ISO New England Update

Consumer Liaison Group Meeting

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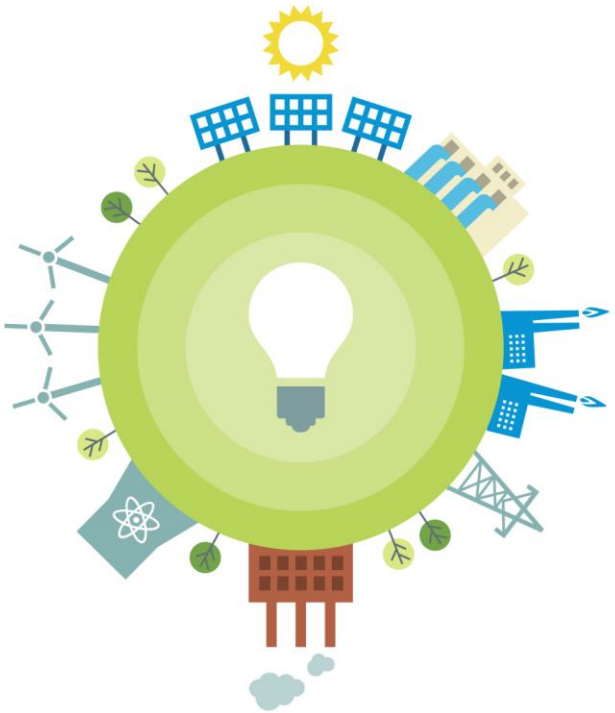
INTEGRATING MARKETS AND PUBLIC POLICY

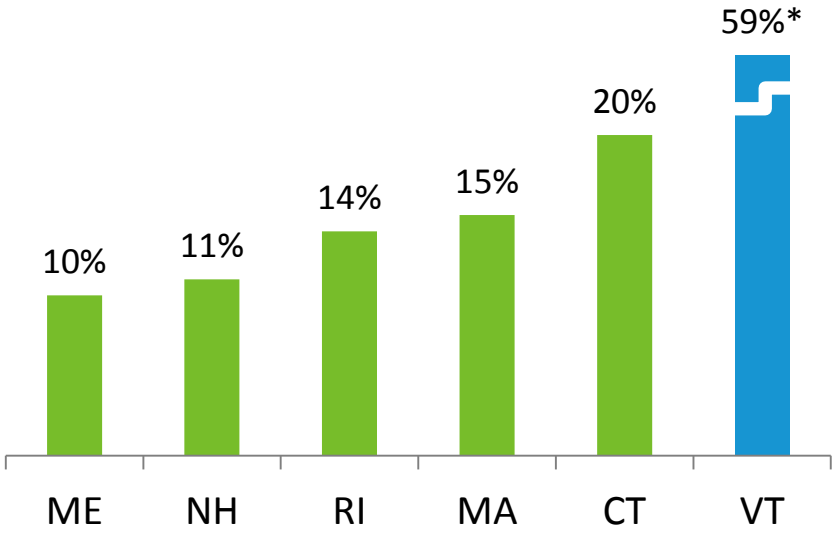
New England Power Pool (NEPOOL) IMAPP Initiative

NEPOOL Has Launched a New Initiative Called Integrating Markets and Public Policy (IMAPP)

- In August, NEPOOL launched a stakeholder process with the goal of identifying **potential adjustment(s)** to the wholesale electricity market(s) to accommodate and achieve the New England states' **public policy objectives**
- The region's competitive wholesale electricity markets are designed to maintain **reliability** through the selection of the most economically-efficient set of resources
- The states have **environmental** and **renewable energy** goals that are beyond the objectives of the wholesale electricity markets



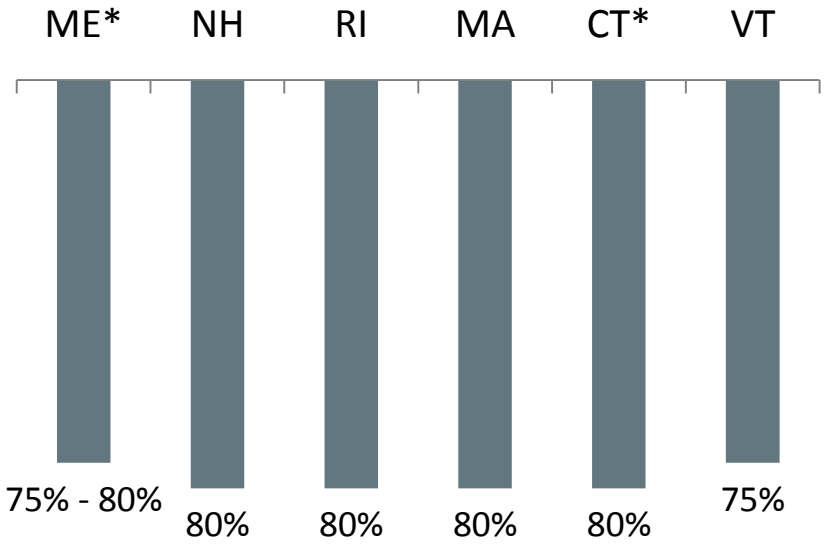
States Have Set Goals to *Increase* Renewable Energy and *Reduce* Greenhouse Gas Emissions



State Renewable Portfolio Standard (RPS) for Class I or New Renewable Energy by 2020

* Vermont's standard recognizes all forms of new and existing renewable energy, and is unique in classifying large-scale hydro as renewable.

Percent Reduction in Greenhouse Gas (GHG) Emissions Below 1990 Levels* by 2050 (economy wide)



* Connecticut's goal is tied to 2001 levels. Maine's goal is tied to 2003 levels.

Overview of the IMAPP Schedule

- The first meeting was held on August 11 – **"Idea Day"**
  - The purpose of idea day was for interested market participants to offer high-level proposals
- Follow-up meetings were held on August 30 and September 14, with additional meetings scheduled for October 6 and November 10
- NEPOOL's goal is to develop a **"framework document"** by December 2 to provide guidance to the ISO regarding potential changes to the wholesale power markets
- At this stage, the ISO's role is to **monitor** the discussion

Note: For information on the individual proposals, visit the NEPOOL website or the ISO's Wholesale Markets and State Public Policy Initiative webpage.

FORWARD CAPACITY AUCTION #11

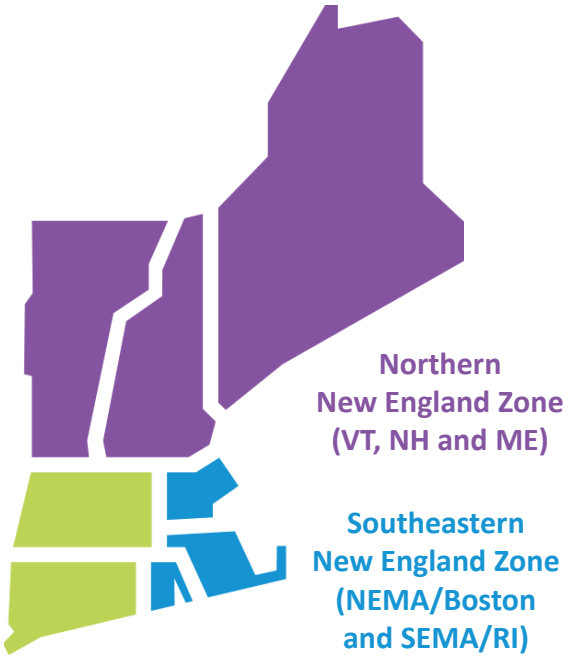
Forward Capacity Market Overview

- Procures capacity to meet New England's forecasted **Installed Capacity Requirement** (ICR) three years in the future
- Allows **new** capacity projects to compete in the market and set the price for capacity in the region
- Selects a portfolio of **supply** and **demand** resources through a competitive Forward Capacity Auction (FCA) process
  - Resources must be pre-qualified to participate in the auction
  - Resources must participate and clear in the auction to be paid for capacity during the capacity commitment period
- Provides a long-term (up to 7-year) commitment to new supply and demand resources to encourage **investment**

Update on Forward Capacity Auction #11

- The Federal Energy Regulatory Commission (FERC) requires that the ISO have a **process** for determining the appropriate **number and boundaries** of capacity zones over time as conditions change
- The ISO conducted **objective criteria testing** to determine which zones would be modeled in FCA #11
- There will be **three** capacity zones modeled for FCA #11*
  - Northern New England Capacity Zone
    - Export-Constrained
  - Southeastern New England Capacity Zone
    - Import-Constrained
  - Rest-of-Pool Capacity Zone

* Subject to stakeholder vote and FERC filing in November



Update on Forward Capacity Auction #11, *continued*

- In **September**, the NEPOOL Reliability Committee will vote on the zonal determinations and the Installed Capacity Requirement (ICR) value calculations, followed by a vote by the NEPOOL Participants Committee in **October**
- In **November**, the ISO will file the zonal determinations and ICR value calculations with FERC for approval through a pre-FCA informational filing
- FCA #11 is scheduled to take place in **February 2017** for resources needed during the June 1, 2020 to May 31, 2021 capacity commitment period

WHOLESALE ELECTRICITY COSTS

New England Wholesale Electricity Costs[a]

	2008		2009		2010		2011		2012		2013		2014		2015	
	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh	$ Mil.	¢/kWh
Wholesale market costs																
Energy (LMPs)[b]	$12,085	9.1	$5,884	4.6	$7,284	5.6	$6,695	4.9	$5,193	3.9	$8,009	6.0	$9,079	6.9	$5,910	4.5
Ancillaries[c]	$366	0.3	$190	0.1	$164	0.1	$39	0.0	$56	0.0	$155	0.1	$331	0.3	$210	0.2
Capacity[d]	$1,505	1.1	$1,768	1.4	$1,647	1.3	$1,345	1.0	$1,195	0.9	$1,057	0.8	$1,056	0.8	$1,110	0.8
Subtotal	*$13,956*	*10.5*	*$7,842*	*6.1*	*$9,095*	*7.0*	*$8,079*	*5.9*	*$6,444*	*4.8*	*$9,220*	*6.9*	*$10,466*	*8.0*	*$7,229*	*5.5*
Transmission charges[e]	$869	0.7	$1,155	0.9	$1,417	1.1	$1,378	1.0	$1,532	1.1	$1,806	1.3	$1,815	1.4	$1,954	1.5
RTO costs[f]	$124	0.1	$116	0.1	$145	0.1	$130	0.1	$139	0.1	$167	0.1	$165	0.1	$165	0.1
Total	**$14,949**	**11.3**	**$9,113**	**7.1**	**$10,657**	**8.2**	**$9,588**	**7.0**	**$8,115**	**6.0**	**$11,193**	**8.3**	**$12,446**	**9.5**	**$9,348**	**7.1**

(a) Average annual costs are based on the 12 months beginning January 1 and ending December 31. Costs in millions = the dollar value of the costs to New England wholesale market load servers for ISO-administered services. Cents/kWh = the value derived by dividing the dollar value (indicated above) by the real-time load obligation. These values are presented for illustrative purposes only.

(b) Energy values are derived from wholesale market pricing.

(c) Ancillaries include first- and second-contingency Net Commitment-Period Compensation (NCPC), forward reserves, real-time reserves, regulation service, and a reduction for the Marginal Loss Revenue Fund.

(d) Capacity charges are those associated with the Forward Capacity Market.

(e) Transmission charges reflect the collection for transmission owners' revenue requirements and tariff-based reliability services, including black-start capability and voltage support. In 2015, the cost of payments made to these generators for reliability services under the ISO's tariff was $41.9 million.

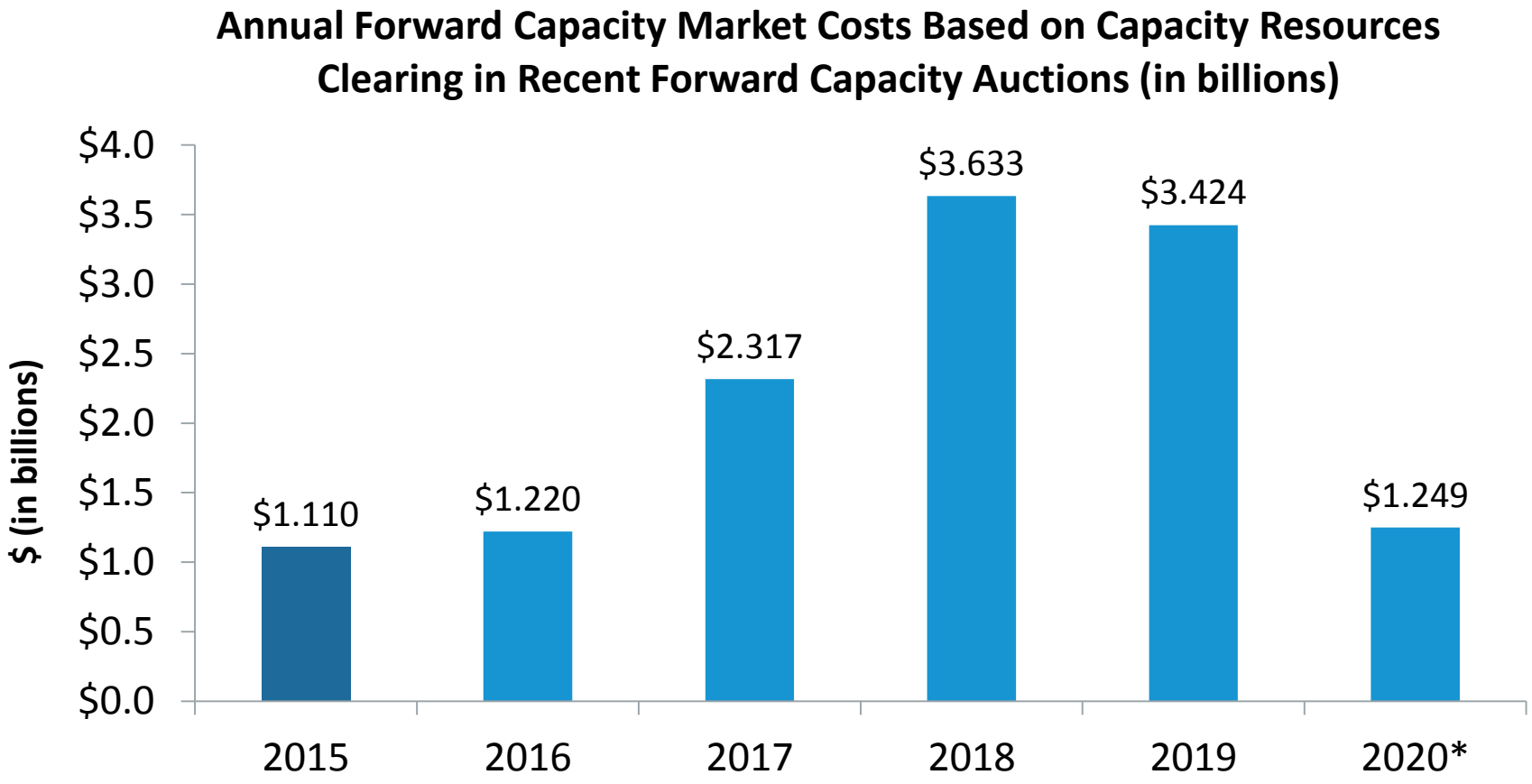
(f) RTO costs are the costs to run and operate ISO New England Inc. and are based on actual collections as determined under Section IV of the ISO New England Inc. Transmission, Markets, and Services Tariff.

2015 Wholesale Electricity Costs By State

	2015 $ Millions						
	CT	ME	MA	NH	RI	VT	TOTAL
Wholesale Market Costs							
Energy (LMPs)	$1,427	$545	$2,755	$543	$378	$261	$5,910
Ancillaries	$51	$19	$98	$19	$13	$9	$210
Capacity	$268	$102	$517	$102	$71	$49	$1,110
Subtotal	*$1,746*	*$667*	*$3,370*	*$664*	*$462*	*$319*	*$7,229*
Transmission Charges	$490	$165	$906	$186	$128	$78	$1,954
RTO Costs	$40	$15	$77	$15	$11	$7	$165
Total	**$2,276**	**$847**	**$4,353**	**$865**	**$601**	**$405**	**$9,348**
% of Total	**24.3%**	**9.1%**	**46.6%**	**9.3%**	**6.4%**	**4.3%**	**100%**

NOTE: The Energy, Ancillaries, Capacity, and RTO costs were determined based on the state's portion of the total Real-Time Load Obligation (RTLO) associated with the six New England states. The Transmission Charges were determined based on the state's portion of the Regional Network Load (RNL) costs.

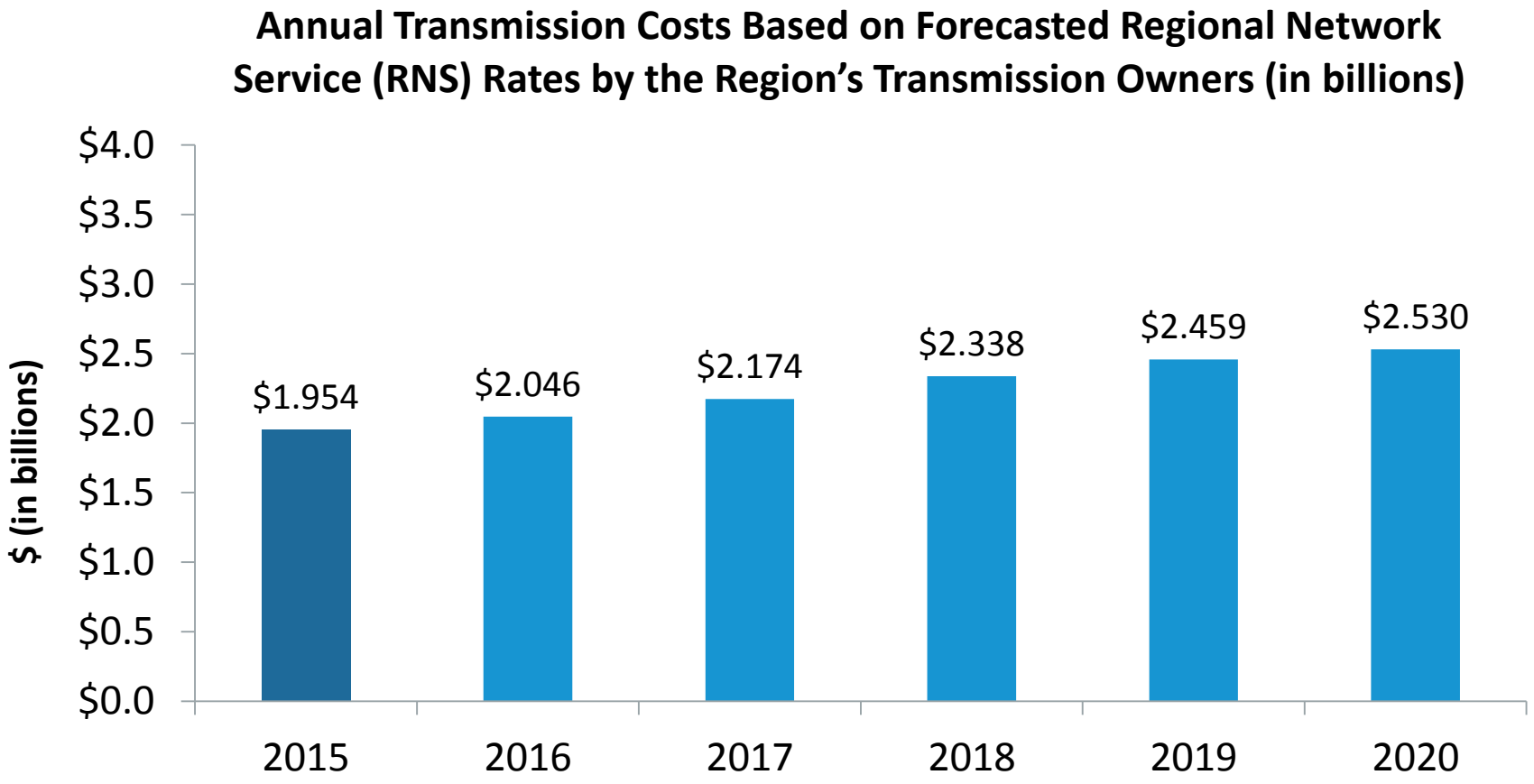
Future Estimated Forward Capacity Market Costs



* The Forward Capacity Market cost for 2020 only accounts for the capacity resources that cleared in FCA #10; it does *not* account for the costs associated with the capacity resources that will clear in FCA #11 (needed for the 2020-2021 capacity commitment period).

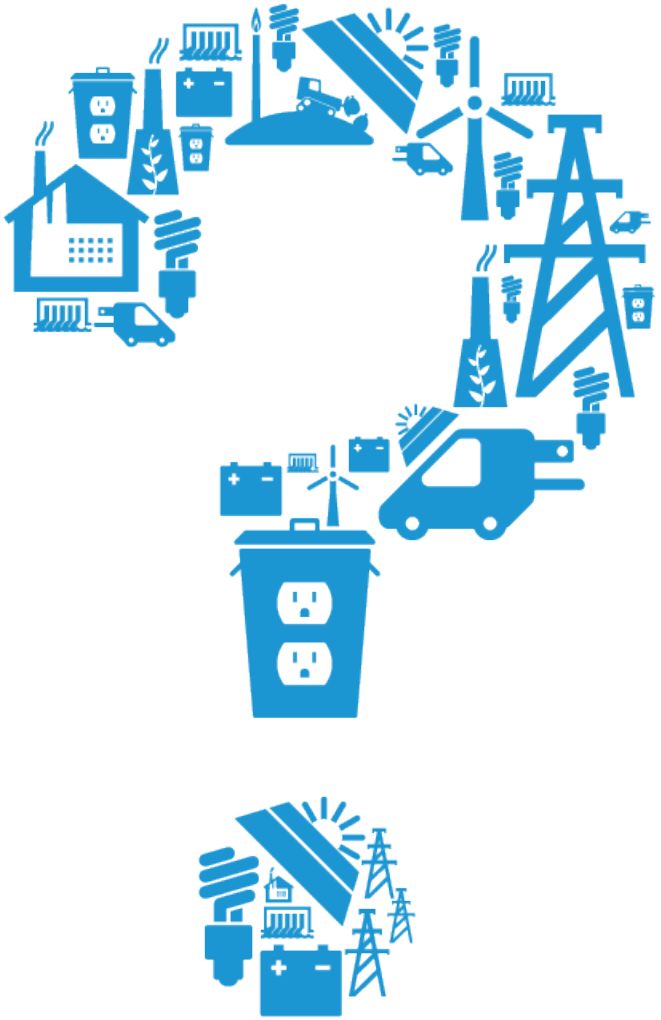
NOTE: Annualized Forward Capacity Market costs include the costs associated with two capacity commitment periods. These values may fluctuate before and during the relevant capacity commitment period if resources seek to buy or sell their Capacity Supply Obligations through annual and monthly reconfiguration auctions.

Future Estimated Transmission Costs



NOTE: The values above are based on the Participating Transmission Owners' RNS Rates: 2016 – 2020 PTF Forecast presented to the NEPOOL Reliability Committee and NEPOOL Transmission Committee in August 2016. They represent forecasted RNS rates multiplied by average annual Regional Network Load, plus costs associated with tariff-based reliability services, including black-start capability and voltage support. The Participating Transmission Owners' forecasted RNS rates are preliminary and intended for illustrative purposes only. Please be mindful of the disclaimer included in the forecast report.

Questions



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