Energy Portfolio Optim

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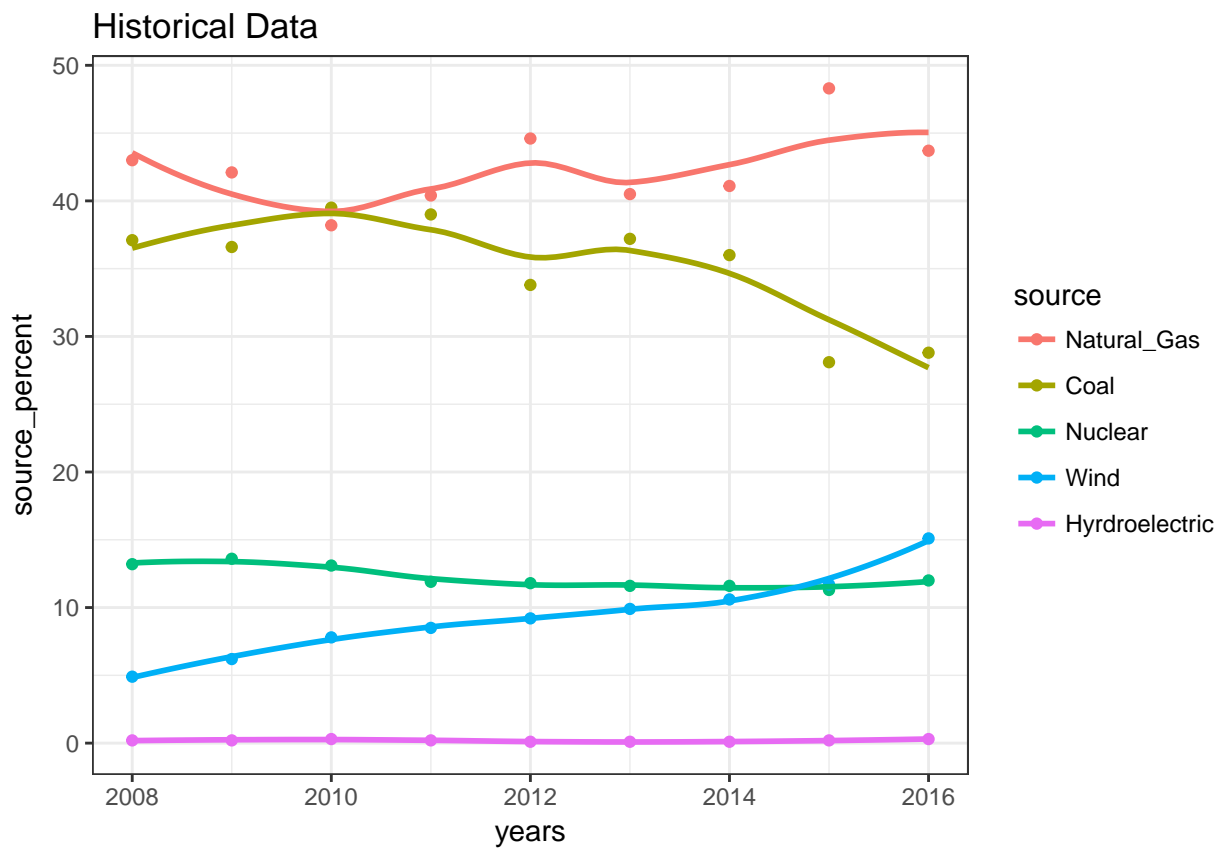*10/08/2017*

Historical Data

Table 1: Historical Energy Source Percent

Fuel Types	Biomass	Natural_Gas	Gas-CC	Coal	Nuclear	Wind
2008__(%)		43.0		37.1	13.2	4.9
2009__(%)		42.1		36.6	13.6	6.2
2010__(%)		38.2		39.5	13.1	7.8
2011__(%)		40.4		39.0	11.9	8.5
2012__(%)		44.6		33.8	11.8	9.2
2013__(%)		40.5		37.2	11.6	9.9
2014__(%)		41.1		36.0	11.6	10.6
2015__(%)		48.3		28.1	11.3	11.7
2016__(%)		43.7		28.8	12.0	15.1
2017__(%)_10	0.15	5.02	34.62	31.87	10.40	17.21

Table 2: Historical Energy Source Percent

Fuel Types	Solar	Water	Net_DC_BLT	Other	Total	Total_MWh	Total_TWh
2008__(%)		0.2000		1.6000	100.0000	308959455.0000	308.9595
2009__(%)		0.2000		1.3000	100.0000	305432222.0000	305.4322
2010__(%)		0.3000		1.1000	100.0000	316046338.0000	316.0463
2011__(%)		0.2000		0.2000	100.0000	333874758.0000	333.8748
2012__(%)		0.1000	0.2000	0.3000	100.0000	324859701.0000	324.8597
2013__(%)		0.1000	0.5000	0.3000	100.0000	331624102.0000	331.6241
2014__(%)		0.1000	0.4000	0.3000	100.0000	340033353.0000	340.0334
2015__(%)		0.2000	0.1000	0.3000	100.0000	347522948.0000	347.5229
2016__(%)	0.2000	0.3000	-0.2000	0.2000	100.0000	351547782.0000	351.5478
2017__(%)__10	0.6400	0.2600	-0.1900	0.0100	100.0000	302171742.0000	302.1717

Variance / Risk [Billion USD^2] vs Max Expected Energy Cost in 2020 [million USD/TWh]