

WHEREAS, it is the policy of *[municipal name]* to encourage the development of independent and qualifying power production and cogeneration facilities, to promote a diverse array of economical and sustainable energy resources in an environmentally acceptable manner, and to conserve our finite and expensive energy resources and provide for their most efficient and economic utilization;

WHEREAS, *[municipal name]* wishes to provide clarity to the process of developing renewable energy projects and to reduce the bureaucratic and permitting burden for *[municipal name]* residents, businesses, and local governments in developing renewable energy;

WHEREAS, *[municipal name]* finds that wind, geothermal, and solar energy are abundant, renewable, and non-polluting energy resources;

WHEREAS, wind, geothermal, and solar energy systems can help to offset growing energy and peak power demands;

WHEREAS, *[municipal name]* wishes to advance the use of wind, geothermal, and solar energy by all of its citizens, businesses, and industries;

WHEREAS, properly designed renewable energy installation ordinances can help communities facilitate greater access to wind, geothermal, and solar energy;

WHEREAS, it is the goal of *[municipal name]* to develop wind, geothermal, and solar power, while preserving farmlands and agricultural enterprises and adjoining residential and commercial developments as compatible adjoining uses, and the public health, safety, and general welfare will be protected and promoted by this ordinance;

WHEREAS, *[municipal name]* recognizes that the renewable energy industry is growing and can continue to benefit *[municipal name]* economically, and efforts to streamline renewable energy installations encourages economic development in *[municipal name]*

68 **SMALL AND LARGE WIND SYSTEMS ORDINANCE**

69 **1.0 Purpose**

70 The purpose of this [model] ordinance is to establish minimum requirements
and

71 regulations for the placement, construction, and modification of small wind energy
72 systems, large wind energy systems, and wind metering towers and equipment as
73 defined herein, while promoting the safe, effective, and efficient use of such
systems.

74 **2.0 Definitions**

75 **Abandoned:** A wind energy system or project shall be considered abandoned
when,
76 once installed fails to operate for 24 months.

77 **Height:** The height of a wind turbine measured from natural grade to the tip of
the rotor
78 blade at its highest point.

79 **Large Wind Energy System:** All equipment, machinery, and structures
utilized in
80 connection with the conversion of wind to electricity. This includes, but is not
limited

81 to, storage, electrical collection and supply equipment, transformers, service and
access

82 roads, and one or more wind turbines, which has a rated nameplate capacity

greater than
83 100 kilowatts (kW).
84 **Meteorological Tower (Met tower):** A temporary tower, housing or
supporting wind
85 measuring equipment for the purpose of establishing the viability of the wind
generated
86 energy by measuring and monitoring wind velocity, direction, shear, duration,
intensity,
87 and regularity.
88 **Permit Granting Authority:** The board of appeals or zoning administrator.
89 **Rated Nameplate Capacity:** The maximum rated output of electric power
production

90 equipment. This output is typically specified by the manufacturer with a
"nameplate"
91 on the equipment rated in Watts (W) or British Thermal Units (BTUs).
92 **Small Wind Energy System:** All equipment, machinery, and structures
utilized in
93 connection with the conversion of wind to electricity. This includes, but is not
limited
94 to, storage, electrical collection and supply equipment, transformers, service and
access
95 roads, and one or more wind turbines, which has a rated nameplate capacity of 100
kW
96 or less.
97 **Special Permit Granting Authority:** The special permit granting authority
shall be the
98 board of city council, planning board, or zoning administrator as designated by
zoning
99 ordinance or by-law for the issuance of special permits, or by this section for the
100 issuance of special permits to construct and operate small wind energy systems.
101 **Special Use Permit:** A permit provided by the special permitting authority for
102 nonconforming small wind systems (e.g. a small wind system that does not meet
the
103 criteria for small wind systems set forth by this ordinance).
104 **Zoning:** Ordinances and bylaws adopted by cities and towns to regulate the
use of land,
105 buildings, and structures to the full extent of the independent constitutional
powers of
106 cities and towns to protect the health, safety, and general welfare of their present
and
107 future inhabitants.
108 **Zoning administrator:** A person designated by the board of appeals
109 - to assume certain duties of said board.
110 **3.0 General Requirements -- Small Wind Energy System**
111 **3.1 Design Standards**

112 **3.1.1 Height**
113 The height of small wind energy systems shall not exceed 200 feet in height
without
114 prior approval from the permit granting authority.
115 **3.1.2 Setbacks**
116 Small wind energy systems shall be set back at a distance equal to 110% of the
total
117 height of system from all inhabited structures, overhead utility lines, property
lines, and
118 public roads or public rights-of-ways.
119 **3.1.3 Setback Waivers**
120 The building inspector may reduce the minimum setback distance if written
permission

121 is granted by permit granting authority; or with a signed agreement from
abutting neighbor(s), on the condition that public right-of-ways and power lines are not
impacted by the location.

122 **3.1.4 Minimum Blade Height**
123 The minimum height of the lowest extent of a turbine blade shall be 30 feet
above the
124 ground.

125 **3.1.5 Color and Finish**
126 The wind energy system shall be a neutral color that blends with the
environment.
127 Gray, beige, and white are recommended.

128 **3.1.6 Lighting**
129 Small wind energy systems shall be lighted only if required by the Federal
Aviation

130 Administration. Lighting of other parts of the small wind energy system shall be
131 limited to that required for safety and operational purposes.

132 **3.1.7 Signage and Advertising**
133 Signs and advertising shall be restricted to reasonable identification of the
134 manufacturer, operator of the small wind energy system, utility, and safety signs.

135 **3.1.8 Access**
136 No tower shall have a climbing apparatus within 10 feet of the ground. All
access
137 doors or access ways to towers and electrical equipment shall be accessible by
authorized personnel only.

138 **3.1.9 Sound**
139 The small wind energy system and associated equipment shall not exceed 60
dBa as
140 measured from the nearest neighboring inhabitable structure.

141 **3.2 Siting Conditions and Property Maintenance**

142 **3.2.1 Land Clearing, Soil Erosion, and Habitat Impacts**

143 If the permitting granting authority has standards for land clearing, soil erosion

control,
144 and habitat impact mitigation and/or habitat reclamation, those same standards
should
145 apply. If the Permit Granting Authority does not have previously prescribed
standards,
146 the following is recommended for adoption.
147 Clearing of natural vegetation shall be limited to that which is necessary for
the
148 construction, operation, and maintenance of the small wind energy system and is
149 otherwise prescribed by applicable laws, regulations, and ordinances. Once the
system
150 is operational, any land that has been disturbed and is not necessary for the
functioning
151 of the system shall be reclaimed with natural vegetation immediately. Soil
erosion is to

152 be mitigated by the use of silt fencing, the captured product of which can be used
in the
153 vegetation reclamation.

154 **3.2.2 Minimum Lot Size**

155 Small wind energy systems that are less than 80 feet in height may be
constructed on
156 lots one acre or less. If the small wind energy system is greater than 80 feet in
height,
157 the system must be constructed on a lot greater than one acre.

158 **3.2.3 System Conditions**

159 The applicant shall maintain the small wind energy system in good condition.
160 Maintenance shall include, but not be limited to, painting,
mechanical/electrical repairs,
161 structural repairs, and security measures.

162 **3.2.4 Removal and Decommissioning Requirements**

163 Any small wind energy system, which has reached the end of its useful life or
has been
164 abandoned, shall be removed. A small wind energy system shall be considered
165 abandoned when it fails to operate for 24 months. Upon a Notice of

Abandonment

166 issued by the Building Inspector, the small wind energy system owner will have
60 days
167 to provide sufficient evidence that the system has not been abandoned, or the

Permit

168 Granting Authority shall have the authority to enter the owner's property and
remove
169 the system at the owner's expense.

170 Once the system has been removed the owner is then responsible for land
reclamation

171 using the natural vegetation that was removed or disturbed upon construction of

the
natural
172 project. To the greatest extent possible, the land shall be fully returned to its
173 state within five years of the removal and decommissioning of the project.
174 **3.3 Permit Granting Authority Issued Permits**
175 **3.3.1 Building Permits**
176 Small wind energy systems shall be constructed as provided in this section by
first
177 obtaining a building permit from the appropriate Permit Granting Authority.
178 **3.3.2 Modifications**
179 Any physical modification to an existing and permitted wind energy system
that
180 materially alters the size and/or type of wind turbines or other equipment shall
require a
181 permit modification under this ordinance. Replacement of an already permitted
turbine
182 with a similar size and height will not require a permit modification.

183 **3.3.3 Conditional Use Permits (CUP)**
184 A conditional use permit may be granted in the case where a proposed small
wind
185 energy system or project does not satisfy the standard criteria of the building
permit set
186 forth under this ordinance. The applicant must then seek review and petition the
Permit
187 Granting Authority for a Conditional Use Permit. This CUP variance from the
standard
188 building permit criteria will only be applicable to that specific non-conforming
project.

189 **3.3.4 Expiration**
190 A permit issued pursuant to this ordinance shall expire if:
191 (a) the small wind energy system is not installed and functioning within 24
months
192 from the date the permit is issued; or
193 (b) the small wind energy system is abandoned.

194 **3.3.5 Violations**
195 It is unlawful for any person to construct, install, or operate a small wind
energy system
196 that is not in compliance with this ordinance or with any condition contained in a
197 building permit issued pursuant to this ordinance. Small wind energy systems
installed
198 prior to the adoption of this ordinance are exempt.

199 **3.3.6 Administration and Enforcement**
200 (a) This ordinance shall be administered and enforced by the Building
Inspector or
201 other official as designated by the Permit Granting Authority.

has 202 (b) The Building Inspector may enter any property for which a building permit
the 203 been issued under this ordinance to conduct an inspection to determine whether
204 conditions stated in the permit have been met.

205 **3.4 Compliance with Laws, Ordinances, and Regulations**

206 The construction and operation of all such proposed small wind energy
systems shall be 207 consistent with all applicable local, state, and federal requirements, including all
208 applicable safety, construction, environmental, electrical, communications,
209 and FAA aviation requirements.

210 **4.0 General Requirements -- Large Wind Energy Systems and Projects**

211 **4.1 Design Standards**

212 **4.1.1 Height**

213 The height of large wind energy systems shall not exceed 450 feet in height
without

214 prior approval from the Permit Granting Authority.

215 **4.1.2 Setbacks**

216 Large wind energy systems shall be set back a distance equal to 110% of the
total height 217 of system from all inhabited structures, overhead utility lines, property lines, and
public 218 roads or public rights-of-ways.

219 **4.1.3 Setback Waivers**

220 The building inspector may reduce the minimum setback distance if written
permission 221 is granted by the Permit Granting Authority.

222 **4.1.4 Minimum Blade Height**

223 The minimum height of the lowest extent of a turbine blade shall be 30 feet
above the 224 ground surface.

225 **4.1.5 Color and Finish**

226 The large wind energy system shall be a neutral color that blends with the
environment. 227 Gray, beige, and white are recommended.

228 **4.1.6 Lighting**

229 Large wind energy systems and projects shall be lighted only if required by the
Federal 230 Aviation Administration. Lighting of other parts of the large wind energy system
shall 231 be limited to that required for safety and operational purposes.

232 **4.1.7 Signage and Advertising**

233 Signs and advertising shall be restricted to reasonable identification of the
234 manufacturer, operator of the large wind energy system, utility, and safety signs.

235 **4.1.8 Access**

236 No tower shall have a climbing apparatus that is external of the pole, within 10
feet of
237 the ground. All access doors or access ways to towers and electrical equipment
shall be
238 kept locked for safety purposes.

239 **4.1.9 Sound**

240 The large wind energy system and associated equipment shall not exceed 60
dBa as
241 measured from the nearest neighboring inhabitable structure.

242 **4.2 Siting Conditions and Property Maintenance**

243 **4.2.1 Land Clearing, Soil Erosion, and Habitat Impacts**

244 If the Permit Granting Authority has standards for land clearing, soil erosion
control,

245 and habitat impact mitigation and/or habitat reclamation, those same standards
should apply. If
246 the Permit Granting Authority does not have previously prescribed standards, the
following is
247 recommended for adoption.

248 Clearing of natural vegetation shall be limited to that which is necessary for
the
249 construction, operation, and maintenance of the large wind energy system and is
250 otherwise prescribed by applicable laws, regulations, and ordinances. Once the
system
251 is operational, any land that has been disturbed and is not necessary for the
functioning
252 of the system shall be reclaimed with natural vegetation immediately. Soil
erosion is to
253 be mitigated by the use of silt fencing, any accumulated product of which can be
used in
254 the site reclamation.

255 **4.2.3 System Conditions**

256 The applicant shall maintain the large wind energy system and/or project in
good
257 condition. Maintenance shall include, but not be limited to, painting, structural
repairs,
258 and security measures.

259 **4.2.4 Removal and Decommissioning Requirements**

260 Any large wind energy system and/or project, which has reached the end of its
useful
261 life or has been abandoned, shall be removed. A large wind energy system or
project
262 shall be considered abandoned when it fails to operate for 24 months. Upon a
Notice of
263 Abandonment issued by the Building Inspector, the large wind energy system or
project

264 owner will have 60 days to provide sufficient evidence that the system has not
been
265 abandoned or the Permit Granting Authority shall have the authority to enter the
266 owner's property and remove the system at the owner's expense.

267 **4.2.5 Reclamation**

268 Once the system has been removed the project owner is then responsible for
land reclamation
269 using the natural vegetation that was removed or disturbed upon construction of
the
270 project. To the greatest extent possible, the land shall have returned to its natural
state
271 within five years of the removal and decommissioning of the project.

272 **4.3 Permit Granting Authority Issued Permits**

273 A large wind energy system shall be constructed as provided in this section by
first
274 obtaining a permit from the Permit Granting Authority. Permit applications for
project
275 expansions shall be based on the total nameplate capacity including the existing
project.

276 **4.3.1 Modifications**

277 Any physical modification to an existing and permitted wind energy system
that
278 materially alters the size and/or type of wind turbines or other equipment shall
require a
279 permit modification under this ordinance. Replacement of an already permitted
turbine
280 with a similar size and height will not require a permit modification.

281 **4.3.2 Conditional Use Permits**

282 A conditional use permit may be granted in the case where a proposed large
wind
283 energy system or project does not satisfy the standard criteria of the building
permit set
284 forth under this ordinance. The applicant must then seek review of, and petition
the
285 Permit Granting Authority for a Conditional Use Permit. This CUP variance from
the
286 standard building permit criteria will only be applicable to that specific non-
conforming
287 project.

288 **4.3.3 Expiration**

289 A permit issued pursuant to this ordinance shall expire if:
290 (a) the large wind energy system or project is not installed and functioning
within 48
291 months from the date the permit is issued; or
292 (b) the large wind energy system or project is abandoned.

293 **4.3.4 Violations**
294 It is unlawful for any person to construct, install, or operate a large wind
energy system
295 or project that is not in compliance with this ordinance or with any condition
contained
296 in a building permit issued pursuant to this ordinance. Large wind energy systems
297 installed prior to the adoption of this ordinance are exempt.
298 **4.3.5 Administration and Enforcement**
299 (a) This ordinance shall be administered and enforced by the Building
Inspector or
300 other official as designated by the Permit Granting Authority.
301 (b) The Building Inspector may enter any property for which a building permit
has
302 been issued under this ordinance to conduct an inspection to determine whether
the
303 conditions stated in the permit have been met.
304 **4.3.6 Penalties**
305 Any person who fails to comply with any provision of this ordinance or a
building
306 permit issued, pursuant to this ordinance, shall be subject to enforcement and
penalties
307 as allowed by applicable law.
308 **4.4 Compliance with Laws, Ordinances, and Regulations**
309 The construction and operation of all such proposed large wind energy systems
shall be
310 consistent with all applicable local, state, and federal requirements, including all
311 applicable safety, construction, environmental, electrical, communications,
312 and FAA aviation requirements.
313 **5.0 General Requirements -- Temporary Meteorological Towers (Met
towers)**
314 **5.1 Permitted Use by Rule**
315 Met tower installations shall be considered a permitted use in all zoning
districts where
316 the following criteria are met.
317 (1) Applicants shall submit the following information to the Permit Granting
Authority
318 prior to commencing any installation or construction:
319 (a) a site plan drawn at an appropriate scale with the following information:
320 (i) the perimeter and dimensions of the property;
321 (ii) the names and locations of all streets, roads, or highways on or contiguous
to the
322 property;
323 (iii) the locations of all easements or rights-of-way on the property;
324 (iv) the names and locations of all rivers, streams, or waterways on or
contiguous to the
325 property;

326 (v) the use, location, and dimension of all structures on the property (include
distance
327 from all proposed structures to the property lines);
328 (vi) a scale; and
329 (vii) a north arrow.
330 (2) In addition to other applicable provisions set forth in these regulations,
approval of
331 met tower applications shall be subject to the following requirements:
332 (a) All necessary zoning certificates and building permits shall be applied for
and
333 issued, and all structural reviews shall be completed by the Permit Granting
Authority
334 prior to construction.
335 (b) The met tower shall be constructed in conformity with all applicable FAA
336 regulations and all FAA notices and approvals shall be received and submitted to
the
337 Permit Granting Authority prior to any construction.

338 (c) Applicants shall furnish evidence that applicable rights-of-way have been
granted
339 for access to the met tower across any private, state, or BLM lands. For BLM
340 right-of-way grants, applicants may furnish a copy of the signed BLM Right-of-
Way
341 Grant application together with evidence that applicable fees have been tendered
to the
342 BLM.
343 (d) The met tower shall be in place for a period not exceeding three years.
Applicants
344 shall provide the Permit Granting Authority with 90 days prior written notice of
345 removal of the tower.
346 (e) In the event the applicant desires to relocate the met tower, the applicant
shall
347 receive prior written approval from the Permit Granting Authority and furnish
348 coordinates for the new tower location.
349 (f) If the applicant desires to extend the tower usage period, a request for an
extension
350 must be submitted in writing 90 days prior to the expiration of this permit to the
Permit
351 Granting Authority for consideration.
352 (g) The met tower shall not physically obstruct or encumber any road, power
line, or
353 pipeline easement.