Subject: Official Plan and Zoning By-law Amendments for Battery Energy Storage Systems (BESS)

File Number: ACS2025-PDB-PS-0016

Report to Agriculture and Rural Affairs Committee on January 23, 2025

Report to Planning and Housing Committee on February 5, 2025

and Council on February 12, 2025

Submitted on January 14, 2025 by Derrick Moodie, Director, Planning Services, Planning, Development and Building Services

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Ward: City Wide

Objet : Modification du Plan officiel et du *Règlement de zonage* visant les systèmes de stockage de l'énergie dans les batteries (SSEB)

Dossier : ACS2025-PDB-PS-0016

Rapport au Comité de l'agriculture et des affaires rurales

le 23 janvier 2025

Rapport au Comité de la planification et du logement le 5 février 2025

et au Conseil le 12 février 2025

Soumis le 14 janvier 2025 par Derrick Moodie, Directeur, Services de la planification, Direction générale des services de la planification, de l'aménagement et du bâtiment

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Quartier : À l'échelle de la ville

REPORT RECOMMENDATIONS

That Planning and Housing and Agriculture and Rural Affairs Committees recommend Council:

1. **Approve amendments to the Official Plan adding a new Section 4.12 and giving land use policy direction for the siting of Battery Energy Storage Systems, as either a principal or accessory use, as summarized in Document 1;**

2. **Approve amendments to the Zoning By-law 2008-250 adding a definition for Battery Energy Storage System as well as adding provisions for the siting of Battery Energy Storage Systems that are accessory to residential and non-residential uses in the urban and rural area as summarized in Document 2;**

3. **Approve that decisions on future requests for Municipal Support Resolution(s) that are associated with a Battery Energy Storage System as a principal use project be voted on separately as part of the consideration for the required Zoning By-law Amendment application;**

4. **Approve amendments to the Site Plan Control By-law No. 2014-256 as detailed in Document 5; and**

5. **Approve the Consultation Details Section of this report be included as part of the 'brief explanation' in the Summary of Written and Oral Public Submissions, to be prepared by the Office of the City Clerk and submitted to Council in the report titled, "Summary of Oral and Written Public Submissions for Items Subject to the *Planning Act* 'Explanation Requirements' at the City Council Meeting of February 12, 2025," subject to submissions received between the publication of this report and the time of Council's decision.**

RECOMMANDATIONS DU RAPPORT

Que le Comité de la planification et du logement et le Comité de l'agriculture et des affaires rurales recommandent ce qui suit au Conseil municipal :

1. **Approuver des modifications au Plan officiel visant à ajouter une nouvelle section 4.12 et à fournir une politique d'aménagement du territoire relative à l'implantation des systèmes de stockage de l'énergie dans les batteries, en tant qu'utilisation principale ou accessoire, comme le résume le document 1;**

2. **Approuver des modifications au *Règlement de zonage 2008-250* visant à ajouter une définition de système de stockage de l'énergie dans les batteries ainsi que des dispositions relatives à l'implantation des systèmes de stockage de l'énergie dans les batteries accessoires à des utilisations résidentielles et non résidentielles dans les secteurs urbains et ruraux, comme le résume le document 2;**

3. **Approuver le fait que les décisions portant sur les futures demandes de résolution municipale favorable (RMF) associées à un système de stockage de l'énergie dans les batteries en tant que projet d'utilisation principale fassent l'objet d'un vote distinct lors de l'examen de la demande de modification du *Règlement de zonage*;**

4. **Approuver des modifications au *Règlement sur la réglementation du plan d'implantation* (n^{o} 2014-256), décrites en détail dans le document 5; et**

5. **Approuver l'inclusion de la section du présent rapport consacrée aux détails de la consultation en tant que « brève explication » dans le résumé des observations écrites et orales du public, qui sera rédigé par le Bureau du greffe municipal et soumis au Conseil dans le rapport intitulé « Résumé des observations orales et écrites du public sur les questions assujetties aux "exigences d'explication" aux termes de *la Loi sur l'aménagement du territoire* à la réunion du Conseil municipal du 12 février 2025 », à la condition que les observations aient été reçues entre le moment de la publication du présent rapport et le moment de la décision du Conseil.**

EXECUTIVE SUMMARY

The Independent Electricity Systems Operator (IESO) is responsible for managing the flow of electricity across Ontario and ensuring its reliability. It also oversees Ontario's electricity markets by driving competition to maintain affordability. In response to increased demand from expanding electrification and business investment in large energy consuming sectors including transportation, manufacturing, water and building envelope heating, combined with pressures on current supply, the Ontario government is forecasting the province's demand for electricity to increase by 75 per cent by 2050.

The consumer use of batteries is growing at a rapid rate. Battery storage has become an essential commodity for both personal and professional use and for a range of applications such as mobile phones, vehicles, backup power for sump pumps, storing energy from residential solar panels to Tesla Powerwalls, and larger systems supporting businesses and hospitals.

Emerging technologies like battery energy storage systems (BESS), distributed energy sources and demand response programs are rapidly developing to fulfil the reliability needs of Ontario's electricity system. Specifically, BESS draw and store energy from the grid during off-peak hours when demand is low and then discharge it back to the grid when it is needed. This stabilizes the power grid and scales peak shaving services to reduce the cost of electricity for the end user. BESS are also well-suited to handle the intermittent nature of generation from renewable sources such as wind and solar.

This report responds to a December 6, 2023 Council direction for staff to include BESS facilities in the municipal development review and approvals processes. In keeping with recent changes to the Provincial Planning Statement (2024), this report recommends amendments to the Official Plan adding a new Section 4.12, summarized in Document 1, which sets out the land use policy direction for the siting of Battery Energy Storage Systems, as either a principal or accessory use in the rural and urban areas.

Proposed amendments to the Zoning By-law, summarized in Document 2, will add a new definition for Battery Energy Storage System, including as a principal and accessory land use, as well as amend the definition of On-farm diversified use to include energy storage systems.

The amendment also adds new performance standards specific to Accessory BESS in the rural and urban areas, including establishing a maximum size limit to a percentage of the lot area depending on the zone, as well as establishing setback and screening requirements.

This report also recommends that requests for Municipal Support Resolutions (MSRs) as required by the Independent Electricity Systems Operator (IESO) under the LT1 Request for Proposals that are associated with a Battery Energy Storage System as a principal use project, be voted on separately as part of Council consideration for the required Zoning By-law Amendment application.

On November 13, 2024, Council approved amendments to the Site Plan Control By-law 2014-256 (ACS2024-PDB-PS-0029) which included BESS facilities. As part of that report, staff were directed to review additional exemptions from site plan control approval (for example for small BESS facilities), which has been addressed within this report. This report proposes amendments to the Site Plan Control By-law which will help to expedite BESS projects by scoping the development approvals process to siting for safety and minimizing impacts to the built and natural environments.

RÉSUMÉ

Il incombe à la Société indépendante d'exploitation du réseau d'électricité (SIERE) de gérer la distribution de l'électricité en Ontario et d'assurer la fiabilité du réseau. La SIERE supervise en outre les marchés de l'électricité de l'Ontario en stimulant la concurrence afin de maintenir leur abordabilité. Face à l'augmentation de la demande découlant du développement de l'électrification et des investissements des entreprises dans les secteurs grands consommateurs d'énergie, notamment les transports, l'industrie manufacturière, le chauffage de l'eau et des bâtiments, autant de facteurs qui viennent s'ajouter aux pressions exercées sur l'offre actuelle, le gouvernement de l'Ontario prévoit que la demande en électricité de la province augmentera de 75 pour cent d'ici à 2050.

L'utilisation des batteries par les consommateurs augmente rapidement. Le stockage de l'énergie dans les batteries est devenu indispensable tant pour l'utilisation personnelle que professionnelle, et pour une foule d'applications entourant par exemple les téléphones mobiles, les véhicules, l'alimentation de secours pour les pompes d'assèchement, le stockage de l'énergie des panneaux solaires résidentiels, les Powerwalls de Tesla et les systèmes plus importants utilisés par les entreprises et les hôpitaux.

Les technologies émergentes comme les systèmes de stockage de l'énergie dans les batteries (SSEB), les sources énergétiques décentralisées et les programmes de réponse à la demande se développent rapidement pour répondre aux besoins de fiabilité du réseau électrique ontarien. Plus particulièrement, les SSEB prélèvent et stockent de l'énergie du réseau pendant la période hors pointe, lorsque la demande est faible, et la restituent dans le réseau en cas de besoin. Cette mesure contribue à stabiliser le réseau et à adapter les services d'écrêtement des pointes afin de réduire le coût de l'électricité pour l'utilisateur final. Les SSEB sont également très appropriés pour composer avec la nature intermittente de la production à partir de sources renouvelables comme l'éolien et le solaire.

Le présent rapport fait suite à une directive du Conseil datée du 6 décembre 2023, enjoignant au personnel d'inclure les installations de SSEB dans les processus municipaux d'examen et d'approbation des projets d'aménagement. Dans la foulée des changements récemment apportés à la Déclaration provinciale sur la planification (2024), le présent rapport recommande des modifications au Plan officiel consistant à ajouter une nouvelle section 4.12, résumée dans le document 1, qui fournit une politique d'aménagement du territoire relative à l'implantation des systèmes de stockage de l'énergie dans les batteries, en tant qu'utilisation principale ou accessoire, dans les secteurs ruraux et urbains.

Les modifications proposées au *Règlement de zonage*, résumées dans le document 2, permettront d'ajouter une nouvelle définition de système de stockage de l'énergie dans les batteries, en tant qu'utilisation principale ou accessoire, et de modifier la définition de la notion d' « utilisation diversifiée à la ferme » en y ajoutant les systèmes de stockage de l'énergie.

Les modifications ont également pour objet d'ajouter de nouvelles normes fonctionnelles propres aux SSEB accessoires dans les secteurs ruraux et urbains, notamment l'établissement d'une limite de surface maximale correspondant à un pourcentage de la superficie du terrain en fonction de la zone, ainsi que l'établissement d'exigences en matière de retrait et d'écran visuel.

Le présent rapport recommande en outre que les décisions portant sur les futures demandes de résolution municipale favorable (RMF), exigées par la Société indépendante d'exploitation du réseau d'électricité (SIERE) en vertu des demandes de proposition à long terme 1 associées à un projet de système de stockage de l'énergie dans les batteries d'utilisation principale, fassent l'objet d'un vote distinct lors de l'examen par le Conseil municipal de la demande de modification du *Règlement de zonage* correspondante.

Le 13 novembre 2024, le Conseil a approuvé des modifications au *Règlement régissant la réglementation du plan d'implantation* (n^{o} 2014-256) (ACS2024-PDB-PS-0029), qui englobent les installations de SSEB. Dans le cadre de ce rapport, le personnel avait été chargé d'examiner d'autres exemptions du processus d'approbation du plan d'implantation (par exemple pour les petites installations de SSEB), qui ont été prises en compte dans le présent rapport. Le présent rapport propose des modifications au *Règlement régissant la réglementation du plan d'implantation* qui contribueront à accélérer les projets de SSEB en définissant la portée du processus d'approbation des demandes d'aménagement jusqu'à l'implantation, afin d'accroître la sécurité et de limiter les répercussions sur les environnements bâti et naturel.

BACKGROUND

In October 2021, Council approved Ottawa's Official Plan (ACS2021-PIE-EDP-0036). The Official Plan fulfilled Council's direction set out in the Climate Change Master Plan to apply a climate lens in developing policies.

Electricity is a commodity that is produced by suppliers, sold and then transported to customers. Half of Ontario's electricity supply is generated by nuclear plants, approximately one-quarter by hydro dams, and the rest by a mix of gas plants, wind and solar. Ontario Power Generation (OPG) produces approximately half of Ontario's electricity, and private generators supply the rest.

The Independent Electricity Systems Operator (IESO) manages the flow of electricity across Ontario to ensure reliability. They also oversee Ontario's electricity markets by driving competition to maintain affordability. The IESO has identified the need to increase energy supply, starting in 2025 through the latter part of the decade.

In response to increased demand from expanding electrification and business investment in large energy consuming sectors including transportation, manufacturing, water and building envelope heating, combined with pressures on current supply, the Ontario government is forecasting the province’s demand for electricity to increase 75 per cent by 2050.

Distributed energy sources and demand response programs are rapidly developing to fulfil the reliability needs of Ontario’s electricity system. Specifically, Battery Energy Storage Systems technology has emerged and is evolving in the energy industry with broad uses commercially, industrially and for local distribution. BESS draw and store energy from the grid during off-peak hours when demand is low and then discharge it back to the grid when it is needed. This stabilizes the power grid and scales peak shaving services, a strategy used to reduce costs by reducing power consumption during peak demand periods, which helps to reduce the cost of electricity for the end user.

For land use planning purposes, Battery Energy Storage Systems (BESS) are classified into two categories: principal use and accessory use. Energy storage systems are considered principal uses when the activity of drawing, storing, and discharging electricity is main function of the site and they are typically sited close to the transmission and distribution networks for ease of connection to supply electricity to the grid. These are commonly built as outdoor storage facilities with rows of individual storage containers that look like shipping containers. Once constructed, they require only routine maintenance and can be monitored remotely.

BESS as an accessory use supports one or more buildings as well as utility installations such as a substation. They serve to supplement the specific power needs of a site and also provide energy resiliency in the event of power outages. BESS are also well-suited to handle the intermittent nature of renewable energy generation facilities such as wind and solar farms.

In 2022, the IESO led the largest energy storage procurement ever in Canada, known as the “E-LT1” and the “LT1” Request for Proposals, which resulted in 26 proposed principal use BESS projects throughout the province with a total capacity of 2,916 megawatts.

As part of the LT1 Request for Proposal (RFP), projects were required to obtain a Municipal Support Resolution (MSR) from municipal Councils. A Municipal Support Resolution (MSR) is the mechanism by which the IESO authorizes municipal governments to endorse energy projects that "align with their strategic goals and priorities". They are general in nature and do not preclude projects from having to meet municipal regulatory requirements or obtain any municipal development approvals or permits.

Under the LT1 RFP, projects that obtained a MSR prior to the bid deadline of December 12, 2023, received additional points. Proposals that submitted without a MSR were given until no later than 20 months of the Contract date to obtain a MSR.

On December 6, 2023 (ACS2023-PRE-EDP-0051), Council only granted a Municipal Support Resolution (MSR) to a proposed BESS project in Ward 21. Three other proposed BESS projects in Ward 5 were refused. As part of that same report, Council directed staff to include BESS facilities in the development review and approvals processes as well as make recommendations on managing future requests for Municipal Support Resolutions (MSRs).

On May 9, 2024, the IESO awarded contracts to two BESS projects in rural Ottawa under the LT1 procurement, in Ward 5 and 21 respectively. As shown in the table below, the Fitzroy BESS is required to obtain a MSR by February 6, 2026. Brookfield Renewable Power Inc., branded under the name Evolugen, is the successful proponent for both projects in Ottawa. The location and MSR status of each is summarized in the table below.

Project	**Location**	**Council decision on MSR**
"Fitzroy BESS"	Homesteaders Road and Galetta Side Road (West-Carleton-March – Ward 5)	Refused
"Trail BESS"	4186 William McEwen Drive (Rideau-Jock – Ward 21)	Granted

On November 13, 2024, Council approved amendments to the Site Plan Control By-law 2014-256 (ACS2024-PDB-PS-0029) which included BESS facilities. Staff were directed by Council motion to further "review additional exemptions from site plan control approval (for example for small BESS facilities) once accessory use battery energy storage system (BESS) facilities are further defined through the review of official plan and zoning bylaw amendments for BESS facilities".

This report responds to these Council directions. Matters specific to the two proposed BESS projects in Ottawa will be brought forward through separate reports to Council.

DISCUSSION

Below is a summary of applicable policies and standards to BESS facilities and analysis for the report recommendations.

2024 Provincial Planning Statement

The 2024 Provincial Planning Statement (PPS) came into effect on October 20, 2024. Staff have reviewed the recent changes and have determined that the proposed amendments to the Official Plan and Zoning By-law are consistent with the 2024 Provincial Policy Statement as summarized in Table 1 below.

Table 1: Summary of Applicable Provincial Policies related to BESS

PPS 2024 Policy Number	**Policy changes**	**Staff determination of consistency**
2.9 Energy Conservation, Air Quality and Climate Change	Planning authorities shall plan to reduce greenhouse gas emissions and prepare for the impacts of a changing climate through approaches that support energy conservation and efficiency.	The Official Plan, approved by the province in 2022, fulfilled Council's direction set out in the Climate Change Master Plan to apply a climate lens in developing policies to respond to the climate emergency, which was declared in 2019**.** The proposed amendments respond specifically to the need to support distributed energy resources where appropriate, which includes the siting of BESS.
3.8 Energy Supply	Planning authorities should provide opportunities for the development of energy supply including electricity generation facilities and transmission and distribution systems, energy storage systems, district energy,	The proposed amendments respond to the provincial direction by way of amendments to the Official Plan, summarized in Document 1, and direct the appropriate siting of BESS as

PPS 2024 Policy Number	Policy changes	Staff determination of consistency
	renewable energy systems, and alternative energy systems, to accommodate current and projected needs.	a principal use for transmission scale support or as an accessory use for distribution scale support.
8. Definitions	*Energy storage system*: means a system or facility that captures energy produced at one time for use at a later time to reduce imbalances between energy demand and energy production, including for example, flywheels, pumped hydro storage, hydrogen storage, fuels storage, compressed air storage, and battery storage.	Staff recommend that this new definition be added to Section 13 of the Official Plan. BESS are a specific type of energy storage system. This report provides the land use policy direction for principal and accessory BESS that are to be subject to specific *Planning Act* approvals and those which are to be permitted by-right.
	On-farm diversified uses: means uses that are secondary to the principal agricultural use of the property, and are limited in area. On-farm diversified uses include, but are not limited to, home occupations, home industries, agri-tourism uses, uses that produce value-added agricultural products, and electricity generation facilities and transmission systems, and energy storage systems.	Staff recommend that BESS not associated with a public utility only be permitted in the Agricultural Resource Area (ARA) designation as an On-farm diversified use or accessory use.

Recommendation 1: Approve amendments to the Official Plan adding a new Section 4.12 and giving land use policy direction for the siting of Battery Energy Storage Systems, as either a principal or accessory use as summarized in Document 1.

This report describes proposed Official Plan Amendments to address Battery Energy Storage Systems as a land use permission. Considering the complexity and uniqueness

of BESS and in keeping with the City's legislative authority under the *Planning Act* to address land use matters consistent with the Provincial Planning Statement, staff recommend adding a new Section 4.12 (City-Wide Policies) into the Official Plan to address BESS facilities, as summarized in Document 1.

BESS as a Principal Use

Amendments to the Official Plan are required to address BESS as a principal use, which is in reference to BESS that connect to the electrical transmission or distribution grid network by a regulated utility or a third-party. These types of storage systems are typically sited close to utility-owned networks for ease of connecting stored supplies of electricity.

The Official Plan currently permits public utility facilities which are subject to the *Environmental Assessment Act* in all designations of the Official Plan. However, only the transmission components of a principal use BESS facility (i.e. transformer station(s), transmission line(s)) may be subject to the Class Environmental Assessment for Minor Transmission Facilities. The battery storage units associated with a BESS facility, regardless of size, do not require an Environmental Assessment for approval and are therefore subject to the *Planning Act*. Other public utilities and municipal services are permitted in all designations with the exception of mineral aggregate resource areas, environmental sensitive and constrained areas such as floodplain areas and unstable slopes.

Siting considerations

The proper siting of BESS as a principal use must take into account project-specific requirements. City staff were not consulted on the site selection criteria used for the proposed BESS projects in Ward 5 and Ward 21. Under the LT1 RFP, the Independent Electricity System Operator established a requirement for proponents to submit pre-bid energy "deliverability test" along specific transmission corridors. Upon approval of selected connection points along the network, proponents undertook to identify potential vacant parcels in close proximity.

Additional consideration for the siting of BESS as a principal use include noise, fire safety and emergency response planning, agricultural land and natural heritage protection and mitigating environmental constraints areas.

Fire Safety considerations

Reducing risk of fire is an important consideration for BESS, specifically, given that lithium-ion batteries are currently the dominant storage technology for transmission scale BESS. When a lithium-ion battery cell fails or is subjected to abuse, "thermal

runaway" can occur. Thermal runaway occurs when cells enter an uncontrollable, self-heating state resulting in high temperatures, gas (i.e. CO_2, CO, H_2 and hydrocarbons) and/or electrolyte venting, smoke, fire or a combination of reactions.

Staff understand that changes to battery pack technology and software innovations are ongoing to address fire and safety concerns. As part of a proposed Zoning By-law Amendment application, proponents will be required to demonstrate to Ottawa Fire Services (OFS) satisfaction that effective fire and safety risk management is to be applied in the design of the BESS facility. Proponents will also be required to install fire prevention and suppression systems. Additionally, proponents must provide OFS with site-specific training and provisions for regular awareness.

Ottawa Fire Services has been involved in reviewing the proposed BESS facilities and are continuing to evaluate best practices for emergency response planning of BESS facilities. OFS has highly trained personnel and is well-equipped to respond to BESS emergencies, with a primary emphasis on prevention and early mitigation. Automated prevention and suppression systems aim to mitigate the potential for a fire. In the event of a fire, fire tactics will primarily focus on protecting exposures to prevent the spread of flames. Each site will be assessed on a case-by-case basis to determine the appropriate water supply requirements, which may include municipal water supply, on-site storage reservoirs, or the installation of dry or remote hydrant systems.

Fire safety considerations for battery energy storage systems are summarized in Document 3.

In developing the proposed policies, staff looked closely at Hydro One Networks Inc.'s *BESS Fire Protection Risk & Response Assessment Standard* (FPRRAS)[1]. The Standard was specifically developed to address BESS in proximity to Hydro One's transmission grid facilities. The FPRRAS is a comprehensive standard from a BESS permitting and approval standpoint. Municipal approvals are in addition to the FRPPAS.

The National Fire Protection Association's Standard (NFPA 855) contains a minimum setback standard of 30 metres to protect uses from being within the blast radius in the event of an explosion. Given that Hydro One's transmission assets are critical infrastructure, and that any interruption or failure could impact millions of Ontarians, Hydro One established setback distances of up to 150 metres from their highest voltage transmission lines (500 kilovolt) for BESS supporting the transmission grid. This setback is to prevent ionization of their hydro lines in the event of a fire as metallic particles in the smoke could cause the smoke to act as a conductor.

[1] BESS Fire Protection Risk & Response Assessment Standard, Rev. 1 (Nov. 2023)

In the absence of any provincial guidance on recommended setbacks for principal use BESS, staff are recommending that the setbacks set out by FPRRAS be used as a baseline setback from sensitive land uses (i.e. residential use buildings, day care, place of worship, school, library, community centre, community health and resource centre, open space, park or institutional use) with potential increases to that setback based on the review of plans and studies which would accompany an application for a site specific Zoning By-law Amendment, including:

- Noise Control Study;
- Environmental Impact Study and Wildland Fire Hazard Assessment, where applicable;
- Provision of fire protection and emergency response plans to the satisfaction of Ottawa Fire Services;
- Provision of a Commissioning and Decommissioning Plan

Agricultural considerations

Existing policies in the Official Plan for the Agricultural Resource Area designation direct that prime agricultural areas should be preserved for agricultural uses. On-farm diversified uses and agriculture-related uses that are compatible with and do not hinder surrounding agricultural operations are also permitted by the policies, subject to limitations on size, scale and location on the property as determined by the Zoning By-law.

To preserve prime agricultural land for agricultural uses, the proposed Official Plan Amendment proposes to only permit BESS as an either an accessory or On-farm diversified use, which is similar to an accessory use in terms of permitted size and scale.

Natural heritage considerations

Amendments to the Official Plan propose to restrict the location of BESS as a principal use to the Rural Countryside, Rural Industrial and Logistics, and Natural Environment Area designations that are outside of Villages and outside of the Natural Heritage Features overlay, Sand and Gravel and Bedrock Resource Area overlays, Flood Plains, and near Unstable Slopes. In addition, a minimum setback of 10 metres from the dripline of any forested area is recommended, which will be clarified by an Environmental Impact Assessment and Wildland Fire Hazard Assessment where applicable. These provisions are in keeping with the policies of the Official Plan to

protect the natural heritage system and features for their character and ecosystem services.

Codes and Standards Applicable to Battery Energy Storage Systems

This section provides a summary of the codes and standards that are industry typical standards that apply to BESS in Canada and the USA. Considering their complexity and uniqueness, it is critical to understand the level of oversight that applies to BESS, whether as a principal or accessory use.

Ontario Building Code

The Ontario Building Code (OBC) requires emergency power to be supplied to certain kinds of buildings. The power can be a combination of generator and battery power. The measures contained within the OBC are solely for the purpose of emergency lighting, fire safety and life safety systems of buildings. BESS facilities themselves may not be considered as buildings if they comprise only batteries within containers with no interior access. However, any BESS that is intended to support the fire & life safety of occupants of a building would require a building permit (i.e. if they are relied upon to power the fire alarm, elevators, emergency lighting in the event of a power loss to the building).

Ontario Electrical Safety Code

The primary authority for the Installation and Approval of Energy Storage Systems connected to the electrical grid in Ontario is the Electrical Safety Authority (ESA). The Ontario government has given ESA a mandate to improve public electrical safety. The ESA administers Part VIII of the *Electricity Act* and oversees the Ontario Electrical Safety Code (OESC). The OESC is authorized under O Reg 164/99 and sets out how to do electrical work.

Non-residential energy storage systems for use or sale in Ontario must be approved in accordance with OESC Rule 2-024 and Ontario Regulation 438/07, which contains regulations for product safety. Approval may be obtained by one of the following:

1. Product certification by an accredited certification body to the requirements of ANSI/CAN/UL 9540 Energy Storage Systems and Equipment (see Document 4);

2. Field evaluation by an accredited inspection body to the requirements of the SPE-1000 model code and applicable requirements of the ANSI/CAN/UL 9540;

3. For battery energy storage systems, acceptance by an inspector during wiring inspection, when all applicable requirements are met.

The 2024 CE Code adopted a new section “Installation of energy storage systems at residential occupancies” which sets out the permitted energy capacity and location of energy storage systems for residential use buildings. These changes are now referenced in the Ontario Electrical Safety Code (OESC).

Ontario Fire Code

The Ontario Fire Code (OFC) is a regulation under the *Fire Protection and Prevention Act*. The OFC only regulates BESS safety requirements for occupancy and does not regulate unoccupied facilities. It requires that, in occupied buildings, BESS be installed in compliance with the manufacturer’s instructions and meet certain codes and standards, such as the National Building Code of Canada (NBCC) and the Canadian Electrical Code (CE Code).

Third-party Codes and Standards Applicable to BESS

Additional codes and standards have been developed for BESS by third-party agencies including Underwriters Laboratories (UL) and the National Fire Protection Association (NFPA), which are summarized in Document 4.

This report therefore recommends that BESS as a principal use be permitted in the following designations, subject to approval of a site-specific Zoning By-law Amendment application:

a) Rural Countryside designation, Rural Industrial and Logistics designation, and in the Natural Environment Area designations that are outside of Villages and outside of the Natural Heritage Features Overlay, as identified on Schedules B9 and C11.

b) Mixed Industrial and Industrial and Logistics designations in the Inner Urban, Outer Urban and Suburban Transects, as identified on Schedules B2 through B8.

Section 11.6 (8) of the Official Plan authorizes the City to utilize a holding symbol (h) in conjunction with a rezoning to specify conditions to be fulfilled to lift the hold. This tool may be appropriate for energy projects selected under a provincial procurement process to determine whether contractual and other municipal obligations for such projects have been met (i.e. site plan control) before the development can occur.

BESS as an Accessory Use

Proposed amendments to the Official Plan differentiate BESS as a principal use from those that are supportive or accessory to a principal use. Accessory BESS systems can be used to support one or more buildings by supplementing the specific power needs of

a site and also provide energy resiliency in the event of power outages and are limited to the supply of the building's energy loads.

Accessory BESS may also be used to provide power to the distribution grid during peak periods (i.e. periods of high electricity demand) or to support specific geographic areas of the city where the demand for electricity is high. When used in this way, the use of such systems would need to be authorized by Hydro Ottawa or Hydro One, in their capacity as the regulated local distribution company.

Staff recommend that Accessory BESS be permitted in all land use designations, outside of Environmental Constraints Areas, as shown on Schedule C15, subject to specific use provisions outlined in the Zoning By-law. This broad permission will reduce the development approval process and scope it to siting for safety and/or minimizing impacts on the natural environment.

Recommendation 2: Approve amendments to the Zoning By-law 2008-250 adding a definition for Battery Energy Storage System as well as adding provisions for the siting of Battery Energy Storage Systems that are accessory to residential and non-residential uses in the urban and rural area and as summarized in Document 2.

On July 12, 2023, Council approved By-law 2023-341 as a staff-initiated Zoning By-law Amendment (ACS2023-PRE-EDP-0010) adding provisions to limit the size of a battery energy storage system in an AG (Agricultural Zone) to two per cent of the total lot area, to a maximum of one hectare. No further changes are required to address BESS uses in prime agricultural areas.

Proposed amendments to the Zoning By-law, summarized in Document 2, will add a new definition for Battery Energy Storage System including as a principal and accessory use and amend the definition of On-farm diversified use to include energy storage systems.

The amendment also adds new performance standards specific to Accessory BESS in the rural and urban area, including establishing a maximum size limit of 20 per cent of the lot area within commercial, industrial, institutional zones, as well as setback and screening requirements. The 20 per cent threshold is consistent with some jurisdictions that current provide land use and building regulations for BESS facilities[2].

Projects by the Ontario Power Generation, Transmission and Distribution utilities (i.e. Hydro Ottawa and Hydro One) are considered Utility installations in the Zoning By-law.

[2] Whatcom County, June 2021. https://whatcom.legistar.com/View.ashx?M=F&ID=11026757&GUID=12AE42C0-2505-4EC0-8019-4AAB1E7255A2

The proposed amendment would permit Accessory BESS to be associated with a Utility installation, such as a substation, which is permitted in all zones except EP – Environmental Protection, ME – Mineral Extraction and MR – Mineral Reserve Zones.

The proposed zoning amendments are necessary to meet the intent of the Provincial Planning Statement, support the proposed Official Plan policy directions and to be able to support people and businesses looking for additional energy capacity and grid resiliency. The permissive nature of allowing BESS as an accessory use, subject to size and siting specifications, will expedite energy projects in an efficient manner.

Recommendation 3: Approve that decisions on future requests for Municipal Support Resolution(s) that are associated with a Battery Energy Storage System as a principal use project be voted on separately as part of the consideration for the required Zoning By-law Amendment application.

On February 22, 2023, Council directed staff to advise any proponents seeking a Municipal Support Resolution through the LT1 RFP that such requests be considered through the relevant Standing Committee until such time as amendments to the Zoning By-law have been made.

A Municipal Support Resolution (MSR) is the mechanism by which the IESO authorizes municipal governments to endorse energy projects. While they are general in nature, the MSR is a mandatory requirement as part of the procurement process. A MSR does not preclude projects from having to meet municipal regulatory requirements such as development approvals or permits.

Under the LT1 RFP, project proposals could be submitted without a MSR. Proposals that included a MSR were given additional points as part of bid scoring. Proposals without a MSR were given until the 20 month anniversary of the contract date to submit a MSR or it will be considered in default of its contract. The Fitzroy BESS is required to obtain a MSR by February 6, 2026.

As noted in the above Recommendation 1 section, BESS as a principal use will require Council approval of a site-specific Zoning By-law Amendment. Where a MSR is also requested, recommendation 3 proposes that Council decisions on the MSR and the Zoning By-law Amendment be recorded as two separate decisions within one report in relation to the application. This will allow for the MSR decision to be upheld should a Council decision on a Zoning By-law Amendment by Council differ from the MSR decision.

The IESO is currently finalizing the next procurement window known as the Long-Term 2 RFP (LT2 RFP), which is expected to open in Q1 2025. The LT2 RFP will seek new

build resources such as wind, solar biomass, and storage. Project proposals under the LT2 may not be submitted without a MSR. Staff will provide an update that will outline a new process for MSR requests as part of future IESO procurements. Staff will provide a memorandum to Council in advance of this report that will provide further details on how the proposed process to obtain MSRs for LT2 RFPs may differ from the LT1 RFPs.

Recommendation 4: Approve amendments to the Site Plan Control By-law No. 2014-256 as detailed in Document 5.

On November 13, 2024, Council approved amendments to the Site Plan Control By-law 2014-256 (ACS2024-PDB-PS-0029). Those amendments include BESS as a class of development that is to be subject to Site Plan Control.

Council directed staff to further "review additional exemptions from site plan control approval (for example for small BESS facilities) once accessory use battery energy storage system (BESS) facilities are further defined through the review of official plan and zoning bylaw amendments for BESS facilities".

The table below summarizes the staff recommendation to amend the requirement for Site Plan Control review for BESS by adding wording to exempt BESS uses that meet the size threshold for accessory as defined in this table as well as those BESS uses that form part of a renewable energy generation facility, thus expediting BESS projects to supplement our electrical needs in a more tailored manor.

	Type of BESS facility	**Type of land use**	**Official Plan**	**Zoning By-law**	**Is Site Plan approval required?**
1.	Non-public utility BESS which is intended to connect to the electrical grid network	Principal	Permit BESS as a principal use in specific rural and urban designations, subject to a site specific ZBA	New definition for BESS which will require a site specific ZBA to add BESS as a principal use	Yes
2.	BESS associated with a renewable energy	Accessory	Section 4.11 (3) establishes where renewable energy	Site specific ZBA required to add renewable energy	No (only as part of a renewable energy

	Type of BESS facility	Type of land use	Official Plan	Zoning By-law	Is Site Plan approval required?
	generation facility requiring provincial approval (e.g. solar farm)		generation facility requiring provincial approval are permitted	generation as a permitted use	generation facility)
3.	BESS in support of existing or new development	Accessory	Proposed OPA to permit “Accessory BESS” as a generally permitted use subject to zoning provisions	Proposed new Section 91-A containing provisions for “Accessory BESS” limited unenclosed systems to 20% of the total lot area”	Must meet the size requirement to be exempt from site plan control (i.e. otherwise a principal use)
4.	BESS associated with a Utility installation	Principal or Accessory	Section 4.11 (8) permits as a Generally Permitted Use	Utility installations are permitted in most zones	No

An additional amendment to the Site Plan Control By-law is proposed, which is not related to BESS uses. Staff propose a technical revision to the section of the site plan control by-law governing the requirement for site plan control within areas prescribed by O.Reg 254/23 in Section 7(4) of the by-law. On November 13, 2024, City Council amended the Site Plan Control by-law to comply with legislative changes to the *Planning Act*. As part of those changes, a new requirement for site plan for any lands within prescribed areas of O.Reg 254/23 was added to the by-law. Staff recommend a technical revision to this section to specify that the Director of Planning Services may require Site Plan Control for lands within 120 metres of a wetland or within 300 metres of a freight rail line. This revision will reduce the administrative burden of presumptively requiring site plan control review for all lands within the areas specified by the O.Reg 254/23 when it may not be necessary in all cases.

RURAL IMPLICATIONS

The safety of lithium-ion BESS has been raised as a concern by rural residents given the history of BESS fire incidents in North America. While these incidents have driven the industry to improve its understanding of failure mechanisms and to develop more robust mitigation measures, codes, and standards, emergency response planning will be a priority in the review and approval of BESS as a principal use.

The report recommends a minimum setback of 150 metres be used as a baseline setback from sensitive land uses (i.e. residential use buildings, day care, place of worship, school, library, community centre, community health and resource centre, open space, park or institutional use) with potential increases to that setback based on the review of plans and studies which would accompany an application for a site specific Zoning By-law Amendment, including fire protection and emergency response plans.

Ottawa Fire Services has been involved in reviewing the proposed BESS facilities and are continuing to evaluate best practices for emergency response planning of BESS facilities. The NFPA 855 is the Standard for the Installation of Stationary Energy Storage Systems, which serves as a guideline for Canadian fire departments. Prevention through early detection and suppression mitigation is OFS primary response. In the rare event of a fire emergency, OFS' tactical priorities are focused on addressing any threat to life, reducing property loss, and mitigating environmental impacts. Fire suppression efforts will centre on preventing the spread of fire, with specialized air monitoring conducted throughout the event.

CONSULTATION

Notification and public consultation were undertaken in accordance with the Public Notification and Consultation Policy approved by Council for Development Applications. Correspondence was received from 12 individuals, the majority of which expressed concern with the safety of principal use BESS. Comments were also received, both against and in support of the proposed amendments from the following groups and agencies:

- Alliance Against Fitzroy BESS
- Conseil des écoles catholiques du Centre-Est
- JL Richards on behalf of Brookfield Renewables Power Inc.
- Community Associations for Environmental Sustainability (CAFES)
- Energy Storage Canada

- Mississippi Valley Conservation Authority
- Rideau Valley Conservation Authority

A summary of consultation details can be found in Document 6.

LEGAL IMPLICATIONS

As the proposed amendments to the Official Plan and Zoning By-law are city initiated, there are no appeal rights should the amendments not be adopted by Council. Given the policy nature of the proposed Official Plan amendment and the non-site specific nature of the zoning amendment, these amendments are subject to appeal by persons who make written and/or oral submissions with respect to such amendments. Should the amendments be appealed, the duration of any hearing would be dependent upon the nature of such appeals.

RISK MANAGEMENT IMPLICATIONS

There are risk implications. These risks have been identified and explained in the report and are being managed by the appropriate staff.

FINANCIAL IMPLICATIONS

In the event the applications are refused and appealed, it would be necessary to retain an external planner. This expense would be funded from within the existing Planning Services operating budget.

ACCESSIBILITY IMPACTS

There are no accessibility concerns.

ASSET MANAGEMENT IMPLICATIONS

There are no direct Asset Management Implications resulting from recommendations of this report. Battery energy storage systems, as accessory uses to some City facilities, may present an opportunity to optimize / reduce electrical operating costs. Based on proposed changes to the Comprehensive Zoning Bylaw, installation of a BESS at most City facilities would not be expected to require a Site Plan approval process.

CLIMATE IMPLICATIONS

According to Ontario’s Independent Electricity System Operator (IESO), the province’s demand for electricity is forecast to increase by 75 per cent by 2050, the equivalent of adding four and a half cities the size of Toronto to the grid.

Section 2.9 (Energy Conservation, Air Quality and Climate) of the 2024 Provincial Planning Statement requires planning authorities to reduce greenhouse gas emissions and prepare for the impacts of a changing climate through approaches that incorporate climate considerations in planning for and the development of infrastructure; supporting energy conservation and efficiency and take into consideration any additional approaches that help reduce greenhouse gas emissions and build community resilience to the impacts of climate change.

Battery energy storage systems (BESS) are an emerging technology using batteries and associated equipment to store excess energy from the electrical grid, which can then discharge energy in periods of high demand. They are used to provide backup power to individual sites as well as to support the provincial and local distribution grid. BESS help to reduce the reliance on the grid and supports local energy resiliency by switching to battery power during periods where electricity costs are higher or during power outages.

Municipalities play a critical role in being central to decisions about the type and location of new infrastructure that will be needed to support the energy transition. This report provides land use policy direction for principal use BESS projects intended to support the provincial and municipal grid. The report also recommends amendments to the Zoning By-law to regulate accessory BESS in the urban and rural area.

ENVIRONMENTAL IMPLICATIONS

This report recommends that the siting of BESS as a principal use be outside of the Natural Heritage Features Overlay and taking into account project-specific requirements, with specific considerations for fire safety, agricultural operations, and natural heritage and environmental constraints. A minimum setback of 10 metres from the dripline of any forested area is recommended, which will be clarified by an Environmental Impact Assessment and Wildland Fire Hazard Assessment where applicable. These provisions are in keeping with the policies of the Official Plan to protect the natural heritage system and features for their character and ecosystem services.

TERM OF COUNCIL PRIORITIES

This report addresses the following Term of Council Priorities:

- A city that is green and resilient

APPLICATION PROCESS TIMELINE STATUS

This application (Development Application Number: D01-01-24-0011) was not processed by the "On Time Decision Date" established for the processing of Official Plan amendment applications.

SUPPORTING DOCUMENTATION

Document 1 Details of Recommended Official Plan Amendment 36

Document 2 Details of Recommended Zoning By-law Amendment

Document 3 Energy Storage Systems Fire Safety Considerations

Document 4 Codes and Standards applicable to Battery Energy Storage Systems

Document 5 Details of Recommended Amendment to Site Plan Control By-law

Document 6 Consultation Details

DISPOSITION

Legal Services will finalize the implementing By-laws, listed as Documents 1 and 2 of this report.

Office of the City Clerks will list the final by-laws on a future Council agenda.

Planning Operations, Planning Services to undertake the statutory notification.

Planning Services will implement and monitor the proposed policies.

Document 1 – Details of Recommended Official Plan Amendment

Official Plan Amendment 36 to the

Official Plan for the

City of Ottawa

INDEX

THE STATEMENT OF COMPONENTS

PART A – THE PREAMBLE introduces the actual amendment but does not constitute part of Amendment No. 36 to the Official Plan for the City of Ottawa.

PART B – THE AMENDMENT constitutes Amendment 36 to the Official Plan for the City of Ottawa.

PART A – THE PREAMBLE

PURPOSE

LOCATION

BASIS

PART B – THE AMENDMENT

INTRODUCTION

DETAILS OF THE AMENDMENT

IMPLEMENTATION AND INTERPRETATION

PART C – THE APPENDIX

PART A – THE PREAMBLE

1. Purpose

The purpose of Official Plan Amendment 36 is to add new land use policy direction specific to Battery Energy Storage Systems (BESS) as a result of recent project proposals. Energy storage technologies play an increasingly important role in ensuring the city's long-term energy security and supporting greenhouse gas emission reduction targets.

The policies distinguish between Battery Energy Storage System (BESS) facilities that support the transmission grid as a primary land use and those which are accessory to or supportive of a permitted primary land use.

2. Location

This amendment affects properties citywide. BESS facilities that support the transmission grid are permitted in the Rural Countryside, Rural Industrial and Logistics, and Natural Environment Area designations within the Rural Transect (Schedule B9), and the Mixed Industrial, and Industrial and Logistics designations in the Inner Urban, Outer Urban and Suburban Transects, as identified on Schedules B2 through B8, conditional upon the approval of a Zoning By-law Amendment application and a Municipal Support Resolution, where applicable, from City Council. Accessory BESS facilities are permitted in all urban and rural land use designations.

3. Basis

This Amendment responds to the policy direction set out in Section 3.8.1 of the 2024 Provincial Planning Statement which directs planning authorities to provide opportunities for the development of energy supply including energy storage systems to accommodate current and projected needs.

The Amendment also responds to recent provincial procurements for energy storage systems, known as the Expedited Long-Term 1 (E-LT1) and Long-Term 1 (LT1) procurements. In May 2024, the Independent Electricity Systems Operator (IESO) announced it had executed contracts for two BESS facilities intended to support the transmission grid, in Wards 5 and 21.

To better organize related sections, the amendment also relocates the existing renewable energy generation policies in Section 4.11 to the new section associated with BESS.

Background

BESS is an emerging technology using batteries and associated equipment to store excess energy from the electrical grid, which can then discharge energy in periods of high demand. They are used to provide backup power to individual sites as well as to support the provincial grid. Since phasing out coal fired power stations, the Ontario government has forecasted the need to expand the electricity grid to meet higher electrification of large energy consuming sectors, including transportation, manufacturing, water and building envelope heating.

Rationale

The rationale for each amendment is summarized in Part C – Appendix

PART B – THE AMENDMENT

1. Introduction

All of this part of this document entitled Part B – The Amendment consisting of the following text constitutes Amendment No. 36 to the Official Plan for the City of Ottawa.

2. Details

The following changes are hereby made to the Official Plan for the City of Ottawa:

See Part C: Appendix

3. Implementation and Interpretation

Implementation and interpretation of this Amendment shall be in accordance with the policies of the Official Plan for the City of Ottawa.

PART C – APPENDIX

1. Add a new definition to Volume 1, Section 13 (Definitions) as follows:

Energy storage system: means a system or facility that captures energy produced at one time for use at a later time to reduce imbalances between energy demand and energy production, including for example, flywheels, pumped hydro storage, hydrogen storage, fuels storage, compressed air storage, and battery storage.

2. Delete from Section 4.11 to Volume 1, policies 3 through to 6 inclusive relating to Renewable Energy Generation, add the same policies without modification to a new Section 4.12 to Volume 1, and renumber the subsequent policies in Section 4.11 accordingly.

3. Add a new Section 4.12 to Volume 1, Section 4 (City-Wide Policies) as follows:

4.12 Renewable Energy Generation and Storage

Renewable energy generation and storage are important to ensure energy reliability, reduce greenhouse gas emissions and provide energy resiliency during extreme weather events. They play an increasingly important role in protecting the city's long-term energy security while advancing its climate goals.

Renewable Energy Generation

1) Renewable energy generation facilities that are subject to Provincial approvals will be permitted as a principal use within the following designations:

a) Rural Countryside;

b) Greenbelt Rural and Greenbelt Facility; and

c) Natural Environment Area sub-designation, subject to the policies of Subsection 7.3.

2) Renewable energy generation facilities that are subject to provincial approvals are permitted as subordinate uses in the Agricultural Resource Area and Rural Industrial and Logistics designations.

3) The following considerations will be used to establish zoning by-law provisions for such principal use renewable energy generation facilities:

a) Limiting nuisance impacts, such as through siting and screening requirements;

b) Limiting impacts on significant natural heritage features and agricultural resource area lands; and

c) The ability to access the electricity transmission network and arterial roadways.

4) Large-scale provincially regulated wind turbines are not permitted on lands designated Agricultural Resource Area. This policy does not apply to small-scale wind generation associated with a permitted principal use.

Energy Storage

5) Battery energy storage systems that are part of a public utility facility may be permitted as per Section 4.11, Policy 8.

6) Notwithstanding Section 4.11, Policy 8 regarding public utility permissions, battery energy storage systems are permitted as an On-farm diversified use in the Agriculture Resources Area designation, and as an accessory or supportive of a principal use, in all other designations, subject to specific use provisions in the Zoning By-law.

7) Non public utility battery energy storage systems (BESS) are permitted as a principal use in the following land use designations:

a) Rural Countryside designation and Rural Industrial and Logistics designation, as identified on Schedule B9 and the Natural Environment Area sub-designation, as identified on the C11-series Schedules, subject to the policies of Sections 4.8.1 and 5.6.4.1, that are outside of:

i) Villages, the Natural Heritage Features overlay and Sand and Gravel and Bedrock Resource Area overlays, as identified on Schedule B9 and C11;

ii) Flood Plain, Two Zone Flood Plain, or near Unstable Slopes as identified on Schedule C15.

b) Mixed Industrial and Industrial and Logistics designations in the Inner Urban, Outer Urban and Suburban Transects, as identified on Schedules B2 through B8, that are outside of:

i) the Natural Heritage Features overlay, as identified on Schedule C11;

ii) Flood Plain, Two Zone Flood Plain or near Unstable Slopes as shown on Schedule C15.

8) Non-public utility battery energy storage systems as a principal use shall require an amendment to the Zoning By-law, and a Municipal Support Resolution from Council, where applicable, to establish provisions based upon the review of the following:

a) Provision of a minimum setback of 10 metres from the dripline of any forested area, or as determined by a Wildland Fire Hazard Assessment.

b) Provision of a minimum setback of 150 metres from residential use buildings, residential use lots, day care, place of worship, school, library, community centre, community health and resource centre, park or institutional use, and as determined by all of the following;

i) Noise Control Study;

ii) Environmental Impact Study and Wildland Fire Hazard Assessment, where applicable;

iii) Provision of fire protection and emergency response plans to the satisfaction of Ottawa Fire Services;

iv) Provision of a Commissioning and Decommissioning Plan.

Document 2 – Details of Recommended Zoning By-law Amendment

1. Amend Section 54, Definitions by:

   a. Adding new definitions as follows:

      Battery Energy Storage System (BESS) means a stationary rechargeable energy storage system consisting of batteries, battery chargers, controls, power conditioning systems and associated electrical equipment, and includes:

      - **Principal BESS** that stores electricity from the transmission or distribution grid during periods where supply exceeds demand, and solely discharges back to the transmission or distribution grid;
      - **Accessory BESS** that stores electricity from the distribution grid and may discharge to one or more uses on the same lot and may also discharge back to the distribution grid during periods of high electricity demand. Accessory BESS may also be associated with a *renewable energy generation facility*.

   b. Amending the definition of **On-farm diversified use** to include energy storage system in compliance with the 2024 Provincial Planning Statement as shown below with an underline:

      On-farm diversified use means a use that is ancillary to the principal agricultural use of a property, and includes but is not limited to educational displays, veterinary clinic, restaurant, bakery, retail store, retail food store, micro-brewery, micro-distillery, place of assembly, solar installations, agri-tourism uses, uses that produce value-added agricultural products, energy storage system, including battery storage, and agriculture-related uses.

   c. Amending the definition of **Utility installation** as follows:

      Utility installation means the equipment used to make or deliver a utility product, commodity or service and includes the actual building, plant, works, utility line, tower, relay, pedestal, and may also include battery energy storage systems and a storm water management facility but excludes antenna systems and renewable energy generation facility (installation de services publics)

2. Amend Section 55, Accessory uses, Buildings and Structures to include a new subsection (11) as follows:

(11) This section does not apply to a Battery Energy Storage System (BESS) which is accessory or ancillary to a building.

3. Amend Part 3 (Specific Use Provisions) as follows:

a. Amend Section 91 – Utility Installations by:

(1) Delete subsection (5) with regulations for battery energy storage system in the AG zone (addressed by the new Section 91-A as summarized below).

b. Add a new Section 91-A entitled “Accessory Battery Energy Storage System (BESS)” with provisions as follows:

(1) An Accessory Battery Energy Storage System is permitted:

(a) In the AG zone, a battery energy storage system is limited to 2 per cent of the total lot area, to a maximum of 1 hectare.

(b) In residential zones, installed in accordance with the Ontario Electrical Code, must be completely enclosed within a building or other accessory structure or mounted on the exterior surface of a building, outside the flood plain overlay.

(c) In any non-residential zone, other than the EP, ME, and MR zones, and outside the flood plain overlay, either enclosed within a building or other accessory structure or unenclosed, subject to the following:

(i) they may not exceed 20 per cent of the total lot area;

ii) they must be set back a minimum of 10 metres from any lot line, and a 1.5 metre opaque screen must be provided from a public street or a residential use on an abutting lot;

iii) unenclosed rooftop systems must be set back a minimum of 1.5 metres from any exterior wall of the building, and may not project more than 1.5 metres above the maximum building height.

Document 3: Battery Energy Storage Systems Fire Safety Considerations[3]

Considerations	Lithium-ion Batteries	Flooded Lead-Acid Batteries	Valve Regulated Lead-Acid Batteries
Hazards	Thermal Runaway	Acid, Hydrogen gas	Hydrogen gas (over charge)
Requirements	Thermal runaway management, signage, seismic protection, smoke detection	Venting caps, spill control, neutralization, ventilation, signage, seismic protection, smoke detection	Self-resealing flame-arresting caps, neutralization, ventilation, signage, seismic protection, smoke detection
Fire Methods	1. System isolation 2. Hazard confinement and exposure protection 3. Fire suppression 4. Ventilation	1. System isolation 2. Hazard confinement and exposure protection 3. Fire suppression 4. Ventilation	1. System isolation 2. Hazard confinement and exposure protection 3. Fire suppression 4. Ventilation
Suppressing Agent Choice	Water is considered the preferred agent for suppressing lithium-ion battery fires	Small Fires: - Water - Powders - Inert gases - Carbon dioxide Large Fires: - Water	Small Fires: - Water - Powders - Inert gases - Carbon dioxide Large Fires: - Water
Installation restrictions	Temperature (0 to 40 C) Living spaces in a dwelling		

[3] Solar Electricity and Battery Storage Systems Safety Handbook for Firefighters (Ontario Association of Fire Chiefs, 2023)

Document 4 – Third-party Codes and Standards applicable to Battery Energy Storage Systems

Standard	Summary of Requirements
ANSI/CAN/UL 9540	UL 9540 is the North American safety standard for energy storage systems, which was developed by Underwriters Laboratories (UL). Both the American National Standards Institute (ANSI) and the Standards Council of Canada (SCC) have approved UL 9540. To meet these requirements, a BESS must undergo rigorous testing and certification, including factory inspection, testing and follow up inspections. Once UL receives samples from the manufacturers, done a series of tests, and finds that the product meets the necessary safety requirements, the BESS is said to be “UL 9540 listed”. The OESC mandates UL 9540 certification.
ANSI/CAN/UL 9540A	ANSI/CAN/UL 9540A is a method for evaluating “thermal runaway” and sets out requirements for battery management systems (BMS) including battery safety, performance and communications protocols. This standard was developed to verify the effectiveness of protection levels against thermal runaway and fire hazards. The OESC mandates UL 9540A certification.
NFPA 855	The National Fire Protection Association is an international non-profit organization that promotes safety standards, education, and training on fire and electrical-related hazards. The NFPA 855 is the *Standard for the Installation of Stationary Energy Storage Systems*, which serves as a guideline for Canadian fire departments. The standard outlines processes for training, pre-incident planning, hazard mitigation analysis, testing, decommissioning, and post-incident handover procedures to energy storage system owner.
IEEE 2030.2.1	The Institute of Electrical and Electronics Engineers (IEEE) *Guide for the Design, Operation, and Maintenance of Battery Energy Storage Systems, both Stationary and Mobile, and Applications Integrated with Electric Power Systems*.

Document 5 – Details of Recommended Amendment to Site Plan Control By-law 2014-256

Site Plan Control By-law 2014-256 is proposed to be amended with provisions similar in effect to the following:

1. Amend Section 4(1)(d)(iv) by replacing the words “Battery Energy Storage System” with the words “Battery Energy Storage System, but not including an Accessory Battery Energy Storage System as defined in Zoning By-law 2008-250”.

2. Amend Section 7(4) by replacing the text “Notwithstanding Section 4(1), site plan control will be required for development on lands prescribed for the purpose of Section 41(1.2) of the *Planning Act* as set out in O.Reg 254/23, unless written permission from the General Manager is obtained, including the construction of a residential building on a lot that is:” with the words “Notwithstanding Section 4(1), the Director of Planning Services may require site plan control for development on lands prescribed for the purpose of Section 41(1.2) of the *Planning Act* as set out in O.Reg 254/23, including the construction of a residential building on a lot that is:”

Document 6 – Consultation Details

Notification and Consultation Process

Notification and public consultation was undertaken in accordance with the Public Notification and Public Consultation Policy approved by City Council for Official Plan and Zoning By-law amendments.

Public Comments and Responses

1. Comment:

A rationale was requested for the siting of BESS as a principal use in the rural area with concern over impacts to rural communities (i.e. loss of tree canopy and negative environmental impacts).

Response

Staff were not involved in site selection for the proposed BESS projects in Ward 5 and Ward 21, however, we understand that the Independent Electricity System Operator established a requirement under the LT1 RFP for a pre-bid submission that assessed the energy “deliverability” along specific transmission corridors. Upon approval of selected connection points along the network, proponents undertook to identify potential vacant parcels in close proximity.

2. Comment:

Concern was expressed with the potential for negative impacts to the rural communities in proximity to the proposed BESS (i.e. economic impacts, loss of tree canopy and negative environmental impacts).

Response:

In the absence of any provincial guidance on recommended setbacks for principal use BESS, staff are recommending that the setbacks set out by Hydro One Networks Inc. *BESS Fire Protection Risk & Response Assessment Standard (FPRRAS)* be used as a baseline setback from sensitive land uses (i.e. residential use buildings, day care, place of worship, school, library, community centre, community health and resource centre, open space, park or institutional use) with potential increases to that setback based on the review of plans and studies which would accompany an application for a site specific Zoning By-law Amendment. Additionally, in keeping with the policies of the Official Plan to protect the natural heritage system and features for their character and

ecosystem services, this report recommends the siting of BESS as a principal use to be outside of the Natural Heritage Features Overlay with specific considerations for natural heritage and environmental constraints. A minimum setback of 10 metres from the dripline of any forested area is recommended, which will be clarified by an Environmental Impact Assessment and Wildland Fire Hazard Assessment where applicable.

3. Comment:

Does City Council make the final decision on both the Municipal Support Resolution and the Zoning By-law Amendment application, or is it the Agricultural and Rural Affairs Committee?

Response:

Decisions on both Municipal Support Resolution requests and Zoning By-law Amendments applications rest with City Council.

4. Comment:

Clarification was requested on the sequencing of BESS approvals under the LT1 RFP between the Independent Electricity Systems Operator and the City of Ottawa.

Response:

Under the LT1 RFP process, proponents were responsible for obtaining the support of local governing bodies in order to enter into contract operation. This is achieved by what was referred to as a “Municipal Support Resolution”, which is general in nature and solely for the purpose of rating bids. Under the LT1 RFP, proponents could submit the MSR with their bids to obtain additional rated criteria points or otherwise no later than 20 months from the Contract Date. Projects that do not obtain a MSR by this time would be considered in default of their Contract.

Such projects are required to obtain all applicable municipal land use and environmental permits and approvals, which is to be processed by City staff as part of a site specific Zoning By-law Amendment application and Site Plan Control approval process.

5. Comment:

If a site-specific Zoning By-law Amendment is rejected by Council, does the project move forward?

Response:

No, the project cannot proceed if a Zoning By-law Amendment is denied. Proponents may appeal the Council decision to the Ontario Land Tribunal. Staff therefore recommend that decisions on Municipal Support Resolutions be kept separate from a decision on a Zoning By-law Amendment in the event of an appeal.

6. Comment:

Concern with impacts to air and groundwater in the event of fire associated with a BESS.

Response:

The risk of groundwater contamination from firefighting water runoff during a BESS fire is estimated to be minimal. Most contaminants will burn off, with safety monitored throughout the event, and appropriate actions taken to protect the public if necessary. As with similar incidents involving the risk of contaminated liquids reaching the soil, the situation will be evaluated, and a cleanup service will be secured if needed. The Ministry of Environment and local authorities would be also contacted. These considerations will also be factored into the site plan approval process, with a focus on prevention and mitigation strategies to further minimize environmental risks.

7. Comment:

Can residents be informed of details related to a fire incident associated with a BESS?

Response:

OFS will have specialized teams conducting air monitoring throughout the event. If there is a risk of air contamination, it will be assessed and communicated during the incident, with updates provided as needed. Typically, the risk of air contamination is mitigated shortly after the fire is extinguished. Ongoing air monitoring and groundwater testing will be required as a condition of the site plan approval process to ensure comprehensive environmental protection after the event.

Community Organization Comments and Responses

1. Hydro Ottawa

Hydro Ottawa considers battery storage an important part of energy future and it should be encouraged where appropriate and where beneficial to the grid and/or the battery owner. Hydro Ottawa recommends that a permissive local regulatory approach be taken

to not discourage accessory or principal BESS projects due to perceived regulatory barriers.

Response:

The report recommends the siting of principal use BESS in parts of the urban and rural area and accessory BESS by-right up to an established size limit in commercial, industrial and institutional zones, outside of the flood plain and environmental constraint areas. Utility installations are generally permitted in most zones. Specific use provisions for Utility installations are recommended to include accessory BESS.

2. Community Associations for Environmental Sustainability (CAFES)

CAFES are concerned that the proposed policy and zoning provisions are insufficiently flexible to address the emerging range of technologies, range of scales and breadth of applications of energy storage systems and that the development of energy storage systems will be overly burdened by the proposed approach. They recommend creating a site plan process and a terms of reference for BESS rather than referring to third-party standards, that could be updated as required, and that can be transparent, providing regulatory certainty for BESS.

Response:

The staff report is specific to BESS as lithium-ion batteries are currently the predominant type of rechargeable battery within the consumer and energy storage markets, due in part to their high energy density and long lifespan. The proposed Official Plan and Zoning provisions were prepared in response to the complexity and uniqueness of BESS as both a principal and supporting type of land use, and which can be considered as part of a public utility or as a non-public utility intended to connect to the electrical grid network, either of which must be looked at on a case by case basis. Amendments to the Site Plan Control by-law are recommended to respond to the November 13, 2024, Council direction review additional exemptions from site plan control approval (for example for small BESS facilities) once accessory use battery energy storage system (BESS) facilities are further defined through the review of official plan and zoning bylaw amendments for BESS facilities.

3. Mississippi Valley Conservation Authority

BESS facilities should not be permitted within any natural hazard area (flood hazard, erosion hazard, unstable slopes and/or soils), or where such hazards are identified elsewhere through the plan review process, and/or in consultation with MVCA. BESS

facilities should not be permitted within Provincially Significant Wetlands, and/or where identified elsewhere through the plan review process, or in consultation with MVCA, or in, an MVCA regulated wetland.

Response:

The report recommendations are consistent with these comments.

4. Rideau Valley Conservation Authority

Recommended that BESS not be permitted within Significant Wetlands or Environmental Constraints Areas.

Response

The report recommendations are consistent with these comments.