



# Executive Summary: Municipal Land Use Suitability Tool (MLUST) for Rocky View County

Nilo Sinnatamby, Tracy Lee, Kenneth Sanderson, Nicole Kahal, Diane Horvath, Gavin Scott, and Bonnie Brunner

Document prepared for Rocky View County



## **Executive Summary: Municipal Land Use Suitability Tool (MLUST) for Rocky View County**

Prepared by Nilo Sinnatamby, Tracy Lee, Kenneth Sanderson, Nicole Kahal, Diane Horvath, Gavin Scott, and Bonnie Brunner  
June 2023

Miistakis Institute  
EB3013, Mount Royal University  
4825 Mount Royal Gate SW  
Calgary, Alberta T3E 6K6

Phone: (403) 440-8444  
Email: [institute@rockies.ca](mailto:institute@rockies.ca)  
Web: [www.rockies.ca](http://www.rockies.ca)

# Executive Summary

---

***When municipal governments consider industrial scale solar or wind energy development, it immediately becomes clear that not everywhere is suitable for those activities, nor is everywhere unsuitable. For some areas it is a clear-cut 'yes' or 'no', but most areas sit somewhere on a continuum between those two extremes.***

The Miistakis Institute and the Oldman River Regional Services Commission (ORRSC) applied the Municipal Land Use Suitability Tool (MLUST) to assist Rocky View County in identifying the most suitable areas for renewable energy development when considering agriculture, ecology and culture land use values.

The MLUST process took approximately six months to complete, engaged municipal stakeholders, made use of existing spatial datasets, and produced a series of map products to inform planning at the municipal scale. MLUST engaged the municipal council and staff to identify features they valued on the landscape. Each feature was scored by participants to determine a feature's perceived value and potential conflict with wind and solar energy development. The most suitable areas for renewable energy development coincided with low value ratings of other land uses. Suitable areas for renewable energy development were also informed by removing no-go areas based on provincial, municipal and organizational regulations and non-development areas based on existing settlement and Infrastructure.

The MLUST process results in a scoring system from least suitable to most suitable for renewable development. A suitability threshold can be agreed upon by the municipality based on their preference. In Rocky View County, if a 5% suitability threshold is selected, this would reflect 4.0% of Rocky View County, or 39,030 acres (157.9 km<sup>2</sup>) as the most suitable areas for solar energy development, and 2.6% of Rocky View County, or 25,359 acres (102.6 km<sup>2</sup>) as most suitable for wind energy development.

Here, we summarize the MLUST process that resulted in the identification of utility-scale solar and wind energy development suitability areas in Rocky View County. Utility Scale solar generation projects are those which generate more than 10 MW of power and are considered power plants.

## Where can renewable energy be developed?

To determine where solar and wind energy developments are suitable, we removed no-go areas as per regulations. Settlement and infrastructure areas were also removed since the MLUST process assesses utility scale development, which requires large, typically non-developed lands due to the number of acres needed. Removing the no-go and non-development areas from the settlement and infrastructure resulted in 75.5% (solar) and 46.0% (wind) of the landscape being identified as potential for renewable energy development. Next, we considered the land base suitable for wind and solar energy development in consideration of other land uses.

## What other land uses did we value?

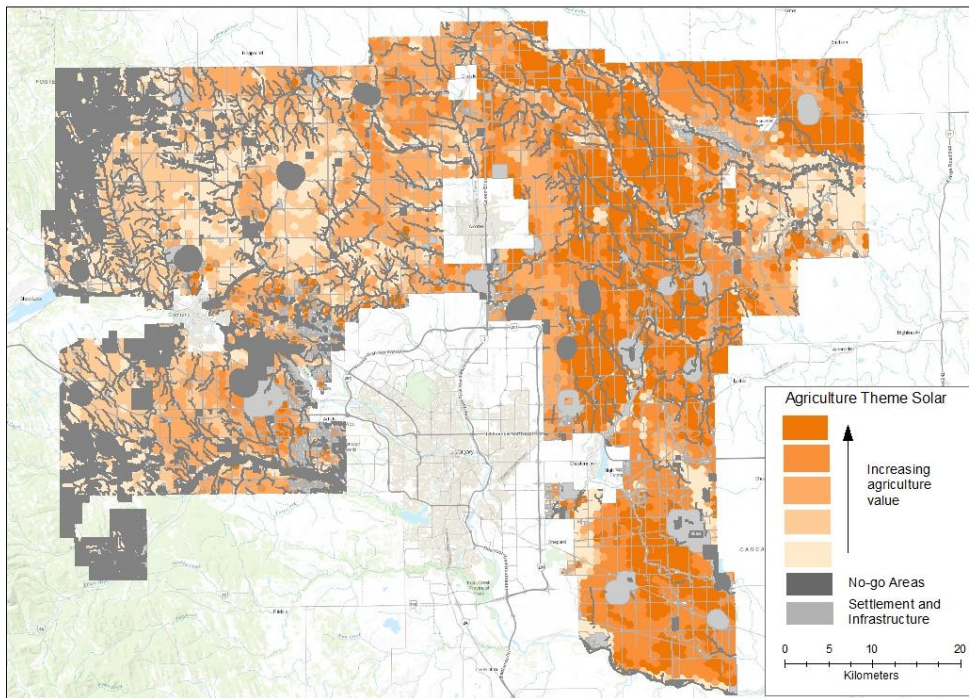
### *Agriculture*

Municipal stakeholders identified the most valued lands from an agricultural perspective and considering potential conflict with respect to solar and wind renewable energy. They identified four agricultural features (listed in table below) and provided a value rating between 0 and 100; where higher values equate to a high agriculture value. Once agricultural features were assigned a value rating, all four features were converted into a grid roughly the size of a quarter section and overlaid. The maximum value of the six features for each grid quarter section was assigned to produce separate agricultural value rating maps for solar and wind.

**Agricultural theme features and value ratings**

Agricultural Theme Features	Solar	Wind
	Value Rating	Value Rating
<b>1. Grazing Lands</b>		
Native prairie	83	55
Tame pasture	85	55
<b>2. Canadian Land Inventory</b>		
Class 1	100	80
Class 2	90	75
Class 3	85	70
Class 4	70	65
Class 5	65	45
Class 6	40	40
Class 7	0	0
<b>3. Agricultural support</b>		
Agri-business	50	42
Agri-community	50	50
<b>4. Irrigation</b>		
Irrigation acres	100	100

ROCKY VIEW COUNTY AGRICULTURE THEME - SOLAR



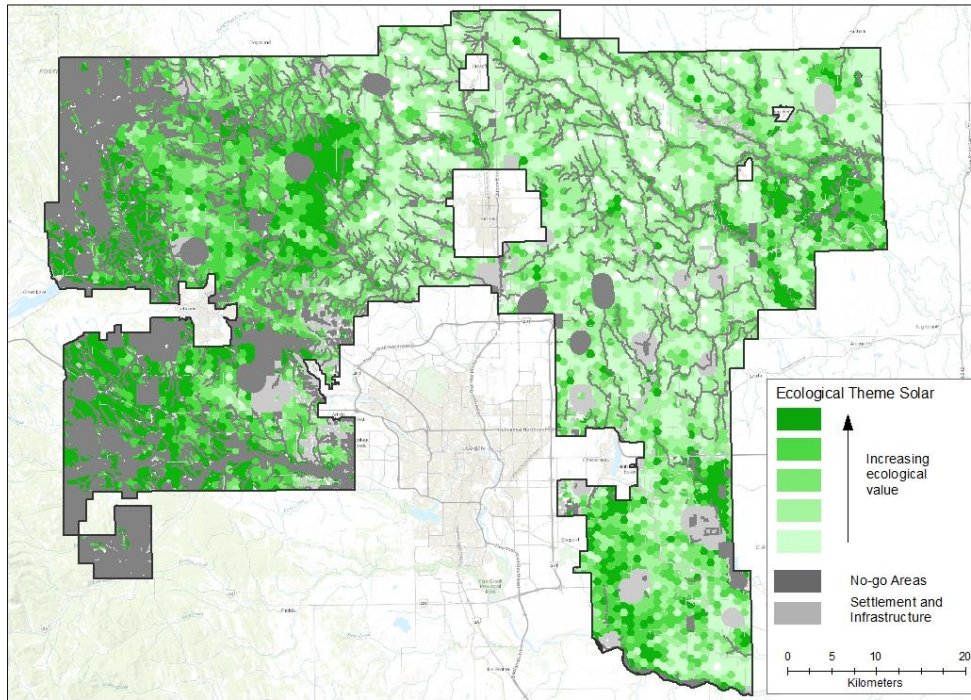
**Agricultural value rating map for solar energy development (darker orange indicates increasing agricultural value); wind version can be found in full report.**

## Ecology

Municipal stakeholders identified the highest valued lands from an ecological perspective. They identified seven ecological features (listed in table below) and provided a value rating from 0 to 100; where higher values equate to a high ecological value. Once ecological features were assigned a value rating, all three features were converted into a grid roughly the size of a quarter section, then overlaid, and the maximum value was assigned to produce an ecological value rating map for both solar and wind.

### Ecological theme features

Ecological Theme Features	Solar	Wind
	Value Rating	Value Rating
<b>Wildlife Habitat</b>		
Key wildlife and biodiversity zone	82	73
Native grasslands	100	100
Wildlife movement areas	73	68
Riparian	78	62
<b>Waterbodies</b>		
Un-named lake	64	38
Ground water aquifer re-charge	Data gap	Data gap
<b>Wetlands</b>		
Group 1: wetland area = very high	70	70
Group 2: wetland area = high	50	50
Group 3: wetland area = medium	30	30
Group 4: wetland area = low	10	10
Group 5: wetland area = very low	0	0
Groups 6-10 = extremely low	0	0



**Ecological value rating map for solar energy development (darker green indicates increasing ecological value); wind version can be found in full report.**

### Culture

Municipal participants identified the most valued lands from a cultural perspective. They identified seven scenic features and three historic resource classes (listed in table below) and provided a value rating from 0 to 100, where higher values equate to a high cultural value. Once cultural features were assigned a value rating, all features were converted into a grid roughly the size of a section, then overlaid and the maximum value was assigned to produce a cultural value rating map for both solar and wind.

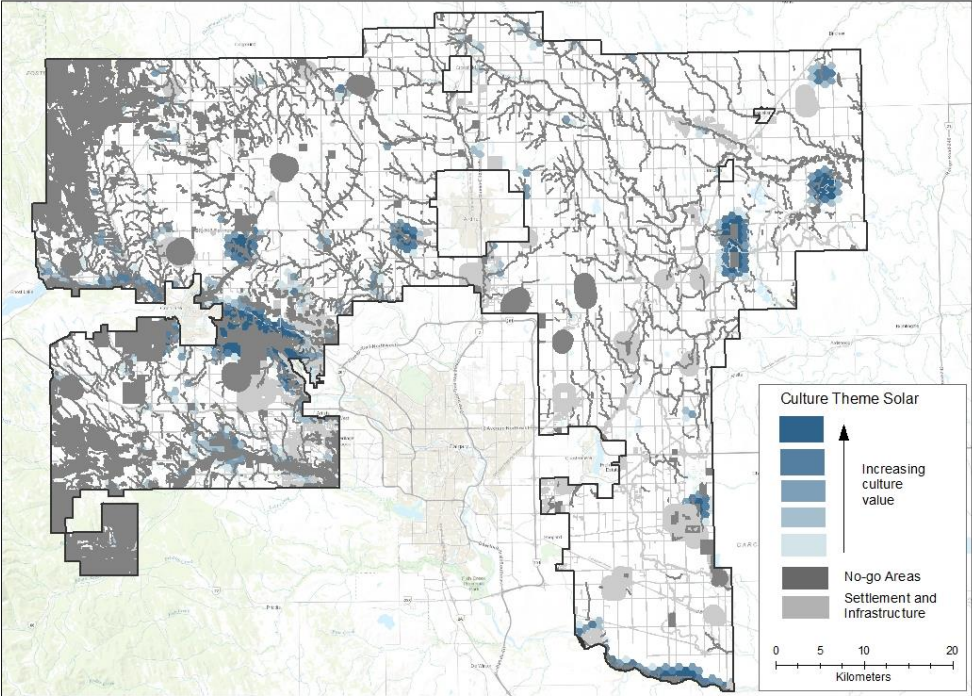
#### Culture theme features

Cultural Theme Features	Solar		Wind	
	Value Rating	Buffer	Value Rating	Buffer
1. Scenic Resources				
Wearmouth (Jumpingpound) Buffalo Jump	72	1000	68	1100
Cemeteries	52	0	25	0
Historic schools	Data gap		Data gap	
Provincial Parks (Big Hill Springs, Bragg Creek, Glenbow Ranch)	81	1100	80	1200
Conservation sites (Dewitt's Pond, Kent, Frosner-Boyach wetlands, Weed Lake, McKinnon Flats)	67	1000	58	1000
Calgary Parks (Haskayne, Bearspaw)	75	900	71	1100
Provincial habitat area (Perrenoud Wildlife Habitat Area)	77	100	71	100



Cultural Theme Features	Solar		Wind	
	Value Rating	Buffer	Value Rating	Buffer
2. Historic Resource Value				
HRV class 3: contains a significant historic resource that will likely require avoidance	73	n/a	61	n/a
HRV class 4: contains a historic resource that may require avoidance	65	n/a	56	n/a
HRV class 5: high potential to contain a historic resource	60*	n/a	50*	n/a

ROCKY VIEW COUNTY CULTURE THEME - SOLAR

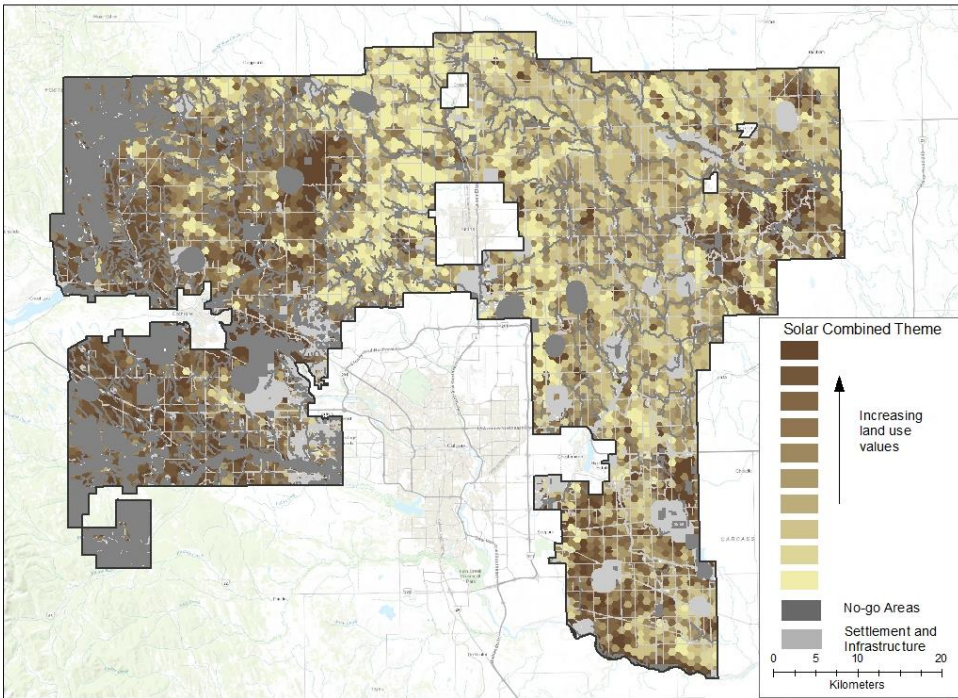


Cultural Value rating maps for wind energy development (as the orange colour darkens there is an increasing conflict with cultural value). Maps to represent the cultural value rating for solar can be found in full report.

## Combining values

A combined map was developed by overlaying and summing the agricultural, ecological, and cultural value rating maps. This approach highlighted areas of mutual high value ratings and identified where renewable energy development may be less suitable.

ROCKY VIEW COUNTY COMBINED LAND USES - SOLAR



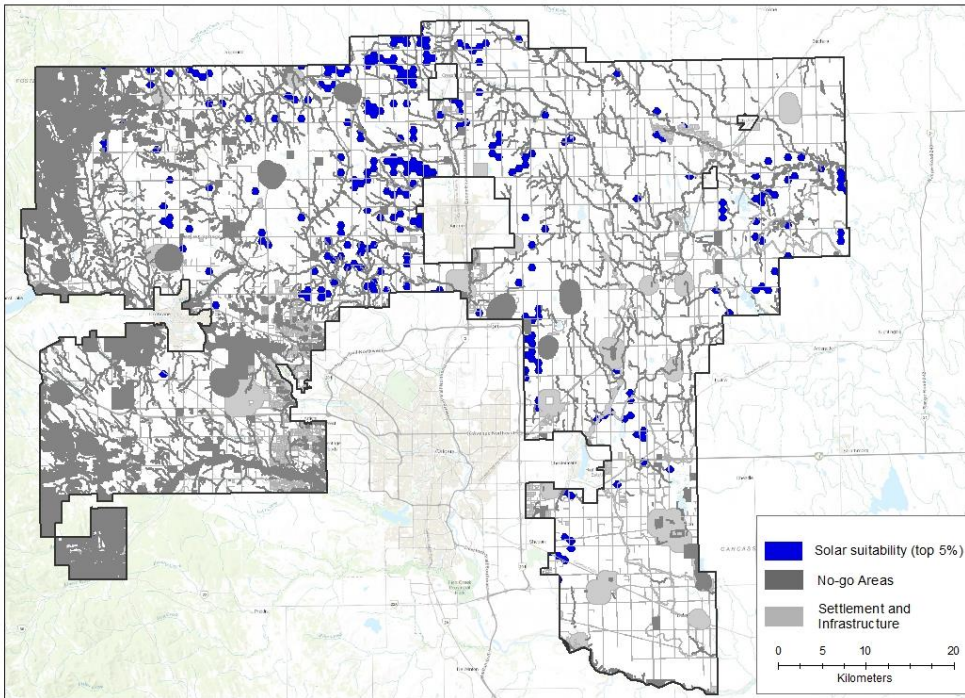
**Combined value rating map for solar energy development (darker brown indicates increasing value of other land uses). Map representing the combined value rating for solar can be found in full report.**

## Most suitable areas for wind and solar energy development

Lastly, to identify the most suitable areas for wind and solar energy development, we used the inverse of the combined value rating maps. On the maps below we highlight the lands that were identified as the most suitable (top 5%) for solar energy development (dark blue) and wind energy development (lime green). Municipal representatives can adjust these suitability levels to change the amount of land included in land considered suitable for renewable energy development to suit municipal preferences.

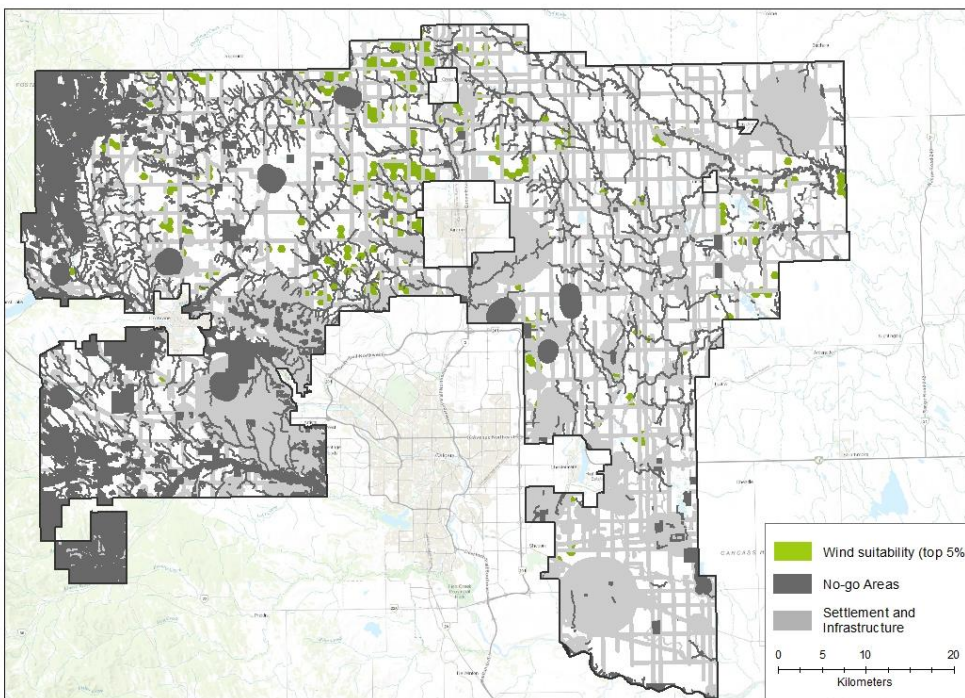


ROCKY VIEW COUNTY SOLAR SUITABILITY



**MLUST identified 4.0% of Rocky View County, or 39,030 acres (158 km<sup>2</sup>) as most suitable areas for solar energy development (displayed as dark blue).**

ROCKY VIEW COUNTY WIND SUITABILITY



**MLUST identified 2.6% of Rocky View County, or 25359 acres (103 km<sup>2</sup>) as most suitable areas for wind energy development (displayed as lime green).**

## How to use MLUST results to develop municipal planning policy around renewable energy development

### *Key planning considerations*

The second part of the MLUST project focused on determining how the results produced by MLUST modelling could be utilized to inform municipal planning policy specifically for solar energy development, including a Utility Scale Solar Strategy.

In developing a municipal strategy for solar development there are three key planning considerations. These include:

- size and scale of projects: in addition to utility scale projects, municipalities should broaden their focus to include a wider range of installations including micro and small-scale generation;
- planning influences: past and future planning considerations play a role in determining how solar energy fits into long-range plans for the municipality; tracking landowner opinions to gauge current and future trends regarding acceptance or rejection will aid in municipal decision making;
- land conversion rates and location; rate of conversion of land for utility scale solar should be evaluated against the rate in which land within the municipality in general is being converted to non-agricultural uses.

### *Integrating MLUST into municipal planning*

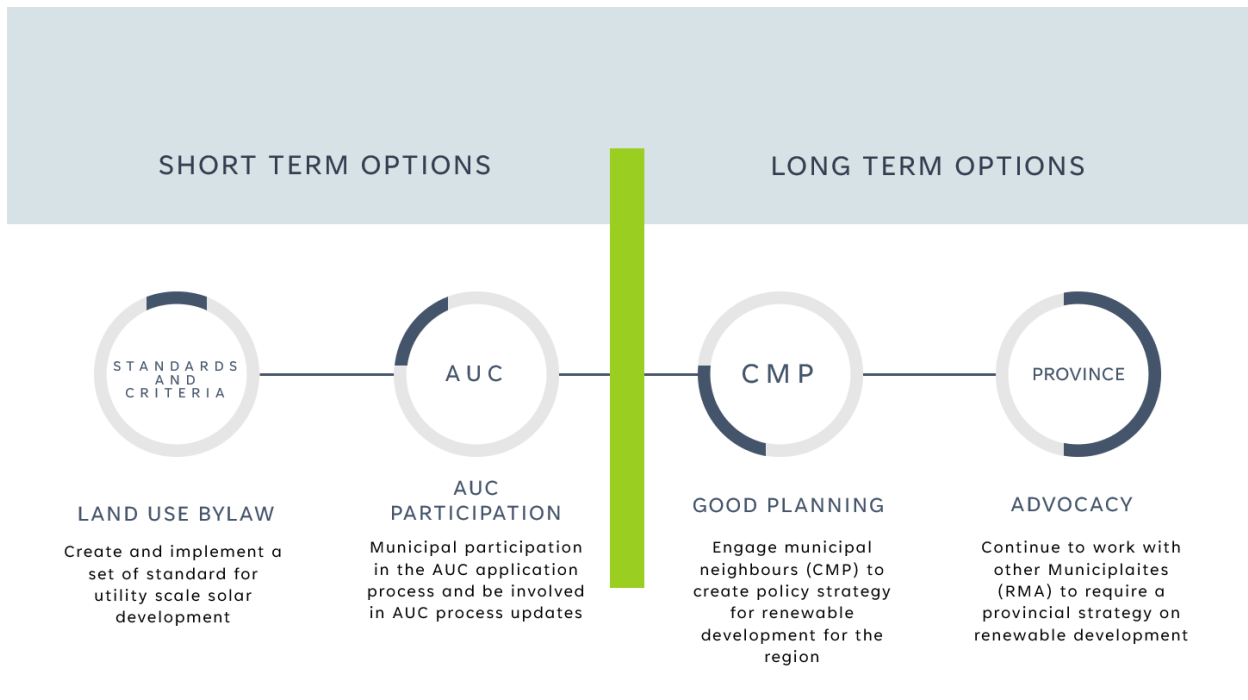
MLUST results can be used to inform planning and various scales. Currently, both regional level plans which cover Rocky View County do not contain specific policy regarding solar energy development. The work that Rocky View County has and is engaged in to understand and develop municipal policy on this front could be used to leverage the Calgary Metropolitan Region Board (CMRB) to develop a regional solar energy / renewable energy strategy.

MLUST results can also be used to inform Rocky View County's Municipal Development Plan (MDP) and relevant Land Use Bylaws (LUB). Central to the preparation of a solar strategy is the MLUST process which depicts the most suitable areas for large-scale solar development which coincided with low probable conflict with other land uses. Specific policy can be crafted for the MDP which integrates and elevates the use of the MLUST results into other planning processes and approvals.

Once embedded in the planning process, solar proponents should be made aware of the MLUST ratings for lands proposed to host their proposal. If the MLUST rating indicates that the land may be less suitable for solar development, future developers should be required to provide an explanation as to why their project should be allowed to proceed as well as what mitigation measures are proposed to address the risk and issues identified. MLUST results can inform developers who may be new to the area to better understand the municipality and its values regarding utility scale solar impacts.

Specific examples of bylaw standards of development include addressing suitability of site, application requirements, site conditions, application requirements, landowner notification, setbacks, and conditions of approval.

## Recommendations



### SHORT TERM

Short term actions can be undertaken to bridge the gap until a utility scale solar energy strategy can be developed by the municipality. Short term actions can include the following:

- create and implement a set of standards for utility scale development including a clear outline of the development application process;
- municipal participation in the Alberta Utilities Commission (AUC) project application process to represent the municipal perspective; the level of participation needed may vary depending on the needs of the municipality.

### LONG TERM

- engage regional partners in a dialogue around utility scale solar projects, and costs and benefits to each partner; work towards a regional strategy;
- advocate for a provincial renewable energy strategy to balance impacts to land and communities with the objectives of industry.



Miistakis Institute  
EB3013, Mount Royal University  
4825 Mount Royal Gate SW  
Calgary, Alberta T3E 6K6

[www.rockies.ca](http://www.rockies.ca)



**Miistakis  
Institute**