

# ENERGY PLANNING & ACT 174

Overview of  
Municipal  
Standards for  
Determination of  
Energy  
Compliance



# ACT 174 PRESENTATION OVERVIEW

- **What we will be discussing:**

- Overview of VT Energy Planning
- Review of Municipal Energy Planning Standards

- **What we will not be discussing:**

- State energy policy as a whole.

# OVERVIEW

Why and  
how are  
we here?



# WHY PLAN?

- Environmental Reasons
- Economic Reasons
- Long-term Energy Security Reasons



# HISTORY OF ENERGY PLANNING IN VT

- 2016 Comprehensive Energy Plan
  - Driven primarily by a desire **to reduce greenhouse gasses\***
  - Other goals
    - Reduce total energy consumption per capita
    - **90% by 2050**
    - Renewable end use sector goals for transportation, buildings, and electric power

\*V.S.A. Title 10, § 578(a)

# INTEGRATING ENERGY AND PLANNING

- Energy Generation Siting Policy Commission (2013)
- Solar Siting Task Force (2015)
- Energy intertwined with other planning issues:
  - Transportation
  - Housing
  - Natural Resources
  - Land Use
  - Economic Development

- Pilot Project in 2015
  - Implement the CEP
- Set regional targets for:
  - Energy conservation
  - Energy generation
- Develop specific strategies for:
  - Conservation
  - Energy efficiency
  - Reduced fossil fuel use.
- Identify energy resources and areas with the potential for renewable energy projects.

ANY  
QUESTIONS  
?

OVERVIEW

Questions?



# ACT 174

Enhanced  
Energy  
Planning



# ACT 174 - SUMMARY

- Act 174 establishes a set of **optional** municipal and regional energy planning standards.
- Standards developed by DPS in November 2016
- Communities that meet the standards will receive a determination of energy compliance (DOEC).
  - “Substantial deference” under Section 248

# SUBSTANTIAL DEFERENCE

## Due Consideration

Statute calls for “due consideration.” Does not define what “due consideration is” or assign whether the PSB or the Courts are the ultimate arbiter.

The SCOV indicated that the PSB only has to give “due consideration to the recommendations of the municipal and regional planning commissions in deciding [if] the project will not unduly interfere with the orderly development of the region.”

## Substantial Deference

Defined in Statute:

*“that a land conservation measure or specific policy shall be applied in accordance with its terms unless there is a clear and convincing demonstration that other factors affecting the general good of the State outweigh the application of the measure or policy.”*

# STANDARD OF REVIEW

- “determination standards for energy compliance”
- Standard of review
  - Same as for “Regional Approval”
  - Outlined in §4302(f) - requires “substantial progress toward attainment of the goals.”
- All sections of plan will be considered
- Policies can't be conflicting policy between chapters.

# BASIC REQUIREMENTS

- Locally adopted and regionally approved Plan
- Energy Plan as defined in 24 V.S.A. §4348a(a)(3)
- Analysis and Targets
- Pathways (Implementation Actions)
- Mapping



# ACT 174 SUMMARY

Questions?

# ANALYSIS AND TARGET STANDARDS

# ANALYSIS AND TARGETS

- Plan must contain an analysis the following across all energy sectors (electric, thermal, transportation\*):
  - Resources
  - Needs
  - Scarcities
  - Costs
  - Problems
- DPS guidance available

*\*note that the “across all energy sectors” component is new, the other components are not.*



# ANALYSIS AND TARGETS

- Estimate current energy use:
  - Transportation, heating and electric
- Establish targets:
  - Thermal and electric conservation and efficiency
  - Use of renewable energy for transportation, heating and electricity.
  - Electric generation
- Evaluate needs:
  - Conversion of heating sources
  - Transportation/land use changes
  - Electric-sector conservation and efficiency



DON'T PANIC

## RPC CAN PROVIDE DATA

Communities can opt to collect and analyze data themselves, or they can utilize data provided by their RPC.

**Those that use the RPC data will be presumed to have met the standards in this section.**

# IF YOU DO IT YOURSELF

- Data and targets should be aligned with state energy policy.
  - If not, must explain how the plan otherwise achieves the intent of the state goal or policy
- DPS will be providing guidance to communities

# ESTIMATING USE: TRANSPORTATION

- Ex. Anytown, VT
  - 2,930 household vehicles (ACS) \* 14,000 average miles per vehicle (DPS Guidance) = 41 million miles/year
  - 41 million miles/year / 25 MPG (DPS Guidance) = 1.64 million gallons
  - 1.64 million gallons \* \$2.25/gallon = \$3.7 million in gasoline expenditures per year
  - Gas v. Ethanol (DPS = 10%)
    - 1.64 million gallons \* .1 = 164,080 gallons of ethanol
  - EVs

# ESTIMATING USE: SINGLE FAMILY HOME HEATING

- Ex. Anytown, VT
  - Home heating fuel by household(ACS)
    - Divide by total households for % of households
  - Total square feet of housing
    - Owner (Mean people per household (ACS) \* median sq. ft. per person (American Housing Survey) \* owner households (ACS) = Total Square Footage
    - Renter (Mean people per household (ACS) \* median sq. ft. per person (American Housing Survey) \* owner households (ACS) = Total Square Footage
  - Square ft. by fuel type = % home heating fuel households \* total square footage
  - Energy required for heating = 60,000 BTU/sq. ft. \* square ft. by fuel type

# ESTIMATING USE: SINGLE FAMILY HOME HEATING

- Ex. Anytown, VT
  - Fuel units used = energy required for heating/BTUs per unit
    - Converting BTUs to units (gallons, cords, pounds, kWh)
    - Ex. 1 gallon of heating oil = 140K BTUs
  - Cost = Fuel units used \* cost per unit (US EIA)





# ANALYSIS AND TARGET STANDARDS

**Questions?**

# IMPLEMENTATION ACTIONS

Pathways  
to Targets





# POLICY AND IMPLEMENTATION

- Enhanced Energy Plans must:
  - Include “pathways” and recommended actions to achieve energy targets
  - Statements of policy
    - Conservation
    - Transportation
    - Land Use
    - Development and Siting of Renewables
- Some actions may not be applicable or relevant
  - Provide reasonable justification



POLICY AND  
IMPLEMENTATION

**Questions?**

# MAPPING STANDARDS

# BASIC REQUIREMENTS

- Mapping is required
  - Regional Maps; OR
  - Municipalities may choose to undertake their own mapping.
- Municipalities expected to work collaboratively with their regions and with neighboring municipalities to ensure compatibility

# MAP POTENTIAL AREAS

- Identify potential areas for renewable energy development:



## Solar

Topography of land analyzed based on slope and direction (azimuth) conducted in GIS for ground-mounted solar.



## Wind

Digitally modeled wind speed (based on topography) analyzed at 3 hub heights.



## Hydro

Existing dams analyzed for potential capacity based on Community Hydro report. No new dams considered. **Mapping Optional**



## Biomass (wood)

Land coverage used to determine amount of harvestable wood. **Mapping Optional**

# MAP POTENTIAL CONSTRAINTS

## **Known Constraints**

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Conditions which would likely make development unfeasible.

## **Possible Constraints**

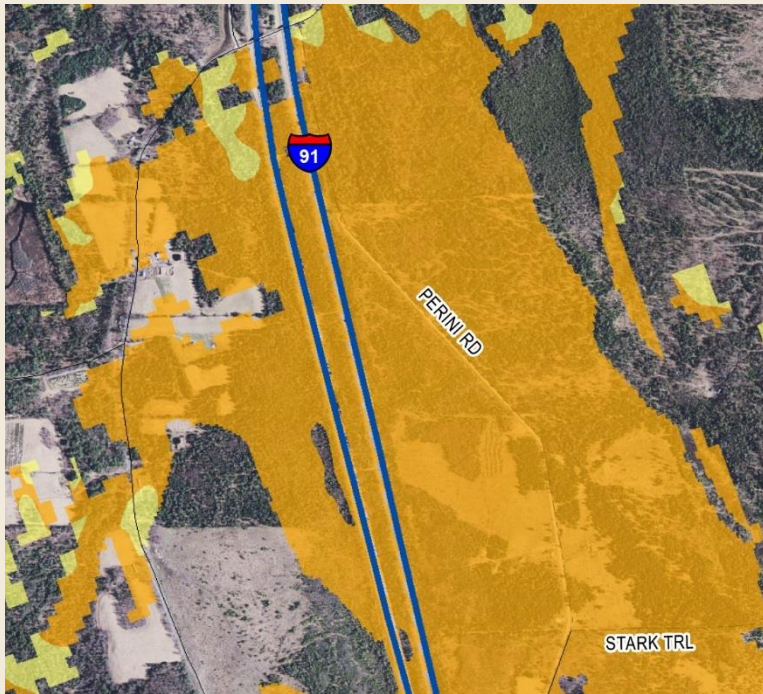
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Conditions which could impact development, but which would not necessarily prevent it.

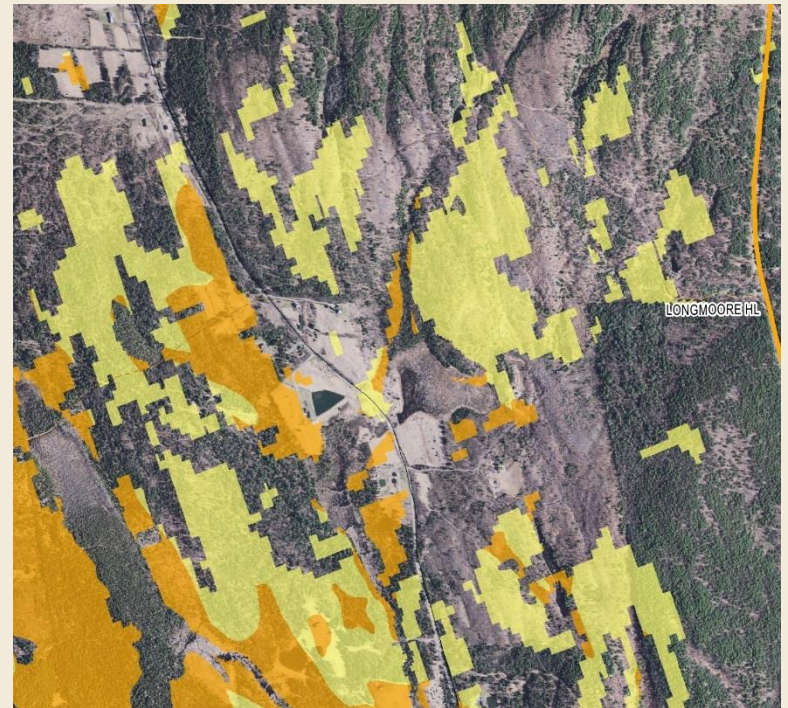


# MAPPED POTENTIAL AREAS

Potential  
(with Possible Constraints)



Prime Potential  
(No Constraints)

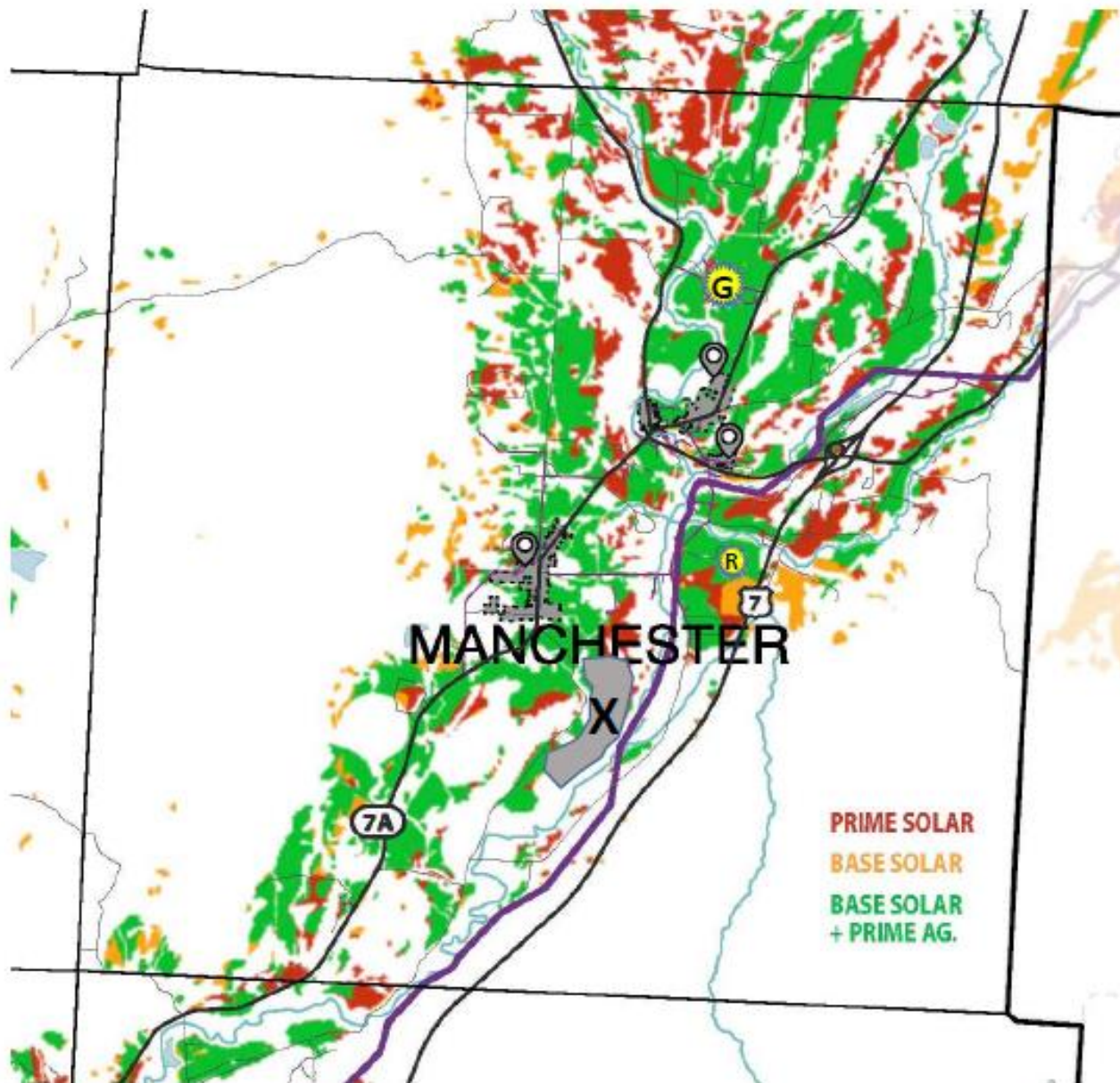


*This example shows solar potential.*

# LOCAL MAPPING DECISIONS

- Preferred locations:
  - Locally preferred locations
  - Statewide preferred locations
  - Have policies about specific sizes or type of generator
  
- Unsuitable Areas:
  - Areas (or criteria) where Town does not want a generator or a specific size/type of generator.
    - **Must have similar policies for other types of land development.**
  - Any regional or local constraints identified:
    - Supported through data or studies
    - Consistent with the remainder of the plan (and regional plan),
    - No arbitrary prohibition or interference





EX. LOCAL  
MAPPING



MAPPING

**Questions?**

# NEXT STEPS

- Regional Energy Plans
- Municipal Determination of Energy Compliance directly from DPS.
  - Submit to: [PSD.PlanningStandards@vermont.gov](mailto:PSD.PlanningStandards@vermont.gov)
- RPCs will provide map and analysis data by the end of April, 2017.
- Municipal assistance

# COMMENTS & QUESTIONS

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Please  
Hand in  
Your  
Evaluations  
Thank You

