAM and RT prices: • NGS start-up and minimum load costs • Operating restrictions such as forbidden regions	1) Experience in other jurisdictions has shown that virtual transactions can be used in many ways to exercise market power (e.g. causing divergence between day-ahead and real-time prices to maximize FTR payments to holders) 2) Exercising market power via post-DAM uneconomic offers are a legitimate risk given Ontario has congested areas (e.g. Northwest, Northeast, Southwest) 3) Mitigating for physical withholding helps ensure market outcomes are consistent with those that would result under competitive participation.		N/A. All options presented are common to all other DAMs.
Energy - DAM	Price-Setting Eligibility/Operating Restrictions	1) Consistent price setting eligibility between DAM and real-time where practicable.	Price setting eligibility should generally be consistent between DAM and real-time. However, there will be some schedules that should be able to set prices in the DAM but not in real-time because the schedules for these resources can vary in the DAM but not in real-time. It is efficient for resources that can be dispatched in the DAM to be eligible to set DAM prices. Imports and Exports, HDR, PRL and Virtual Transactions all meet this criterion.		There are no further high level design decisions for this element	DE15: Make Whole Payments	1A) The following resources will be eligible to set DAM prices even though they will be unable to in real-time: • Imports and Exports • Hourly Demand Response • Price Responsive Load • Virtual Transactions The following resources parameters will be ineligible to set DAM and RT prices: • NGS start-up and minimum load costs • Operating restrictions such as forbidden regions	1A) Resources that are only to set DAM prices: - Supports consistency between DAM prices and DAM schedules - Reduces dispatch up and dispatch down out of market payments that must be funded by uplift 1B) Resource parameters that will not be able to set neither DAM or RT prices: - Are considered non-dispatchable in both DA and RT. - Support DA to RT price convergence.		N/A. Price setting eligibility proposed is considered best practice in other DAMs.
Energy - DAM	Reporting Obligations	1) Introduce new reporting obligations and/or modify existing DACP reporting obligations to satisfy DAM needs.	DAM information reported by ISOs are typically used by market participants to form bids and offers before DAM and make operational plans after DAM. The DAM will require new or modified reporting obligations relative to DACP because of an increase in the financial significance of DAM forecasts and schedules.		There are no further high level design decisions for this element	DE8: Submission and Posting Deadlines	New or modified reporting information will include: 1A) Publicly available settlement ready Locational Marginal Prices (LMP) 1B) Publicly available marginal values for binding constraints (i.e. cost savings of relaxing a constraint by 1 MW). 1C) Privately available Market Power Mitigation (MPM) related information 1D) Publicly available aggregate summaries of submitted and cleared virtual transactions The following information will cease publishing: 1E) Availability Declaration Envelope (ADE) related information. 1F) ELR resubmission window related information.	For new or modified reporting information: 1A) Locational pricing information on congestion and losses will inform market participant offers into the real-time market or future DAMs. 1B) Including marginal values for system constraints can inform investment decision and encourage resources to increase their dispatchability. 1C) Disclosure of MPM violations and replacement dispatch data used can help participants inform their offers into the real-time market or future DAMs. 1D) Improves transparency and is consistent with the approach following with all other resource types. For information that will cease publishing: 1E & 1F) No longer required as the ADE and ELR resubmission will not be retained under a DAM.	July 18, 2018: 45-48	N/A
Energy - DAM	Two Settlement for Load	1) Dispatchable Load, Price Responsive Load (PRL), non-dispatchable Load (NDL) and hourly demand response (HDR)resources will be exposed to two settlement	Parties responsible for bidding into DAM should bear the responsibility of those bids.	Option 1	There are no further high level design decisions for this element	DE2: Load Participation	1) Dispatchable Loads and PRLs will submit their own bids into the DAM and be exposed to two settlement upon receiving a DAM schedule 2) The IESO will submit DAM bids on behalf of NDL participants. NDL participants will only be exposed to day-ahead prices and a settlement if they actually consume in real-time. NDL participants will be exposed to a modified two-settlement. 3) HDR bids submitted into the DAM will be exposed to a DAM settlement and a real-time balancing settlement.	1) Parties responsible for submitting their own bids into the DAM should bear the financial responsibility for those bids. 2) It is reasonable to assume that a NDL would not have bid into the DAM if they did not consume. A modified settlement approach is necessary for NDL participants considering the IESO uses a top-down approach in forecasting Ontario load has little to no visibility for how much energy NDL participants may actually expect to consume at their location. 3) Exposing HDR bids to DAM and real-time balancing settlements is efficient because, like other dispatchable load resources, they would be incentivized to bid in their marginal benefit of consumption in both DAM and real-time.		N/A
Energy - DAM	Two Settlement for Supply	1) All supply resources (dispatchable generators, self-scheduling generators, variable generators and imports) will be exposed to two settlement upon receiving a DAM schedule.	Parties responsible for offering into the DAM should bear the financial responsibility of those offers.	Option 1	There are no further high level design decisions for this element	N/A	1) All supply resources (dispatchable generators, self-scheduling generators, variable generators and imports) will be exposed to two settlement upon receiving a DAM schedule. A1) Self Schedulers, Non-Dispatchable Loads and Virtual Transactions will not be eligible for make whole payments. A2) All NGS resources will be eligible for a make whole payment if their energy, operating reserve and commitment costs are not covered by the energy and operating reserve revenues earned over their entire DAM schedule, however NGS resources must actually come online in order to qualify for a make whole payment covering start-up and speed-no-load costs as follows: Start-up costs will be fully covered if online within 30 min of their first DAM-scheduled hour; partially covered if the resource comes online between 30 and 90 min; and not covered if the resource comes online after 90 min. Speed-no-load costs will either be fully or partially covered based on the number of hourly intervals energy was actually delivered. A3) All remaining supply and load resources, including imports and exports, will be eligible for a make whole payment in every hour that their energy and operating reserve costs are not covered by their revenues. B) DAMAP will not be included in the DAM make whole payment design Secondary Options - RT Make Whole Payment Design: 1) The following real-time make whole payment guidelines will be used for energy and OR: A) When not scheduled in DAM: - RT make-whole payments should bring the resource back to its operating profit for constrained-down events. - RT make-whole payment should bring the resource back to its operating cost for constrained-up events. B) When scheduled in DAM, RT make-whole payments should take into account interactions between DAM and RT make-whole payments	January 31, 2018: 20-26	N/A. Standard two-settlement is common to all supply participants in a DAM.	
Energy - DAM	Make Whole Payments	1) Provide DAM make whole payments for one or more of the following conditions: A) DAM energy and operating reserve revenues are less than DAM offer costs B) Day-ahead margin assurance payments (DAMAPs). Secondary Options - Real Time Make Whole Payment Design: 1) Real-time make whole payment guidelines Secondary Options - Treatment of NGS Ramp in DAM: 1) Include ramping energy in a NGS resource's financially binding DAM schedule and make whole calculation. 2) Do not include ramping energy in a NGS resource's financially binding DAM schedule and make whole calculation.	Properly designed make-whole payments incentivize efficient participation in the DAM 1A by providing dispatchable resources assurance that they will at least recover the as-bid costs of covering their DAM schedules. DAMAPs are typically designed to incentivize ramp-limited resources to maintain flexible offers in the real-time market. Secondary Options - Real-Time Make Whole Payment Design: Make whole payment calculations should overpayments when dispatch up and down events occur in both DAM and real-time. Secondary Options - Treatment of NGS Ramp in DAM: Ontario has a greater amount of NGS units with long start-up times relative to other jurisdictions. Consideration should be given to including ramp energy in a NGS resource's DAM schedule to reduce the potential for overcommitment and increased uplift.	Option 1 Secondary Options - Treatment of NGS Ramp in DAM: Option 2	There are no further high level design decisions to be made for this element.	DE9: Initiation of Operational Commitments A1) Self Schedulers, Non-Dispatchable Loads and Virtual Transactions will not be eligible for make whole payments. A2) All NGS resources will be eligible for a make whole payment if their energy, operating reserve and commitment costs are not covered by the energy and operating reserve revenues earned over their entire DAM schedule, however NGS resources must actually come online in order to qualify for a make whole payment covering start-up and speed-no-load costs as follows: Start-up costs will be fully covered if online within 30 min of their first DAM-scheduled hour; partially covered if the resource comes online between 30 and 90 min; and not covered if the resource comes online after 90 min. Speed-no-load costs will either be fully or partially covered based on the number of hourly intervals energy was actually delivered. A3) All remaining supply and load resources, including imports and exports, will be eligible for a make whole payment in every hour that their energy and operating reserve costs are not covered by their revenues. B) DAMAP will not be included in the DAM make whole payment design Secondary Options - RT Make Whole Payment Design: 1) The following real-time make whole payment guidelines will be used for energy and OR: A) When not scheduled in DAM: - RT make-whole payments should bring the resource back to its operating profit for constrained-down events. - RT make-whole payment should bring the resource back to its operating cost for constrained-up events. B) When scheduled in DAM, RT make-whole payments should take into account interactions between DAM and RT make-whole payments	A1) Self schedulers are non-dispatchable price takers who submit forecast schedules that do not reflect a resource's costs. Non-Dispatchable Loads are also price takers that the IESO submits forecast schedules for. Virtual transactions are purely financial instruments that do not have production costs A2) NGS resources are scheduled based on minimum load requirements and start-up and speed no-load costs in addition to their incremental energy and operating reserve costs. Start-up and speed-no-load cost eligibility rules are current practice for DACP and common practice in all other jurisdictions. This additional eligibility criteria also reduces uplift as costs can only be recovered if they are actually being incurred. A3) Unlike NGS resources, all remaining supply and load resources are only scheduled based on their incremental energy and operating reserve costs B) Unlikely for NGS units to artificially reduce their ramp rates to avoid high balancing costs given their dispatch turnaround times relative to slower moving coal-fired generators in other jurisdictions. DAMAPs would also present potential for gaming strategies. Secondary Options - RT Make Whole Payment Design: A) Provides correct incentive for resources to follow IESO dispatch instructions even if they are dispatched to a less economic option B) Avoid make-whole payments that result in overpayment and create unnecessary uplifts C) Prevents market participants from benefiting from their own non-compliance with dispatch instructions D) Including balancing revenues and costs for operating reserve, avoids over or under compensation while also ensuring a resource remains incentivized to follow its dispatch. Secondary Options - Treatment of NGS Ramp in DAM: 1) Supports price convergence between DAM and RT by aligning DAM scheduling outcomes with RT Will not discourage loads and exports from participating in the DAM. Charging PRLs a portion of make-whole payments generated in reliability pass incentivizes more efficient participation. PRLs could otherwise strategically underbid in the DAM and increase costs for other PRLs that have not strategically underbid. Charging virtual supply transactions a portion of make-whole generated via reliability pass prevents PRLs from reverting to using virtuals in attempt to underbid in the DAM.	March 27, 2018: 83-88 May 23, 2018: 40-51 January 31, 2018: 92-93	1B) This option was not chosen as it would be unlikely for NGS resources in Ontario to artificially reduce their ramp rates to avoid high balancing costs. It is also not a best practice amongst all other jurisdictions. May 23, 2018: 37-38 Secondary Options - Treatment of NGS Ramp in DAM: 2) This option was not chosen as it could increase the potential for overcommitment and increased uplift. Sept 20, 2018: 62	
Energy - DAM	Uplift Recovery	1) Allocate the following uplift components to real-time loads and/or exports: A) DAM make whole payments B) DAM operating reserve payments 2) Option 1 however allocate a portion of DAM make whole payments to DAM participants that specifically contributed to those costs.	All ISOs allocate most of the DAM uplift to real-time loads and exports rather than to DAM participants in order to incentivize load participation in the DAM. Causally connecting a portion of uplift costs to DAM participants that specifically contributed to these costs can be complex.	Option 2	There are no further high level design decisions for this element	DE15 Make Whole Payments	1) External FTRs will be settled at DAM prices 2) Allocate the following uplift components to real-time loads and exports: A) DAM make whole payments B) DAM operating reserve payments Price Responsive Loads (PRLs) will be charged a portion of make-whole payments generated in the reliability pass of DAM when they have underbid in the DAM relative to their real-time consumption. Virtual supply transactions will be charged a portion of make-whole generated in the reliability pass of DAM for every MW cleared in the DAM.	FTRs must be settled based on DAM prices in order to provide a hedge for congestion charges on day-ahead schedules. Charging PRLs a portion of make-whole payments generated in reliability pass incentivizes more efficient participation. PRLs could otherwise strategically underbid in the DAM and increase costs for other PRLs that have not strategically underbid. Charging virtual supply transactions a portion of make-whole generated via reliability pass prevents PRLs from reverting to using virtuals in attempt to underbid in the DAM.	January 31, 2018: 91-93	2) This option was not selected as it would not discourage PRLs from strategically underbidding in the DAM and increasing costs for other PRLs that have not underbid. May 23, 2018: 50
Energy - DAM	Financial Transmission Rights	1) Settle external FTRs at DAM prices 2) Continue to settle external FTRs at real-time prices.	External FTRs should be settled at DAM prices in order to provide a hedge for congestion charges on day-ahead schedules (real-time congestion charges are already hedged by a participant's DAM schedule).	Option 1	There are no further high level design decisions for this element	N/A	1) External FTRs will be settled at DAM prices 2) Allocate the following uplift components to real-time loads and exports: A) DAM make whole payments B) DAM operating reserve payments Price Responsive Loads (PRLs) will be charged a portion of make-whole payments generated in the reliability pass of DAM when they have underbid in the DAM relative to their real-time consumption. Virtual supply transactions will be charged a portion of make-whole generated in the reliability pass of DAM for every MW cleared in the DAM.	FTRs must be settled based on DAM prices in order to provide a hedge for congestion charges on day-ahead schedules. Charging PRLs a portion of make-whole payments generated in reliability pass incentivizes more efficient participation. PRLs could otherwise strategically underbid in the DAM and increase costs for other PRLs that have not strategically underbid. Charging virtual supply transactions a portion of make-whole generated via reliability pass prevents PRLs from reverting to using virtuals in attempt to underbid in the DAM.	January 31, 2018: 91-93	2) This option was not chosen as real-time congestion charges are already hedged by a participant's DAM schedule. Day ahead to real-time congestion rent differences are typically managed through uplift. January 31, 2018: 92-93
Energy - DAM	Market System Failure	For Day-Ahead Market Failures: 1A) Declare DAM a failure if delayed results cannot be published by 15:30 EPT and issue out-of-market NGS resource reliability commitments for the next day by 18:30 EPT. 1B) Do not issue DAM results (always defer to ERUC for unit commitments and real-time for prices) 1C) Use previous day's DAM results (when forecast conditions and resource availability are similar) For Real-Time Market Suspensions or Failures: 2A) Maintain current administrative scheduling and pricing methodologies; 2B) Use Day-Ahead market schedules and prices	All ISOs need both operating and settlement rules that apply in the event of market system failure. The settlement rules should be designed to avoid creating large windfall losses or profits/benefits for individual suppliers or power consumers. The approaches used in other ISOs can be considered for Ontario.	Vary between Jurisdiction	There are no further high level design decisions for this element	N/A	For a DAM Failure: 1A) Declare DAM a failure if delayed results cannot be published by 15:30 EPT and issue out-of-market NGS resource reliability commitments for the next day by 18:30 EPT. For a RTM Suspension: 2A) Maintain existing admin scheduling and pricing methodologies, i.e. the RTM administered price will be determined from real-time prices of the corresponding hour or hours from the 4 most recent business days (or non-business days, as the case may be) For RTM Failure (No Suspension), use one of the following options that it best suited for the conditions of the failure. 2A) Maintain existing admin scheduling and pricing methodologies, i.e. use the most recent price that was successfully generated before or after the failure; or 2B) Apply the DAM price calculated for the corresponding hour of the market failure; or 2C) Recalculate market prices and scheduled using offline studies	For a DAM Failure: 1A) Trying to preserve DAM results prior to declaring it a failure provides greater price and operational certainty over out-of-market actions and allows the IESO to coordinate DAM results with neighbours before 16:00 EPT. However, timely day ahead out-of-market actions are required if DAM were to inevitably fail. For RTM Suspension: 2A) Aligned with existing administrative pricing guidelines when there is a RTM suspension: - Fair and reasonable to suppliers and consumers - Understandable, transparent and administratively simple - Only try to reflect a current market price if grid operations are based to some extent on market-based information and signals For RTM Failure (No Suspension): 2A, 2B or 2C) Any of the recommended methods can be used to provide a reasonable approximation of what the market price should have been absent the failure.	July 18, 2018: 54, 57-58	For DAM Failure: 1B) This option was not selected as there is a reliability risk associated with just-in-time commitments using only the pre-dispatch process 1C) This option was not selected as yesterday's DAM results for today may not be reflective of forecast conditions and dispatch data for tomorrow For RTM Suspension or Failure (No Suspension): N/A as any of recommended methods would be appropriate. July 19, 2018: 56