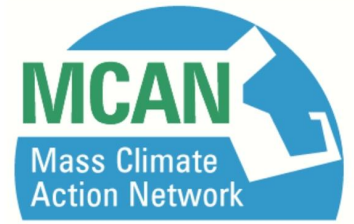


# Energy 101

A webinar from MCAN, CLF, and Mass Power Forward

# What is MCAN?



MCAN was founded in 2000, and helps town level groups take action on climate locally. We are a network of organizations (our chapters) and advocates at the town and city level who work to make community level change and turn that into state and national level change.

**David Ismay**  
Senior Attorney

# CONSERVATION LAW FOUNDATION

[www.clf.org](http://www.clf.org)

## **SUPPORT CLF**

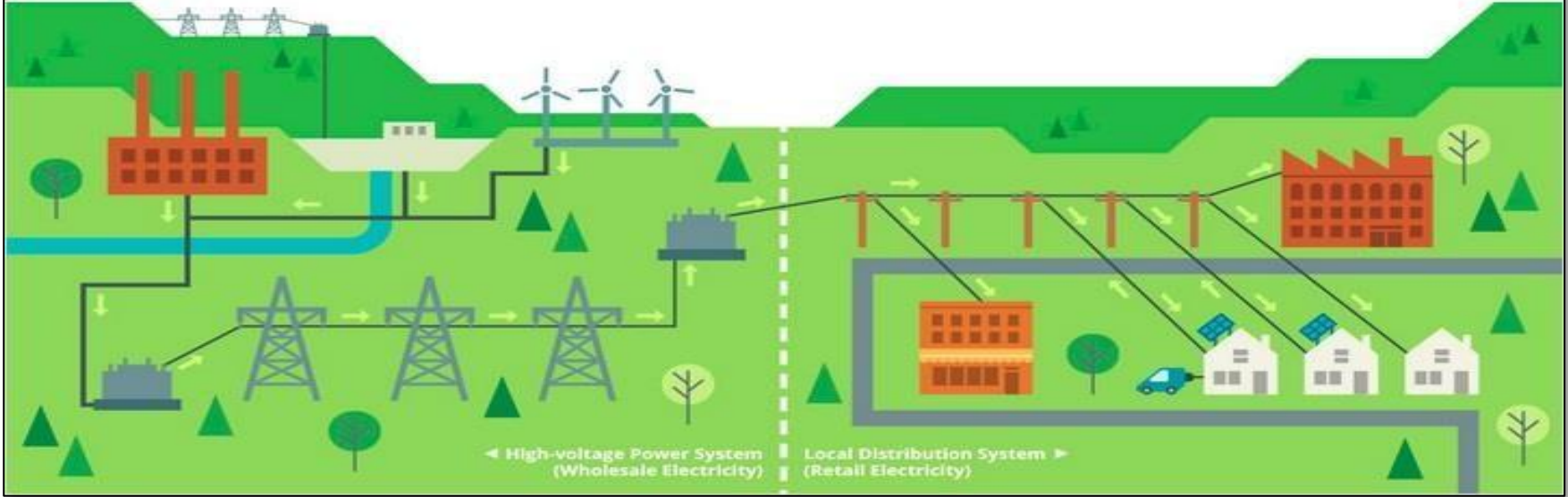
CLF is a member supported organization. The best way to support CLF is to join the thousands of people who trust our organization to protect New England's environment by making a gift today.

Since 1966, CLF has relied on contributions from its members to do the work of preserving our natural resources, building healthy communities and promoting a vibrant economy. From Connecticut to Maine, your contribution to CLF ensures that we can be everywhere we need to be to protect your New England, making it a great place to live, work and play for generations to come.

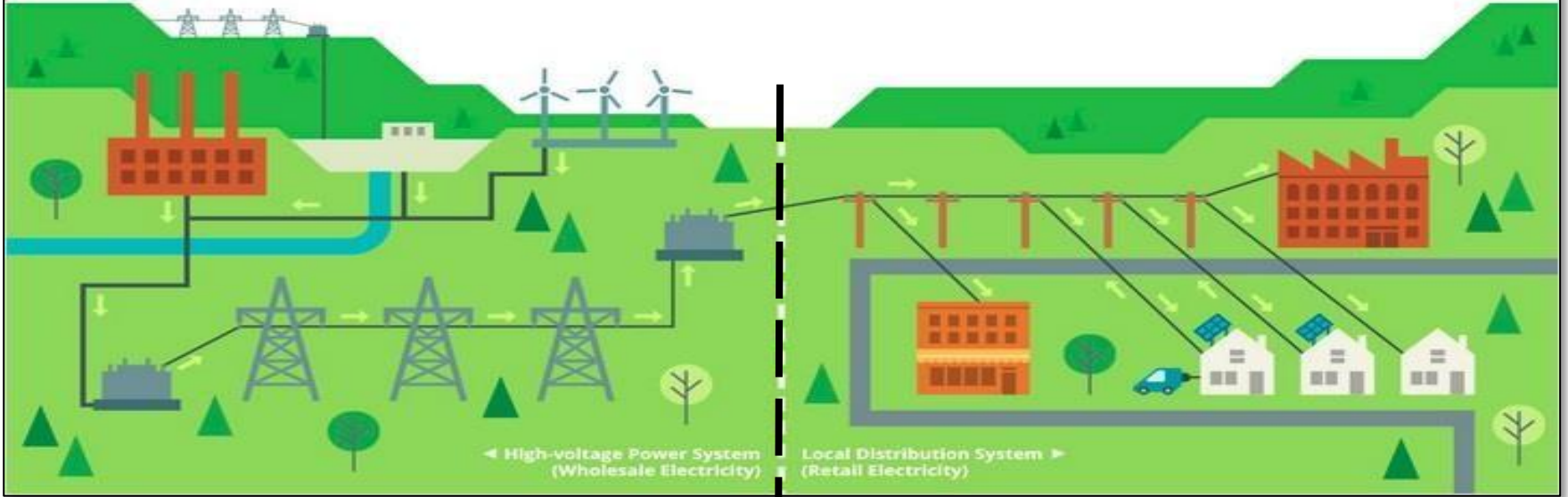


- **Overview of Electric Power System**
- **What Do Munis Do?**
- **What're the RPS and the CES?**

# How electricity is produced, transported, and delivered to consumers

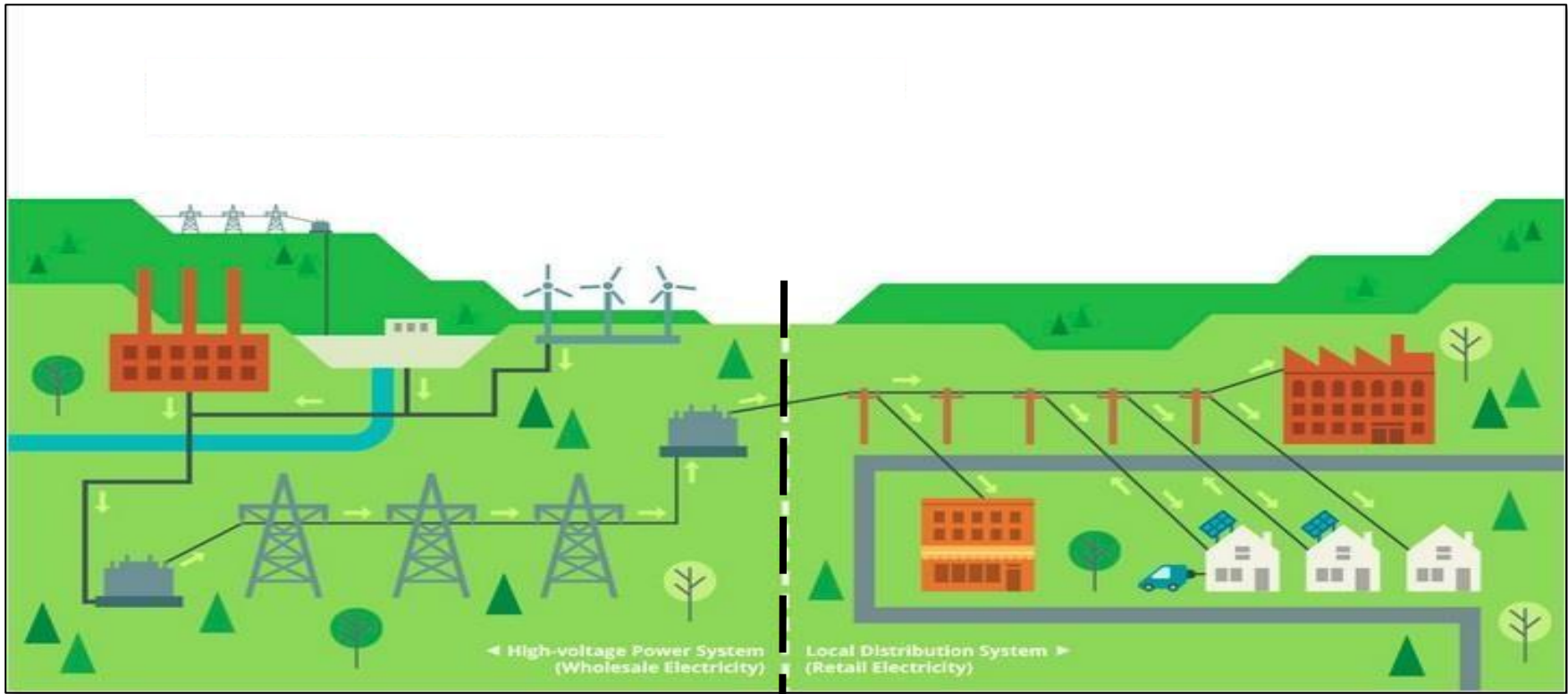


How electricity is produced, transported, and delivered to consumers



**High-Voltage  
Power  
(Wholesale)**

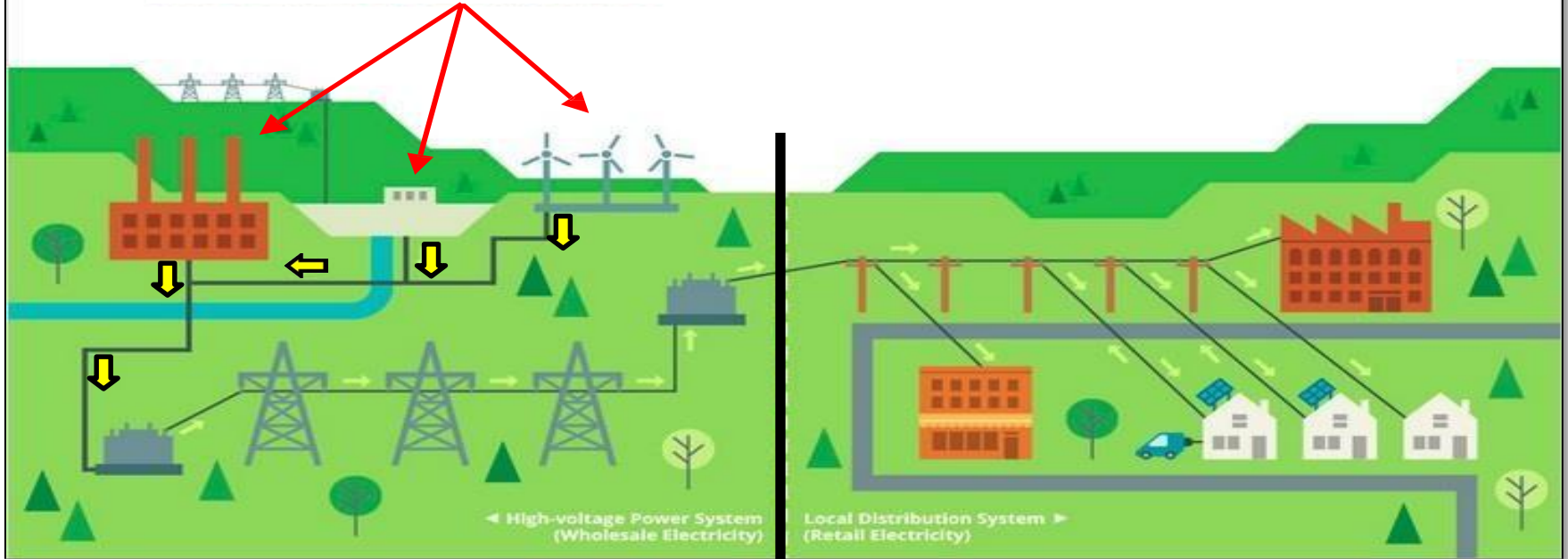
**Local Distribution  
(Retail)**



# High-Voltage Power (Wholesale)

# Local Distribution (Retail)

# Central or "Utility-Scale" Generation

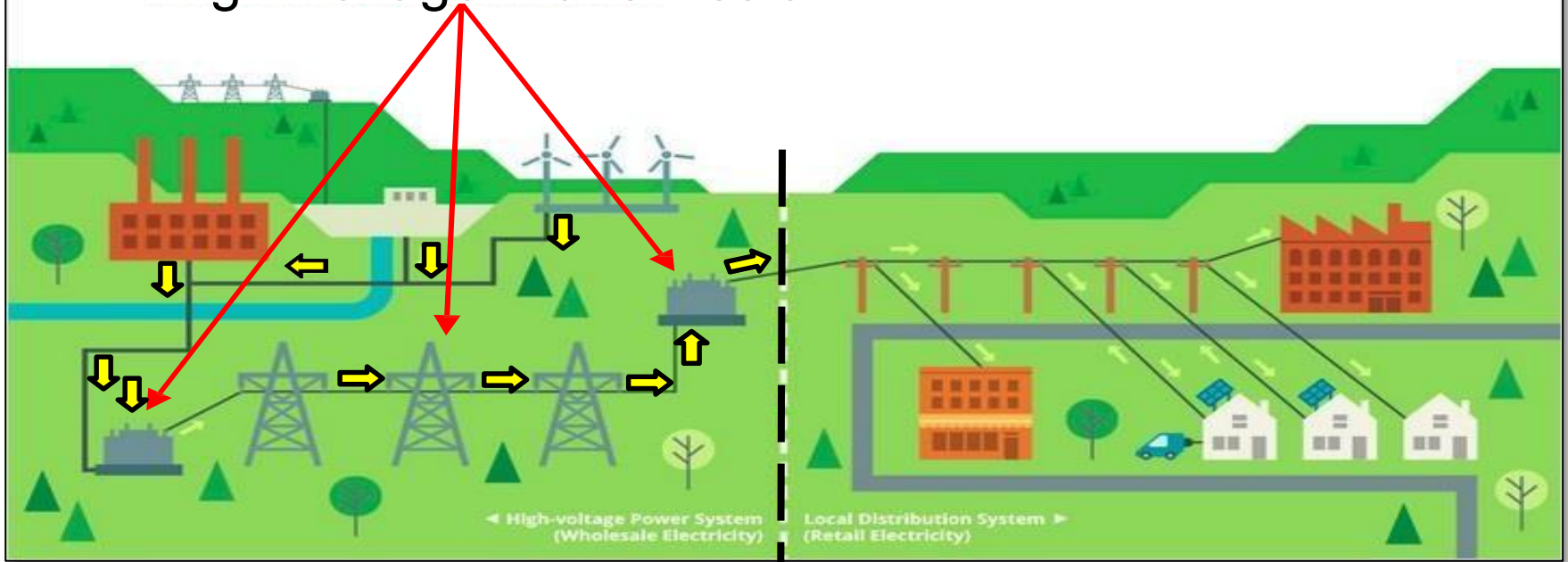


**High-Voltage Power  
(Wholesale)**

**Local Distribution  
(Retail)**

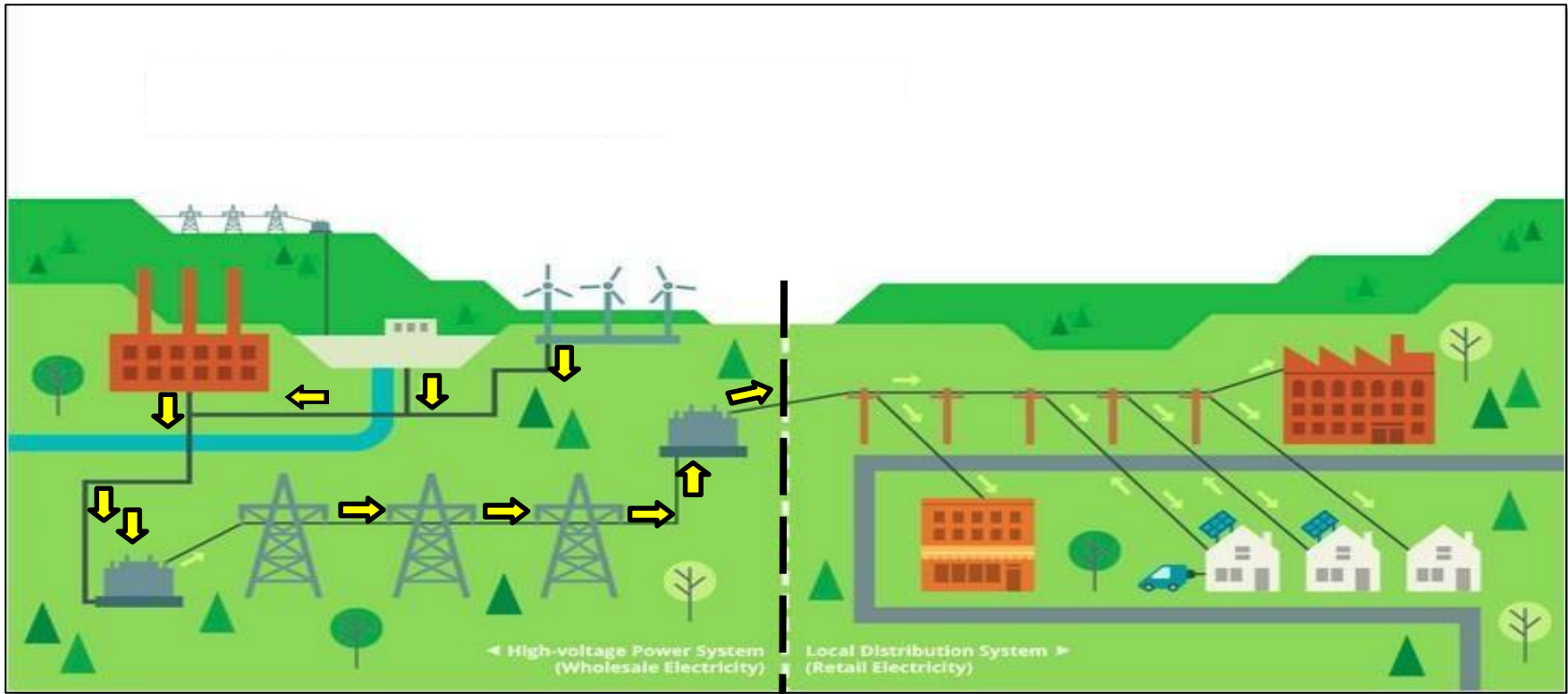


# High Voltage Transmission



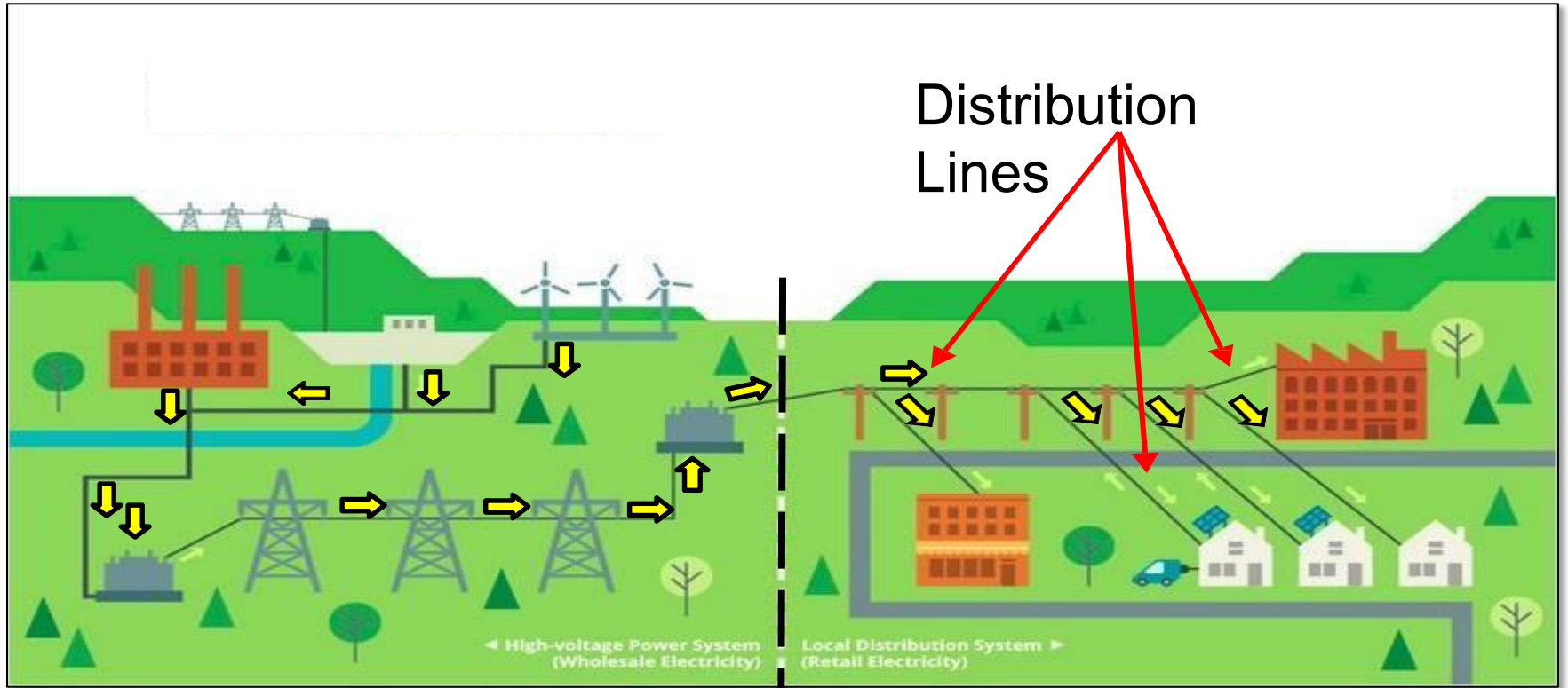
**High-Voltage  
Power  
(Wholesale)**

**Local Distribution  
(Retail)**



High-Voltage  
Power  
(Wholesale)

Local Distribution  
(Retail)



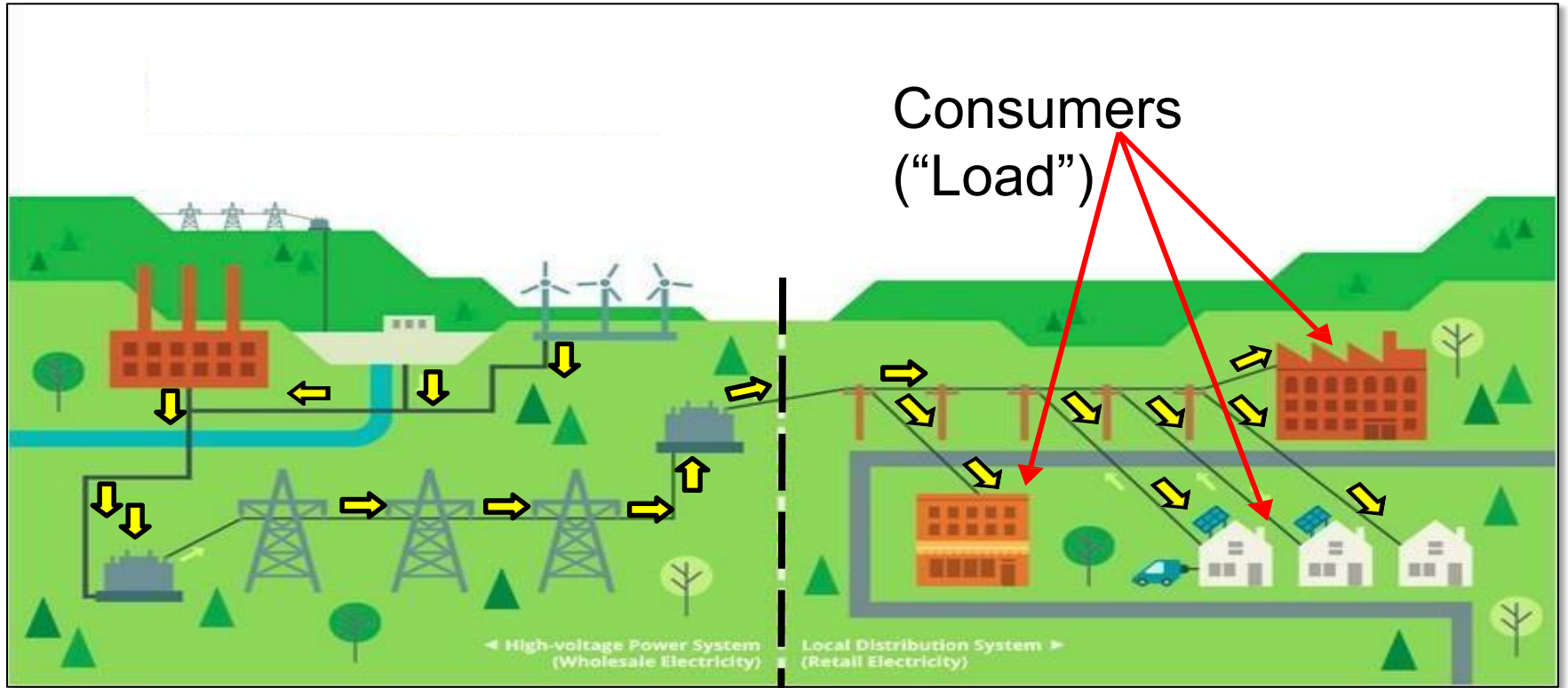
Distribution  
Lines

← High-voltage Power System  
(Wholesale Electricity)

Local Distribution System  
(Retail Electricity) →

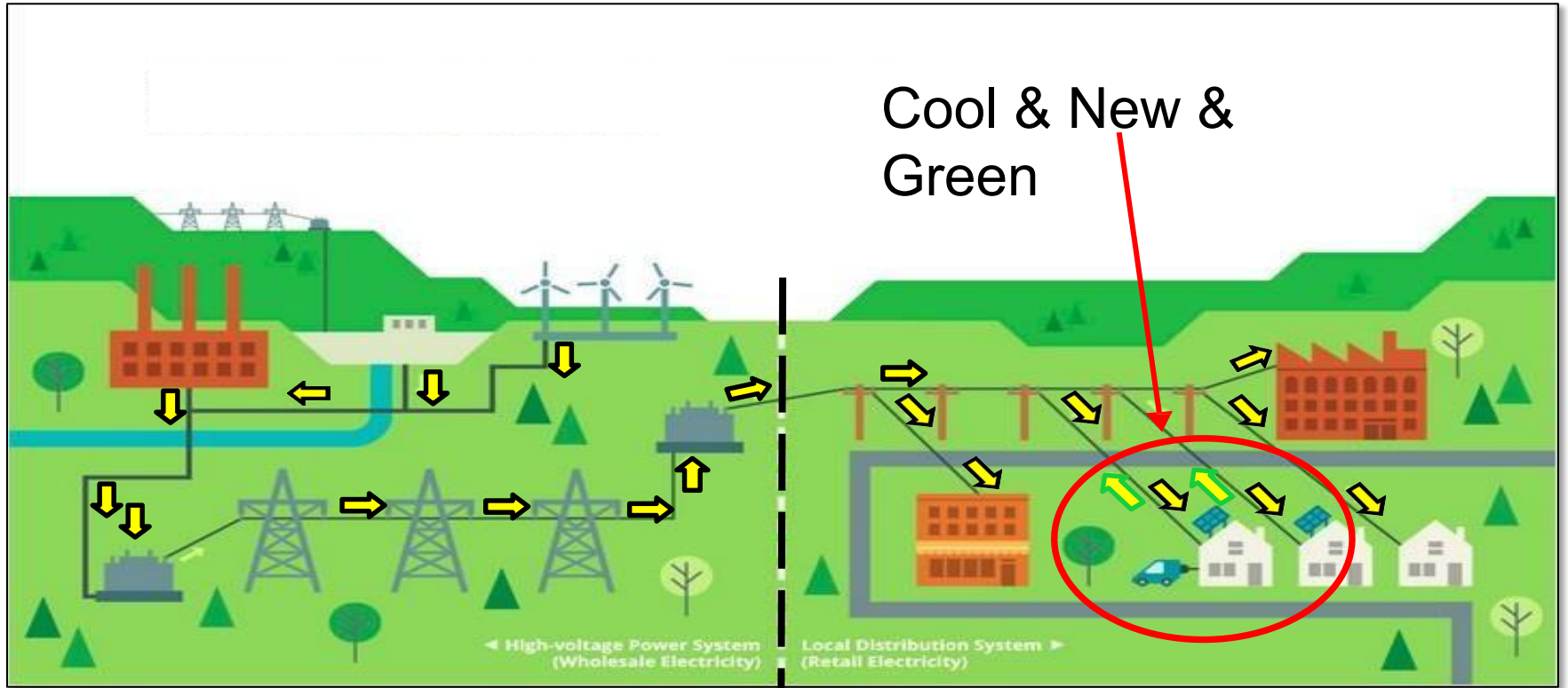
High-Voltage  
Power  
(Wholesale)

Local Distribution  
(Retail)



High-Voltage  
Power  
(Wholesale)

Local Distribution  
(Retail)



High-Voltage  
Power  
(Wholesale)

Local Distribution  
(Retail)

# Components of Electricity Pricing

**EVERSOURCE**

Account Number: 2554 691 1071 H

12 8 0000015155 04 80

**FENELOPÉ ISMAY**  
 16 CROSBY RD  
 CHESTNUT HILL MA 02467-1114  
 Electric

**Please Pay By**  
Aug. 24, 2015

**Please Pay Amount**  
\$151.55

DO NOT PLEASE LET US KNOW OTHERWISE YOU MAY BE RESPONSIBLE FOR ENERGY USE AFTER YOU MOVE.

**Service Provided To:**  
 FENELOPÉ ISMAY  
 16 CROSBY RD  
 CHESTNUT HILL MA 02467-1114  
 80 2554 691 1071 04 NE

**Electric Bill Summary**

Account Number	2554 691 1071
Please Pay By	Please Pay Amount
August 24, 2015	\$151.55
Current Bill Date	Next Meter Read Date
August 8, 2015	September 3, 2015

**Electric Bill Comparison**

	Current Month	Last Month	Last Year
<b>Electric Charges</b>	<b>\$151.55</b>	<b>\$114.97</b>	<b>\$80.29</b>
Total Electricity Use (kWh)	790	458	471
Delivery Charges (per kWh) <small>Cost to deliver electricity to your home.</small>	8.16	9.46	8.76
<b>Delivery Charges Total</b>	<b>\$72.15</b>	<b>\$69.26</b>	<b>\$46.11</b>
Generation Charges (per kWh) <small>Cost to purchase electricity on your behalf.</small>	10.06	14.06	8.36
<b>Generation Total</b>	<b>\$79.40</b>	<b>\$68.71</b>	<b>\$44.18</b>

**Bill Analysis**

	30	31	30
Billing Days	30	31	30
Avg. Daily Electric Use (kWh)	26.3	15.7	15.7
Avg. Daily Temp. (degrees)	77	71	75

**Your Electricity Use By Month At A Glance**

**Highlights From This Month's Billing Period**  
July 8, 2015 to August 5, 2015

Amount of Your Last Bill	\$114.97
Payment - Thank You	-\$114.97
Previous Balance	\$0.00
Adjustments	\$0.00
Delivery Charges Total	\$72.15
Generation Charges	\$79.40
Total Charges for Electricity	\$151.55
<b>Please Pay Amount</b>	<b>\$151.55</b>

**Moving?**

Visit [Eversource.com](http://Eversource.com) any time - day or night - to setup your new electric or gas service, transfer your service to a new address or stop service if you're moving out of Eversource's Eastern Massachusetts service territory.

Even if you're not moving, Eversource.com has a number of great self-service options.

While online you can sign-up for E-Bill, make a One-Time Payment, update your telephone number or mailing address, discover new ways to save energy and even report an outage.

[www.eversource.com](http://www.eversource.com)

800-592-2000

4135

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**clf**  
 conservation law foundation

For a thriving New England

14

# Components of Electricity Pricing

**EVERSOURCE**

Account Number: 12 8 0000015155 04 80 2554 693 1071 H

**Electricity Used**

Rate A1-Residential  
Meter 2504608

Aug 05, 2015 Actual Read 14664  
Jul 06, 2015 Actual Read - 13874  
30 Day Billed Use 790

2504608	KWH
08/05	790
07/06	488
06/05	257
05/06	254
04/06	473
03/05	467
02/05	458
01/07	456
12/05	370
11/05	347
10/06	322
09/05	388
08/06	471

**Cost of Electricity**

**Delivery Services**

Customer Charge			5.43
Distribution	.06197 X	790 KWH	48.96
Transition	-.00095 X	790 KWH	-0.75
Transmission	.01915 X	790 KWH	15.13
Renewable Energy	.00050 X	790 KWH	0.40
Energy Conservation	.00250 X	790 KWH	1.98
<b>Delivery Services Total</b>			<b>72.15</b>

**Supplier Services**

Generation Charge			
Basic Svc Fixed	.10050 X	790 KWH	79.40
<b>Total Cost of Electricity</b>			<b>151.55</b>

THANK YOU FOR GOING PAPERLESS.

Page 2 of 2

www.eversource.com  
800-592-2000

EVERSOURCE

# Components of Electricity Pricing

**EVERSOURCE**

Account Number: 12 8 0000015155 04 80 2554 693 1071 H

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**Cost of Electricity** **47.6**

<b>Delivery Services</b>			
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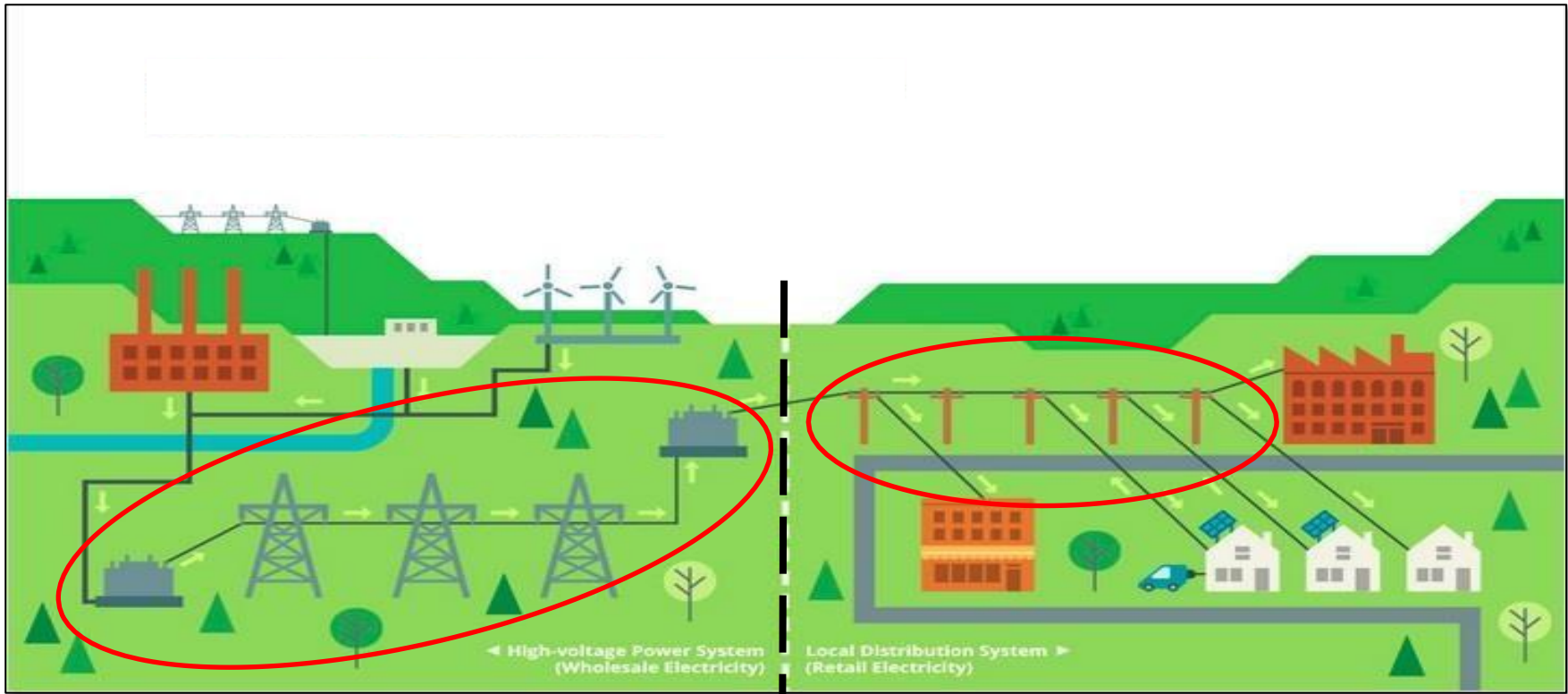
THANK YOU FOR GOING PAPERLESS.

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EVERSOURCE





**High-Voltage  
Power  
(Wholesale)**

**Local Distribution  
(Retail)**

# Components of Electricity Pricing

EVERSOURCE

Account Number  
12 8 0000015155 04 80 2554 693 1071 H

Electricity Used		Cost of Electricity	
Rate A1-Residential		Delivery Services	
Meter 2504608		Customer Charge 5.43	
Aug 05, 2015 Actual Read	14664	Distribution .06197 X 790 KWH	48.96
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		Generation Charge	
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		<b>Total Cost of Electricity</b>	<b>151.55</b>
		THANK YOU FOR GOING PAPERLESS.	

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08/05	790
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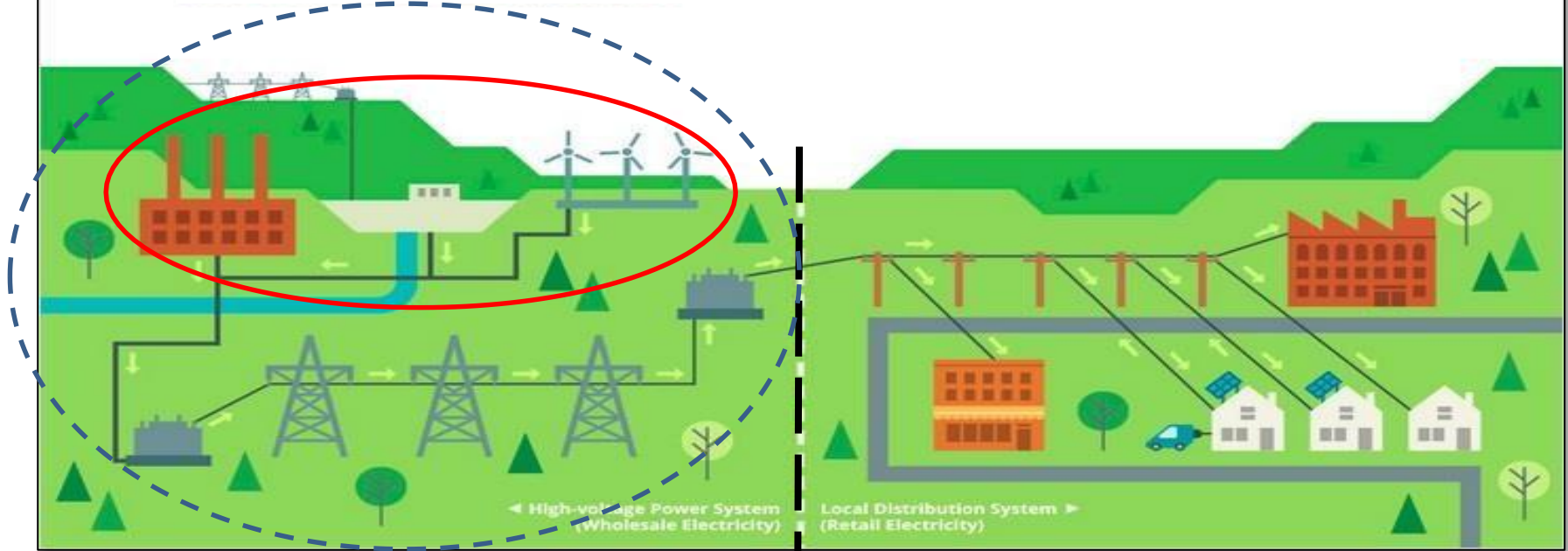
52.4  
%

Page 2 of 2

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800-592-2000

EVERSOURCE

Managed by ISO-NE



**High-Voltage Power  
(Wholesale)**

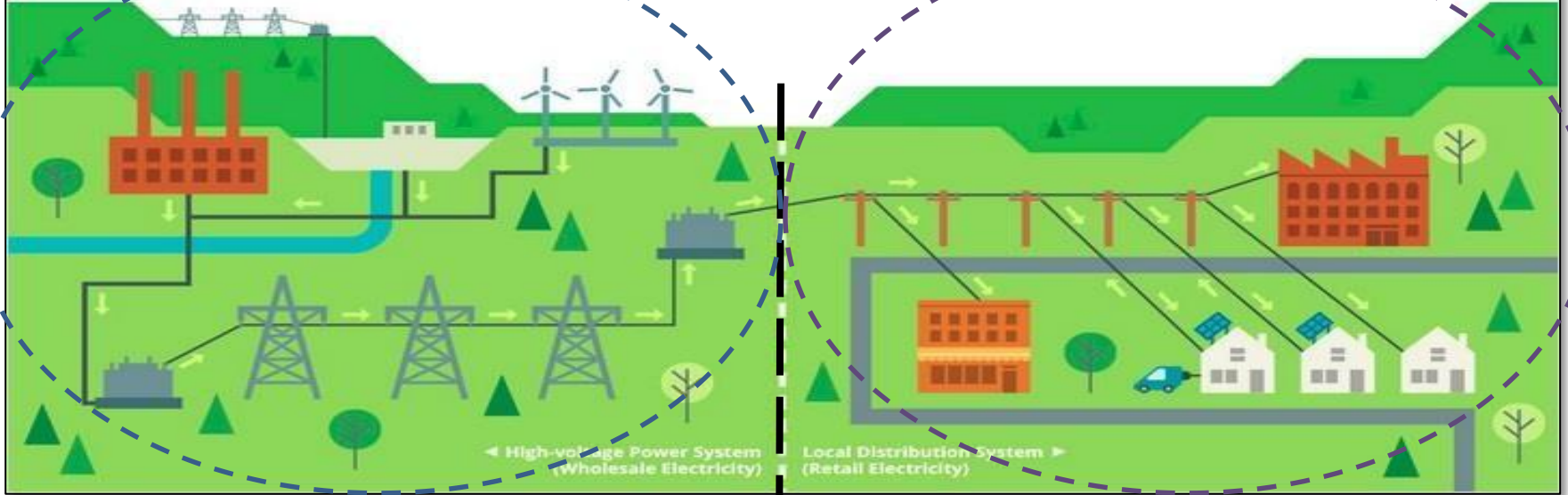
**Local Distribution  
(Retail)**

**clf**

conservation law foundation

Managed by ISO-NE

Managed by  
D.P.U.



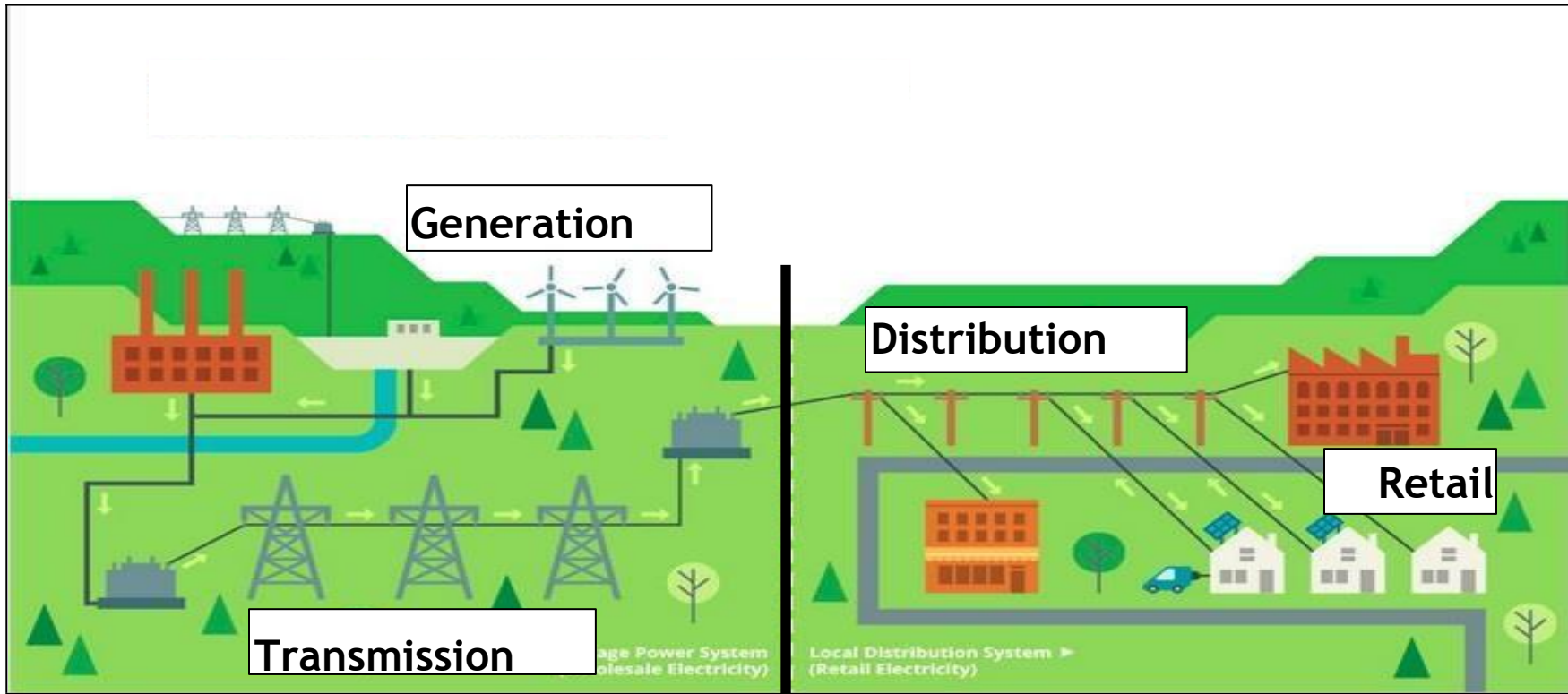
**High-Voltage  
Power  
(Wholesale)**

**Local Distribution  
(Retail)**

- Overview of Electric Power System
- **What Do Munis Do?**
- What're the RPS and the CES?

# **A: Everything!**

**A Muni is a mini-utility! It can own the whole “stack,” from generation to the lines on your street.**



High-Voltage Power  
(Wholesale)

Local Distribution  
(Retail)

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conservation law foundation

**GENERATION  
TRANSMISSION**



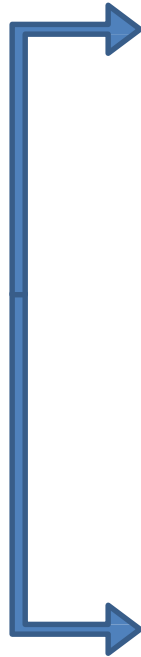
**DISTRIBUTION**

**RETAIL**



# **“Traditional” Cost-of-Service**

**Vertically-  
Integrated  
Monopoly  
Utility**  
(Investor-  
Owned; reg  
by DPU)



**GENERATION**  
**TRANSMISSION**



**DISTRIBUTION**

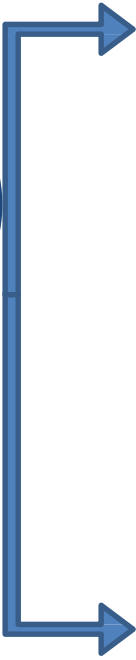
**RETAIL**

**“Traditional”  
Cost-of-Service**



**“Restructured”  
Market-Based**

~~Vertically  
Integrated  
Monopoly Utility  
(Investor-Owned;  
reg. by DPL)~~



**GENERATION  
TRANSMISSION**



**DISTRIBUTION**

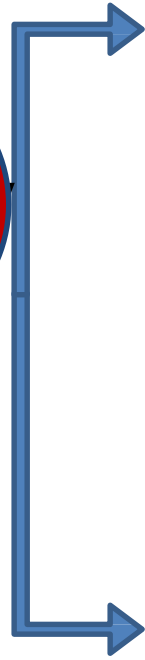
**RETAIL**

# “Traditional” Cost-of-Service



# “Restructured” Market-Based

~~Vertically-  
Integrated  
Monopoly Utility  
(Investor-Owned,  
reg by DPU)~~



**GENERATION**  
**TRANSMISSION**

---

← IPPs (regulated by ISO)  
← TOs (reg by ISO)

**DISTRIBUTION**  
**RETAIL**

← EDCs (“utilities” reg by DPU)  
← **Retail Sellers**  
(EDCs + Others reg by DPU)

# “Traditional” Cost-of-Service



# “Restructured” Market-Based

~~Vertically-  
Integrated  
Monopoly Utility  
(Investor- Owned,  
reg. by DPU)~~

✓ **Municipa  
Light Plants!**



**GENERATION**  
**TRANSMISSION**

---

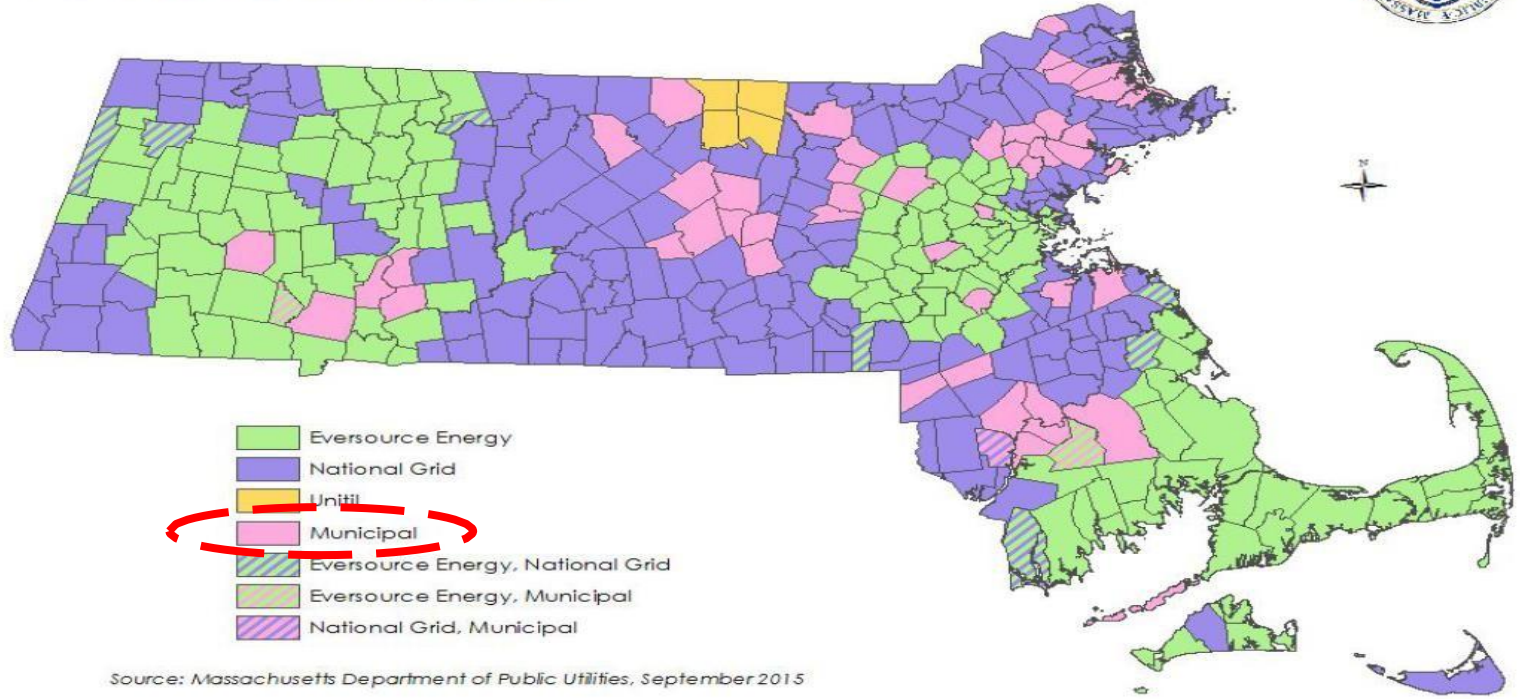
← IPPs (regulated  
by ISO)  
← TOs (reg by  
ISO)

**DISTRIBUTION**  
**RETAIL**

← EDC “utilities”  
(reg by DPU)  
← EDCs + Others  
(reg by DPU)

# Electricity Providers (2015), by Municipality

Commonwealth of Massachusetts

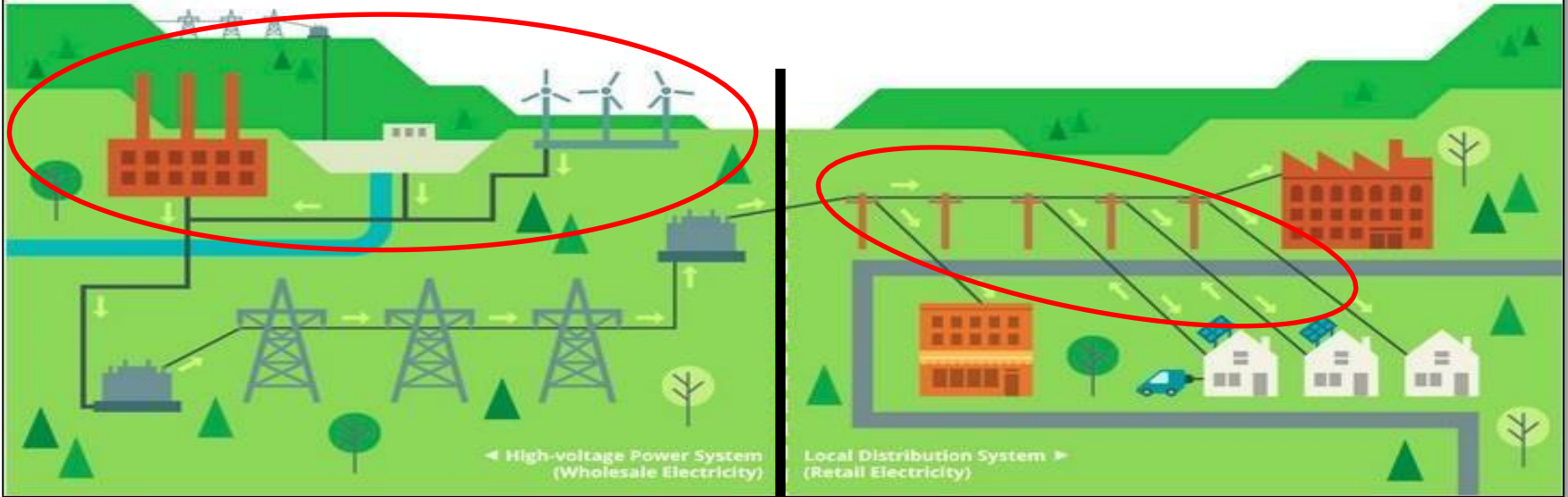


Source: Massachusetts Department of Public Utilities, September 2015



Map by MassGIS, 1/26/2014

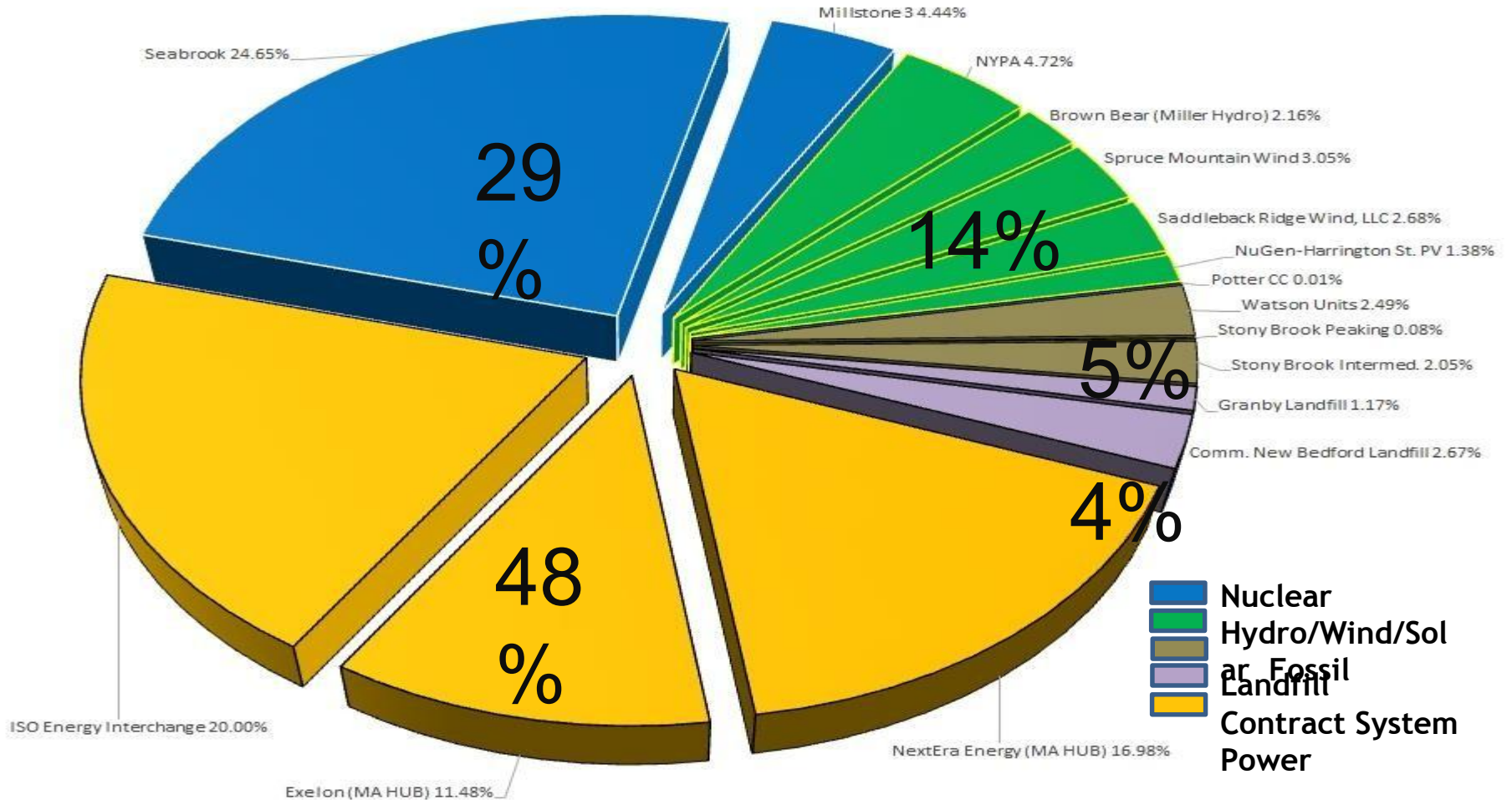
MLPs either buy all - or buy some + generate some - electricity; and all deliver and sell to local customers.



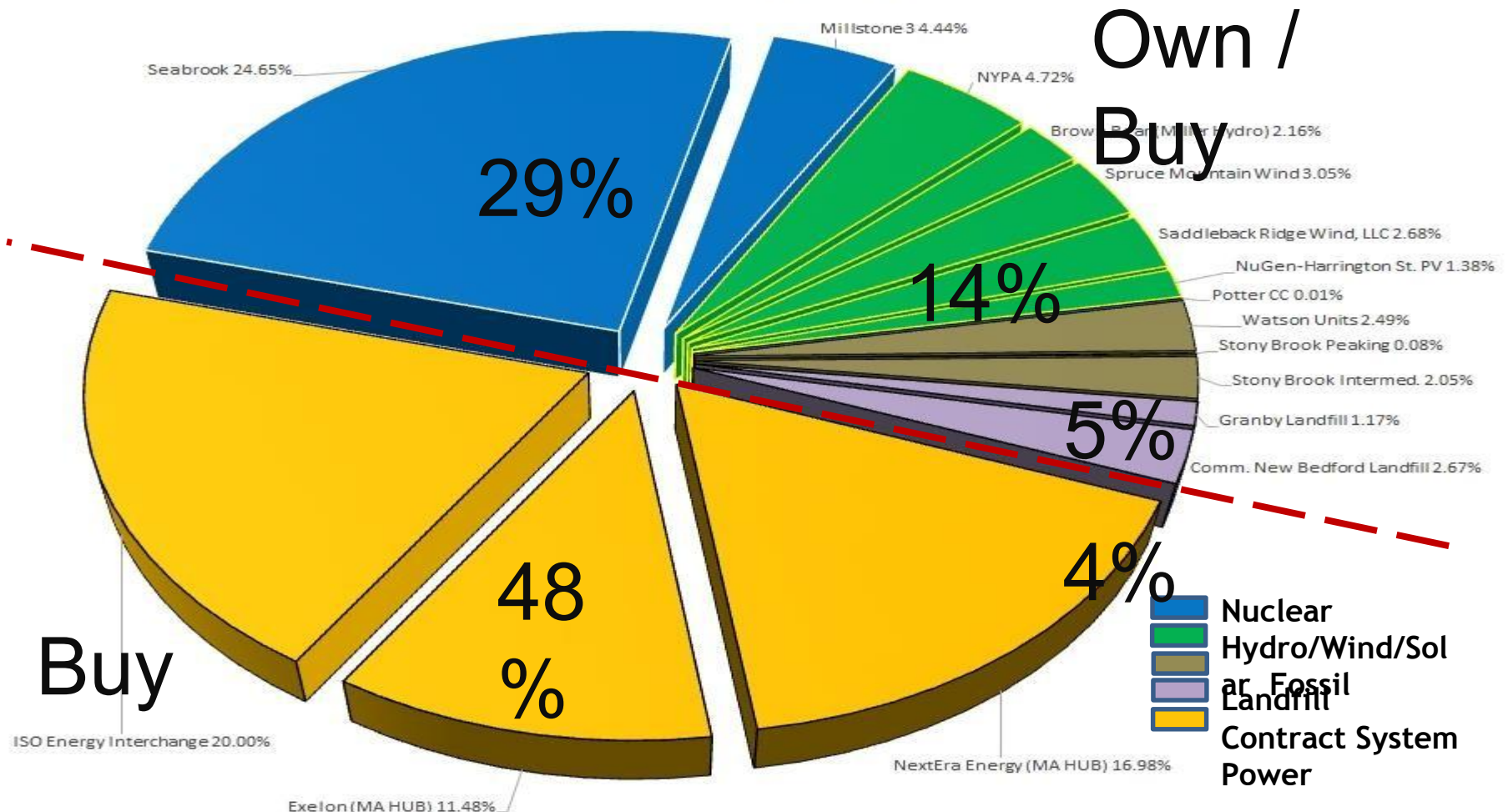
High-Voltage Power  
(Wholesale)

Local Distribution  
(Retail)

# 2016 HMLP Energy Supply



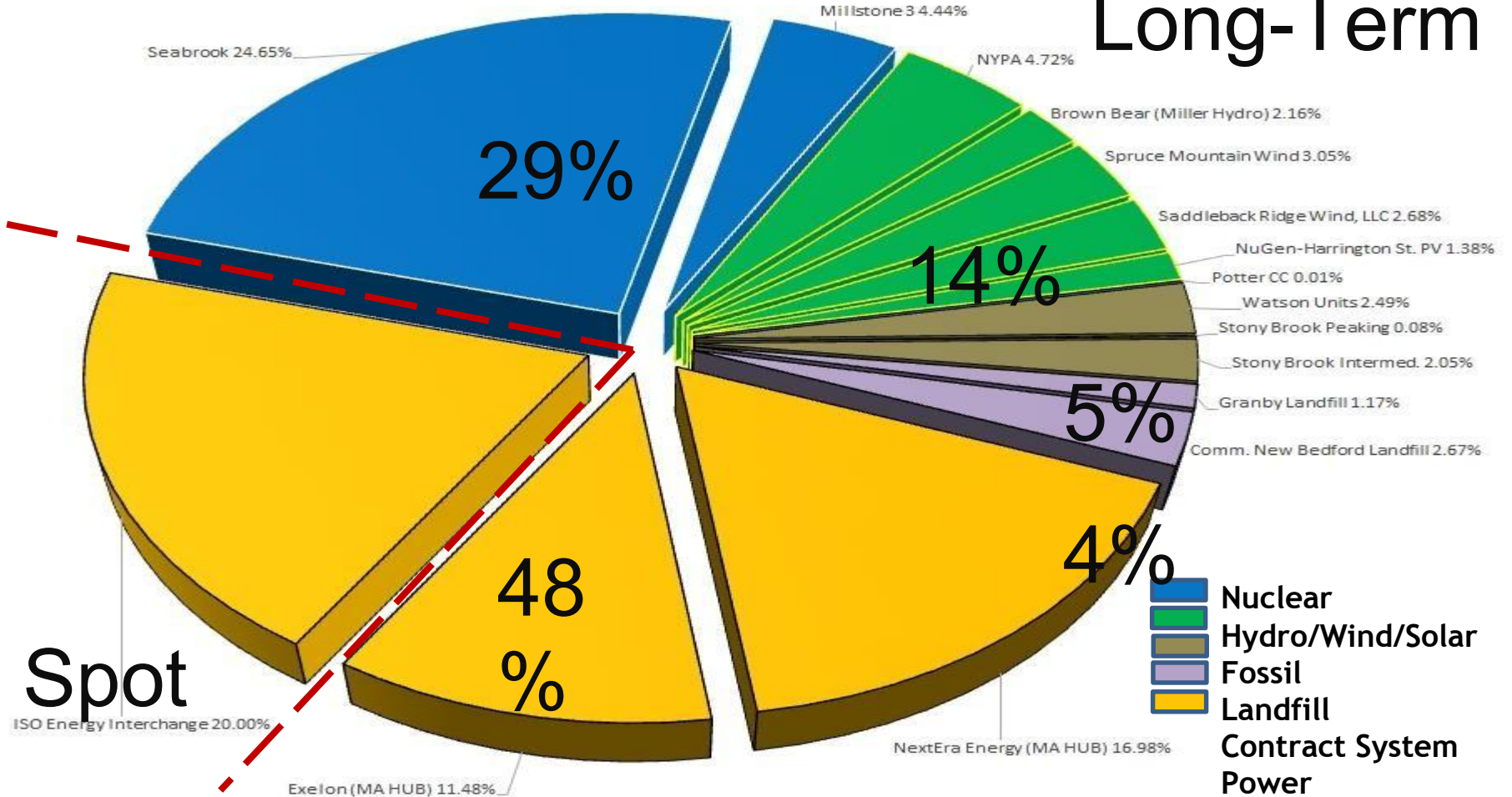
# 2016 HMLP Energy Supply





# 2016 HMLP Energy Supply

# Long-Term



- Overview of Electric Power System
- What Do Munis Do?
- **What're the RPS and the CES?**

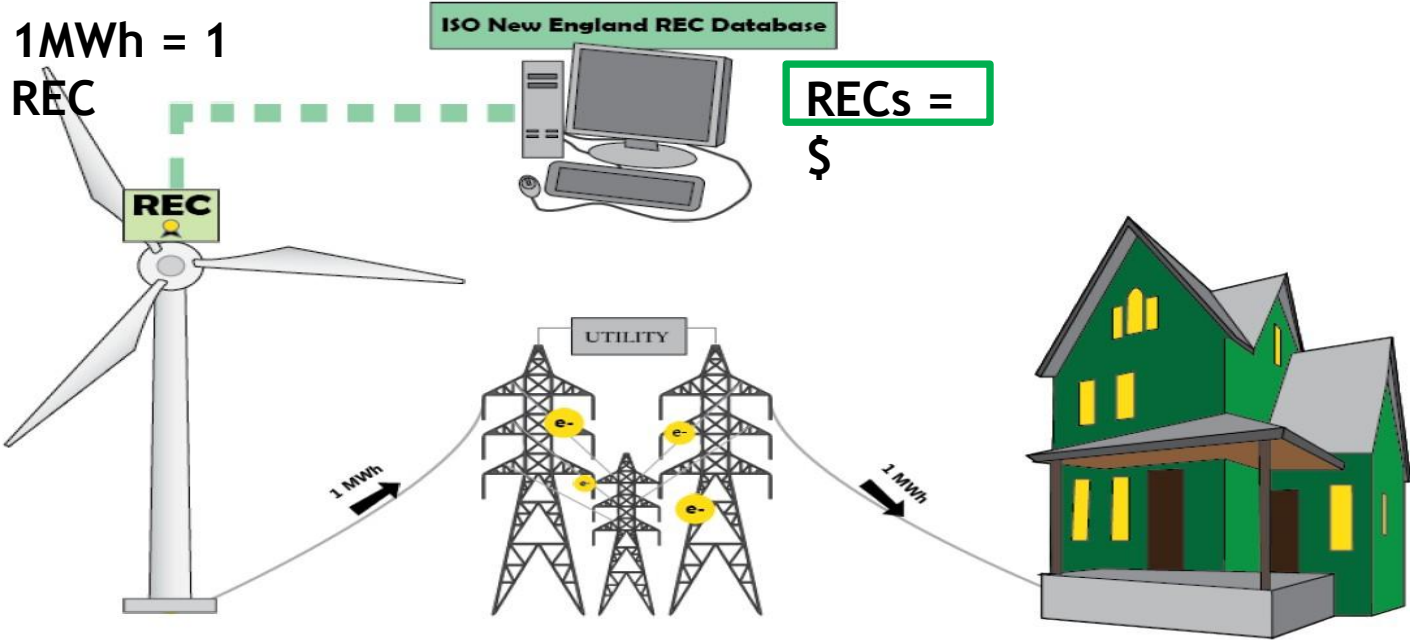
# RPS and CES

- Requirement for all sellers of electricity to sell a certain % of renewable or clean electricity annually
- Higher % required each year
- 80% clean by 2050

# RPS and CES

- Requirement for all sellers of electricity - **EXCEPT Munis** - to sell a certain % of renewable or clean electricity annually
- Higher % required each year

# Tracking RECs & Energy



# RPS and CES

Utilities required to turn-in RECs/CECs at end of each year (12% in 2017)

- Utilities buy RECs/CECs (*cost*)
- Renewable generation sells RECs/CECs (*income*)

Because MLPs don't have to turn in RECs, they sell them (*income*) . . .

clf . . . I pay, they don't! ☹️

# 2016 HMLP Energy Supply

2016 RPS = 11%

2016 HMLP = 14%

≠RPS

4%

≠RPS

≠RPS

- Nuclear
- Hydro/Wind/Solar
- Fossil
- Landfill
- Contract System Power

ISO Energy Interchange 20.00%

Exelon(MA HUB) 11.48%

NextEra Energy (MA HUB) 16.98%

Comm. New Bedford Landfill 2.67%

Granby Landfill 1.17%

Stony Brook Intermed. 2.05%

Stony Brook Peaking 0.08%

Watson Units 2.49%

Potter CC 0.01%

NuGen-Harrington St. PV 1.38%

Saddleback Ridge Wind, LLC 2.68%

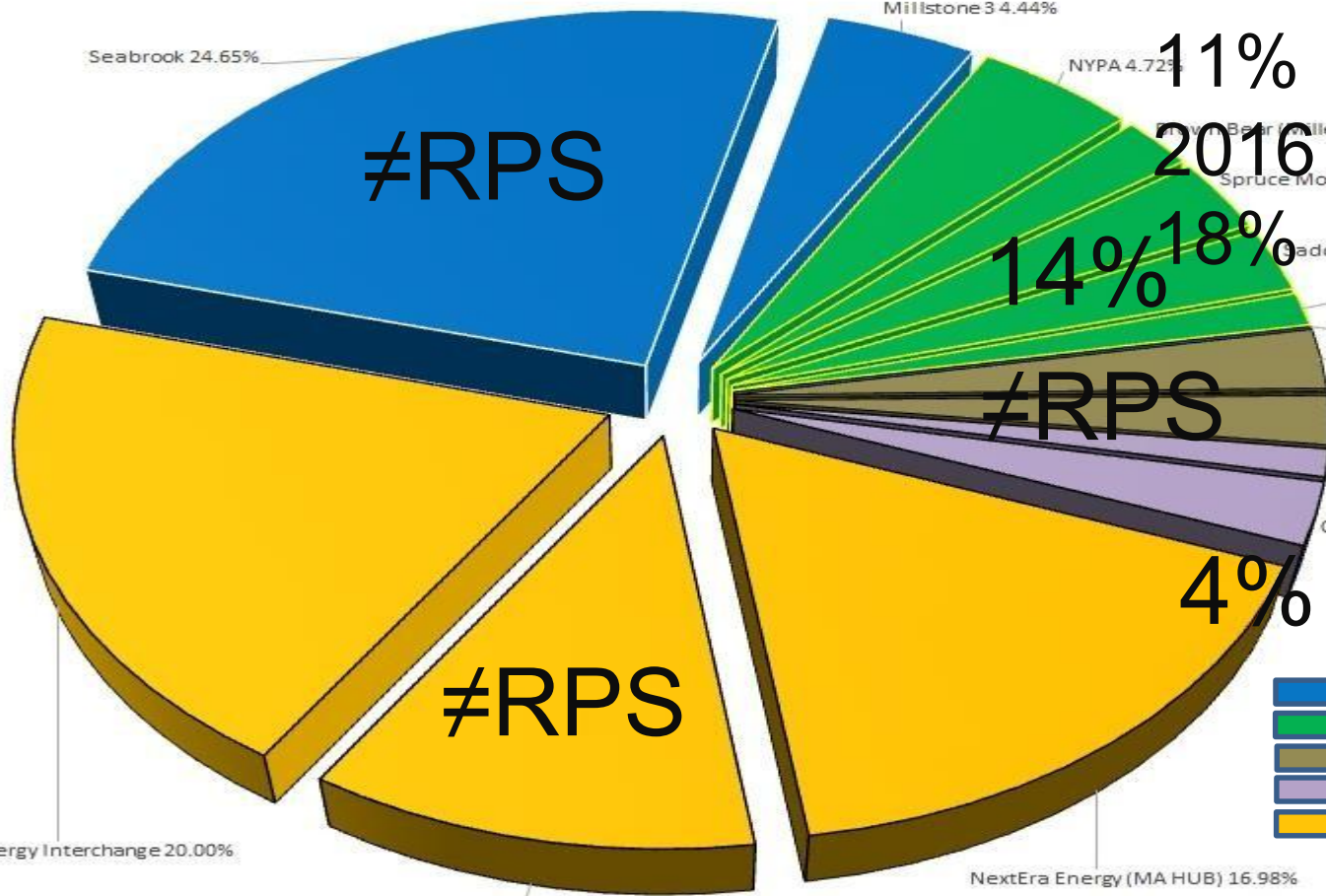
Spruce Mountain Wind 3.05%

Howland Brook Miller Hydr. 12.63%

NYPA 4.72%

Millstone 34.44%

Seabrook 24.65%

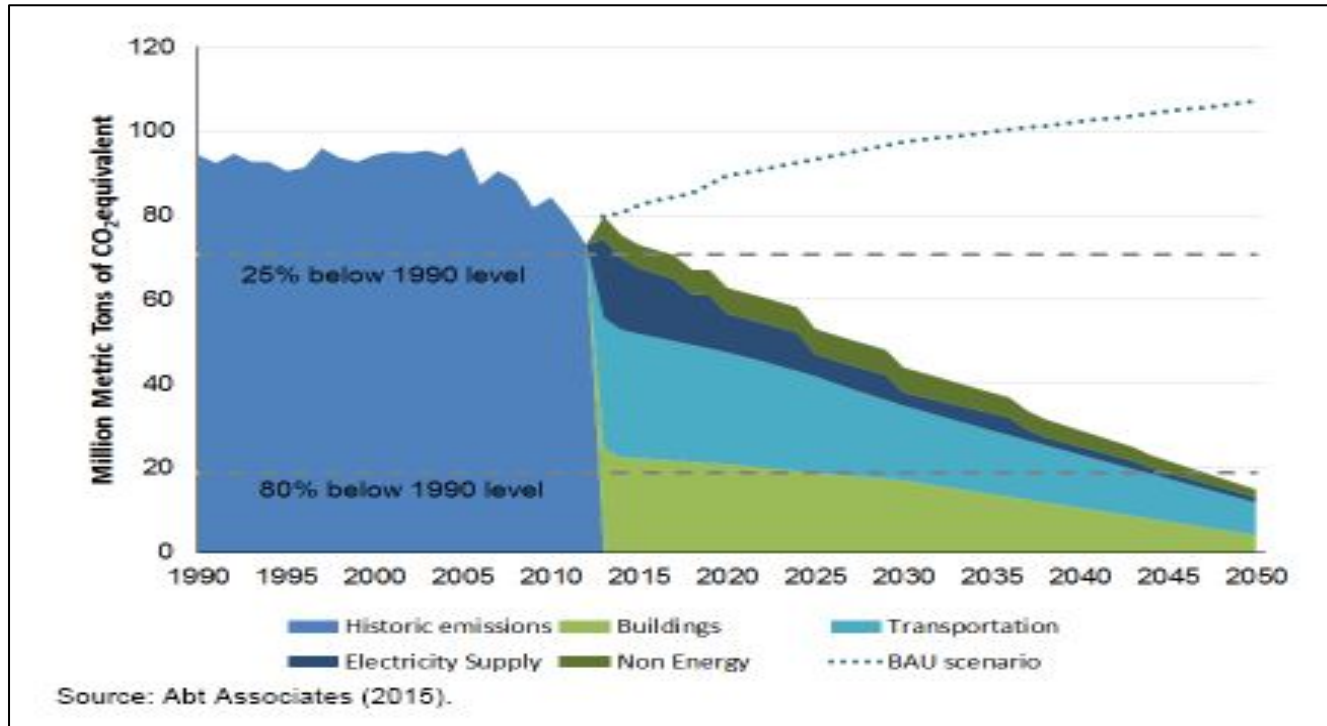


# Bringing MLPs into the Fold

(Comply with GWSA)

- Loss of revenue from RECs  
(~ \$1 million)
  - Existing nuclear?
- Some MLPs are way behind!





*2015 Update of the Clean Energy and Climate Plan  
for 2020*

**Electricity Supply ~ 96% cleaner!**

# Questions?

Email addresses:

Carol [carololdham@massclimateaction.net](mailto:carololdham@massclimateaction.net)

Oriana [orianareilly@massclimateaction.net](mailto:orianareilly@massclimateaction.net)

