ARTICLE: To see if the town will vote to amend Chapter 240 – Zoning – of the Code of Falmouth in the following manner:

1) **Delete** from Article III (3) – Definitions - §240-13 the term “Windmill”

2) **Delete** the following sections:


3) **Insert** the following sections:

   Single Residence Districts §240-23.L – In Single Residence A and AA districts only, Wind Energy Systems, subject to the requirements of Article XXXIV (34);

   Public Use Districts §240-33.K - Wind Energy Systems, subject to the requirements of Article XXXIV (34);

   Agricultural Districts §240-38.N - In Agricultural A and AA districts only, Wind Energy Systems, subject to the requirements of Article XXXIV (34);

   Business Districts §240-51.C (5) – In Business 2 districts only, Wind Energy Systems, subject to the requirements of Article XXXIV (34);

   Light Industrial A Districts §240-57.O - Wind Energy Systems, subject to the requirements of Article XXXIV (34);

   Light Industrial B Districts §240-63.L - Wind Energy Systems, subject to the requirements of Article XXXIV (34);

   Light Industrial C Districts §240-64.5(c) Wind Energy Systems, subject to the requirements of Article XXXIV (34);

4) **Delete** Article XXXIV (34) – Windmills in the entirety.

5) **Insert** the following:

   Article XXXIV (34)

   **Wind Energy Systems**

   §240-166 A. **Purpose:**

   The purposes of this bylaw are: to accommodate wind energy systems as accessory land uses to supplement the power used by residents and businesses; and to provide standards for the placement, design, construction, monitoring, modification and removal of wind energy systems through a special permitting process based on the procedures, provisions and requirements established herein.

   §240-166 B. **Wind Energy Systems Allowed with Limitations**

   Any provisions or requirements of this Chapter to the contrary notwithstanding, wind energy system as defined shall only be constructed or modified through a special permit issued by the
Planning Board as the Special Permit Granting Authority (SPGA)\(^1\), subject to the following limitations:

1. Small wind energy systems (SWES) may be permitted in Single Residence A and AA, Agricultural A and AA, Business 2, Public Use, Light Industrial zoning districts, as further specified herein.

2. Large wind energy systems (LWES) may be permitted in Public Use or Light Industrial zoning districts, as further specified herein.

3. WES may only be permitted when accessory to a principal land use.

\section*{§240-166 C. Wind Energy Systems Prohibited}

Any provisions or requirements of this Chapter to the contrary notwithstanding, no wind energy system as defined shall be, constructed, or modified and no special permit shall issue for any wind energy system under this bylaw:

1. That has a rated capacity greater than 250 kilowatts in any zoning district.

2. That is not an accessory land use, as defined herein.

3. Where the primary use of the facility is electrical generation to be sold to the power grid or accounted for through net metering.

\section*{§240-166 D. Exceptions}

Any provisions or requirements of this Chapter to the contrary notwithstanding:

1. Any WES in existence as of the effective date of this Article shall be considered conforming and may apply for a special permit under this Article to alter, modify, re-locate, or otherwise make improvements consistent with Article XXXIV (34).

\section*{§240-166 E. Definitions}

Section 240-13 notwithstanding, the following terms shall have the following meanings:

\textbf{Accessory Land Use:} For the purposes of this Article shall mean that the wind energy system (WES) shall be incidental to and supplement the power needs of the principal use(s) located on the same lot, or on land held in common ownership as part of a Planned Residential Development\(^2\).

\footnote{See §3 of Chapter 40A GL for agricultural, religious and educational exemptions.}

\footnote{See Article XXV (25) of the Zoning Bylaw}
**Ambient Sound Level:** the background A-weighted decibel average that is exceeded 90% of the time (L_{90}) measured during operational hours.

**Broadband Sound:** Noise that does not contain a distinguishable note or tone, and is comprised of multiple (low, mid and high) frequency components.

**Flicker:** The moving shadow created by the sun shining on the rotation blades of the wind turbine.

**Large wind energy system (LWES):** A wind energy system with a rated capacity greater than 60 kilowatts but no more than 250 kilowatts.

**Meteorological (MET) Tower:** A temporary tower equipped with devices to measure wind speed and direction, used to determine how much wind power a site can be expected to generate.

**Net Metering:** The difference between the electricity supplied over the electric distribution system and the electricity generated by the wind energy system which is fed back into the electric distribution over a given billing period.

**Power Grid:** The transmission system, managed by ISO New England, created to balance the supply and demand of electricity for consumers in New England.

**Pure Tone Sound:** A condition produced when an octave band center frequency sound pressure level exceeds the two adjacent center frequency sound pressure levels by 3 decibels or more.

**Public Outreach Area:** Those properties located in the area between 300 to 1500 feet of the property line.

**Rated Capacity:** The maximum rated output of electric power production equipment, as certified by the manufacturer. The rated capacity is the maximum power produced at optimum wind speed.

**Small wind energy system (SWES):** A wind energy system with a rated capacity equal to or less than 60 kilowatts

**System Height:** The vertical distance from ground level (natural grade) to the tip of the wind generator blade at its highest point.

**Wind Energy System (WES):** All equipment, machinery, and structures utilized in the connection with the conversion of wind to electricity. This includes, but is not limited to, transmission, storage equipment, substations, transformers, service and access roads, and one or more wind turbines.

**Wind Turbine:** A single device that converts wind energy to rotational energy that drives an electrical generator, typically consisting of a rotor and blade assembly, nacelle body and tower.
§240-166 F. Application Requirements

In addition to the requirements found in §301 – 1 thru 15\(^3\), applications for a special permit to determine compliance under this Article shall include all such material that the SPGA may reasonably require, and must include the following; unless waived by the SPGA:

1. Mandatory pre-application meeting: All applications shall be reviewed by the Planning Department prior to submittal to the SPGA.
   a. The applicant must provide a copy of the application for interconnection with the electricity utility provider, if the WES is proposed to be connected to the power grid.
   b. Proof of liability insurance, must be provided for an amount and duration sufficient to cover loss or damage to persons and structures occasioned by the failure of the facility, in the form of a preliminary commitment from a recognized carrier.
   c. The applicant shall submit documentation of actual or prospective control of the project site sufficient to allow for construction and use of the proposed facility.
      i. Documentation shall include proof of control over setback areas and access roads, if necessary.

2. Names and addresses of property owners within the public outreach area as defined.

3. Site Plan Details
   a. Property lines and physical dimensions of the subject property.
   b. All other parcels and occupied structures within the public outreach area.
   c. Location, dimensions and types of existing structures on the site property.
   d. Location of the proposed wind turbine foundation(s), guy anchors, ground equipment, appurtenant structures, transmission infrastructure, access, fencing, and exterior lighting.
   e. Distance between foundation and property lines.
   f. All overhead utility wires.
   g. Extent of clearing necessary for installation and any areas to be re-vegetated.

4. Engineering Details
   a. Only freestanding monotube tower designs are permitted for LWES.
   b. Wind energy system specifications, including manufacturer and model, rotor diameter, tower height, and tower type.
      i. Certifications, if any, of the WES shall be noted, for example: Small Wind Certification Council, American Wind Energy Association, National Renewable Energy Laboratory, California Energy Commission, or the New York State Energy Research and Development Authority.
   c. For large WES Met Tower data 12 months or equivalent available data.
   d. Electrical plans and components, in sufficient detail, and stamped by an electrical engineer licensed in the Commonwealth of Massachusetts, to allow for a determination that the manner of installation conforms to all applicable codes.

\(^3\) Planning Board Rules & Regulations Governing the Issuance of Special Permits, Code of Falmouth.
e. Evidence of compliance or non-applicability with Federal Aviation Administration requirements.

5. Operating Details
   a. The applicant shall submit an operations and maintenance plan, to remain on file with the SPGA, for maintenance of access roads and storm water controls, in any, as well as general procedures for operational maintenance of the WES. The O&M Plan must address the following:
      i. Fully identify the parties responsible for owning and operating the turbine.
      ii. Normal maintenance schedule and procedures.
      iii. Methods for measuring sound, flicker and other potential impacts throughout normal operations.
      iv. Emergency contacts and procedures.
   b. Sound Impact Analysis: The applicant shall submit manufacturer’s documentation of sound impacts of the wind turbine(s) under various wind conditions, represented by a chart or map indicating the expected decibel levels at given distances from the wind turbine, including along the property lines.
      i. The sound analysis shall include measurements of ambient sound levels under typical daytime and nighttime conditions.
      ii. The applicant shall specify the conditions, under which ambient sound levels are measured, as well as the frequency and duration of these measurements.
      iii. The SPGA reserves the right to request measurement and/or modeling to the degree necessary to determine the potential sound impacts of a proposed WES, and to employ the services of their own acoustical expert at the expense of the applicant.
      iv. Sound modeling shall include analysis of, but not limited to, the following items: intermittent sound, sound power; spreading loss; atmospheric attenuation; barriers; ground attenuation and topography; meteorology, including seasonal variation; and wind direction, speeds and shear.
   c. Flicker Analysis: The applicant shall submit an evaluation of the flicker effects of the wind turbine(s) as proposed to be sited on the parcel.
      i. Seasonal differences in time and duration must be provided.
      ii. A plan delineating all impacted areas must be provided, with mitigation.

§240-166 G. Procedure for Review

In addition to the requirements found in §301 –1 thru 8, applications for a special permit under this Article shall be subject to the following procedural requirements:

1. With the exception of those property owners identified as parties-in-interest, the SPGA shall, by regular mail, alert property owners within the public outreach area of the time, place and date of the required public hearing for any WES. The purpose of this outreach effort is to broaden the base of information gathering beyond that typically required of other special permit applications, while not conferring party-in-interest status beyond that defined by §11 c40A GL.
§240-166 H. Criteria for Review

Applications for WES shall be subject to the following performance requirements:

1. System Height: The maximum height of a WES shall be determined by the SPGA based on the operational characteristics of the WES, but in no case shall the maximum permitted height exceed the setback requirements.

2. Setbacks:
   a. Safety Setback: The setback from property lines shall be no less than the system height plus 10 percent to mitigate risk from ice throw or mechanical failure.
   b. Sound Setback: shall be determined by the SPGA from Sound Impact Analysis described above in order to not exceed increases in broadband sound levels by more than eight (8) A-weighted decibels or “pure tone” sound levels by more than 3 A-weighted decibels over ambient sound levels at the property line.
      i. The applicant shall have the burden of proving that the sound generated by the proposed WES will not have a significant adverse impact on adjacent land uses.
      ii. An analysis prepared by a qualified acoustical expert shall be presented to demonstrate compliance with the noise setback.
   c. A larger setback may be required by the SPGA in order to fulfill the intent of the safety or sound setback based on manufacturer or industry standards for the type of WES under review.

3. Clearing: The extent of clearing shall be limited to that which is necessary for access, construction, operation and maintenance of the WES.
   a. Extensive clearing shall require runoff control and storm water management.
   b. Temporary construction staging areas shall be re-vegetated.

4. Design Standards
   a. Color and finish: All components of the WES shall be painted a neutral, non-reflective color.
   b. Lighting: Wind turbines shall be lighted only if required by the Federal Aviation Administration. Lighting of appurtenant structures shall be limited to that required for safety, security and operational purposes, and shall be shielded from abutting properties to the extent possible.
   c. A WES shall not display any permanent or temporary signs, writing, symbols, logos or any graphic representation except the following:
      i. Signs necessary to identify the owner, provide a 24-hour emergency contact phone number, and warn of any danger.
      ii. Educational signs providing information about the facility, and the benefits of renewable energy.
      iii. Reasonable identification of the manufacturer or operator of the WES.
   d. Utility connections shall be installed underground. Electrical transformers for utility interconnection may be above ground, if required by the utility provider.

5. Safety and Environmental Standards
   a. Emergency services: The applicant shall provide a copy of the project approval and site plan to the Falmouth Police Dept. and Falmouth Fire and Rescue Dept.
i. The applicant cooperate with the FFRD in developing an emergency response plan, which must be approved by the SPGA.

ii. The emergency response plan shall account for any hazardous materials located at the property necessary for the operation of the WES.

b. Access:
   i. All ground mounted electrical and control equipment shall be labeled and secured to prevent unauthorized access.
   ii. The tower shall be designed and constructed so as to not provide stop bolts or a ladder readily accessible to public for a minimum height of 10-feet above the ground.

c. Shadow flicker: WES shall be sited in a manner that minimizes flicker impacts.
   i. The applicant must demonstrate that flicker will not occur more than 30 minutes per day, and will not exceed 10 total hours per year over the property line.
   ii. The applicant has the burden of proving that flicker will not have a significant adverse impact on adjacent land uses either through siting or mitigation.

§240-166 I. Decision

Applications under this Article shall only be approved by the SPGA upon its finding that the criteria for review above have been satisfied together with the standards found under section 216.

§240-166 J. Categorical Denial

No Special Permit shall issue for any application not able to demonstrate compliance with the Sound or Safety Setbacks.

§240-166 K. Standard Conditions

The following shall be conditions of any special permit issued under this Article:

1. Facility Condition: The applicant shall maintain the WES in good condition.
   a. Maintenance shall include, but not be limited to: painting, structural repairs, and integrity of security measures.
   b. Site access shall be maintained.
   c. The WES owner shall be responsible for the cost of maintaining the WES and any access roadways or driveways, and the cost of repairing any damage occurring as a result of construction and operation.

2. Annual inspections: Any LWES shall be subject to an annual inspection, with a report submitted to the SPGA and Building Commissioner.
   a. The inspection shall include an evaluation of all mechanical and structural components, especially safety, performed by professional engineers with the proper registrations (i.e. structural, electrical, mechanical, etc.)

3. Modifications: Modifications to a WES made after issuance of the special permit shall require approval by the SPGA as provided in this Article.
4. Enforcement and penalties: The Building Commissioner shall be responsible for the enforcement of the provisions of this section pursuant to Article XXXVII (37) of the Zoning Bylaw.
   a. Failure of the owner of any WES to comply with operational standards, mitigation measures or annual inspection requirements shall be considered a violation of the zoning bylaw.
   b. The Building Commissioner shall, where such permit so authorizes and after proper notification, have the right to enter any premises for the purposes of inspecting any building or structure, at a reasonable hour and at such times as may be reasonably necessary to enforce this bylaw.

5. Abandonment or Decommissioning
   a. Removal Requirements: Any WES which has reached the end of its useful life or has been abandoned shall be removed. For a scheduled decommissioning, the owner shall notify the SPGA by certified mail of the proposed date of discontinued operations and plans for removal. The owner shall physically remove the WES no more than 150 days after the date of discontinued operations. Decommissioning shall consist of:
      i. Physical removal of all wind turbines, structures, equipment, security barriers and transmission lines from the site.
      ii. Disposal of all solid and hazardous waste in accordance with local and state regulations.
      iii. Stabilization or re-vegetation of the site as necessary to minimize erosion. The SPGA may allow the owner to leave below-grade foundations in place in order to minimize disruption.
      iv. Abandonment: Absent notice of a proposed date of decommissioning, the WES shall be considered abandoned when the facility fails to operate for more than 12 consecutive months
      v. Prior to declaring the WES to be abandoned, the SPGA shall notify the owner by certified mail that corrective action must be taken. The owner shall have 30-days to respond and provide a schedule for corrective action.

6. Financial surety: The SPGA shall require the applicant for any LWES to provide surety, either as a bond or escrow account, to cover the cost of removal in the event the town must remove the WES together with a right-of-entry onto the property in the event of default. The applicant shall submit a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer. The amount shall be adjusted for inflation.

7. Public inquiries/complaints: The applicant shall identify a responsible person and contact phone number in the event of public inquiries or complaints, for as long as the WES is in place. Complaints that cannot be resolved by the parties shall be forwarded to the Building Commissioner, with a copy to the SPGA, by the responsible person identified above.

Or do or take any other action on this matter. On request of the Planning Board.