

Online Appendix

“Natural gas storage forecasts: Is the crowd wiser?”

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Appendix A. List of professional analyst firms

This table reports 107 analyst firms that have participated in the Thomson Reuters Economic Polls survey over our sample period from May 2014 to December 2018 along with the number of forecasts they provide.

Analyst firm	Polls	Analyst firm	Polls	Analyst firm	Polls
A&A Trading	41	Excel Futures	18	Pira Energy	150
Access Bank	1	Experian	2	Planner Corr Val	7
Action Economics	3	FC Stone	121	Pointlogic	158
ADM Inv Sec	14	FCSC	2	Positiva	13
Again Capital	51	First City	2	Prestige Econ	2
Agrivisor	1	First Enercast	82	Price Group LLC	181
Allendale	9	First Engy Bk	63	Prime AG	2
ARM	118	FirstEnergy Cap	87	Profit Research	1
AV Advisory	7	Forecast	14	Raymond James	212
BBVA	5	Forecast Trading	1	Ritterbusch	221
BCV	1	GA Global	13	Schneider	172
BGC International	1	Garde	1	Schork Group	32
BGZ BNP Paribas	1	Gelber Associate	204	SMC Capitals	48
C H Guernsey	220	Gemines	14	Societe Generale	3
Cadiz Asset	3	Generali CEE	3	Standard Chartered	1
Caprock Risk	89	Generali DE Hldg	2	State Bank India	2
Caspen Oil	1	Generali Investments	8	State Street	30
Citadel Invt	2	Genscape	11	StateStreet	6
CITIC Sec Intl	17	GMP Capital	63	Stephen Smith	230
Citigroup	207	Goldman Sachs	1	Strategic Energy	11
Confluence	1	IAF Advisors	134	SunTrust Bnk	1
Credit Suisse	3	ICAP Energy	49	TFS Energy Sols	177
Direct Eng Bus	26	IFRM-Buzz	4	Thanachart Secs	1
Doha Bank	3	Interfax Information	82	The Econoclast	1
Eastern Fin	1	Intl Hencorp	37	ThomsonReuters	224
EBN	2	Inventure	4	Traders Group	38
Eclipse Intl	27	JP Morgan	105	UBS	14
Ecobank	8	LCA	2	UCF	6
Energia NG	8	Lind Waldock	24	Uni Maryland	1
Energy Aspects	127	Linn Group	27	Uni Michigan	1
Energy Mgmt	224	Macquarie Group	119	Uni.Missouri	5
Energy Ventures	143	Monex Europe	26	Venture Invest	7
Enerjay	58	Oil Opinions	2	Wells Capital Mg	20
Engie Insight	160	OP Yrityspankki	5	Wells Fargo	96
ESAI	1	Parthenon Group	1	Zenit SGR	5
Esimak	1	PennEnergy Data	158		

Appendix B. Forecast accuracy measures

We consider five forecast accuracy measures: (1) Forecast Error (FE); (2) Absolute Forecast Error (AFE); (3) Squared Forecast Error (SFE); (4) Absolute Percentage Forecast Error (APFE); (5) Proportional Mean Absolute Forecast Error (PMAFE).

FE is a signed measure of the forecast error and is calculated as,

$$FE_{i,j,t} = F_{i,j,t} - A_t \quad (B.1)$$

where $F_{i,j,t}$ denotes the forecast of the natural gas storage change, and subscripts t indicates the calendar week of the natural gas storage changes announcements, i captures each analyst's forecast, and j represents either the Estimize or Reuters, i.e., $j = \{Estimize, Reuters\}$. A_t denotes the actual natural gas storage change figure. FE provides a measure of the bias of the forecast.

AFE and SFE provide a sense of accuracy that is agnostic to the sign of the forecast error.

$$AFE_{i,j,t} = |F_{i,j,t} - A_t| \quad (B.2)$$

$$SFE_{i,j,t} = (F_{i,j,t} - A_t)^2. \quad (B.3)$$

APFE and PMAFE express the error either as a percentage of the actual value (APFE) or relative to the mean error of the other forecasts issued on Estimize and Reuters combined (PMAFE). APFE is calculated as

$$APFE_{i,j,t} = |(F_{i,j,t} - A_t)/A_t|, \quad (B.4)$$

and PMAFE as

$$PMAFE_{i,j,t} = (AFE_{i,j,t} - \overline{AFE_t})/\overline{AFE_t} \quad (B.5)$$

where $\overline{AFE_t}$ is the average of the absolute forecast error of Estimize and Reuters combined.