To: Gunasekara, Mandy[Gunasekara.Mandy@epa.gov]
From: Shepherd, Ray
Sent: Tue 5/2/2017 1:34:30 AM
Subject: NGS deck for EPA
NGS Estimated Impact of Potential EPA Regulatory Relief - May 1 2017.pdf

Mandy--

Happy to discuss further, but the key is $1 billion in value from regulatory relief. Hope this helps

Peabody

NAVAJO GENERATING STATION

May 2017

Peabody

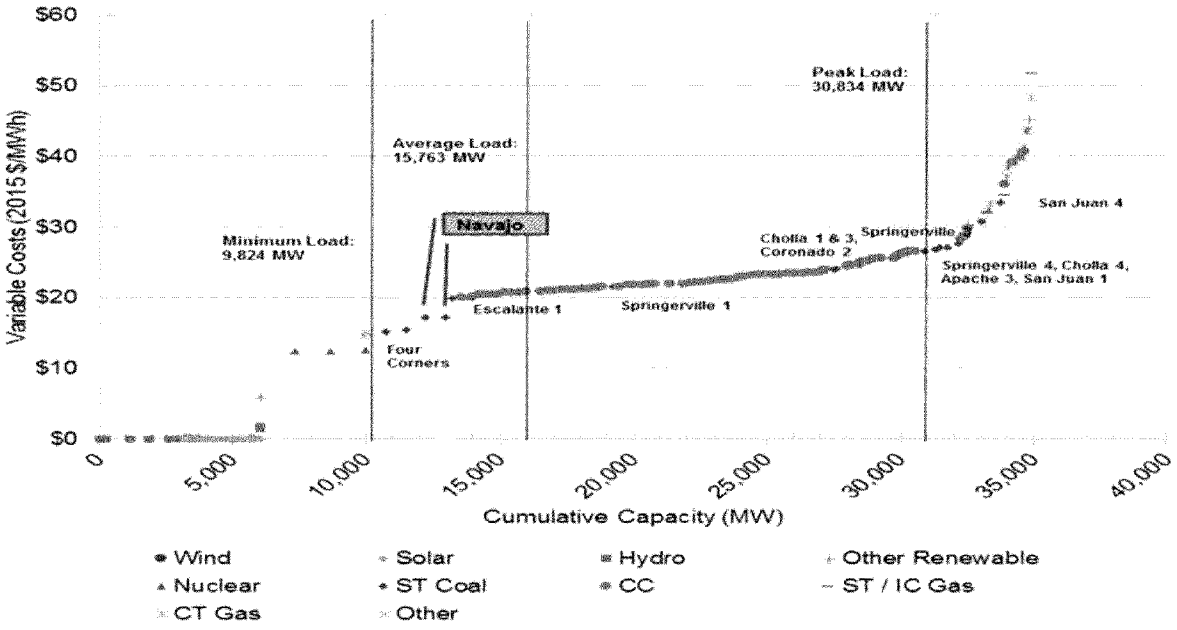
NGS Remains a Very Low Variable Cost Generating Resource

Peabody

NGS Is Near the Bottom / Most Efficient Part of the Dispatch Stack

DESERT SOUTHWEST SUPPLY CURVE - 2020

- Navajo is a low cost resource in the region
- NGS is positioned to remain so even with recent declines in gas prices



NAVIGANT

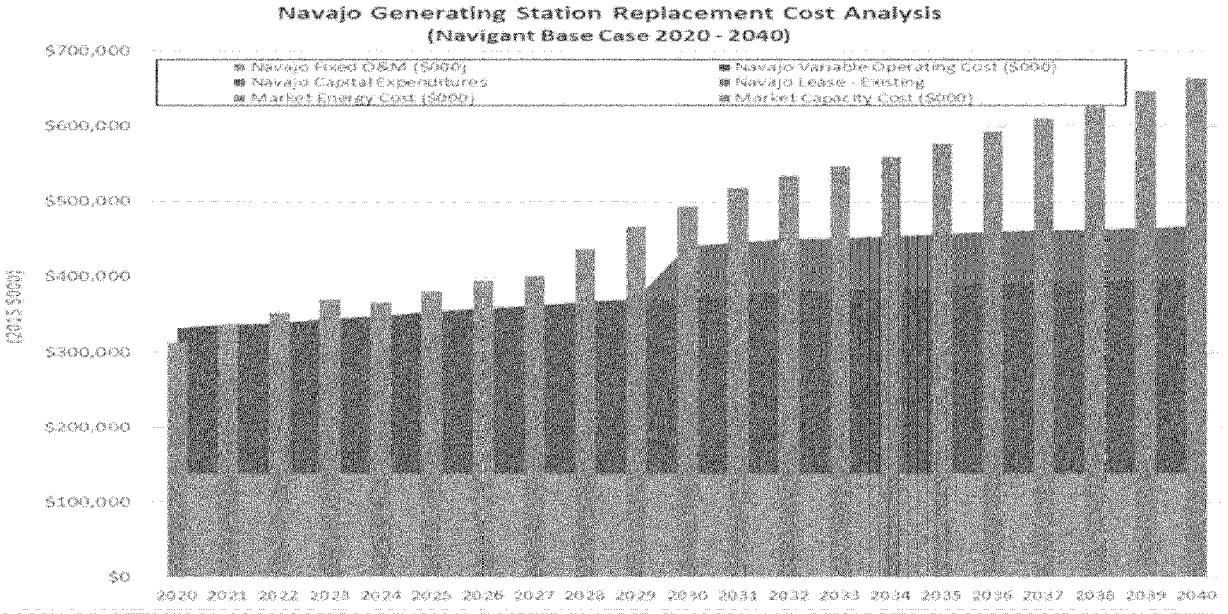
NGS Remains an Economically Viable Generating Source

Peabody

NGS Projected to Have Positive Operating Margins and Cash Flow

NGS PROJECTED REPLACEMENT COST COMPARISON (2020 – 2040)

- For the longer term, including installation of SCR and baghouse, NGS cost is projected to be **$392 million Net Present Value** below the cost of market replacement of energy and capacity.
- With Unit 1 online, cost savings would exceed $580 million



Note: Assumes Peabody proposed coal prices, with annual $2/ton carry on coal prices 2026 and later. Also assumes current payment level for Navajo lease

NAVIGANT

NGS Regulatory Relief Results in $1.1 Billion of Potential Value

Peabody

Navigant NGS Economic Analysis Base Case Results Comparison (2020-2040)

		NPV (2020$)	NPV (2020$)	NPV (2020$)
		Base Case 2 Units, SCR	Base Case 3 Units, SCR	Base Case 3 Units No SCR
NGS Variable Cost	$000s	$2,146,473	$3,233,231	$3,233,231
NGS Fixed Cost	$000s	$1,329,125	$1,476,806	$1,476,806
NGS CapEx	$000s	$208,054	$312,081	$0
Navajo Lease Cost	$000s	$9,644	$9,644	$9,644
Navajo Total Cost	$000s	$3,693,296	$5,031,762	$4,719,681
			0	0
Market Cost of Energy	$000s	$3,433,066	$5,164,842	$5,164,842
Market Cost of Capacity	$000s	$757,847	$1,136,770	$1,136,770
Market Replacement Cost	$000s	$4,190,913	$6,301,613	$6,301,613
Energy Cost Savings	$000s	$1,286,593	$1,931,611	$1,931,611
Fixed/Capacity Cost Savings	$000s	-$788,976	-$661,760	-$349,679
NGS Cost Net Cost/Savings	**$000s**	**$497,617**	**$1,269,851**	**$1,581,932**
NGS All-In Cost - Levelized	$/MWh	$35.28	$31.93	$29.95
Market Replacement All-In Cost - Levelized	$/MWh	$40.04	$39.99	$39.99
NGS All-In Cost Savings - Levelized	**$/MWh**	**$4.75**	**$8.06**	**$10.04**

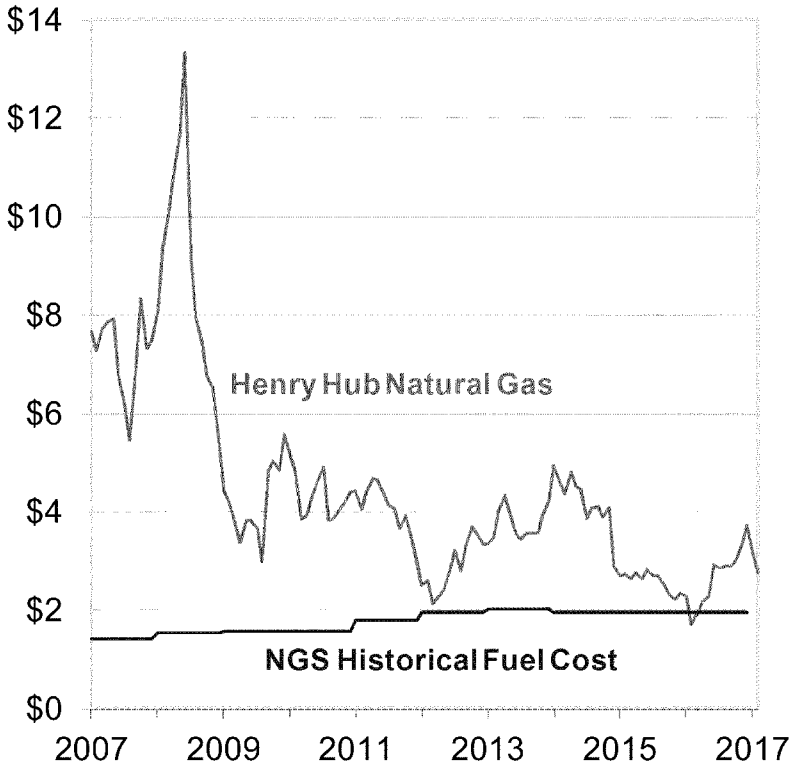
Savings available from Regulatory Relief:	**NPV(2020 $000)**	**Levelized ($/MWh)**
Retain 3 Unit Operation (SCR in 2030 All 3 Units)	$772,234	$3.30
Retain 3 Unit Operation (No SCR)	**$1,084,315**	**$5.28**

Fuel Costs

Peabody

Coal Is Stable, Reliable Source of Baseload Generation

Coal and Gas Fuel Costs ($/mmBtu)

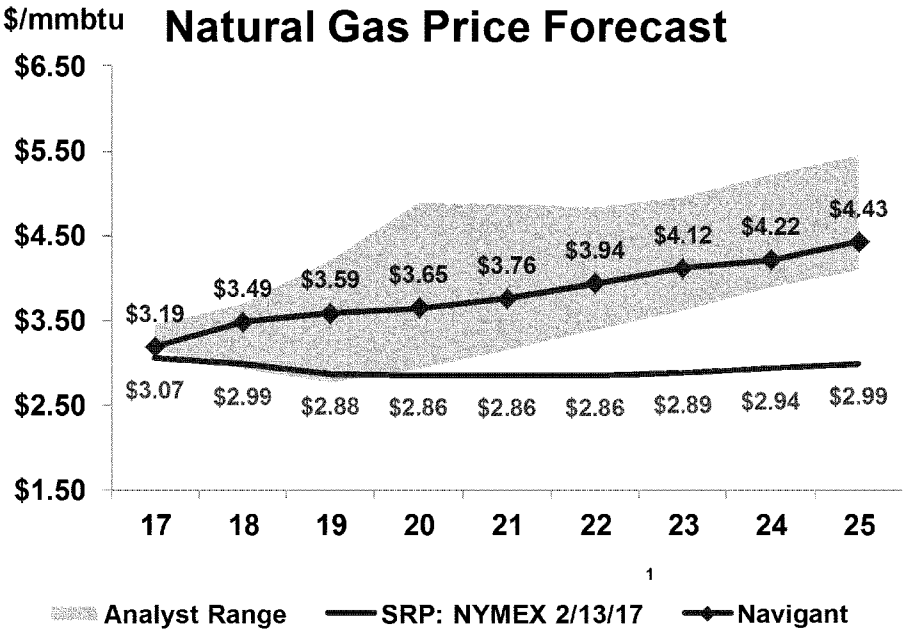


- Coal cost volatility has been very low; averaging less than ~$2.00/ mmBtu since 2007
- Conversely, gas prices are subject to significant volatility, ranging from $2 - $13/mmBtu
- Coal costs have consistently been more competitive than natural gas
- NGS fueled by coal is home grown and reliable given its proximity to Kayenta mine
- Nearly all of the natural gas consumed in Arizona is imported from other states

Source: Bloomberg and Peabody

* Assumes average coal plant heat rate (Btu/kWhr) is comparable to simple cycle natural gas plants

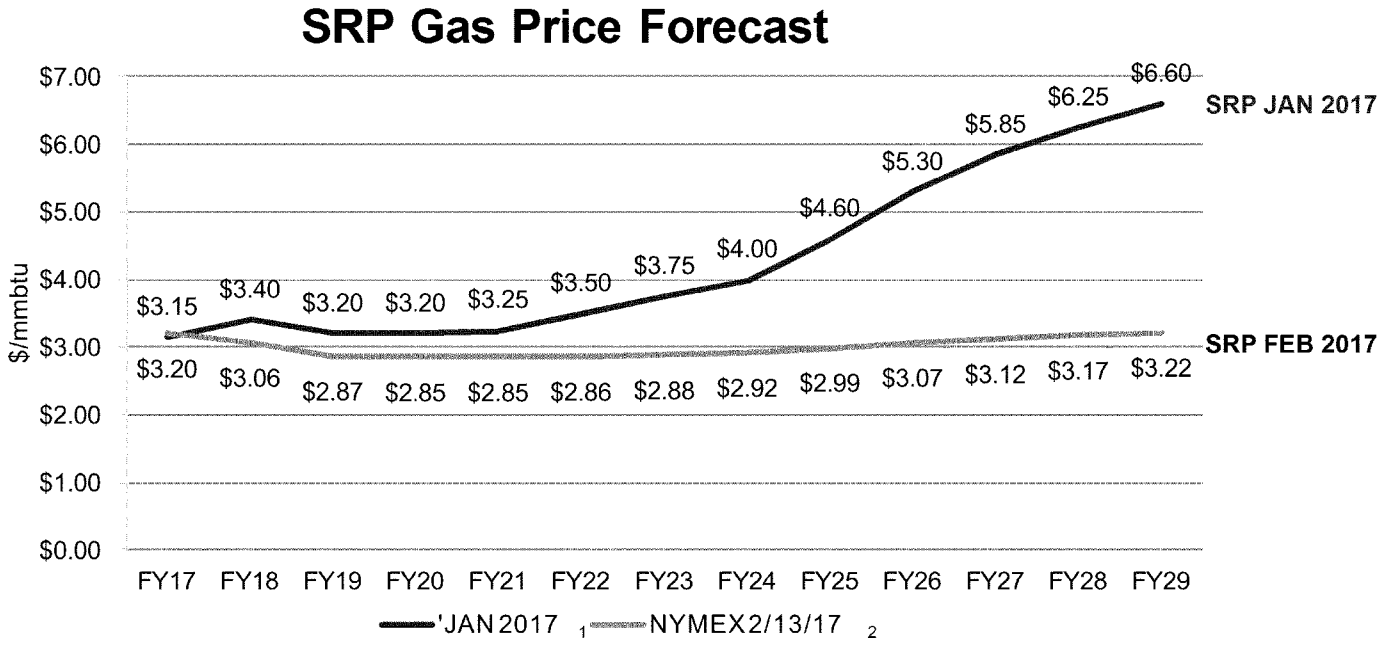
SRP Utilizes Unrealistically Low Gas Prices to Paint an Uneconomic Future for NGS



- The NYMEX forward curve lacks significant liquidity more than two 18 months to two years into the future, and is not a reliable predictor of medium to long term future prices
- Industry analysts and consultants are currently forecasting gas prices that are considerably higher than the forward curve

1) Slide 13: SRP's slide titled *Gas Price Forecasts Dropping Over Time*

SRP Gas Price Forecast Shifted Dramatically in FEB 2017



- In FEB 2017, SRP changed the method they used to forecast long term natural gas prices, shifting to using the forward curve
- SRP did not use the NYMEX forward curve as their gas price forecast in any of their seven previous Financial Plans[3]

1) Slide 12: SRP's slide titled *Gas Price Changes*
2) NYMEX close as of 2/13/17
3) Slide 13: SRP's slide titled *Gas Price Forecasts Dropping Over Time*, FP12 through FP18