Attachment 1: Annual Status Report on Certain Recommendations to the IESO included in Chapter 3 of the Auditor General's 2017 Annual Report

No.	Auditor's Recommendation	IESO Accepting Recommendation? (In-Full / In-Part / Not at All)	Status of Implementation	Expected Date of Completion	IESO Explanatory Notes
1	To ensure that ratepayers' interests are protected and that recommendations made by the Ontario Energy Board Market Surveillance Panel to improve market rules are addressed, we recommend that the Independent Electricity System Operator (IESO): • Implement the Ontario Energy Board Market Surveillance Panel's (OEB Panel) recommendations in an effective and timely way; and • Where the OEB Panel submits a report to the Independent Electricity System Operator that contains recommendations relating to the misuse, abuse or possible abuse of market power, the IESO should use its authority to amend the	In-Full	The Independent Electricity System Operator (IESO) will continue to analyze and assess the Ontario Energy Board's (OEB) Market Surveillance Panel (MSP) recommendations and implement recommendations where there is clear and substantiated evidence that changes to Market Rules are required. In some instances additional analysis is needed to affirm MSP recommendations. In other cases, a decision must be made where it is more cost effective to focus on the enduring solution, such as changes contemplated by the Market Renewal Program, rather than divert scarce resources to implement a short term solution, if there is one. When considering amendments the IESO must balance the need to ensure the reliability of the electricity network, to consider the impact upon market design, including potential unintended adverse effects, and to	On-going	

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	market rule immediately and submit it to the Ontario Energy Board for its review.		assess the ability of the IESO and market participants to implement the change. The IESO has acted on many recommendations made by the OEB's MSP in the past and has implemented a number of market rule amendments as a result.		
6	To ensure that ratepayers are not charged for unnecessary costs, we recommend that, if the Independent Electricity System Operator does not cancel the Standby Cost Recovery Program, it fully implement the Ontario Energy Board Market Surveillance Panel's (OEB Panel) recommendations and not reimburse generators for operating and maintenance costs under the Program.	In-Full	The Independent Electricity System Operator (IESO) is making fundamental changes to the electricity market, through the Market Renewal Program, that will include replacing the current real-time generator commitment mechanisms with a more efficient and transparent form of unit commitment.	Enhanced real-time unit commitment is targeted for implementation by 2022.	
7	To ensure that ratepayers are not charged for unnecessary costs associated with the Lost Profit Recovery Program, we recommend that the Independent Electricity System Operator (IESO) implement the recommendations of the Ontario	In-Full	The Independent Electricity System Operator (IESO) is making fundamental changes through the Market Renewal Program that include eliminating the need for CMSC payments by replacing Ontario's current two schedule	The SSM is targeted for implementation by 2022.	As noted in a December 2016 report by the Market Surveillance Panel: "many of the most problematic issues associated with the CMSC regime have been brought to an end – in large measure as a

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	Energy Board Market Surveillance Panel (OEB Panel) regarding this Program.		market with a Single Schedule Market (SSM). While some out-of-market energy payments will continue to exist, the total amount will be greatly reduced with the elimination of CMSC payments.		result of the Panel having identified these situations, and the IESO having acted to eliminate them." Furthermore, the SSM initiative of Market Renewal will eliminate the Lost Profit Recovery Program.
8	To ensure that the Market Renewal Initiative (Initiative) considers and protects all ratepayers' interests, we recommend that the Independent Electricity System Operator (IESO): • Immediately prohibit representatives from companies that have been found by the Ontario Energy Board Market Surveillance Panel or the IESO Oversight Division to have misused IESO programs from participating in the Initiative working group; • Establish a minimum number of working group members representing low-	In-Part	In December 2017, a member representing low volume consumers was added to the Market Renewal Working Group (MRWG). The engagement work plan will continue to be aligned with the IESO engagement principles to gather a wide representation from IESO market participants, sector stakeholders and other stakeholders such as low volume consumers. As market renewal moves into new High Level Design and Detailed Design stages, the IESO engagement plans will provide methods and channels to encourage the representation of low volume consumers in engagement activities.	Complete	

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	power consumers and ensure that those positions are always filled; and • Publicly report in clear language how the results of the Initiative will be in the best interests of all ratepayers.		The IESO market renewal webpage explains the key benefits of market renewal for Ontario.		
9	To ensure that the Independent Electricity System Operator (IESO) Market Assessment and Compliance Division can conduct proper oversight of the market, we recommend that the IESO: • Assess the resources needed to eliminate its investigation backlog and conduct the large-scale investigations that have proven effective in recovering funds and identifying and sanctioning significant rule violations; and • Attract and retain staff with	In-Full	The Market Assessment and Compliance Division (MACD) has sought and received approval to convert six contracted staff to regular (i.e., full-time and non-temporary) status. The IESO also deployed a more targeted recruitment strategy tailored to the expertise required for MACD enforcement work. This strategy has resulted in 10 new hires into MACD in 2018. .	Complete	

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	experience in market rules and expertise in investigation.				
11	To ensure that the Independent Electricity System Operator (IESO) Market Assessment and Compliance Division (Oversight Division) can conduct proper oversight of the market, we recommend that the IESO replace the Oversight Division's computer system as soon as possible.	In-Full	The Market Oversight and Compliance Division (MACD) has procured and been actively using two support systems for its enforcement work, a case management workflow tool, and a litigation support system that enables the analysis and submission of evidence in contested proceedings. Its tools are similar to those used by a variety of sophisticated investigative and adjudicative organizations, such as the Ontario Securities Commission and the Federal Court. The contractor assisting MACD in its use of these tools developed those tools and works with those organizations for the same purposes.	Complete	
12	To strengthen the independence of the Independent Electricity System Operator (IESO) Market Assessment and Compliance	In-Full	Prior to the release of the Auditor's report, the Independent Electricity System Operator (IESO) completed implementing a new reporting	Complete	

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	Division (Oversight Division), we recommend that the IESO change the Oversight Division's reporting structure.		structure whereby the Director of the Oversight Division reports directly to the IESO Board of Directors and reports only administratively to the IESO CEO.		
13	To strengthen its cybersecurity governance, we recommend that the Independent Electricity System Operator (IESO) create a senior-level position for cybersecurity and establish a formal reporting process to both IESO executives and the IESO Board of Directors.	In-Full	Upon the effective start date of the new CIO, the IESO initiated the development process to create a senior-level cybersecurity role. This role is in the process of being filled.	October 2018	
14	To ensure there are sufficient cybersecurity resources in place to respond to cyberattacks, we recommend that the Independent Electricity System Operator (IESO) increase the number of cybersecurity staff to the recommended level of seven and/or engage an external IT cybersecurity vendor to be on standby.	In-Full	The IESO has retained the services of a third party vendor to provide additional support to IESO cybersecurity staff by enabling 24/7 operational cybersecurity support. This capability is planned to be in service by end of 2018.

The IESO has also increased the total allotted staff within the cybersecurity team to 8, and have plans to add an additional 3 in 2019, totalling 11. The additional increase for 2019 is to | The operational cybersecurity support will be in service by the end of 2018.

The staff aspect is complete. | |

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			support the IESO's additional license requirements to provide cybersecurity services into the sector.		
15	To reduce cybersecurity risk and to prevent potential costly IT project redesigns, we recommend that the IT department of the Independent Electricity System Operator (IESO) involve its cybersecurity staff in the early stages of all IT projects that could pose cybersecurity risks.	In-Full	The Chief Information Officer (CIO) and incoming senior-level cybersecurity resource will establish effective governance ensuring that security practices are being built-in to the IESO's project management program and individual IT project lifecycles. The IESO will also be developing a best practice guide for the sector on cybersecurity risks in the supply chain. This would be applicable to the vendor supply chain that delivers industrial control system hardware, software, and computing and networking services associated with not only the bulk system operations, but traditional enterprise environments. The best practice guide is expected to be in place by the end of 2018.	Integration into project management will be complete by end of 2018. The IESO best practice guide for supply chain risks was released to the sector on September 19, 2018.	
16	To reduce the cybersecurity risk of the Independent Electricity System	In-Full	The Advanced Malware project is closed and the associated technology	Complete	

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	Operator (IESO), we recommend that the IESO procure technology that prevents and identifies breaches of confidential information and monitors staff access to confidential information in real time.		investments are providing value in identifying and responding to cybersecurity issues.		
17	To reduce the cybersecurity risk of the Independent Electricity System Operator (IESO), we recommend that: • the IESO establish an external vendor cybersecurity policy; and • the cybersecurity team conduct a regular assessment of the security risk that external vendors pose to the IESO.	In-Full	The Independent Electricity System Operator (IESO) is in the process of developing and implementing supply chain risk management measures that comply with North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection Supply Chain risk standards, which will also include processes that are responsive to the recommendation. The IESO is expanding its cybersecurity governance framework over the next two to three years to meet the National Institute of Standards and Technology (NIST) Cybersecurity framework that will help assess and mitigate vendor risks to the supply chain. This framework will establish effective security	On-going	The process of holistically addressing supply chain risks will be addressed through the enhancements of the governance framework. IESO external vendor must comply with IESO cybersecurity standards as defined in our standard legal terms. The IESO cybersecurity standards outlined best practice controls for managing risks in vendor's information systems along with the associated data.

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			governance around external vendors.		
18	To ensure that backup tapes are adequately protected and available when needed, we recommend that the Independent Electricity System Operator (IESO): • properly encrypt all backup tapes; and • store them in a secure off-site location.	In-Full	The Independent Electricity System Operator (IESO) has eliminated the use of tape-based backups in favour of system and data redundancy across two highly available and redundant data centers.	Complete	

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