

CAPITAL PROFILE REPORT

PROFILE NAME: **ON-SITE MICROGENERATION SOLAR PHOTOVOLTAICS****FUNDED**PROFILE NUMBER: **CM-10-1012**PROFILE STAGE: **Approved**DEPARTMENT: **Integrated Infrastructure Services**PROFILE TYPE: **Composite**LEAD BRANCH: **Infrastructure Planning & Design**LEAD MANAGER: **Jason Meleifste**

PROGRAM NAME:

PARTNER MANAGER:

PARTNER: **Economic & Environmental Sustainability**ESTIMATED START: **January, 2019**BUDGET CYCLE: **2019-2022**ESTIMATED COMPLETION: **December, 2022**Service Category: **Building Renewal**

Major Initiative:

GROWTH
100

RENEWAL

PREVIOUSLY APPROVED:

16,500

BUDGET REQUEST:

-

TOTAL PROFILE BUDGET:

16,500

PROFILE DESCRIPTION

The City's Corporate Greenhouse Gas Management Plan identifies mitigating strategies for reducing greenhouse gas emissions from City operations. The accelerated deployment of on-site microgeneration solar photovoltaics on City buildings and sites is one of the measures identified by the Plan to reduce greenhouse gas emissions by offsetting the energy used by City buildings. By accelerating the installation of solar photovoltaics from 2019 through 2030, the City will reduce corporate GHG emissions by 10,000 tonnes and are anticipated to have positive financial returns over the lifetime of the assets.

Design and construction for the full implementation of the program, per the objectives of the GHG Management Plan, is estimated at \$16.5M (+50%) for the 2019-2022 budget cycle.

PROFILE BACKGROUND

The acceleration of solar photovoltaic installations on City buildings and sites is one of the tactics recommended as part of the portfolio of actions identified in the City's approved Corporate GHG Management Plan. The actions are supported by best available data and information on capital requirements, life cycle cost benefit analysis, and further informed by extensive input and advice from corporate project planning, design, engineering, and project delivery staff.

The deployment of solar photovoltaic installations will be coordinated with the planned facility rehabilitation schedule that identifies buildings for rehabilitation based on condition needs assessments as well as new building construction designs. The alignment with building rehabilitation and new building constructions schedules will ensure efficient use of time and resources and limit the amount of disruption to service operations and customer impacts.

PROFILE JUSTIFICATION

The rigorous analysis and consultation used in developing the Corporate GHG Management Plan found that the business case actions from a Financial Return on Investment (FROI) standpoint, ranging from strongest to weakest, were green electricity purchases, LED street lights, building energy retrofits, electric buses, and large microgeneration solar photovoltaics. All of the options related to investing in City assets, including microgeneration solar photovoltaic systems, have positive net present value benefits over a 20 year period from a FROI standpoint.

Internal discussion has lead to the alignment of funds for potential projects on a per-building basis ,this alignment is based on the 2019-2022 new construction schedule and on a study to determine which existing facilities could be potential sights for solar installations. A total of 20MW of solar PV is planned to be installed between 2019-2030 with a total estimated carbon reduction of 10,000 tonnes CO2e.

STRATEGIC ALIGNMENT

This profile aligns with the Corporate Objective to manage the corporation for our community, by making an impact to how we manage our business (technology and data, project and asset management, employees and safety, strategy and business, environmental stewardship, financial management, and partnerships and relationships) by being able to serve those here today and those who come after us.

ALTERNATIVES CONSIDERED

The Greenhouse Gas Management Plan has been developed by the City in a very integrated approach. The different mitigation tactics that have been identified in the report are not scalable or trade able. Each plays a critical role in reducing part of the required 50% reduction in GHG emissions by 2013. Therefore no alternatives to PV installation have been identified.

COST BENEFITS

The cost benefits of the overall GHG management plan lead to \$76M in financial return to the City of Edmonton above the total capital costs for all projects, over the lifetime of the plan. One piece of this financial return due to the electrical cost savings from producing our own electricity through solar photovoltaics.

KEY RISKS & MITIGATING STRATEGY

Structural requirements of facilities may limit number of existing buildings & total roof area per building that can be used without significant structural upgrades , are not included in the capital cost request. Mitigation to consider other types of space such as facade mounted, new construction, & ground mounted installations.

Design of new facilities may not prioritize solar PV installation , which may limit the total PV that can be installed . Mitigation to begin discussion about changing design guidelines to help maximize solar installation capacity on City facilities.

RESOURCES

Projects will use internal and external resources. Internal for project management, technical review & support, inspections & survey, operational health & safety oversight. External, following relevant corporate procurement directives & policies. to undertake &/or manage design & construction work.

CONCLUSIONS AND RECOMMENDATIONS

Capital funds are required to be secured to fund the delivery of On-Site Microgeneration Solar Photovoltaics projects once PDDM Checkpoint 3 is reached (after planning and design) in order to adhere to the Project Development and Delivery Model, and improve project schedule and budget estimates through increased level of design to ensure realistic expectations are set prior to project tendering and construction. Approval of this capital profile is required to fund delivery work in adherence to the PDDM process.

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PROFILE NAME: **On-Site Microgeneration Solar Photovoltaics**

PROFILE NUMBER: **CM-10-1012**

BRANCH: **Infrastructure Planning & Design**

FUNDED

PROFILE TYPE: **Composite**

CAPITAL BUDGET AND FUNDING SOURCES (000's)

APPROVED BUDGET		Prior Years	2018	2019	2020	2021	2022	2023	2024	2025	2026	Beyond 2026	Total
	Approved Budget												
	Original Budget Approved	-	-	1,000	3,000	6,000	6,500	-	-	-	-	-	16,500
	Current Approved Budget	-	-	1,000	3,000	6,000	6,500	-	-	-	-	-	16,500
	Approved Funding Sources												
	Tax-Supported Debt	-	-	1,000	3,000	6,000	6,500	-	-	-	-	-	16,500
	Current Approved Funding Sources	-	-	1,000	3,000	6,000	6,500	-	-	-	-	-	16,500

BUDGET REQUEST	Budget Request	-	-	-	-	-	-	-	-	-	-	-	-
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REVISED BUDGET (IF APPROVED)	Revised Budget (if Approved)	-	-	1,000	3,000	6,000	6,500	-	-	-	-	-	16,500
	Requested Funding Source												
	Tax-Supported Debt	-	-	1,000	3,000	6,000	6,500	-	-	-	-	-	16,500
	Requested Funding Source	-	-	1,000	3,000	6,000	6,500	-	-	-	-	-	16,500

CAPITAL BUDGET BY ACTIVITY TYPE (000's)

REVISED BUDGET (IF APPROVED)	Activity Type	Prior Years	2018	2019	2020	2021	2022	2023	2024	2025	2026	Beyond 2026	Total
	Construction	-	-	700	2,700	5,700	6,500	-	-	-	-	-	15,600
	Design	-	-	300	300	300	-	-	-	-	-	-	900
	Total	-	-	1,000	3,000	6,000	6,500	-	-	-	-	-	16,500

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-