

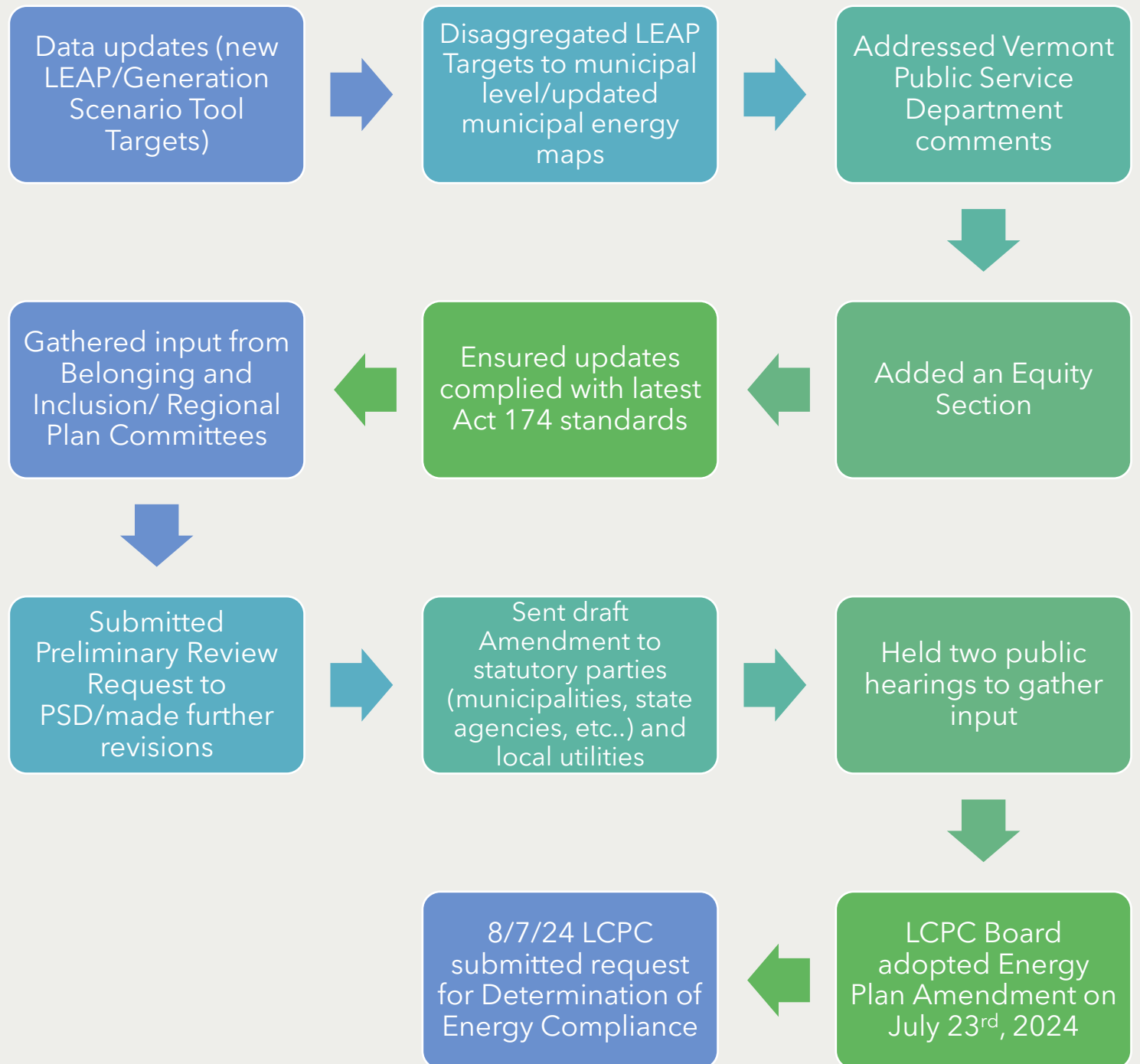
Lamoille County Enhanced Energy Plan Amendment

Adopted July 23rd, 2024

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Regional Planner



The Amendment Process



Determination of Energy Compliance

Allows LCPC to
issue determination
of energy
compliance
certificates for
Municipal
Enhanced Energy
Plans

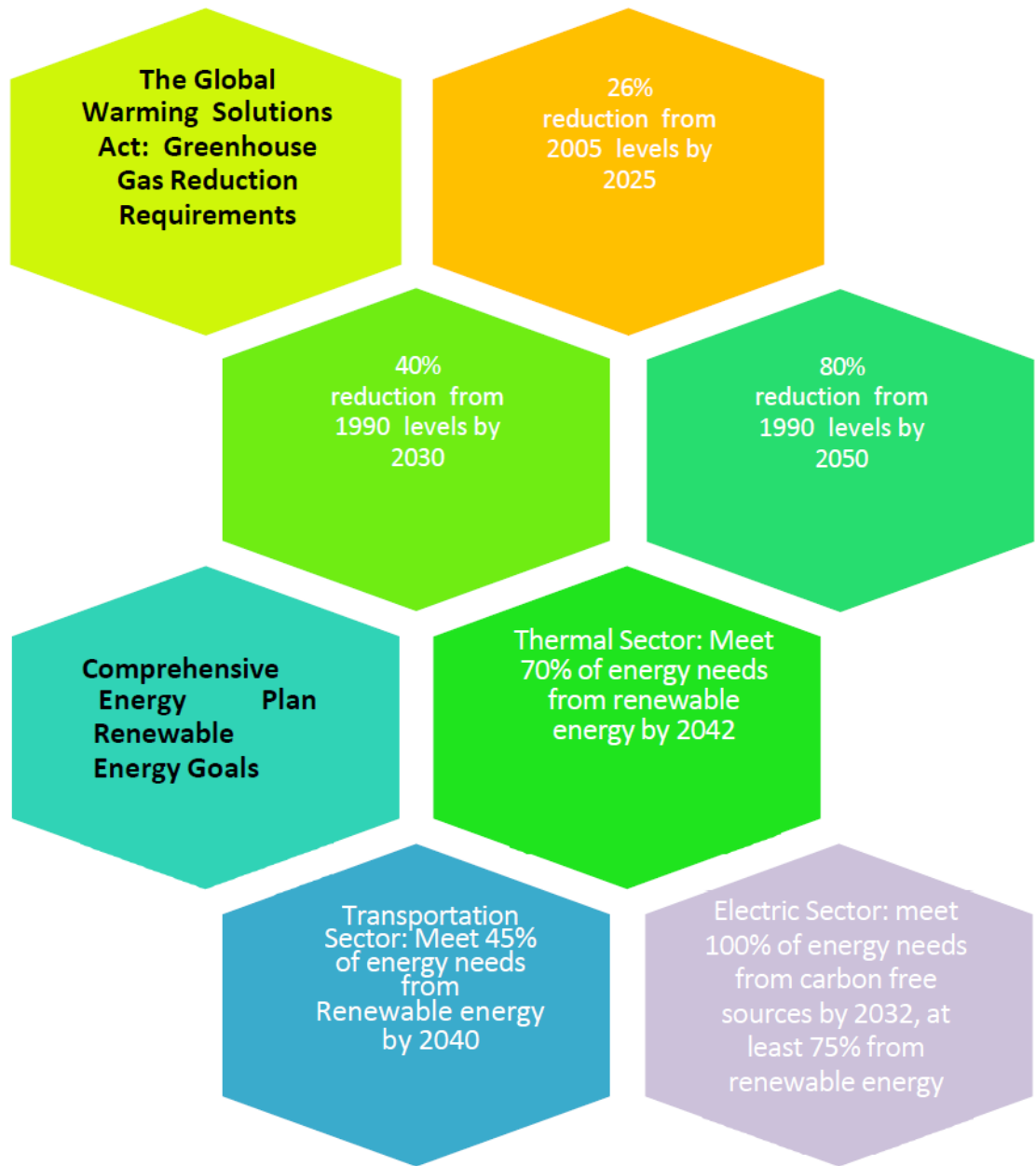
Grants the
Energy Plan
Substantial
Deference

Represents
compliance with
latest Act 174
enhanced
energy planning
standards

What is Substantial Deference?

Used in Section 248 process to provide towns and regions a strong voice in determining where energy projects should or should not be sited

“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.”



- **The Lamoille County Enhanced Energy Plan is guided by:**

- Renewable energy goals in the Vermont Comprehensive Energy Plan

- Greenhouse Gas (GHG) Emission reduction targets outlined in the Global Warming Solutions Act

- Recommendations in the Vermont Climate Action Plan to meet GHG emission reductions

The Lamoille County Energy Plan Supports:

Efficient use of energy
and energy conservation
(weatherizing structures)

Greenhouse gas
reduction measures

Electrification of the
thermal and
transportation sectors

Building electric vehicle
infrastructure

Energy storage

Grid System upgrades

Small-scale biomass for
residential and
commercial heating

Expansion of solar
(rooftop and ground
mount)

Small-scale wind power
(less than a MW)

Small-scale hydro power

Transportation/land use
practices to reduce energy
use:

- Enhance bike/ped trail networks/infrastructure
- Encourage development in compact village centers

Equity and Energy Planning

| Town | # of Households | Median Household Income | Thermal Burden | Electricity Burden | Transportation Burden | Total Energy Burden | Total Energy Burden by Town |
|------------|-----------------|-------------------------|----------------|--------------------|-----------------------|---------------------|-----------------------------|
| Belvidere | 179 | \$80,547 | 3% | 2% | 4% | 9.3% | Low |
| Cambridge | 1,376 | \$78,816 | 3% | 2% | 4% | 9.3% | Low |
| Eden | 571 | \$54,861 | 5% | 3% | 8% | 14.8% | High |
| Elmore | 464 | \$96,364 | 3% | 1% | 4% | 7.6% | Lowest |
| Hyde Park | | \$69,323 | 4% | 2% | 5% | 10.8% | Moderate |
| | 1,241 | | | | | | |
| Johnson | 1,284 | \$47,717 | 5% | 3% | 7% | 14.3% | High |
| Morristown | 2,429 | \$58,621 | 5% | 2% | 5% | 11.4% | Moderate |
| Stowe | 2,401 | \$74,065 | 4% | 2% | 4% | 9.7% | Low |
| Waterville | 183 | \$61,250 | 4% | 2% | 6% | 12.3% | High |
| Wolcott | 702 | \$62,931 | 4% | 2% | 6% | 12.0% | Moderate |

Source: 2023 Efficiency Vermont Energy Burden Report

Equity Strategies

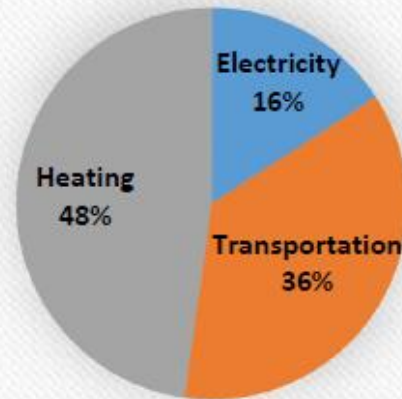
- **Policy:** Consider equity when conducting outreach for siting of renewable energy.
- **Policy:** Consider equity when supporting planning efforts for electric vehicle infrastructure, with particular focus on enhancing access in traditionally underserved communities.

Actions:

- Evaluate the effectiveness of LCPC's current outreach strategies with a focus on enhancing outreach to underserved and traditionally disadvantaged communities.
- Evaluate if the existing Substantial Regional Impact Criteria adequately address impacts – both positive and negative -- to underserved and traditionally disadvantaged communities.
- Consider potential impacts to underserved communities when reviewing proposed renewable energy development projects.
- Work with municipalities and partners to identify funding to install fast electric vehicle chargers throughout Lamoille County in areas accessible for residents and visitors.

Current Energy Use in Lamoille County

Annual Energy Consumption in Lamoille County 4.3 trillion British Thermal Units

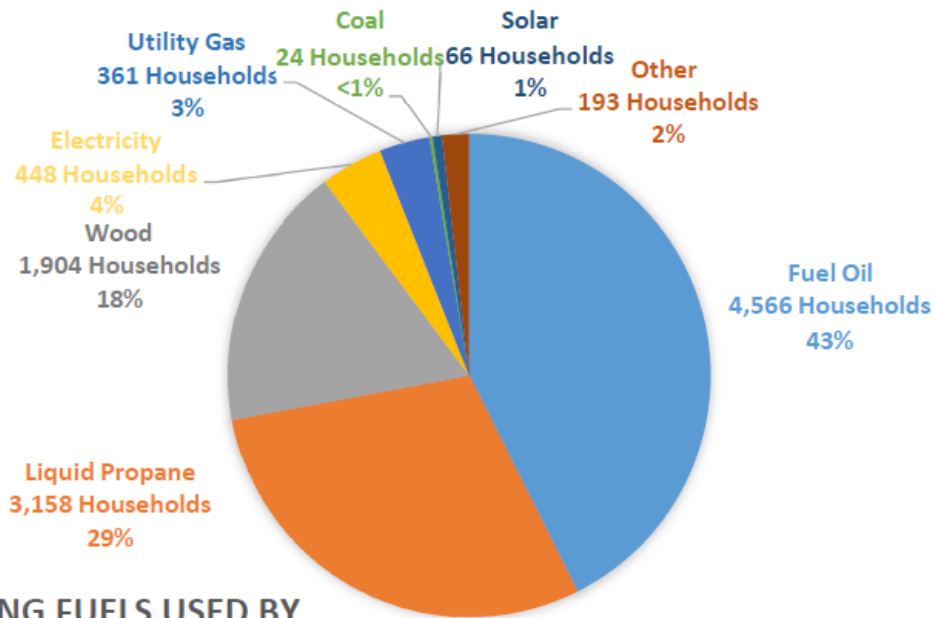


■ Electricity ■ Transportation ■ Heating

⁶ Based on 2020 American Community Survey, energy prices ⁷, 2020 Efficiency Vermont electricity usage estimates for residential, commercial and industrial sectors. Electricity is reflected in both the space heating (thermal) and electricity sectors in this calculation.

Current Energy Use/Generation

Residential Heating

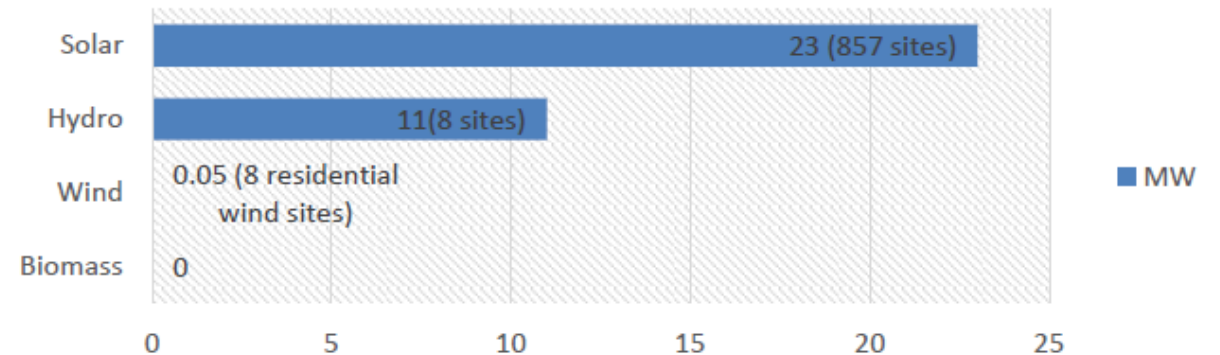


HEATING FUELS USED BY
LAMOILLE COUNTY HOUSEHOLDS

Source: 2020 American Community Survey

Existing Energy Generation Facilities in Lamoille County

Source: VT Public Service Department, 2024



Source: VT Public Service Department, March 2024

Future Energy Use: LEAP Targets

Target: Percentage of Households heated with wood

| Percentage/Year | 2015 | 2025 | 2030 | 2035 | 2040 | 2050 |
|------------------------------|-------|-------|-------|-------|-------|-------|
| Baseline Scenario Percentage | 39.5% | 36.2% | 34.7% | 33.4% | 33.1% | 32.6% |
| CAP Mitigation Scenario | 39.5% | 34.5% | 31.7% | 29.1% | 25.9% | 20.2% |

Target: Households heated with electric heat pumps

| Households/Year | 2020 | 2025 | 2030 | 2035 | 2040 | 2050 |
|-------------------------|------|-------|-------|-------|--------|--------|
| Baseline Scenario | ,524 | 1,584 | 3,006 | 3,006 | 4,246 | 4,461 |
| CAP Mitigation Scenario | 562 | 3,385 | 6,230 | 9,100 | 11,996 | 13,411 |

Target: Commercial Wood Energy Demand

| Percentage/Year | 2015 | 2025 | 2030 | 2035 | 2040 | 2050 |
|-------------------------|------|-------|-------|-------|-------|-------|
| Baseline Scenario | 9% | 11.3% | 12.1% | 13% | 13.8% | 15.7% |
| CAP Mitigation Scenario | 9% | 11.5% | 12.3% | 13.2% | 13.8% | 15.3% |

Target: Households weatherized

| Households/Year | 2020 | 2025 | 2030 | 2035 | 2040 | 2050 |
|-------------------------|------|-------|-------|-------|-------|-------|
| Baseline Scenario | 435 | 899 | 1,328 | 1,735 | 2,157 | 3,050 |
| CAP Mitigation Scenario | 695 | 2,450 | 4,204 | 5,294 | 6,384 | 8,565 |

Future Energy Use: Generation Targets

Table 3. Incremental renewable energy generation targets for Lamoille County towns

| Town | 2023 Existing Generation (MWh)* | 2025 Incremental output projections (MWh) | 2035 Incremental output projections (MWh) | 2050 Incremental output projections (MWh) | 2050 Ground mounted solar: capacity target (MW) | 2050 Rooftop Solar capacity target (MW) | 2050 Wind capacity target (MW) | 2050 Hydro Capacity target (MW) |
|---------------------|---------------------------------|---|---|---|---|---|--------------------------------|---------------------------------|
| Belvidere | 77 | 932 | 2,330 | 3,641.5 | 1.8 | 0.3 | 0.2 | 0.1** |
| Cambridge | 3,491 | 3,187.2 | 7,967.8 | 12,452.9 | 6.1 | 1.0 | 0.6 | 0.5** |
| Eden | 348 | 2,110.8 | 5,277.0 | 8,247.4 | 4.0 | 0.6 | 0.4 | 0.3** |
| Elmore | 141 | 1,329.6 | 3,324.0 | 5,195.1 | 2.5 | 0.4 | 0.3 | 0.2** |
| Hyde Park | 10,485 | 2,214.1 | 5,535.1 | 8,650.8 | 4.2 | 0.7 | 0.4 | 0.3** |
| Johnson | 1,140 | 2,588.2 | 6,470.2 | 10,112.4 | 4.9 | 0.8 | 0.5 | 0.4** |
| Morristown | 23,354 | 3,586.4 | 8,965.7 | 14,021.6 | 6.8 | 1.1 | 0.7 | 0.5 |
| Stowe | 3,863 | 4,014.0 | 10,034.8 | 15,683.4 | 7.6 | 1.2 | 0.8 | 0.6** |
| Waterville | 161 | 692 | 1,729.9 | 2,7023.7 | 1.3 | 0.2 | 0.1 | 0.1** |
| Wolcott | 4,234 | 1,660.5 | 4,151.2 | 6,487.9 | 3.2 | 0.3 | 0.3 | 0.2 |
| County total | 47,294 | 22,315 | 55,786 | 87,188 | 42.5 | 6.9 | 4.4 | 3.2 |

Source: VT Department of Public Service, 2024 Generation Scenarios Tool

*Based on Vermont Public Service Department 01/31/2023 Distributed Generation Survey

**Hydro figures above indicate there is not enough hydro resources available or grid system headroom to meet the 2050 capacity target for hydro power.

Challenges to Get There...

Grid system limitations (transmission headroom)

Need for energy storage

Cost to upgrade utility lines

Timeframe for local utilities to source transformers/equipment for grid system upgrades

Cost to install renewable energy systems

Cost to residents, local business owners, and municipalities to electrify

Secondary heating sources are still necessary

Expanding compact village centers outside the floodplain

Siting Policies

Areas Preferred for Renewable Energy Development:

Parking lots

Brownfield Sites

Landfills

Rooftop installations

Gravel pits

Locations designated in an adopted municipal plan or identified by a municipal legislative body

Areas Likely Unsuitable for Renewable Energy Development:

Federal Emergency Management Agency identified floodways

River Corridor Areas as identified by the Vermont Department of Environmental Conservation

Class 1 and 2 Wetlands as noted in Vermont State Wetlands Inventory or advisory layers

Vernal Pools (confirmed and unconfirmed)

State-significant Natural Communities and Rare, Threatened, and Endangered Species

Wilderness Areas, including National Wilderness Areas