

## Dundonald Avenue Solar Farm Triple Bottom Line Assessment

### **Process and Methodology**

Administration used the City of Saskatoon's Triple Bottom Line (TBL) Decision Making Tool to comply with Council Policy C08-001 - Triple Bottom Line.

When conducting a TBL analysis, it is appropriate to compare and/or evaluate multiple options. As such, the following options were reviewed:

1. Option 1: Implement Project Without Additional Landscaping
2. Option 2: Implement Project with Naturalized Landscaping
3. Option 3: Cancel Project Implementation

In conducting the analysis, the Administration relied on the expertise of the Project Team and Subject Matter Experts from the Saskatoon Light & Power (SL&P) and Sustainability departments.

This review is meant as a high-level assessment to identify the initiative's environmental, social, economic, and governance outcomes, as well as to identify opportunities to achieve even greater sustainability benefits. The results are meant to support ongoing decision making, rather than be relied upon as a fixed sustainability evaluation.

### **Results and Findings**

Overall, the results of Administration's TBL review indicate that:

- Option 2 would achieve greater TBL benefits than the other proposed options.
- No additional resources are required to achieve TBL outcomes.

A summary of results for each TBL principle and indicator are included in the subsequent section of this document. To provide context, a numerical description of the outcomes are shown in the following table:

<b>TBL Score</b>	<b>TBL Outcome</b>
Below 0%	Not Meeting Expectations
0-19%	Needs Improvement
20-39%	On-Track
40-59%	Meeting Expectations
60-79%	Exceeding Expectations
Above 80%	Leading the Way

## Principle: Environmental Health and Integrity

### TBL Outcome - by Principle:

Option 1: On Track  
 Option 2: Meeting Expectations  
 Option 3: Not Meeting Expectations

### TBL Outcomes - by Indicator:

Indicator	Option 1	Option 2	Option 3
<b>Renewable Energy</b>	Leading the Way: <ul style="list-style-type: none"> <li>Solar power is a renewable energy project.</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>Status quo.</li> </ul>
<b>Conservation of Resources- Energy</b>	On Track: <ul style="list-style-type: none"> <li>Use low maintenance ground cover to minimize fuel use.</li> </ul>	Exceeding Expectations: <ul style="list-style-type: none"> <li>Further minimization compared with Option 1 due to reduced frequency in mowing.</li> </ul>	Not Meeting Expectations: <ul style="list-style-type: none"> <li>Continue with mowing a few times a year, which uses fuel.</li> </ul>
<b>Climate Change Mitigation and Adaptation</b>	Leading the Way: <ul style="list-style-type: none"> <li>The main goal of the project is to mitigate climate change. There should be greenhouse gas reductions of about 450 tonnes CO<sub>2</sub>e/year.</li> </ul>	Leading the Way: <ul style="list-style-type: none"> <li>The main goal of the project is to mitigate climate change. There should be greenhouse gas reductions of about 450 tonnes CO<sub>2</sub>e/ year.</li> <li>A further impact will be seen in greater soil carbon sequestration.</li> </ul>	No Impact: <ul style="list-style-type: none"> <li>NA</li> </ul>
<b>Green Buildings and Sustainable Land Use</b>	Needs Improvement: (Only because some unknown impacts cancel out the positive benefits of the project) <ul style="list-style-type: none"> <li>The solar power will be connected to the SL&amp;P grid. There are plans for engaging with larger business stakeholders who might be interested in purchasing this power. Enhancements to the project will investigate this.</li> <li>The solar farm will be put on land that is under utilized and doesn't have good access. It is leftover from the Circle Drive project.</li> <li>Will adjacent land uses impact solar access? New structures in the area give shading which would impact power production.</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>NA</li> </ul>

Indicator	Option 1	Option 2	Option 3
<b>Sustainable Transportation</b>	No Impact: <ul style="list-style-type: none"> <li>• NA</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>• NA</li> </ul>
<b>Healthy Ecosystems</b>	On track: <ul style="list-style-type: none"> <li>• Tender will include environmental assessment.</li> <li>• There will be large transformers and equipment, but these are not noisy. The glare study showed no issues. Noise propagation shows no affect.</li> </ul>	Meeting Expectations: <ul style="list-style-type: none"> <li>• Tender will include environmental assessment. Vegetated cover can provide habitat under the solar panels.</li> <li>• There will be large transformers and equipment, but these are not noisy. The glare study showed no issues. Noise propagation shows no affect.</li> <li>• Provides an opportunity to incorporate native species into ground covers surrounding the panels including pollinator plants that can improve habitat for insects and birds and generally improve biodiversity.</li> <li>• Reduced mowing would lead to reduction in pollution from mowing equipment.</li> </ul>	Not Meeting Expectations: <ul style="list-style-type: none"> <li>• The grass that is on the land now would remain.</li> <li>• Wildlife can wander over the area right now but are in danger from cars and trains.</li> </ul>
<b>Clean Air, Water, and Land</b>	On Track: <ul style="list-style-type: none"> <li>• This property is not useful for other developments.</li> </ul>	Exceeding Expectations: <ul style="list-style-type: none"> <li>• This property is not useful for other developments.</li> <li>• There is an opportunity to incorporate diverse species as a ground cover surrounding the panels, which could improve the overall ecosystem services of the project area.</li> </ul>	No Impact: <ul style="list-style-type: none"> <li>• NA</li> </ul>
<b>Waste Reduction and Diversion</b>	No Impact: <ul style="list-style-type: none"> <li>• NA</li> </ul>	Same as Option 1.	
<b>Storm Water Management</b>	On Track: <ul style="list-style-type: none"> <li>• NA</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>• NA</li> </ul>
<b>Sustainable Food System</b>	No Impact: <ul style="list-style-type: none"> <li>• NA</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>• NA</li> </ul>

For Further / Future Consideration

- Solar power is necessary for improving the environment in the future.

## **Principle: Social Equity and Cultural Wellbeing**

### **TBL Outcome - by Principle:**

Option 1: Needs Improvement  
 Option 2: Needs Improvement  
 Option 3: On Track

### **TBL Outcomes - by Indicator:**

<b>Indicator</b>	<b>Option 1</b>	<b>Option 2</b>	<b>Option 3</b>
<b>Equity and Opportunity</b>	On Track: <ul style="list-style-type: none"> <li>Completed Indigenous engagement with all the local groups. Have spoken with Saskatoon Tribal Council (working with them through partnership agreement)</li> <li>NA - will not impact rates. Larger scale projects might in the future.</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>NA</li> </ul>
<b>Diversity and Inclusion</b>	On Track: <ul style="list-style-type: none"> <li>SL&amp;P follows City's workforce policies</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>NA</li> </ul>
<b>Heritage, Arts, and Culture</b>	No Impact: <ul style="list-style-type: none"> <li>NA</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>NA</li> </ul>
<b>Self Sufficiency and Living with Dignity</b>	No Impact: <ul style="list-style-type: none"> <li>NA</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>NA</li> </ul>
<b>Health and Wellbeing</b>	Exceeding Expectations: <ul style="list-style-type: none"> <li>NA</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>NA</li> </ul>
<b>Safety and Resiliency</b>	Not Meeting Expectations: <ul style="list-style-type: none"> <li>A CPTED review of the site plan, once prepared, is required.</li> <li>NA - such a small amount of power, would not impact disruptions of the SL&amp;P grid.</li> <li>Restricting access to the site with a fence.</li> <li>Roads will be big enough for fire truck access.</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>NA</li> </ul>
<b>Civic Participation</b>	Not Meeting Expectations: <ul style="list-style-type: none"> <li>Could have partners and stakeholders. Future work will identify these groups.</li> <li>NA - not a community space</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>NA</li> </ul>

Indicator	Option 1	Option 2	Option 3
<b>Recreation</b>	Not Meeting Expectations: <ul style="list-style-type: none"> <li>• NA</li> </ul>	Same as Option 1.	On Track: <ul style="list-style-type: none"> <li>• Mowing the north half makes it look reasonable.</li> </ul>

For Further / Future Consideration

- None

**Principle: Economic Prosperity and Fiscal Responsibility**

TBL Outcome - by Principle:

Option 1: Meeting Expectations  
Option 2: Meeting Expectations  
Option 3: On Track

TBL Outcomes - by Indicator:

Indicator	Option 1	Option 2	Option 3
<b>Innovation</b>	Exceeding Expectations: <ul style="list-style-type: none"> <li>• The project is looking for best, most innovative technology to increase electricity generation. Project demonstrates leadership in utility scale generation. This is a research and development project that will inform future projects.</li> <li>• This is a business opportunity for renewable energy companies.</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>• NA</li> </ul>
<b>Sustainable Procurement</b>	Exceeding Expectations: <ul style="list-style-type: none"> <li>• Looking at qualifications and sustainability practices proponents have in the procurement.</li> <li>• TBL criteria will be considered in procurement.</li> <li>• Purchasing rules will be followed for developing partnerships with Indigenous organizations.</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>• NA</li> </ul>

Indicator	Option 1	Option 2	Option 3
<b>Financial Planning and Resourcing</b>	<p>Meeting Expectations:</p> <ul style="list-style-type: none"> <li>The project follows budgeting and cost control processes. Feasibility study includes an economic assessment.</li> <li>The project has a 30-year life span with financial implications considered in the life-cycle costs.</li> <li>Council has provided seed funds (\$500K) and has grant funding of \$2.56 million. Project costs are \$4.25 million and the project will pay for itself within 7 years with the grant. Non-participation customers result in added costs.</li> <li>There is equipment selection to minimize maintenance and operating costs such as stationary panels.</li> <li>The project has a good payback period within 7 years with the ICIP grant.</li> <li>The grant funding of \$2.56 million offsets most costs. The rest of the funding will be through reserves. Clarification is still needed on who can claim the carbon credits.</li> <li>There is sufficient debt limit to cover this project.</li> <li>This will generate carbon credits. Need to determine who gets the credits - City or grant provider.</li> </ul>	<p>Meeting Expectations:</p> <ul style="list-style-type: none"> <li>The project follows budgeting and cost control processes. Feasibility study includes an economic assessment.</li> <li>The project has a 30-year life span with financial implications considered in the life-cycle costs.</li> <li>Council has provided seed funds (\$500K) and has grant funding of \$2.56 million. Project costs are \$4.25 million and project will pay for itself within 7 years with the grant. Non-participation customers result in added costs.</li> <li>There is equipment selection to minimize maintenance and operating costs such as stationary panels.</li> <li>Potential savings for Naturalized Landscaping, because of reduced O&amp;M costs from lesser mowing.</li> <li>The project has a good payback period within 7 years with the ICIP grant.</li> <li>The grant funding of \$2.56 million offsets most costs. The rest of the funding will be through reserves. Clarification is still needed on who can claim the carbon credits.</li> <li>There is sufficient debt limit to cover this project.</li> <li>This will generate carbon credits. Need to determine who gets the credits - City or grant provider.</li> </ul>	<p>No Impact:</p> <ul style="list-style-type: none"> <li>NA</li> </ul>
<b>Affordability for Users</b>	<p>No Impact:</p> <ul style="list-style-type: none"> <li>The project is not impacting electricity rates.</li> </ul>	<p>Same as Option 1.</p>	<p>No Impact:</p> <ul style="list-style-type: none"> <li>NA</li> </ul>
<b>Support the Local Economy</b>	<p>Meeting Expectations:</p> <ul style="list-style-type: none"> <li>Construction/infrastructure projects are considered economic stimulators.</li> <li>This would be a good model and demonstrating leadership and could encourage companies. Consider sharing as a success story.</li> <li>Many different trades will be involved to build the solar farm.</li> </ul>	<p>Same as Option 1.</p>	<p>No Impact:</p> <ul style="list-style-type: none"> <li>NA</li> </ul>

Indicator	Option 1	Option 2	Option 3
<b>Asset Management</b>	Meeting Expectations: <ul style="list-style-type: none"> <li>Life-cycle plan in place. The land was a stranded asset that is being used. The City will try to reduce the rate of deterioration of the assets.</li> <li>There is no existing infrastructure in place.</li> <li>The design needs to be versatile for a potential future railway overpass.</li> <li>The project will be selecting equipment that will last.</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>NA</li> </ul>
<b>Skills and Training</b>	Meeting Expectations: <ul style="list-style-type: none"> <li>Legacy meters offer minimal skills, and training will be needed for operating a solar facility.</li> </ul>	Same as Option 1.	No Impact: <ul style="list-style-type: none"> <li>NA</li> </ul>
<b>Labour Rights and Employment</b>	On Track: <ul style="list-style-type: none"> <li>Project will be following City OH&amp;S standards.</li> <li>Following City standards.</li> </ul>	Same as Option 1.	On Track: <ul style="list-style-type: none"> <li>NA</li> </ul>

For Further / Future Consideration

- None

**Principle: Good Governance**

TBL Outcome - by Principle:

Option 1: Meeting Expectations  
Option 2: Meeting Expectations  
Option 3: On Track

TBL Outcomes - by Indicator:

Indicator	Option 1	Option 2	Option 3
<b>Ethical and Democratic Governance</b>	Meeting Expectations: <ul style="list-style-type: none"> <li>Following City standards for procurement, engagement, communications, and decision-making.</li> <li>Following City standards. Improving/increasing City's Sustainability goals. Strategic Plan - show environmental leadership by addressing effects of climate change.</li> </ul>	Same as Option 1.	On Track: <ul style="list-style-type: none"> <li>Following City Standards.</li> </ul>

Indicator	Option 1	Option 2	Option 3
<b>Effective Service Delivery</b>	<p>On Track:</p> <ul style="list-style-type: none"> <li>Operations and maintenance have been considered in the feasibility study to ensure reliable operation. Standard operating procedures will be created to ensure we are meeting services levels.</li> <li>Risk analysis was completed and identified risks and mitigation methods. Looking at ways to implement solutions with higher severity and likelihood.</li> </ul>	Same as Option 1.	<p>No Impact:</p> <ul style="list-style-type: none"> <li>NA</li> </ul>
<b>Education, Communication, Engagement, Capacity Building</b>	<p>Meeting Expectations:</p> <ul style="list-style-type: none"> <li>Engaging SL&amp;P, Sustainability, Transportation, Saskatoon Land, Saskatoon Water (pipeline and drainage), and employees who will be involved with the project.</li> <li>Public Engagement Plan is being followed. Community feedback will influence outcomes.</li> <li>Communication Plan is being created and will be implemented. Long-term communications will include signage on site.</li> <li>SL&amp;P employees will be trained in maintaining a renewal energy facility. This will be used as a learning opportunity for the corporation to adopt more renewable energy.</li> </ul>	Same as Option 1.	<p>No Impact:</p> <ul style="list-style-type: none"> <li>NA</li> </ul>
<b>Monitoring, Reporting and Compliance</b>	<p>On Track:</p> <ul style="list-style-type: none"> <li>An evaluation will be needed to inform future projects (similar to Landfill Gas project). Sustainability has written a business case to do a utility-scale feasibility study which would include lessons learned on this project.</li> <li>Follow City standards.</li> <li>There will be a lot of data produced by this site that will be analyze and used for future projects. (15 min interval data from AMI)</li> <li>Feasibility study used a consultant with subject matter expertise and looked at best practices and research.</li> <li>The project will comply with regulations.</li> <li>SL&amp;P has standard procedures in place.</li> </ul>	Same as Option 1.	<p>On Track:</p> <ul style="list-style-type: none"> <li>Following City Standards.</li> </ul>
<b>Agility and Adaptiveness</b>	<p>On Track:</p> <ul style="list-style-type: none"> <li>The system will be designed with flexibility to adapt to changing conditions such as an overpass. Check with Planning about sector plans.</li> <li>Solar farms are new to the City and will be researched.</li> <li>The system will be a robust design that can withstand issues that occur.</li> </ul>	<p>Meeting Expectations:</p> <ul style="list-style-type: none"> <li>Using naturalized landscaping comes as an innovative idea that could use further exploration.</li> <li>The system will be designed with flexibility to adapt to changing conditions</li> </ul>	<p>No Impact:</p> <ul style="list-style-type: none"> <li>NA</li> </ul>



Indicator	Option 1	Option 2	Option 3
	<ul style="list-style-type: none"> <li>The City has a solar demonstration site that was used to provide data for this project.</li> </ul>	<p>such as an overpass. Check with Planning about sector plans.</p> <ul style="list-style-type: none"> <li>Solar farms are new to the City and will be researched.</li> <li>The system will be a robust design that can withstand issues that occur.</li> <li>The City has a solar demonstration site that was used to provide data for this project.</li> </ul>	
<b>Roles, Responsibilities and Rewards</b>	<p>Exceeding Expectations:</p> <ul style="list-style-type: none"> <li>There could be some signage and education panels. Information will be published in City documents. Administration will look for other opportunities to share learnings.</li> </ul>	Same as Option 1.	<p>No Impact:</p> <ul style="list-style-type: none"> <li>NA</li> </ul>

For Further / Future Consideration

- None