

**COUNTY OF TWO HILLS NO. 21
IN THE PROVINCE OF ALBERTA
BYLAW NO. 14-2022**

A BYLAW OF THE COUNTY OF TWO HILLS NO. 21, IN THE PROVINCE OF ALBERTA TO AMEND BYLAW 2-2018 BY ADDING ALTERNATE ENERGY, AS SET OUT IN SCHEDULE A, TO THE LAND USE BYLAW.

WHEREAS, Part 17, Section 639 of the Municipal Government Act R.S.A. 2000, Chapter M-26, as amended, requires that every municipality must pass a land use bylaw; and

WHEREAS the Municipal Government Act R.S.A. 2000, Chapter M-26, as amended, empowers a municipality to amend a Land Use Bylaw; and

WHEREAS the Council of the County of Two Hills No. 21 deems it desirable to amend Revised Bylaw 2-2018, the Land Use Bylaw

NOW THEREFORE, be it resolved, that the Council of Two Hills No. 21, in the Province of Alberta, duly assembled, does hereby enact the following:

1. That definitions outlined in Schedule A are added to the Land Use Bylaw, Bylaw 2-2018.
2. That Section 7.22 of the Land Use Bylaw, 2-2018, is deleted and replaced with Schedule B.
3. That Sections 7.24 and 7.25 of the Land Use Bylaw, 2-2018 are deleted and replaced with Schedule C.
4. That “Alternate Energy – Individual” is added to the list of Discretionary Uses in all land use districts.
5. That “Alternate Energy – Commercial” is added to the list of Discretionary Uses in the Agricultural District.
6. That this bylaw shall come into effect upon passing of third and final reading.

Received first reading this 26th day of October, 2022.

Received second reading this ___ day of _____, 2023.

Received third reading this ___ day of _____, 2023.

REEVE

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Schedule A

Land Use Bylaw: Definitions

1.3 Definitions

- (1) **Alternate Energy** – means a use producing energy fueled from sources such as sunlight, water, wind, geo-thermal, or organic materials, but not fossil fuels (liquids, gases, or solids), either directly, via conversion, or through bio-chemical / bio-mechanical / chemical mechanical / bio-chemical mechanical processes. Examples of such uses are, but not limited to, anaerobic digester, biodiesel, bioenergy, composting, gasification, geo-thermal facility, micro-hydro, solar energy conversion, wind energy conversion, and waste to energy;
- (2) **Alternate Energy – Commercial** – means an Alternate Energy development that is designed for the large-scale production of energy for a commercial market.
- (3) **Alternate Energy – Individual** means an Alternate Energy development that is designed to meet some or all of the energy needs of a dwelling, buildings, agricultural operation, or individual business either through onsite production or on a site that is immediately adjacent to the production site.
- (4) **Anaerobic Digester** – means a facility or system designed to process animal manure, organic matter, or septic waste into a bio-gas fuel;
- (5) **Bioenergy** – means the development of energy stored in biological raw materials (wood, wood chips, bark, agricultural residue, animal manure, paper, cardboard, food and food waste, and organic yard waste, etc.), using mechanical, thermal, aerobic, anaerobic, biological, or chemical processes into solid, liquid or gas fuels;
- (6) **Biodiesel** – means a form of diesel fuel produced from animal fat or vegetable oil using chemical processes;
- (7) **Blade** – means a part of a Wind Energy Conversion System rotor which acts as a single airfoil, to extract kinetic energy directly from the wind;
- (8) **Blade Clearance** – means the distance from grade to the bottom of the rotor's arc;
- (9) **Cogeneration** – means the joint production, in a sequential process, of electricity (or mechanical energy) and useful thermal energy (hot water or steam);
- (10) **Fermentation** – means the process of extracting energy from the oxidation of organic compounds;

- (11) **Gasification** – means the process of converting organic or fossil fuel-based materials into nitrogen, carbon monoxide, hydrogen, and carbon dioxide to produce Syngas;
- (12) **Horizontal Axis Rotor** – means a wind energy conversion system, where the rotor is mounted on an axis parallel to the earth's surface;
- (13) **Micro-hydro** – means a hydroelectric power facility, producing up to 100kW of electricity, using the natural flow of water;
- (14) **Nacelle** – means the part of the WECS that includes a generator, gearbox or yaw motors and other operating parts that is installed at the top of the tower, and to which blades are attached, and is responsible for converting wind into energy;
- (15) **Over Speed Control** – means a device that prevents excessive rotor speed;
- (16) **Rotor's Arc or Rotor Diameter** – means the largest circumferential path travelled by a Wind Energy Conversion System's blade;
- (17) **Solar Energy Conversion System** – means a system using solar panels to collect and convert solar energy into electricity;
- (18) **Total Height** – means the height from grade (ground level) to the highest vertical extension of a WECS. In the case of a WECS with a horizontal axis rotor, total height includes the distance from grade to the top of the tower, plus the distance from the top of the tower to the highest point of the rotor's arc;
- (19) **Tower** – means the guyed or freestanding structure which supports the rotor above grade;
- (20) **Vertical Axis Rotor** – means a Wind Energy Conversion System where the rotor is mounted on an axis perpendicular to the earth's surface;
- (21) **Waste to Energy** – means a facility that creates electricity and / or heat from the incineration of waste materials;
- (22) **Wind Energy Conversion System (WECS)** – means a machine designed to convert wind energy into mechanical or electrical energy. If the mechanical energy is used directly by machinery (pump or grinding stones) the machine is known as a Windmill. If the mechanical energy is converted to electricity, the machine is called a WECS;

Schedule B

Land Use Bylaw: Regulations

7.XX Alternate Energy Systems, Individual

Purpose

The purpose of this section is to establish standards for small scale Alternate Energy developments, including but not limited to solar, wind, biofuel, geo-thermal, fuel cell, micro-hydro, for use by households, agricultural operators, or individual business to meet some or all of their energy needs on the production site (dwelling, business, or operation), or a site immediately adjacent to the production site.

General Requirements for All Individual Systems

- 7.XX.1 No re-districting is required for a lot or site for an Alternate Energy System, Individual.
- 7.XX.2 A development permit is required for any Alternate Energy System, Individual, and such Systems shall be considered a Discretionary Use.
- 7.XX.3 All applicable Safety Codes permits are required.
- 7.XX.4 If the subject site is located within lands subject to Alberta Transportation's jurisdiction, an approved Roadside Development Permit from Alberta Transportation shall be required and included with the Development Permit application. (For the purposes of Section 683.1(1) of the Municipal Government Act, an application shall not be considered as received unless the Roadside Development Permit is included with the application.)

Solar Energy Conversion Systems Applications

- 7.XX.5 In addition to the requirements of Part 3 of this Bylaw, the application shall include:
 - a. Information of any impacts to the County road system such as, but not limited to
 - i. Identification of the roads to be used to construct and operate the development,
 - ii. number, type of vehicle movements, and load weights,
 - iii. expected time-period of movements: short-term, periodic, or ongoing,
 - iv. need for any upgrading of an existing road,
 - v. need for new approach or expansion of existing approach.

- b. For systems that are to be tied into the grid, evidence that the Utility Operator has been informed of the Applicant's intent to install an interconnected customer-Owner generator.
- c. Documentation demonstrating that the system is designed to produce energy primarily for the sole use and consumption on-site by the landowner, resident, occupant, or business;
- d. The manufacturer's specifications for the proposed system and rated output in kilowatts;
- e. A site plan showing the location, setbacks, and orientation of the solar collectors;
- f. For panels to be affixed to the wall of a building or accessory structure,
 - i. a description of how the panels are to be mounted or affixed,
 - ii. the maximum projection from the wall, and,
 - iii. the structural capacity of the building and / or wall to support the proposed development;
- g. For free-standing solar panels,
 - i. a description of the proposed ground mount design,
 - ii. the clearance to the bottom of the collectors, and,
 - iii. the maximum height from existing grade,
 - iv. the method of vegetation / weed control;

Glare

7.XX.6 Solar panels must be located such that they do not create glare onto neighboring properties or public roadways.

Mounting and Projection

7.XX.7 Solar collectors mounted to the roof of a building or structure shall not extend beyond the outermost edge of the roof.

7.XX.8 The maximum projection of any solar collectors affixed to a wall of a building or structure in a residential District shall be:

- a. 1.5 m (5 ft.) from the surface of a wall that faces a rear lot line; and,
- b. In all other cases 0.6 m (2 ft.) from the surface of any other wall.

Setbacks

- 7.XX.9 Freestanding solar collectors shall be subject to the setback requirements of the applicable Land Use District or as required by Alberta Transportation, whichever is greater.

Height

- 7.XX.10 The maximum height of a freestanding solar collector shall not exceed 2.4 m (8 ft.).
- 7.XX.11 For freestanding solar collectors, sufficient clearance shall be retained under the structure to allow for weed control, grass cutting, and for fire suppression.

Density

- 7.XX.12 The location of and maximum number of solar collectors per Title may be regulated by the Development Authority.

Wind Energy Conversion Systems (WECS)

- 7.XX.13 Development Permit applications for a wind energy conversion system shall be accompanied by the following information:
- a. Documentation demonstrating that the system is designed to produce energy primarily for the sole use and consumption on-site by the landowner, resident, occupant, or business;
 - b. The manufacturer's specifications indicating:
 - i. the proposed systems rated output in kilowatts,
 - ii. the safety features,
 - iii. the sound characteristics,
 - iv. the type of material used in the tower, blade, and / or rotor construction;
 - c. A site plan showing the location and setbacks of the WECS on the property;
 - d. Drawings, drawn to scale, of the wind turbine structure, including the tower, base, footings, and anchoring method. An engineering analysis of the Wind Turbine Tower showing compliance with the International Building Code and certified by a licensed professional mechanical, structural, or civil engineer shall also be submitted. Documentation of this analysis supplied by the manufacturer shall be accepted.
 - e. The potential for electromagnetic interference;
 - f. The nature and function of over speed controls which are provided;

- g. The specifications on the foundations and / or anchor design, including the location and anchoring of any guy wires;
- h. The location of any existing buildings or improvements on the property in relation to the WECS;
- i. Evidence of compliance with applicable air traffic safety regulations. (Transport Canada must be notified of the location – latitude and longitude – and height of all wind turbine installations through the aeronautical clearance application process.)

7.XX.14 Prior to deciding upon an application for a WECS, the Development Authority may refer for the review and comment, and consider any input received from the following entities:

- a. Alberta Utilities Commission,
- b. Alberta Transportation,
- c. Alberta Utilities Commission and the Alberta Energy Systems Operator for applications proposing to connect to the grid,
- d. Transport Canada,
- e. Navigation Canada, and
- f. Any other person, departments, agency, or commission the Development Authority deems necessary.

7.XX.15 Individual WECS shall comply with the following standards:

- a. There shall be a limit of one WECS per Titled area.

Setbacks

- b. The WECS's tower shall be setback from all property lines a minimum distance equal to the height of the tower, or the minimum setbacks set out in the applicable Land Use District, or as required by Alberta Transportation, whichever is greater.
- c. If the tower utilizes guy wire anchors, the anchors, but not the tower, may be located no closer than 3.0 m (10 ft.) to the property lines.

Height

- d. A WECS tower shall not exceed a maximum height of:
 - i. 12.1 m (40 ft.) on a parcel of less than 0.4 ha (less than 1 acre),
 - ii. 19.8 m (65 ft.) on a parcel 0.4 – 2.0 ha (1 – 5 acres),
 - iii. 24.4 m (80 ft.) on a parcel greater than 2.0 ha (5 acres).

Finish and Markings

- e. The tower and supporting structures shall be painted or coated in tones and / or colours matching the existing tones and / or colours of the principal building that are non-reflective and non-glossy.
- f. Brand names or advertising associated with the system or the system's installation shall not be visible from any public place.

Illumination

- g. Small Wind Turbine Towers shall not be artificially lit except as required by NavCanada.

Speed Controls

- h. The system shall be equipped with manual and automatic over speed controls.
- i. The conformance of rotor and over speed control design and fabrication to good engineering practices shall be certified by a licensed mechanical, structural or civil engineer.

Tower Access and Public Safety

- j. If the tower is climbable, a security fence with a lockable gate, not less than 1.9 (6 ft.) in height, shall be installed around a WECS tower;
- k. No ladder or permanent tower access device shall be located less than 3.7 m (12 ft.) from grade;
- l. A locked device shall be installed on the tower to preclude access to the top of the tower;
- m. Additional access control features or such additional safety mechanisms or procedures may be required by the Development Authority;
- n. The use of tubular towers, with locked door access, will preclude the above requirements.

Elector-magnetic Interference

- o. The system shall be operated such that any electro-magnetic interference is dealt with as per the permit issued by the AUC. If electro-magnetic interference is determined during operation, the developer will work with the affected stakeholder(s) to mitigate any issues.

Output

- p. The system's maximum power output shall not exceed 5 kilowatts.

Noise Level

- q. The noise generated by the system shall not exceed 60dB(A) or exceed more than 6dB(A) above background sound, as measured at the exterior of the closest inhabited Dwelling (at the time of installation or during operation), for wind speeds below 10 m per second (22 mph) and except short-term event such as utility outages and / or severe windstorms.

Discontinuance

- r. Upon abandonment or termination of the system's use, the entire facility, including the system's tower, turbine, supporting structures and all equipment, shall be removed and the site shall be restored to its pre-WECS condition.

Applications for Other Individual Alternate Energy Systems

7.XX.16 Development Permit applications for all other types of Alternate Energy production systems shall be accompanied by the following information:

- a. Documentation demonstrating that the system is designed to produce energy primarily for the sole use and consumption on-site by the landowner, resident, occupant, or business;
- b. An accurate site plan showing and labelling:
 - i. the location of the proposed system on the property,
 - ii. the location of the proposed system in relation to any other buildings or structures on the property,
 - iii. the location of the existing or proposed access,
 - iv. detailed information on the type of facility, structure, or system, and
 - v. the energy process involved;
- c. The manufacture's specifications, indicating (if applicable)
 - i. the rated output in megawatts or gigajoules,
 - ii. the safety features, and,
 - iii. the sound characteristics;
- d. Information on public safety regarding such aspects as fire hazards, chemicals used, storage of hazardous materials, exposure to corrosive or and hazardous fumes;

- e. Information or verification of:
 - i. the volume of water, if required,
 - ii. the source of the water, if required,
 - iii. the reclamation process of any water utilized by the system,
 - iv. the stormwater management system, if required, and,
 - v. the method of disposal of any waste material generated by the system;

Geothermal Systems

- 7.ZZ.17 All geothermal systems shall be Closed Loop systems. Open Loop systems (pump & dump) are not allowed.
- 7.ZZ.18 Must comply with CSA-C448 and subsequent amendments. Exceptions may be allowed, at the discretion of the Development Authority, provided documented proof is provided showing that the exception meets or exceeds CSA-C448 standard.
- 7.ZZ.19 Installations must be stamped by a qualified Professional Engineer registered under the "Engineering, Geological, or Geophysical Professions Act" of Alberta or have the system and installer certified by the Canadian GeoExchange Coalition (CGC) or other future governing body having jurisdiction within the Province of Alberta.
- 7.ZZ.20 Heat-transfer fluids within a geothermal system shall be of the most environmentally friendly type available at the time of installation ~~such as propylene glycol~~. In no case may an ethylene glycol-based fluid be used nor shall any flammable or combustible agent such as methanol, ethanol, natural gas, or propane be used.

Conditions of Approval

- 7.ZZ.21 Depending on the type of Alternate Energy – Individual system proposed, the Development Authority shall consider, as limited by Sections 619 and 620 of the Municipal Government Act, or not as the case may be, in addition to any other conditions authorized under other sections of this Bylaw or Statutory Plan, attaching conditions related to the following:
 - a. Entering into a development agreement with the County in accordance with the Municipal Government Act;
 - b. Preparing by qualified professionals and at the Applicant's expense, all the necessary studies, maps, diagrams, reports, and analysis, whether printed and / or digital, required in support to their application;
 - c. Confining all surface drainage on site and protecting any adjacent water bodies from run-off;

- d. Treating any wastewater on site and / or disposing of any wastewater as required by the County;
- e. Disposing of any non-wastewater liquids in accordance with the requirements of the County;
- f. The methods of disposing of any other waste material;
- g. Storing / containing all feedstock and materials within buildings or containment facilities;
- h. Restricting vehicle / truck traffic, whether owned or contracted by the Applicant, that transport construction material, raw material or feedstock or finished / processed goods associated with the development to designated haul routes and times;
- i. Require the entering of a road use agreement and the provision of security;
- j. Constructing or paying for the construction on any new road or approach required for the development and / or upgrading or paying for the upgrading of an existing road or existing approach required for the development;
- k. Dust control;
- l. Sound control;
- m. Installing underground all energy transmission (whether electrical, liquid or gas) lines from the site to the applicable collection point;
- n. Securing all necessary approvals from any other agency with jurisdiction on the type of AEI proposed and providing the County with a copy of the approval required;
- o. Identifying and providing for a staged or phased development;
- p. Placing restrictions on parts or elements of the proposed development, such as but not limited to locations, heights, colours, densities, setbacks, etc.;
- q. Constructing or paying for the construction of non-municipal infrastructure related to the project;
- r. Requiring ground cover, weed control, grading, soil erosion control emergency / fire suppression, and drainage measures;
- s. Specifying time periods to:

- i. start, suspend, and complete construction activities,
 - ii. trigger decommissioning activities;
- t. Providing for the amenity of the site or development through improvements such as landscaping, berming, and buffering; and,
- u. Any other condition or conditions necessary to give form and effect to the project.

Schedule C

Land Use Bylaw: Commercial

7.ZZ Commercial Alternate Energy Development

Jurisdiction

The Province of Alberta and its agencies, regulates large scale / commercial energy projects. Under Sections 619 and 620 of the Municipal Government Act (MGA), the County's regulatory role is very limited. The MGA (Sec. 619(2)) is very clear that "A licence, permit, approval or other authorization granted by the NRCB, ERCB, AER, AEUB or AUC prevails ..." over "... any statutory plan, land use bylaw, subdivision decision or development decision ..." of a municipality.

Purpose

The purpose of this section is to establish local standards for Commercial Alternate Energy (CAE) developments, including but not limited to solar, wind, biofuel, geo-thermal, fuel cell, micro-hydro, and other energy producing technologies whose purpose is to produce energy for the commercial market.

Provincial or Other Approvals

7.ZZ.1 Where Provincial or Federal Government or other Agency approval has been received for a CAE, a copy of the said approval and supporting documents, shall be submitted to the County. The supporting information provided to the Province, Federal Government or other Agency may be used to satisfy some or all the requirements of the County.

Protection of Agricultural Lands

7.ZZ.2 The use of more than 4.05 ha (10 acres) of Better Agricultural Lands (lands with a farmland assessment of 60% or higher) per quarter section shall be discouraged.

General Requirements

7.ZZ.3 A development permit application shall be made for every title upon which the CAE is proposed.

7.ZZ.4 A site plan(s) shall be required for each title but a single, master set of supporting documents may be submitted for the overall project.

Public Consultation

- 7.ZZ.5 If public consultation was held as part of the Provincial approval process for a proposed CAE, the details of that consultation to the County as part of the development permit application.
- 7.ZZ.6 The County reserves the right to require public consultation of the development permit application(s) for a CAE in the following manner:
- a. The Applicant is to:
 - i. arrange and host at least one (1) open house or public meeting, in the general area of the site proposed for the development;
 - ii. advertise the time, date, and place of the open house or public meeting:
 - 1. in a newspaper circulating in the area of the proposed development, with the advertisement appear a minimum of two (2) weeks in advance of the public meeting, and,
 - 2. mail a written notice of the time, date, and place of the open house to all landowners within the area proposed for the development, and all landowners within 2 km (1.2 miles) of the boundary of the area proposed for the development;
 - b. Ensure that the information provided at the public meeting shall be all the information that would be required as part of a Development Permit application for the proposal;
 - c. Provide opportunities for questions and input from the public shall be allowed;
 - d. Record a summary of the presentation and the comments and input of the public attending the open house or public meeting.

Safety

- 7.ZZ.7 All applications shall include:
- a. An emergency response plan,
 - b. A detailed safety plan identifying any special rescue needs for workers that is beyond the local emergency responders' equipment and training capability.
- 7.ZZ.8 All applicable Safety Codes permits are required to be obtained.

Transmission Lines

- 7.ZZ.9 All electrical lines on the site of a CAE generating electrical power, shall be underground, except where the Development Authority approves otherwise.

Colour and Finishes

- 7.ZZ.10 The buildings, supporting structures, and accessory buildings shall be painted or coated in in non-reflective and non-glossy tones and / or colours which minimize the obtrusive impact of a CAE.
- 7.ZZ.11 No brand names, lettering or advertising shall appear on buildings, towers, blades, support structures or accessory buildings and structures.
- 7.ZZ.12 The lettering or imagery that may appear on the lowest 3 m (10 ft.) of a tower or building of a CAE are the manufacturer's identification and contact information, the operator's identification and contact information, emergency contact information, and municipal symbol.

County Standards

- 7.ZZ.13 All roads, approaches, culverts, fences, or other County infrastructure to be replaced, constructed, upgraded, or reconstructed, shall be built to the County's standards current at the time of construction.

Noise

- 7.ZZ.14 The Applicant shall provide a copy of the Alberta Utilities Commission reviewed and approved noise report with the development permit application.
- 7.ZZ.15 Where there is no Alberta Utilities Commission reviewed and approved noise report, the Applicant shall prepare and provide a noise report that meets the requirements of AUC Rule 012: Noise Control.
- 7.ZZ.16 The CAE can utilize berms, deflectors, sound blankets, walls, vegetation, fences, buildings, or other sound mitigative measures or any combination of these items to achieve the sounds levels described in 7.ZZ 14 or 7.ZZ.15.

Referral

- 7.ZZ.17 Prior to deciding upon an application for a CAE, the Development Authority may refer for the review, comment, and any input provided from any of the following entities:
- a. Alberta Utilities Commission,
 - b. Alberta Transportation,
 - c. Transport Canada,

- d. NavCanada,
- e. Alberta Electrical Systems Operator,
- f. Adjoining municipal boundary if the application area is within 2 km (1.2 miles) of the municipal boundary, and,
- g. any other person, departments, agency, commission, or government the Development Authority deems necessary.

Decommissioning

7.ZZ.18 Decommissioning and reclamation shall take place in compliance with the applicable provincial standards of the day the site is decommissioned. If no standards are in place at the time of a development permit application, the Applicant shall provide a plan outlining how the site will be decommissioned and reclaimed to the site's predevelopment state as part of the Development Permit application. The decommissioning plan shall include information on the following:

- a. Treatment of buildings, footings, foundations, structures, and wires;
- b. Reclamation of access roads, driveways, pathways, storm ponds, drainage systems, and other similar disturbances;
- c. The type and suitability vegetation and / or ground cover to be planted and / or seeded;
- d. Notice to be given to landowners and the County;
- e. Containment of hazardous materials;
- f. Site security;
- g. Haul routes for disposal materials;
- h. Control of noise, dust, particulates, and weeds;
- i. Discussion of the timetable for decommissioning plan.

Financial Security

7.ZZ.19 As a condition of development approval, the County may require financial security, in the form satisfactory to the Development Authority, to ensure the Reclamation / Decommissioning Plan is implemented and to cover assignment and bankruptcy. The condition may include a periodic review of the security to ensure the amount is sufficient to implement the Reclamation / Decommissioning Plan.

Discontinuance

- 7.ZZ.20 Should an Alternate Energy Development discontinue producing power for a minimum of two consecutive years, or two cumulative years over a five-year period, the operator shall provide a report on the status of the System to the County. A review of the status report by the County may result in the request for the System to be decommissioned. Failure to comply with a decommissioning request may result in the issuance of a stop order by the County in accordance with the provision of the Municipal Government Act.

Solar Energy Conversion Systems

Applications

- 7.ZZ.21 Development Permit applications for a solar collector system shall be accompanied by the following information:
- a. A plan showing the location of overhead and / or underground utilities on or adjacent to the subject lands;
 - b. Location and identification of environmentally sensitive areas on the project lands;
 - c. A detailed site plan showing:
 - a. the titled parcel(s),
 - ii. the location of the system on the parcel(s),
 - iii. the required setbacks,
 - iv. existing structures, if any,
 - v. the existing or proposed approach(es), and,
 - vi. the orientation of the solar collectors;
 - d. The application shall also include details regarding:
 - i. the system type,
 - ii. number of structures,
 - iii. height of structures,
 - iv. energy process,
 - v. grid connection,
 - vi. rated output in megawatts,
 - vii. signage,
 - viii. public safety,
 - ix. security measures,
 - x. a site suitability analysis,
 - xi. topography,
 - xii. soil characteristics,

- xiii. agricultural capability,
- xiv. potential impacts on agricultural land
- xv. stormwater management plan,
- xvi. surface drainage plan,
- xvii. the results of the public consultation process,
- xviii. weed control plan and,
- xix. an environmental impact assessment prepared by a qualified professional demonstrating site suitability, impact mitigation and reclamation requirements;

Glare

- 7.ZZ.22 Solar panels must be located such that they do not create glare on neighbouring properties or public roadways.

Projections

- 7.ZZ.23 Solar collectors mounted to the roof of a building or structure shall not extend beyond the outermost edge of the roof.

Height and Setbacks

- 7.ZZ.24 The maximum heights and setbacks of building mounted or ground mounted solar collection systems shall be subject to the height and setback requirements of the applicable Land Use District.

Fire Protection

- 7.ZZ.25 The spacing and height of solar collectors shall be designed to provide access for firefighting.

Density

- 7.ZZ.26 The location of and maximum number of solar collectors per Title may be regulated by the Development Authority.

Wind Energy Conversion Systems (WECS)

Applications

- 7.ZZ.27 An individual development permit application shall be submitted for each titled parcel.
- 7.ZZ.28 Development Permit applications for a wind energy conversion system shall be accompanied by the following information:

- a. An accurate site plan showing and labeling the information outlined in this section and the location of overhead and / or underground utilities on or adjacent to the subject lands;
- b. A digital version of the site plan showing the exact location and base elevation of each WECS in UTM coordinates with NAD datum, Zone X;
- c. A visual representation of the WECS project including scale elevations, photographs and / or digital projections of the project showing height, rotor diameter, colour and landscape;
- d. A digital version of the site plan showing the exact location and base elevation of each WECS in UTM coordinates and NAD datum, Zone AA;
- e. The specifications indicating:
 - i. the type of material used in tower, blade, and rotor construction,
 - ii. grid connections and size of any substations,
 - iv. signage,
 - v. security measures,
 - vi. site suitability analysis,
 - vii. topography,
 - viii. soil characteristics,
 - ix. agricultural capability,
 - x. potential impacts on agricultural land
 - xi. stormwater management plan,
 - xii. surface drainage plan,
 - xiii. the location of any dwellings or structures on the property,
 - xiv. setbacks,
 - xv. weed control plan and,
 - xvi. an environmental impact assessment prepared by a qualified professional demonstrating site suitability, impact mitigation and reclamation requirements;
- f. The manufacturer's specifications indicating:
 - i. the proposed systems rated output in megawatts,
 - ii. the safety features,
 - iii. the type of material used in the tower, blade, and rotor construction,
 - iv. foundation design and / or anchor design, including the location and anchoring of any guy wires;
- g. An analysis of the potential for noise and shadow / flicker effect, both at the site of the installation, at the boundary of the property containing the development, and at any habitable residence within 2 km (1.2 miles) of any WECS in accordance with Alberta Utilities Commission Rule 12;

- h. The results of the public consultation process;
- i. The potential for electromagnetic interference;
- j. The nature and function of over speed controls which are provided;
- k. The status of the Applicant's circulation to NavCanada, Transport Canada, Alberta Utilities Commission, and any other government department or agency required for provincial approval;
- l. Information on public safety;
- m. Identification of any roads to be used or constructed for use during construction of the project and any impacts to the existing road system including required approaches from public roads;
- n. A copy of the Wire Service Provider (WSP) approval if the WECS is proposed to be connected to the provincial power grid;

Density

- 7.ZZ.29 The Development Authority may approve one or more Individual WECS structures on a titled parcel having regard for:
- a. The proximity to other adjacent land uses;
 - b. The overall density of the WECS project;
 - c. A consideration of the cumulative effect of all WECS approved or proposed within 5 km (3 miles) of the proposal;
 - d. The underlying utilities;
 - e. The information received through the circulation process, public consultation process and through the redistricting public hearing.

Setbacks

- 7.ZZ.30 The setback distance between a WECS and a dwelling, within and without the project boundary, shall be as established by the Alberta Utilities Commission through the calculations of AUC Rule 012.
- 7.ZZ.31 The WECS's tower shall be setback from the boundary of all County road rights of way (developed or undeveloped), a minimum distance equal to but not less than one blade length plus 10 percent.

7.ZZ.32 A WECS shall be setback not less than one blade length plus 7.5 m from all other property lines.

7.ZZ.33 If the tower utilizes guy wire anchors, the anchors, but not the tower, may be located no closer than 3.0 m (10 ft.) to the property lines.

Minimum Blade Clearance

7.ZZ.34 The minimum vertical blade clearance from grade shall be 7.6 m (25 ft.) for a WECS employing a horizontal rotor.

Tower Access and Safety

7.ZZ.35 To ensure public safety, the Development Authority may require that:

- a. If the tower is climbable, a security fence with a lockable gate, not less than 1.9 (6 ft.) in height, shall be installed around a WECS tower;
- b. No ladder or permanent tower access device shall be located less than 3.7 m (12 ft.) from grade;
- c. A locked device shall be installed on the tower to preclude access to the top of the tower;
- d. Additional access control features or such additional safety mechanisms or procedures may be required by the Development Authority;
- e. The use of tubular towers, with locked door access, will preclude the above requirements.

Speed Control

7.ZZ.36 The system shall be equipped with manual and automatic over speed controls.

7.ZZ.37 The conformance of rotor and over speed control design and fabrication to good engineering practices shall be certified by a licensed mechanical, structural or civil engineer.

Electro-magnetism

7.ZZ.38 The system shall be operated such that any electro-magnetic interference is dealt with as per the permit issued by the AUC. If electro-magnetic interference is determined during operation, the developer will work with the affected stakeholder(s) to mitigate any issues.

Shadow / Flicker

- 7.ZZ.39 The Applicant shall provide a copy of the Alberta Utilities Commission reviewed and approved Shadow / Flicker report with the development permit application.
- 7.ZZ.40 Where there is no Alberta Utilities Commission reviewed and approved Shadow / Flicker report, the Applicant shall prepare and provide a Shadow / Flicker assessment that meets the requirements of AUC Rule 007.

Other Energy Systems

Application

- 7.ZZ.41 Development Permit applications for all other types of Alternate Energy production systems shall be accompanied by the following information:
- a. An accurate site plan showing and labelling:
 - i. the legal location(s) of the proposed system,
 - ii. the location of the proposed system on the property or properties in relation to property lines and existing or proposed buildings or structures,
 - iii. the location of the existing or proposed access,
 - iv. the identification of any sensitive environmental features,
 - v. the topography of the site,
 - vi. the method of exporting the energy off site – power lines, pipelines, vehicles, etc.
 - b. Detailed information on the type of facility, structure, or system of the energy process involved
 - c. The manufacture's specifications, indicating (if applicable)
 - i. the rated output in megawatts or gigajoules, and,
 - ii. the safety features;
 - d. Any information regarding public safety;
 - e. Information or verification of:
 - i. the volume of water, if required,
 - ii. the source of the water, if required,
 - iii. the reclamation process of any water utilized by the system,
 - iv. the stormwater management system, if required,
 - v. the method of disposal of any waste material generated by the system,
 - vi. the generation and mitigation of any noise, vibration, odour, light, particulate that results from the production process;

- f. An analysis of the potential fire, explosive, or other hazards of the proposed system;
- g. A Traffic Impact Assessment or other information / analysis of traffic volumes and any impacts to the local road system;

Setbacks

- 7.ZZ.42 The buildings and structures of non-solar and non-wind based Alternate Energy Development(s) shall comply with all the setbacks established in the District in which it is located with the following modifications:
 - a. A minimum of 250 m (820 ft.) from any residential dwelling, food establishment, institutional use or public use, facility or building;
 - b. A minimum of 100 m (328 ft.) from the boundary of any creek, stream, river, lake shore or water body.

Geothermal Systems

- 7.ZZ.43 All geothermal systems shall be Closed Loop systems. Open Loop systems (pump & dump) are not allowed.
- 7.ZZ.44 Must comply with CSA-C448 and subsequent amendments. Exceptions may be allowed, at the discretion of the Development Authority, provided documented proof is provided showing that the exception meets or exceeds CSA-C448 standard.
- 7.ZZ.45 Installations must be stamped by a qualified Professional Engineer registered under the "Engineering, Geological, or Geophysical Professions Act" of Alberta or have the system and installer certified by the Canadian GeoExchange Coalition (CGC) or other future governing body having jurisdiction within the Province of Alberta.
- 7.ZZ.46 Heat-transfer fluids within a geothermal system shall be of the most environmentally friendly type available at the time of installation. In no case may an ethylene glycol-based fluid be used nor shall any flammable or combustible agent such as methanol, ethanol, natural gas, or propane be used.

Conditions of Approval for Any CAE

- 7.ZZ.47 Depending on the type of CAE proposed, the Development Authority shall consider, as limited by Sections 619 of the Municipal Government Act, or not as the case may be, in addition to any other conditions authorized under other sections of this Bylaw or Statutory Plan, attaching conditions related to any of the following:

- a. Entering into a development agreement with the County in accordance with the Municipal Government Act;
- b. Preparing by qualified professionals and at the Applicant's expense, all the necessary studies, maps, diagrams, reports, and analysis, whether printed and / or digital, required in support to their application;
- c. Confining all surface drainage on site and protecting any adjacent water bodies from run-off;
- d. Treating any wastewater on site and / or disposing of any wastewater as required by the County;
- e. Disposing of any non-wastewater liquids in accordance with the requirements of the County;
- f. Storing / containing all feedstock and materials within buildings or containment facilities;
- g. Disposing of any other waste materials;
- h. Restricting vehicle / truck traffic, whether owned or contracted by the Applicant, that transport construction material, raw material or feedstock or finished / processed goods associated with the development to designated haul routes and times through an agreement and the provision of securities;
- i. Dust control measures;
- j. Sound control measures;
- k. Installing underground all energy transmission (whether electrical, liquid or gas) lines from the site to the applicable collection point;
- l. Securing all necessary approvals from any other agency with jurisdiction on the type of CAED proposed and providing the County with a copy of the approval required;
- m. Identifying and providing for a staged or phased development;
- n. Placing restrictions on parts or elements of the proposed development, such as but not limited to locations, heights, colours, densities, setbacks, etc.;
- o. Constructing or paying for the construction of any new or the upgrading of any existing municipal infrastructure related to the project, such as but not limited to roads, approaches, signage, water lines, and sewage lines;

- p. Requiring ground cover, weed control, grading, soil erosion control emergency / fire suppression, and drainage measures;
- q. Specifying time periods to:
 - i. start, suspend, and complete construction activities,
 - ii. trigger decommissioning activities;
- r. Providing for the amenity of the site or development through improvements such as landscaping, berms, and buffering; and,
- s. Any other condition or conditions necessary to give form and effect to the project.