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Challenges Facing the New England Power System

Grid 20/20: Focus on Gas/Electric Interoperability

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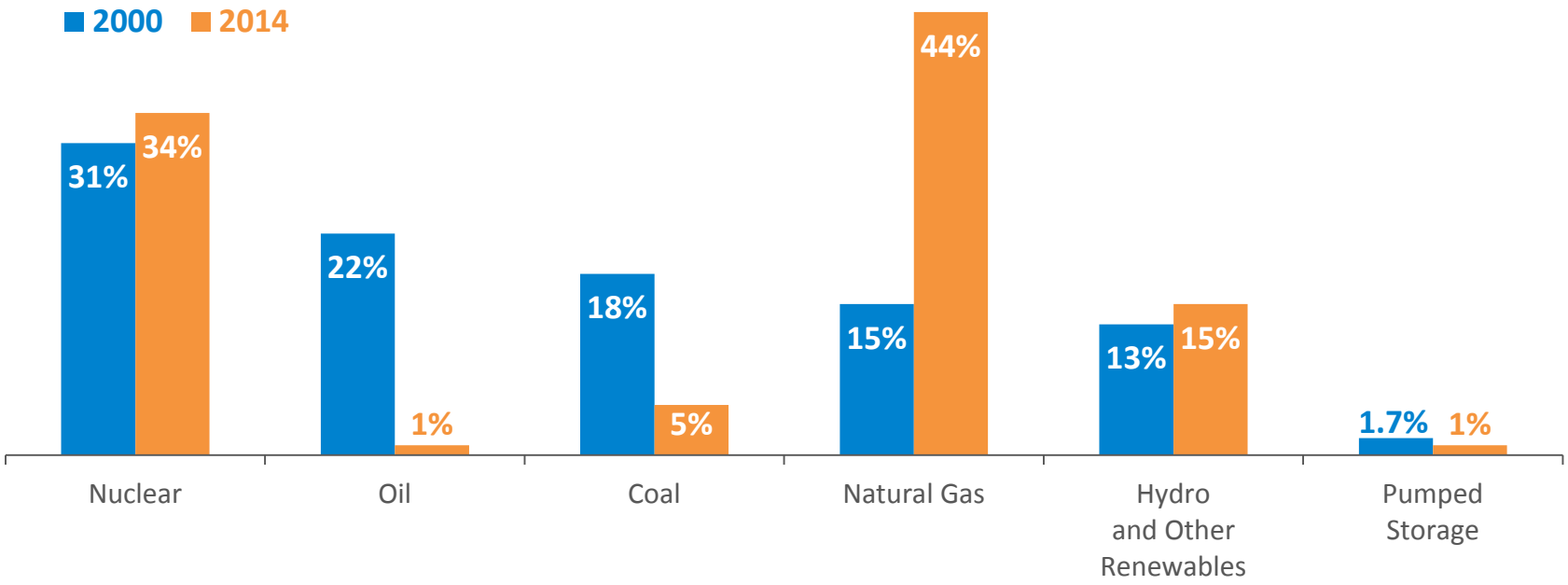
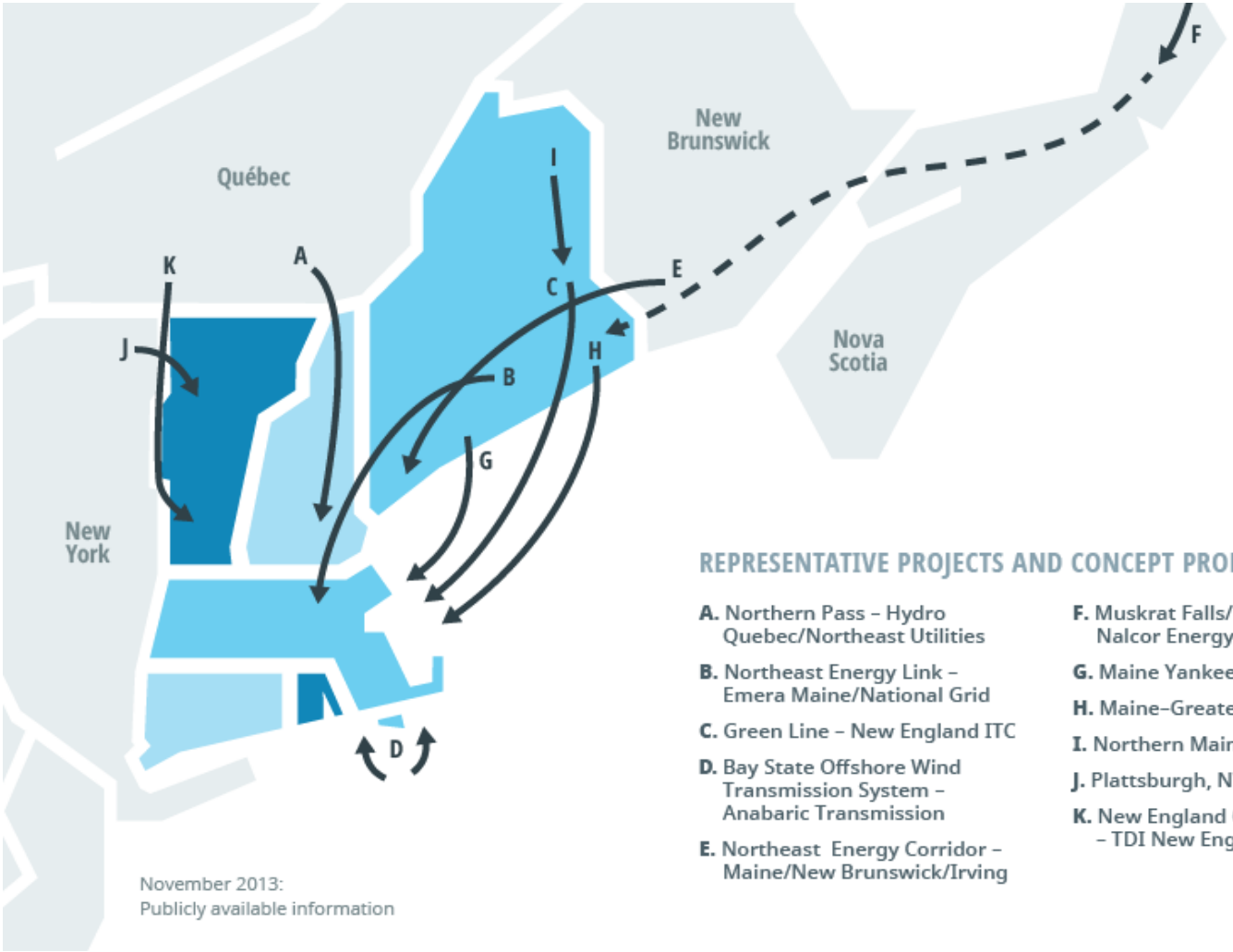
New England has Seen Dramatic Changes in the Energy Mix from Oil and Coal to Natural Gas

Percent of Total **Electric Energy** Production by Fuel Type
(2000 vs. 2014)



Source: ISO New England Net Energy and Peak Load by Source
Other renewables include landfill gas, biomass, other biomass gas, wind, solar, municipal solid waste, and miscellaneous fuels

On- and Off-shore Transmission Proposals are Vying to Move Renewable Energy to New England Load Centers



REPRESENTATIVE PROJECTS AND CONCEPT PROPOSALS

A. Northern Pass – Hydro Quebec/Northeast Utilities

B. Northeast Energy Link – Emera Maine/National Grid

C. Green Line – New England ITC

D. Bay State Offshore Wind Transmission System – Anabaric Transmission

E. Northeast Energy Corridor – Maine/New Brunswick/Irving

F. Muskrat Falls/Lower Churchill – Nalcor Energy

G. Maine Yankee–Greater Boston

H. Maine–Greater Boston

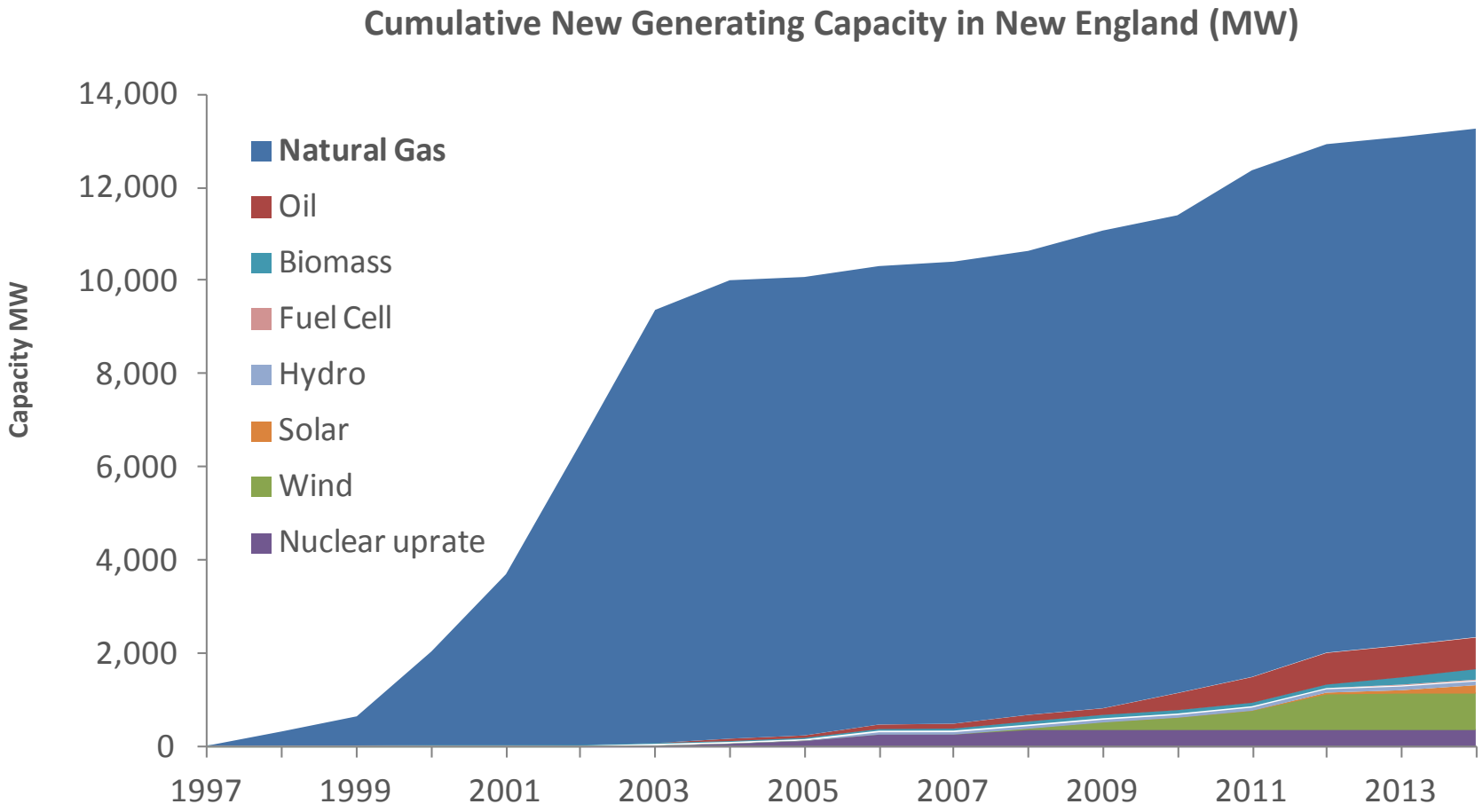
I. Northern Maine–New England

J. Plattsburgh, NY–New Haven, VT

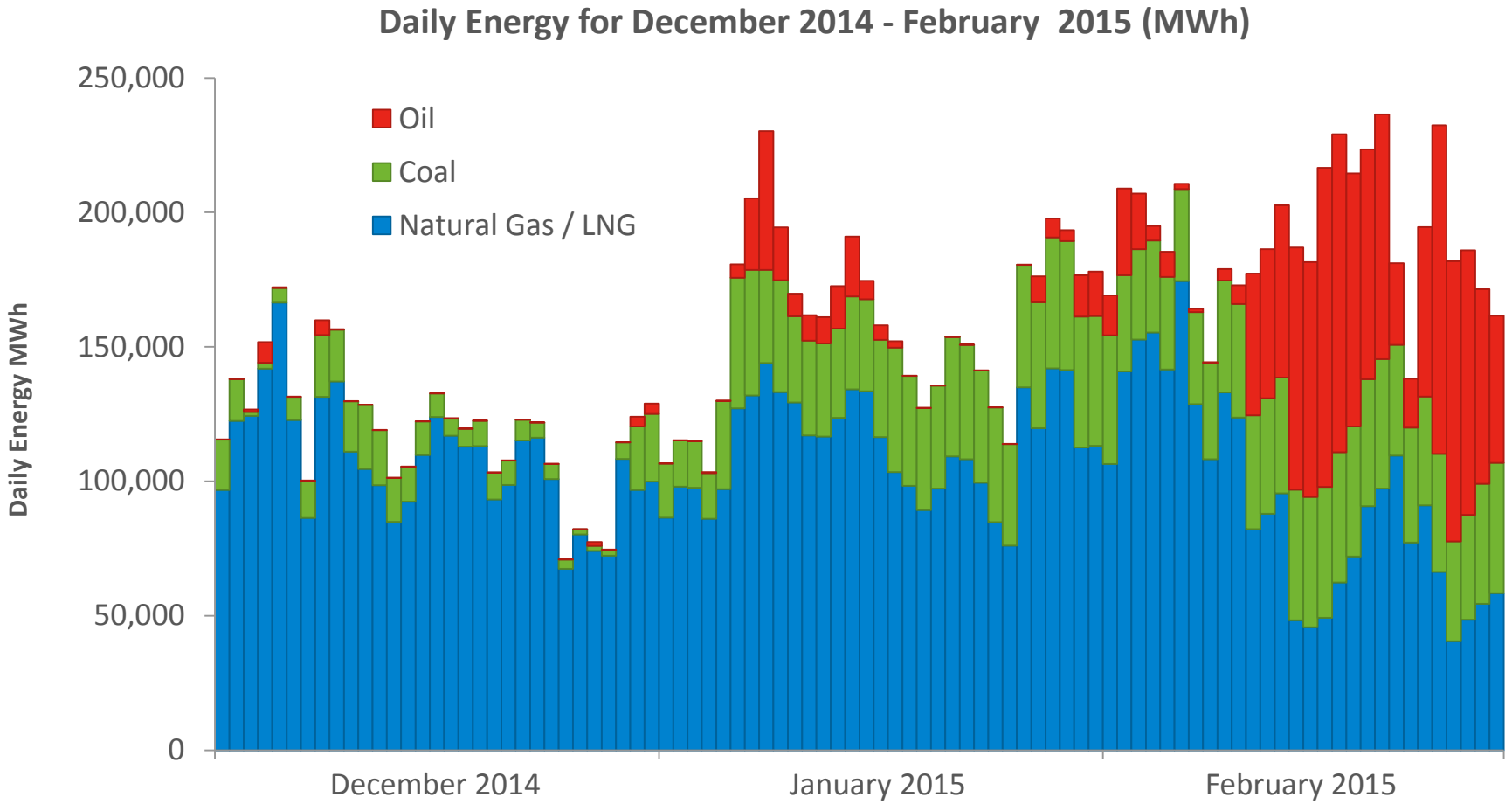
K. New England Clean Power Link – TDI New England

Note: These projects are NOT reliability projects, but ISO New England' s role is to ensure the reliable interconnection of these types of projects.

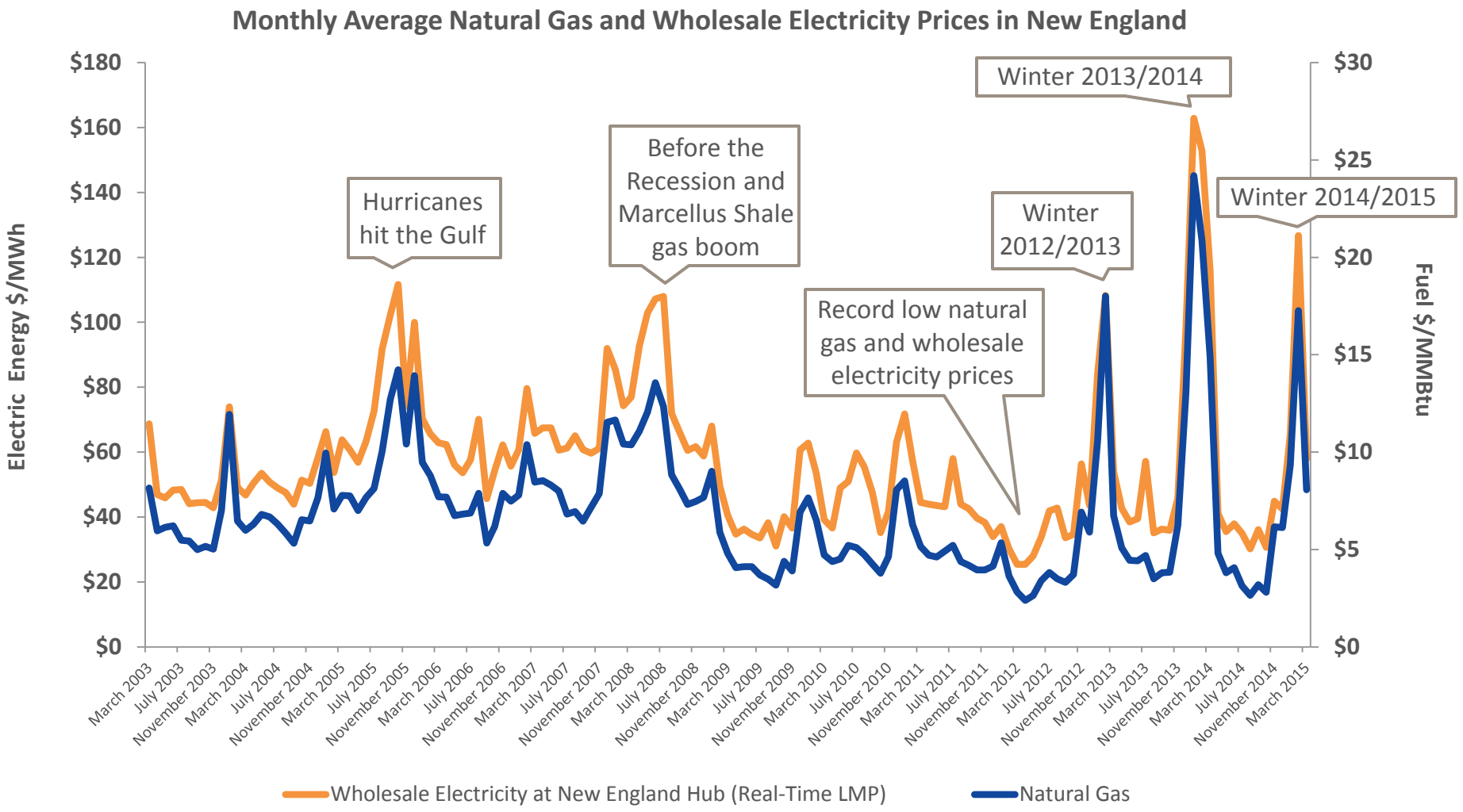
Natural Gas Infrastructure has Not Kept Pace with Tremendous Growth in Gas-fired Generation



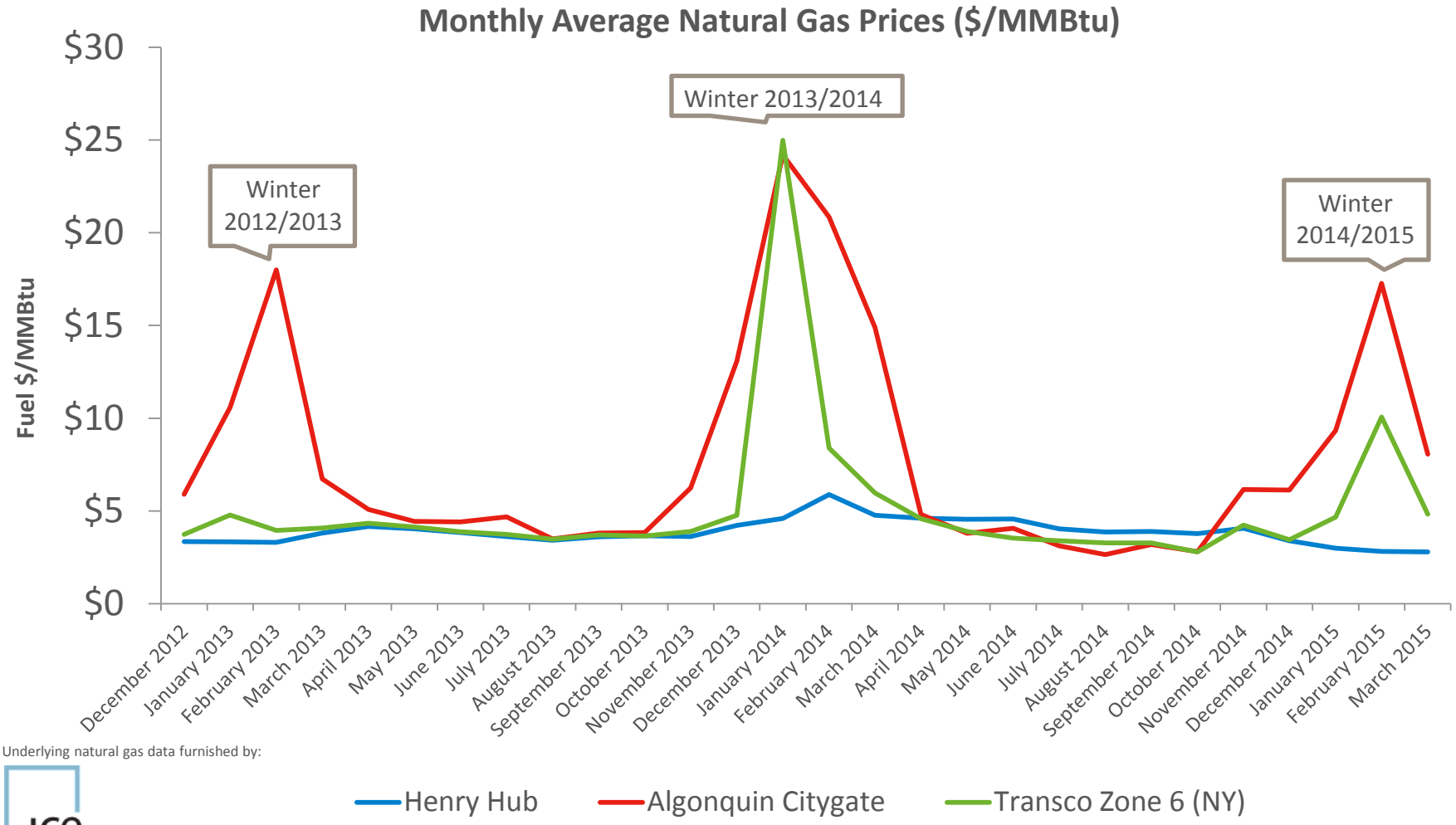
New England Shifted to Coal and Oil This Winter



The Region has Experienced High Natural Gas and Wholesale Electricity Prices the Past Few Winters



Natural Gas Prices are High During the Winter Relative to Other Regions



Underlying natural gas data furnished by:

ICE Global markets in clear view

A Comparison of the Last Two Winters

Why were prices less volatile this past winter?

- 2014/2015 Winter Reliability Program provided incentives to fill tanks before the start of the winter
- Coldest winter weather happened in February, when days were longer and demand was down
- High forward prices, due to high prices the previous winter, attracted large supplies of LNG to the region
- Oil prices were half what they were a year ago

	Winter 2013/2014	Winter 2014/2015	% change
Average monthly temperature (°F)	26.5	25.5	- 3.8%
Total energy consumption (GWh)	33,991	33,654	- 1.0%
Peak demand (MW)	21,453	20,556	- 4.2%
Date of peak	12/17/2013	1/8/2015	-
Average wholesale energy price at Hub ($/MWh)	$137.60	$76.64	- 44.3%
Average gas price at Algonquin ($/MMBtu)	$19.33	$10.70	- 44.6%
Total value of energy markets (in billions)	$5.05 B	$2.77 B	- 45.1%