CAPITAL PROFILE REPORT

PROFILE NAME:	**ENERGY CENTER #4 - BLATCHFORD RENEWABLE ENERGY**		**FUNDED**
PROFILE NUMBER:	**23-83-8385**	PROFILE STAGE:	**Approved**
DEPARTMENT:	**Integrated Infrastructure Services**	PROFILE TYPE:	**Standalone**
LEAD BRANCH:	**Infrastructure Delivery**	LEAD MANAGER:	**Tom Lumsden**
PROGRAM NAME:		PARTNER MANAGER:	**Christian Felske**
PARTNER:	**Blatchford Renewable Energy Utility**	ESTIMATED START:	**January, 2023**
BUDGET CYCLE:	**2023-2026**	ESTIMATED COMPLETION:	**December, 2026**

Service Category: **Utilities** **Major Initiative:** **Blatchford - City Centre Airport Lands**

GROWTH	RENEWAL
100	

PREVIOUSLY APPROVED:	**14,676**
BUDGET REQUEST:	**-**
TOTAL PROFILE BUDGET:	**14,676**

PROFILE DESCRIPTION

Blatchford Renewable Energy (BRE) is a city-owned utility providing sustainable heating, cooling and hot water energy services to the residents and businesses in the Blatchford community. Since the utility was established in 2016, BRE has developed an ambient temperature District Energy Sharing System (DESS) to support City Council's overall vision for Blatchford:

Blatchford will be home to up to 30,000 Edmontonians living, working and learning in a sustainable community that uses 100% renewable energy, is carbon neutral, significantly reduces its ecological footprint, and empowers residents to pursue a range of sustainable lifestyle choices.

The utility's first Energy Center is connected to a large geo-exchange field under the first stormwater pond in the community. The utility constructed this infrastructure in 2018 and 2019 and it was commissioned for operation during the third quarter of 2019. The utility has been operating successfully since 2020 when the first customer building was connected to the utility. Currently, 45 customer buildings are receiving sustainable heating and cooling energy services.

In order to be able to continue to provide sustainable energy in alignment with the vision for Blatchford, BRE is currently working on a two pronged approach to plan and build its infrastructure for the next decade, based on an updated development and construction scenarios for the community:

1. Upgrade of the existing Energy Center One to provide energy for land development stages in Blatchford West which are anticipated to require services for development growth until 2026. At full capacity, Energy Center One will be able to generate 5 MW of heating and 3.2 MW of cooling energy.
2. Plan and design the Sewer Heat Exchange Energy Center to provide energy for land development stages in the Blatchford Market Area which are slated to require services between 2026 and 2030. At full capacity, the Sewer Heat Exchange Energy Center will be able to generate 12.1 MW of heating and 10.3 MW of cooling energy.

This business case focuses on the development of the Sewer Heat Exchange Energy Center as it is a new facility and assumptions used for the design of the facility used in the first business case in 2014 will need to be updated. Secondly, changes to external project conditions have occurred in the last few years, mainly around EPCOR's expected reduced sewer flow to the facility in the future. This business case also needs to recognize the increased financial pressure for the utility to close the initial funding gap that exists in its long term financial forecast, while utility growth continues.

As a result of this recommendation, the planning and design portion of the project will be funded through the existing capital profile CM-83-8383 (Blatchford Renewal Energy Utility P&D Growth) in the amount of $0.6 million, resulting in a budget request of $14.7 million for the delivery of this project.

PROFILE BACKGROUND

In order to be able to continue to provide sustainable energy in alignment with the vision for Blatchford, BRE is currently working on a two pronged approach to plan and build its infrastructure for the next decade, based on an updated development and construction scenarios for the community. This business case focuses on the development of the Sewer Heat Exchange Energy Center as it is a new facility and assumptions used for the design of the facility used in the first business case in 2015 will need to be updated. Secondly, changes to external project conditions have occurred in the last few years, mainly around EPCOR's expected reduced sewer flow to the facility in the future. This business case also needs to recognize the increased financial pressure for the utility to close the initial funding gap that exists in its long term financial forecast, while utility growth continues.

STRATEGIC ALIGNMENT

The vision for the Blatchford community development including Utility is aligned with the major key planning documents of the City of Edmonton. It is connected and supports all four of City Council's strategic goals: Healthy City, Urban Places, Regional Prosperity and Climate Resilience. District Energy, represents a key strategy of Edmonton's Community Energy Transition Strategy. 36% of Greenhouse Gas Emissions Reductions are to come from Energy System Transformation. This includes both an emissions neutral electricity grid and a "City-wide decarbonized district energy network by 2050.

ALTERNATIVES CONSIDERED

Option 1: Status Quo - Sewer Heat Exchange Energy Center
This option includes the continuation of the design and construction activities of the Sewer Heat Exchange Energy Center, to be ready by 2026, in alignment with the utility master plan and the Blatchford vision.
Option 2: Alternative - Geo-Exchange Energy Center
This option would include an equivalently sized geo-exchange based Energy Center instead of the Sewer Heat Exchange Energy Center, utilizing existing space in the development, for commissioning in 2026.
Option 3: Initial construction of peaking Energy Center, in advance of the Sewer Heat Exchange Energy Center
This option would see a temporary delay of the construction of the Sewer Heat Exchange Energy Center, while providing the required thermal energy required for the community through a previously planned peaking Energy Center (#4), which would be advanced sooner than in the planned order of development.

COST BENEFITS

For this business case the following tangible and intangible benefits were analyzed: Provision of reliable thermal energy, alignment with sustainability targets for Blatchford, operability, and reputational risks. The cost analysis were done based on capital costs, spend capital for full utility development, operating costs, present value of project costs for different land development scenarios. In addition the impact of greenhouse gas reductions and renewable energy generation were analyzed.

KEY RISKS & MITIGATING STRATEGY

A detailed risk matrix was developed taking into account environmental, economical/ financial, technology, operational, and development impact risks. No major risks were identified except a high financial risk for option 2. In the end this option was not further proposed, so no mitigation strategy was necessary.

RESOURCES

If approved by Council the development will follow the Project Development and Delivery Model . This ensures enhanced capital infrastructure project oversight. This process involved structured reviews of projects at Checkpoints #1-5) throughout the project life cycle.

CONCLUSIONS AND RECOMMENDATIONS

Based on the available information and data provided in this business case the recommendation is to advance option 3: Initial construction of peaking Energy Center, in advance of the Sewer Heat Exchange Energy Center. In comparison with the alternatives, option 3 results in the lowest initial capital costs and hence provides some financial relief in the utility long term funding gap, while fully providing the necessary generation capacity to grow the utility customer base. It also provides the best ability to adjust utility capacity to development and building construction. The impact on GHG reduction and renewables production is small and short lived. A capital profile of 14.7 million to construct the peaking Energy Center is requested for approval in the 2023 to 2026 budget documents.

CAPITAL PROFILE REPORT

PROFILE NAME: **Energy Center #4 - Blatchford Renewable Energy** **FUNDED**

PROFILE NUMBER: **23-83-8385** PROFILE TYPE: **Standalone**

BRANCH: **Infrastructure Delivery**

CAPITAL BUDGET AND FUNDING SOURCES (000's)

		Prior Years	2022	2023	2024	2025	2026	2027	2028	2029	2030	Beyond 2030	Total
APPROVED BUDGET	Approved Budget												
	Original Budget Approved	-	-	-	-	-	-	-	-	-	-	-	-
	2022 Cap Budget Request for Next Cycle	-	-	-	436	5,680	8,560	-	-	-	-	-	14,676
	Current Approved Budget	-	-	-	436	5,680	8,560	-	-	-	-	-	14,676
	Approved Funding Sources												
	Self Supporting-Tax Guaranteed	-	-	-	436	5,680	8,560	-	-	-	-	-	14,676
	Current Approved Funding Sources	-	-	-	436	5,680	8,560	-	-	-	-	-	14,676
BUDGET REQUEST	Budget Request	-	-	-	-	-	-	-	-	-	-	-	-
REVISED BUDGET (IF APPROVED)	Revised Budget (if Approved)	-	-	-	436	5,680	8,560	-	-	-	-	-	14,676
	Requested Funding Source												
	Self Supporting-Tax Guaranteed	-	-	-	436	5,680	8,560	-	-	-	-	-	14,676
	Requested Funding Source	-	-	-	436	5,680	8,560	-	-	-	-	-	14,676

CAPITAL BUDGET BY ACTIVITY TYPE (000's)

REVISED BUDGET (IF APPROVED)	Activity Type	Prior Years	2022	2023	2024	2025	2026	2027	2028	2029	2030	Beyond 2030	Total
	Construction	-	-	-	436	5,680	8,560	-	-	-	-	-	14,676
	Total	-	-	-	436	5,680	8,560	-	-	-	-	-	14,676

OPERATING IMPACT OF CAPITAL

Type of Impact:

Branch:	Rev	Exp	Net	FTE	Rev	Exp	Net	FTE	Rev	Exp	Net	FTE	Rev	Exp	Net	FTE
Total Operating Impact	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-