

BENNINGTON COUNTY REGIONAL COMMISSION
REGIONAL ENERGY PLANNING
2015-2016



PRESENTATION | PROJECT OVERVIEW | NOVEMBER 2015

AGENDA

- 1. Quick overview of State Goals/Plan**
- 2. Regional Planning Project 2015-16**
- 3. State/BCRC Future Energy Projections**
- 4. Mapping Exercise Example: Solar Potential**
- 5. Questions**

Note: Copies of slides will be available by email following presentation.

VERMONT ENERGY GOALS

(a few quick examples)



25% of all energy consumed in the state through in-state renewables by 2025.



Reduce greenhouse gas emissions from energy use by 50% (of 1990 levels) by 2028 (and 75% by 2050).



Weatherize 60,000 Vermont housing units by 2017 (and 80,000 by 2025).

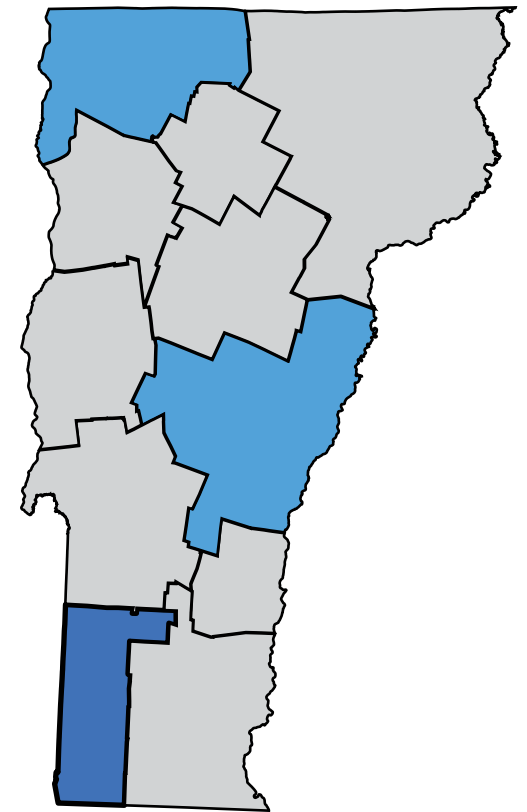
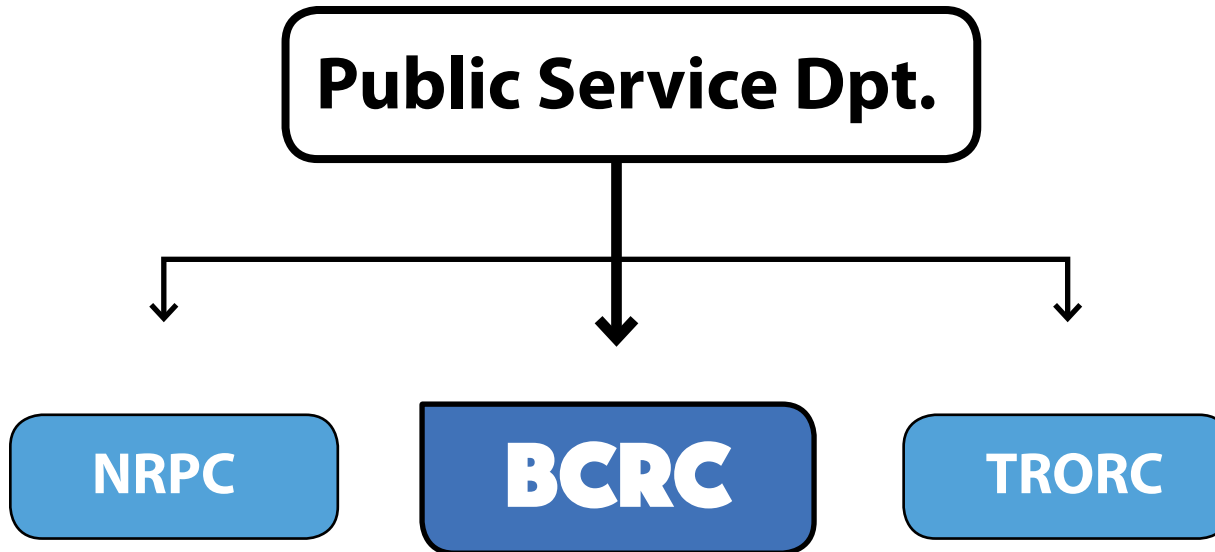


90% of Vermont's total energy needs from renewable sources by 2050.

REGIONAL PLANNING INITIATIVE

The PSD is funding three of Vermont's Regional Planning Commissions to create region-specific energy plans that sync with state goals. BCRC is the project lead. Initial plans will serve as pilots for all other regions.

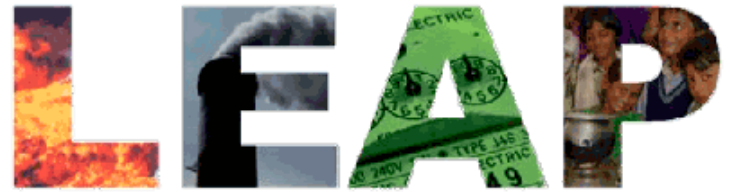
First three plans will be completed in 2016.



SO WHAT WOULD

90 X '50
(etc.)

REALLY LOOK LIKE?

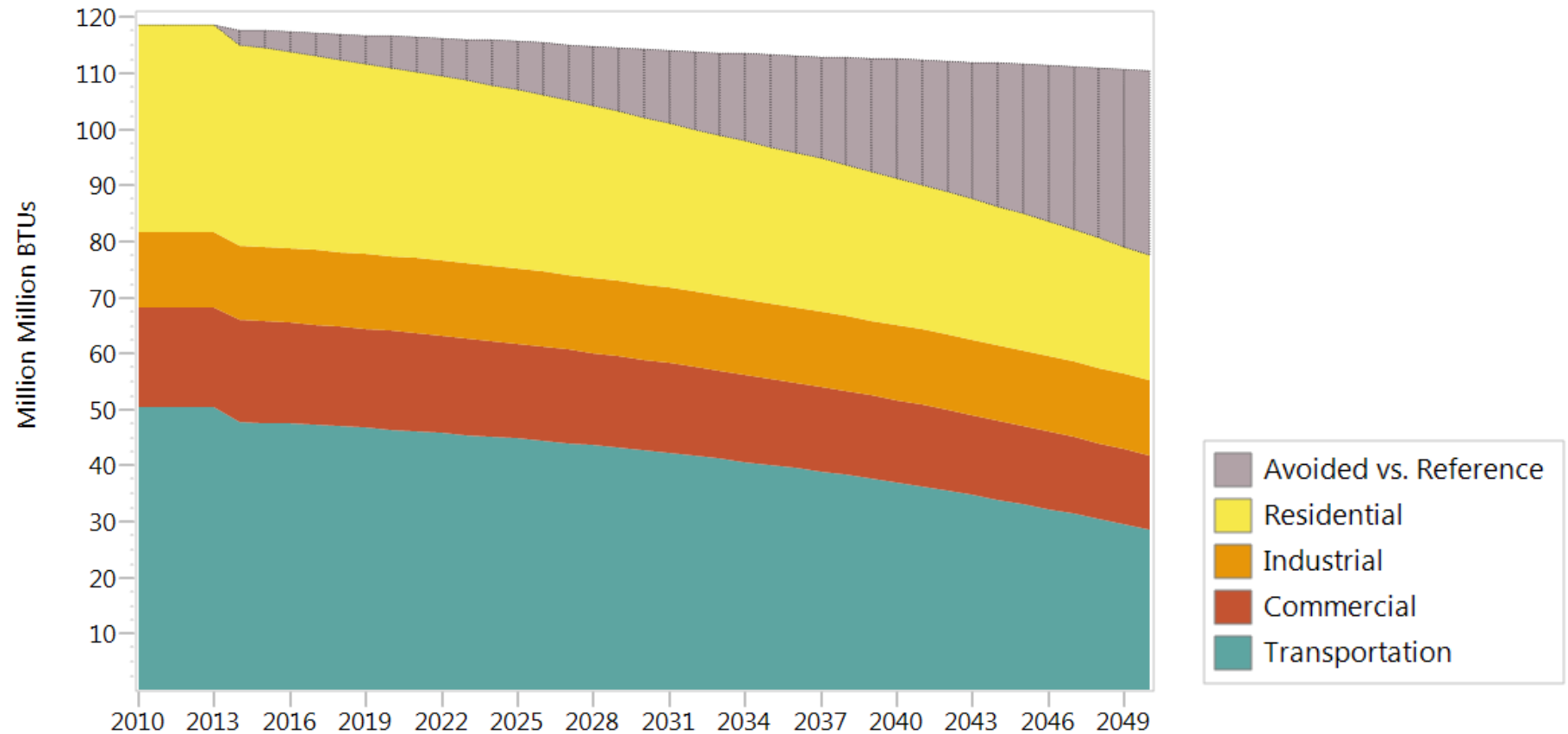


LEAP: Long Range Energy Alternatives Planning Model

Based on data from the Vermont Public Service Department, the national Energy Information Administration, and projections from the Vermont Total Energy Study, with targets based on progression toward "90 by 50" goal, VEIC has modeled results for the entire state and BCRC region. Regional outputs are based demographic and economic data and projected future demand.

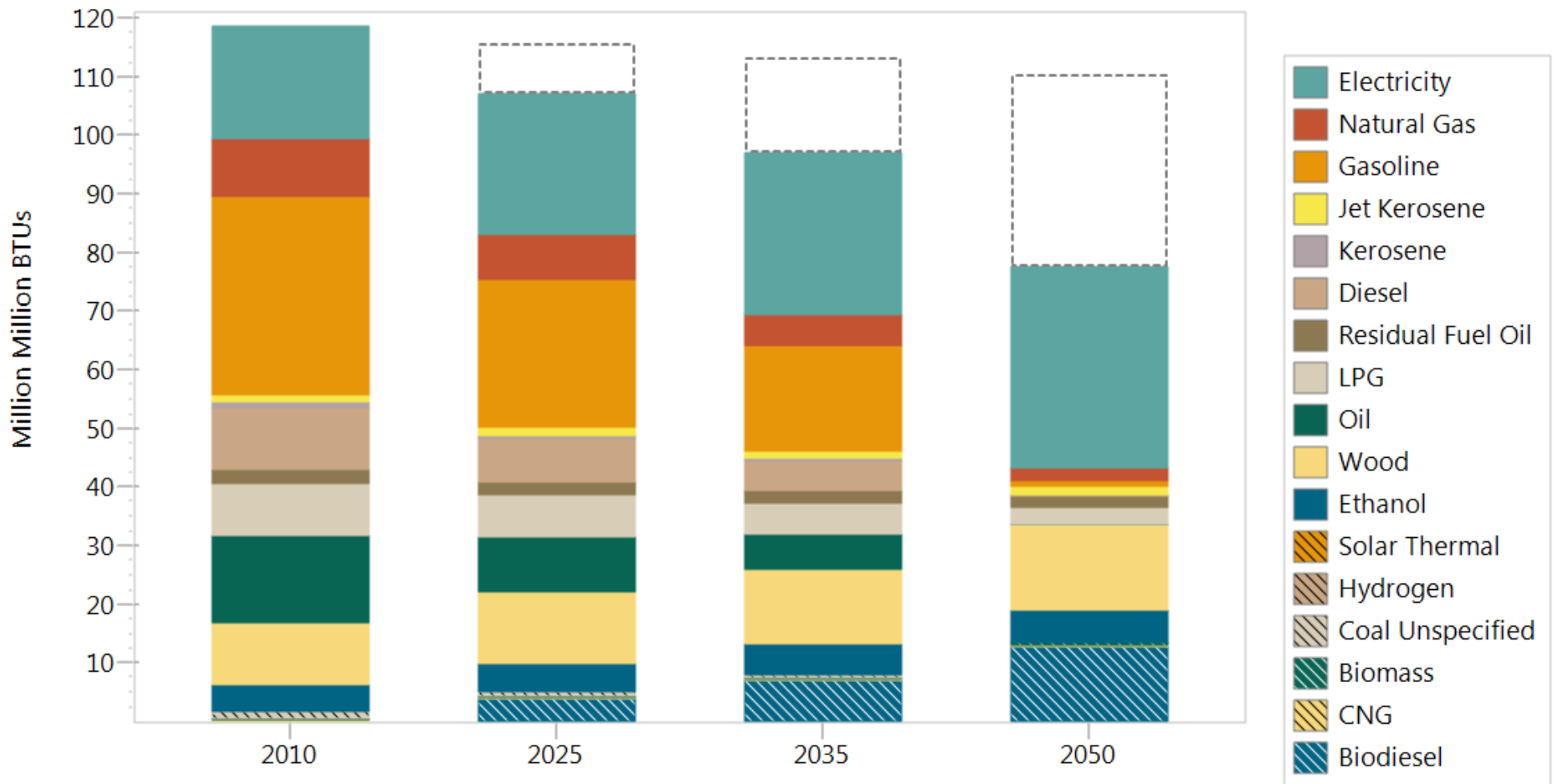
TOTAL ENERGY DEMAND

Vermont: 2010 - 2050



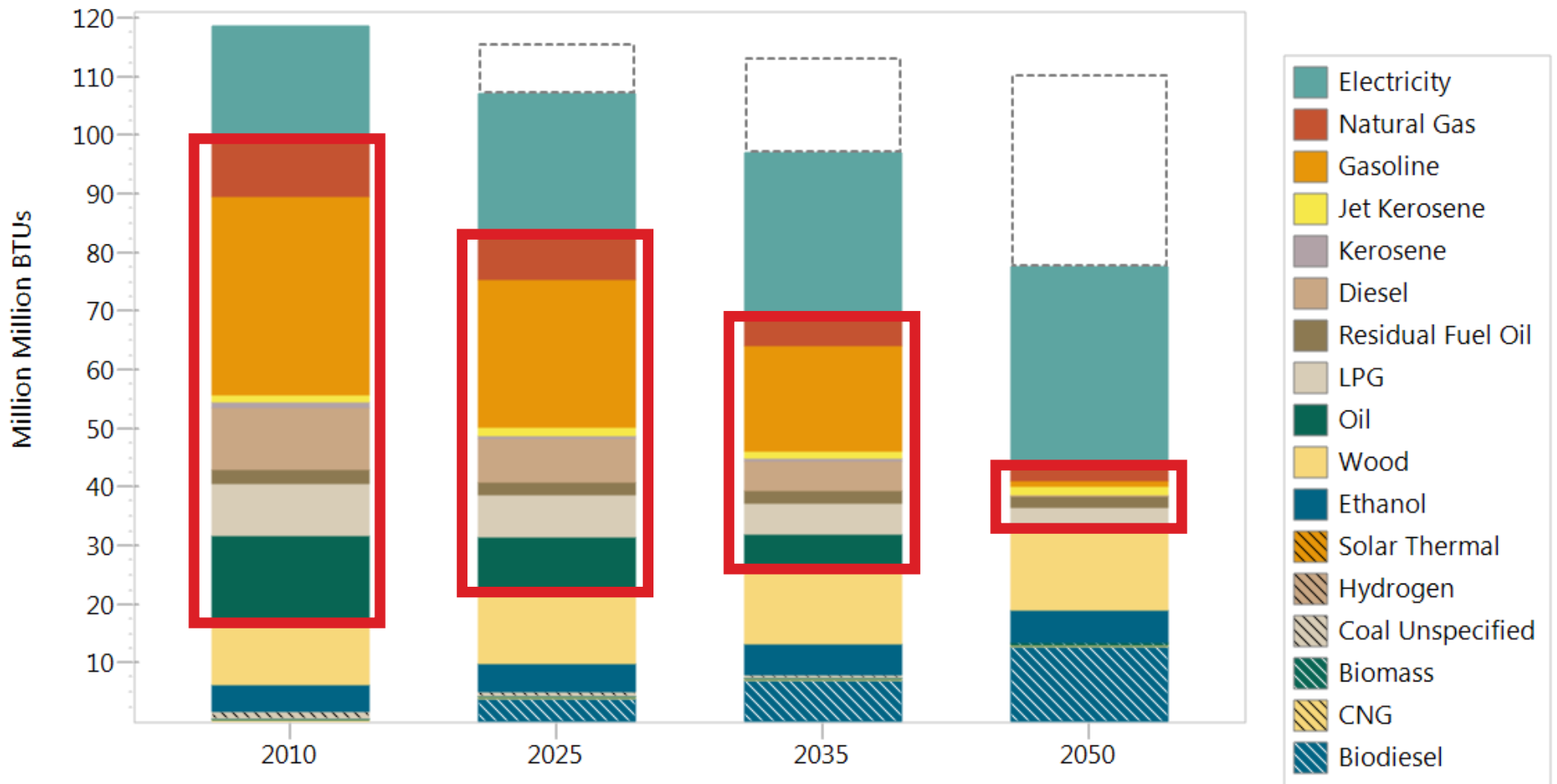
TOTAL SUPPLY, BY FUEL

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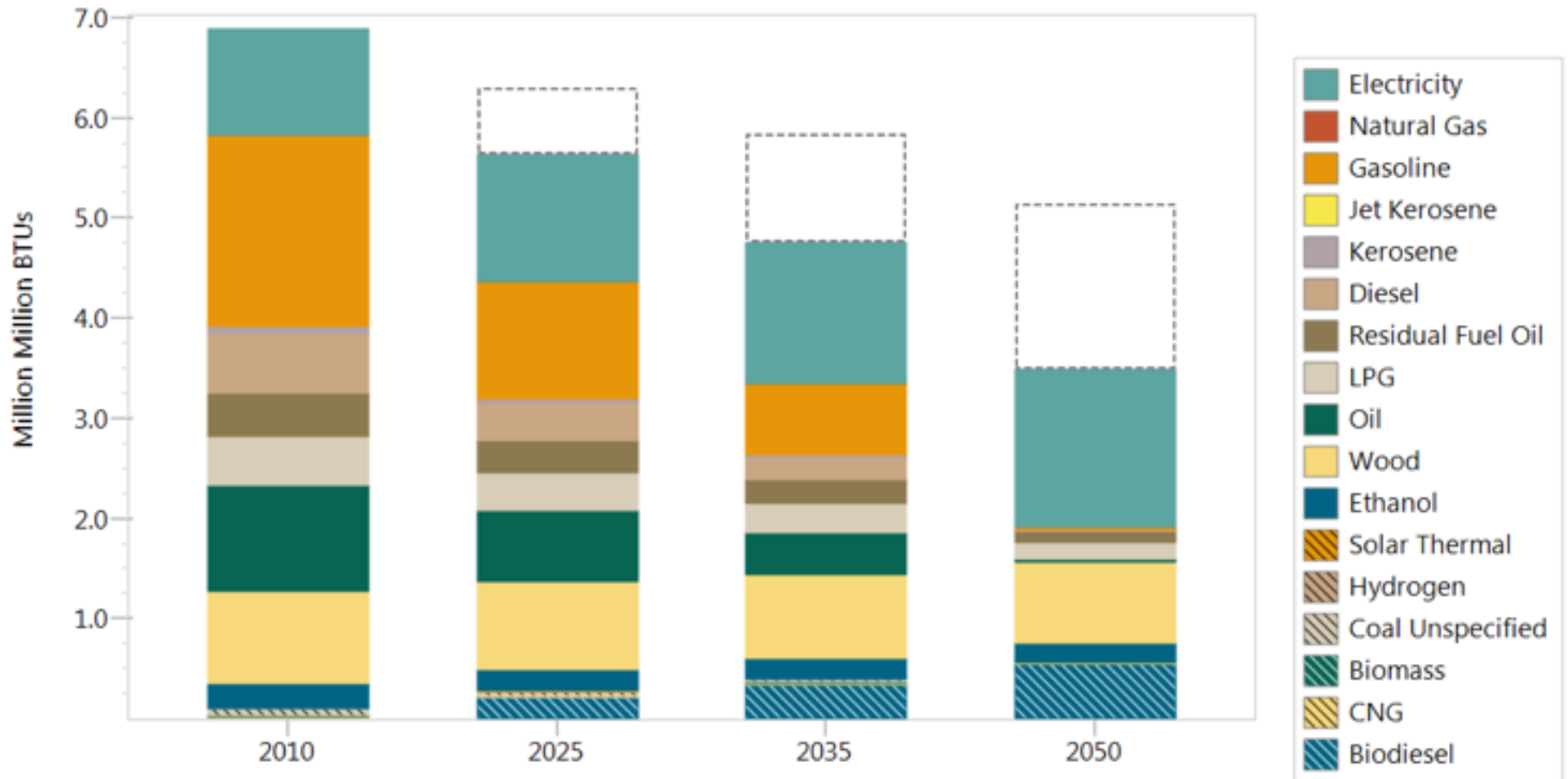


RED = NON ELECTRIC FOSSIL FUELS

**WHAT WILL THAT LOOK LIKE
IN BENNINGTON?**

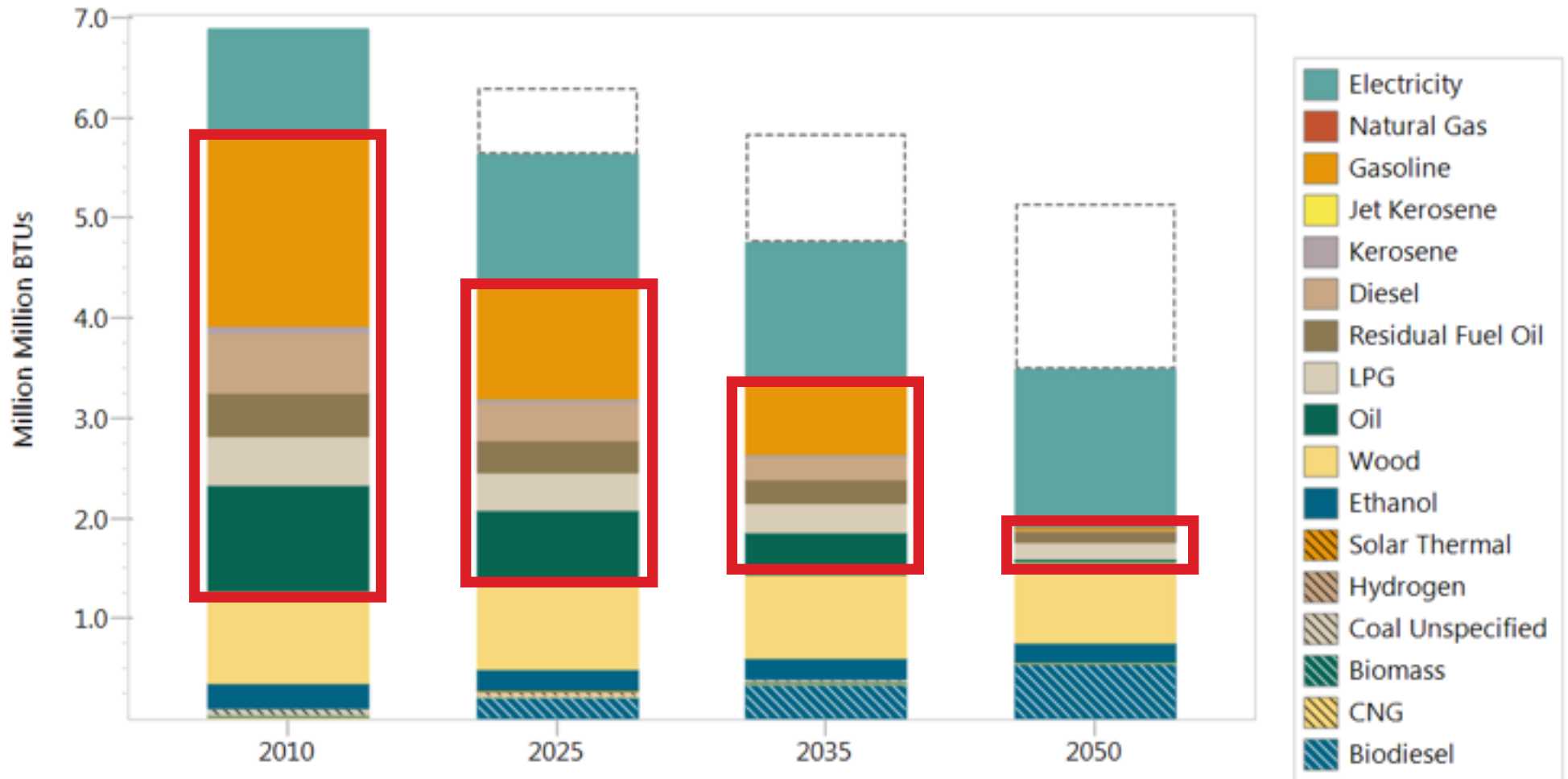
TOTAL ENERGY DEMAND

Bennington: 2010 - 2050



TOTAL ENERGY DEMAND

Bennington: 2010 - 2050



RED = NON ELECTRIC FOSSIL FUELS

SO WHAT DOES THAT MEAN?

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**NO PETROL-POWERED
CARS OR TRUCKS**
and fewer V.M.T.



**TWICE AS MANY HOMES
HEATED WITH WOOD**
*(Using twice as efficient
heating technology)*



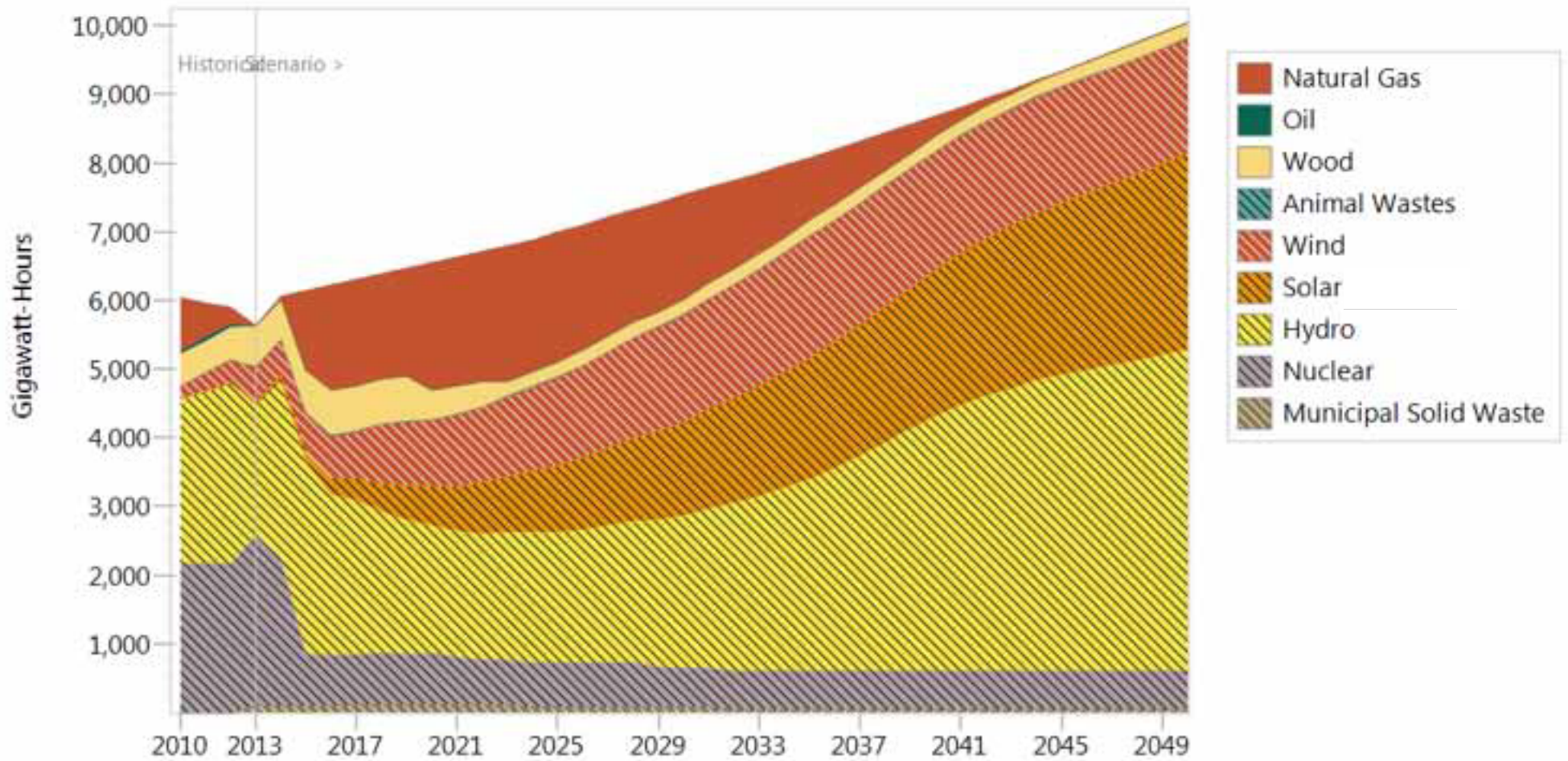
**67% MORE
ELECTRICITY!**
(1/2 from in-state sources)



**MUCH MORE EFFICIENT
USE OF ELECTRICITY**

NEW ELECTRICITY GENERATION

VERMONT: 2010 - 2050



NEW GENERATION GOALS

FOR VERMONT TOTAL AND BCRC REGION

Region	Year	Electricity Consumption (1000 GWh)	New Wind (MW)	New Hydro (MW)	New Solar (MW)
Statewide	2010	5,623	-	-	-
	2025	6,991	200	25	445
	2035	8,073	400	50	926
	2050	10,044	400	93	1,647
Bennington	2010	318	-	-	-
	2025	381	9	1	21
	2035	421	19	2	44
	2050	473	19	4	77

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BCRC REGION ELECTRICITY PORTFOLIO

WHERE DOES IT COME FROM?

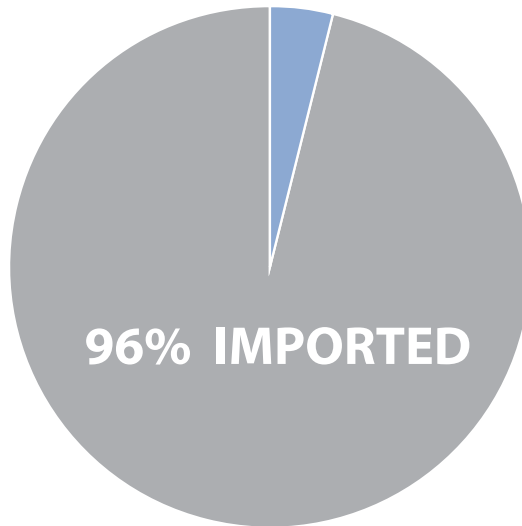
BCRC REGION ELECTRICITY PORTFOLIO

WHERE DOES IT COME FROM?

2015

ANNUAL CONSUMPTION: **318 GWh**

4% FROM IN-REGION
(INCLUDING EXISTING AND PERMITTED)

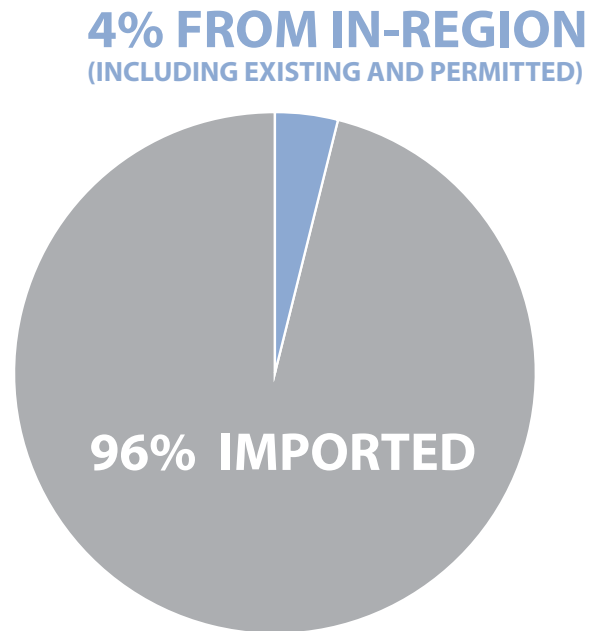


BCRC REGION ELECTRICITY PORTFOLIO

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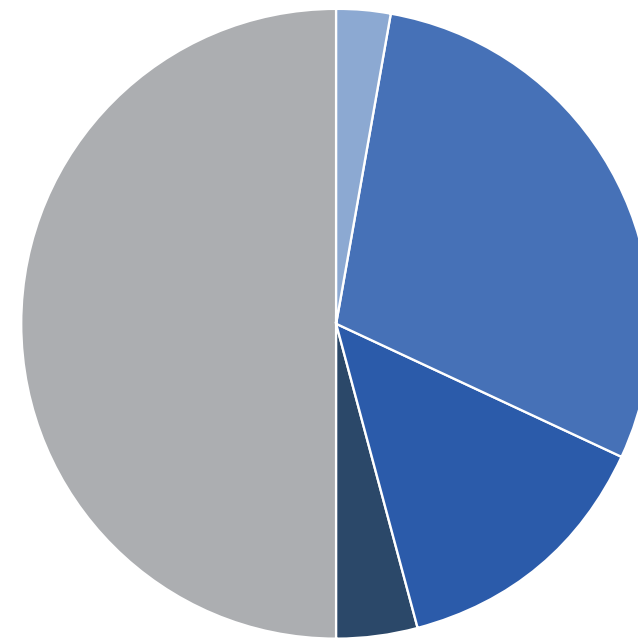
2015

ANNUAL CONSUMPTION: **318 GWh**



2050: GOAL

ANNUAL CONSUMPTION: **473 GWh**

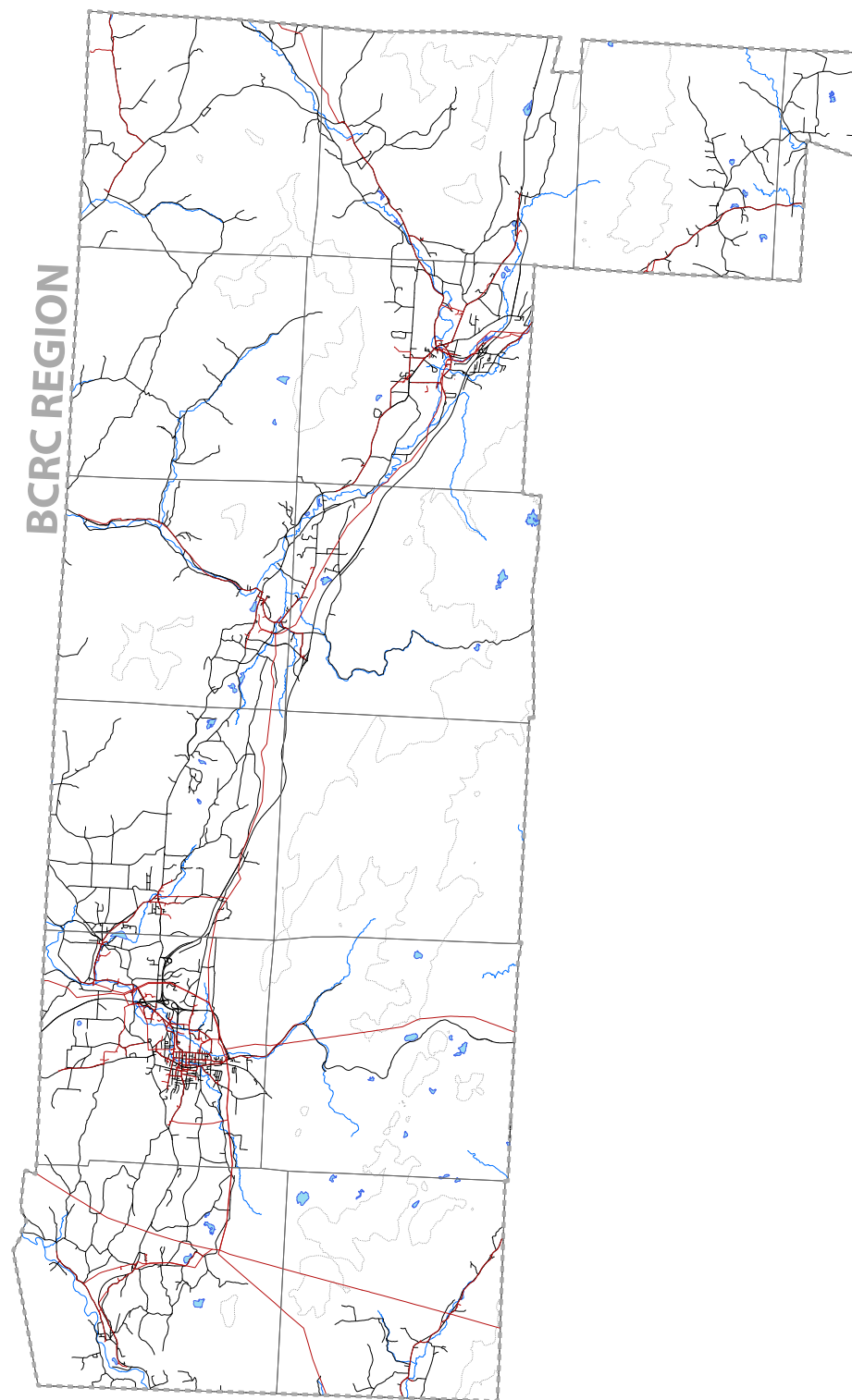


- 50% IMPORTED
- 3% EXISTING IN-REGION
- 29% BCRC SOLAR
- 14% BCRC WIND
- 4% BCRC HYDRO

MAPPING EXERCISE: SOLAR POTENTIAL

THE GOAL: 77 MW OF NEW CAPACITY

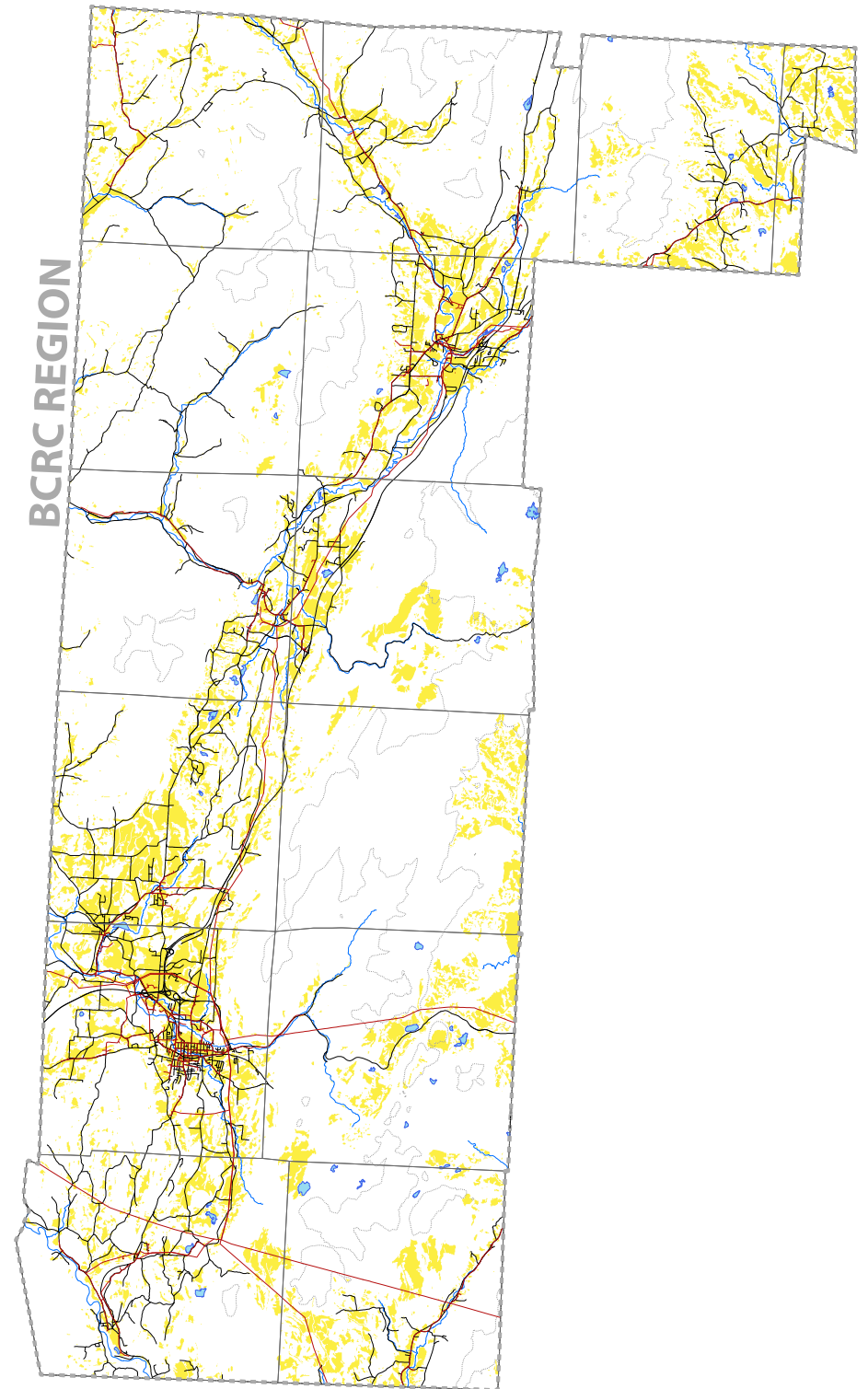
**THIS IS THE BCRC
REGION.**



THIS IS WHERE THERE IS SOLAR POTENTIAL

This includes gently sloping land (<10%) with south-facing access, which does not interfere with the following areas:

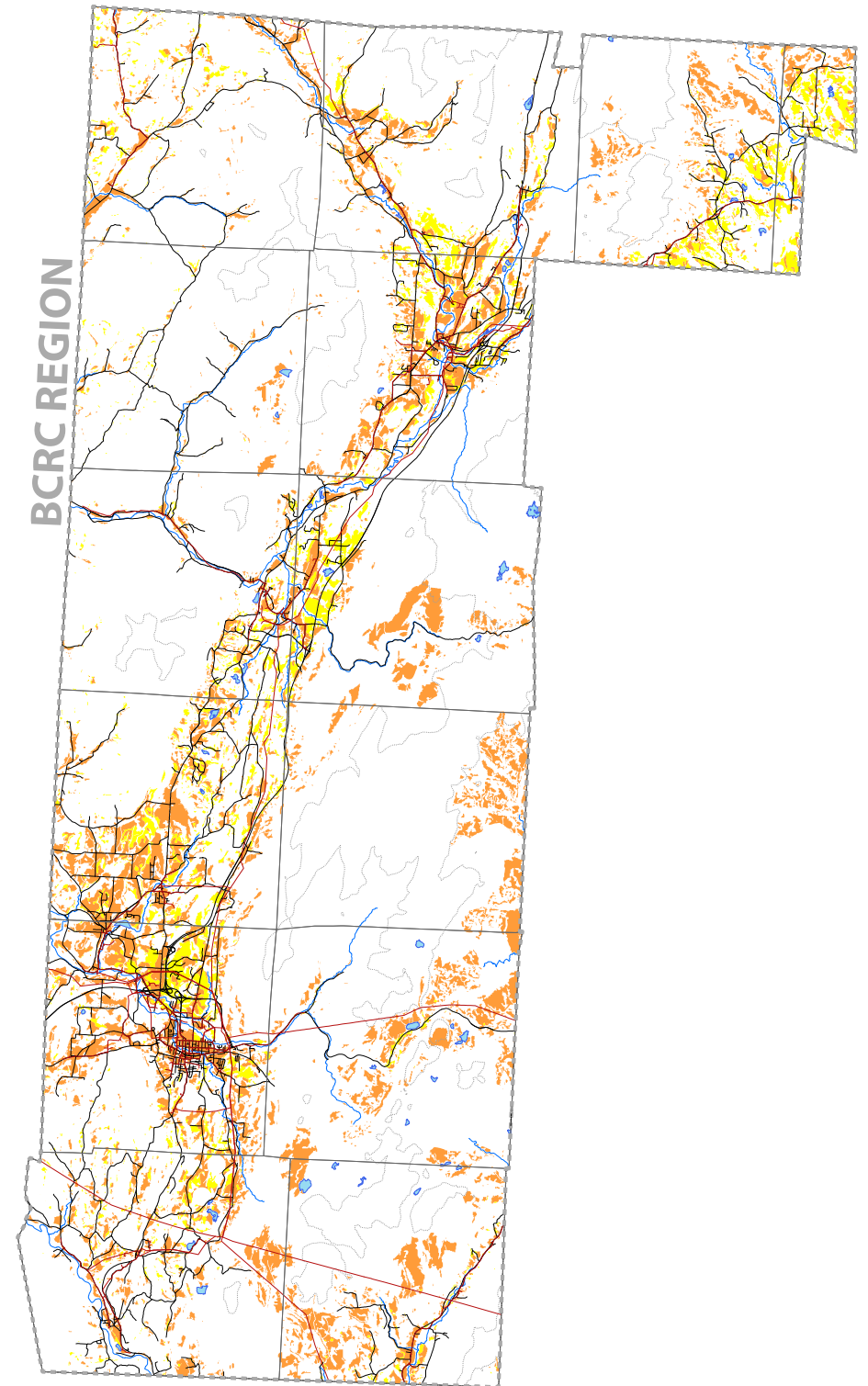
- Floodways & River Corridors
- Federal Wilderness
- Rare and Irreplaceable natural areas
- Vernal Pools
- Class 1 and 2 Wetlands



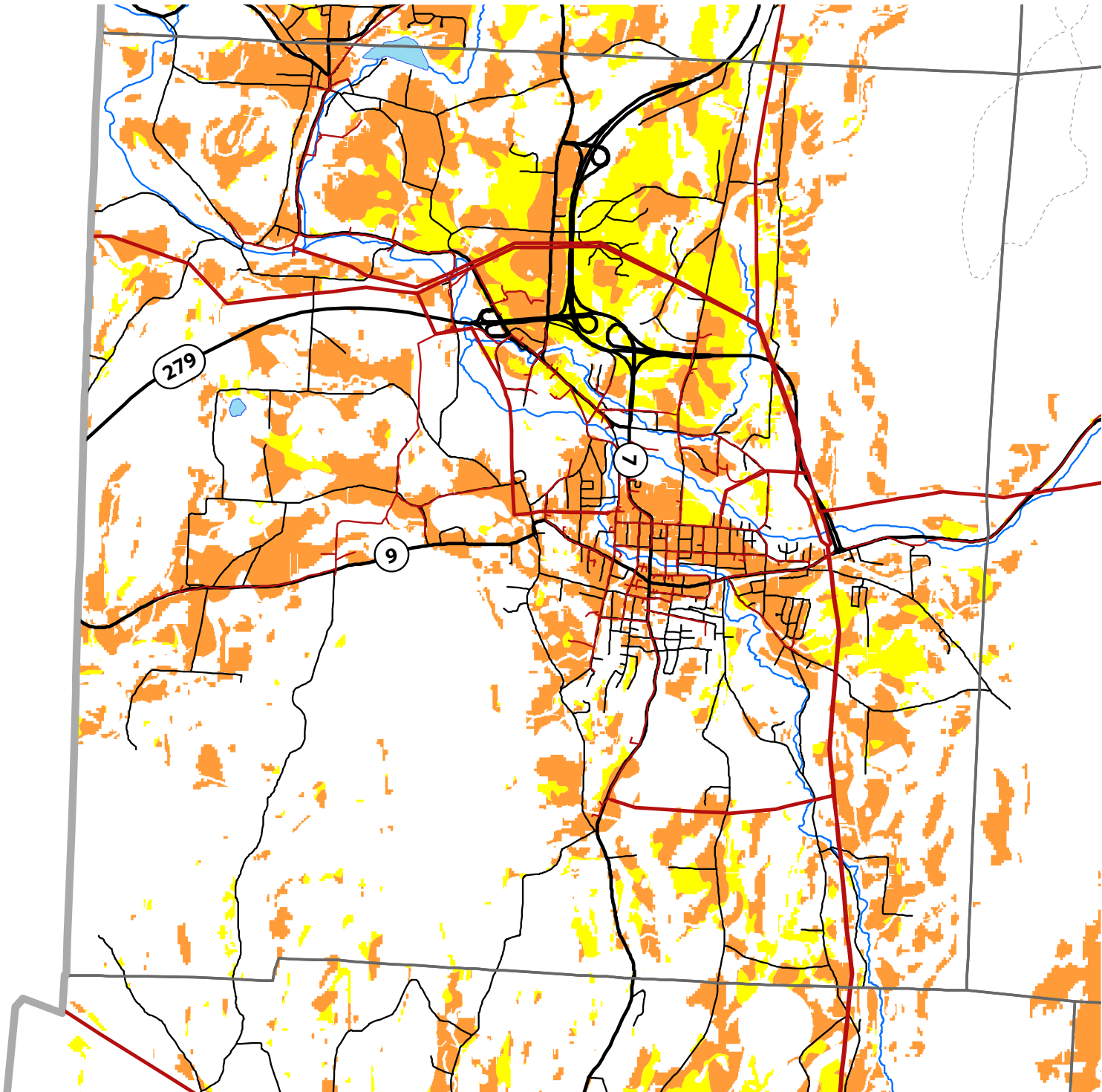
AREAS WITH ONE OF THE FOLLOWING CONDITIONS ARE ORANGE:

- Agricultural Soils (all ag-rated soils)
- Habitat Blocks (ANR class 9 and 10)
- Hydric Soils
- Conserved Lands
- Special Flood Hazard Areas
- Deer Wintering Areas
- Class 3 Wetlands

YELLOW=
“PRIME SOLAR”



ZOOMED IN ON BENNINGTON...





**THIS IS THE
AMOUNT OF
LAND AREA
IN THE
BCRC REGION**

(about 370,00 acres, or 575 sq. miles)

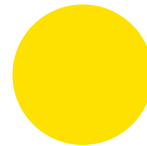


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(about 13,000 acres)



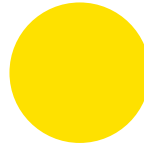
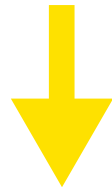


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(about 13,000 acres)



**AND THIS IS ABOUT
THE AMOUNT OF
AREA THAT WOULD
BE NEEDED TO REACH
OUR 2050 GOAL OF
77MW ADDITIONAL
IN-REGION CAPACITY.**

(about 700 acres)



WHAT ABOUT ROOFTOP SOLAR?

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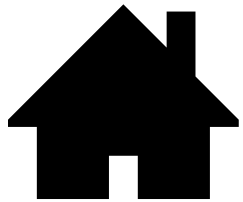


Residential structures in BCRC Region: 14,000

If 50% are oriented properly and structurally compatible, and 50% of those choose to install systems at an average of 4KW capacity, that's...

14 MW

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Small Commercial Structures (<40K sq ft): 2,000

If 50% are oriented properly and structurally compatible, and 50% of those choose to install systems at an average of 20KW capacity, that's...

10 MW

WHAT ABOUT ROOFTOP SOLAR?



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14 MW



Small Commercial Structures (<40K sq ft): 2,000

If 50% are oriented properly and structurally compatible, and 50% of those choose to install systems at an average of 20KW capacity, that's...

10 MW



Large Commercial Structures (>40K sq ft): 100

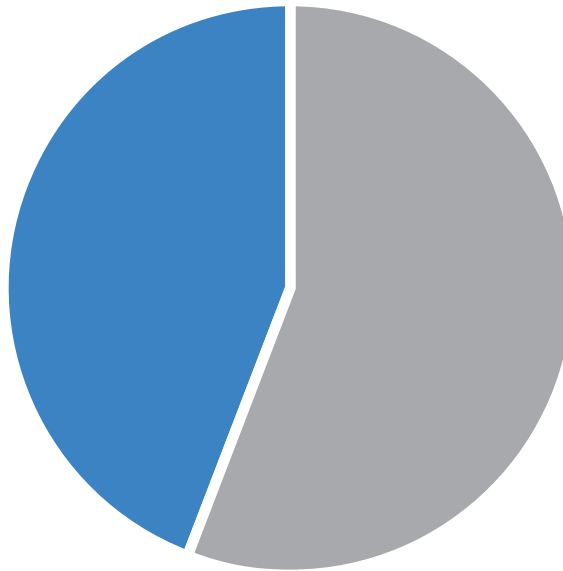
If 50% overall choose to install systems at an average of 200KW capacity, that's...

10 MW

TOTAL ROOFTOP CAPACITY:
(IN AN EXTREMELY AMBITIOUS SCENARIO)

TOTAL ROOFTOP CAPACITY: 34MW
(IN AN EXTREMELY AMBITIOUS SCENARIO)

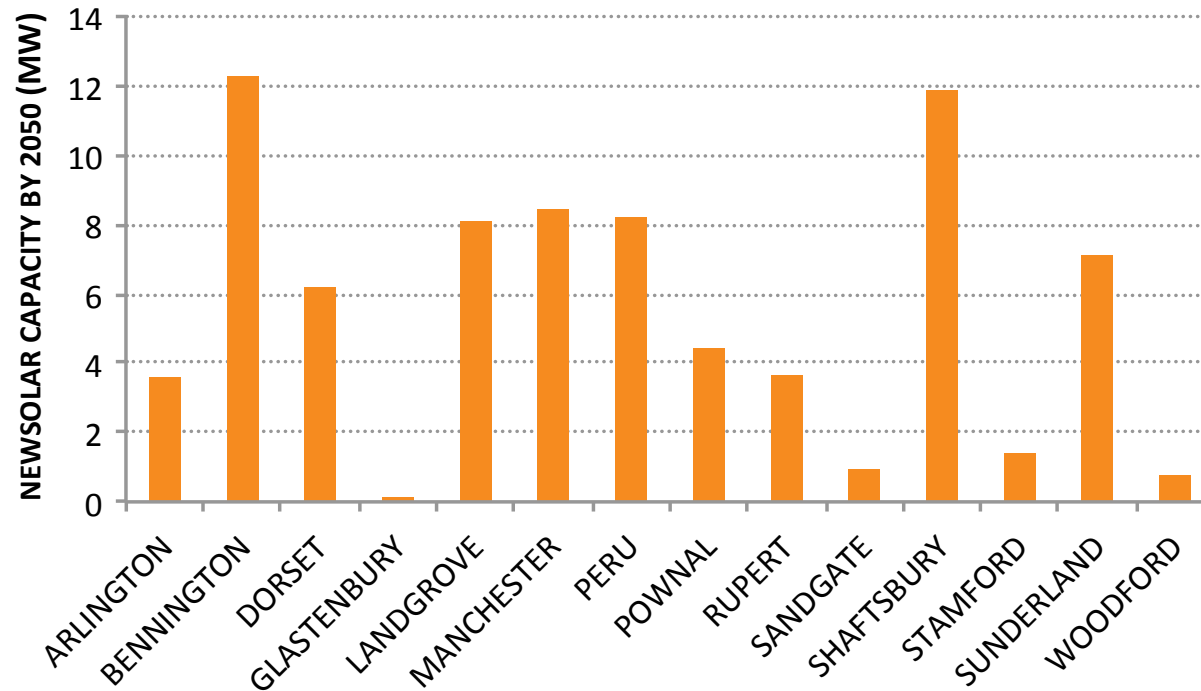
TOTAL ROOFTOP CAPACITY: 34MW
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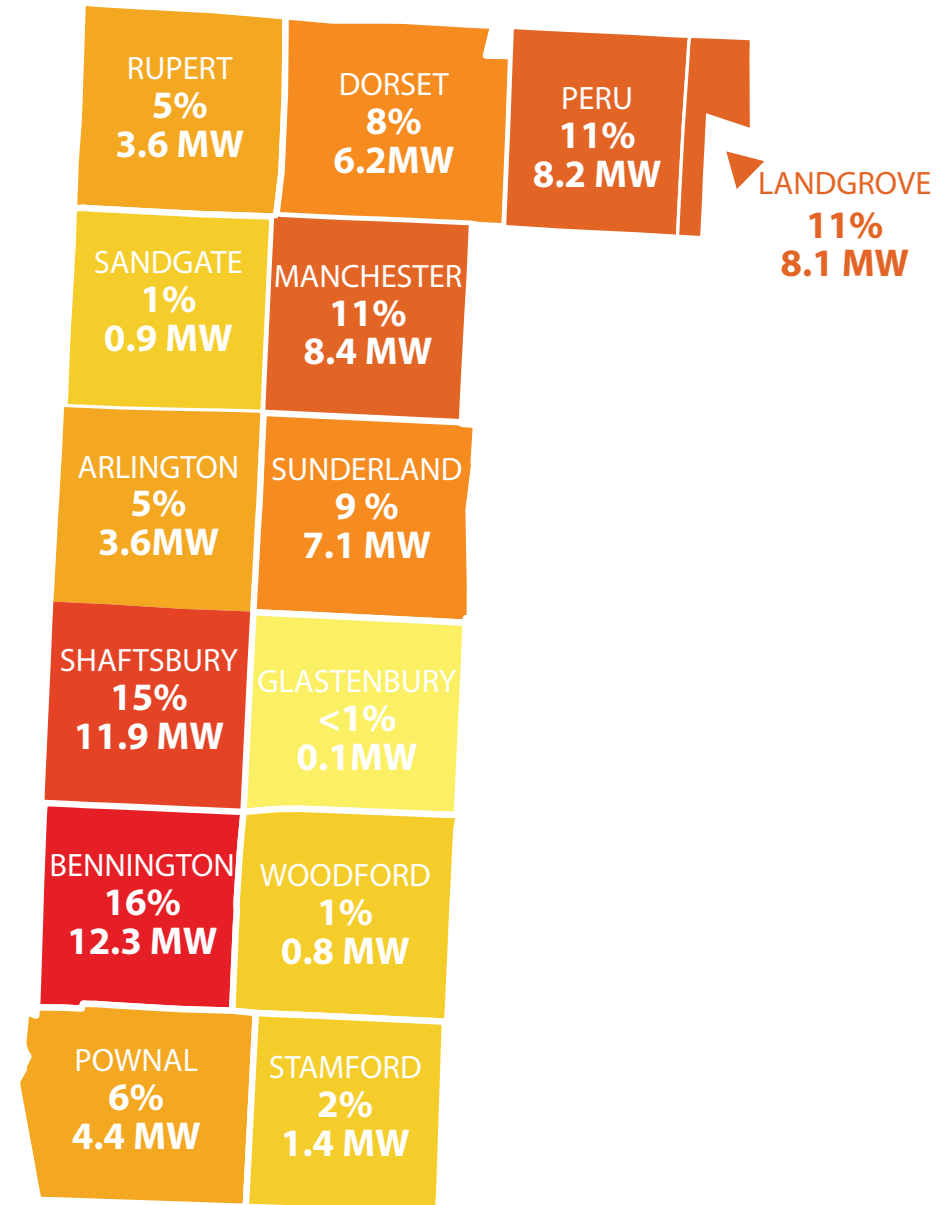
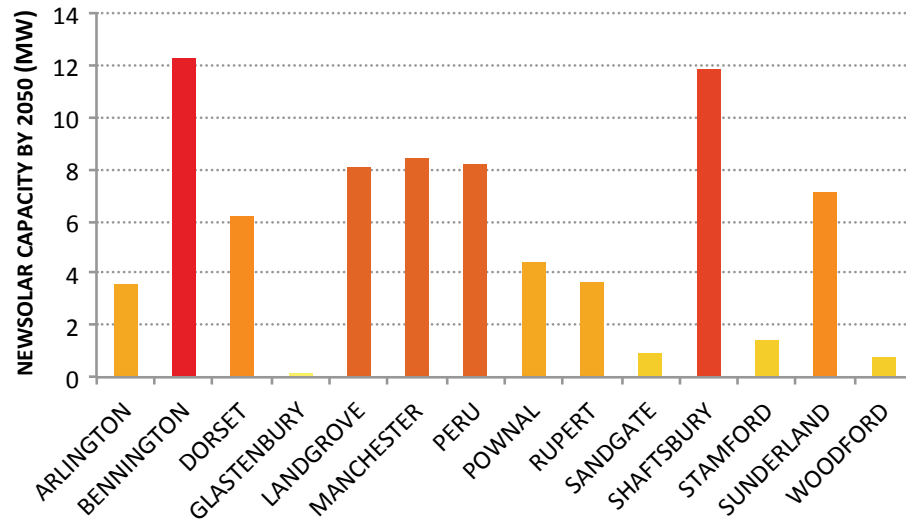
44% OF TOTAL SOLAR GOAL

WHAT WOULD IT LOOK LIKE TOWN-BY-TOWN?

IF YOU ALLOCATED THE 2050 GOAL OF 77MW
BASED ON THE LOCATION OF "PRIME SOLAR"...

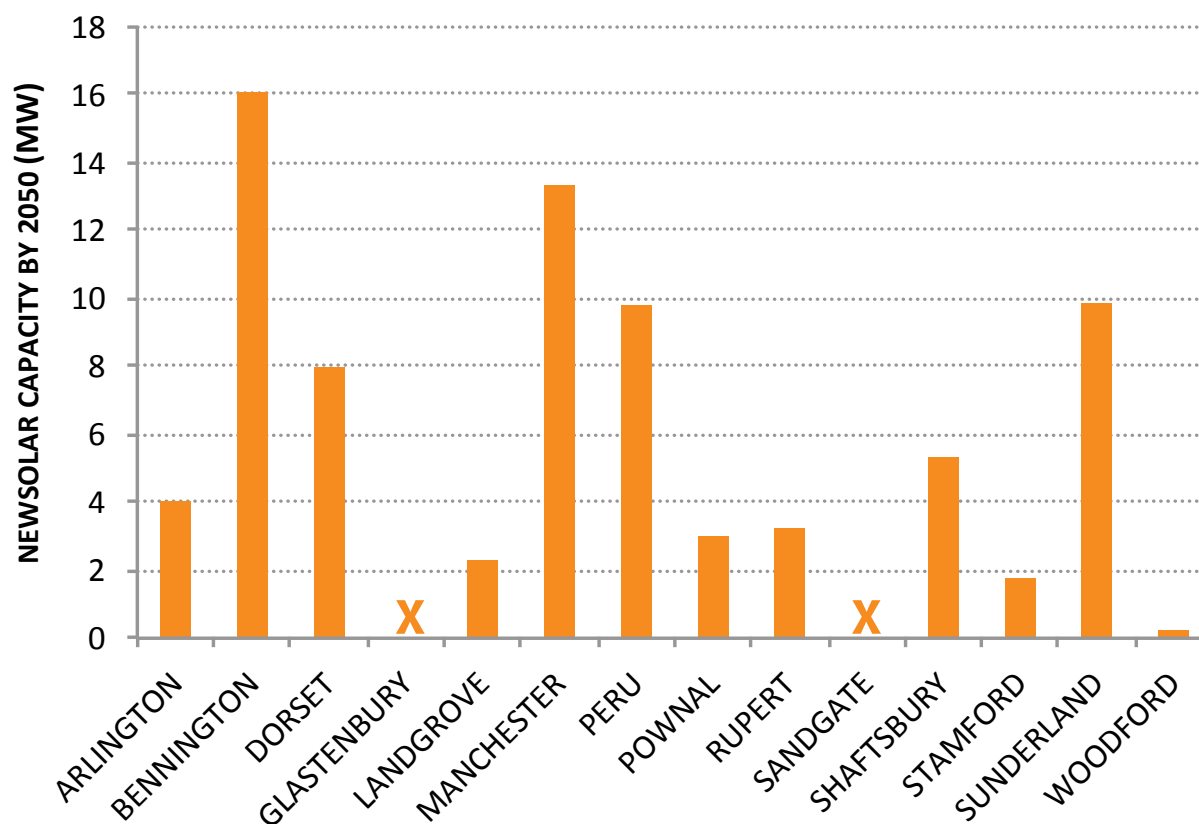


MAP OF BCRC ALLOCATION BASED ON PRIME SOLAR

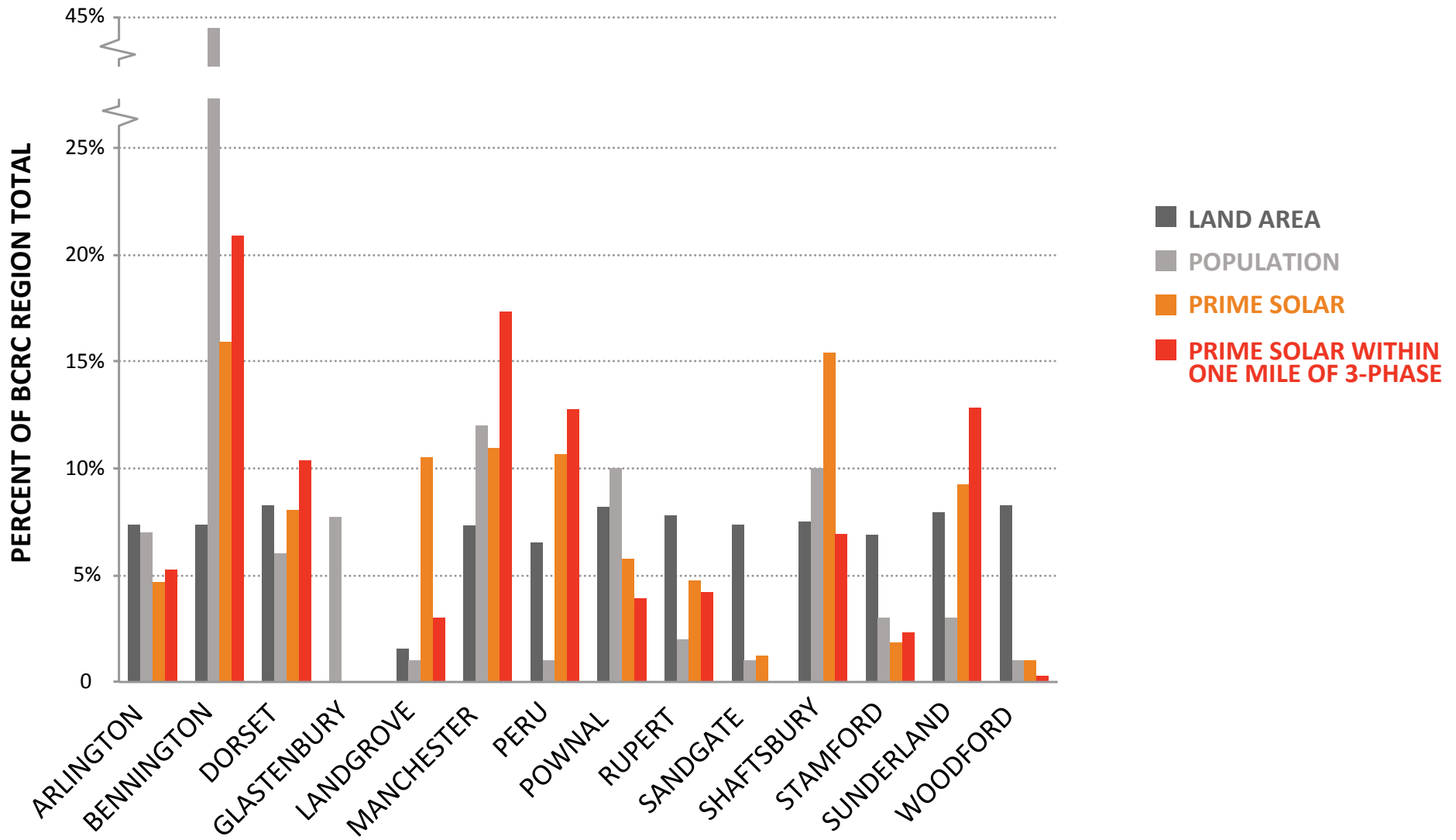


WHAT IF YOU FACTORED IN THE LOCATION OF POWER LINES?

IF YOU ALLOCATED THE 2050 GOAL OF 77MW BASED ON THE LOCATION OF "PRIME SOLAR" THAT IS WITHIN ONE MILE OF THREE-PHASE...

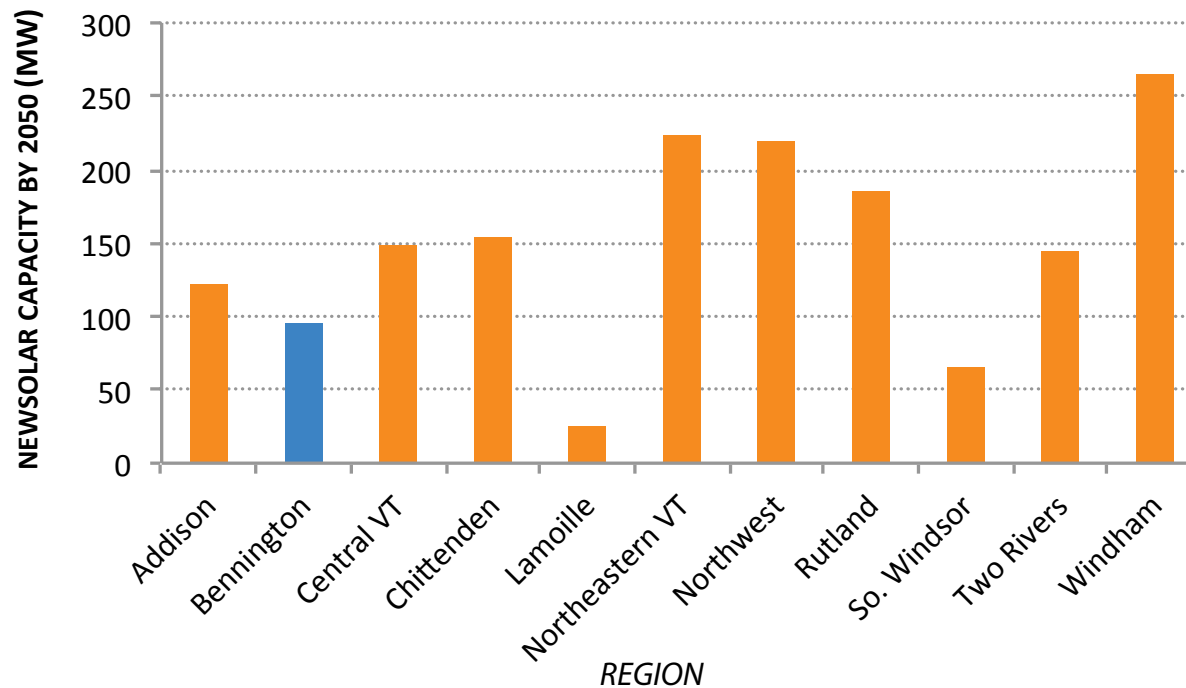


PUTTING IT ALL TOGETHER...



HOW DOES BCRC COMPARE WITH OTHER REGIONS?

THIS IS WHAT THE DISTRIBUTION WOULD LOOK LIKE IF THE 2050 GOAL OF 1,647 MW OF IN-STATE GENERATION WERE ALLOCATED REGIONALLY BASED ON "PRIME SOLAR."



QUESTIONS?

Jim Sullivan

Executive Director

Bennington County Regional Commission

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