

**FINANCE AND CIVIC DEVELOPMENT COMMITTEE**

*HIS WORSHIP, THE MAYOR  
AND COUNCILLORS*

**SUBJECT: EMERGENCY POWER AND ELECTRICAL UPGRADES TO  
CITY HALL – MAIN BUILDING**

**RECOMMENDATION:**

1. THAT Council authorize Acumen Engineering to proceed with:
  - (a) the detailed design for the installation of an emergency generator to provide full uninterrupted power to the City Hall – Main Building;
  - (b) the replacement of the existing electrical distribution system within the Main Building's electrical room, as outlined in this report.

**REPORT**

The Finance and Civic Development Committee, at its meeting held on 2009 March 30, received and adopted the *attached* report seeking approval to proceed with the detailed design for an emergency power generator and electrical distribution system at the City Hall – Main Building.

Respectfully submitted,

Councillor D. Johnston  
Chair

Councillor N. Volkow  
Vice Chair

Councillor C. Jordan  
Member

Copied to:	City Manager
	Deputy City Manager
	Director Finance
	Purchasing Manager
	Director Planning & Building
	Director Engineering
	Chief Building Inspector

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**TO:** CHAIR AND MEMBERS  
FINANCE AND CIVIC DEVELOPMENT  
COMMITTEE **DATE:** 2009 MARCH 12

**FROM:** MAJOR CIVIC BUILDING PROJECT  
COORDINATION COMMITTEE

**SUBJECT:** EMERGENCY POWER AND ELECTRICAL UPGRADES TO  
CITY HALL – MAIN BUILDING

**PURPOSE:** To seek Committee and Council approval to proceed with the detailed design for an emergency power generator and electrical distribution system at City Hall – Main Building.

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**RECOMMENDATION:**

1. **THAT** Council be requested to authorize Acumen Engineering to proceed with:
  - (a) the detailed design for the installation of an emergency generator to provide full uninterrupted power to the City Hall – Main Building;
  - (b) the replacement of the existing electrical distribution system within the Main Building's electrical room, as outlined in this report.

**REPORT****1.0 BACKGROUND:**

Over the past years, the City Hall Complex has experienced several power disruptions that have lasted from a few minutes to several hours. These power interruptions are caused due to a variety of reasons, such as overloaded BC Hydro circuits, wind storms and damage to power poles by motor vehicles. City Hall operations are highly dependent on a continuous and reliable electrical power supply as only very limited services can be provided without it.

The loss of power to the City Hall campus can also result in the loss of computer and communication services to other City facilities, such as public libraries, fire stations and recreation centres which are remotely connected to a main server room located in the Main Building – Ground Floor.

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At the present time, the Main Building has limited emergency power through an existing 75kVA generator which only has capacity to power the emergency lighting in the building, the Un-Interrupted Power Supply (UPS) battery back-up and the elevator system for a limited time period of approximately twenty minutes. Full power supply to the building cannot be accommodated due to its limited capacity.

In order to address the emergency power requirements, the City has retained the services of Acumen Engineering, through an RFP (Request for Proposal) process, for the design and acquisition of a full emergency power back-up system. As part of their review, the engineering firm explored a number of options that also included the West Building and a possible future office building on the campus, which is currently being considered by the City and Burnaby School District #41.

In addition to the emergency power requirements, the engineers also examined the current capacity and condition of the existing electrical Unit Sub-Stations in the Main and West Building which house the main transformers, disconnect switches and power distribution equipment.

Acumen's review of the Unit Sub-Stations determined that the electrical distribution equipment in the City Hall - Main Building is over 50 years old and strong consideration should be given to replacing the equipment as soon as possible as it is beyond its expected lifespan by approximately 15 - 20 years.

The Unit Sub-Station in the West Building does not require immediate attention but it should also be considered for replacement within the next five years.

The replacement of the main electrical distribution system in the Main Building is being recommended as replacement parts are no longer available. Failure of a major component could compromise normal building power for several days, affecting both City Hall operations and computer service delivery to other City facilities.

## **2.0 EMERGENCY POWER OPTIONS:**

As part of the consultant's review process, Acumen explored several options for providing emergency power to the City Hall Main Building and the West Building. Future power requirements were also considered, given the potential for a new office building in the City Hall campus.

Various scenarios were explored which ranged from using temporary emergency power, a central plant that would supply power to all buildings and providing independent stand-alone emergency power for each building on the campus.

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The temporary emergency power option was determined not to be cost-effective as it would only be capable of servicing the computer room electrical panels, furthermore, there would be insufficient power available for the balance of the remaining electrical systems in the Main Building.

The central plant option has potential for long-term benefits and was also considered but due to the high cost and the unknown time-frame required for the design and construction of the future office building, it was not recommended at this time. In addition, the time delay could result in considerable risk and exposure to the City, should there be a failure to the Main Building's electrical system in the interim.

### 3.0 PREFERRED EMERGENCY POWER OPTION:

After considering the emergency power options available to the City, it is recommended that a phased program be implemented commencing with the installation of a 1,000 kVA generator, capable of providing full emergency power to the City Hall – Main Building. In conjunction with this work, it is further recommended that the electrical distribution equipment in the Main Building Sub-Station also be replaced to ensure a continuous and reliable power supply.

Proceeding with the emergency power upgrade to the Main Building at this time is considered a high priority as the City's main Computer / Server Room is located in the building.

Providing emergency power to the West Building is not contemplated at this time as there may be a future opportunity to provide a more cost-effective installation through a central plant that could be located in the proposed future office building. Under this scenario, the new equipment would be sized to power both buildings which would result in significant cost savings. Should the new building not proceed within the next two to three years, consideration should be given to the installation of a dedicated emergency generator, in conjunction with the replacement of existing electrical Sub-Station in the West Building.

Based on the preliminary work completed to-date, Acumen Engineering has provided order of magnitude costs for the preferred option, as follows:

• Supply and installation of 1,000 KVA emergency generator for Main Building	-	\$ 850,000
• New electrical distribution in Sub-Station	-	<u>\$ 650,000</u>
<b>TOTAL</b>	-	<b><u>\$1,500,000</u></b>

A more comprehensive breakdown of costs will be provided at the completion of the detailed design phase.

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#### 4.0 CONCLUSION / RECOMMENDATION:

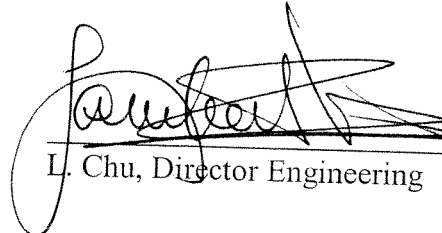
Given the potential risk of power interruptions at City Hall and the resulting loss of computer and communication services to other City facilities and operations, it is recommended that the City proceed with the design and installation of a 1,000 kVA emergency power generator to serve the Main Building at City Hall.

In addition, it is further recommended that the old electrical distribution equipment in the building's Sub-Station be replaced at the same time to ensure a continuous and reliable power supply.

Funds to undertake this work are identified in the Provisional Capital Budget and subject to receiving approval, staff will proceed with the detailed design of the emergency power and distribution systems for the Main Building. At the completion of the design, a report will be submitted to the Committee and Council providing information on estimated costs, funding and project schedule.



B. Luksun, Chair Major Civic Building Project Coordination Committee



L. Chu, Director Engineering



P. Shek, Chief Building Inspector

JC:ap

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Director Finance  
City Clerk  
Purchasing Manager