Consolidated Clause in Policy and Finance Committee Report 5, which was considered by City Council on June 27, 28 and 29, 2006.

33

Deep Lake Water Cooling - Old City Hall

City Council on June 27, 28 and 29, 2006, adopted this Clause without amendment.

The Policy and Finance Committee recommends that City Council adopt the recommendation of the Budget Advisory Committee contained in the communication (June 16, 2006) from the Budget Advisory Committee:

Recommendation:

The Budget Advisory Committee recommended to the Policy and Finance Committee that City Council adopt staff Recommendations (1) and (3) in the Recommendations Section of the report (June 1, 2006) from the Chief Corporate Officer, as recommended by the Administration Committee.

Background:

The Budget Advisory Committee on June 16, 2006, considered a communication (June 7, 2006) from the Administration Committee, advising that the Committee on June 6, 2006 recommended to the Budget Advisory Committee that City Council adopt staff Recommendations (1) and (3) in the Recommendations Section of the report (June 1, 2006) from the Chief Corporate Officer:

"It is recommended that:

(1) the appropriate City staff be authorized to negotiate and enter a long-term agreement of up to 20 years on a single-source basis with Enwave Energy Corporation ("Enwave") in order to provide Deep Lake Water Cooling (DLWC) to Old City Hall, on terms and conditions that are satisfactory to the Chief Corporate Officer and the City Solicitor, and in a form that is satisfactory to the City Solicitor, the terms of which are to include:

(i) fixed capital costs related to implementing DLWC in Old City Hall;

(ii) fixed pricing related to the annual operating costs of DLWC, subject to periodic inflationary adjustments; and

(iii) performance monitoring, flexibility to accelerate payments, dispute resolution and remedies for unsatisfactory performance; and

(3) the appropriate City officials be authorized and directed to take the necessary action including the negotiation of any agreement required between the City and Enwave to give effect thereto."

(Communication dated June 7, 2006, addressed to the
Budget Advisory Committee from the Administration Committee.)

Recommendation:

The Administration Committee recommends to the Budget Advisory Committee that City Council adopt the following staff recommendations in the Recommendations Section of the report (June 1, 2006) from the Chief Corporate Officer:

"It is recommended that:

(1) the appropriate City staff be authorized to negotiate and enter a long-term agreement of up to 20 years on a single-source basis with Enwave Energy Corporation ("Enwave") in order to provide Deep Lake Water Cooling (DLWC) to Old City Hall, on terms and conditions that are satisfactory to the Chief Corporate Officer and the City Solicitor, and in a form that is satisfactory to the City Solicitor, the terms of which are to include:

(i) fixed capital costs related to implementing DLWC in Old City Hall;

(ii) fixed pricing related to the annual operating costs of DLWC, subject to periodic inflationary adjustments; and

(iii) performance monitoring, flexibility to accelerate payments, dispute resolution and remedies for unsatisfactory performance; and

(3) the appropriate City officials be authorized and directed to take the necessary action including the negotiation of any agreement required between the City and Enwave to give effect thereto."

Action taken by the Committee:

The Administration Committee directed that this report be forwarded to the Budget Advisory Committee for consideration as part of the 5 year capital budget process going forward in June 2006, in accordance with staff Recommendation (2).

The Committee requested the Chief Corporate Officer to report back to the Administration Committee on opportunities to provide Deep Lake Water Cooling at City Hall.

Background:

The Administration Committee at its meeting on June 6, 2006 considered a report (June 1, 2006) from the Chief Corporate Officer seeking approval to negotiate and enter into a long-term agreement with Enwave Energy Corporation to provide Deep Lake Water Cooling (DLWC) to Old City Hall.

(Report dated June 1, 2006, addressed to the Administration Committee from the Chief Corporate Officer.)

Purpose:

To seek approval to negotiate and enter into a long-term agreement with Enwave Energy Corporation to provide Deep Lake Water Cooling (DLWC) to Old City Hall.

Financial Implications and Impact Statement:

The capital cost associated with implementing DLWC at Old City Hall is estimated at $400,000 in 2007 and $500,000 each year from 2007 through 2012 for a total cost of $2.9 million, or $2.5 million on a present value basis. These capital costs are included in the 5-Year Capital Plan of the City's Facilities and Real Estate Division.

It is proposed that the incremental operating costs of approximately $209,000 be recovered through additional leasing revenue received for this facility so that the there is a net zero effect on the operating budget.

The Deputy City Manager and Chief Financial Officer concurs with this financial impact statement.

Recommendations:

It is recommended that:

(1) the appropriate City staff be authorized to negotiate and enter a long-term agreement of up to 20 years on a single-source basis with Enwave Energy Corporation ("Enwave") in order to provide Deep Lake Water Cooling (DLWC) to Old City Hall, on terms and conditions that are satisfactory to the Chief Corporate Officer and the City Solicitor, and in a form that is satisfactory to the City Solicitor, the terms of which are to include:

(i) fixed capital costs related to implementing DLWC in Old City Hall;

(ii) fixed pricing related to the annual operating costs of DLWC, subject to periodic inflationary adjustments; and

(iii) performance monitoring, flexibility to accelerate payments, dispute resolution and remedies for unsatisfactory performance;

(2) this report be forwarded to the Budget Advisory Committee for consideration as part of the 5-Year Capital Plan going forward in June 2006; and

(3) the appropriate City officials be authorized and directed to take the necessary action including the negotiation of any agreement required between the City and Enwave to give effect thereto.

Background:

At its meeting of July 28, 29 and 30, 1999, Council approved the restructuring of Enwave Energy Corporation ("Enwave"), as a share capital corporation under the *Business Corporations Act*, Ontario, with the City and BPC Penco Corporation (a subsidiary of OMERS), as its shareholders.

Subsequently, at its meeting of December 14, 15, 16, 1999, Council approved a "Statement of Shareholder Objectives" (provides guidance to the City nominees on the Enwave Board of Directors), which includes Enwave assisting Council in achieving its stated objective of CO2 reduction by maximizing environmental benefits through the use of clean, sustainable and renewable energy sources such as district heating and DLWC.

Deep Lake Water Cooling (DLWC):

In September 1997, Councils of both the former City of Toronto and Metro approved DLWC, an Enwave-proposed district cooling system concept that would serve the downtown core. Council of the current City of Toronto has reiterated its support for DLWC on various occasions. Apart from its role as Shareholder, the City has entered into an agreement with Enwave for the purposes of undertaking DLWC using City infrastructure.

DLWC is an integrated district cooling system which uses environmentally-friendly technology to provide cooling to the southern part of downtown Toronto, from the Lakeshore up to Queen Street, with an extension up to Queen's Park currently underway. Clients include the Air Canada Centre, the Metro Convention Centre, the TD Centre, the Steam Whistle Brewing Company, the Royal Bank Tower, Commerce Court, Hudson's Bay Tower, 1 University Ave., and the Richmond Adelaide Centre.

The City's Environmental Plan:

At its meeting of April 11, 12 and 13, 2000, Council adopted, in principle, the Environmental Plan: "Clean, Green and Healthy – Plan for an Environmentally Sustainable Toronto". This included purchasing 25 per cent of the City's energy needs through green power and promoting the use of district heating and cooling, especially DLWC. DLWC is considered to be a renewable resource and therefore a green power source.

DLWC for Metro Hall:

At its meeting of May 17, 18 and 19, 2005 (Policy and Finance Committee Report 5, Clause 16), Council authorized the implementation of DLWC at Metro Hall. DLWC is currently under construction at Metro Hall and will be operational in the summer of 2006.

Comments:

Old City Hall Renovations:

Enwave is the provider of district heating to Old City Hall. However, Old City Hall does not have a central cooling or ventilation system. While air conditioning is currently provided to much of the office space by window-mounted air conditioners, the only ventilation available for the public areas and corridors is provided through operable windows. It is unlikely that a sufficient volume of air is supplied to comply with the current Building Code requirements.

A centralized ventilation and cooling system is to be provided for the building, with the construction to be phased in over a two to three-year period. A feasibility study undertaken in 2003 has determined that the proposed upgrades are viable. The planned upgrades, including centralized cooling, will greatly improve the environmental and comfort conditions in the building.

While a detailed engineering study will be undertaken in 2006, it has been determined that the cooling requirement for the building will be about 800 tons.

Cooling Options at Old City Hall:

Cooling for Old City Hall can be accomplished by either installing a conventional chiller plant in the building, or by connecting it to Enwave's existing DLWC system. An analysis of each option has resulted in the conclusion that DLWC is preferable, although it should be noted that undertaking a DLWC solution would require that the City enter into a long-term contract (i.e., 20 years) with Enwave.

A summary of the analysis is provided below.

(1) installing a conventional chiller plant would require mechanical, electrical and structural upgrades to Old City Hall, whereas, connecting the building to DLWC is simpler, and would require only minimal building upgrades. This is important, not only from a cost perspective, but because Old City Hall is designated as a historical building. Furthermore, not only would DLWC result in minimal interior and exterior structural changes, but it would also allow for removal of all unsightly window air-conditioning units. Under a DLWC solution, the building would be connected to the main DLWC pipeline, with only the associated valves, piping, heat exchangers required to be installed in the building;

(2) the capital cost to the City of implementing a DLWC cooling solution is less than that of a conventional cooling solution. On a present value basis, viewed from 2007 until 2012, the capital cost of a conventional cooling solution is approximately $3.1 million while the cost of a DLWC solution is estimated at $2.5 million;

Cooling Options for Old City Hall Capital Costs		
Year	DLWC	Conventional Cooling
2007	$400,000.00	$1,575,000.00
2008 (1st year of operation)	$500,000.00	$1,575,000.00
2009	$500,000.00	
2010	$500,000.00	
2011	$500,000.00	
2012	$500,000.00	
Present Value, 2007-2012	$2,462,798.00	$3,075,034.00
2032		$2,000,000.00 (current $)
2056	$300,000.00 (current $)	
Total Present Value, 2007-2056	$2,762,798.00	$5,007,160.00

the capital cost for DLWC in 2007 relates to mechanical equipment and labour required to connect to the building, and the remainder, from 2008 – 2012, relates to the portion of DLWC infrastructure required to bring DLWC to Old City Hall; and

the capital cost of a conventional system relates to the necessary enclosures, structural changes, historical preservation requirements, cooling towers, electrical upgrades and other costs associated with the installation of conventional chillers at Old City Hall.

(3) while a conventional cooling system has a life expectancy of 25 years, the building heat exchangers associated with DLWC will be required to be replaced only after 50 years. As noted in the table above, in addition to the longer life expectancy, DLWC equipment would be much more inexpensive to replace when required. As seen in the table above, on a present value basis DLWC is about half the capital cost of conventional cooling over the long term, i.e., up to the year 2056;

(4) the City's operating costs for implementing a DLWC solution at Old City Hall are expected to be lower in comparison to a conventional cooling solution, due in part to a lower requirement for electricity. Appendix 1 attached shows the anticipated savings;

however, incremental operating costs associated with implementing a DLWC solution at Old City Hall will amount to approximately $209,000 ($244,537 - $35,000 (current cooling costs per year)) in 2008 as the existing building does not have a centralized cooling system. It is proposed that the incremental costs be recovered through additional leasing revenue received for this facility so that the there is a net zero effect on the operating budget;

(5) provincial electricity supply problems and plans to alter the Ontario supply mix in favour of cleaner sources of electricity generation have contributed to near and medium-term electricity price uncertainty and to the expectation of rising commodity prices. Therefore, entering into a long-term contractual arrangement for DLWC, which would allow only for inflationary price increases, enhances the City's ability to contain operating costs and improve cost predictability;

(6) the implementation of DLWC would assist the City in meeting its green power targets, as DLWC is totally CFC-free, and is both a clean and a renewable energy resource. Furthermore, DLWC would reduce the City's demand for electricity by about 600 KW that would have been generated through less environmentally-friendly technologies. By implementing DLWC, 192 tons of CO2 emissions would be avoided annually;

(7) the City's reduction in demand for electricity would relieve the pressure on the already over-burdened Provincial electricity grid, especially in the downtown core. A conventional system would have added 600 KW to an already strained transmission system into Toronto; and

(8) the City would be further demonstrating its support for Enwave and for DLWC.

This report recommends that City staff be authorized to negotiate and enter into a long-term, fixed price contract with Enwave on a single-source basis for DLWC at Old City Hall, subject to its terms and conditions being satisfactory to the appropriate City officials. It is likely that the length of the contract would be for 20 years.

Conclusions:

This report seeks approval to negotiate and enter into a long-term agreement with Enwave Energy Corporation to provide Deep Lake Water Cooling (DLWC) to Old City Hall, which does not currently have a central cooling or ventilation system.

DLWC is ideally suited for Old City Hall due to the historical nature of the facility and the minimal building renovations that would be required. Furthermore, capital costs associated with implementing a DLWC solution ($2.5 million on a present value basis) would be lower than implementing a conventional cooling solution ($3.1 million on a present value basis) for Old City Hall. In addition, annual operating costs under a DLWC solution would be more than $100,000 less than under a conventional solution.

Contact:

Jodie Parmar, Director**.** Business and Strategic Innovation, Facilities and Real Estate, Tel: 416-338-1295, Fax: 416-392-4828, e-mail: jparmar@toronto.ca

Chuck Donohue, P.Eng, Executive Director, Facilities and Real Estate Division, Corporate Services Department, Tel: 416-397-4156, Fax: 416-392-1880, e-mail: cdonohue@toronto.ca

_____

(Confidential Appendix titled “Deep Lake Water Cooling – Old City Hall”, appended to the foregoing report, was distributed to Members of Council only and a copy is on file in the Office of the City Clerk, City Hall.)