

Comparison of M-1 and M-2 oil data

Introduction

The UK supplies monthly oil data to the International Energy Association (IEA) via the Monthly Oil Survey (MOS) and for the Joint Organisations Data Initiative (JODI) via the JODI questionnaire. The information from both data collections are published on IEA and JODI websites.

These data are completed every month for the two most recent months (M-1 and M-2). This article looks at the relationship between the M-1 with M-2 submissions in order to provide users with a view of the accuracy of the M-1 estimates.

Methodology

The difference, for each month, between the M-1 and M-2 estimate were taken and then totalled by calendar year. All differences were considered positive, otherwise opposing differences would cancel each other out.

Results – Crude Oil

Table 1 below shows the differences in volume and percentage terms between M-1 and M-2 data for crude oil between 2006 and 2011.

Table 1

M1-M2 differences for Crude Oil

Unit : Thousand Tonnes

Crude Oil	2006	% diff M-1/ and M-2	2007	% diff M-1/ and M-2	2008	% diff M-1/ and M-2	2009	% diff M-1/ and M-2	2010	% diff M-1/ and M-2	2011	% diff M-1/ and M-2	2006-2011 Total % diff
Production	1,118	1.6	1,289	1.8	1,879	2.9	1,450	2.3	1,719	3.0	1,351	2.8	2.4
Imports	2,600	5.1	3,882	7.9	4,172	8.1	3,684	7.8	4,295	9.0	3,603	7.2	7.5
Exports	3,441	8.0	6,487	15.4	3,271	8.0	2,252	5.9	2,840	7.8	2,879	10.3	9.3
Closing Stocks	3,974	5.9	2,407	3.6	2,983	5.0	1,771	3.2	2,855	5.2	3,283	6.3	4.8
Refinery Intake	1,138	1.5	207	0.3	1,334	1.8	202	0.3	32	0.0	58	0.1	0.7

Differences less than 5% Differences between 5% and 10% Differences over 10%

Half of M-1 estimates for Crude Oil are within five per cent of the M-2 estimate, while the vast majority of the data (28 out of 30) are within 10 per cent accuracy.

Overall, the largest differences for crude oil are with trade data. Crude oil exports are estimated for M-1 as complete oil field and terminal data are not available at the time M-1 is compiled. This is because the deadline for Petroleum Production Reporting System (PPRS) returns (our upstream reporting system) is not until about a week after the M-1 data are prepared and invariably there are late returns. As a result import data for crude oil are also variable between M-1 and M-2.

Refinery intake of crude oil is sourced from imports and indigenous supply from the UK Continental Shelf (UKCS). There is often confusion between what is indigenous supply from the UKCS and what are imports. There are various reasons for misreporting of the source for crude oil, but the key one is confusion of receipts from the Norwegian transshipment terminal at Teesside where cargoes of crude oil may be all Norwegian, all UKCS, or partial Norwegian and UKCS. The PPRS reporting system allows us to separate out these shares but these data are again not available until after the M-1 deadline.

Results – Petroleum Products

Eighty per cent of estimates for petroleum products were within five per cent of the M-2 estimate, while the vast majority of the data (29 out of 30) are within 10 per cent accuracy. Five of the six estimates that were outside the five per cent accuracy level were for imports.

Table 2

M1-M2 differences for Petroleum Products

Unit : Thousand Tonnes

Petroleum Products	2006	% diff M-1/ and M-2	2007	% diff M-1/ and M-2	2008	% diff M-1/ M-2	2009	% diff M-1/ M-2	2010	% diff M-1/ M-2	2011	% diff M-1/ M-2	2006-2011 Total % diff
Refinery Output	355	0.4	689	0.9	957	1.2	713	1.0	928	1.3	604	0.8	0.9
Imports	1,248	4.7	1,504	6.5	1,778	8.3	1,857	7.9	3,364	13.7	1,368	5.9	7.8
Exports	487	1.7	93	0.3	416	1.5	762	3.0	590	2.3	362	1.3	1.7
Closing Stocks	733	0.9	2,909	3.6	1,932	2.4	659	0.8	696	0.9	671	0.9	1.6
Demand	2,197	2.6	1,694	2.1	2,947	3.8	2,607	3.5	4,518	6.1	2,692	3.7	3.6

Differences less than 5%

Differences between 5% and 10%

Differences over 10%

Overall, the largest variations between M-1 and M-2 for petroleum products are with imports. Information on imports is gathered from essentially two sources; refineries and HMRC. HMRC data are used to determine imports made by non refining companies or other companies that DECC do not directly survey. HMRC data are not available at the time of M-1 and are therefore estimated. These figures also impact on the demand side of the balance, because these imports by non reporting companies are assumed to be imports for UK consumption.

Summary

The analysis shows that DECC's initial M-1 estimate for both crude oil and petroleum products are mostly within 10 per cent pent and 5 per cent respectively, of the estimate provided for M-2. Thus these M-1 estimates provide a useful early insight into production, trade and demand. Where there are larger differences these are mostly due to trade data which are incomplete and heavily reliant upon estimation by DECC at the time of producing M-1 estimates. Looking at the size and scale of revisions year on year, indicates no significant difference and hence no deterioration of the value of the M-1 early estimates. Further work is required to understand any potential bias in the M-1 estimates. DECC will continue to review and refine methodology to produce timely data, whilst maintaining a minimal burden on data providers.

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